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Jevons' Selective Interpretation of Bentham

Working Paper No. 15

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Prepared for Professor John Hall

Abstract: This inquiry seeks to establish that in *The Theory of Political Economy*, W. Stanley Jevons offers a selective interpretation of Jeremy Bentham's notion of utility. Moreover, Jevons does so in a manner that generates enduring implications for Economics as a science. Special emphasis is placed upon Jevons' use of Bentham's understanding of the circumstances that direct pursuits of pleasure and avoidance of pain. Emphasized is that Jevons' omission of 'fecundity, purity, and extent' as quantifiers of utility, creates enduring implications that emerged years after his book's publication in 1871. What is finally considered are some of the difficulties associated with creating and using science, employing as an illustrative example, Jevons' selective use of Bentham's notion of utility and its implications in the formation of neoclassical economics.

JEL Classification Codes: B13, B31, B41

Key Words: Jeremy Bentham, Microeconomics, Neoclassical Revolution,
W. Stanley Jevons, Utility Theory

This inquiry seeks to establish that in his book, *The Theory of Political Economy*, W. Stanley Jevons offers a selective interpretation of Jeremy Bentham's notion of utility that generates long standing implications. Jevons, seeking to establish economics as a mathematical science, places Bentham's narrow notion of utility at the core of his thesis. Bentham's utility – the idea that humans behave in accordance with a maximization of pleasure and a minimization of pain – is static and simple, reducing human behavior to two categories with seven considerations. Despite the simplicity of Bentham's utility, Jevons reduces it further, considering only four of the seven quantifiers of pain and pleasure. Jevons' selective adoption of Bentham's ideas suggest that a foundational idea of neoclassical economics is built unscientific ground. As a foundational thinker of orthodox economics, Jevons' work impacts decisions made by governments, businesses, and individuals to this day.

Jevons Revisited

In *The Theory of Political Economy* [1871] (1957), Jevons offers a theory of economics that suggests utility is the underlying driver of value. In doing so, Jevons (1957, 3) argues that economics should be a purely mathematical science. In developing this thesis, Jevons (1957, 4-8) labors to compare his version of economics to early stages of sciences like physics and astronomy and contrast it

with political economy and other moral sciences. Namely, Jevons makes two arguments. First, he disagrees with the labor theory of value, arguing that utility provides a more direct and precise manner of determining value. Second, he insists that to be a science, economics must fully commit to a mathematical approach.

Jevons attempts to compare his version of economics to sciences like physics and astronomy. Specifically, Jevons' (1957, 3-11) considers the precision and application of mathematical measurement in physical sciences and suggests that economics is similar. He writes that all sciences are inexact in their ability to measure, and that this alone does not preclude a method of inquiry from making calculations and theories. To illustrate, Jevons argues that just as a physicist must make assumptions about the stiffness of a fulcrum, economists must make assumptions about the behavior of humans. However, in order to develop a theory of economics conformable to mathematics, Jevons needed an underlying theory of utility to explain value and human behavior. Instead of developing a unique theory of utility, Jevons uses Jeremy Bentham's.

Jeremy Bentham's [1780] (1967) *Principles of Morals and Legislation* presents his notion of utility measured by the intensity and duration of pleasure and pain. In describing utility, social control expert, Bentham, (1967, 125) writes that human behavior can be explained exclusively according to the pursuit of pleasure and the avoidance of pain. Utility is the term given to explain the conglomeration

of these two separate but similar pursuits. Explaining in further detail, Bentham (1967, 126-128) states that utility can be viewed as the property of any object that produces an increase in “good” feelings or reduces the happenings of “unhappiness or pain.” Extending this idea, he notes that utility applies to communities only as the sum of the utility of its members. In essence, Bentham intends to classify all human behaviors into one of two categories—the pursuit of pleasure or the avoidance of pain—then explain those behaviors using a single idea, utility.

When explaining measurements of utility, Bentham offers four metrics for individuals and an additional three for groups. Heilbroner (1996, 206) shares Bentham’s criteria for quantifying utility. For individuals, intensity, duration, certainty and propinquity, of pleasure and pain are considered when making any decision, while for a group, the fecundity, purity and extent of actions are considered as well. A distinction between the former four and the latter three is their relationship to time and to other actors. While duration is considered for individual measures of utility, it refers only to the duration of a single action or event while both fecundity and purity consider pleasure and pain in a future time period. In a similar vein, propinquity allows consideration for other actors near the central utility maximizer, while extent measures an unbounded consideration of how many others may be impacted by a decision. Jevons completely follows

Bentham's notion of utility, but selectively chooses which considerations are used by individuals in economic calculation.

While undoubtedly committed to following Bentham's utility, Jevons omits fecundity, purity, and extent as considerations in his application. To illustrate the degree to which Jevons roots his work in Bentham, consider the proclamation Jevons (1957, 28) makes early on in his book, stating that Bentham's utility must be "undoubtedly" accepted, implying that without it, the whole of his argument will crumble. While Jevons relies completely on Bentham's utility, he makes a purposeful yet curious decision about its quantification. Jevons (1957, 29) omits Bentham's final three measurements of pleasure and pain: fecundity, purity and extent stating that while these considerations are pertinent to theories or ideas concerning morality they are not required for the, "more simple and restricted problem which we attempt to solve in Economics."

