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# Welfare, the Stoics, and Reference Dependence*

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Economic accounts of consumer welfare focus on the physical circumstances of consumers. In contrast, in many religious and philosophical traditions, welfare is thought to be largely independent of physical circumstances. This essay argues that the introduction of reference dependence enriches economic models of choice in a way that connects the economic account of welfare with the contrasting account offered by the Stoics. The Stoics wrote about the relationship between wealth and welfare, and the model of choice implicit in their writings involves comparison of consumption to a reference. When reference dependence appears in economic models, options for consumption are chosen after evaluation through comparison to a reference. For the Stoics, however, the reference itself was an object of choice. Choosing the right reference allowed the Stoics to achieve contentment even in adverse circumstances.

> He who is discontented with what he has … is … ignorant of the art of living.
>
> —Epictetus[1]

## Introduction

In 2002, Daniel Kahneman, a psychologist, received the Nobel Memorial Prize in Economic Sciences. Kahneman had, with Amos Tversky, developed a model of choice that is often more accurate than the standard economic model. In his acceptance lecture, Kahneman explained that he and Tversky had been inspired by the tendency of people to adapt to stimuli and then perceive deviations from the conditions to which they have adapted:

> Guided by the analogy of perception, we expected the evaluation of decision outcomes to be reference-dependent. We noted, however, that reference-dependence is incompatible with the standard interpretation of … the prevailing theoretical model in this area.… The analogy to perception suggests that the carriers of utility are likely to be gains and losses rather than states of wealth, and this suggestion is amply supported by the evidence of both experimental and observational studies of choice.[2]

This essay argues that incorporating reference dependence not only improves consistency with observed behavior but also enriches the economic account of welfare. The standard economic account of welfare contrasts sharply with the accounts of many religious and philosophical traditions. The economic account focuses on physical circumstances. In many religious and philosophical traditions, welfare is thought to be largely independent of physical circumstances.

This essay demonstrates that the incorporation of reference dependence connects the economic account of welfare with the account offered by the Stoics. Three properties of the Stoic account cause it to be of special interest. First, like many other religious and philosophical traditions, Stoicism offers an account of welfare that contrasts sharply with that of economics. Second, like economics, Stoicism addresses in detail the relationship between wealth and welfare. Third, unlike many other traditions, but like economics, Stoicism offers an account of welfare in which purely spiritual elements play a limited role.

The remainder of this essay is organized as follows: The first section demonstrates the tension between the economic account of welfare and the accounts offered by many religious and philosophical traditions. The second section discusses the introduction of reference dependence to economic models of choice. The third section reviews the account of welfare offered by the Stoics. The fourth section presents a model of choice that connects the Stoic and economic perspectives. The final section concludes the essay with a discussion of context and implications.

## Welfare in Economics and Contrasting Traditions

In the standard economic model of choice, welfare is determined by the consumption bundle chosen. People choose consumption bundles that maximize welfare given the budget constraint imposed by their wealth. Increasing wealth improves welfare by relaxing the budget constraint and allowing the selection of superior consumption bundles.

Models of choice are presented formally in this and subsequent sections to demonstrate the relationships between the standard economic model, economic models with reference dependence, and a model implicit in the writings of the Stoics.[3] Let $W$ denote wealth and let $X$ denote the set of all possible consumption bundles. Each consumption bundle $y$ is a vector specifying a quantity for each good. Let the vector $p$ specify the prices associated with each of the goods. Let $B(W) = \{y \in X{:}p \cdot y \leq W\}$ denote the budget set. For a given consumption bundle $y$, the term $p \cdot y$ is the sum of the price of each good multiplied by the quantity of each good in the consumption bundle. Therefore $B(W)$ is the set of all consumption bundles such that the total cost of the bundle does not exceed the budget of the consumer.

