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# Before Kahneman and Tversky, There Was Friedrich Hayek

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“And how do we keep our balance? That I can tell you in one word! Tradition! Because of our traditions, we’ve kept our balance for many, many years ... we have traditions for everything ... You may ask, how did this tradition get started? I’ll tell you. I don’t know. But it’s a tradition. And because of our traditions, every one of us knows who he is and what God expects him to do”

—Tevye, the lead character in *Fiddler on the Roof*, talking to a group of community members about traditions)

“In our economic activities we do not know the needs which we satisfy nor the sources of the things which we get. Almost all of us serve people whom we do not know, and even of whose existence we are ignorant; and we in turn constantly live on the services of other people of whom we know nothing. All this is possible because we stand in a great framework of institutions and traditions—economic, legal, and moral into which we fit ourselves by obeying certain rules of conduct that we never made, and which we have never understood” (Hayek 1988, p. 14)

## INTRODUCTION: WHAT THE PARETIAN TURN TAKES, IT DOESN’T EASILY GIVE UP

Some say that neoclassical theory took a wrong turn in the twentieth century. Some call it the “Paretian turn,” referring to Pareto’s reformulation of choice theory, one which eliminated psychology and unempirical elements, including the concepts of hedonist utility and ophelimity. A reformulation which replaced cardinal utility with ordinal utility. Luigino Bruni (2013) says that “[t]he xxth century has been in its greater part—from the 1930’s to the 1990’s—Pareto’s

century” (Bruni 2013, p. 47).<sup>1</sup> Boettke says that Hayek accentuated institutions because during the period 1930-1950 economic theory was becoming characterized by its “excessive formalism and excessive aggregation” (Boettke 2018, p. 285). Both excessive formalism and excessive aggregation characterize an “empty style of thought, even when this is presented in a technically competent manner” (Ibid.). These two statements are important for my paper because the excessive formalism and aggregation, and the empty style of thought even if it way competent, were two of the characteristics of neoclassical economics that behavioral economics rejected. Long before Kahneman, Tversky, and Thaler, before first generation behavioral economists, Simon, Leibenstein, and Katona, and others, Hayek was writing about the shortcomings in neoclassical theory, some of which became known as behavioral economics. To be clear, the writings of the first generation behavioral economists and those who came later—Kahneman, Tversky, Thaler, and those who followed them—do not look the same. The topics are mostly not the same. But underneath these “superficial” characteristics, they are very similar. Both critique neoclassical economics and do so in part by critiquing economic man.

Boettke also indicates that “the institutional framework, social life may either follow Adam Smith’s comment that humans have a tendency to “truck, barter, exchange,” or Thomas Hobbes’s statement that humans have a tendency for “rape, pillage, plunder” (Boettke 2018, p. 159). The difference in behavior is due to the fact that it is the institutional framework which determines benefits and costs of specific behaviors. If the benefits of cooperation are less than the costs then life will be as Hobbes suggested: “nasty, brutish, and short” (Ibid.). Boettke continues, saying that the economics’ focus on the institutional framework, or institutionalism, for short, was lost to economics during the period 1900-1950 because of economics’ increased formalism. Classical (political) economists were economists, historians, philosophers, and scholars in legal theory. They cared about their arguments being logically sound, rather

than simply logically valid, which was the concern of standard non-institutional neoclassical economics. Classical political economy was also concerned that their theories have a modicum of realism which guided their empirical analysis. They did not shy away from verbal reasoning.

Non-institutional neoclassical economics cared not about realism but only about their theories' ability to predict. Mathematical precision substituted for verbal reasoning. Simplifying assumptions replaced abstract reasoning and realism. As Richard Thaler quipped, ECONS replaced HUMANS in economic theories and models. And, he added, studying ECONS for fifty years, economists might as well have been studying unicorns.

Boettke says that “[t]hus, modern neoclassical economics was born, and classical political economy was discarded” (Boettke 2018, p. 161). And, “[t]hus, early twentieth-century thinkers who resisted formalism continuously stressed the lack of realism of assumptions as a problem” (Ibid.). It was to no avail. But, what goes around, comes around. Just as political economy was discarded it now seems that neoclassical theory is being discarded in favor of behavioral economics. In fact, Erik Angner’s (2019) recent article is titled, “We Are All Behavioral Economists Now.” While some say that neoclassical economics will absorb behavioral economics, thus ending its academic life, Angner believes that behavioral economics will absorb neoclassical economics, thus ending its academic life. Just as neoclassical theory discarded psychology, sociology, and institutions from economics, behavioral economics with its inclusion of psychology, sociology, and institutions is replacing neoclassical theory. The earlier writers of what became behavioral economics, those who began writing before Kahneman and Tversky, and Thaler, included Harvey Leibenstein (Ph.D. in Economics), Herbert Simon (Ph.D. in Political Science), and George Katona (Ph.D. in Psychology). In several instances Hayek wrote about topics and came to similar conclusions before Leibenstein, Simon, or Katona.