It is plausible that in developing this theory, focused on individual marginal utility, that Jevons decided only to use the quantifiers Bentham deems appropriate for individuals, but that argument is not present. Perhaps Jevons thought this was implied, or considered that illuminating such an omission could undermine the certainty with which the reader must accept the notion of utility.

Jevons reduced the scope of economics to allow for its mathematization. In doing so, Jevons (1957, 26-27) willingly and purposefully disconnects economics

from morality and ethics, explaining that while there are undoubtedly situations where the considerations of a neighbor, army, or nation-state could influence individual decisions, those situations are not the concern of economics as a mathematical science. Going further, Jevons makes it clear that he views economics as the study of the basic needs and wants of humanity, and that through this rational calculus nearly all of human behavior can be explained. While not overtly malicious, Jevons' selective omission and conscious decision to focus solely on measures which placed individual utility at the center of what would become and still is neoclassical – orthodox – economics, impacts the direction and focus of economics to this day.

Jevons' Effects on Economics as a Science

The publication of Jevons' *The Theory of Political Economy* marks the beginning of the neoclassical revolution. Jevons thesis presents a shift of economics from a moral science to a mathematical that was accepted and is still widely held as the standard. Jevons' three central ideas produce unique but connected ramifications on economics as a science.

First, by stating that economics is a mathematical science of rational calculus, detached from ethical consideration, Jevons puts economics, on a path toward static analysis devoid of the nuance required to understand complex human

systems, interactions, and institutions inherent to the subject: the shift from the labor theory of value to the utility theory uses an unscientific measure, taken from Bentham, that places the focus of economics on individuals in a short and definite time frame. Secondly, his selective interpretation of Bentham's utility built orthodox economics on a foundation that oversimplifies human behavior and systems. He fails to consider how maximizing individual utility impacts the future or effects those outside of one's immediate relations. While Jevons attempts to make clear that some situations supersede his analysis, the widespread adoption of his theories among economists came with an overzealous commitment to the idea that anything concerning economic decisions does not impact others. Finally, Jevons overt disconnect from morality and ethics, a key component of the political economy, allowed future economists, who built on Jevons' ideas, to perpetuate theories and implement policies devoid of moral consideration.

Jevons' lack of nuance, oversight, and blindered following of Bentham, combined with Bentham's blunt explanation of *all* human behavior suggest that modern neoclassical economics stand on an unstable foundation as a science. Most disciplines that are considered scientific in nature are rooted in sound, observed, evolutionary theory and consider the ethical and moral implications of their actions and findings. Even sciences that many perceive to deal in fact and fiction, say biology or chemistry, ensure that their work is rooted in empirical traditions and

consider the ethical implications of the questions they ask and the results they find. Given that the neoclassical approach dominates today, in theory and in practice, it is worrisome that Jevons states plainly that it's theory should be applied only to simple problems devoid of ethics and morality, and that his most central contribution, utility, was developed by someone outside the field whose primary professional focus was social control. Today's economists may want to consider Jevons (1957, 29) own assertion that this theory was meant only to deal with "simple" problems when conducting what is often described as nuanced and technical research.

Science is evolutionary, while Jevons' mathematization of economics made the discipline static. Despite, Jevons' (1957, 1-27) continued insistence throughout his first chapter, that the mathematization of economics was a step toward a more scientific study, the direction of the subject henceforth suggests the contrary. While the shift toward the utility theory of value gave economists more concrete figures and the ability to create graphs easy for the human mind to understand, it took away the ability to include power, class, or cooperation in economic analysis: the scientific foundations of the field, grown out of logic, philosophy, and history were disregarded under the guise of becoming more scientific.

Although Jevons' does appear cognizant of the potential implications of the shift he proposes, he appears committed to the idea that the shift is an

improvement. For example, Jevons (1957, 36) writes briefly on the uncertainty of future events – recognizing that future outcomes may play a role in present decision making – but proceeds to explain how these thoughts need only be considered in industries, like insurance, concerned with the future. Jevons' contribution to economics was drastically reducing the scope while simultaneously convincing readers that the reduction in scope meant increased accuracy.

By selectively using Bentham's utility to reduce human behavior, and introducing equations and graphs that, under certain circumstances, successfully predicted slivers of social activity, Jevons convinced many that static thought was scientific. Making what must have been a convincing argument, Jevons (1957, 6) explains that economics, like physics or astronomy, measures quantities in inexact amounts, and thus should be mathematized. By suggesting economic measurements are nearly as precise of measurements of force or distance, Jevons implies that through mathematization, economics may become as precise. Economists, policymakers, and business owners latched on. Today, economic forecasts and models are often treated as precise sciences. This stems from Jevons use of utility.