Let $\succsim$ represent the preference relation. Then for consumption bundles $x$ and $y$, $x \succsim y$ if and only if the consumer considers $x$ to be at least as good as $y$. Let $C(W)$ denote the choice set of the consumer given wealth $W$. In the standard model, consumers are assumed to choose from the budget set a consumption bundle at least as good as any of the others in the budget set, so that

$$C(W) = \{x \in B(W) : x \succsim y \text{ for every } y \in B(W)\}$$

Further properties of the bundles chosen are derived from several basic assumptions about the nature of preferences. One of those assumptions is that, for any possible bundle of goods, some other, similar bundle would be preferred.[4] This assumption ultimately implies that the bundles people choose exhaust their budgets and that greater wealth will always allow them to achieve greater welfare by getting better bundles.

Much of applied economics is focused, in various ways, on improving welfare through increasing wealth. For example, economists estimate the costs and benefits of policy options. Knowing the net benefits of each option allows policymakers to choose the option that achieves their objectives while having the most positive impact on total wealth.[5]

In contrast with the economic account of welfare, many religious and philosophical traditions teach that wealth and welfare are not closely related. The *Tao Te Ching* says, "Those who know they have enough are rich."[6] Christian Scripture says, "if we have food and clothing, we will be content with that" (1 Tim. 6:8 NIV). The Stoic Musonius Rufus taught, "[T]reasures … we shall consider equivalent to extreme poverty. Indeed, we will hold that one man and one man only is truly wealthy—he who learns to want nothing in every circumstance."[7]

The standard economic model of choice does not always correspond closely to observed behavior, and alternative models have been developed. The next section describes how the standard model may be modified to incorporate reference dependence.

## Reference Dependence in Economic Models of Choice

The empirical evidence concerning wealth and welfare suggests a more subtle and limited relationship than the standard economic model implies. For example, while incomes have risen substantially in the United States since the 1940s, reported happiness has remained relatively steady.[8] The economist Richard Easterlin argued that this pattern is related to aspirations that rise with income.[9] Comparisons of circumstances to aspirations are one form of reference dependence.

The standard economic model of choice can be modified to accommodate reference dependence. For example, let $r \in X$ denote a reference bundle. Let $C(W,r)$ denote the choice set of the consumer given wealth $W$ and reference $r$. Consumers then choose an element in the set

$$C(W,r) = \{x \in B(W) : (x,r) \succsim (y,r) \text{ for every } y \in B(W)\}$$

In this model, consumers have preferences over consumption and reference bundle pairs rather than only consumption bundles because satisfaction with each consumption bundle may depend on the reference. Experimental evidence indicates that satisfaction decreases sharply when consumption becomes inferior to the reference.[10]

In the standard economic model, a pattern of increasing wealth leads unambiguously to greater welfare because it relaxes the budget constraint. However, when welfare is also a function of a reference, a pattern of increasing wealth may also affect welfare by changing the reference. Rising aspirations are one way that a reference can change with wealth.

Reference dependence with references that change can create what has been called a hedonic treadmill,[11] where consistent progress never achieves the expected improvement in welfare. Instead, a steady increase in consumption over time causes a steady increase in the reference, resulting in a comparison of consumption to reference that does not improve. An alternative to the treadmill analogy for that futility can be found in the *Meditations* of Roman emperor Marcus Aurelius. *Meditations* is a sort of spiritual exercise book, with Marcus Aurelius contemplating his Stoic beliefs as he deals with the various frustrations of his life. He writes of ambitious people, “How their minds work, the things they long for and fear. Events like piles of sand, drift upon drift—each one soon hidden by the next.”[12]

The patterns identified by Easterlin and others suggest that reference dependence limits the improvements in welfare that are created by increasing wealth. However, reference dependence may not imply that welfare is more difficult to influence than standard economic theory suggests. As discussed in the next section, the Stoics provide an alternative account of welfare in which reference dependence also figures but with different and more positive implications.

## The Stoics and Welfare

Stoicism was one of several philosophical schools to develop in the tradition of Socrates.[13] The school was founded around 300 BC by Zeno of Citium and named after the *stoa*, or portico, where he taught. The philosophy resonated with the Roman aristocracy and thrived under the Roman Empire before beginning a decline in prominence during the century following the death of Marcus Aurelius in 180 AD.