### The Four Stages of Hayek’s Work

Boettke discusses four phases of Hayek’s work, but says that distinct boundaries among the four phases is not possible. The first phase, c. 1920-1945, Boettke calls Economics as a Coordination Problem. The second phase, c. 1940-1960, he calls The Abuse of Reason Project. During this phase Hayek spoke about “rational constructivism of the administrative state” (Boettke 2018, p. xvi), and the “constructivist rationalism of legislation” (Ibid., p. 175). The first two phas-

es led to Hayek’s institutional economics. The third phase, c. 1960-1980, and fourth phase, 1981-1992, will not be discussed here.

The second phase, 1940-1960, is of particular interest because that covers Hayek’s writing on rationality and the first beginning of behavioral economics. Behavioral economics had two beginnings. The famous beginning, the second beginning, the truly revolutionary beginning, was 1974 and 1979. 1974, was when Tversky and Kahneman published their article in *Science*, and 1979, was when Kahneman and Tversky (1979) published their article in *Econometrica*. The first beginning started in the 1940s with several publications by George Katona and Herbert Simon, followed in 1950 (and then 1966) by Harvey Leibenstein. There were other first generation behavioral economists who were writing in the 1940s and 1950s. There can be two beginnings in behavioral economics because the first one, the one beginning in the 1940s, has been discounted by those ginning in the second beginning.

The first generation behavioral economists did many things, but perhaps the most important was their attack on economic-man, *Homo economicus*, the 24/7, 100 per cent rational (fictional) person. Behavioral economics was not possible if economic-man was the model for human decision-making because economic-man lacked free will: he could only maximize. Even if he tried not to maximize, neoclassical economic theory would explain why not maximizing is simply a misunderstanding. A misunderstanding on the part of the person who doesn’t understand the constraints and environment in which economic-man operates. If those things were understood then the objector would realize that s/he is maximizing. It gets exhausting very quickly.

Hayek’s second phase and constructivist rationality is important here. Constructivist rationality expressed through rational choice theory, maintains that practical rationality is independent of circumstances. Regardless of institutional surroundings, rationality means equating at the margin. By contrast ecological rationality maintains that rationality depends on the circumstances in which the decision taken place. What is rational under one set of circumstances is not rational under a different set.

The dependence of rationality on circumstances was illustrated by Herbert Simon who used an analogy with a pair of scissors. One blade is the cognitive limits of the individual, and the other is the “structures of the environment.” The psychological and the rational or economic are part of the same process. This is one reason why Herbert Simon was a (first generation) behavioral economist. Hayek’s discussion

of rationality and his rejection of *Homo economicus*, before Simon put pen to paper about the same, is one reason to consider Hayek a (first generation) behavioral economist.

Hayek preferred the concept of ecological rationality to that of constructivist rationality. Constructivist rationality means, in part, designing society by our will. It is the abuse of reason, trying to use reason to consciously design civilization. Constructivist rationality is associated most with Rene Descartes. Boettke says that “[m]uch of Hayek’s work should be seen as an attempt to defend reason against its abuse under the guise of scientism or Cartesian rationalism” (Boettke 2018, p. 186). Boettke then includes a quote from Hayek’s 1973 book, *Law, Legislation, and Liberty* (Vol. 1: Rules and Order):

Complete rationality of action in the Cartesian sense demands complete knowledge of all relevant facts. A designer or engineer needs all the data and full power to control or manipulate them if he is to organize the material objects to produce the intended result. But the success of action in society depends on more particular facts than anyone can possibly know (Hayek, cited in Boettke 2018, Ibid.).

First generation behavioral economists, or writers of “old” behavioral economics, rejected Cartesian rationality because they rejected the idea of complete knowledge and global rationality. Simon preferred the terms bounded rationality and procedural rationality. Leibenstein preferred the terms selective rationality and procedural rationality. Bounded and selective rationality are not identical with each other, but they are both critical of global rationality, or any of the synonyms for it, i.e., substantive rationality, objective rationality, perfect rationality, maximization, or optimization.

Section 2 will discuss some features of institutions and knowledge common to Hayek, and Harvey Leibenstein. Section 3 will show some aspects of Hayek’s behavioral economics. Section 4 is a summary and conclusions.

## HAYEK, AND HARVEY LEIBENSTEIN

Let me be very clear. Leibenstein’s overall vision was not as comprehensive as Hayek’s.<sup>2</sup> I am not going to try to equate the two men. What I want to show is that both men wrote about similar topics. In most cases Hayek wrote about them before Leibenstein. I have looked for Leibenstein referencing Hayek but it has been to no avail. Leibenstein is a first

generation behavioral economist. Hayek, by virtue of his writing about the same topics and having a similar philosophy as Leibenstein, is also considered a first generation behavioral economist. In fact, Hayek wrote before other first generation behavioral economists. Thus, before there was Kahneman and Tversky, there was Hayek.

