



The stability of personality traits in adolescence and young adulthood



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ABSTRACT

Models of economic decision-making usually assume that personality is stable over time. We assess the validity of this assumption over an eight-year time frame in adolescence and young adulthood using nationally representative panel data from Australia. Our study shows that unconditional mean-level changes in personality traits are small—with the exception of conscientiousness which increases by 0.38 SD—because most individuals do not change their scores in a statistically reliable way during adolescence and young adulthood, or changes occur in equal proportions in opposite directions. Controlling for systematic panel attrition and multiple hypothesis testing, we demonstrate that personality traits do not systematically respond to the majority of common one-off family-, income-, and health-related shocks. However, a small number of life events—marriage, family members detained in jail, leaving the workforce and long-term health problems—are associated with subsequent changes in personality. In particular, youth who experience long-term health problems including bodily pain increase their external locus of control by 0.5–0.9 SD, an economically meaningful change when expressed in terms of hourly wage penalty.

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1. Introduction

Personality traits are an important component of human capital. Often referred to as life or non-cognitive skills, they comprise a great variety of traits that have positive or negative productivity effects in school, in the labor market, at the workplace, and in social relationships (see [Almlund, Duckworth, Heckman, & Kautz, 2011](#) for an overview). Traditionally, personality psychologists have assumed that personality traits are a stable component of human capital. Children were assumed to be endowed with a temperament from birth, which was thought to mature almost deterministically into a stable portfolio of behavioral styles and patterns of thought in adulthood ([Costa & McCrae, 1988](#); [McCrae & Costa, 1994](#)). These assumptions of stability and deterministic evolution have been criticized in the past decade (see [Roberts, 2009](#)). Many empirical studies have since shown that most people experience increases in their levels of conscientiousness, agreeableness, and emotional stability between adolescence and young adulthood (e.g. [Bleidorn et al., 2013](#); [Hopwood et al., 2011](#)), especially during the process of increased social responsibilities ([Roberts, Walton, & Viechtbauer, 2006](#)).

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What is less well understood is whether personality changes stochastically, or as a response to personal or environmental shocks. The question is, are there systematic deviations from underlying baseline personality traits as a response to shocks or can personality traits be completely reversed? An oft-cited case is *Phineas Gage*, a patient who experienced dramatic changes in his personality following a severe brain injury resulting from a work accident (Damasio, Grabowski, Frank, Galaburda, & Damasio, 2005). A small empirical literature has explored the role of more common life events and on-going life experiences in explaining personality change, demonstrating that personality-type reversal observed in the patient *Gage* is certainly not the norm (Bleidorn, Hopwood, & Lucas, 2016; Cobb-Clark & Schurer, 2012, 2013; Lüdtke, Roberts, Trautwein, & Nagy, 2011; Schurer, Kassenboehmer, & Leung, 2015; Specht, Egloff, & Schmukle, 2011, 2013).

Even more so, recent work by Cobb-Clark and Schurer (2012, 2013) showed for high-quality Australian personality data that over shorter time-periods of half a decade, both the Big-Five personality traits and locus of control, two of the most widely researched personality inventories, are surprisingly stable. Focusing on a working-age population of adults aged 25–60, they find that trait reversal is not common, mean-level changes are zero, and observed trait changes cannot be meaningfully predicted by individual or aggregated life events. Although personality traits are not perfectly stable, Cobb-Clark and Schurer (2012, 2013) conclude that adulthood personality traits are fixed and exogenous to most income-, health-, and family-related shocks, and most of the time-varying characteristics in personality change may be attributable to measurement error.

In this article we extend the work of Cobb-Clark and Schurer (2012, 2013) by exploring the stability of the Big-Five personality traits and locus of control during the sensitive period of adolescence and very young adulthood and by considering a longer time horizon of eight, instead of four, years. We focus our analysis on a sample of 1100 Australian youth aged between 15 and 24 years at baseline to answer the following questions: (1) What are the mean-level changes in personality of adolescents over an eight-year window?; (2) How many individuals change in a statistically reliable way, and how many increase or decrease their traits in a significant way?; (3) Which life events – one-off or high-frequency – predict changes in personality traits? and (4) Are the observed changes in any way economically meaningful?

To conduct the analysis, we use nationally representative panel data from the Household, Income, and Labour Dynamics in Australia (HILDA) survey. The advantage of HILDA is that it has three waves of high-quality, consistently measured personality traits in addition to annually collected measures of a number of positive (e.g. promoted at work) and negative (e.g. unemployment) life events. These life-events data are particularly useful given that some of them may drive what psychologists refer to as ‘non-normative’ changes in personality, changes that occur to most people in the same way during specific periods of the life course (McCrae et al., 2000). Moreover, many of these events are outside individuals’ control (e.g. death of a spouse) and thus can be used to capture the important, exogenous shocks that Seligman (1975) suggests may cause helplessness. Because these event data were collected annually, we are able to study the impact of both one-off and high-frequency life events on long-term personality change. In the analyses we account for systematic attrition from the longitudinal survey, and adjust the statistical inference to the large amount of hypotheses we are testing.

We establish that most of the Big-Five personality traits and external locus of control show small to moderate changes between adolescence and young adulthood that do not exceed 0.15 standard deviations, with the exception of youth Conscientiousness, which increases by 0.38 standard deviations. The reason for small mean-level changes is that 73–88% of individuals do not change their scores in a statistically reliable way, and for those who do, some decrease and others increase their self-assessments. We conclude that Conscientiousness – often referred to as a proxy for executive function (Kern, Friedman, Martin, Reynolds, & Luong, 2009) – evolves strongly between adolescence and young adulthood.

Although intra-individual personality changes are generally not predicted by the most common one-off life events, we find some important exceptions when looking at high-frequency life events for locus of control and some events which are associated with declines in Openness to Experience, Conscientiousness, and Agreeableness. Most prominently, the experience of persistent health problems including the long-term experience of pain is significantly associated with an increase in external control tendencies by 0.5 and 0.9 standard deviations. These effects are economically meaningful as they are equivalent in magnitude to an hourly wage decline of up to A\$2.20, or up to three times the health effects found for adults in Cobb-Clark and Schurer (2013). We conclude that persistent health problems may partially offset the maturation process of internal locus of control in adolescence and young adulthood.

Our results contribute to a still growing literature that seeks to better understand the factors that determine life-skill development and the windows of opportunity for interventions to boost such skills. First, the findings on mean-level changes identified in our study for a nationally representative sample may be used as one possibility to benchmark the effectiveness of education programs aimed at boosting life skills during adolescence in the Australian context (see Schurer, *in press* for a review of such outcomes).

Second, our findings demonstrate that personality traits in adolescence and young adulthood are not specifically malleable with respect to the most common family- and income-related life events. For research purposes this finding implies that such personality traits can be considered largely exogenous in the context of family- or labor-market related outcomes. In contrast, as we show that ongoing health problems (including longer spells of bodily pain) increase external control tendencies, locus of control cannot be considered exogenous in the context of health-related life-time outcomes.

The remainder of the paper is as follows: In Section 2 we review the literature on what is known about mean-level and intra-individual changes in personality. Section 3 describes the HILDA data. In Section 4 we describe the estimation strategy and present our results. We discuss our findings and contributions to the literature in Section 5.

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