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Relative Comparisons and Economics: Empirical Evidence

For most people, the idea that individuals compare themselves to others in determining their own utility, that is, their sense of happiness or well-being, rings true. Memories from the school yard, the neighborhood, and the workplace support the notion that we care both about our own accomplishments *and* how they stack up against those of others. While economists are not immune to such interpersonal comparisons, these ideas have been slow to diffuse into mainstream utility theory. An important barrier to widespread adoption of relative comparisons into standard utility models is the lack of convincing empirical research on the topic. Despite growing interest and work in the field, there remains a notable gap between our commonsense acceptance of the idea and what we can find and re-find in the data.

One reason for this gap is that economists looking at relative comparison questions have mostly been limited to two types of data: data generated from classroom/laboratory experiments and the results of subjective surveys of happiness or life satisfaction. While innovative and useful, these types of data are subject to two important criticisms: experiments, by their nature, are contrived and typically limited to very small samples; and, self-reported happiness surveys, while capturing much larger samples, elicit responses that are subjective and may be difficult to compare across individuals and over time. These criticisms of the data have limited somewhat the widespread acceptance of research findings based on them. That said, the results from these studies are intriguing and have captured the interest of numerous economists and policymakers in the U.S. and internationally.

In this *Economic Letter* we review the empirical evidence on the extent to which individuals' sense of well-being or happiness is related to metrics of the well-being of others. We first discuss the key findings that emerge from previous empirical research and then present new evidence based on the relationship between relative incomes and the incidence of suicides.

Relative position: Theory and evidence

Despite common experiences of social comparisons, conventional economic theory assumes that individual utility is independent of the economic status of others. Still, economists have long considered the possibility that relative status matters. Several theories spell out the mechanisms by which preferences might be interdependent, e.g., Veblen's (1899) "conspicuous consumption," Duesenberry's (1949) "keeping up with the Joneses," and Easterlin's (1974) "aspiration theory." Common to each of these ideas is the notion that individuals care about their own economic status and their status relative to a reference group (all others, peers, etc.) and/or some point in time (last year, yesterday, etc.). A growing empirical literature on the subject has found evidence consistent with this view.

Empirical investigations generally can be grouped into two types: experimental and survey-based studies of happiness and relative income. Each type has its own merits and drawbacks and both are suggestive of an important role for relative comparisons.

Experimental data. Economists have conducted controlled experiments constructed to elicit participants' reactions to imposed hierarchies. In these experiments, performed on human or, in some studies, other primate subjects, researchers observe the subjects' reactions to the presence of and their placement in a hierarchy. Negative reactions to the hierarchy itself are considered evidence of "inequality aversion," and reactions to relative position in the hierarchy as evidence of "interdependent preferences." (See Brosnan and deWaal 2003 and Alpizar et al. 2005.) Although such experiments consistently find that inequality and relative status matter, the relatively small sample sizes and artificial environments of these experiments make their results difficult to generalize.

Happiness surveys. A number of researchers have used responses from subjective well-being (happiness and/or life satisfaction) surveys to study the extent to which self-reported happiness or

satisfaction is correlated with relative position, holding other factors, such as own income, constant. This voluminous empirical literature is in some ways a reaction to a seminal article by Richard Easterlin (1974). Easterlin looked at the results of surveys conducted in a wide range of countries between the end of World War II and the early 1970s in which individuals were asked such questions as, "In general, how happy would you say that you are—very happy, fairly happy, or not very happy?" Easterlin noted that for nearly all developed countries, there was no trend in average happiness (that is, the percentage of respondents reporting to be either fairly or very happy) despite rapid growth in real income. More recent data confirm this finding. This phenomenon has come to be known as the "Easterlin Paradox." Easterlin and, more recently, Clark, Frijters, and Shields (forthcoming) have explained the approximate constancy of reported happiness as reflecting the notion that individuals derive utility not from their absolute level of own real income but rather from their level of income relative to others. That is, assuming that individuals' reference groups are within their own country, those research findings suggest that increases in income of equal proportion for everyone in the country will have no effect on individuals' happiness.

A large number of studies in recent years have used data from such surveys to test this relative income hypothesis directly. These studies seek to estimate the separate effects on reported well-being of own income and the average income for some reference group of others, selected (depending on the study) on the basis of shared geographic area, education, race, sex, age, etc. Researchers generally have found that, controlling for one's own income, reference group income has a negative effect on one's reported well-being (for example, Clark and Oswald 1996 and Luttmer 2005). Moreover, the magnitudes of the own- and reference-income effects suggest that only relative income gains matter.