However, other sciences are more precise. When force is applied to a wrench, it may be difficult to distinguish between the amount of force down to hundredths of newtons, but measurements are nearly exact, and the wrench will

never act contrary. Conversely, a human being may consume ten apples every week for ten years and then abruptly change their consumption patterns. While the difference between the two may appear obvious, economics proceeded as if they were the same after the publication of Jevons' book. A more subtle, but equally consequential, shift that occurred in economics starting with Jevons was the disconnection from morality.

Jevons (1957, 29) explicitly states that his omission of fecundity, purity, and extent as qualifiers of utility stems from their moral implications. Explaining further, Jevons (1957, 29) makes clear that economics – as a science – is not meant to answer questions of morality writing, “These three last circumstances (fecundity, purity, and extent) are of high importance as regards the theory of morals; but they will not enter into the more simple and restricted problem which we attempt to solve in Economics.” The neoclassical revolution in economics began under the pretense that economics was devoid of morality, an asinine attitude still seen in business and policy making. No science is devoid of moral implication, and by stating economics, at its foundation, does not deal with questions of morality, Jevons placed economics on an unscientific path.

Challenges Associated with Creating and Using Science

Jevons' use of Bentham and its subsequent impacts on economics provide an illustrative example of the difficulties of creating and using science. The introduction of the utility theory of value kickstarted the neoclassical revolution and sent economics in a new direction. In hopes of creating a more systematic economics, one that was more scientific, Jevons drastically reduced the field. An act antithetical to the advancement of a science. However unscientific, these ideas gained momentum in the mainstream, and ultimately became and remain the orthodoxy. Thus, over time, the minutiae of the underlying assumptions and decisions at the foundation go unexplored and unquestioned leading to the further advancement of economics down the path set forth by Jevons.

Creating systematic and cohesive methods and theories to explore any subject is incredibly difficult. Doing so when human action and decision making is involved proves even harder. Jevons, understanding the difficulty of creating new or offering advances to a science, commits firmly to his ideas. Two key choices, made under this zealous commitment to push science forward, led economics in a less scientific direction. In tandem, these choices highlight the difficulty of creating and using science.

First, the mathematization set forth by Jevons shows how fraught creating science can be. In his decision that economics must undoubtedly be a mathematical

science if it was to be a science, Jevons (1957, 3) necessitates the ability to quantify anything associated with economic questions. Realizing the daunting nature of such a task, Jevons relies on Bentham's utility. Bentham's utility is notoriously inflexible, unverifiable, and unscientific. Specifically, Bentham (1967, 127) defends any behavior that appears contrary to his theory using circular reasoning, suggesting that any behavior outside what is predicted must ultimately still be some actor working to maximize their utility in a more uncommon fashion. In order to thoroughly integrate Bentham's utility, Jevons decides to narrow Bentham's idea to fit the narrow scope required by the need to measure every quantity. In an attempt to create a more systematic, rational, and measurable science, Jevons stripped economics of its nuance. A single short-sighted decision by one person produced hundreds of years of ramifications.

Jevons' second major idea was the shift away from the labor theory of value toward the utility theory of value. Here, there are lessons on the difficulty of using science. In describing this shift, Jevons (1957, 171) suggests that labor is simply a necessary pain incurred by individuals to ward off future pains. In isolation the idea is benign, taking a slightly different perspective on a long-accepted idea. Moving forward, as this shift in perspective was adopted by other economists, this shift manifests in the acceptance that economics is the study of individuals opposed to the study of societies. The more the idea is used and normalized, the

easier it is for future economists to accept it as truth. This has clearly been the case with Jevons' shift away from the labor theory toward the utility theory. Many economists and lay people alike blindly accept the notion that economic activity can be chalked up to everyone individually maximizing their utility when in viewable reality they often view the contrary. The ease with which science is often accepted as truth, and the ramifications on people's lives when the science is incorrect – in economics, the Great Depression and Financial Crisis come to mind – suggest that those who create and use science must understand the history of their science.

In economics, foundational ideas are often taught as law despite their unscientific footing. Supply, demand, and the equilibrium price are described with words like, “natural” and “stable,” when in reality the underlying ideas – like the maximization of utility by the rational actor looking to avoid pain and seek pleasure – were set forth by one person looking for a simpler way to conduct their work. Hence, the creation and use of science must happen critically, thoughtfully, and cautiously. If not, the proliferation of unscientific thinking and theories could stagnate an entire discipline as it has in neoclassical economics as illustrated by the consequences stemming from Jevons' selective use of Bentham's utility.

Conclusion

This inquiry sought to establish that in his *The Theory of Political Economy*, Stanley Jevons offers a selective interpretation of Jeremy Bentham's notion of utility that generates long lasting implications. Jevons' roots his thesis – that economics must be a mathematical science – in Bentham's utility, the idea that all of human behavior is driven by the desire to maximize pleasure and minimize pain. In doing so, Jevons uses only four of seven qualifiers set forth by Bentham, stating plainly that any qualifier necessitating questions of morality lie outside the scope of economics. This decision, marking the beginning of the neoclassical revolution, aimed economics toward a less scientific approach despite its intentions.

Ultimately, Jevons' ideas became, and remain, the orthodoxy. Despite one of the foundational thinkers acknowledging that his ideas are not adequate to answer questions concerning morality, those who use economics today continue to do just that.

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