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

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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 towards 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 towards risk played no role.

Keywords: Intertemporal choice, field experiments, risk attitudes, working poor.

JEL Classification: C93 – Laboratory Experiments, D91 - Intertemporal and Investment Consumer Choice, D81 - Criteria for Decision-Making under Risk and Uncertainty

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 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, and 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

[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.

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 towards risk, are key to understanding the determinants of educational investment for the low-income individuals in this

[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.

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 towards risk played no role.

In section II, we discuss the human capital decision of the adult poor. In section III, we present our research design and methods. The experimental results are discussed in section IV. 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, and this variability may discourage more risk-averse individuals. The importance of credit constraints for some groups also has been investigated, but remains an unsettled issue (Dynarski 2002). Eckel et al. (2007) show that aversion to debt among low-income individuals may also play a role in limiting investment in human capital.

A further consideration is that the context of the investment decision may differ considerably, depending on the age of the decision maker. Adults may see the choice very differently from high-school age decision makers. Adults might have experienced personal failures such as marital difficulties, unstable working conditions, recurrent spells of unemployment, or prior low-return educational investments. Furthermore, adults with children face additional time and financial constraints. Thus, for adults, the decision to undertake an educational program appears more complex and more risky than for younger decision makers.

For poor adults, all of the considerations listed above will be compounded by financial constraints. This suggests that the barriers to a decision to accept and invest in educational opportunities for the adult poor are numerous and important.

Consideration of the role of individual attitudes towards risk and consumption over time in the education decision are not new in the human capital literature. Levahari and Weiss (1974) produced an early study on the role of risk and uncertainty on investment in human capital using a Fisherian two-period model. They show that uncertainty is an important factor, but that the effect of increased uncertainty is ambiguous and is context-dependent. For Chen (2002), reluctance to attend college by some young people is explained by the risks of investment in education that result from incomplete information about individual ability, the quality of education and unanticipated changes in labor market conditions. Chen suggests that when discussing investment in human capital, it is important to distinguish risk tolerance from perceptions of risk. A risk-averse high school student might prefer education to the labor market if she perceives the risk in the labor market to be greater than continuing with her schooling. For this person, the labor market is not only risky, but also uncertain because of her lack of experience in that sector of activity. For a labor market participant, the situation is essentially reversed: an investment in human capital appears more risky or uncertain than what she might have experienced in the labor market. Therefore, with the same risk-averse attitude, a person of school age will prefer to continue with her investment in education, while an adult will prefer to remain in the labor market. In our study, we find that younger, more risk seeking participants in contrast to older, more risk averse participants are more likely to invest in education for themselves.

Time preference is also a key factor in the decision to invest in human capital. The decision to forego current for future consumption is fundamental for human capital theory, which relies heavily on the discounted utility model first proposed by Samuelson (1937).[4] Human capital investment features early costs coupled with returns late in the life cycle. In the standard decision framework, and with perfect credit markets, individuals maximize the present value of

[4] This model assumes that a person's preferences are time-consistent: that he will make the same choice no matter when he or she is asked. In a review of empirical and experimental studies of discount rates, Frederick, Loewenstein and O'Donoghue (2002) note evidence that discount rates are not constant. They conclude that discount rates may decline over time, gains are discounted more than losses, and small amounts more than large amounts. To our knowledge, the impact of these issues has not been worked out in the context of human capital investment decisions.

lifetime income using market interest rate to discount future earnings and allocate consumption over time according to their own rate of time preference (see Heckman, Lochner and Todd, 2008 for a thorough discussion of the earning function and rates of return). Across the board, more patient participants in our study are more likely to invest in education for themselves and for family members.

Our experiment also may inform the debate on the importance of liquidity constraints in human capital decisions by working poor adults. In a study of the Pell Grant education-funding program, Stefor and Turner (2002) show that changes in the availability of US Federal aid have a significant effect on the schooling enrollment of adults. Bound and Turner (2002) find that the net effects of funding through the G.I. Bill led to substantial gains in the post-secondary educational attainment of World War II veterans, comparable to recent estimates of enrollment responses to changes in tuition rates. Subsidies may be especially effective in enhancing the human capital investment by the poor.

Our study also examines willingness to make investments in human capital for a family member. In the experiment the identity of the family member is not restricted, but in practice subjects typically considered the education of a child in their household. For this decision, the effect of a decision-maker's own risk and time preferences are likely to be less relevant. The risk of failure then applies to others, and patience or future orientation may also be less critical when decisions are made for children or other family members. We find that in contrast to the decision to invest in one's own education, risk attitudes do not contribute to the decision to invest in education for family members.

Furthermore, in this situation borrowing constraints might become the most important issue for poor families, even when parents are fully cognizant of the importance of investing in the human capital of their children. Empirical evidence that the rate of return to education is higher for low-income youth is consistent with binding liquidity or borrowing constraints for students or their parents. (See Keane 2002 for a discussion of the limitations of this evidence.) However, studies by Cameron and Heckman (1998), Keane and Wolpin (2001), and Keane (2002) produce structural estimates to suggest that borrowing constraints have had little effect on college attendance decisions. Human-capital accumulation prior to college age is seen as playing a much more important role. Thus, if schooling decisions come earlier in the family life cycle, these authors consider that government policies might have a major impact on the children of

poor families. We find that the education level of parents is an important factor; women who have some post-secondary schooling are more likely than their peers to invest in human capital for a family member (see Table 9).

3. Research Design and Methods

This section describes the design and operational details of the laboratory experiment. To maximize the policy relevance of the results, we recruited subjects from the population that the policy is designed to target. Recruitment efforts were organized through YMCA and work recruitment centers, whose membership included many working poor. To advertise and recruit for the experiment, a brief notice was posted in low-income neighborhoods and distributed at community group meetings. No information about the purpose of the study was revealed; potential subjects were told only that they would be paid a $12 show-up fee, and would have the opportunity to earn more in the course of the 90-minute study. Subjects volunteered for the experiment by calling ahead and agreeing to show up at a time and location identified by the experimenters. All of the experimental sessions were held in Montreal over a period of three weeks in November 2000.

A total of 256 subjects participated; summary sample statistics are shown in Table 1, with comparisons to population groups. Sixty-three percent had family income less than the Statistics Canada low-income cut-off (LICOs) for their family size and composition.[5] Average total family income for the entire sample was approximately $22,500 CAD. Seventy-two percent of the subjects were labor market participants, either employed or unemployed. Two thirds of the subjects were women. Participants were far from uneducated. On average, they reported completing 13 to 14 years of schooling; 78 percent held a high-school diploma, and 26 percent reported completing a university degree.[6] Nor were the subjects without assets or access to capital markets: 26 percent owned a car, and 54 percent possessed a credit card. A significant fraction planned for the future: 47 percent declared that they made regular contributions to a savings account, and 27 percent contributed to a retirement plan.

[5] The LICOs vary based on family size and location. In 2000, for a family of four in an urban setting, the before-tax LICO was 24,565 (See Statistics Canada 2001 for details).

[6] Some participants who had not been targeted by the recruitment efforts were still able to learn about the experiment. Word of mouth about the experience and the potential for substantial sums of cash traveled fast. The largest group of unintended recruits was full-time students; the 31 students represent 12 percent of the total number of subjects. Care was taken to identify this subgroup separately in the analysis.

Table 1: Sample and Population Characteristics, N=256

	Population Mean	Sample Mean	Std.Dev.	Minimum	Maximum
Age	34.7[a]	33.71	10.43	17	70
Male	0.447[b]	0.332	0.472	0	1
Number of Children	1.102[b,c]	0.633	0.953	0	4
Non-Labor Force*	n/a	0.121	0.327	0	1
Student	0.182[a]	0.121	0.327	0	1
Schooling (years)	n/a	13.60	2.81	3	16
High School Diploma	0.796[a]	0.781	0.414	0	1
University degree	0.308[c]	0.258	0.438	0	1
Low Income (below 100% LICO)	0.231	0.629	0.449	0	1

*Main activity is housework or taking care of family
n/a: not available
[a]Population of the city of Montreal.
[b]Poor population in Montreal.
[c]Authors' estimate based on census data.

3.1 Procedure

Once all participants were assembled for a session, subjects were given a $12 show-up fee, and the potential for additional earnings was explained and demonstrated. Subjects completed the two components of the study, each of which was contained in a booklet for ease of administration and record keeping. One booklet contained 64 experimental decisions, and the other contained 43 questions collecting demographic and household information. Every effort was made to make the experiment accessible and non-threatening to all of the subjects. No computers were used, and simple devices like bingo balls and dice were used to generate random draws. Special attention was paid to the visual presentation and design of the incentivized decisions. To ensure comprehension, a short set of practice decisions was incorporated into the instruction portion of the session. An example of each type of decision and the random draw process used to determine payment was illustrated in a six-decision practice. Instructions for the experiment are detailed in Appendix A. In the debriefing questionnaire, 95 percent of the subjects indicated that they were confident they would be paid in the way that was described to them in the experiment.

At the end of the experiment one of the 64 experimental decisions was selected for payment using a bingo cage containing 64 balls, numbered 1 to 64. The number on the ball drawn from the cage identified the decision for which they would be paid. If the decision involved a monetary prize on the same day of the experiment, the prize was given in cash, on site. Delayed payments for the time-preference task were mailed in the form of a post-dated check for the date indicated in the experimental decision (2-28 days from the experiment). There were other forms of remuneration for the investment decisions, such as reimbursable educational expenses for own education and guaranteed investment certificates (GICs) for education for a family member. (A description of all forms of remuneration can be found in Appendix A.) When the prize was a GIC, the experimenter signed an IOU and the prize was delivered to the subject by courier approximately one month after the experiment. All participants were required to sign a receipt. The average payoff per participant resulting from the experiment was approximately $137 in addition to a $12 show up fee. Each experimental session, from instruction to payoff, took about an hour and a half.

3.2 Experimental Decisions

The incentivized decisions were designed to address three main questions: (1) Will the working poor invest in human capital? (2) Are these subjects willing to delay consumption for substantial returns? (3) How do these subjects view risky choices? Thus three sets of decisions were used to investigate these questions: (1) investment preferences, (2) time preferences, and (3) risk preferences.

3.2.1. Investment decisions. Two sets of decisions involving human capital were available to the participants: Investment in their own human capital, and/or or investment in a family member's human capital.[7] Table 2 summarizes the human capital investment decisions. Each row of the table represents the alternatives presented to the subjects. Three decisions involve tradeoffs between cash and amounts earmarked for own education; three involve similar tradeoffs for a family member's education. A final decision compares the two.[8]

[7] Albrecht et al (in press) examine neurological differences in brain function for decisions for self and decisions for others.

