

A METHODOLOGICAL CONSIDERATION OF BEHAVIORIAL ECONOMICS

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ECON 420: Economic Colloquium

Fall 2017

In 2017, Economist Richard Thaler was awarded the Nobel Prize for Economics. Thaler was awarded the prize based on his work regarding the predictable irrationality of human behavior. Richard Thaler is also famous for his 2015 book *Nudge* which explains how people can be encouraged to make better decisions. (Appelbaum 2017) The choice of the Nobel Prize committee to award Thaler is an indication of the new trend of mainstream economics to embrace interdisciplinary work combining economics, psychological and sociology. Since the inception of social sciences, there has been vast debate regarding what subject matter is constrained to economics and psychology respectively. In recent years, the lines have blurred further in the development of behavioral economics as an independent and robust school of thought. As behavioral economics has become more mainstream, it is important to evaluate the methodological soundness of the school. In effort to provide evaluation, the following presents a brief history of the development of economic methodology, an exploration of the methodology of behavioral economics, and the relationship of behavioral economics to classical and Austrian economic methodologies.

In order to examine the methodology of economics, it is important to examine a few brief landmarks in the history of the development of professional economics. The history of economics as a discipline provides insight to methodological assumptions of both the Austrian and Behavioral schools of thought. The heart of the *Methodenstreit* was an argument regarding the scope of the application of economics as a discipline. Carl Menger and the subsequent Austrian School believed that economics was truly a science, meaning that the laws of economics could be used to predict human behavior. In contrast, Gustav Schmoller and the German Historicist School believed that the study of

economics was primary historical in its nature and would be better served to describe past economic phenomena. At the time of the Methodenstreit, German natural scientists purported a philosophy of radical materialist determinism. According to this viewpoint, human behavior is the result of physical and chemical reactions that occur in the human physiology and environment. As a result, these scientists believed that physiological and biological experiments could be conducted in a laboratory setting to derive laws of human action. Schmoller rejected the philosophy of radical materialist determinist primarily due to his own religious sentiments. Instead, he essentially accepted Auguste Comte's positivism. The application of positivism to economics derives laws of social sciences from scientific considerations of traditional, historical accounts of economic phenomena. Because Schmoller held to this viewpoint, he criticized the profession for making hasty generalizations based on insufficient evidence, statistics, and historical observation. (Mises 1969, 13)

As economics began to emerge as a distinct profession within the social sciences, there was great disagreement between psychologists and economists regarding the assumptions made about the nature of people. Psychologists opposed the notion of subjective value, instead arguing that human behavior can be attributed to distinct determinants. Psychologists were seeking to identify more specific triggers for behavior rather than simply attributing behavior to subjective preference. Eventually, the debate between psychologists and economists died down because psychology had not successfully identified a single theory of motivation that could provide an adequate explanation for human behavior. Additionally, economists became a more distinct logic of choice and developed a set of generalizations based on observations from every day

experience. Finally, the basic assumption of economics that all people are rational became more nuanced. Economists defined human economic rationality as a concept that included altruist or complicated motives. This clarification of the principle of rationality abated the concerns of psychologists that the study of economics described all human behavior as psychological hedonism. (Caldwell 1986, 5-16)

In his work *The Nature and Significance of Economic Science* published in 1932, Lionel Robbins addresses misconceptions that occurred regarding economic theory when economists attempted to use psychology as a foundation for theory. First, Robbins defines economics as the study of the implications of the existence of scarce means with alternative ends. (Robbins 1932, 83) After defining economics, Robbins argues that the existence of relative valuation does not depend upon certain psychological doctrines. Instead, the subjective theory of value can exist outside of theories regarding the human psyche. The disciplines of psychology and economics differ in the means and pace of theoretical development. In economics, new laws and theories are developed at a slow pace and gradually accepted throughout the discipline. In contrast, psychological theories change rapidly. Due to the difference in the development of theory, Robbins argues that psychology does not provide a stable foundation for economics to build from. (Robbins 1932, 84) As an example of how psychology does not serve as a viable basis for economics, Robbins gives the example of the subjective theory of value. Some of the founder of the subjective theory of value used the principle of psychological hedonism as a means of validation. Economists in the Mengerian tradition strongly rejected any notion that subjective value was connected to psychological hedonism. (Robbins 1932, 84-85) However, the economists Herman Heinrich Gossen, William Stanley Jevons, and Francis

