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A lifecycle perspective of stock market performance and wellbeing☆

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ABSTRACT

We estimate the effect of stock market fluctuations on subjective wellbeing and mental health using Australian survey data over the period 2001–2012, which includes the global financial crisis. A particular innovation of the paper is the use of three satisfaction measures – overall, financial, employment – and the use of a stylised lifecycle investment model. These features, coupled with a robust identification strategy based on comparing survey respondents interviewed in the same quarter and location, allow us to better understand individual reactions to stock market changes. We find that stock market increases lead to a significant but modest improvements in life satisfaction and mental health. This effect is driven by young and middle-aged males, and is stronger for those with direct exposure to the stock market. For young cohorts, the stock market index acts as a leading indicator of employment prospects, whilst for older cohorts it acts directly on financial satisfaction.

1. Introduction

A central task of applied economists is to understand how individuals react to income and wealth changes that are caused by government policies, shocks to individual or family circumstances, and to movements in the macroeconomic environment. The question "Does money buy happiness" remains contentious despite decades of research on the topic (see, for example, Easterlin, 1974, 1995; Clark et al., 2008; Deaton, 2008; Stevenson and Wolfers, 2008, 2013; Easterlin et al., 2010; Kahneman and Deaton, 2010).[1] Particular unresolved issues include whether anticipated future income streams matter, and whether there are groups for whom income and anticipated income matter less, issues that are particularly salient in the early stages of recessions when expectations are in flux.

Similarly, the key causal mechanisms linking income to health are still under debate, particularly during economic downturns (Deaton, 2006). While a large literature has demonstrated that higher household income is significantly associated

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[1] The interest in happiness as a separate outcome of interest, often measured as life-satisfaction, is primarily driven by its use as a proxy for utility, which follows the argument that individuals' behaviour is somewhat (but not perfectly) consistent with trying to maximise it (see Frijters, 2000; Benjamin et al., 2012). Its validity, reliability and possible meaning are discussed by many authors, such as the World Happiness Report (2013) and Diener et al. (2013).

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with better child health outcomes (Case et al., 2002), a number of studies have shown that (plausibly exogenous) changes in income or wealth in adulthood are only weakly related to changes in health status (see, for example, the various results in Meer et al., 2003; Adda et al., 2009; Frijters et al., 2005; Lindahl, 2005; Gardner and Oswald, 2007; Michaud and Van Soest, 2008; Kim and Ruhm, 2012; Apouey and Clark, 2014). Another important issue is whether there are any health benefits, in terms of improving certain health outcomes or reducing harmful health-related behaviours, in times of recessions as suggested in the studies by Ruhm (2000, 2005, 2007). For example, if alcohol and tobacco are normal goods, then we might expect a fall in consumption as real incomes decrease, or that there might be health-gains from the lowering of pollution or congestion as a result of reduced economic activity. Many studies have focused on whether health moves pro- or counter-cyclically, and there is a spread of evidence both ways. Some recent examples are Deaton (2008, 2012), Cotti and Tefft (2011), French and Davalos (2011), Kim and Ruhm (2012), Suhrcke and Stuckler (2012), McInerney et al. (2013), Cotti et al. (2014), Frijters et al. (2013), Macy et al. (2013), Tekin et al. (2013), Asgeirsdottir et al. (2014), and French and Gumus (2014).

One of the main challenges in this literature is moving from the study of association to that of causality. As with most areas of applied economics, finding exogenous variation in income and wealth is difficult. The difficulty with using macroeconomic movements to identify causal effects is that individuals may foresee changes, such as increases in local area unemployment or mortgage interest rates, and therefore adjust their economic decision-making in advance. Importantly however, the unexpected turbulence of the recent global financial crisis (GFC) has provided social scientists with a real-world experimental setting to further study the effect of financial shocks on health and subjective wellbeing. The GFC period is widely seen to be the worst financial crisis in the Western world since the great depression of the 1930s, and since stock market changes are generally assumed to be unanticipated, its movements are a prime candidate for the exogenous change in income and wealth looked for in applied research. Over the last 5 years a large number of studies have taken this opportunity to investigate a wide range of important economic questions (for example, see Hudomiet et al., 2011; McFall, 2011; Malmendier and Nagel, 2011; Murgea and Reisz, 2012). A prime example is Deaton (2012), who uses daily Gallup Survey data for the US and finds that subjective wellbeing closely tracks the stock market over the years 2008–2010. He suggests that this relationship is unlikely to capture a direct effect on wellbeing since most Americans do not have financial interests in the stock market. Rather, he argues that the stock market became the most watched economic indicator of what might happen in the future, in addition to an indicator of what is currently happening. Therefore the stock market acts as a leading indicator, and wellbeing movements pick up a 'fear' factor reflecting, for example, expectations of reduced employment prospects in times of stock market crisis (Deaton, 2012).

In terms of health outcomes, the titles of a number of recent papers convey similar findings. Cotti et al. (2014) examine whether "the Dow is killing me", using data from the US Health and Retirement Study (HRS). Interpreting stock market fluctuations as exogenous variation in wealth, they find that a 10% increase in wealth leads to a significant but small improvement in four measures of physical and mental health, including mortality. Similarly, in "Recession Depression", McInerney et al. (2013) use exogenous variation in interview dates in the HRS (before and after October 2008) to study the impact of wealth losses on mental health. They find that the financial crash increased feelings of depression, with the effect being largest for those with exposure to the stock market. This effect was found immediately after the crash. Interestingly, they found no evidence that the crash led to increases in clinically validated measures of mental illness, again suggesting that expectations matter for 'normal' fluctuations in mental health. Accordingly, Nandi et al. (2012) find that stock market volatility was not associated with suicide rates in the US.

In contrast, Lin et al. (2015) ask "Do stock prices drive people crazy?" using data on daily incidences of mental disorders in Taiwan from 1998 to 2009. They report evidence of increased hospitalisations in response to stock market crashes, with a 1000-point fall in the stock market index predicted to increase the number of daily mental health related hospitalisations by 4.71% (for the US, see also Schwartz et al., 2012; and Engelberg and Parsons, 2013). Gili et al. (2012) using primary care centre data from Spain, a country strongly affected by the financial crisis, find a significant increase in the proportion of patients with mood disorders, anxiety, and alcohol-related disorders. Wunder (2014) analyses the effect of stock markets movements on subjective expectations of the future using German data to find that subjective expectations respond to short-term fluctuations (90 days horizon) in stock markets. In terms of identifying heterogeneity in the response of health to stock market movements, Ratcliffe and Taylor (2012) ask, "Who cares about stock market booms and busts?", and answer the question using data on mental health from the British Household Panel Study over the period 1991–2008. They find that mental health is predicted by changes in the stock market, but that there is no evidence that the effect is confined to individuals who hold equity based assets. Rather they conclude, similar to Deaton (2012), that the share market acts as a general economic barometer.

The literature demonstrating immediate responses in subjective wellbeing following declines in the stock market suggests that anticipation over future consumption directly influences instantaneous utility (Engelberg and Parson, 2013; Foster et al., 2012; Frijters et al., 2012). Engelberg and Parsons (2013) point to Caplin and Leahy's (2001) model of asset pricing with 'anxious' investors, and suggest that anticipatory utility helps explain investors' reluctance to hold stocks including the equity premium puzzle.[2] They also suggest that the more quickly 'gyrations' in prices affect investor utility, the higher the likelihood

[2] The equity premium puzzle refers to the difficulty in explaining the relatively large difference between returns on equity and bonds. In standard theoretical models, the size of the difference implies an implausibly high level of risk aversion among investors.