[8] Note the full survey included decisions about retirement and durable goods investment that are not analyzed here. See Eckel, et al. (2005), for an analysis of the retirement decisions.

Table 2: Summary Description of Investment Decisions

Decision Number	Cash ($) (One Week From Today)	Own Education ($)	Education of Family Member ($)
1	100	200	
2	100		600
3	100	600	
4	166		500
5	100	400	
6	250		500
7		500	500

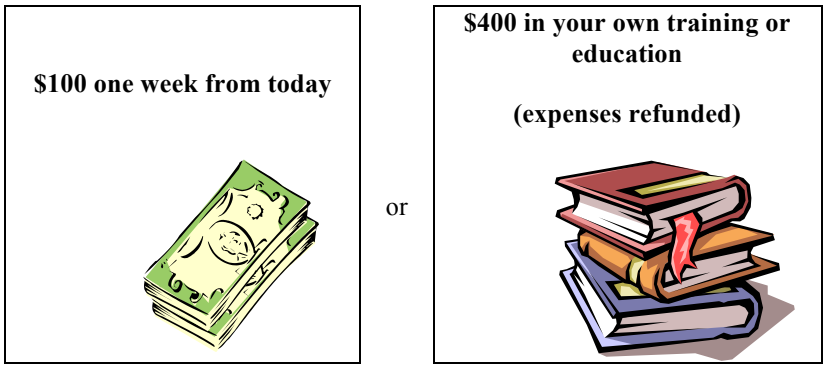
Figure 1 illustrates the way in which choices were presented to the subjects using one experimental decision. There were three versions of this decision, with $200, $400, and $600 for investment in education weighted against an offer of $100 cash (one week from the day the experimental session was conducted).

Figure 1: Sample Investment Decision

You must choose A or B:

- Choice A: $100 one week from today
- Choice B: $400 in your own training or education

These two choices are represented by the two following pictures.
Please circle your choice:



Choice A **Choice B**

The investment decisions were designed to test the subjects' willingness to give up a $100 (one week from today) for reimbursable expenses for own education in the near term. For a family member's education, a different procedure was used. Five-year, fixed, non-transferable Guaranteed Income Certificates (GICs) issued in the name of a family member were offered to

subjects as a mechanism for such an investment. The lowest initial purchase of these GICs available at the time of the experiment was $500. Therefore to produce match rates similar to those for the own-education decisions and keep the participant payoffs within the limited budget of the experiment, the size of the cash alternative was varied. The match rates were chosen to help pinpoint optimal match rates for the policy design.

While it would more closely mimic the proposed policy to have subjects invest their own funds in exchange for an amount earmarked for education, that requirement would have made the administrative cost and timing of the laboratory experiment infeasible. The laboratory alternative to having subjects invest their own funds was to give subjects the choice between $100 in cash provided by the experimenter and a specified amount in education expenses. In this context, in order to select the educational outcome, subjects would have to give up $100 in cash. Given the range of the subjects' incomes, $100 represented a substantial amount of money to them.

Aggregate results for the investment decisions are shown in Table 3. The first section indicates the percentage of subjects who chose $200, $400, or $600 earmarked for their own educational expenses over $100 cash one week from the date of the experiment. These choices represent match rates for education of 1/1, 3/1 and 5/1. At the lowest matching rate of 1/1, the price of education is $0.50, and 22.9 percent of the participants chose education over cash. When subjects faced a 3/1 subsidy, the price of education is $0.25, and 43.8 percent of subjects chose education. Even at the highest matching rate of 5 to 1, that is a price of $0.167, only 54.6 percent of participants chose own educational expenses.[9] The take-up rate for investment for a family member's education was a similarly modest 47.9 percent.

Except for the Student subgroup, in which the rates of choosing education are, not surprisingly, consistently higher for all match rates, the patterns of behavior observed in other population subgroups are similar to the overall population. Comparing women and men, men appear to be more sensitive to the matching rate than the women, starting off with a lower percentage of take-up for the 1/1 match rate (20.7 percent vs. 24.1 percent) and ending with a

[9] Because this choice entails giving up money they would otherwise receive from participating in the experiment — i.e. "house money" — rather than their own earned income, these results most likely overstate slightly the willingness of participants to forego current income for investment in human capital. If participants had to use their own funds and give up planned consumption to do so, one would expect the take-up rate to be lower. Note that the tradeoff ratios differ between own and family member because of constraints on the available financial instrument, in addition to a small calculation error in the design parameters.

higher take-up rate for the 5/1 match rate (57.3 percent vs. 53.2 percent). Low-income subjects, shown here as those with incomes less that 120 percent of the relevant LICO, do not differ significantly from the overall response levels (72 percent of the sample fell into this category).

Table 3: Percent Choosing Education

	Choosing education over cash						***Own over***
	Own Education			*Education of a family member*			***Family***
Price of education:	***$.50***	***$.25***	***$.17***	***$.50***	***$.33***	***$.17***	$1
Men	20.7	42.7	57.3	23.1	37.2	46.2	64.7
Women	24.1	44.3	53.2	25.0	35.4	48.8	52.6
Labor Force	21.6	42.1	54.0	22.4	34.5	47.1	60.0
Non-labor force	24.1	41.4	51.7	53.3	63.3	73.3	25.8
Student	34.6	61.5	69.2	9.7	22.6	29.0	71.0
Income below 120% of LICO	21.6	41.5	53.2	28.3	38.2	49.7	54.6
Total	22.9	43.8	54.6	24.4	36.0	47.9	56.6

The second section of Table 3 represents the percentage of subjects who chose amounts earmarked for educational expenses of a family member over variable cash amounts one week from the date of the experiment. Here the matching rates are 1/1, 2/1, and 5/1. In the lowest subsidy rate offered, participants were asked to choose between $250 cash a week from the day of the experiment and a GIC with a $500 deposit value bearing interest with a fixed maturity of five years. If this certificate of deposit was won, the winning participant had to identify the bearer (family member recipient) on the day of the experiment. It was emphasized by the experimenter that those certificates were to be used for the education of a family member. Overall, when the price of education is $0.50, 24.4 percent of all participants chose the family member's education over cash; at a lower price of $0.33, 36.0 percent chose the family member education, and at the lowest price of $0.17, 47.9 percent chose family member education.

Similar results hold for the Low Income subpopulation. However, for the participants declaring their main activity to be taking care of their family, these proportions are substantially higher at 53.3 percent, 63.3 percent, and 73.3 percent, respectively. This observation requires a deeper look. A substantially smaller proportion of the Non-labor Force subpopulation chose

education for themselves when faced with the same high and low match rates (24.1 percent at a price of $.50 and 51.7 percent at a price of $.17).

In the last column of Table 3, proportions are summarized for the choice between $500 for their own education and $500 for a family member's education. Here, the non-labor force participants overwhelmingly choose their payoff in the form of family member's education. All other subgroups choose their own education more often. It may be that members of this subpopulation consider an investment in education to be a better investment for family members than for themselves. Further analysis of family member education is undertaken below.

3.2.2. Time preference decisions. Time preferences were elicited by giving subjects a series of choices between a smaller sooner payment (SS) and a larger amount later (LL). If the subject chose LL, the subject was rewarded for waiting. Thirty-seven decisions were constructed, varying the timing of the sooner payment (front end delay, FED = 0, 1, 7 or 14 days), the investment period (2-28 days), and the rate of return (10%, 50%, 200%, or 380%).[10] Simple interest rates were used for simplicity, given the low education level of the subject pool. The longest time period was not included in the set of decisions with a 380% return for budgetary reasons. The SS payments were approximately $72, with one set of decisions at a lower SS of approximately $26. The decisions were presented to the subjects in random order. The full set of decisions is presented in Appendix B Table B.1. The proportion of impatient decisions for each is presented in Appendix C, Table C.3. These responses can be used to measure the overall degree of patience.[11]

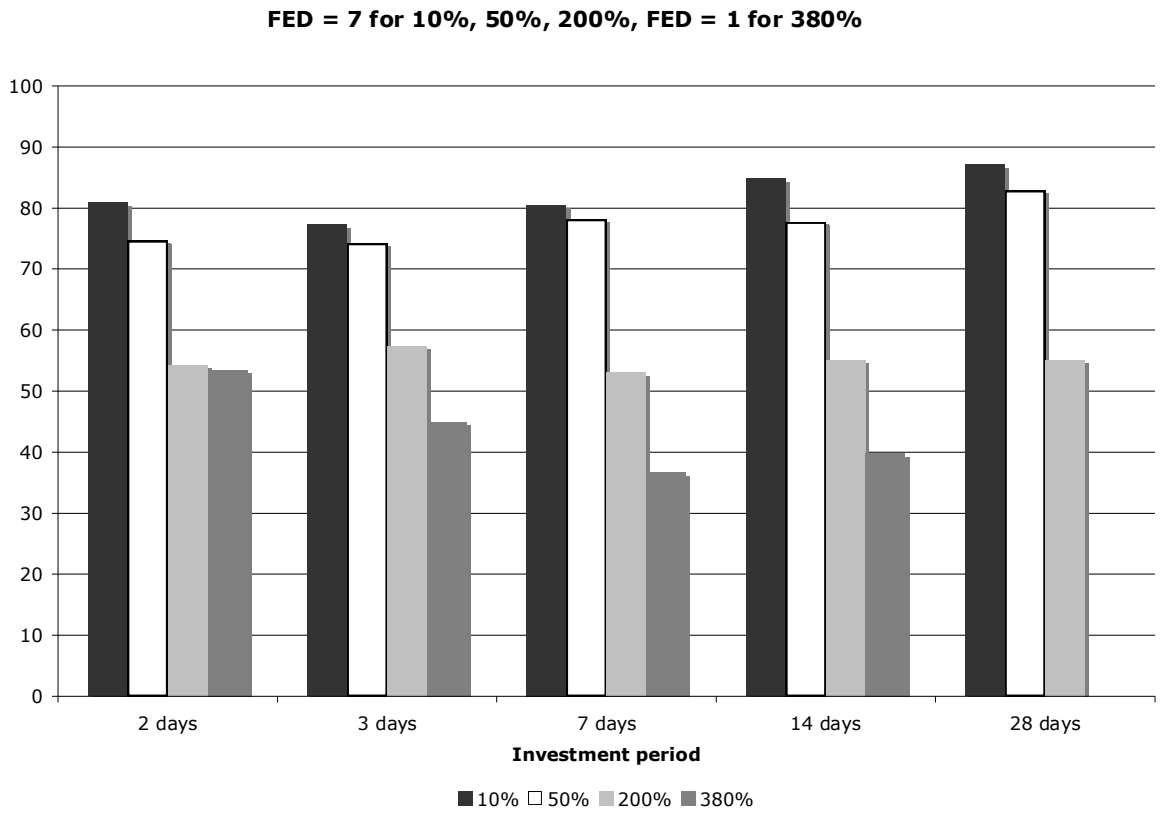
Subjects were, overall, quite impatient. Five percent of participants (13 subjects) exhibited the most patient behavior by always choosing the later payment, while fifteen percent (43 subjects) chose the earliest payoff regardless of payoff, discount rates, or time delays. Figure 2 shows the proportion of subjects making impatient decisions by rate of return and investment period. Overall the fraction choosing the earlier decision falls with higher rates of return, as expected. For the 10% and 50% rates of return, impatient behavior increases slightly with the

[10] Note at the rate of return of 380%, we utilized only one FED of one day, and were no 28-day investment-period decisions. This decision was made to limit the number of 380% decisions for cost considerations. See Appendix B for the full set of decisions.

