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Consumption, Happiness, and Climate Change

by Mark A. Cohen and Michael P. Vandenbergh

A large body of literature has developed over the past several years on the economics of happiness. One of the key insights of this literature is that beyond a subsistence level of income, relative income is often more important than absolute income to individual well-being. This is true for both comparisons against a reference group, e.g., across a community or country, as well as comparisons for the same individual over time. Another key insight is that changes in income have only transitory effects on well-being.

In this Article, we explore the implications of this literature for understanding the relationship between climate change policies and consumption. We identify a number of ways in which accounting for the implications of the new happiness literature could lead to laws and policies that influence consumption in ways that increase the prospects for reducing greenhouse gas (GHG) emissions in developed and developing countries. We do not examine every nuance of the growing happiness literature, but we provide a brief introduction and observations that we hope will stimulate further efforts by academicians and policymakers.

I. Background on the Economics of Happiness

There is growing interest among economists in evaluating public surveys of subjective well-being to determine which factors have the most significant impact on the public's quality of life.[1] Subjective evaluations of life satisfaction (happiness) exhibit many of these factors and can be used to represent the "utility" that economists refer to when thinking about "utility maximization."[2] Hundreds of life satisfaction studies have been conducted around the world for more than 35 years, and an entire academic journal is devoted to empirical happiness research.[3] Examples of research on happiness include studies of the conditions under which higher income produces happiness,[4] the effect of marriage and sex on happiness,[5] the effect of crime on life satisfaction,[6] the impact of noise on life satisfaction,[7] and the effect of air quality on happiness.[8]

Recent evidence suggests that life satisfaction can be measured with a reasonable degree of reliability—sufficient to be able to compare means over time or across jurisdictions, especially in large samples.[9] More importantly, life satisfaction studies can be analyzed using multiple regression analysis to understand the factors that affect happiness in a large population. Although we might not be able to compare two individuals directly, e.g., is someone who rates her level of life satisfaction a 7 really happier than someone who rates herself a 6?, we can ask how individual life satisfaction changes at the margin when life events change. Further, despite commonly held beliefs that responses to such questions will be affected by the mood of the individual at the time of the survey as opposed to their overall well-being, evidence suggests otherwise. For example, Michael Eid and Ed Diener estimated that mood effects could only explain about 1.7% of the variability of life satisfaction responses.[10]

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1. *E.g.*, Rafael Di Tella & Robert MacCulloch, *Happiness, Contentment, and Other Emotions for Central Banks* (Nat'l Bureau of Econ. Research, Working Paper No. 13622, 2007); Daniel Kahneman & Alan B. Krueger, *Developments in the Measurement of Subjective Well-Being*, 20 J. Econ. Persp. 3 (2006).
2. Andrew E. Clark et al., *Relative Income, Happiness, and Utility*, 46 J. Econ. Literature 95, 115-22 (2008).
3. *See* Springer, *Journal of Happiness Studies*, http://www.springer.com/social+sciences/quality+of+life+research/journal/10902 (last visited Oct. 2, 2008).
4. Richard A. Easterlin, *Income and Happiness: Toward a Unified Theory*, 111 Econ. J. 465 (2001).
5. David G. Blanchflower & Andrew J. Oswald, *Money, Sex, and Happiness: An Empirical Study*, 106 Scandinavian J. Econ. 393 (2004).
6. Mark A. Cohen, *The Effect of Crime on Life Satisfaction* (forthcoming 2008), http://ssrn.com/abstract=1091542 (last visited Oct. 2, 2008).
7. Bernard M.S. van Praag & B.E. Baarsma, *Using Happiness Surveys to Value Intangibles: The Case of Airport Noise* (Tinbergen Inst., Discussion Paper No. 04-024/3, 2004).
8. Simon Luechinger, Valuing Air Quality Using the Life Satisfaction Approach (May 5, 2007) (unpublished manuscript, *available at* http://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=res2008&paper_id=680 (last visited Oct. 2, 2008)); Heinz Welsch, *Environment and Happiness: Valuation of Air Pollution Using Life Satisfaction Data*, 58 Ecological Econ. 801 (2006).
9. Alan B. Krueger & David A. Schkade, *The Reliability of Subjective Well-Being Measures* (Inst. for the Study of Labor, Discussion Paper No. 2724, 2007).
10. Michael Eid & Ed Diener, *Global Judgments of Subjective Well-Being: Situational Variability and Long-Term Stability*, 65 Soc. Indicators Res. 245, 263 (2004).

