

# THE PROBLEM WITH MARKET DEFINITIONS

It is an article of faith in the US that the free market system is the best possible system for allocating scarce resources. Samuelson and Nordhaus have a long explanation of the glories of this kind of allocation. *Economics* 2005 ed. P. 26. One source for this idea is the early neoclassical economist William Stanley Jevons. He offers a mathematical proof that competitive markets will automatically generate the greatest utility for all participants in the market. The key words here are market and utility, and Jevons has a careful definition for both. His proof doesn't work for non-competitive markets, but there is no such thing as a competitive market in the real world. Therefore, the proof doesn't support the proposition that markets in the real world will produce the best possible allocation of scarce resources even in Jevons' limited sense.

In his 1871 book, *The Theory of Political Economy*, available online [here](#). Jevons taught that economics had to be based on physical sciences to achieve respectability.

But if Economics is to be a real science at all, it must not deal merely with analogies; it must reason by real equations, like all the other sciences which have reached at all a systematic character. IV.38

This was the view of the major neoclassical economists, including Léon Walras, Francis Edgeworth, Irving Fisher and Vilfredo Pareto, all of whom were trained in science, math and/or engineering. It is still the dominant view today, whether it's Krugman with IS/LM, the Dynamic Stochastic General Equilibrium crowd scattered across the economic landscape, or any of the rest of the academic and business economists who dominate all discourse on the

economy. All of them think math is the important thing. Thomas Piketty and his colleagues, and the MMT group are notable exceptions.

The first step in a math-based program is definitions. Jevons is careful to define his terms, starting with the term "utility", which is the subject of Chapter III. He quotes Jeremy Bentham's definition from his Introduction to the Principles of Morals and legislation:

"By utility is meant that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness (all this, in the present case, comes to the same thing), or (what comes again to the same thing) to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered."

This perfectly expresses the meaning of the word in Economics, provided that the will or inclination of the person immediately concerned is taken as the sole criterion, for the time, of what is or is not useful.

A commodity is a physical thing or service that embodies utility. Jevons explains at length the "fact" that the more you have of any commodity the less utility you derive from the last unit. Jevons uses the logic of the Riemann Integral to generate a downward sloping smooth curve based on the utility of the last unit. See III.17 and III.21. These figures depict the downward slope of the utility curve as more units of the commodity are acquired by the person.

Now suppose there are two people each with a supply of a single commodity. Jevons derives the following to show the conditions that determine the amount each will exchange with the other:

$$\frac{\phi_1(a-x)}{\psi_1 y} = \frac{y}{x} = \frac{\phi_2 x}{\psi_2(b-y)}$$

Here, the symbol  $\phi$  is the utility function for one commodity and  $\psi$  is the utility function for the other. The subscript 1 is for one person, and the subscript 2 is for the other. He says that each person will exchange until they reach the point point each person values the balance of their own commodity more than that of the other. Jevons is focused on straight up exchanges, corn for beef, but his equations work with money as well.

Finally, Jevons gives a careful definition of market in Chapter 4.

By a Market I shall mean much what commercial men use it to express. Originally a market was a public place in a town where provisions and other objects were exposed for sale; but the word has been generalised, so as to mean any body of persons who are in intimate business relations and carry on extensive transactions in any commodity. ... The central point of a market is the public exchange,—mart or auction rooms, where the traders agree to meet and transact business. In London, the Stock Market, the Corn Market, the Coal Market, the Sugar Market, and many others, are distinctly localised; in Manchester, the Cotton Market, the Cotton Waste Market, and others. IV.15

For other definitions, see this post. In today's language, we would call the people who make up Jevons' market merchants. Here's Jevons' formal definition, my bold.