On page 170 of his book, Boettke says that “Hayek moved the conversation from the technical arguments concerning the price system and the allocation of scarce resources to the institutional environment that would need complement that planning task” (Boettke 2018, p. 170). Likewise it can be said of Leibenstein that he attempted to move the conversation from the technical arguments surrounding allocative efficiency to the environment inside the firm – the firm is an institution – and to non-allocative, X, efficiency. Boettke says that Hayek was “trapped” between historicism and formalism (Ibid., p. 172). The former has room for the effects of local culture, but rejected the “one and only one interpretation of data or events.” Leibenstein’s X-efficiency theory included an important role for local culture of the firm and industry competition. But, Leibenstein rejected the “one and only one interpretation of human action,” i.e., all human action is everywhere and always fully rational. X-efficiency theory violated almost every norm of formalistic economic theory, including the use of mathematical reasoning, the search for equilibrium solutions, and the assumption of complete rationality. At the same time, Leibenstein was a trained neoclassical economist, and considered himself to be a neoclassical economist.<sup>3</sup> He simply did not believe that neoclassical economics offered a complete explanation of all human and economic phenomena. Boettke quotes Hayek from *Individualism and the Economic Order*, “Nothing is solved when we assume everybody to know everything and that the real problem is rather how it can be brought about that as much of the available knowledge as possible is used” (Ibid., p.178). For Leibenstein, as for the vast majority of the human race, no one can know everything. However, if there is an increase in competitive pressure, then individuals will use more of the available knowledge than they did before.

### The Net and the Classroom

In *General X-Efficiency and Economic Development*, Leibenstein (1978) uses the metaphor of a net to compare a model of perfect competition, and a “realistic” model of the economy. In the perfect competition model the net has neither tears nor rips in it. Thus, commodities flow unimpeded to

firms and households, and all firms are treated equally with all other firms. There is no need for entrepreneurs. In the realistic model the net has tears and rips in it. The net is “impeded, incomplete and ‘dark,’ in contrast to unimpeded and ‘well lit’ net that represents the competitive model” (Leibenstein 1978, p. 45; italics added).

In, “The Meaning of Competition,” Hayek uses a metaphor of a *well-lit* and a *darkened* classroom, to discuss the ability of markets to serve as a tool for learning. Boettke explains that:

Markets, in Hayek’s rendering... become learning mechanisms, and how effective they are at teaching is a function of the institutional environment within which they operate. To introduce perhaps a useful metaphor, think of a well-lit classroom with a white board, and black marker—a student... will be able to easily read the information on that white board and add to their knowledge base. On the other hand, imagine that same student finds themselves in a dark classroom with no lights, with a white board and white marker. The information may in fact be written up on the white board, but the student cannot read it, and thus they cannot add to their knowledge base” (Boettke 2018, p. 236).

Leibenstein metaphor of a net as the economy contains two important parts: nodes and pathways. The nodes are where two or more strands or pathways come together. The nodes represent firms and/or industries which receive inputs, and households which receive consumer goods. The pathways are the carriers of the inputs and goods and services to firms, industries and households. In a neoclassical model with cost minimizing firms, all of the strands are in perfect condition without any tears or rips which would hinder the workings of the markets. The nodes are also in good working order, dealing equally with all other nodes. In the “real world” the strands contain tears and sometimes it is torn and hence there are gaps in the nets. Inputs and goods do not flow to the persons and/or firms willing to pay the highest price. Some inputs, such as knowledge, cannot be traded. Hence the need for entrepreneurs. In Leibenstein’s model entrepreneurs are “gap fillers” and “input completers” (Leibenstein, 1978). If some inputs are not marketed, Leibenstein mentions knowledge as one such input, and if markets contains imperfections, i.e., torn or ripped strands of the net, then the entrepreneur must fill-in the gaps and complete the inputs in the net.

Leibenstein says that when you assume that production and cost functions are complete, and markets and prices function well, then there is little if any use for entrepreneurs. In the real world the former are not complete and the latter do not function as they do in textbooks. The net has tears and rips in it, and the entrepreneur is a gap-filler and “input completer.

## BEHAVIORAL ECONOMICS

Before Kahneman and Tversky, and Thaler, Hayek, in Chapter 9 of his 1952 book, *The Counter-Revolution of Science: Studies on the Abuse of Reason*, wrote about the limits of human rationality (or reason): “It may indeed prove to be far the most difficult and not the least important task for human reason rationally to comprehend its own limitations” (Hayek, cited in Frantz and Leeson 2012, pp. 4-5).

I know, Hayek is an Austrian economist and they are not related to behavioral economics. But, in tracing the history of the ideas which led to the “behavioral revolution,” Hayek has a central role. Consider some of these ideas: bounded rationality, the role of the unconscious in decision-making, tacit knowledge, human interactions, time and complexity, natural and social sciences, and the role of explanation and prediction. Here I will discuss three ideas: prediction and explanation, knowledge, and, last but not least, rationality.

### Explanation and Prediction

The Hayekian research program extends the spontaneous order approach beyond the realm of economic explanation to all realms of social interaction, including science, law, and history (Boettke 2018, p. 185).

Hayek did not believe that predictions about specific events, “point predictions,” were possible. This is due to “complexity” which means that the amount of necessary information needed to make point predictions is beyond our abilities. He did believe that “pattern predictions” were possible. Pattern predictions are predictions about generalities of a situation as a whole, but not about specific elements of a situation. Similarly, Hayek distinguished between explanations from which we can make predictions, and explanations which explain the principles responsible for the creation of phenomenon. Because of the nature of our materials, “explanations of the principle are often the best that we can do in the social sciences” (Caldwell 2004, p. 247). In other words, we are not perfectly rational.

