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Human capital investment by the poor: Informing policy with laboratory experiments☆

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ABSTRACT

The purpose of the study is to better understand human capital investment decisions of the working poor, and to collect information that can be used to design a policy to induce the poor to invest in human capital. We use laboratory experimental methodology to elicit the preferences and observe the choices of the target population of a proposed government policy. We recruited 256 subjects in Montreal, Canada; 72 percent had income below 120 percent of the Canadian poverty level. The combination of survey measures and actual decisions allows us to better understand individual heterogeneity in responses to different subsidy levels. In particular, participants chose between various cash alternatives and educational subsidies, for themselves and for a family member, allowing for the construction of two measures of willingness to invest in education. Two behavioral characteristics, patience and attitude toward risk, are key to understanding the determinants of educational investment for the low-income individuals in this experiment. The decision to save for a family member's education is somewhat different from that of investing in one's own education. Patient participants were more likely to save for a family member's education, but in contrast to investing in one's own education, a subject's attitude toward risk played no role.

1. Introduction

Returns to investment in human capital have been high in the last half of the 20th century, but at the bottom of the income distribution, the decision to invest in education beyond high school is still seen as complex and risky (Chen, 2002). To the educated, investment in education seems the obvious and only way to escape poverty, yet the poor avoid such investments. We report the results of a study designed to better understand human capital decisions by the poor. A secondary purpose of the study is to collect information that could be used to design a policy to encourage the poor to save and invest in human capital. We use laboratory experimental methodology to measure the preferences and choices of a sample of low-income subjects in Montreal, Canada. Note that our purpose is not program evaluation; in particular, we do not attempt to discover

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the return to additional human capital investment or to assess whether a policy to subsidize human capital acquisition by the poor would be cost-effective. Instead we collect information that could be used to improve the design of such a policy by eliciting preferences for education using actual choices between cash and funds designated for education expenses, and assessing the response of the investment decisions of the poor population to various subsidy levels.

Our study is part of a growing emphasis on laboratory experiments in field settings that focus on low-income populations, primarily in developing countries (e.g., Ashraf, 2009; Binswanger, 1980; de Oliveira et al., 2011; Harrison et al., 2009; Karlan, 2005; Meier and Sprenger, 2010; Tanaka et al., 2010. See also Banerjee and Duflo, 2008; Cardenas and Carpenter, 2008 for overviews.). In particular, we use incentivized decisions as tools in the field to elicit the underlying preferences of the poor for investment in human capital. In general, this approach is potentially fruitful for collecting information in order to design, calibrate, and estimate the impact and cost of specific government policies.[1] Gauging the response of the target population in a lab setting can help policy makers estimate the response to specific policy parameters.

Our study has several key characteristics. First, our subjects are the target population for a proposed policy intervention in Canada: the adult working poor. We recruited 256 subjects in Montreal, Canada; 72 percent had income below 120 percent of the Canadian poverty level.[2] Thus we examine the response of subjects who represent the population of interest to policy makers, and gauge their responsiveness to a range of parameters.

Second, the study combines attitudinal survey questions with incentivized choices. The experiments are of two types: one type involves decisions that are designed to measure the subjects' risk attitudes and time preferences; the second type consists of decisions designed to elicit willingness to invest in education for themselves or for family members. In this second set of choices, subjects choose between cash amounts and higher amounts that are earmarked for educational investment. The survey collects demographic characteristics and other control variables. The combination of survey measures and actual decisions allows us to better understand individual heterogeneity in responses to different subsidy levels.

A third factor is that the experiments, especially those involving actual human capital decisions, involve high stakes. Previous studies have shown the importance of using significant stakes in eliciting preferences (Binswanger, 1980; Holt and Laury, 2002; Slonim and Roth, 1998). Subjects make 63 decisions, with $25–$600 CA at stake: at the end of the experiment, one decision is chosen randomly for payment. Average earnings were $147 including a $12 show-up fee. For the investment decisions, the incentives are high enough that subjects could increase human capital investment by taking one or more courses at a Montreal technical, career, trade or community college.[3]

Our data permit a rich analysis of the decision to invest in human capital, including important control variables not available in other studies. Controlling for demographic characteristics such as age, sex, family structure and income, we can examine the role of risk attitudes and time preference in the investment decision. We also can test for the responsiveness of various subsets of the poor population to subsidies targeted toward their own education as well as that of their children, conditional on their underlying preferences.

Two behavioral characteristics, patience and attitude toward risk, are key to understanding the determinants of educational investment for the low-income individuals in this experiment. On average 65 percent of the least patient subjects never chose to invest in education compared with only 24 percent of the most patient subjects. The younger, more risk-taking subjects are far more likely to choose educational expense over cash. On average 41 percent chose funds earmarked for educational expenses over a cash alternative in all cases when offered in the experiment, whereas their older and more risk-averse counterparts exhibited this behavior only 15 percent of the time. The decision to invest for a family member's education is somewhat different from that of investing in one's own education. Patient participants were more likely to choose a family member's education, but in contrast to investing in one's own education, a subject's attitude toward risk played no role.

In Section 2, we discuss the human capital decision of the adult poor. In Section 3, we present our research design and methods. The experimental results are discussed in Section 4. A concluding section ends the paper.

2. The human capital decision of adults

When considering an investment in education, it is well known that an individual will consider opportunity cost along with evaluating the potential benefit. Traditional research has focused mainly on the decision to enter the labor market or to continue formal training. Risk attitudes and a preference for current consumption over future consumption are recognized as important factors contributing to the schooling decision; for example, Weiss (1972) argues that the variance of income increases for higher levels of education, andthis variability may discourage more risk-averse individuals. The importance of

[1] Roth (2002) makes the case for the use of experimental research in the design of market and nonmarket institutions. His discussion focuses on the use of experiments to estimate the response of markets and other institutions to changes in structure and parameters. Our study focuses on the direct measurement of preferences and their relation to human capital investment.

[2] Statistics Canada annually publishes a set of measures called the low income cut-offs (LICOs). Roughly speaking, the cut-offs mark income levels in which people have to spend disproportionate amounts of their income on food, shelter, and clothing. The LICOs vary by family size and size of community. Before-tax income cut-offs were used in view of the fact that before-tax income data was collected from the respondents.

[3] See www.canadian-universities.net for a listing of such schools. At the time of the study, single courses cost $30–$300.