[11] Since this experiment was conducted (in November 2000), alternative time-preference elicitation methods have been developed and used by other researchers, including Harrison, et al., (2002); Anderson et al., (2006); et al., (2009). The task used here was developed by the authors, and was among the first attempts to elicit time preference in non-student populations. In subsequent studies, we and others have found that more consistent choices are made when decisions are presented to subjects in a coherent structure, rather than our approach.

investment period; for 200% it says roughly constant for different investment periods; for 380% there is a slight decrease in impatient behavior with longer investment periods.

Figure 2: Distribution of Impatient Choices



In sum, 20 percent of the subjects were not affected by the parameters of the experiment: a 380 percent rate of return was not enough to induce 15 percent of the sample to save, and a 10 percent rate of return was not too low to discourage 5 percent of the sample to save, even for two days. On the other hand, at least eighty percent of the subjects were affected by the parameters of the experiment, and made decisions that varied with parameter levels. Table 4 contains the results of a linear regression that shows the effect of the rate of return, investment period and absolute return on the proportion of subjects who choose the sooner payment for each decision. It also includes a variable "today" that is an indicator variable equal to 1 if the sooner payment was the day of the experiment (FED = 0). Note the dependent variable in this regression is the percent of subjects who choose the impatient alternative, and therefore there are 37 observations, one for each binary decision. Controlling for other factors, the longer the subject had to wait between the earlier and

later payoff dates, the more chose the earlier date. A higher rate of return as well as a higher absolute dollar return induced more subjects to wait for the higher, later amount. Finally, the "today" variable carries an insignificant sign, which indicates that subjects were not more likely to take a payoff in hand on the day of the experiment. This is encouraging, as it indirectly implies that skepticism about whether future payoffs would be paid was not a factor in the present-orientation of the decisions: subjects trusted the experimenters to pay the promised amounts on the promised dates.

Table 4: Factors Affecting the Percentage of Participants Choosing the Earliest Payoff Choices for Each Time Preference Decision (Logistic Specification, n=37 for 37 binary decisions)

Variable	Coefficient	t-statistic
Constant	**0.968** ***	8.06
Investment Period[a]	**0.0414** ***	4.69
Today[b]	0.139	0.85
Absolute Return[c]	**-0.137** ***	-6.09
Rate of Return[d]	**-0.002** ***	-4.80

$\overline{R}^2$ = 0.817; 37 observations. Bolded values and *** indicate coefficients statistically significant on the 0.1 percent level. Marginal effects at mean values are respectively: 0.0099, 0.033, -0.033, -0.00053.
[a]Investment Period is the number of days between the early payoff and later payoff.
[b]Today is 1 if payoff is the day of the survey; 0 otherwise.
[c]Absolute Return is the absolute difference between payoffs (Later Payoff - Early Payoff).
[d]Rate of Return is the annualized rate of return for waiting for later payoff.
(See Appendix B, Table B.1 for a summary of the time preference decisions.)

As shown in Figure 2, the response to the different interest rates is most distinct for the 14 day investment period, and it is this set of decisions we use to construct a time preference measure for the analysis of investment decisions below. Evidence shows that varying FED and investment period (t) can affect the elicited discount rate (see Coller and Williams, 1999). For the most part, we control for this by only using 4 decisions (12, 10, 21, and 1, Appendix B Table B.1). All four decisions have an investment period of 14 days and range in delayed payoffs from 10% to 380%. Decisions for the 10%, 50%, and 200% rates of return have a FED of 7 days, whereas the decision for 380% return has a FED of only 1 day. (It is the longest FED we have in our decision set for a payoff of 380% and a 14-day investment period.) Twenty-four participants (9.4%) exhibited inconsistent behavior (choosing not to save at high interest rates when choosing to save at lower rates) and were dropped from subsequent analysis.

We use these decisions to categorize participants into one of five groups; the groupings imply restrictions on individual discount rates (using simple interest to avoid complication).

Intervals are used rather than values because of the limited number of rates of return in the experiment. We construct a set of five dummy variables to use in subsequent analysis. These dummies do not impose a particular functional structure on time preferences.[12] *Patient at 10, 50, 200, 380, and Patient never* dummy variables are defined in the following manner, and imply distinct ranges of Individual Discount Rates (IDR) as shown:

Patient at 10 = 1	Saved for all four decisions	IDR < 10%
Patient at 50 = 1	Saved for three decisions with interest ≥ 50	10% ≤ IDR ≤ 50%
Patient at 200 = 1	Saved for two decisions with interest rate ≥ 200%	50% < IDR ≤ 200%
Patient at 380 = 1	Saved for one decision with interest rate = 380%	200% < IDR ≤ 380%
Patient never = 1	Did not save for any decision	IDR > 380%

While these discount rates are elicited over short time periods and appear high in absolute terms, we show in Eckel et al. (2005) that they are strongly correlated with discount rates measured over longer periods. Thus the dummy variables accurately capture relative differences across subjects in long-term discount rates and are used in the regression analysis below.

3.2.3. Risk Preference Decisions. Risk tolerance was elicited using 14 pairs of lottery choices presented to the subjects in random order as shown in Table 6 below. The notation ($X; Y) means that X dollars is offered with probability Y; for example, in Decision 1, the participant is asked to choose between Option A yielding a certain $40, and Option B yielding a 50 percent chance of winning $90. The first 5 decisions involve a certain amount compared to a 50/50 gamble: for Decisions 2-5 the certain amount is equal to the expected value of the gamble. Decisions 6-11 also involve a choice between a certain amount and a gamble, varying probabilities from 50/50. Decisions 12-14 involve a choice between gambles. Through these choices, subjects revealed their preference for risk. This series of decisions with various payoffs and levels of risk can be used to explore the risk aversion of the participants.[13]

[12] Eckel et al (2001) includes regression analysis including all time preferences decisions by all participants. Using all decisions instead of the five created dummies does not change the results but requires the use of inconsistent decisions and imposes a particular functional structure on the time preferences.

[13] Since this study was completed, a number of researchers have developed and tested tasks eliciting risk preferences. See for example, Holt and Laury (2002), Anderson et al. (2006), Eckel and Grossman (2008), Charness and Gneezy (2010).

Table 5: Summary Description of the Risk-Preference Decisions

		Lotteries			
Decision	**Order**	**Less Risky Alternative**	**More Risky Alternative**		
1	49	($40; 1.00)	($90; 0.50)	or	($0; 0.50)
2	46	($60; 1.00)	($80; 0.50)	or	($40; 0.50)
3	38	($60; 1.00)	($120; 0.50)	or	($0; 0.50)
4	47	($80; 1.00)	($100; 0.50)	or	($60; 0.50)
5	39	($100; 1.00)	($200; 0.50)	or	($0; 0.50)
6	40	($60; 1.00)	($240; 0.25)	or	($0; 0.75)
7	42	($60; 1.00)	($80; 0.75)	or	($0; 0.25)
8	50	($75; 1.00)	($275; 0.30)	or	($0; 0.70)
9	41	($100; 1.00)	($400; 0.25)	or	($0; 0.75)
10	43	($100; 1.00)	($133.33; 0.75)	or	($0; 0.25)
11	48	($120; 1.00)	($175; 0.80)	or	($0; 0.20)
12	45	($100; 0.40 or ($0; 0.60)	($400; 0.10)	or	($0; 0.90)
13	44	($100; 0.50) or ($0; 0.50)	($200; 0.25)	or	($0; 0.75)
14	51	($120; 0.50) or ($0; 0.50)	($175; 0.40)	or	($0; 0.60)

Notes: The notation ($X; Y) means that X dollars is offered with probability Y. The three pairs of decisions, (5, 13), (9, 12) and (11, 14), are common-ratio lotteries.

In Table 6, we show how the behavior of the participants, as described by a value between 0 and 14, was affected by the difference in the coefficient of variation (standard error/mean) between a pair of lotteries (the risk variable). Note the dependent variable in this regression is the percent of subjects who choose the less risky alternative, and therefore there are 14 observations, one for each binary decision. The coefficient of variation is a measure of the riskiness of the lottery. (See Weber, et al., 2004 for a discussion of the validity of this measure).

Table 6: The Risk Factor Affecting the Percentage of Participants Choosing the Less Risky Lotteries for Each Risk Preference Decision (Logistic Specification)

Variable	Coefficient	t-statistic
Constant	**0.502** ***	3.57
Risk[a]	**1.194** ***	2.96

$\overline{R}^2$ = 0.3731; 14 observations

*** indicate coefficients statistically significant at the 0.1 percent level. Marginal effect at mean values: 0.251.

[a] Risk is the difference in the coefficients of variation (standard error/mean) between a pair of lotteries. A higher value of Risk means a higher difference in the level of risk between a pair of lotteries.
(See Table 6 for a summary of the risk preference decisions.)

For the analysis below, we define the variable RISK AVERSE, which takes a value of one if subjects chose the safe option for at least 70 % of the risk decisions and a value of zero otherwise. This classifies 61% of our subjects as "risk averse".[14]

3.3 Survey

After making the incentivized decisions, the subjects completed a 43-question survey (ID numbers were used to link the survey and experimental decisions). The survey was designed with two purposes in mind. The first aim was to collect standard demographic information (such as sex, income, education, and main activity) to control for obvious socioeconomic differences in the sample. The second motivation was to collect survey-based measures of preferences and self-reported behavior to compare with the experimental measures. These measures included subjects' self-perceived patience, risk aversion, locus of control, and savings behavior. The full set of questions is contained in Appendix A.

