



Personality traits, forgone health care and high school dropout: Evidence from US adolescents



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ARTICLE INFO

Article history:

Received 24 February 2016

Received in revised form 2 June 2017

Accepted 16 June 2017

Available online 24 June 2017

JEL classification:

C21

D03

I12

I21

Keywords:

Personality traits

Forgone health care

High school dropout

Multiple treatment matching

ABSTRACT

There is sparse evidence on the effects of personality traits on high school dropout, especially on whether combinations of different traits may uniquely influence dropout decisions. We employ single and multiple treatment matching together with rich data on US adolescents to explore the relationship between personality traits and their combinations on school attrition. Using the Big Five inventory, we find that introversion, and to a lesser extent neuroticism, are individually associated with higher probabilities of dropping out from school. Multiple treatment estimates show that blends of low levels of conscientiousness and neuroticism present higher likelihoods of an early exit. Furthermore, we exploit information on forgone health care and explore its role as a predictor of dropout, potentially proxying relevant traits associated with psychological maturity of judgement such as responsibility, perspective and temperance. These traits refer to the capacity of assessing the long-term consequences of actions and may influence an individual's decision-making process, including dropout choices. Forgone health care appears to be a statistically significant predictor of dropout throughout our models. Individuals who forgo their health care and present low conscientiousness and introversion have the highest risk of dropout. Overall, our results are robust to alternative specifications and increasing levels of selection on unobservables. We suggest that given its predictive power, forgone health care could be used as a signalling device to help identifying individuals at higher risk of school dropout.

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1. Introduction

Dropping out of high school is still a major policy issue that affects more than 20% of young pupils in most OECD countries (OECD, 2012). Early dropout substantially increases the risk of unemployment, leads to lower lifetime earnings and is linked to a number of adverse outcomes later on in life, including poorer health status and behaviours such as violence and crime (e.g. Chapman, Laird, & Kewal Ramani, 2010; Thornberry, Moore, & Christenson, 1985). Heckman and LaFontaine (2010) find that high school dropout in the US might have been underestimated due to inconsistencies in the measurement of high school graduation rates. Comparable data and methods suggest that estimates on graduate rates have been substantially biased upward and the actual dropout rate in the US increased slightly during the last decades and should be around 12%.

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The economic literature has identified a number of important determinants of high school dropout. These include demographic characteristics such as ethnicity and gender, parental background, cognitive skills and individual preferences. However, while an emerging literature indicates that noncognitive traits may influence individual behaviours related to education, there is sparse evidence on the effects of personality traits on high school dropout (Almlund, Duckworth, Heckman, & Kautz, 2011). Furthermore, earlier contributions focus on the effects of single traits, such as locus of control, and produce contrasting results (e.g. Cebi, 2007; Coleman & DeLeire, 2003). In line with the most recent literature, we think that personality traits might play an important role in determining educational choices. However, differently from previous works, we focus on the effects of several traits and their combinations (personality types or styles) on high school dropout.

Moreover, while some of the skills and preferences which determine high school dropout could be observed and influenced, some important individual traits that may also predict dropout might be difficult to identify and tackle (Eckstein & Wolpin, 1999). In the presence of multiple and potentially unobserved noncognitive traits, it is important to find proxies of those traits that could be strong predictors of dropout decisions. More specifically, the personality psychology literature indicates that personality traits may be powerful predictors of health and health-related behaviours (Almlund et al., 2011; Kern & Friedman, 2011). For instance, previous studies (e.g. Vollrath, Knoch, & Cassano, 1999) suggest that some of the Big Five personality traits, such as conscientiousness and agreeableness, are strongly correlated to decreased consumption of tobacco and alcohol. Therefore, finding proxies of further unobserved traits might help capturing relevant personality features and exploring their roles in determining educational choices.

Accordingly, we also extend our analysis on the effects of heterogeneous personality styles on high school dropout, by investigating a potential proxy of unobserved personality traits. To be specific, we exploit unique information on forgone health care, a widespread yet overlooked health-related behaviour among adolescents, and test it as a predictor of high school dropout.

According to the medical literature (e.g. Ford, Bearman, & Moody, 1999; Ginsburg et al., 1995), health can be forgone either by the inability to access health care or by voluntary avoidance, given there is a perceived need. Previous studies on health care utilisation suggest that forgone care might be the result of objective circumstances, such as access to health insurance and household financial burdens, or of an individual's predisposition to use health care services (Ford et al., 1999; Wisk & Witt, 2012). This individual predisposition depends on individual characteristics, including beliefs and noncognitive traits: some adolescents may lack the needed psychological maturity of judgement to effectively use health care (Dubow, Lovko, & Kausch, 1990; Ford et al., 1999). Maturity of judgement has been linked to traits such as responsibility, temperance, perspective (Steinberg & Cauffman, 1996) as well as self-control (Donnellan, Conger, & Burzette, 2007). Since all these traits may be relevant to educational choices, we believe forgone health care could be an important predictor of dropout behaviour.

Hence, the objective of this paper is twofold. First, we estimate the effects of personality traits on early high school attrition. We exploit rich individual-level data on high school pupils, including the Big Five personality traits from the US National Longitudinal Study of Adolescent to Adult Health (Add Health). We employ linear probability models (LPM) as well as single and multiple treatment non-parametric propensity score matching (PSM). While LPM explore the relative roles of established determinants of dropout together with personality traits via standard correlations, PSM methods allow to produce more reliable estimates through the use of comparable treated and control groups without imposing stringent parametric assumptions. In our single treatment PSM models, introversion and, to a lesser extent, neuroticism are individually associated with a higher probability of dropping out from school. Multiple treatment estimates show that combinations of low conscientiousness and neuroticism present a higher likelihood of an early exit. Secondly, we extend these models by including forgone health care and consistently find it is a statistically significant predictor of high school dropout. Also, individuals who forgo their health care and present lower levels of conscientiousness and introversion have the highest risk of leaving school. We suggest that given its relevance, forgone health care could be potentially used as a signalling device to help targeting individuals at high risk of dropping out. Overall, our results appear to be robust to selection on unobservables (Altonji, Elder, & Taber, 2005).

This paper offers several contributions to the literature. To the best of our knowledge, this is the first paper focusing on the effects of a range of personality traits on high school dropout. While the psychology literature highlights the importance of assessing the effect of personality styles (Terracciano & Costa, 2004; Weiss et al., 2009), so far this has not been tested on school dropout, especially within the economic literature. Furthermore, we employ multiple treatment matching models to explore whether and how the impact on dropout varies according to heterogeneous personality styles. Finally, we investigate the use of forgone health care as a predictor of dropout. Although previous studies have analysed the relationship between health-behaviours and educational outcomes (Suhrccke & de Paz Nieves, 2011), forgone health care has never been linked to dropout behaviour.

2. Background

Our work bridges three strands of literature: the economic determinants of high school dropout, studies on the effects of noncognitive skills on dropout decisions, and the literature on forgone health care among adolescents.

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