By a market I shall mean two or more persons dealing in two or more commodities, whose stocks of those commodities and intentions of exchanging are known to all. It is also essential that the ratio of exchange between any two persons should be known to all the others. It is only so far as this community of knowledge extends that the

market extends. Any persons who are not acquainted at the moment with the prevailing ratio of exchange, or whose stocks are not available for want of communication, must not be considered part of the market. Secret or unknown stocks of a commodity must also be considered beyond reach of a market so long as they remain secret and unknown. Every individual must be considered as exchanging from a pure regard to his own requirements or private interests, and there must be perfectly free competition, so that any one will exchange with any one else for the slightest apparent advantage. There must be no conspiracies for absorbing and holding supplies to produce unnatural ratios of exchange. Were a conspiracy of farmers to withhold all corn from market, the consumers might be driven, by starvation, to pay prices bearing no proper relation to the existing supplies, and the ordinary conditions of the market would be thus overthrown.

IV.16

Jevons connects his utility and market definitions through his Law of Indifference:

...[W]hen two objects or commodities are subject to no important difference as regards the purpose in view, they will either of them be taken instead of the other with perfect indifference by a purchaser. Every such act of indifferent choice gives rise to an equation of degrees of utility, so that in this principle of indifference we have one of the central pivots of the theory.

The connection is that in a perfect, or what we would call a competitive, market when dealing with commodities that are utterly alike, we can predict that people will exchange commodities to increase their utility, and will continue to

exchange until further exchanges would decrease their total utility.

After some examples, and acknowledgement of various problems with his equations, Jevons draws the following conclusion:

But so far as is consistent with the inequality of wealth in every community, all commodities are distributed by exchange so as to produce the maximum of benefit. Every person whose wish for a certain thing exceeds his wish for other things, acquires what he wants provided he can make a sufficient sacrifice in other respects. IV.98

This conclusion springs directly from his definitions of market and utility. There are serious questions as to whether either definition is a good one, but the definition of market must describe some alternative planet. At the time Jevons was writing, financial markets and commodity markets were infested with fraud and corruption. Jevons acknowledges the problems of availability of information to participants, and the unfairness associated with speculators. IV.18. The average consumer bought in street markets, which probably match his definition fairly well for everyday items.

No one really thinks commodity and financial markets are much better today than they were in Jevons' day. For consumers, the problem is worse. There is no bargaining in grocery stores or department stores or with Amazon. There is no bargaining with cable companies or health care providers or insurance companies or banks or any provider of necessary items. The consumer is the price taker, and with the purchase takes all the legal limitations the seller can impose. Even for savers, there is no protection from stock brokers who owe no fiduciary duty to anyone but themselves.

Samuelson and Nordhaus use language very similar to Jevons to explain utility and marginal

utility and to explain consumer behavior, to the point of quoting him. *Economics*, 2005 ed. Ch. 5. It's reasonably true that individual consumers try to maximize their utility from the goods and services they buy, subject, of course, to their ability to understand the transaction, and to determine correctly the utility of the goods and services, as compared to other choices, including the choices to save or pay down debt. Samuelson and Nordhaus don't claim that consumers always make good choices. P. 89. They do claim that consumers make reasonable choices and learn from their errors, and that's close enough for their theory, they say. I wonder how many billions of dollars fall into that web of cracks in the market façade.

But Samuelson and Nordhaus separated their definition of market from their definition of utility, so it isn't obvious to the student that the markets themselves are inadequate tools for determining price/utility ratios that consumers face. In fact, the problems with those markets means that consumers can only maximize their utility to a certain level, and the people and firms that control the markets will always suck up the rest of that utility for themselves. We don't trade in utility, so that means they suck up more consumer money.

To be clear, most economists probably have a more sophisticated view of markets than we see in Jevons and in Samuelson and Nordhaus, and probably understand the limitations of the notion that the market system produces the best possible allocation of scarce resources.

But that sophisticated view is saved for grad students. The public, even the college-educated public, is fed on Jevons. That is why I think the definition of market matters. If economists had to teach the imagined better theory in Econ 101, the cracks and strains of the current system would be apparent.