Typical questions on life satisfaction surveys ask the following: "On the whole, how satisfied are you with the life you lead . . . very satisfied, fairly satisfied, etc.?" or "Taken all together, how would you say things are these days—would you say that you are very happy, pretty happy, or not too happy?" Researchers convert these responses into a numerical score that is used as a proxy for happiness. This score is then used as a dependent variable in a regression that attempts to sort out the primary factors that explain life satisfaction. Sometimes the study will examine individual responses, while in other cases it will compare average scores across countries or time.

Not surprisingly, the two most important factors that explain life satisfaction are health status and family situation (married, children, etc.). Also significant, and of particular interest to economists, is the role that income plays in life satisfaction. It is generally true that there is a positive correlation between income and happiness. This relationship is not linear, however, and income is generally entered into the regression equation as the natural log of income. Intuitively, holding all else constant in one's life, $10,000 buys a lot more happiness to someone earning $30,000 than to someone earning $300,000 annually. Put differently, there is decreasing marginal utility of money. Thus, the relationship between income and happiness is strongest for economies that are in a developing stage.[11]

Although income is generally found to be positively associated with life satisfaction, it also has been observed that while absolute income has increased in western economies over the past 50 or more years, happiness has not. This has widely become known as the Easterlin Paradox.[12] Richard Easterlin argues:

> In all societies, more money for the individual typically means more happiness. However, raising the incomes of all does not increase the happiness of all. The happiness-income relation provides a classic example of the logical fallacy of composition—what is true for the individual is not true for society as a whole. The resolution of this paradox lies in the relative nature of welfare judgments. Individuals assess their material well-being, not in terms of the absolute amount of goods they have, but relative to a social norm of what goods they ought to have.[13]

In terms of economic theory, one way to explain this finding is that the marginal utility of extra consumption approaches zero as countries become richer, while the marginal utility of status never approaches zero. In fact, some evidence suggests that relative income is the only thing that matters.[14]

While Easterlin offers one explanation—individuals compare themselves to a social reference group—another explanation has been offered—that individuals adapt to changes in income. Thus, although an increase in income improves one's well-being, this effect is largely transitory as individuals adjust their lifestyles. Evidence consistent with this explanation is that income's long-run effect is only 40% of its short-run effect on happiness.[15]

To summarize, although income is clearly an important ingredient to a happy life, it has been noted that despite huge income growth over the past 50 years in developed societies, there has been little growth in average happiness scores. Three partial explanations have been offered, all of which might co-exist. First, money appears to be most important at the early stages of development when money can buy basic necessities of life; thus, there is diminishing marginal utility of wealth (something economists would not find surprising). Second, people are concerned more about their relative wealth within a society; hence, an across-the-board increase will have little if any effect on average happiness. Third, it appears that people adapt to their circumstances over time. Thus, although there might be a transitory surge in happiness upon receiving a huge raise, the effect soon wears off as lifestyles change and a new norm is established.

II. Implications for Climate Change

In this section, we explore the implications of the happiness literature in a world that increasingly cares about climate change. First, we examine the implications of adaptation. Second, we consider the importance of relative income as a potential moderating role in the growing consumption demands by emerging economies. Third, we examine the implications of the happiness literature for those considering market-based proposals such as taxing carbon consumption. Finally, we examine recent attempts to adopt happiness measures as alternatives or supplements to traditional economic growth measures such as gross domestic product (GDP) and per capita income.

