



Personality and the marginal utility of income: Personality interacts with increases in household income to determine life satisfaction

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ABSTRACT

Economics implicitly assumes that the marginal utility of income is independent of an individual's personality. We show that this is wrong. This is the first demonstration that there are strong personality–income interactions. In an analysis of 13,615 individuals over 4-years we show that individuals who have high levels of conscientiousness obtain more satisfaction to their lives from increases to their household income. There are strong gender differences and women that are open-to-experiences, introverted or neurotic get lower satisfaction from household income increases. Our findings have important implications for the use of financial incentives to influence behavior. In the future, public policy may benefit from being personality-specific.

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1. Introduction

Will more money improve an individual's satisfaction with life, and if so, by how much? The use of subjective well-being data has helped researchers evaluate the role of income in an individual's life. For example, it has been shown that there are large well-being differences between low and high income earners (Lucas and Schimmack, 2009) and that an exogenous increase to an individual's income can raise their well-being (Frijters et al., 2004; Gardner and Oswald, 2007). Researchers have also shown that individuals are mainly concerned with how their income compares with others (Boyce et al., 2010a; Ferrer-i-Carbonell, 2005; Luttmer, 2005) and that this comparison process is thought to explain why economic growth in developed countries has not always increased national well-being (Blanchflower and Oswald, 2004; Easterlin, 1995).

The literature on income and well-being is extensive (Clark et al., 2008b; Howell and Howell, 2008) but the relationship is far from fully understood. Current research into income and well-being almost always focuses on average effects across a sample (for example, Layard et al. (2008) estimate the average elasticity of income across various samples). Researchers have shown, however, that the benefit from income can vary according to an individual's health (Finkelstein et al., 2008; Smith et al., 2005). It seems likely that individuals will have heterogeneous preferences (Barsky et al., 1997), yet very little is known about how the marginal utility of income might vary across a population. How an individual spends their money can be important for well-being and research has shown, for example, that engaging in pro-social spending has a strong positive effect on well-being (Dunn et al., 2008). Such a finding could indicate that individuals with particular types of preferences

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could extract more utility from a given income increase. Some researchers have suggested that the role of emotions are hugely understated in economic theory, even though emotions are likely to influence an individual's enjoyment of particular economic activities (Elster, 1998; Loewenstein, 2000). The habitual experience of emotions is closely linked to an individual's personality (Revelle and Scherer, 2008), hence, it is likely that an individual's marginal utility of income could be dependent upon their personality.

Personality measures are used extensively in psychology (Pervin and John, 1999) and self-reported personality judgments have impressive levels of reliability and validity. For example, self-reported personality traits are highly stable over time (McCrae and Costa, 1990), are related to peer ratings (McCrae and Costa, 1987), predict objective behavior (Epstein, 1979) and occupational success (Hogan, 2005), have biological correlates (Ryff et al., 2006), and prospectively predict changes in objective biological functioning over time (O'Cleirigh et al., 2007). Such findings have led to personality psychology being studied and applied in many contexts, including health, clinical, psychiatric, educational, and occupational settings.

The measurement of personality enables a categorization of people and their behaviors but, mostly due to a lack of familiarity, such measures have not yet been fully integrated into economic research (Borghans et al., 2008). In relation to well-being research, it is fairly clear that personality is one of the biggest and most consistent predictors of well-being (Diener and Lucas, 1999). Some authors estimate that between 44% and 52% of the variation in well-being is attributable to individual differences (Lykken and Tellegen, 1996). Economists will also be familiar with the importance of controlling for individual heterogeneity when trying to determine the causal effects of income on well-being (Ferrer-i-Carbonell and Frijters, 2004). We are concerned, however, that aspects of individual heterogeneity, which may not be of obvious interest to economics, such as personality, may interact with an individual's income. For example, the relationship between a change in income and well-being may be dependent on an individual's personality type. To test this hypothesis we use a well-known longitudinal data set that recently included standard psychological measures of personality to determine whether there are any systematic personality differences between the utility gained from income rises.

Theoretically the case for the use of personality measures in economics seems strong. Borghans et al. (2008) have argued that personality should be given greater consideration when discussing economic parameters and constraints. They suggest that there could be considerable benefit to understanding how economic incentives might influence individuals with different personality traits. From a psychologist's perspective personality research has a long history (see Winter and Barenbaum, 1999) and has developed into a systematic understanding of individual differences. Nevertheless, it is relatively uncommon to find empirical studies that use personality measures within economics. This is beginning to change; with a number of studies investigating an area of economic importance – the determination of an individual's wages. Mueller and Plug (2006), Nyhus and Pons (2005), Groves (2005) and Semykina and Linz (2007) have all used personality measures to predict an individual's wages. For example, Mueller and Plug (2006) show that some personality traits, such as openness and conscientiousness, are rewarded in the market place, whereas other traits, such as agreeableness and neuroticism, are penalized. Nyhus and Pons (2005) draw similar conclusions but also find that the degree of autonomy an individual has is also important. They further find that the financial return to personality varies across educational groups. Groves (2005) investigates the importance of psychological traits, such as autonomy, social withdrawal and aggression in female earnings. Semykina and Linz (2007) find that personality traits explain as much as 8% of the gender wage gap.

These types of empirical study may help explain why, after controlling for many factors, including the improved cognitive abilities that come through schooling, there are still large earning gaps. Although the use of personality traits in the determination of wages is very much in its infancy (Bowles et al., 2001b), the findings indicate that personality is an important determinant. Bowles et al. (2001a) have suggested that both school and family pass on many important behavioral traits that enhance the individual's earning success. Other empirical contributions have assessed personality's relation to performance in ultimatum games (Schmitt et al., 2008; Swope et al., 2008), the propensity for an individual to share knowledge with work colleagues (Matzler et al., 2008) and job matching (Winkelmann and Winkelmann, 2008). Researchers have also shown the importance of conscientiousness and self control in the individual's accumulation of wealth (Ameriks et al., 2003, 2007) and that conscientiousness appears to be an important factor determining the psychological distress associated with unemployment (Boyce et al., 2010b). In addition it has been shown that personality plays an important role in the onset of depression arising from low socio-economic status (Jokela and Keltikangas-Jarvinen, forthcoming).

In income and well-being research personality measures have rarely been used (see Boyce (2010) for a recent exception). Due to important policy consequences researchers are concerned with determining causal effects of income on well-being. Hence, researchers are mostly concerned with controlling for personality – not its independent effect. It is argued that personality is most convincingly controlled for by using panel data and trying to explain the within-person variation in subjective well-being (Ferrer-i-Carbonell and Frijters, 2004). Personality, being largely thought of as fixed (Costa and McCrae, 1980, 1988; Srivastava et al., 2003), is considered to offer no explanation to the within-person variation in subjective well-being. Within this statistical framework personality measures are, therefore, not directly needed. However, if personality were thought to interact with income then personality measures would aid an investigation. Here, we use personality measures to show that there are substantial income-personality interaction effects. Individuals who have high levels of conscientiousness or high levels of extroversion obtain more satisfaction from income increases, whereas those that are open-to-experiences, agreeable or neurotic tend to get lower satisfaction from income increases. Such a finding poses new questions on the links between income and well-being and may have important implications for the use of financial incentives to influence behavior. In the future, public policy may benefit from being personality-specific in a similar way as has been suggested for gender (Alesina and Ichino, 2007).

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