People with expertise such as chess grandmasters express their expertise through (largely unconscious) pattern recognition. According to Herbert Simon grandmasters don't have the time to choose the best possible move which includes their opponents reaction to their reaction to their opponents reaction, etc, so they use their expertise, largely stored in the unconscious, to make a reasonable move.

In *An Empirically Based Microeconomics*, Simon comments on Friedman's use of "as if" in order to rid economics of psychology and limit economics to a theory's ability to predict. As opposed to Friedman's perfect billiard player (Friedman and Savage, 1948; Friedman, 1953), Simon says that "[i]f we want a theory explaining how people play billiards, we do not want a theory of perfect billiard balls; we want a theory of what heuristics a human billiard player uses in order to plan and make a (often not quite accurate) shot. These heuristics do not involve solving the differential equations of the billiard board; they involve rules of thumb, and it is these practical guides to action we are trying to discover in order to explain the behavior" (Simon 1965, p. 173). Do people maximize? Simon says that "[n]o one has, in fact, observed whether the actual positions of business firms are the profit-maximizing ones; nor has anyone proposed a method of testing this proposition by direct observation" (Simon, cited in Augier 1982, p. 143). The problem with "as if" assumptions is that they ignore the limits of our knowledge and cognitive abilities.

By comparison and contrast, Leibenstein's X-efficiency theory contains atomistic and molecular elements. The atomistic elements are individual consumers and members of an organization. The molecular elements are households and firms. Micro theory is about the molecular elements. X-efficiency is about the atomic elements *and* the molecular; Leibenstein calls it micro-micro theory (Leibenstein 1976).

Leibenstein held to the belief that prediction is not the only or the most important criterion for evaluating a theory. He refers to the idea that prediction is the only criteria as the "romantic" view, a "matter of faith or of taste" (Ibid., p. 13). Leibenstein believed that an important maybe is the ability to "obtain coherent explanations of phenomena and events." He goes on to say that "predictive capacity without explanatory capacity is worthless. ... Only predictive capacity that arises out of having coherent and communicable explanations has scientific standing. The power to predict is subsidiary to the power to explain. Explanation without prediction is sufficient, but prediction without explanation is of no consequences from a scientific standpoint" (Ibid.).

Why does Leibenstein reject the "romantic view," the prediction is all that counts view? Leibenstein's rejection is similar to Hayek's rejection of the same. Economics deals with complexity, with a large number of observations and variables and relationships among the variables. Economic events are complex because they are affected by economic and non-economic variables, and these numerous non-economic variables "can not be accounted for on the basis of existing knowledge" (Leibenstein 1976, pp. 14–15). There are simply too many possible interactions of (known and unknown) factors influencing economic behavior and the economic system for "prediction engine" to be the "be all and end all" of economic theory.

## THE KNOWLEDGE PROBLEM

In his endorsement of Boettke's book, Nobel Laureate Vernon Smith says of Hayek's theory of dispersed knowledge:

Among mid-twentieth century economists, only Hayek's work enabled us to understand what I found truly astonishing. People in my market experiments quickly discovered the efficient equilibrium outcomes hidden in their dispersed knowledge of individual item values that I had assigned them privately.<sup>4</sup>

The knowledge problem, the difficulties caused by "dispersed" knowledge is that knowledge is possessed by individuals, each of whom knows only a miniscule amount of available knowledge. Those who work "on the ground" have the knowledge of time and place. Policy makers have theoretical knowledge. Both people "on the ground," and policy makers have a knowledge problem. However, Hayek believes that the policy maker/central planning socialist has added problems. In addition to a knowledge problem they also suffer from an "abuse of power" problem (Boettke 2018, p. 120). They abuse power and replace private markets with political decision making. However, private markets work by allowing the price system to correctly allocate dispersed knowledge.

Boettke spends a fairly large amount of space discussing Hayek's theory of knowledge. Drawing from Hayek's "The Use of Knowledge in Society," published in 1945, Boettke says that:

the knowledge that is relevant to the solution to the economic problem is never given to a single mind, but is widely dispersed throughout society as bits of

incomplete, subjective knowledge, much of it tacit in nature and only pertaining to the particular time and place (Boettke 2018, p. 85).

For Hayek, the most important aspect of knowledge is “unorganized,” or tacit: the knowledge of “particular circumstances of time and place.” It is the “contextual nature of knowledge” (Boettke 2018, p. xiv). This knowledge is widely distributed among the population and can’t be known or communicated by a central planning board. How do we make use of tacit knowledge? Boettke says that the answer given by the Austrian School is that it is a “function of property, prices, and profit-and-loss to structure incentives, mobilize information, discover and utilize the knowledge that is dispersed throughout the economy, and provide the spur for innovation and the feedback on bad decision-making that is necessary for economic actors to coordinate their plans” (Ibid., p. xv).