A. Happiness, Adaptation, and Short-Term Pain

Without debating the merits of these concerns or the various policy interventions that might bring about such changes, much of the resistance to tough measures to reduce carbon consumption is based on a serious concern that consumers will suffer from higher prices and lower wealth.[16] Let's assume for a moment that this is true—that measures such as a cap-and-trade or carbon tax would increase prices and reduce wealth in the United States. The happiness literature suggests that for some portion of the population, if the in-

11. Clark et al., *supra* note 2, at 97.

12. Recently, Betsey Stevenson and Justin Wolfers have called into question the empirical findings of Easterlin and others. Betsey Stevenson & Justin Wolfers, *Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox* (Nat'l Bureau Econ. Research, Working Paper No. 14282, 2008), *available at* http://www.nber.org/papers/w14282 (last visited Oct. 2, 2008). Their main empirical finding is that income is always positively related to happiness. *Id.* at 2. While they argue that their findings call into question the "stylized fact" that relative income is more important than absolute income, their paper does not provide definitive findings on this issue. *Id.* at 28-30. Regardless of whether or not relative income is more or less important than absolute income (which might depend upon the time and place), it does appear that relative income matters.

13. Richard A. Easterlin, *Does Money Buy Happiness?*, Pub. Int., Winter 1973, at 3, 4. *See also* Easterlin, *supra* note 4.

14. *See* Clark et al., *supra* note 2, at 106-09.

15. *Id.* at 111.

16. For a recent review of concerns about impacts on low-income individuals, see Robert Greenstein et al., Ctr. on Budget & Policy Priorities, Designing Climate-Change Legislation That Shields Low-Income Households From Increased Poverty and Hardship 1, 3, 9 (2007) (noting that a 15% GHG emissions reduction from current levels would increase energy-related costs by $750 to $950 per year for the poorest one-fifth of the U.S. population). *See also* Michael P. Vandenbergh & Brooke Ackerly, *Climate Change: The Equity Problem*, 26 Va. J. Envtl. L. 55, 60-64 (2008).

creased costs push their standard of living below minimal levels, the effects on happiness may be real and lasting.

At the same time, the literature suggests that for those not pushed below those levels, although a short-term loss in life satisfaction may occur, people adapt to their new wealth position and their level of happiness ultimately returns to its former state.[17] This phenomenon will provide little solace to those who bear the higher costs in the short term or to those who try to convince politicians and a leery public to adopt expensive restrictions on climate change. It does suggest, however, that the adverse effects on overall happiness levels in the public will subside, even if the costs remain the same.

B. Happiness and the Positive Externalities of Reduced Consumption

One of the rationales often given for the lack of serious carbon reductions in the developed world (especially the United States) is that regardless of what we do, the rapid growth in developing countries will increase carbon emissions more than any reduction we might reasonably expect in the near future from developed countries.[18] This is a classic prisoner's dilemma and one of the reasons why the United States refused to sign the Kyoto Protocol.[19] Supporters of the Kyoto Protocol argue that any reduction is better than none, e.g., even if there is a net increase in world emissions, the increase would be worse without the Kyoto Protocol.[20] Others have argued that the developing economies will never be persuaded to reduce their carbon emissions until the developed world demonstrates serious reductions themselves—akin to a repeated prisoner's dilemma solution whereby one party credibly commits to move if the other agrees to also move.[21] These arguments are largely based on the decisions of political actors in both countries. That is, actual negotiations occur, treaties are proposed, and ultimately an agreement or stalemate results.

The happiness literature suggests that unilateral action to reduce carbon emissions on the part of the developed world may create a positive spillover that ultimately may lead to reduced carbon intensity in developing countries. This could come about by two different but complementary mechanisms. First, to the extent income growth is dampened in the developed world, this might reduce the income aspirations of the developing world—not necessarily the bottom of the pyramid—but perhaps those whose wealth aspirations come more directly from observing western-style consumption. Second, irrespective of any potential reduction in real income, many consumers in developed countries are beginning to scale back conspicuous consumption voluntarily in their quest to be more socially responsible and fit in with current social norms. This is especially true of the very wealthy, younger generation of trendsetters.[22] Once again, to the extent relative income affects happiness, consumption aspirations in the developing world will depend in part on observed consumption behavior in the developed world. In other words, the benefits of reducing our carbon footprint might be well beyond the direct footprint reduction by indirectly affecting the consumption aspirations of developing economies.