4. Results:

Will the working poor respond to incentives to invest in human capital? In this study, the decision to invest is represented by a choice to forego a cash option offered by the experimenter in favor of an option to invest in one's own human capital or a family member's education. This section reports regression analysis of the investment decision, taking into account factors that may influence an individual's preference for assets. Demographic, behavioral, attitudinal, and treatment variables are considered.

4.1 Analysis of investment in one's own human capital

Consider four categories of investment preference for human capital: *no* preference for investment, *some* preference for investment, *strong* preference for investment, and *very strong* preference for investment. The latent variable IE_i^* captures the preference of individual i to invest in his or her own education. The following ordered probit has been estimated using a

[14] Note because of the structure of our risky decisions, we are unable to estimate a "state of the art" measure of risk aversion, such as the coefficient of relative risk aversion (e.g., Holt and Laury 2002). There is too little variation in the range of payoffs and the probability of winning the higher prize.

number of demographic and behavioral characteristics: $IE_i^* = X_i\beta + \varepsilon_i$. Variable definitions and descriptive statistics are included in Appendix B and C.

The preference for human capital investment is not directly observed, but rather we observe whether the subjects have chosen education when faced with three different trade-offs between cash and educational expenses. As a reminder, each subject made three choices during the experiment: \$100 in cash vs. \$200 in educational expenses, \$100 in cash vs. \$400 in educational expenses, and \$100 in cash vs. \$600 in educational expenses. Let the observed counterpart of the latent variable IE_i^* be defined as: $IE_i = 0$ if a participant never chose education for any trade-off; $IE_i = 1$ if education was chosen when \$600 was offered in educational expenses (1 to 5 match rate); $IE_i = 2$ if education was chosen by the participant when at least \$400 was offered in educational expenses (at least a 1 to 3 match rate); and finally, $IE_i = 3$ if education was always the revealed choice of the participant for any offer of educational expenses. Assuming the error term is standard normally distributed, $\varepsilon_i \sim N(0,1)$ then the probabilities y of participant i never choosing education, choosing education only once (at the 1 to 5 match rate), twice (when at least a 1 to 3 match rate is offered) and always choosing education are easily obtained as well as the corresponding likelihood function.

The estimation results for the ordered probit are reported in Table 7. Greater patience results in a greater probability of choosing education over cash: at each discount rate level (indicated by the Patient variables defined above) the probability of choosing education over cash increases. This is true for all except the highest discount rate category; Patient Never is the omitted category. This is consistent with the theory of human capital, as discussed in the introduction above. More risk-averse subjects show a lower probability of investing in human capital.[15] As was discussed in section 2, for the adult population in our sample, risk aversion implies a greater preference for the status quo, i.e., remaining in the workforce rather than investing in additional human capital. Many of the subjects in this experiment are likely to have endured failures in the labor market, school, and other situations. Investing in human capital carries a risk that they may want to avoid in order to steer clear of another possibility of failure.

Table 7: Determinants of Choosing Educational Expenses Over Cash

[15] Interestingly, Dohmen, et al. (2010) found that lower cognitive ability is associated with greater risk aversion, and more pronounced impatience. Burks et al. (2009) find a similar result.

(Ordered Probit, 219 Observations)

Variable names	**Coefficients** (t-statistics)
Patient at 10	1.07***
	3.80
Patient at 50	0.99***
	3.27
Patient at 200	0.72***
	3.11
Patient at 380	0.27
	1.21
Risk Averse	-1.44**
	-2.54
Age	-0.04***
	-3.05
Risk Averse x Age	0.03*
	1.86
Male	0.03
	0.18
Number Children	0.01
	0.16
Income Below LICO 120	0.07
	0.36
Student	0.27
	0.82
Labor Force	0.29
	1.15
Constant	-1.35**
	-1.77
δ_1	0.30***
	4.94
δ_2	0.93***
	9.24
Log likelihood	-248.33
Restricted Log Likelihood	-272.57

T-statistics are below each coefficient in parentheses. Bolded values indicate coefficients statistically significant on the 10 percent level, * indicates a 5 percent level, ** indicates a 1 percent level, and *** indicates a 0.1 percent level.
Sample size of 219 resulted from 24 subjects dropped because of inconsistent time preference decisions and additional 13 subjects dropped because of inconsistent own education decisions. The results when dropping the 25 students from the regression are the same (results available upon request).

Older persons are more likely to choose the cash alternative to education financing, reflecting the smaller time period available for recouping their investment in human capital. The effects of sex, number of children, and income levels are insignificant; that is, these factors (and in particular cash constraints) do not enter directly into the determination of the investment in

human capital. It is important to note that, by design, many of the subjects were below or near the LICOs and this result may simply indicate that individuals near the LICOs, whether above or below, act in a similar manner.

The choice of education over cash is significantly related to patience, and to risk aversion, especially when it is interacted with age. The other demographic and behavioral variables are not significantly related to the decision to choose cash over education, and their addition does not change the pattern of results observed here.

Finally, and most importantly, the ordered probit threshold parameters δ_1 and δ_2 indicate whether the different match rates affect the probability of investment in education at each level of subsidy. Positive, statistically significant coefficients indicate that different match rates offered to subjects induce different response rates, with higher subsidies producing larger responses.

In Table 8, we have computed the predicted probability for each individual to be in each of the four categories of behavior (Never, Once, Twice, Always Chose Educational Expenses over cash), based on the regression model above. For a specific characteristic, (Gender, income, etc.) an average conditional probability for each was computed.[16]

These results show that the level of impatience and the interplay between age and attitude towards risk both play an important role in the human capital investment decision. Note the dramatic change in the probability of investment from subjects who exhibited the most patient behavior (Patient at 10) to subjects who exhibited the most impatient behavior (Never Patient) for the extreme investment preference category of Never. 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. To a lesser degree than impatience, attitude towards risk coupled with age is also an important factor in the investment decision. On average, 57 percent of the more risk averse and older subjects never choose educational expenses over cash whereas only 27 percent of the young and risk accepting subjects exhibit this tendency. The younger, risk accepting subjects are also far more likely to always choose educational expenses. On average 41 percent choose educational expenses in all cases when offered in the experiment whereas their older and risk averse counterparts exhibited this behavior only 15 percent of the time.

[16] The significant variables in the 'never' and 'always' categories also carry relatively large marginal effects. Note that in an ordered probit the signs of the interior marginal effects are unknown and not completely determined by the sign of the coefficient estimates. Results are available upon request.

Table 8: Fitted Distribution of Number of Times Subject Chooses Education over Cash

	Never	Once	Twice	Always
Variable name	Pr ($IF_i = 0$)	Pr ($IF_i = 1$)	Pr ($IF_i = 2$)	Pr ($IF_i = 3$)
Patient at 10 (most patient)	0.24	0.09	0.23	0.44
Patient at 50	0.27	0.10	0.24	0.39
Patient at 200	0.34	0.11	0.23	0.32
Patient at 380	0.53	0.11	0.19	0.17
Patient never (least patient)	0.65	0.10	0.15	0.10
Risk averse & age>=40	0.57	0.10	0.18	0.15
Risk averse & age<40	0.55	0.11	0.18	0.16
Non risk averse & age>=40	0.49	0.10	0.20	0.21
Non risk averse & age<40	0.27	0.09	0.23	0.41
Male	0.47	0.10	0.20	0.23
Female	0.48	0.10	0.19	0.23
No children	0.46	0.10	0.20	0.24
Has children	0.49	0.10	0.19	0.22
Low Income	0.49	0.10	0.19	0.22
Above low Income	0.44	0.10	0.20	0.26
Student	0.32	0.10	0.22	0.36
Labor Force	0.48	0.10	0.20	0.22
Other main activities	0.53	0.10	0.17	0.20
All	**0.47**	**0.10**	**0.20**	**0.23**

The results summarized in the last row of the table "All" compare directly to the aggregate results. These average probabilities are unconditional on specific characteristics of participants and show the influence of the match rates through the threshold parameters δ_1 and δ_2. The values for the unconditional probabilities "All" are interesting in themselves. Participants interested in post secondary education are more likely to choose the education subsidy more than just once in the experiment.

Lastly, it is interesting to note that the standard deviations (not shown) are very low in columns 2 and 3 relative to columns 1 and 4 for each conditional characteristic. This suggests that the incentive effects of the match rates are very strong, as participants as a group, respond to changes in the generosity of the incentive.

4.2 Analysis of investment in family member's education

This section focuses on the preference to invest in the education of a family member. Just as the investment decision was modeled above, the latent variable, IF_i^*, of the following ordered probit captures the preference of individual i to invest in a family member's education.

The observed counterpart of the latent variable IF_i^* is defined as follows: $IF_i = 0$ if a participant never chose education for a family member for any trade-off offered; $IF_i = 1$ if education was chosen when \$600 was offered in educational expenses (1 to 5 match rate); $IF_i = 2$ if education was chosen by the participant when at least a 1 to 3 match rate was offered (that is \$500 in education vs. \$166 cash or \$600 in education vs. \$100 cash); and, finally, $IF_i = 3$ if education was always the revealed choice of the participant for any offer of educational expenses.

The ordered probit (Table 9) was estimated using a number of demographic and behavioral characteristics as independent variables. As with the previous regression, the results show again that the threshold parameters are statistically significant and positive, indicating that subjects are responsive to the "price" of saving for human capital. The number of children strongly affects this decision; people with children are substantially more likely to choose education of a family member, supporting our intuition that most subjects intended to use it as such. Another positive indicator of preference for investment in a family member's education was belonging to a community group, a measure of the subjects' connectedness to the neighborhood. The interaction of Male with years of schooling (Yrs School x Male) carries a negative coefficient, indicating that men with more schooling are actually more likely to choose cash over investment in a family member's education.[17]

Table 9: Determinants of Choosing Education of a Family Member Over Cash
(Ordered Probit, 220 Observations)

[17] In the regressions in tables 7 and 9, the core experimental variables are the same in both specifications (impatience and risk), but we have retained different characteristics and socioeconomics variables as the dependent variables differ. The specifications were inspired from the literature and from various essays in both specifications. We have tried to be parsimonious, but we kept some non-significant variables nevertheless that we considered interesting.

