

The Role of Personality, Cognition and Shocks in Determining School Attainment and Age of Entry into Labor Market

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Introduction

There is ample evidence from economics and psychology that cognitive ability is an important predictor of a number of economic, demographic, and social outcomes of interest. Cognition is a fundamental skill for processing information, learning, and decision-making. However, recent research points to traits that are sometimes referred to as ‘noncognitive’ skills as being important for success in life.¹ In the psychology and sociology literature, substantial evidence from developed countries points to the importance of various personality traits and noncognitive skills in determining outcomes such as job performance, wages, academic achievement, occupational choice, and health (Barrick and Mount 1991; Chamorro-Premuszic and Furnham 2003; Hampson et al. 2006; Hogan, Hogan, and Roberts 1996; Hogan and Holland 2003; Robbins et al. 2006; Roberts et al. 2007; Ones et al. 2007; Schmidt and Hunter 1998). In the last decade a growing literature in economics further demonstrates the importance of noncognitive skills in determining a number of important economic, behavioral, and demographic outcomes including school attainment, crime participation, earnings, and participation in risky behaviors (Blau and Currie 2006; Cunha et al. 2006; Curley et al. 2011; Dawson et al. 2000; Heckman 2007; Knudsen et al. 2006; Marshall 2009; Meany 2001). Recent views hold that noncognitive skills may be equally or even more important in determining economic success than cognition (Brunello and Scholotter 2011).

In their landmark study, Heckman, Stixrud, and Urza (2006) found that for a variety of behavioral dimensions and labor market outcomes, a change in noncognitive skills from the lowest to the highest level had an effect that was comparable or even greater than a corresponding change in cognitive skill. They found that noncognitive skills raise wages through not only a direct effect on productivity, but also through an indirect effect through schooling and work experience. Moreover, it has also been found that the effect of noncognitive skills on wages is strongest for individuals at the lower end of the earnings distribution. At the tenth percentile, the effect of noncognitive skills on wages is between 2.5 and 4 times that of cognitive skills (Brunello and Scholotter 2011).

Evidence from sociology and psychology link personality traits known as the Big Five to educational outcomes, job performance, occupational choice, and earnings. The Big Five

¹ Noncognitive ability encompasses the socio-emotional status of an individual and includes characteristics such as motivation, perseverance, self-control, time preference, self-esteem, and the ability to work with others.

Personality Traits are: Agreeableness or the degree to which someone is cooperative, warm and agreeable vs. cold, disagreeable and antagonistic; Conscientiousness, which captures the attitude of being hardworking, organized, and dependable as opposed to lazy, disorganized, and unreliable; Neuroticism or the extent to which an individual is insecure, anxious, depressed, and emotional rather than calm and self-confident; Extroversion, which captures the preference for human contact, empathy, gregariousness, assertiveness, and a wish to inspire people; and Openness to Experience, or the degree to which a person is curious, needs intellectual stimulation, change, and variety.

Conscientiousness has been shown to be an important predictor of grades, years of education, job performance in a wide range of jobs, and leadership ratings (Broghans et al. 2008; Brunello and Scholotter 2011; John, Naumann, and Soto 2008). Furthermore, evidence shows that self-discipline (an aspect of Conscientiousness) accounts for more than twice as much of the variation in grades than does IQ (Brunello and Scholotter 2011). Conscientiousness has also been shown to be an important predictor good health habits, health outcomes, and longevity. Low Conscientiousness is also linked to a greater likelihood in participating in numerous risky behaviors such as smoking, substance abuse, and poor diet and exercise habits (John, Naumann, and Soto 2008).

Openness to Experience has been shown to be the best personality predictor for the number of years of education (Brunello and Scholotter 2011; John, Naumann, and Soto 2008). Agreeableness and Neuroticism predict job performance where people work in groups, Openness predicts success in artistic jobs, and Neuroticism is an important predictor of job satisfaction. The other Big Five Personality dimensions are also related to health outcomes. Agreeableness predicts cardiovascular disease. High Neuroticism is associated with less successful coping and poorer reactions to illness. Extroversion, on the other hand, is associated with more social support and close relationships, which are important for coping with illness (John, Naumann, and Soto 2008).

While growing evidence continues to link noncognitive skills and personality traits to economic, demographic, and behavioral outcomes in the developed world, to our knowledge, to date, there is no evidence linking these characteristics to outcomes of interest in developing countries. There are a number of reasons why understanding the role of personality and noncognitive ability in determining numerous outcomes of interest in a developing country context might be of interest. In developing countries where schooling is not universal and school quality is generally lower, the importance of personality for success in life may be even greater than it is in developed countries. Through direct effects as well as indirect effects through schooling choices and occupational choices, personality traits may be able to explain much in the way of earnings, occupational choice, whether an individual works in the formal or informal sector, and a number of demographic and health outcomes.

Using data from a sample of young adults in Madagascar, we estimate the effect of cognition and the Big Five Personality Traits on school completion and age of job market entry. We estimate hazard models of households' decisions to remove children from school and their subsequent entry into the job market. We further measure the effects of shocks to households'

income, assets and labor supply on these decisions and how these shocks interact with a child's cognitive ability and personality in affecting our outcomes of interest.

For our analysis we use data from the *Madagascar Life Course Transitions of Young Adults Survey*. In 2011-2012 the survey re-interviewed a cohort of 1949 young adults between the ages of 21 and 24 years, who were originally surveyed in 2004. 1733 of these individuals were administered a personality questionnaire and approximately 1500 of those individuals also took cognitive tests. The surveys were specifically designed to capture the transition from adolescence to young adulthood and thus included detailed information on household characteristics, family background and health. Detailed community surveys were also conducted in 2004 and 2012 and the 2004 surveys include detailed information on schools. We include a range of controls in the models from these surveys.

Preliminary findings suggest that personality and shocks are both important predictors of school completion and the age of labor market entry. This provides insight in to the pathways through which personality affects adult economic well-being. It further indicates policies helping households cope with shocks could be important mechanisms in increasing school attainment and delaying job market entry in this developing country setting.

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