Scholars argue for the pervasive influence of Stoicism on subsequent Western thought.[14] Several Stoic works, including the *Meditations* of Marcus Aurelius, remain widely read. The modern practice of Stoicism has attracted prominent advocates[15] and even inspired an annual conference.[16]

Perhaps the most prominent advocate in recent decades was James Stockdale. While flying in a combat mission over North Vietnam in 1965, his plane was disabled by enemy fire and he ejected. He was captured, beaten, and imprisoned. In prison, he was routinely tortured and spent over four years in solitary confinement. Stockdale relied on the teachings of the Stoic Epictetus for guidance during that difficult period. He wrote of Epictetus, "[M]y prison was a laboratory.… I chose to test his postulates against … demanding real-life challenges.… And as you can tell, I think he passed with flying colors."[17]

Stoics like Epictetus believed that happiness is achieved through virtue, regardless of circumstances, so that the good life is the virtuous one.[18] For example, the Stoic Seneca wrote in a letter to Lucilius,

> The wise man … will consider what is valuable in life to be something wholly confined to his inner self. He will repeat the words of Stilbo … when his home town was captured and he emerged from the general conflagration, his children lost, his wife lost, alone and none the less a happy man, and was questioned.… [H]e replied, "I have all my valuables with me" … meaning by this the qualities of a just, a good, and an enlightened character, and indeed the very fact of not regarding as valuable anything that is capable of being taken away.… Those words of Stilbo's are equally those of the Stoic.… This is the line he draws as the boundary for his happiness.[19]

The Stoics classified things such as health, wealth, and reputation as indifferents. In the context of economic theory, indifference between options indicates no preference between them. In the context of Stoicism, some indifferents, such as health, may be preferred to others, such as illness. Classification as an indifferent simply indicates the lack of a direct relationship with welfare.

The classification of virtues as good, vices as bad, and external things as indifferent corresponds to the idea in economic theory of a lexicographic preference ordering. The words in a dictionary or lexicon are ordered according to their first, and only afterward their subsequent, letters. If a word begins with the letter *z*, it can never move to the front of the dictionary, no matter how many times the letter *a* subsequently appears. In much the same way, under a lexicographic preference ordering some goods are so much more important than others that no increase in the less important goods can compensate for any decrease in the more important goods. The Stoics believed that no amount of wealth, or any other external thing, could compensate for a lack of virtue.[20]

The Stoics believed that dissatisfaction with circumstances is motivated by negative comparisons to other possible circumstances. The reference to which circumstances are compared may reflect the circumstances of other people. For example, Seneca wrote, in another letter to Lucilius, “However much you possess there’s someone else who has more, and you’ll be fancying yourself to be short of things you need to the exact extent to which you lag behind him.”[21]

The references to which circumstances are compared may also reflect past experience. For example, in his *Consolation to Helvia*, Seneca wrote, “No man is crushed by misfortune unless he has first been deceived by prosperity. Those who love her gifts as if they are theirs to enjoy for ever … lie prostrate in mourning whenever these false and fickle delights abandon their … minds.”[22]

The Stoics developed techniques for addressing the dissatisfaction that such comparisons can create. The philosopher William Irvine has argued that those techniques can be used to prevent and even reverse the kind of adaptation described by Easterlin and others.[23] An example can be found in the *Meditations*, where Marcus Aurelius wrote,

> Treat what you don’t have as nonexistent. Look at what you have, the things you value most, and think of how much you’d crave them if you didn’t have them. But be careful. Don’t feel such satisfaction that you start to overvalue them—that it would upset you to lose them.[24]

The exercise that Marcus Aurelius described can be characterized as a conscious attempt to manipulate the reference to which his circumstances were compared. Ignoring all that he did not possess and contemplating the loss of what he did possess established the most positive possible comparison.

Choosing the optimal reference helped Marcus Aurelius be satisfied with his circumstances. As discussed in the next section, the model of reference dependence implicit in that procedure inverts the models with reference dependence common in psychology and economics.