Variables names	**Coefficients** (t-statistics)
Patient at 10	0.77**
	2.54
Patient at 50	0.67**
	2.28
Patient at 200	0.66***
	2.77
Patient at 380	0.08
	0.36
Risk Averse	-0.79
	-1.33
Age	0.00
	-0.01
Risk Averse x Age	0.02
	0.97
Male	1.35
	1.27
Number Children	0.35***
	3.68
Income Below LICO 120	0.10
	0.50
Student	-0.55**
	-2.06
Locus[a]	-0.39
	-1.26
Male x Locus	0.14
	0.90
Yrs School[b]	-0.04
	-0.44
Male x Yrs School	-0.13**
	-1.99
Yrs School x Locus	0.02
	1.06
Local Community Organization[c]	0.42
	1.61
Constant	-0.32
	-0.22
δ_1	0.35***
	5.31
δ_2	0.79***
	8.11
Log likelihood	-232.43
Restricted Log Likelihood	-258.60

T-statistics are below each coefficient in parentheses. Bolded values indicate coefficients statistically significant on the 10 percent level, * indicates a 5 percent level, ** indicates a 1 percent level, and *** indicates a 0.1 percent level.

Sample size of 220 resulted from 24 subjects dropped because of inconsistent time preference decisions and additional 12 subjects dropped because of inconsistent family member education decisions. When dropping the students from the regression, the results remain the same (results available upon request).

[a]Locus of Control is the Locus of Control index (0–7). A lower value indicates that the subject has strong feelings of self-efficacy. (Internal = 0, External =7)

[b] Yrs School is the number of years of schooling.

[c]For Local Community Organization a value of 1 indicates participants associated with; 0 if no affiliation. The membership of this group was almost exclusively Black. This is the closest approximation to a variable of visible minority status with the existing data.

The time preference measures enter the explanation for saving for a family member's education much in the same way they helped explain some of the variation in investing in one's own education. More patient participants are more likely to choose a family member's education over a cash alternative. However, contrary to the previous ordered probit regression, attitude toward risk does *not* play a role in the choice to save for a family member's education. This is in accordance with the interpretation given earlier to this variable with respect to investing in one's own education: the education of a family member does not create a risky situation for the subject, as such.

In Table 10 the estimated probabilities of investing in education of a family member for different subgroups are summarized.[18] Note the differences in probabilities for saving for a family member's education for subjects who exhibited relatively impatient behavior (Never Patient). Those individuals were far less likely to invest in family member's education. Even when the match rate was most favorable, 1 to 5, on average 63 percent of the least patient subjects chose cash over the investment option. On average, only about 16 percent of the least patient would choose the investment option when their contribution would be matched at 100 percent (1 to 1). The results of the last line, "All," are unconditional on specific characteristics of participants and show the influence of the threshold parameters or match rates. As before, the standard deviations (not shown) of these estimated probabilities in columns two and three in Table 10 below are quite low, indicating the responsiveness of the participants to the different levels of subsidy.

Table 10: Fitted Distribution of Choosing Education of a Family Member over Cash.

	Never	**Once**	**Twice**	**Always**
	Pr ($IE_i = 0$)	Pr ($IE_i = 1$)	Pr ($IE_i = 2$)	Pr ($IE_i = 3$)

[18] The significant variables in the 'never' and 'always' categories also carry relatively large marginal effects. Results are available upon request.

Patient at 10	0.40	0.12	0.15	0.33
Patient at 50	0.42	0.13	0.15	0.30
Patient at 200	0.40	0.12	0.15	0.33
Patient at 380	0.62	0.11	0.11	0.16
Patient never.	0.63	0.11	0.10	0.16
Risk averse & age>=40	0.45	0.12	0.15	0.28
Risk averse & age<40	0.63	0.11	0.10	0.16
Non risk averse & age>=40	0.41	0.12	0.15	0.32
Non risk averse & age<40	0.45	0.12	0.14	0.29
male	0.52	0.12	0.13	0.23
female	0.54	0.11	0.12	0.23
No children	0.62	0.11	0.11	0.16
Has Children	0.37	0.12	0.15	0.36
Low Income	0.51	0.12	0.13	0.24
Above Income	0.59	0.11	0.12	0.18
Student	0.68	0.10	0.10	0.12
Labor force	0.53	0.12	0.13	0.22
Others main activities	0.38	0.11	0.14	0.37
Single parent	0.36	0.12	0.15	0.37
Not single parent	0.57	0.12	0.12	0.19
locus of control <5	0.53	0.11	0.13	0.23
locus of control >=5	0.53	0.12	0.13	0.22
Schooling (Years) <=10	0.43	0.10	0.13	0.34
10< Schooling (Years) <=13	0.59	0.11	0.12	0.18
Schooling (Years) >13	0.52	0.12	0.13	0.23
Local Community Organization	0.33	0.11	0.14	0.42
Other or No Local Comm Org	0.56	0.12	0.12	0.20
All	0.53	0.11	0.13	0.23

5. Validity

Sixteen subjects of the 256 subjects received payment in the form of educational expenses.[19] All sixteen subjects produced valid documentation to claim reimbursement for educational expenses within the specified time period of one year from the date of the experiment. This follow through gives an indication that subjects believed that they would be paid in the way described by the experimenters and made their decisions accordingly.

[19] There were 64 experimental decisions of which one was randomly chosen for payment. In order to receive payment in the form of educational expenses, a subject had to choose education expenses over the alternative offered and have that decision randomly chosen for payment.

This study was funded by the Social Research and Demonstration Corporation (SRDC) to provide input into the design of its field experiment testing the effect of subsidies to saving for education. The results show how subjects respond in a laboratory setting, and indicate that higher subsidies are effective in inducing subjects to choose education over cash, our proxy for the decision in the field to save for investment in human capital.

SRDC began implementation of the corresponding field experiment, the *learn$ave* project – a random-assignment demonstration project – shortly after completion of this study. *learn$ave* can be thought of as a pilot project for encouraging the working poor to save for post-secondary education. Participants were recruited for an information session that describes the project and the odds of being randomly assigned to a treatment group or the control group. Those in the *learn$ave* treatment groups received various levels of post-secondary education expenses matched to personal saving levels, and some received financial counseling. The control group was surveyed, but enjoyed none of the benefits of the treatment group. Generally speaking, with most random assignment projects, volunteers are randomly assigned into treatment groups and a control group after the information session. SRDC assigned volunteers to treatment groups that varied by province, match rate and financial counseling. As part of the implementation, SRDC conducted 36 focus groups on participants and non-participants across Canada. Of the project participants, separate focus groups were formed of those who saved regularly and those who did not save regularly. Their findings, published in the implementation report (Kingwell et al, 2005) are strongly similar to our results and provide support for the validity of laboratory experiments in parameterizing policies. We highlight some of those similarities.

We can compare the subjects in our experiment to the enrollees and non-participants in the *learn$ave* project. A majority of our experimental subjects had no knowledge about the education financing nature of the experimental choices until they arrived at the session. Therefore those subjects in our experiment who did not take up any education financing options can be compared to those that chose not to volunteer for *learn$ave* after they attended an information session. Those subjects that chose to take up education financing at different subsidy rates compare to those that that volunteered for *learn$ave.*

The executive summary of SRDC's Design and Implementation Report, concludes that

> *learn$ave had much greater appeal for certain groups within the low-income population. Those who were ready for the changes in their lives that could be facilitated by participating in learn$ave and who were in a position to take advantage of these benefits*

> *were more likely to apply. Recent immigrants were foremost in this category, as many of them already had high levels of formal education and they needed to obtain Canadian credentials. In addition, learn$ave was of interest to Canadians who were more likely than the general eligible population to be younger, single, well educated, and employed.*

In our study, we found that younger, more educated and those engaged in the labor market were more likely to take up subsidized investment for educational expenses.

Of the *learn$ave* non-volunteers, there were many perceived barriers to participating. Some said that the investment period was too long. Some said the cap was too low to make the effort worthwhile.[20] Some simply procrastinated in turning in their paperwork (SRDC, 2005 pp. 103-107). These barriers can be captured in terms of time preference. In this experimental study, over 80 percent of the variation in the responses to the time preference decisions is explained by investment period, rate of return, and the absolute return, in the same directions found by the focus groups. Those in the experiment that were highly impatient were far less likely to take up any investment in human capital.

Most interestingly, the SRDC report highlights personality differences but not observable differences between regular and irregular savers. For example, regular savers are forward-looking, are committed to make personal sacrifices, have a clear investment goal, have strong savings attitudes, and are self-disciplined. However, both regular and irregular savers cited low wages, unstable work or income and loss of employment as barriers to saving. Both lived through critical events, although regular savers were more able to protect savings in the face of such events. We have a strikingly similar result. We do not directly observe savings behavior in our experiment, but we do observe, through the investment decisions, who would be willing to forego near cash for future educational expense. The only visible characteristics listed in the regression summary in Table 10 that explain any of the variation in investment behavior is number of children. Our participants varied considerably in the degree of patience, and time preference, measured with incentivized decisions, enters strongly into the determination of probability of saving for a family member's education as it does for saving for one's own education.[21] Time preference observations are not typically collected but can potentially explain much of the behavioral differences between participants in a program like *learn*$ave.

[20] The savings cap for a majority of learn$ave participants was $6000 with a match rate of $3 for every $1 saved.
[21] Explanations have been given in the literature to explain differences from person to person (see Becker and Mulligan, 1997, for a review and discussion).

6. Summary and Conclusion

This study makes use of methodology developed for lab experiments to measure preferences and choices of the target population of a proposed government policy. The experiment was initiated to inform the design of the Canadian *learn$ave* project, which was promoted to encourage low-income people to save money to invest in human capital. In this section we summarize the main findings of the study and their implications for a policy designed to induce the poor to save for investment in human capital – for themselves and for family members.

Based on the study's results, we conclude that a sizable proportion of the working poor would invest in human capital if the investment were sufficiently subsidized. The more the investment was subsidized, the more likely individuals were to invest. When subjects were presented with the opportunity analogous to the *learn*$ave matching offer ($400 in educational expenses or $100 in cash), 44 percent of subjects accepted the offer of education, almost double the proportion of subjects willing to invest at the lower matching rate of 1/1. Because these results entail giving up "house money" rather than their own earned income, they may slightly overstate subjects' willingness to forego current income for an investment in education.[22] Many of the subjects chose not to invest, even at the highest subsidy rate of 5/1: At this rate, 45.4 did not invest in their own human capital, and 52.1 did not invest in a family member's education.