Ysidro Edgeworth accepted hedonism as part of their framework for subjective value theory. The choice of these economists to affirm psychological hedonism was criticized when the principle fell out of fashion in professional psychology. However, criticism of this principle ignores the fact that hedonism is incidental to the main theory. The essential claim of the subjective theory of value is that different goods (or means) have a variety of uses and different circumstances will motivate individuals to use the same goods for different purposes. (Robbins 1932, 86) The essential theory of subjective value leaves room for a variety of psychological motivations including delayed gratification and altruism, rather than accepting that all human behavior is motivated by selfish interest alone. On this basis, Lionel Robbins rejects psychological bases for economic theory. Instead, he argues that economics does not deal with why people prefer different outcomes. (Robbins 1932, 86)

Positivism was a response of the scientific community to the idealism that existed in the social sciences. Instead, the positivist mindset urges for an empirical approach to any scientific discipline. (Caldwell 1986, 5-16) The positivist approach to science categorizes every statement as either analytical or synthetic. Analytical statements are any statement that is true or false by definition. As such, analytical statements are empirically empty. In contrast, synthetic statements are statements that can be tested as true or false. According to positivism, only synthetic statements are valid in scientific inquiry. This paradigm created problems for rational choice economics for two reasons. First, the subjective preferences of individuals are not testable. As such, preferences would not be viewed as a viable hypotheses for behavior. The second problem with that exists within the paradigm is that rationally inconsistent choices are observed. (Caldwell

1986, 5-16) Milton Friedman discusses the specific implications of positivism to the methodology of economics in his work *The Methodology of Positive Economics*.

Friedman identifies the goal of positive economics as the development of theory that yields meaningful predictions regarding the empirical world. In application, this method requires both a language for systematic reasoning and the body of laws and hypotheses that utilize this language in order to explain phenomena. (Friedman 1953, 7) In order to be useful, the language system utilized by the theorists must be both logically consistent and factual. If the language is inconsistent with itself or with reality, it no longer serves to explain real phenomena – past, present, or future. (Friedman, 1953, 7) In a system of positive economics, theory is judged by its predictive power. In order to test the validity of theories, positive economists compare them to experience. As economists gain more examples of economic phenomena, they gain more confidence in the decision to accept or reject a given hypothesis. (Friedman 1953, 8-9) Another tenant of positivism is the belief that simpler hypotheses yield more fruitful predictions. Hypotheses that are based on more generalized experience, such as the law of supply and demand, have a broader predictive scope than those theories that are based on very specific phenomena.

(Friedman 1953, 10) Many natural scientists who embraced positivism believed that hypotheses needed to be tested in controlled experiments in order to be validated.

Friedman argued that this imposition was unrealistic for social sciences because created controlled experience to test theories regarding human behavior is nearly impossible. Instead, he argues that hypotheses can be tested using experience and empirical data, not just experiments. While empirical data provides a helpful context for the testing of hypotheses, interpreting data correctly creates an additional set of problems. (Friedman

1953, 10) Friedman's focus throughout his presentation of positive economic philosophy is the importance of consistency between economic theory and reality. In Friedman's opinion, empirical evidence is important in both constructing and testing hypotheses. Evidence is essential to the construction of theories because it provides a basis for economist to begin. Additionally, empirical evidence provides an important test for theories and their ability to make accurate predictions in a variety of circumstances. (Friedman 1953, 10) Because reality must be the basis of economic theory in a positivist mindset, Friedman argues that any assumptions that are made in economic theory must be based on good approximations of reality. (Friedman 1953, 15)