Despite promising results, serious concerns have arisen about the quality of data on self-reported happiness. These concerns involve language ambiguities (respondents may not all agree on the exact meaning of terms like "happiness" and "life satisfaction"), scale comparability (one person's "very satisfied" may be higher, lower, or equal to another person's "satisfied"), ambiguity regarding the time period over which respondents base their answers, and respondent candidness.

A new empirical approach

Concerns about data reliability and interpretation have left many economists and others unconvinced of the robustness of the findings coming out of the research using experimental and subjective survey information. Much of this skepticism, among economists at least, likely is a product of the grounding of traditional economics in the revealed preference principle, which states that the best way to study and understand what determines utility is to infer people's preferences from observations of their behavior rather than from questions to them about their likes and dislikes (direct measurement).

In an effort to apply this principle of inference over direct measurement to testing of the relative income hypothesis, and thereby evaluate the claims coming out of the experimental and happiness survey literatures, Daly, Wilson, and Johnson (2007) investigate the empirical association of own income and reference-group income with suicide risk. The authors' idea is that suicide, at least to some extent, can be thought of as a revealed choice made by individuals regarding their sense of happiness or well-being. One concern, of course, is that suicide victims are at the extreme lower tail of the distribution of life satisfaction over the population, and their preferences may not reflect the preferences of the general population. This concern is alleviated to some extent by the authors' finding that the predictors of higher suicide risk in the data they consider are many of the same predictors of lower happiness found in studies using subjective survey data. A related concern is that suicide is an irrational act and thus uncorrelated with observable variables available for study. This concern is ultimately an empirical issue and one that is not borne out by the analysis, which shows that suicide risk is correlated with a large number of variables regularly included in publicly available data sets.

To complete this study, the authors employ data from the National Longitudinal Mortality Study (NLMS), among other sources, which matches individual-level data (from the Current Population Survey) on income and a host of control variables, such as age, race, gender, education, employment status, marital status, etc., at some initial survey period (which varies across individuals from February 1978 to March 1998) with data from the National Death Index, which indicates whether, when, and how an individual has died (as of December 31, 1998). (The National Death

Index is derived from the universe of U.S. Death Certificates.) Daly, Wilson, and Johnson relate these base period factors to the suicide "hazard rate," which is the probability of suicide at a particular point in time conditional on the time elapsed since the base period.

Using a standard hazard rate model commonly employed in epidemiological studies, the authors find strong support for the idea that individual utility is affected by relative income. Specifically, they find that local area (county) median income, holding one's own income constant, has a significant and positive effect on suicide risk. In other words, suicide risk rises as relative income falls. The relative income effect is found to be robust to alternative econometric specifications and does not appear to be explained by geographic variation in the cost of living, access to emergency medical care, or suicide reporting, thus bolstering the idea that the effect reflects behavioral responses and hence revealed preferences.

To test the robustness and reach of this finding, the authors extend the basic empirical approach along two dimensions. First, they consider whether this relative income effect holds for individuals regardless of their own income level. They find that, controlling for own income, suicide risk rises with median county income both for high-income and low-income individuals, although the effect is larger for the latter. Second, the authors consider whether the relevant reference group for interpersonal comparisons is, in fact, narrower or broader than one's local geographic area, defined by county. Their results point to age, in addition to local area, being a particularly relevant factor. In contrast, race does not appear to be particularly relevant. They also find that a person's state is too geographically broad to be a relevant reference group: median state income has no discernible effect on individual suicide risk after controlling for one's own income. Based on these findings, the authors conclude that local geography, defined as county, and cohort, defined by age, are important components of individuals' reference groups.

Conclusion

Increasingly, empirical research from experiments, happiness surveys, and, more recently, data on the incidence of suicides, is finding that economic models that fail to incorporate interpersonal comparisons may be missing an important piece of the process by which economic agents make evaluations and come to decisions. This omission is more than just an academic concern; it also has important real-world implications for policy. For instance, a number of papers have shown that including relative income in standard models of individual utility alters conventional wisdom regarding optimal redistributive tax policy as well as other policies affecting income inequality. If preferences are interdependent, increases in inequality can have an independent negative effect on welfare even when absolute income rises for everyone. Empirical evidence on the existence and magnitude of interpersonal income comparisons, therefore, is critical to evaluating tax and other policies relating to inequality.

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