This study also has implications for programs designed to encourage saving more generally. Many subjects were willing to delay consumption for substantial returns. Subjects were asked to choose between smaller payments sooner or larger payments later. For the participants in the study, choosing the larger payment later is analogous to saving. The subject must forego near-current consumption to receive future consumption. Delaying the sooner payoff – pushing it farther into the future – reduced the incentive to pick the later alternative even when the rate of return was held constant. More research is warranted, but these results suggest that savings programs that allow frequent withdrawals (to accelerate reward) and stress absolute difference in monetary gains as well as rate of return will fare better than those that do not.

[22] The house money effect hypothesizes that individuals take more risk with money they don't yet consider to be their own.

When the stakes were high, subjects were quite risk averse. Because many low-income individuals, including a large fraction of our subjects, purchase lottery tickets, an action that is normally associated with risk-seeking attitudes, one might expect the poor to exhibit greater risk-seeking behavior in lab-based decisions such as these. The risk measures developed in this paper were not correlated with whether subjects bought lottery tickets, suggesting that attitudes toward risk might be more contextual than is often thought. In this experiment, the context of the monetary gambles offered as choices to the subjects had substantial stakes to be risked ($60 to $120) for modest gains. This is perhaps a better indicator of one's risk aversion with regard to educational investment than the mere observation of behavior towards lottery ticket purchases.[23]

Eliciting patience and risk aversion helps us to inform the larger question: Will the working poor respond to incentives to save to invest in human capital? The more patient participants were, the more likely they were to invest in their own education. The more risk-averse subjects were, the less likely they were to invest in their own education. These subjects appear to view foregoing a certain cash in exchange for a multiple of that cash in funds for educational expenses as a risky alternative. In addition, younger subjects were more likely to invest in education.[24] Perhaps those with recent education experience were better able to assess the risk and potential return involved in an investment in education.

The decision to save for a family member's education is somewhat different from that of investing in one's own education. Again, 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 towards risk played no role. The education of a family member does not involve a risky situation for the subject, as such.

Two behavioral characteristics that are typically not observed in policy evaluations, patience and attitude towards risk, are key to understanding the determinants of educational investment for the low-income individuals in this experiment. More research is needed to understand the structure of the risk in investing in education and the factors that can develop a more forward-looking, patient view of savings and investment.

[23] For example, Holt and Laury (2002) show that higher stakes increase risk aversion in a convenience sample of student subjects, particularly for male participants.

[24] This is shown in Tables 3 and 8, comparing student to all. The student variable is, however, insignificant in the ordered probit of Table 7. They are a relatively small part of the sample, representing only 12%.

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Appendix A
Materials Related to the Experiment
”Human Capital Investment by the Poor:
Informing Policy with Laboratory and Field Experiments”

Instructions

The rules:

1. You are asked to complete two questionnaires. The first questionnaire (64 questions) is made of choice questions. The second questionnaire (43 questions) is made of information questions. All answers will be treated **confidentially**.
2. You win at least $12, but you can make a great deal more.
3. You must answer each question, **without exception**. This is the only way to win a prize.
4. If you have any questions once you have started answering the questionnaire, please raise your hand, and someone will help you.

The payment procedure:

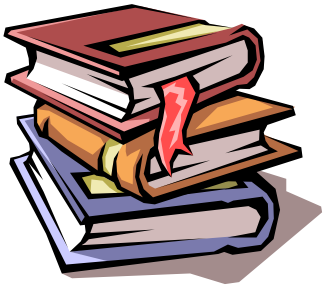
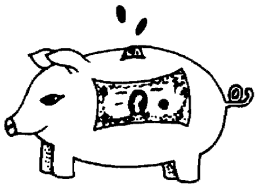
Once you have answered **all** the questions in the survey, you will be invited to meet with me to determine the prize you win. This prize will be determined in the following manner:

1. A ball will be drawn randomly from an urn containing 64 balls, numbered from 1 to 64 representing all the **choice questions** of the survey. The urn does not include balls for the **information questions**.
2. The ball drawn identifies the question that determines your prize following your choice at that question.
3. Some monetary prizes will be given **in cash**, others will be mailed at a specific date. You will have to sign a receipt. In the cases of non-monetary prizes, you will receive an IOU certificate and your prize will be delivered to you by a special courier in the **first weeks of January**.

A practice questionnaire:

1. To familiarise you with the types of **choice questions** of the survey, you are invited to answer 6 questions (numbered 1 to 6) of a training questionnaire.
2. Once this is done by all participants, we will draw a few balls from the urn to illustrate the payment procedure.

- ❖ The whole survey should take less than 90 minutes to be completed.
- ❖ Please note that there is no wrong or right answer, we want to know what **YOU** think.

Categories of prizes	Symbols
Cash: Money (in Canadian dollars) given to you now or at a later date.	
Non monetary prizes:	
Investment in your education and training: ➢ This category includes expenses incurred **for your own education and training:** admission fees at an educational institution (professional, collegial, or university), purchases of didactic material (books, software, or others). ➢ If you win this prize, we will **refund** your expenses made during **the next year** at any educational institutions.	
Investment in the education of a family member: ➢ This category includes expenses incurred **for your children's (or any other family member) education**: admission fees at an educational institution (professional, collegial, or university), purchases of didactic material (books, software, or others). ➢ If you win this prize, your child (or any other family member) will receive a financial asset (certificate of deposit) bearing interests with a **fixed maturity of 5 years**.	
Investment in your retirement plan: ➢ This category is money saved for your retirement. ➢ If you win this prize, you will receive a financial asset (certificate of deposit) bearing interests with a **fixed maturity of 7 years**.	
Purchase or maintenance of durable goods: ➢ This category includes any expenses that you are planning to do in a near future (less than a year) and which are related to the purchase of durable goods (computer, electronic good, car, etc.) or to the maintenance of these goods (home repair, car repair, etc.). ➢ If you win this prize, you will receive a **RONA gift certificate.**	

Information Questions

Please take a few minutes to answer the following questions. Please remember that all information will be kept confidential and that your name will never be associated with any information from the survey.

1. In your opinion, were the survey instructions clear?
   ☐ Yes
   ☐ No

2. In what year were you born?
   19☐☐

3. Are you male or female?
   ☐ Male
   ☐ Female

4. What is your current marital status?
   ☐ Married
   ☐ Common law
   ☐ Single, never married
   ☐ Separated
   ☐ Divorced
   ☐ Widowed

5. If you have any children under the age of 18 living with you at this time, please indicate their year of birth below:

   ☐☐☐☐ child 1 ☐☐☐☐ child 2

   ☐☐☐☐ child 3 ☐☐☐☐ child 4

   ☐☐☐☐ child 5 ☐☐☐☐ child 6

   _____ 7 or more children

6. How many years of schooling have you completed? **Circle one.**

   0 —1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10 — 11 — 12 — 13— 14—15—16+

7. Do you have any of the following educational credentials? (**Please provide an answer for each)**:

a. A high school diploma	[1]☐ Yes	[2]☐ No
b. A college diploma	[1]☐ Yes	[2]☐ No
c. A trade/vocational diploma or certificate	[1]☐ Yes	[2]☐ No
d. An apprenticeship diploma	[1]☐ Yes	[2]☐ No
e. A university degree	[1]☐ Yes	[2]☐ No

f. Any other diplomas or degrees **(please specify)** :_____

8. Have you ever been enrolled in any other kind of school such as (include both full-time and part-time enrolment): **Mark all that apply.**
   - ☐ Community college?
   - ☐ Business school?
   - ☐ Technical institute/trade, vocational or other?
   - ☐ University?

9. Are you currently enrolled in any education or training?
   - ☐ Yes If yes, please specify_____
   - ☐ No

10. What do you consider to be your current main activity? **Mark one only.**
    - ☐ Caring for family
    - ☐ Working for pay or profit
    - ☐ Looking for paid work
    - ☐ Going to school
    - ☐ Household work
    - ☐ Parental leave (from paid employment)
    - ☐ Long-term illness/disability
    - ☐ Retired
    - ☐ Other, please specify_____

11. Do you currently do any paid work?
    - ☐ Yes
    - ☐ No **If No, proceed to Question 16.**

12. In this job, are you a paid worker or self-employed?
    - ☐ Paid worker
    - ☐ Self-employed
    - ☐ Does not apply

13. How many weeks during the year do you work at this job or business?

☐☐ Weeks

☐ Does not apply

14. How many days a week do you work at this job or business?

☐☐ Days

☐ Does not apply

15. What is your wage or salary at this job? **Complete only one.**

$_____ Hourly

$_____ Daily

$_____ Weekly

$_____ Bi-weekly

$_____ Semi-monthly

$_____ Monthly

$_____ Yearly

16. Is there another source of income for your household?

☐ Yes

☐ No

17. What is your best estimate of your total annual household income? **Mark only one.**

☐ $0–$9,999

☐ $10,000–$14,999

☐ $15,000–$19,999

☐ $20,000–$24,999

☐ $25,000–$29,999

☐ $30,000–$34,999

☐ $35,000–$39,999

☐ $40,000–$44,999

☐ $45,000–$49,999

☐ over $50,000

18. Do you have a budget that is written down somewhere?

☐ Yes

☐ No

19. Do you have a system for keeping track of your expenses? For example, do you keep track of expenses in a notebook?
    - ☐ Yes
    - ☐ No

20. Do you have a savings account that you contribute to regularly?
    - ☐ Yes
    - ☐ No

21. Do you have a credit card?
    - ☐ Yes
    - ☐ No

22. Do you own your home?
    - ☐ Yes
    - ☐ No

23. Do you own an automobile?
    - ☐ Yes
    - ☐ No

24. Generally speaking, do you feel:
    - ☐ most people can be trusted?
    - ☐ you can't be too careful when dealing with people?