With the advent of Keynesianism, there was waning interest in methodology. This trend in the economics profession led to a decrease in positivist ideology. Additionally, the strict impositions of positivism made it nearly impossible to develop economic theories that would be consistent with its methodological paradigm. (Caldwell 1986, 5-16) Political scientist Eric Voeglin provides a critique of positivism when it is applied to the social sciences. The mindset of positivism defines any proposition of facts as science if it used the correct method. According to Voeglin, this perspective produces three methodological problems. First, positivism motivates the accumulation of trivial information. Because of the strict methodological impositions of positivism, there is an emphasis on how research projects are conducted rather than the relevance of the information being gathered. As such, much of the information that is gathered in positivist projects is not digestible and cannot be converted to generalizable laws regarding human behavior. The second problem with positivism is that it is built on defective theoretical principles. Positivism relies upon empirical verification of any

hypothesis that is put forward. However, the interpretation of evidence is bound to the political preferences of the social scientist undertaking the research project. One key example of the danger of this method is the tendency of social sciences to assign contemporary political preferences and ideas to ancient historical writings and incorrectly claiming various sources as precursors to political movements which they are not connected to. In a positivistic approach to social sciences, researchers may omit empirical evidence that contradicts their hypothesis due to their own ideological preferences, creating a confirmation bias. Finally, the positivism argues for the exclusion of value judgements. This imposition is an attempt to make social sciences more objective in nature. However, this assumption ignores the possibility of moral truth as a means of interpreting empirical events. Each of these concerns creates problems for the acceptance of positivism as the methodology of social science. Voeglin notes that from 1980 to 1920, positivism shifted from being a theory of social science to impacting the methodology. This shift helped individual disciplines regain individualized methodology that is best suited to each field of study. (Voegelin 1999, 94-96) After positivism had fallen by the wayside, the mainstream economics profession relied on logical empiricism as its primary methodology.

One of the key impetuses to the development of the behavioral school of economics was the observation that many of the assumptions of neoclassical economics are impractical or inconsistent with empirical experience. There are two assumptions made by neoclassical economics that behavioral economics departs from. First, behavioral economists reject the utility function. According to the neoclassical school, each person approaches the market with a set of a priori goals that are entirely stable and

unchanging. Based on these a priori goals, every person has a preset utility function that correlates various outcomes with a given level of satisfaction. Behavioral economics rejects the utility function because the school seeks to account for changes in preferences that may occur as more knowledge is revealed to the acting individual. The second assumption of neoclassical economics addressed by the behavioral school is utility maximization. Utility maximization assumes that every person will be able to use the resources available to them to achieve maximum utility. Behavioral economists reject this assumption because human knowledge and reason are limited. Oftentimes, individuals do not have access to information that is pertinent to the decisions they make. Additionally, human reason is flawed and many times people incorrectly predict the outcomes of their actions. As such, individuals do not always make decisions that maximize utility. The primary reason that behavioral economics departs with these assumptions is because they are not empirically valid. Behavioral economics seeks to develop hypotheses that are consistent with real human experience. As such, economists use evidence to confirm or deny the utility function and make predictions of economic theories more accurate. Behavioral economics is concerned with drawing out implications for institutions and policy. This outcome is impossible if the assumptions of various models are inconsistent with reality. (Simon 1987)

Though behavioral economics rejects many of the assumptions of neoclassical economics, there are also several key tenants of behavioral economics that are observable across the school of thought. Behavioral economists reject the assumption of human rationality because it is not consistent with empirical data. Instead, behavioral economics uses convention as its basic assumption, because social phenomena depends

on social convention. As an alternative to the profit maximization assumption, behavioral economics relies upon the utility function of the firm. The utility function of the firm assumes that firms may seek to maximize some quantity other than profit. For example, a company may choose to offer a generous donation to a country in need, though such an action would decrease the fiscal profit gained by the firm. In contrast to this, individuals acting with a firm may be identifying and pursuing subgoals of the organization, including their own individual utility function. The assumption of the utility function of the firm is intended to expand on the nuance associate with the pursuit of goals that occurs both individually and communally. Another key principle in behavioral economics is the assumption of individual utility. Individual utility clarifies the assumption of subjective value that is often associated with psychological hedonism. Individual utility implies that individuals will act consistently with their preferences, but it does not imply that all preferences of individuals are selfish. This nuanced explanation of individual utility explains the possibility of altruism within economic action. Additionally, a significant portion of the research done in the field of behavioral economics is devoted to the topics of decisions under uncertainty and search and choice processes. The focus on situations of decisions under uncertainty is a continuation the rejection of the neoclassical assumption of perfect knowledge. The process of search and choice is essential to considerations of entrepreneurial activity. The investigation and valuation of alternatives is critical to economic decision making, however it is unclear when individuals seek alternatives and when they settle for options that are more immediately available. (Simon 1987)