C. Consumption Taxes and Happiness

Long before climate change became a hot topic, some economists called for consumption taxes as a way to improve overall social well-being. Over 20 years ago, Robert Frank noted that because individual well-being depends on relative income, those who become wealthy impose a negative externality on those who are not so well off.[23] Although the individual who benefits from this change in relative income rank is made better off, this is a pure private benefit and the rest of the community is worse off. In a classic response to externalities, taxing consumption would thus improve everyone else's relative income position and enhance welfare.[24] Similarly, Richard Layard uses this argument as a rationale to tax income to promote leisure consumption.[25]

Recently, Russell Read proposed a consumer-based tax on the carbon footprint of products purchased by consumers.[26] The tax collected would then be rebated in an equal amount through a tax credit to each consumer. As Read indicates, the consumption tax would provide an incentive for producers to reduce the carbon footprint of their products in order to lower consumer prices and better compete. At the same time, consumers who are "high carbon" users would pay a penalty relative to those who are "low carbon" users. The low carbon users are likely to end up with more money in their pocket from the net effect of the tax rebate and the new carbon tax.

As Read suggests, a carbon footprint tax would likely have a direct effect on consumer purchase decisions and thereby lower carbon emissions. However, there is also an important indirect benefit based on our understanding of the happiness literature. To the extent income is redistributed from those who are high carbon users (who tend to be wealthier) to those who are low carbon users, the low carbon users will be better off and consumption aspirations will likely be lowered.

17. *See supra* note 15 and accompanying text.

18. For a review of arguments made about the effects of developing country emissions on climate change and on the U.S. climate change debate, see Michael P. Vandenbergh, *Climate Change: The China Problem*, 81 S. Cal. L. Rev. 905, 923-28 (2008).

19. Perhaps not surprisingly, scholars have debated whether the relationship between China and the United States constitutes a prisoner's dilemma. *Compare* Cass R. Sunstein, *The Complex Climate Change Incentives of China and the United States* 5, 18 (Univ. of Chicago, John M. Olin Law & Econ. Working Paper No. 352, 2007) (concluding that a prisoner's dilemma does not exist because China and the United States will not obtain substantial benefits from cooperation), *with* Stephen M. Gardiner, *The Real Tragedy of the Commons*, 30 Phil. & Pub. Aff. 387, 406-16 (2001) (concluding that the China-United States problem can be viewed as a battle of the sexes or as a prisoner's dilemma).

20. *See generally* Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 Harv. Envtl. L. Rev. 1 (2007) (reviewing arguments regarding the effects of the Kyoto Protocol).

21. *See* Eric A. Posner & Cass R. Sunstein, *Climate Change Justice*, 96 Geo. L.J. 1565, 1611-12 (2008).

22. For a review of efforts by individuals and companies to become carbon-neutral, see Michael P. Vandenbergh & Anne K. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. Rev. 1673, 1717-18 (2007).

23. Robert H. Frank, Choosing the Right Pond: Human Behavior and the Quest for Status (1985).

24. *Id.*

25. Richard Layard, Happiness: Lessons From a New Science (2005).

26. Russell Read, Rescuing Bali Through Consumer-Based Incentives (Unpublished Working Paper, 2007) (on file with the authors).

D. Happiness as an Alternative Welfare Measure

French President Nicolas Sarkozy recently called upon two Nobel Prize-winning economists to help develop a happiness index as an indicator of France's future economic growth.[27] At least one country already has adopted such an index,[28] and numerous approaches to measuring national happiness or well-being have been proposed.[29] Economists have long argued that current measures of economic growth ignore many important aspects of life that people value, including leisure time and health. Although some see the Sarkozy effort as a cynical attempt to deal with the fact that the French economy has consistently grown at a sluggish rate relative to the U.S. economy, others note that the French people enjoy a great deal of leisure time and are quite happy.

Suppose happiness measures are adopted as a valid indicator of a society's well-being and economic progress. Currently, if average real weekly earnings are stagnant from one year to the next, this is a sign of economic weakness. Politicians' success is judged in part on growth rates of GDP, per capita income, and similar measures, and they likely respond by adopting policies that stimulate greater economic activity. Yet, if a low growth economy was accompanied by a reduction in the average number of hours worked—with a resulting increase in leisure hours—the economy might be viewed as being strong as people were able to maintain their monetary standard of living while enjoying more leisure time.