25. If you lost a wallet or purse that contained $200.00, how likely is it to be returned with the money in it if it was found by someone who lives close by?
    - ☐ Very likely
    - ☐ Somewhat likely
    - ☐ Not likely at all
    - ☐ Don't know

26. If you lost a wallet or purse that contained $200.00, how likely is it to be returned with the money in it if it was found by a clerk at the grocery store where you do most of your shopping?
    - ☐ Very likely
    - ☐ Somewhat likely
    - ☐ Not likely at all
    - ☐ Don't know

27. If you lost a wallet or purse that contained $200.00, how likely is it to be returned with the money in it if it was found by a police officer?
    - ☐ Very likely
    - ☐ Somewhat likely
    - ☐ Not likely at all
    - ☐ Don't know

28. If you lost a wallet or purse that contained $200.00, how likely is it to be returned with the money in it if it was found by a complete stranger?
    - ☐ Very likely
    - ☐ Somewhat likely
    - ☐ Not likely at all
    - ☐ Don't know

29. Do you buy lottery tickets?
    - ☐ Yes, every week If weekly, how many per week? _____
    - ☐ Yes, occasionally
    - ☐ Yes, very rarely
    - ☐ Never

30. When you buy a home appliance, do you buy extended warranty coverage?
    - ☐ Yes
    - ☐ No
    - ☐ I have never bought a home appliance

31. Do you worry about having financial difficulties in your old age?
    - ☐ Yes, I worry quite a bit
    - ☐ Yes, I worry somewhat
    - ☐ No, I do not worry at all

32. Do you contribute to a retirement plan?
    - ☐ Yes
    - ☐ No

33. If there is something that you are not looking forward to (for example, some people dread going to their regular dental visit, a physical check-up, or a driving licence renewal), do you typically postpone this activity as long as you can?
    - ☐ Yes
    - ☐ No

34. You have been given a prize of a wonderful meal (for two) in a very good restaurant in Montreal, but the offer is only good for one year. Do you:
    - ☐ use the prize as soon as possible?
    - ☐ wait for a while before using the prize?

The next set of questions describes the way some people feel about how much control they have over their lives. After each statement please indicate whether you strongly disagree, disagree, agree or strongly agree.

35. You have little control over the things that happen to you.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

36. There is really no way you can solve some of the problems you have.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

37. There is little you can do to change many of the important things in your life.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

38. You often feel helpless in dealing with the problems of life.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

39. Sometimes you feel that you are being pushed around in life.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

40. What happens to you in the future mostly depends on you.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

41. You can do just about anything you really set your mind to do.
    - ☐ Strongly disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly agree

42. Please indicate with a check mark (✓) the community groups in which you participate:
    - ☐ ACEM
    - ☐ Association culturelle Tamoul du Canada
    - ☐ Association Latino-Americaine de CDN
    - ☐ Black community association CDN
    - ☐ Centre communautaire CDN
    - ☐ Centre culturel et communautaire des Iraniens
    - ☐ Centre d'action socio-communautaire
    - ☐ Centre d'integration multi-service de l'ouest
    - ☐ Centre Generation Emploi
    - ☐ Centre Multi-ecoute
    - ☐ Centre Multi-Ethnique
    - ☐ Centre social d'aide aux immigrants
    - ☐ Cercles d'emprunt de Montreal
    - ☐ Chinese Family Services
    - ☐ Cloverdale Multi-Resource
    - ☐ Club de recherche d'emploi
    - ☐ Communaute Hellenique
    - ☐ Communaute Vietnamienne
    - ☐ Conseil communautaire CDN/Snowdon
    - ☐ Dawson College training and dev. center
    - ☐ Dawson community centre
    - ☐ English Montreal Adult Ed. Centre
    - ☐ Groupe conseil St-Denis
    - ☐ Head & Hands
    - ☐ Italian women's center
    - ☐ Jamaica Association of Montreal
    - ☐ James Ling Adult Education Centre
    - ☐ Jewish Family Services
    - ☐ John Abbott College Adult Ed.
    - ☐ Le Trait d'union
    - ☐ Montreal Assoc. of Black Business Professionals
    - ☐ Montreal West Community Center

☐ NDG Anti poverty group
☐ NDG Black community association
☐ NDG Community Center
☐ NDG Community Council
☐ Project Genesis
☐ SACLI
☐ SAJE Montreal Centre
☐ SAJE Pointe Claire
☐ South Asian Women's Community Centre
☐ Tyndale-St. Georges
☐ West Island Community Resource Centre
☐ West Island volunteer bureau
☐ West Island women's shelter
☐ Women's centre of Montreal
☐ Youth employment services
☐ YMCA Enterprise Center
☐ YWCA and asociated groups
☐ Other:_____

CDEC
☐ Ahuntsic- Cartierville
☐ CDEC LaSalle, Lachine, St-Pierre
☐ CDEST
☐ CDN-NDG
☐ Centre Nord
☐ Centre Sud – Plateau Mont Royal
☐ Corporation de relance economique communautaire
☐ RESO sud-ouest
☐ Rosemont & Petite Patrie
☐ SODEC RDP Pointe aux Trembles

43. After you answer this question, the survey is complete. Are you confident that you will be paid in the way described to you at the beginning of the survey?
☐ Yes
☐ No

When you have finished, please give the two answered questionnaires. You are invited to randomly select the choice question for which you will receive compensation

Appendix B
Decision Summary
”Human Capital Investment by the Poor: Informing Policy with Laboratory and Field Experiments”

Table B.1: Summary Description of Time Preference Decisions (Bolded Decision Order used in Analysis)

	Smaller Sooner (SS) Payment ($)							
Decision Number	**Today**	**Earliest Tomorrow**	**Payoff Next Week**	**Two Weeks**	**Days Lapsed for Later Payoff**	**Larger Later (LL) Payment ($)**	**Rate of Return (%)**	**Percent choosing SS**
6			71.50		2	71.54	10	80.9
2			71.15		3	71.21	10	77.3
17			71.20		7	71.34	10	80.5
12			71.10		**14**	71.37	**10**	84.8
4			71.00		28	71.54	10	87.1
9			72.00		2	72.20	50	74.6
3			72.15		3	72.45	50	74.2
13			72.25		7	72.94	50	78.1
10			72.10		**14**	73.48	**50**	77.7
8			72.05		28	74.81	50	82.8
19		73.25			2	74.05	200	52.3
11		73.10			3	74.30	200	58.6
14		73.00			7	75.80	200	52.7
21		73.30			**14**	78.92	**200**	46.5
18		73.15			28	84.37	200	49.6
20			73.25		2	74.05	200	54.3
22			73.10		3	74.30	200	57.4
15			73.00		7	75.80	200	53.1
24			73.30		14	78.92	200	55.1
25			73.15		28	84.37	200	55.1
26				73.25	2	74.05	200	51.6
16				73.10	3	74.30	200	60.2
5				73.00	7	75.80	200	59.0
28				73.30	14	78.92	200	62.1
23				73.15	28	84.37	200	58.2
7	72.25				2	73.75	380	55.9
29	72.10				3	74.35	380	50.0
30	72.00				7	77.25	380	38.7
32	72.50				14	83.07	380	41.8
33		72.25			2	73.75	380	53.5
35		72.10			3	74.35	380	44.9
36		72.00			7	77.25	380	36.7
1		72.50			**14**	83.07	**380**	39.8
37		26.15			2	26.69	380	62.9
27		26.05			3	26.86	380	68.8
24		26.25			7	28.16	380	53.5
31		26.10			14	29.90	380	58.6

Appendix C
Descriptive Statistics
”Human Capital Investment by the Poor: Informing Policy with Laboratory and Field Experiments”

Table C.1: Survey Questions
Descriptive Statistics: Mean (Standard-Deviation) or Proportion

	Reference Population						
Variable	**Main Activity: Labour Force (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Family Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
Age	34.31 (10.1)	32.39 (9.00)	28.06 (8.99)	34.14 (10.26)	34.73 (11.0)	31.66 (8.78)	33.71 (10.4)
Male	0.362	0.258	0.323	0.292			0.332
Living with a partner **Partner**	0.297	0.484	0.226	0.286	0.388	0.269	0.309
Number of children under 18 **Under18**	0.524 (0.891)	1.613 (1.022)	0.419 (0.765)	0.789 (1.02)	0.447 (0.809)	0.725 (1.006)	0.633 (0.953)
Number of children under 13 **Under13**	0.405 (0.754)	1.516 (1.029)	0.355 (0.709)	0.649 (0.915)	0.424 (0.762)	0.573 (0.900)	0.523 (0.858)
Number of children under 5 **Under5**	0.178 (0.424)	0.839 (0.735)	0.194 (0.477)	0.319 (0.572)	0.224 (0.497)	0.269 (0.529)	0.254 (0.518)
Number of children	0.524 (0.891)	1.61 (1.02)	0.419 (0.765)	0.789 (1.02)	0.447 (0.809)	0.725 (1.01)	0.633 (0.952)
Single parent household **Single Parent**	0.157	0.452	0.161	0.243	0.00235	0.281	0.195
Number of years of schooling completed **Yrs School**	13.811 (2.765)	12.000 (3.173)	14.097 (2.071)	13.259 (3.044)	13.565 (2.962)	13.614 (2.736)	13.598 (2.807)
High school diploma **Hsdeg**	0.773	0.710	0.871	0.773	0.741	0.801	0.781
College diploma **Coldeg**	0.459	0.161	0.452	0.416	0.365	0.444	0.418
Trade/voca-tional certificate or diploma **Vocdeg**	0.259	0.355	0.129	0.270	0.224	0.263	0.250
Apprenticeship diploma **Appdeg**	0.108		0.0645	0.103	0.0941	0.0994	0.0977

(continued)

Table C.1: Survey Questions
Descriptive Statistics: Mean (Standard-Deviation) or Proportion (Cont'd)

	Reference Population						
Variable	**Main Activity: Labour Force (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Family Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
	n=184	n=31	n=31	n=185	n=85	n=171	n=256
University degree **Univdeg**	0.314	0.0645	0.0968	0.211	0.306	0.234	0.258
Any other degrees or diplomas **Otherdeg**	0.124	0.0645	0.0968	0.108	0.0941	0.123	0.113
Any community college credit **Cccre**	0.411	0.226	0.452	0.411	0.365	0.404	0.391
Any business school credit **Buscre**	0.0865	0.161	0.0645	0.0973	0.0706	0.0994	0.0898
Any technical institute, trade, or vocational school **Techcre**	0.265	0.258	0.226	0.292	0.271	0.275	0.273
Any university courses **Unicre**	0.541	0.258	0.452	0.459	0.471	0.503	0.492
Currently enrolled **Student**	0.216	0.258	0.839	0.286	0.306	0.287	0.293
Main activity is caring for family **Family**		0.903		0.146	0.0941	0.117	0.109
Main activity is working for pay or profit **Worker**	0.670			0.400	0.518	0.468	0.484
Main activity is looking for paid work **Unempl**	0.281			0.227	0.247	0.181	0.203
Main activity is school ing **Student**			1.000	0.119	0.118	0.123	0.121
Main activity is household work **Hsework**		0.0968		0.0162		0.0175	0.0117

(continued)

Table C.1: Survey Questions
Descriptive Statistics: Mean (Standard-Deviation) or Proportion (Cont'd)