Behavioral economics has received increasing recognition within the industry, and many recent recipients of the Nobel Prize for economics. In 2002, Daniel Kahneman won the Nobel Prize for economics and gave an acceptance letter entitled “Maps of Bounded Rationality, A Perspective on Intuitive Judgment and Choice.” This lecture summarizes much of Kahneman’s scholarly work and provides a useful archetypal example of the research projects undertaken by behavioral economists. Kahneman’s lecture is divided into six sections, which offer explanations of human behavior and decision making: intuition and accessibility, framing effects, prospect theory, attribute substitution, accessibility of corrective thoughts, and prototype heuristics. In discussing intuition and accessibility, Kahneman is primarily distinguishing between the types of decision that individuals make. Intuitive judgements occupy a position between automatic perception and deliberate reasoning. Automatic perception consists of the unconscious decisions people make in response to continuous stimulus. In contrast, deliberate reasoning is the process of enumerating possible alternatives and making thoughtful decisions. Intuitive judgements occupy a psychological space between these two forms of decision making that determine human behavior. According to Kahneman, the difference in how individual make decisions depending on various circumstances will have an impact on statistical research. In addition, Kahneman presents a two-system view of thought processes. System 1 consists of fast, automatic, and difficult to control decisions. For example, the choice to remove one’s hand from a hot stove. Decisions made in System 1 are categorized as impressions. System 2 houses slower, serial, effortful, and deliberately controlled decisions. (Kahneman 2002, 351-401) These decisions are categorized as impressions. According to Kahneman, judgements that

reflect impressions are intuitive. Next Kahneman introduces the accessibility dimension. Accessibility is the ease with which particular mental contents come to mind. Accessibility of information exists along a continuum, with relational information being only what somewhat accessible. The process of comparing two alternative requires deliberative thoughts. There are various determinants of accessibility that dictate how quickly various pieces of information will enter the decision-making process of the individual. One key determinant is physical salience. Objects that are physically present are easier to comprehend than those that are immaterial or must be imagined. Natural assessment, or attributes that are routinely and automatically registered will be more accessible. In the next section of his lecture, Kahneman analysis framing effects. The phenomena of framing effects produces different responses of individuals to the same information when it is present in a different way. The difference between decisions made based on intuition and those based on computation has significant impacts. Kahneman illustrates framing effects by presenting the Asian Disease problem. In the Asian Disease problem, program participants are given the same quantitative options, but the question is framed differently. Participants are asked if, in a situation where a disease from Asia has infected a local population of 600, they would rather save 200 people or have a 33% chance to save the entire population and a 66% chance to save no one or have 400 people die or have a 33% chance to save the entire population and a 66% chance to save no one. In the first option, individuals almost always choose the first alternative to save 200 people while in the second situation, individuals almost always chose the second alternative which is more up to chance. Quantitatively, the first option in both situations is exactly the same: 200 people live through the crisis and 400 people die as a result of

the crisis. However, due to framing effects, individuals are more likely to be biased toward the language of saving people and away from the language of people dying. This illustrates the effect of framing effects on decision making. (Kahneman 2002, 351-401)