## A Stoic Model

The model of choice implicit in the passage from Marcus Aurelius can be formalized as an analogue of the model of reference dependence introduced earlier by assuming that consumers choose not the consumption bundle but the reference bundle. Consumers then choose an element from the set

$$R(x) = \{ r \in X : (x,r) \succsim (x,y) \text{ for every } y \in X \}$$

This model bears a close formal resemblance to the economic model with reference dependence. As with that model, the consumer has preferences over consumption and reference bundle pairs. However, in this model, consumption is held fixed while the reference bundle is chosen. Choosing an inferior reference increases satisfaction with consumption.

Unlike the consumption bundle, the choice of reference is not constrained by the budget and is therefore independent of wealth. If welfare were determined primarily by consumption, those wealthy through luck, or even crime, would be able to purchase better consumption bundles and obtain higher welfare. In contrast, the Stoics believed that achieving happiness solely through luck or crime is impossible. For example, Seneca, in another letter to Lucilius, wrote of happiness, "[Y]ou have no need to fear that such a valuable thing will fall into unworthy hands. Only the wise man is content with what is his."[25]

The choice described in this model does not preclude the choice described in the economic model with reference dependence. The Stoics classified some indifferents as preferred, and those indifferents would be chosen. The choice of an inferior reference would not eliminate preferences over consumption options but would instead characterize options as gains, limiting the strength of preferences between them and increasing contentment.

The Stoics believed the good life to be the virtuous one, and the choice of a reference that improves contentment does not, in itself, imply the achievement of virtue. Indeed, the Stoics believed perfect virtue to be very difficult to achieve.[26] However, the choice of a reference that improves contentment can aid the relegation of physical circumstances to a secondary consideration as virtue is pursued.

The choice of reference will, of course, only aid in relegating physical circumstances to a secondary consideration if a reference is chosen that is independent of physical circumstances. Seneca wrote that people tend to compare their circumstances to their own past circumstances and the circumstances of others. Instead of choosing a reference unrelated to physical circumstances, people could attempt to control their reference by controlling the circumstances of others. For example, the consumption of others could be controlled by using taxes to redistribute income.[27] Alternatively, if, as the economist Robert Frank has argued, people tend to compare themselves to their immediate associates, the reference could be controlled through the choice of associates.[28] Those who do not choose references independent of circumstances are likely to have limited control over them. Attempts to control references by controlling others are likely to be only partially successful, especially if, as the philosopher Rene Girard argued, desire is mimetic and the influence of others on references goes beyond what they are seen consuming to include even what they are seen wanting to consume.[29] Past circumstances are, of course, beyond control.

In comparing his possessions to their absence, Marcus Aurelius chose a reference independent of his circumstances. Others may fail to choose references independent of their circumstances because they fail to understand the choices they face. The standard economic model and even economic models with reference dependence are intended to represent the choices typically made. The Stoics, however, believed that people often fail to understand what is good and therefore fail to choose well.

## Discussion

Adam Smith developed many of the ideas foundational to economics. In *The Theory of Moral Sentiments*, he described the adaptation to circumstances that can create a hedonic treadmill, writing,

> The never-failing certainty with which all men, sooner or later, accommodate themselves to whatever becomes their permanent situation may, perhaps, induce us to think that the Stoics were, at least, thus far very nearly in the right; that, between one permanent situation and another, there was, with regard to real happiness, no essential difference: to render some of them the objects of simple choice or preference, but not of any earnest or anxious desire.… The great source of both the misery and disorders of human life seems to arise from overrating the difference between one permanent situation and another.[30]

While the standard economic model reflects many of the ideas that Adam Smith developed, it does not incorporate such adaptation. The differences between the perspective that became standard in economics and the Stoic perspective that Adam Smith described can have important implications.

For example, in a discussion of Stoicism and modern life, Irvine argued that politicians often rely for political support on claims that they will improve the welfare of their constituents through policy. While claims that politicians can substantially improve welfare through policy are consistent with the standard economic model of choice, such claims are not consistent with the Stoic perspective on welfare. Irvine argued that politicians may instead harm their constituents if they convince those constituents that their contentment is determined by their circumstances.