The Austrian School goes further than simply using tacit knowledge. Boettke quotes Hayek who said that “the task of economic theory was to explain how an overall order of economic activity was achieved which utilized a large amount of knowledge which was not concentrated in any one mind but existed only as the separate knowledge of thousands or millions of different individuals” (Hayek, cited in Boettke 2018, p. 5).

One implication of tacit knowledge is that the institutions of Western society, including the market system, are “the result of human action but not the result of human design.” The economy and society are too complex to be the product of human design. The information requirements for creating a rational social order is not possible for a single mind or for a relatively few minds. The knowledge required to create a rational social order can be the product only of decentralized human interaction through trial-and-error, utilizing tacit or unorganized knowledge.

## Sunstein

Chapter 5 of Sunstein’s (2018) *The Cost-Benefit Revolution* is titled “The Knowledge Problem.” In it Sunstein says that there are two “indispensable” ideas surrounding regulation. One is the need to measure the effects of regulation on social welfare. The other, “attributed above all to Friedrich Hayek” (Sunstein 2018, p. 79), is that “knowledge is widely dispersed in society” (Ibid.). The latter has important implications. Sunstein explains that:

government planners cannot possibly know what individuals know, simply because they lack that dispersed knowledge. The multiply failures of plans and the omnipresence of unintended consequences can be attributed, in large part, to the absence of relevant information... How can they possibly obtain the knowledge that would allow them TO compare costs and benefits? Often they cannot (Ibid., p. 79).

Boettke says something similar, that “[a]ctors on the ground do not possess the theoretical knowledge of the policymaker, but the policymaker does not have access to the “on the ground” knowledge of the particular circumstances of time and place that economic actors are in possession of” (Boettke 2018, p. 204).

The problem is more than simply dispersed knowledge. In, *The Ethics of Influence*, Sunstein has a section titled, “Ignorant and Biased Officials.” He says that choice architects—regulators, planners, politicians, bureaucrats, public officials—are “emphatically human and fully subject to behavioral biases; they may be unreliable for that reason” (Sunstein 2016, p. 75). They suffer from, among other things, the present bias, overconfidence, the availability heuristic, and loss aversion. Thus, “In a democratic society, public officials are responsive to public opinion, and if the public is mistaken, officials might be mistaken as well” (Sunstein 2016, p. 76). Sunstein says that a “remarkable passage” from Hayek is that “the awareness of our irremediable ignorance... is the chief basis of the argument for liberty” (Ibid. p. 56). But there is one other consideration. Citing (behavioral) public choice theory, Sunstein says that public officials may simply be self-interested rather than primarily interested in the social good. They may have sufficient knowledge to make great decisions for the public good, but they don’t.

Sunstein finds a passage from Hayek’s “The Use of Knowledge in Society” to be another “remarkable” passage. It is where Hayek says that the type of knowledge he is most interested in cannot be part of a table of statistics, and hence cannot be useful to central planners. This is the knowledge of “time and place” (Hayek 1948, p. 83). One suggestion Sunstein makes which could help with the knowledge problem is the process by which the public can comment on the proposed rule(s), i.e., on the consequences and/or the costs and benefits of the proposed rule(s). Sunstein comments that “[i]t is important to acknowledge that even in its most ambitious forms, the public comment process might fail to solve the knowledge problem” (Sunstein 2018, p. 89). For one thing, most citizens who could contrib-

ute their knowledge would, for various reasons, not participate in the process. Still in 2011, President Obama signed Executive Order 13563, which required that after passage of new rules, an analysis of the rule(s) with respect to how they are actually working is undertaken. One important focus of the E.O. is the existence of “dispersed information of the public” (Ibid., p. 93).

### Simon

In Simon’s article, “A Behavioral Model of Rational Choice,” he says that:

[t]raditional economic theory postulates an ‘economic man,’ who, in the course of being economic is also ‘rational.’ This man is assumed to have knowledge of the relevant aspects of his environment... and a skill in computation that enables him to calculate ... the alternative courses of action that are available to him (Simon 1955, p.99).

Simon did not accept the notion that a high degree of rationality is possible for a human being. In his *Administrative Behavior*, originally published in 1947, he says that it is “inconceivable” that a person can act with perfect rationality. In order to do so requires that the person has a:

complete description of the consequences following from each alternative strategy and would have to compare those consequences. He would have to know ... how the world would be changed by his behaving in one way instead of another... through unlimited stretches of time, unlimited reaches of space, and unlimited sets of values (Simon [1947] 1976, p. 78).

Simon did not argue against economic-man using the Austrian a-priori method. He offered an *observation*:

Although the heads of the two agencies appeared to agree as to the objectives of the recreation program, and did not appear to be competing for empire, there was continual disagreement and tension between them with respect to the allocation of funds . ... Why did they not do, as my economics books suggest, simply balance off the marginal return of the one activity against that of the other? (Simon 1979, p. 500).

In *Sciences of the Artificial*, originally published in 1969, Simon includes two long quotes from Hayek’s 1945 article, “The Use of Knowledge in Society,” one about the real economic problem and the other about the price system. About the price system, Simon says that “[a]s ... Hayek points out, its most striking characteristic is the way it reduces and localizes informational and computational requirements” (Simon 1982, p. 42).