The third section of Kahneman's paper deals with prospect theory. Prospect theory postulates that perception is reference dependent. As such, the perceived attributes of a stimulus reflect the contrast between that stimulus and a context of prior and concurrent stimuli. Prospect theory argues that choices will be dependent upon the frame of reference of the acting individual. For example, the initial wealth of an individual will alter their willingness to participate in risky choices. Next, Kahneman discusses attribute substitutions as model of judgment by heuristic. There are three heuristics of judgment identified: representativeness, availability, and anchoring. Representativeness relates to the similarities between the decision at hand and similar prior experiences. Availability is the accessibility of the heuristic in the mind of the decision-maker. Anchoring is the tendency of individuals to identify one feature in particular and connect it to prior experience. Kahneman defines heuristics as the principles, process, or cues of judgement. Attribute substitution is defined as the process by which individuals assess a specified target attribute of a judgement object by substituting a related heuristic attribute that readily comes to mind. The fifth section of Kahneman's lecture deals with accessibility of corrective thoughts. In presenting the principle of accessibility of corrective thoughts, Kahneman is attempting to correct for an assumption of neoclassical economics that all thoughts pertaining to economic decisions occur in System 2, and are thus deliberative in nature. (Kahneman 2002, 351-401) Instead, Kahneman argues that even those individuals who have statistical training do not eradicate intuitive heuristics. Finally, Kahneman

discusses prototype heuristics. A prototype heuristic is the process of substituting an attribute of a prototype for an extensional attribute of its category. In order to test for prototype heuristics, Kahneman recommends two tests: tests of extension neglect and test of monotonicity. The first test attempts to examine which attributes of a decision are being ignored due to the implementation of a heuristic. The test of monotonicity relates to whether the use of heuristics is increasing or decreasing. (Kahneman 2002, 351-401)

In many respects, the development of the social sciences took place concurrently. As the task of social science became more robust, the individual branches of economics, sociology, and psychology became distinct. One of the key distinctive features of economics is the development of marginal utility. When the marginal revolution took place, there were two theoretical implications for the discipline of economics: the theory of marginal utility and the subjective theory of value. The theory of marginal utility states that for every additional unit of a good consumed, the utility of the additional unit decreases. The subjective theory of value states that every person has their own preferences and as such, they will employ the means available to them according to ideas in order to achieve their desired end. These two theories are essential to the rest of economic theory. In addition to provide a theoretical foundation for the discipline, the marginal revolution also produced two implications for economic methodology. First, as a result of the marginal revolution economics became a positive or predictive science. Laws derived from marginal utility can be used to make generalizations that are applicable to the future of human behavior. Additionally, the marginal revolution clarified the focus of economics. As a result, economics deals not only with markets, but more generally with acting man. The discipline of sociology developed separately from

economics. According to Ludwig von Mises, sociology is the more general discipline, spanning a broader scope of human behavior while economics takes a narrower approaching, only considering the intentional actions of humans. Various social scientists have taken a different approach to the relationship between economics and sociology. August Comte, the father of positivism, attempted to displace economics with sociology. Others have had a more positive approach to the relationship between the disciplines, such as Fredrich Bastiat and Vilfredo Pareto who attempted to integrate sociology and economics. Many economists such as Friedrich von Wieser, Joseph Schumpeter, and Fredrick Hayek also authored academic work in the field of sociology, but sought to keep their work in the two areas separate. In contrast to these academics who saw economics and sociology as two disciplines that existed separately to accomplish different ends, Max Weber took a more hostile approach to economics, seeking to replace all economic explanations with sociological explanations. After Max Weber, sociology became “antieconomics” or an attempt at non-market explanations for economic phenomena. (Hulsmann 1933, ix-lvi) As the disciplines of economics, sociology and psychology have developed, the distinctions between the fields of study have not always been clear. According to Ludwig von Mises economics deals with human behavior to the extent that the acting person could base decisions on personal value judgements under economic calculation. As such, any human behavior that occurs without a basis on value judgments cannot be evaluate through economic laws because economic laws depend on economic calculation to be effective. According to non-Misesian Economists-sociologists, economic calculation is possible outside of the framework of a market economy.

