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Ability, Parental Valuation of Education and the High School Dropout Decision

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Abstract

We use a large, rich Canadian micro-level dataset to examine the channels through which family socio-economic status and unobservable characteristics affect children's decisions to drop out of high school. First, we document the strength of observable socio-economic factors: our data suggest that teenage boys with two parents who are themselves high school dropouts have a 16% chance of dropping out, compared to a dropout rate of less than 1% for boys whose parents both have a university degree. We examine the channels through which this socio-economic gradient arises using an extended version of the factor model set out in Carneiro, Hansen, and Heckman (2003). Specifically, we consider the impact of cognitive and non-cognitive ability and the value that parents place on education. Our results support three main conclusions. First, cognitive ability at age 15 has a substantial impact on dropping out. Second, parental valuation of education has an impact of approximately the same size as cognitive ability effects for medium and low ability teenagers. A low ability teenager has a probability of dropping out of approximately .03 if his parents place a high value on education but .36 if their education valuation is low. Third, parental education has no direct effect on dropping out once we control for ability and parental valuation of education. Our results point to the importance of whatever determines ability at age 15 (including, potentially, early childhood interventions) and of parental valuation of education during the teenage years. We also make a small methodological contribution by extending the standard factor based estimator to allow a non-linear relationship between the factors and a covariate of interest. We show that allowing for non-linearities has a substantial impact on estimated effects.

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Executive Summary:

It is a well established fact that dropping out of high school is statistically associated with a variety of negative outcomes over the life cycle, both in terms of economic activity and social participation. In the education literature much attention has been given to the reasons underlying the decision to drop out of high school. Why do people drop out? Are there observable characteristics that predict the drop out decision? Do they matter from the policy point of view? If so, is it better to intervene earlier or later in the life-cycle and what are the relevant margins? Previous literature finds a strong correlation between parental education, as well as income, and youth's decisions to drop-out. We investigate the determinants of this 'socio-economic' gradient in depth, focusing on the importance of cognitive and non-cognitive skills, vis-à-vis parental valuations of education.

We use Canadian micro-data from the Youth in Transition Survey and sequentially compare results for a set of alternative discrete choice estimators, starting from reduced form Probits and progressively building structure leading to the estimation of an Heckman-Singer unobserved factor model. We compare results from different estimators using as a benchmark a very simple model of education decisions. Our findings suggest some unexpected dimensions through which family background affects the decision to drop out of secondary education: although current family income and parental education account for almost all variation in dropping out, flexibly accounting for the distribution of youth's unobserved heterogeneity through a factor model eliminates the direct impact of those variables. In fact, cognitive abilities at age 15 have the largest impact, with non-cognitive skills having a more moderate effect. These results confirm previous findings for the US by Eckstein and Wolpin (1990) and Heckman, Stixrud and Urzua (2006). However we also find an important additional dimension of heterogeneity, interpreted as parental valuation of education: this family heterogeneity has a large impact on the decision to drop out, conditional on youth's skills. These 3 dimensions of heterogeneity can altogether account for almost all the measured socio-economic gradient.

We take these results as evidence that policy interventions targeting families, even at later stages of child development, may have the potential to alter education decisions insofar they affect parental perception and valuation of the returns and benefits of education. We make the case that, while cognitive and non-cognitive skills are formed at early stages of child development, the presence of parental heterogeneity in the perception and valuation of education seems to have a first-order effect on youth school progression. This suggests that additional research on the way family heterogeneity shapes and directs youth's behavior might be valuable and could deserve more attention from researchers in both academic and policy institutions.