Comparisons of circumstances to references may also figure in other accounts of welfare that contrast with the economic account. In Christian Scripture, Paul warned that "the love of money is a root of all kinds of evil" (1 Tim. 6:10 NIV) and wrote, "[W]e brought nothing into the world, and we can take nothing out of it. But if we have food and clothing, we will be content with that" (1 Tim. 6:7–8). Contentment with food and clothing alone is facilitated by invoking the appropriate reference. It may be less than what others have, but it is more than nothing.[31]

Prayers of thanks, like those regularly offered before meals, are an integral part of the Christian tradition. Irvine argued that such prayers invoke a reference that promotes contentment, writing

> Before eating a meal, those saying grace pause for a moment to reflect on the fact that this food might not have been available to them, in which case they would have gone hungry.… Said with these thoughts in mind, grace has the ability to transform an ordinary meal into a cause for celebration.[32]

Reference dependence is only one of many insights from psychology that economists have explored in recent decades. As demonstrated in this essay, those insights may not only improve the consistency of economic models with observed behavior but also create connections between the economic account of welfare and the contrasting accounts of some religious and philosophical traditions. Examples beyond reference dependence include connections between Christian accounts of temptation and economic models that acknowledge the difficulty of self-control.[33]

The Stoic position that welfare is independent of physical circumstances is clear, dramatic, and, perhaps, a little difficult to accept. Even Paul, who was something of an expert on suffering (Acts 9:1–16; 14:19; 2 Cor. 11:24–27), allowed for food and clothing. However, economic models provide simplified accounts of the world, and the insights they generate may be valued without believing the models to be completely accurate. In much the same way, the Stoic account of welfare and the accounts of other religious and philosophical traditions may provide insights of value even to those who do not completely accept them.

As the awarding of the Nobel Memorial Prize indicates, reference dependence has been recognized to have important implications. Economists have argued that reference dependence provides insights relevant for finance, insurance, consumer saving, labor supply, and even the performance of professional athletes.[34] However, the most radical potential implication of reference dependence has gone largely unheralded. Reference dependence may decouple the choice of consumption from the choice of contentment.

## Notes

* Disclaimer: The statements, findings, conclusions, and recommendations of this study are those of the author and do not necessarily reflect the views of the Office of Advocacy, the United States Small Business Administration, or the United States Government.

1. Epictetus, *Discourses, Fragments, Handbook*, trans. R. Hard (Oxford: Oxford University Press, 2014), 279.

2. D. Kahneman, "Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice," *The Nobel Prizes 2002*, ed. T. Frängsmyr (Stockholm: Nobel Foundation, 2003), 460–61.

3. Models are presented in this essay by describing the sets of options that each model implies may be chosen. Such choice rules are more fundamental and flexible than utility maximization and do not require mathematical expertise to interpret.

4. A. Mas-Colell, M. D. Whinston, and J. R. Green, *Microeconomic Theory* (New York: Oxford University Press, 1995).

5. In the United States, Executive Order 12866 instructs federal agencies to assess the costs and benefits of regulatory alternatives and choose the alternatives that maximize net benefits.

6. Lao Tzu, *Tao Te Ching*, trans. G. Feng, J. English, and T. Lippe (New York: Random House, 2011), 35.

7. Musonius Rufus, *Lectures and Sayings*, trans. Cynthia King (William B. Irvine, CreateSpace, 2011), 86.

8. R. A. Easterlin, "Does Money Buy Happiness?" *The Public Interest* 30 (1973): 3–10; R. A. Easterlin et al., "The Happiness-Income Paradox Revisited," *PNAS* 107 (2010): 22463–68.

9. R. A. Easterlin, "Income and Happiness: Toward a Unified Theory," *The Economic Journal* 111 (2001): 465–84.

10. D. Kahneman and A. Tversky, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica* 47 (1979): 263–91; A. Tversky and D. Kahneman, "Loss Aversion in Riskless Choice: A Reference-Dependent Model," *The Quarterly Journal of Economics* 106 (1991): 1039–61.