What does this have to do with climate change? If these measures were widely available, reported, and accepted by the public, the implications for climate change could be dramatic. Politicians would not be pressured to stimulate the economy to increase production. We would care less about industrial output than public well-being. Although we are not arguing that beginning to measure happiness will result in immediate reductions in carbon emissions, our point is that shifting the public and politician's focus to what really matters will reduce pressures to stimulate further economic growth. It also will complement other independent efforts to change social norms toward a lower carbon-footprint economy. Note that this is not a radical idea that is incongruent with economic theory. Economists have never argued that money and economic wealth are all that matters. Instead, their starting point has always been utility maximization, which includes individual leisure activities, health, family situation, and other components.

In the extreme, as the public becomes increasingly worried about climate change, overall happiness scores will decline.[30] Of course, this will only be true to the extent the public is aware of and concerned about climate change. Detailed public surveys that examine subjective well-being not only ask respondents demographic information and the happiness question, but they also ask attitudinal questions such as: "Do you feel safe walking home in your neighborhood at night?" and "Do you have a good marriage?" By incorporating specific questions about perceived risks and whether or not respondents worry about global climate change, these factors can be used as explanatory variables in regression analyses that decompose the factors that affect subjective well-being. Thus, if there is a link between climate change perceptions and happiness, this will provide further ammunition to policymakers to find ways to reduce global warming.

III. Conclusion

The climate problem is daunting. More than a decade after the Kyoto Protocol, the science is far more certain, but U.S. and global emissions are far higher.[31] It should come as no surprise that environmental lawyers and policymakers have struggled to apply measures developed over the past 30 years to the climate problem. In a world whose principal energy supply is fossil fuel, GHG emissions are closely linked with the consumption of goods and services. Yet the aggregate amounts and patterns of consumption are so fundamental to the social and economic fabric that they may not appear to be the proper subject matter for lawyers and law.

The emerging understanding of the economics of happiness suggests room for optimism. The literature suggests a wide range of ways in which consumption and its resulting carbon emissions can be reduced or shifted with measures that generate favorable impacts on the public's quality of life. We have explored several of these measures in this Article and look forward to the additional insights that the literature on the economics of happiness will contribute to the climate change and consumption debate in the coming years.

27. *See Sarkozy's Prescription for France's Economic Growth: Dollops of "Happiness,"* Associated Press, Jan. 11, 2008.

28. *See* Andrew C. Revkin, *A New Measure of Well-Being From a Happy Little Kingdom*, N.Y. Times, Oct. 4, 2005 (discussing adoption of "Gross National Happiness" as a measure of public welfare by Bhutan); *Tory-entalism*, Economist, May 27, 2006 at 55 (discussing British Conservative leader David Cameron's interest in "Gross National Happiness" or "General Well-Being").

29. Prominent examples include the "Human Development Index," *see* U.N. Development Program, Human Development Report 13 (2001), and a national index of "General Well-Being." *See* Jeffrey Zaslow, *Happiness, Inc.*, Wall St. J., Mar. 18, 2006, at P1 (noting that Hans Messinger, director of industry measures and analysis at Statistics Canada, has proposed a Canadian index of well-being). *See generally* Amartya Sen, *Capability and Well-Being, in* The Quality of Life (Martha C. Nussbaum & Amartya Sen eds., 1993); Nic Marks et al., The Happy Planet Index: An Index of Human Well-Being and Environmental Impact (2006); James Gustave Speth, The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing From Crisis to Sustainability ch. 6 (2008).

30. *See, e.g.*, Ada Ferrer-i-Carbonell & John M. Gowdy, *Environmental Awareness and Happiness* (Rensselaer Working Paper No. 0503, 2005).

31. For a review of developments in climate change science and trends in global emissions, see Vandenbergh & Steinemann, *supra* note 22, at 1679-95; Vandenbergh, *supra* note 18, at 914-17.