### Leibenstein

In his seminal article in 1966, “Allocative Efficiency vs. ‘X-Efficiency,” Leibenstein says that:

a good deal of our knowledge is vague. A man may have nothing more than a sense of its existence, and yet this may be the critical element. Given a sufficient inducement, he can search out its nature in detail and get it to a stage where he can use it. People normally operate within the bounds of a great deal of intellectual slack. Unlike underutilized capital, this is an element that is very difficult to observe” (Leibenstein 1966, p. 405).

Hayek uses the word incomplete, Leibenstein uses the word vague. Knowledge is vague, knowledge is incomplete. Maybe vague and incomplete are not (good) synonyms, but they are good enough: I am a satisficer.

### RATIONALITY

My contention is that so long as we assume the existence of *Homo economicus* then behavioral economics could not exist. This is because *Homo economicus* is not a HUMAN being. *Homo economicus* doesn’t have free will. S/he must behave according to preordained rules of behavior. Psychologist James B. Watson, founder of the psychological school of behaviorism, even suggested that if you observe a rat in a maze, then you could learn a lot about human psychology (Pomoroy 2014).

*Homo economicus* does not make mistakes and does not succumb to cognitive errors. Hence, their behavior is virtually completely predictable. On the other hand, Richard Thaler quipped that studying HUMANS is akin to studying unicorns. HUMANS were needed in economic theories and models and behavioral economics has been doing just that.

One of the purposes of psychology is to change or improve behavior. Why would anyone need to change or improve the behavior of ECONS? They wouldn't. You want to change or improve the behavior of a being who doesn't make mistakes in judgement? Getting an ECON, or homo economicus "on the couch" would be hilariously boring. One of the purposes of economics is to understand human behavior in an economic setting. Once you state the constraints humans face, their behavior is predictable. On the other hand, the problem is, as Hayek and Leibenstein believed, the constraints we face are subjective, known mostly by ourselves. Hence economists know about as much of the constraints humans face as we know about – unicorns.

In Chapter 1 of Boettke book he lists misconceptions about Hayek. The first misconception is that Hayek's methodological individualism was based upon atomistic actors who were perfectly rational. The second misconception is that Hayek saw the price system as perfectly efficient. Hayek's rejection of perfect rationality and perfect efficiency is central to behavioral economists, especially the first generation behavioral economists.

In his book, *The Counter-Revolution*, Hayek ([1952] 1979) gives a history of "rational constructivism" and "scientism" in the social sciences. Hayek follows in the footsteps of the Scottish Enlightenment philosophers and economists who believed that modern civilization is threatened by the "abuse of reason" mandated by the rational constructivists who want to design civilization. Hayek sees this attempt as placing mankind in the "chains of his own making" (Boettke 2018, p. xiv).

Boettke uses the terms "rational constructivism of the administrative state" (Ibid.), and the "constructivist rationalism of legislation" in order to emphasize the influence of the state on the definition and use of the term rationality. (Ibid., p. 175). Constructivist rationality expressed through rational choice theory, maintains that practical rationality is independent of circumstances. Regardless of institutional surroundings, rationality means equating at the margin, period. By contrast ecological rationality maintains that rationality depends on the circumstances in which the decision taken place. What is rational under one set of circumstances is not rational under a different set. Herbert Simon used an analogy with a pair of scissors. One blade is the cognitive limits of the individual, and the other is the "structures of the environment" (Simon 1990, p. 7). The psychological and the rational are part of the same process. This is one reason why Herbert Simon was a (first generation) behavioral economist. Hayek's discussion of rational-

ity and his rejection of *Homo economicus* is one reason to consider Hayek a (first generation) behavioral economist.

Hayek believed that humans are far from being perfectly rational, i.e., "deliberative and foresighted." However, deliberative and foresighted is one type of rationality. Another form is the rationality which characterizes the social process and social institutions as a whole. This form is not the same as the conscious and logical mental activities of the Descartes rationalist school of thought. Be that as it may, Hayek (2014) sees humans as being "lazy, ... improvident, ... and short-sighted." We are rule-following as much as we are rational. Humans succeed not by being rational but by being guided by "evolved rules and practices."

Acquiring and communicating rules is affected by observation and imitation, both which Hayek refers to as non-rational. The non-rational may be unavoidable because "reason, like science and like civilization itself, advances only by grappling with the unknown and the unpredictable. Consequently, "the only environment wherein reason can grow and operate effectively ... [is the] indispensable [realm] of the uncontrolled and non-rational" (Ibid.).

Using reason properly means recognizing the limits of reason, recognizing that "reason is not omnipotent—that it is a tool, not an author; a servant, not a judge" (Ibid.). And it means facing the "implications of the astonishing fact . . . that order generated without design can far outstrip plans men consciously contrive." (Ibid.). Reason deals with the "abstract" and not with the ability to make concrete proposals about specific actions for complex societies. Hayek also maintains that behavior guided by habit, custom, and tradition is rational in the sense that such behavior is not contrary to intelligent action. It seems to be a puzzle or a paradox that Hayek sought to show the limits of reason by using rational analysis.