11. P. Brickman and D. Campbell, "Hedonic Relativism and Planning the Good Society," *Adaptation-Level Theory: A Symposium*, ed. M. H. Appley (New York: Academic Press, 1971), 287–302; D. Kahneman, E. Diener, and N. Schwarz, *Well-Being: The Foundations of Hedonic Psychology* (New York: Russell Sage Foundation, 1999).

12. Marcus Aurelius, *Meditations*, trans. G. Hays (New York: Modern Library, 2002), 91.

13. G. Hays, introduction to *Meditations* by Marcus Aurelius, trans. G. Hays (New York: Modern Library, 2002), vii–lvii; A. A. Long, *Hellenistic Philosophy* (Berkeley: University of California Press, 1986).

14. J. Sellars, *Stoicism* (Berkeley: University of California Press, 2006), 135–57.

15. For examples, see L. C. Becker, *A New Stoicism* (Princeton: Princeton University Press, 1998); W. B. Irvine, *A Guide to the Good Life: The Ancient Art of Stoic Joy* (Oxford: Oxford University Press, 2009); M. Pigliucci, "How to Be a Stoic," *New York Times*, February 2, 2015; and N. Sherman, *Stoic Warriors: The Ancient Philosophy Behind the Military Mind* (Oxford: Oxford University Press, 2005).

16. The conference is called, of course, Stoicon: http://modernstoicism.com/stoicon-stoicism-conference/.

17. J. B. Stockdale, *Courage Under Fire: Testing Epictetus's Doctrines in a Laboratory of Human Behavior* (Stanford, CA: Hoover Institution Press, 1993), 18.

18. Sellars, *Stoicism*; A. A. Long, "Stoicism in the Philosophical Tradition: Spinoza, Lipsius, Butler," *The Cambridge Companion to the Stoics*, ed. B. Inwood (Cambridge: Cambridge University Press, 2003), 365–92.

19. Seneca, *Letters from a Stoic*, trans. R. Campbell (London: Penguin Books, 2004), 52–53.

20. Lexicographic preferences cannot be represented by the utility functions commonly used in economics. Such preferences are, however, consistent with the choice rules presented in this essay. For further discussion, see, for example, Mas-Colell, Whinston, and Green, *Microeconomic Theory*.

21. Seneca, *Letters from a Stoic*, 186.

22. Seneca, *Dialogues and Essays*, trans. J. Davie (Oxford: Oxford University Press, 2008), 166.

23. Irvine, *A Guide to the Good Life*.

24. Marcus Aurelius, *Meditations*, 89.

25. Seneca, *Letters from a Stoic*, 54.

26. Sellars, *Stoicism*, 36–41.

27. J. J. Ballor and V. V. Claar, "Envy in the Market Economy: Sin, Fairness, and Spontaneous (Dis)Order," *Faith & Economics* 61/62 (2013): 33–53.

28. R. H. Frank, *Choosing the Right Pond: Human Behavior and the Quest for Status* (New York: Oxford University Press, 1985).

29. K. Scott, "Why Enough Is Never Enough: John Locke, Rene Girard, and Money," *Journal of Markets & Morality* 16, no. 2 (2013): 487–505.

30. A. Smith, *The Theory of Moral Sentiments* (Kapaau, HI: Gutenberg Publishers, 2011), 143 (III.iii.30–31).

31. A similar juxtaposition appears in the book of Job. In a single day, Job lost his flocks, his servants, and his children. Rather than raging against God, "Job got up and tore his robe and shaved his head. Then he fell to the ground in worship and said: 'Naked I came from my mother's womb, and naked I will depart. The Lord gave and the Lord has taken away; may the name of the Lord be praised'" (Job 1:20–21 NIV).

32. Irvine, *A Guide to the Good Life*, 77.

33. S. L. Green, "Time Inconsistency, Self-Control, and Remembrance," *Faith & Economics* (2003): 51–60; D. R. Wilmoth, "Economic Models of Addiction and the Christian View of Temptation," *Faith & Economics* 61/62 (2013): 55–65.

34. N. C. Barberis, "Thirty Years of Prospect Theory in Economics: A Review and Assessment," *Journal of Economic Perspectives* 27 (2013): 173–96.