	Reference Population						
Variable	**Main Activity: Labour Force (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Family Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
	n=184	n=31	n=31	n=185	n=85	n=171	n=256
Main activity is being on parental leave (from paid employment) **Onleave**	0.108			0.0108		0.0117	0.0781
Main activity is being on long-term illness/ disability **Disabled**				0.0378	0.0235	0.0292	0.0273
Main activity is being retired **Retired**				0.0162		0.0175	0.0117
Main activity is something else **Otheract**				0.0270		0.0351	0.0234
Currently doing any paid work **Anypaid**	0.741	0.355	0.387	0.589	0.588	0.655	0.633
Paid worker **Paidwork**	0.670	0.226	0.355	0.513	0.494	0.585	0.555
Self-employed **Selfemp**	0.703	0.129	0.0323	0.0757	0.0941	0.0702	0.0781
Seasonal worker (<48 weeks) **Seasonal**	0.432	0.258	0.290	0.389	0.388	0.386	0.387
Part time (< 5 days)	0.157	0.0967	0.290	0.157	0.118	0.181	0.160
Additional sources of income **Addinc**	0.422	0.581	0.419	0.416	0.388	0.474	0.445
Best estimate of total annual household income **Totinc**	4.070 (2.648)	2.710 (1.371)	3.355 (2.751)	2.508 (1.486)	4.235 (2.562)	3.532 (2.542)	3.766 (2.565)
A written **Budget**	0.368	0.516	0.323	0.416	0.318	0.415	0.383

(continued)

Table C.1: Survey Questions
Descriptive Statistics: Mean (Standard-Deviation) or Proportion (Cont'd)

	Reference Population						
Variable	**Main Activity: Labour Force (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Family Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
	n=184	n=31	n=31	n=185	n=85	n=171	n=256
Keep track of expenses **Expfile**	0.476	0.613	0.516	0.540	0.435	0.526	0.496
Regular contributions to a savings account **Savings**	0.481	0.548	0.290	0.476	0.506	0.444	0.465
Possess a credit card **Credit**	0.573	0.387	0.516	0.465	0.459	0.573	0.535
Own their own home **Ownhome**	0.114		0.0323	0.0595	0.0824	0.0877	0.0859
Own their own car **Owncar**	0.276	0.258	0.226	0.222	0.282	0.257	0.266
Do you feel that generally most people can be trusted? **Gentrust**	0.443	0.258	0.581	0.395	0.400	0.444	0.430
Wallet or purse returned by someone living close by **Wallcb**	0.600	0.516	0.452	0.546	0.506	0.596	0.566
Wallet or purse returned by a clerk at regular grocery store **Wallsto**	0.730	0.742	0.742	0.708	0.753	0.731	0.738
Wallet or purse returned by a police officer **Wallpol**	0.816	0.839	0.871	0.811	0.859	0.807	0.824
Wallet or purse returned by a complete stranger **Wallstr**	0.416	0.419	0.452	0.416	0.353	0.444	0.414

(continued)

Table C.1: Survey Questions
Descriptive Statistics: Mean (Standard-Deviation) or Proportion (Cont'd)

	Reference Population						
Variable	**Main Activity: Labour Force (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Family Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
	n=184	n=31	n=31	n=185	n=85	n=171	n=256
Purchase lottery tickets **Lottery**	0.740	0.839	0.613	0.735	0.753	0.713	0.727
Purchase extended warranty coverage on appliances **Warranty**	0.443	0.548	0.355	0.465	0.424	0.462	0.449
Do NOT purchase extended warranty on appliances **Nowarran**	0.427	0.258	0.355	0.378	0.400	0.398	0.398
Worry about financial difficulties in old age **Finworry**	0.697	0.742	0.677	0.768	0.600	0.760	0.707
Contribute to retirement plan **Retirement plan**	0.319	0.129	0.0968	0.216	0.247	0.281	0.270
Put off unfavorable situations **Dread**	0.319	0.323	0.161	0.265	0.259	0.310	0.293
Do NOT delay delightful events **Nosavor**	0.443	0.516	0.290	0.454	0.424	0.444	0.438
Locus of control 0=external, 7=internal **Locus of Control**	4.15 (1.29)	3.71 (1.49)	4.19 (1.08)	3.99 (1.32)	4.22 (1.21)	4.04 (1.37)	4.10 (1.32)
Associated with a community organization **Local Community Organisation**	0.800	0.935	0.645??	0.816	0.741	0.836	0.805

Table C.2: Investment Preference Decisions

				Percentage of Participants Choosing the First Choice						
				Reference Populations						
Decision number in text	First Choice	Over Second Choice	Decision Order	Main Activity: Working Poor (Worker + Unemployed + On Leave)	Main Activity: Non-labour Force (Family + Housework)	Main Activity: Student	Low Income: Total Income Less Than 120% of LICOs	Men	Women	All
	$100 edu	$100 durables	52	33.5	41.9	58.1	33.0	47.1	32.2	37.1
	$500 edu	$500 save	53	51.9	54.8	67.7	54.1	63.5	47.4	52.7
7	$500 edu	$500 family	54	60.0	25.8	71.0	57.2	64.7	52.6	56.6
1	$100 cash	$200 edu	55	77.8	71.0	64.5	77.3	78.8	74.3	75.8
2	$100 cash	$600 family	56	54.1	29.0	71.0	53.1	55.3	52.6	53.5
	$100 cash	$600 save	57	54.6	45.2	67.7	56.2	67.1	48.0	54.3
	$100 cash	$200 durables	58	46.5	51.6	41.9	45.9	55.3	40.9	45.7
3	$100 cash	$600 edu	59	48.1	48.4	41.9	48.5	44.7	49.7	48.0
4	$166 cash	$500 family	60	63.8	35.5	77.4	61.9	60.0	63.2	62.1
	$250 cash	$500 save	61	75.7	61.3	87.1	73.2	82.4	69.6	73.8
5	$100 cash	$400 edu	62	56.8	61.3	35.5	56.7	55.3	55.0	55.1
6	$250 cash	$500 family	63	75.7	48.4	90.3	72.2	74.1	74.3	74.2
	$166 cash	$500 save	64	61.1	58.1	83.9	62.9	71.8	57.9	62.5

Table C.3: Time Preference Decisions (Bolded Decision Used in Analysis)

	Percentage of Participants Choosing the Earliest Payoff (SS)						
	Reference Populations						
Decision Order	**Main Activity: Working Poor (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Total Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
6	82.7	83.9	71.0	80.4	83.5	79.5	80.9
2	80.5	67.7	71.0	76.3	76.5	77.8	77.3
17	83.8	71.0	77.4	79.9	87.1	77.2	80.5
12	87.6	77.4	77.4	85.1	82.4	86.0	84.8
4	89.7	77.4	83.9	86.6	87.1	87.1	87.1
9	76.8	77.4	64.5	76.3	76.5	73.7	74.6
3	76.8	71.0	64.5	75.3	71.8	75.4	74.2
13	80.0	77.4	71.0	79.4	82.4	76.0	78.1
10	81.1	77.4	61.3	80.4	77.6	77.8	77.7
8	85.9	67.7	80.6	82.5	84.7	81.9	82.8
19	56.8	41.9	38.7	53.6	58.8	49.1	52.3
11	61.1	58.1	45.2	58.8	63.5	56.1	58.6
14	56.8	45.2	41.9	54.1	61.2	48.5	52.7
21	51.4	32.3	38.7	49.5	52.9	43.3	46.5
18	51.9	38.7	48.4	50.0	58.8	45.0	49.6
20	57.3	48.4	48.4	55.7	60.0	51.5	54.3
22	58.4	64.5	45.2	59.3	65.9	53.2	57.4
15	56.2	45.2	48.4	57.2	61.2	49.1	53.1
24	61.6	38.7	38.7	55.7	67.1	49.1	55.1
25	60.5	41.9	38.7	55.7	63.5	50.9	55.1
26	55.7	35.5	48.4	51.5	61.2	46.8	51.6
16	62.7	54.8	48.4	60.3	63.5	58.5	60.2
5	62.7	51.6	48.4	59.8	67.1	55.0	59.0
28	66.5	51.6	51.6	62.4	70.6	57.9	62.1
23	61.6	51.6	45.2	59.3	65.9	54.4	58.2
7	64.3	48.4	25.8	54.1	67.1	50.3	55.9
29	54.1	41.9	41.9	52.6	60.0	45.0	50.0
30	42.7	29.0	29.0	38.7	50.6	32.7	38.7
32	44.3	38.7	32.3	44.3	52.9	36.3	41.8
33	55.7	54.8	41.9	55.7	58.8	50.9	53.5
35	48.6	35.5	29.0	47.4	51.8	41.5	44.9
36	38.9	29.0	29.0	39.2	45.9	32.2	36.7
1	43.2	41.9	19.4	41.2	49.4	35.1	39.8
37	64.3	64.5	54.8	65.5	65.9	61.4	62.9
27	71.9	67.7	58.1	71.6	76.5	64.9	68.8
34	55.1	51.6	48.4	55.7	63.5	48.5	53.5
31	61.6	51.6	51.6	60.3	67.1	54.4	58.6

Table C.4: Risk Preference Decisions (Bolded Decision Used in Analysis)

		Percentage of Participants Choosing the Less Risky Choice						
		Reference Populations						
Decision number in text	**Decision Order**	**Main Activity: Working Poor (Worker + Unemployed + On Leave)**	**Main Activity: Non-labour Force (Family + Housework)**	**Main Activity: Student**	**Low Income: Total Income Less Than 120% of LICOs**	**Men**	**Women**	**All**
3	**38**	75.1	67.7	64.5	70.6	77.6	69.6	72.3
5	**39**	76.2	58.1	77.4	73.2	71.8	73.7	73.0
6	40	74.1	71.0	74.2	73.2	75.3	72.5	73.4
9	41	77.3	64.5	74.2	74.7	74.1	74.9	74.6
7	42	74.1	51.6	58.1	69.1	70.6	68.4	69.1
10	43	82.2	77.4	67.7	79.9	81.2	78.9	79.7
13	44	75.1	67.7	71.0	72.2	76.5	70.8	72.7
12	45	81.6	77.4	67.7	78.9	82.4	76.6	78.5
2	**46**	60.5	71.0	64.5	62.4	65.9	59.6	61.7
4	**47**	56.2	71.0	61.3	61.9	54.1	62.6	59.8
11	48	63.8	58.1	58.1	61.3	56.5	65.5	62.5
1	**49**	68.1	71.0	64.5	69.1	65.9	67.8	67.2
8	50	75.7	77.4	77.4	77.3	82.4	72.5	75.8
14	51	56.2	71.0	54.8	61.3	60.0	57.9	58.6