## HAYEK AND THE FIRST GENERATION BEHAVIORAL ECONOMISTS

I use this term to include economists and others writing about rationality before 1974 (and in most cases after 1974). This group includes, in addition to Katona, Simon, and Leibenstein, Ken Boulding, James March, Richard Cyert, Tibor Scitovsky, G. L. S. Shackle, Richard Nelson, Sidney Winter, James Duesenberry, Reinhard Selten, and French sociologist Gabriel Tarde. Here I will briefly discuss the thoughts on rationality by some of the first generation behavioral economists mentioned above.<sup>5</sup>

Gabriel Tarde (1843-1904) was a French sociologist and Judge who coined the term “economic psychology” in his two volume book *La Psychologie Economique* (1902). He wrote about herding or imitation in decision making. He rejected the concept of economic man. He rejected the idea that humans possess “unrestricted” rationality, and that rational behavior excludes emotions, devotion, or passions. He rejected the idea that we have a single unified self, preferring the idea of a dual self, the materialistic-egoistic and the spiritual. He believed that the economic-man was a “mutilation” of a real human. And he considered economic-man as neither necessary nor sufficient to explain economic behavior.

In *The Ambiguities of Experience*, James March (2010), talks about stories and myths of organizational experience. Of the four main mythic themes, one is the myth of rationality. The myth of rationality is that the humans make decisions based on future consequences. It is an omnipresent myth in stories of management, and the core of the answer to the question “why did you do that?” (March 2010, p. 57). In his 1978 article, “Bounded Rationality, Ambiguity, and the Engineering of Choice,” March says that rational choice involves two guesses, one about future consequences and another about future preferences.

Kenneth Boulding saw the future of economics, and it was behavioral economics. In “Contemporary Economic Research” he said that “[t]here will be movement toward behavioral economics... which involves study of those aspects of men’s images, or cognitive and affective structures that are more relevant to economic decisions” (Boulding [1958] 1961, p. 21). Boulding says that before Einstein, astronomers did not pay attention to the behavior of gravity because gravity’s behavior was so perfect that, in effect, it did not have any behavior. Likewise, economists have not really been interested in human behavior because it is assumed to be perfectly rational (Ibid., p. 82).

Nelson and Winter state matter-of-factly that models of maximization do not reflect economic reality. Firms often use decision rules which are not maximizing (Nelson and Winter 1973, p. 441). Do the rules ever lead to maximizing behavior? They say, Yes. Humans are selectively rational. Why bounded or selectively rational? Because the environment is too complex relative to our level of knowledge and other constraints. These other constraints are scarcity of time, limited communications channels, and limited assistance for “organizing, analyzing, and thinking about the available information” (Ibid., p. 67). Nelson and Winter re-

fer to it as a “severe information-processing constraints” (Ibid., p. 66).

In Chapter 3 of Duesenberry’s 1949 classic work, *Income, Saving and the Theory of Consumer Behavior* he says that savings is the outcome of our dual-selves: “The level of saving actually achieved by anyone represents the outcome of the conflict between his desire to improve his current standard of living and his desire to obtain future welfare by saving” (Duesenberry 1949, p. 22). Duesenberry uses data from the Office of Public Opinion Research which shows that people’s desired income is a function of income aspirations, not maximum income. People are satisficers, to use Simon’s term. Finally, Duesenberry argues that consumption behavior as being the outcome of habits, genetics, and learning, but not rational planning (Ibid., p. 24).

In *Epistemics and Economics*, Shackle ([1972] 2009) discusses the “paradox of rationality” (p. 246). On the one hand, rational decision making is limited to things which we have complete knowledge. On the other hand, perfect knowledge requires the impossible, that is, knowing both the past and the future in their entirety. Thus the paradox - to make a rational choice we must transcend the grasp of choice.

### Unknowledge

Shackle says that a shortage of knowledge is a permanent part of the world we live in. Unknowledge also includes the existence of “unknown unknowns.” Economics assumes that people are rational but doesn’t ask what we can’t know. Shackle says that economics, instead of asking these questions asks only the questions which are “allowed” to be asked. A result is that economists have separated economics from other aspects of life by a “wall of rationality” (Ibid., p. 4). Hence important knowledge is neglected. Hayek asserted that “soft” knowledge is neglected in favor of “technical” knowledge.

Tibor Scitovsky said that “rational behavior as pictured by the economist and actual behavior as observed and explained in terms of the psychologist’s motivating forces are not at all the same thing” (Scitovsky, [1976] 1992, p. 65). Are people ever rational in the economist’s sense? Scitovsky says that we are selectively rational, meaning we are rational sometimes, at other times not. “Economists usually picture the consumer as rationally weighing the merits of the available alternatives before making a choice. . . Sometimes that is what happens, but sometimes it is not” (Ibid., p. 72).

## Simon

Simon's theory, which I have already discussed, is that of bounded rationality, rationality limited by the cognitive limits of a person and the complexity of the environment.