However, this claim on the part of sociologists ignores how essential prices are to economic calculation, and thus to the study of economics. (Hulsmann 1933, ix-lvi)

Much of the contemporary approach to economics can be attributed to foundational assumptions found in the work of classical economists. In his book, *The Theory of Moral Sentiments*, Adam Smith makes several claims regarding the nature of human behavior that have been adopted by behavioral economists and confirmed by their empirical work. In his work, Smith devotes much time to the discussion of passions, which are the raw instincts and tendencies which motivate human behavior such as hungry, thirst, and sexual drive. Though passions are a powerful impetus for human action, Smith argues that people are not merely controlled by their impulses. Instead, Smith claims that behavior is the result of the struggle between passions and what he terms the impartial spectator. The impartial spectator is the ability of the individual to view themselves from an external, outside perspective. People are able to overcome their own passions by viewing themselves from the perspective of another person. This cognitive ability leads individuals to practice self-denial when short-term gratification produces long-term costs. The dichotomy of passions and the impartial spectator is similar to the dual-process framework of psychologists and is relevant to various economic and psychological phenomena involving loss aversion, willpower, and fairness. Adam Smith undertakes an extensive discussion of preference, which relates to the dual-process perspective. Smith first discusses this in the context of loss aversion. Loss aversion is an extremely powerful motivator. Smith argues that pain is more significant than gains. Psychologists have examined how losses and gains are processed which revealed that they are processed in different regions of the brain, and are thus

quantitatively different. (Ashraf, Cramerer, and Loewenstein 2005, 133) The relationship between passions and the internal spectator also relates to intertemporal choice and self-control. Passions are myopic while the spectator is not influence by immediate time preference, and are able be more farsighted. The contrast of passions and the spectator in Smith's work parallels the contrast between the doer and the planner in the work of Joseph Shefrin and Richard Thaler. The research of doers and planners provides context to study the life cycle of saving and life cycle temptation. (Ashraf, Cramerer, and Loewenstein 2005, 133) This study reveals that choices that provide potential pleasure for in the more immediate future activate emotional regions of the brain in a way that delayed outcomes do not. (Ashraf, Cramerer, and Loewenstein 2005, 134) Another psychological factor in decision making that Adam Smith considers is the tendency of individuals toward overconfidence. According to Smith, the chance for gain is over-valued by most men given that they are in "tolerable health and spirits." This theory regarding overconfidence is consistent with the evolutionary theory in contemporary economics. According to this theory, those who succeed in investment must be overconfident in order to make confident decisions. (Ashraf, Cramerer, and Loewenstein 2005, 134) Adam Smith also discusses altruism, which is a key topic of the research of behavioral economics. Smith notes that sympathy is an important passion, but it is not a reliable guide for human behavior. For example, people will verbally express sympathy to those who have experienced a crisis internationally, such as an earthquake, but do not take any actions to provide relief. In contrast, the sympathy of a mother toward her child in a stressful circumstance often produces a response that is over-reactive given the proportion of the threat. Beyond the observable instances of sympathy, there have been

significant fluctuations in sympathy even in controlled economic experiments such as the dictator game. In the dictator, a participant is given a certain sum of money and they are allowed to determine at their own discretion how much of the sum to split with another participant. Depending on what the “dictator” is told about the other participants changes how much money they voluntarily give up. Adam Smith notes that sympathy is powerful, but can be moderated by the impartial spectator. (Ashraf, Cramerer, and Loewenstein 2005, 134-135) In contrast to altruism, which Smith describes as an erratic force, there is the counter balance of fairness. According to Smith, each person has an internal sense of justice which moderates altruistic tendencies. While altruism is unpredictable, Smith argues that serves a necessary function in the market as it serves to build social trust. In order for individuals in the market to engage, they must believe that they will not be cheated or even personally harmed when they are attempting to exchange goods. Because altruism is erratic, people sometimes choose altruistic action even when they are not personally connected with others involved in the situation. This anonymous care provided by strangers serves to build societal trust. Because trust is correlated with economic growth, altruism plays an important role in the economic wellbeing of a country. While the acts of altruism are consistent with the work of Adam Smith and his understanding of human behavior which leaves room for preferences toward charitable action as a result of subjective preferences, the concept provided a challenge to the modern neoclassical approach to economics, which assumes that individuals always engage in profit maximizing activity. Behavioral economics has sought to overturn the assumption of utility maximization in order to reintroduce the concept of altruism. (Ashraf, Cramerer, and Loewenstein 2005, 136-137) Another idea present by Adam Smith in the *Theory of*