## Leibenstein

The History of Economic Thought website<sup>6</sup> says that Leibenstein was most famous for X-efficiency theory, and fertility theory. Leibenstein tried but did not succeed in replacing allocative or Pareto efficiency with X-efficiency. Yet, he is "hailed as a pioneer of behavioral economics." Why is Leibenstein hailed as a pioneer of behavioral economics? Maybe the most important reason is he theorized that *Homo economicus* did not express the behavior of humans all of the time. Theorizing that *Homo economicus* was more Fredo Corleone than Michael Corleone. Of the approximately 20 (in)efficiency empirical studies consistent with X-efficiency theory, Harvey authored none of these studies. Most of the 200 studies measured X-, non-allocative, (in) efficiency as the distance an organization is from the (cost or production) frontier. The average deviation of these 200 studies is approximately 20 percent.

Leibenstein rejected the view that a "reasonable" human is necessarily logical. A reasonable man lives in a dynamic world characterized by states of disequilibrium. Habits, conventions, subjective and incomplete perceptions of the external world, and his internal world of felt pressures are reasons why humans usually cannot and do not maximize. For whatever reasons humans don't maximize. Leibenstein was not interested in "fitting" the reasons we don't maximize into a maximizing model to make it appear that they are maximizing. However, increase pressure on individuals up to a point, and humans move towards maximization.

Human rationality varies from perfect rationality to something less. The degree of rationality exists along a continuum. The degree of rationality depends on the decision-making processes used. It is about procedural rationality and not substantive rationality.

Before Leibenstein wrote about selective rationality, before Simon wrote about bounded rationality, Hayek wrote about the limits of human rationality. Before Leibenstein wrote about X-efficiency, about 20 years before, Hayek wrote about something so similar almost to be identical. Hayek did this when he wrote about tacit or unorganized knowledge. Unorganized knowledge includes knowing how "to put to use a machine not fully employed, or somebody's

skill which could be better utilized ... the shipper ... using empty or half-filled journeys of tramp-steamers" (Hayek 1945, p. 522). The converse is also relevant. Hayek notes the consequences of "an inefficient manager to dissipate the differentials on which profitability rests, and that it is possible, with the same technical facilities, to produce with a great variety of costs" (Ibid., p. 523). Leibenstein could not have stated it any better; X-inefficiency raises costs above the technological minimum. Before Kahneman and Tversky, there was Hayek.

## SUMMARY AND CONCLUSIONS

There are many good books about Hayek. Some are *Hayek's Challenge*, by Bruce Caldwell; *Hayek's Journey* by Alan Ebenstein; *Friedrich Hayek. A Biography*, by Alan Ebenstein; *Hayek in Mind: Hayek's Philosophical Psychology*, by Leslie Marsh, and *Keynes-Hayek. The Clash That Defined Modern Economics*, by Nicholas Wapshott. To this list we add Peter Boettke's, *F. A. Hayek. Economics, Political Economy and Social Philosophy*. Boettke discusses among many other things, Hayek's theory of money and prices, institutional economics, the market system, market socialism and the failures of socialism, epistemics and institutional change. It is a powerful book about one of the great thinkers of the past one-hundred years, and probably longer than that. One of the most important parts of the book for my purposes is Boettke's discussion of constructivist and ecological rationality, and Hayek's criticism of constructivist rationality. This is important because, first, behavioral economics rejects the idea that people are 100 per cent (constructivist or substantive) rational. Second it is important because the rejection of the assumption of 100 per cent rationality is a necessary condition for the development of behavioral economics. Third, Hayek spoke about rejecting the assumption of 100 per cent human rationality before most behavioral economics, making him, in my opinion, a first generation behavioral economist. There are several concepts which are central to behavioral economics, and in this paper I focused on three of them – prediction vs understanding in theories and models, knowledge, and rationality. The discussed the overlaps between Hayek's ideas and those of first generation behavioral economists. I noted that Hayek wrote about his ideas before the others wrote about their ideas which overlapped those of Hayek. I am not saying that, for the most part, they acknowledged Hayek in their own development. Therefore, I cannot show that there was an evolution of economic thought from Hayek to the others. What I am saying

is that there was an overlap. And, hence, Hayek, the Austrian economist, was a first generation behavioral economist.

## NOTES

- 1 The “origin” of the 2013 Bruni paper is a paper by Bruni and Sugden (2007).
- 2 Leibenstein’s mentor at Princeton where he received his Ph.D. in 1951 was Oscar Morgenstern. It is thus not surprising that he incorporated several ideas from Austrian economics into his own works. These include the importance of the individual, methodological individualism; the importance of understanding and prediction in economic theories and models, and; subjective rationality vis-à-vis objective rationality.
- 3 A personal communication with Harvey Leibenstein.
- 4 At a behavioral economics conference in Reno, Nevada, Vernon Smith said, and I paraphrase, “Why would I be surprised at the results of the market experiments producing equilibrium prices and outputs? Because my mother was a socialist and I was a student at Harvard.”
- 5 The writings on these first generation behavioral economists can be found in Frantz (2019).
- 6 See <http://www.hetwebsite.net/het/profiles/leibenstein.htm>.

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