Moral Sentiments is that consumption is not always correlated with an increase in pleasure. According to Smith, economic activity is forecasting error because people pursue wealth acquisition because they believe it will lead to permanent. Instead, individuals find that material benefit is both temporary and does not serve to truly satisfy their preferences. Smith notes that both pleasure and pain are transient, so the individual human condition is constantly changing. Even in painful situations, people demonstrate a significant amount of adaptability. Smith's theories have been confirmed in modern studies which have revealed that a person's ongoing conditions have little impact on their overall wellbeing. Additionally, studies have also found that people are unaware of how well they will adapt to painful and unpleasant circumstances. Because people are unaware of these factors, the deception that wealth brings happiness perpetuates and continues to drive the market. Though increased production does not bring happiness to many market participants, it ultimately ends up promoting the good of the poor because the benefit from the cost-savings and increased accessibility of goods. Smith concludes this rather dismal assessment of the market on a positive note by postulating that the things which truly matter to happiness are more equally distributed in society than wealth. (Ashraf, Cramerer, and Loewenstein 2005, 139-140) In addition to these arguments in Smith's work that parallel the contemporary research projects of behavioral economics, Smith's work also includes four ideas that would provide the foundation for continued projects. These ideas include the desire of individual to be well-regarded by posterity, the negative reactions of individuals to being misjudged, the mistaken belief in the objectivity of tastes, and the societal sympathy that sometimes occurs for the great and rich. (Ashraf, Cramerer, and Loewenstein 2005, 140-142)

In addition to claiming Adam Smith as a major influence, many behavioral economists also draw heavily from Frederick Hayek. Frederick Hayek is well-known for his work which connects economic, social, and institutional phenomena. He has also made contributions to academic literature regarding psychology. Many behavioral economists cite Hayek as a major influence on their work. Some of the major aspects of Hayek's work that inform behavioral economists are his view of rationality and distinction of economics from natural sciences. Like most economists, Hayek assumes that humans are rational beings. However, he stipulates that there are limitations on human rationality. Along these lines, Hayek notes that people lack both perfect knowledge and flawless validity of reasoning. Based on this understanding, Hayek makes the policy conclusion that individuals ought not to participate in master planning because it is impossible for one individual, or a group of individuals to understand the extent of the market. Psychologists have credited Hayek with the creating the basis of Gestalt psychology, which postulates that people respond to the organized whole of stimuli, not individual stimuli. The accreditation is due to Hayek's argument that perception is based on prior experience and context. In fleshing out his philosophy of rationality, Hayek identifies two kinds of individualism: false individualism and true individualism. False individualism leads to the fatal conceit of believing that there are no cognitive limits. In contrast, true individualism accepts that each person is subject to the constraints of imperfect information, irrationality, and fallibility of reason. In response to the acceptance of true individualism, Hayek proposes that individuals engage in the free market in order to share knowledge. Hayek's beliefs regarding rationality also affect what he believes to be the scope of economic theory. One component of rationality that Hayek cites is the

importance of the ability to be understood by others and participate in predictable behavior. Predictable behavior is necessary to entrepreneurship because entrepreneurs must have some means of determining what plans to undertake in order to make a profit. Hayek also argues that there is a limit to the predictive ability of economics. Though human behavior is somewhat predictable, it cannot be attributed to formulae because it is still based on subjective preference, which vary. Hayek had an impact on a wide variety of behavioral economists and psychologists including Herbert Simon, Harvey Leibenstein, Vernon Smith, and George Katona. (Frantz 2013, 1-34)

The study of behavioral economics has self-identified as a new school of thought within the discipline, however the true nature of behavioral economics is that it seeks to return the discipline to foundational assumptions found in the work of classical economics while employing the empirical focus and research methods of neoclassical economics. Many policy makers across the world see behavioral economics as an opportunity to gain insights into the human psyche which they can capture in order to influence behavior and encourage what they perceive to be positive outcomes. The application of behavioral economics encounters the knowledge problem, a theory presented by Frederick Hayek, one of the purported precursors to behavioral economics. While behavioral studies can provide an interesting insight to the nature of human behavior, it is ultimately impossible to know the thoughts and subjective preferences of others. The methodology of behavioral economics captures some important and fundamental assumptions of human behavior, it cannot ultimately be successful in predicting the preferences of individuals.

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