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by

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ABSTRACT

This paper demonstrates the existence of negative effects from microcredit on education outcomes, as well as heterogeneous effects on self-employment and business size. Among households that start a business due to the introduction of microcredit, school enrollment for adolescents declines significantly. Households with pre-existing businesses use loans to increase capital investment. Other households increase their investments in schooling. The net effect of these changes is close to zero. To understand the mechanisms driving this result, I develop and estimate a structural model of joint occupation and education choice with heterogeneous households that face frictions in the credit and labor market.

EXECUTIVE SUMMARY

Can microcredit do harm? Over the last 30 years, over US\$78 billion of microcredit has been extended to households in the developing world. Most of the loans are offered at below-market rates to the very poor who have few alternative credit sources, subsidized by governments, private organizations, or the philanthropic public. Alleviating or ameliorating a credit constraint should never decrease welfare if the original choice set remains available. However, microcredit may change the credit and labor markets sufficiently that households lose prior options, and may be an expensive and inefficient way to encourage economic growth. My paper studies the effects of microcredit on education and entrepreneurship. I provide reduced form evidence of decreased schooling among the families of new entrepreneurs. I reproduce this disenrollment effect using a structural model and demonstrate the role of heterogeneity in causing and disguising it.

The key principles of microcredit - offering small loans to borrowers without collateral at reasonable interest rates - are derived as an answer to the well-documented problem of extremely high interest rates on small loans facing borrowers. These interest rates make credit unaffordable or extremely expensive, limiting poor households' access to credit and contributing to the development of debt traps. Interest rates are particularly high on small loans to poorer borrowers; this has been variously attributed to the fixed costs associated with making a loan, risk of default on un-collateralized debt, and the lack of credit options. In traditional microcredit models, group loans and group liability, and the social pressure to repay that accompanied them, helped to mitigate the first two issues. Many of the first providers were non-profit organizations whose incentives differed from commercial banks or village lenders, which also contributed to lower interest rates. Microcredit lenders have since branched out from the original approach and begun offering individual loans and variations on repayment mechanisms. They have also branched out from the original targeting strategy, moving away from gender targets and enterprise loans to broader loan portfolios.

Microcredit is not solely a developing world phenomenon – there is a small but long-standing microfinance industry in the US. Further, microcredit has many similarities to policies in developed countries that aim to encourage entrepreneurship. Microcredit is, at its essence, the provision of subsidized capital, and thus shares features with new business tax breaks, matched saving programs, and low-interest business loans. Evaluating its effects can provide insights that are of use far beyond the specific context of developing countries or non-profit microcredit.

The welfare effects of microcredit can be both micro and macro. At the macro level, encouraging higher rates of entrepreneurship is not necessarily good. Crowding effects in the (mainstream) credit and labor markets may hinder the growth of new firms. Policies that target “marginal”

entrepreneurs may have unintended or heterogeneous effects. Marginal entrepreneurs are those who find it optimal to be self-employed when they receive financial support – for instance, subsidized credit, matched savings programs, or preferential tax codes – but not otherwise. This group contains distinct types, however. Think of profit as increasing in productivity (or growth potential, or innovation) and in financial investment. Marginal entrepreneurs might be productive, growth-orientated entrepreneurs who lack the financial means to start a profitable business without support programs, or individuals for whom cheaper capital makes self-employment profitable relative to wage-employment but whose productivity or growth potential is low. This second type may be a bad investment since they will not generate sufficiently high returns to compensate the economy for the cost of providing cheaper capital.

At the micro level too, microcredit's welfare impact is ambiguous. If microcredit relieves credit constraints facing some households then basic choice theory says they must be weakly better off than before. They can make choices that are closer to their unconstrained optima, and lose no options. However, the environment facing households may change sufficiently to remove previous options. Spillover or general equilibrium effects may cause some households to be worse off. Decisions by one generation of household decision-makers may harm the prospects of the next, resulting in within-household welfare transfers.

FINDINGS

The creation of a large-scale microcredit program resulted in significantly higher rates of self-employment, but had little average effect on business characteristics such as size, revenue, or output, or on education enrollment or achievement. However, teenagers in newly entrepreneurial households were less likely to be enrolled in school, and had lower educational attainment in later years. Other households increase education investment, so at the aggregate this effect is not visible. Teenagers withdrawn from school have much lower lifetime earnings and are no more likely to be self-employed or work in a family business. I estimate a model that allows for substantial heterogeneity in households' productivity, and demonstrate how occupation choice directly affects on children's schooling. New entrepreneur households with higher productivity invest in schooling as well as in business capital, while new entrepreneurs with low productivity invest in business capital and withdraw their children from school.

DATA

To demonstrate microcredit's effects on self-employment rates, and its effect on education via altered occupation choices, I examine a Thai program called the Million Baht Village Fund. This program transferred one million baht to each village in Thailand, earmarked for the purpose of setting up village banks. Villages are an administrative unit and the word implies nothing about the number of households involved. The same grant was made available to every village, regardless of size, wealth or ruralism. Villages elected committees to draw up regulations for the operation of the banks; once these proposals were submitted to and approved by the central government, transfers could be made. One universal requirement was that borrowers had to be residents of the village to borrow from the local bank. Beyond that, the banks did not receive targeting instructions from central government and loan applications were evaluated at the local level on a competitive basis. Most loans were uncollateralized but might require guarantors. Repayment rates were high, and funds disbursed remained constant or increased over time. The program was announced in 2001 by the incoming government following a snap election in 2000.

The MBVF has two characteristics that make characterizing it as "quasi-experimental" accurate. First, it was announced and implemented within a year. Households did not have time to anticipate the program and adjust their behavior, so observations prior to May 2002 provide genuine baseline information. Second, there is wide variation in village characteristics but all villages received the same transfer. Specifically, villages vary greatly in size. The number of other households in a given village affects the probability of receiving a loan and the loan size, so the effective size of the credit infusion varies across villages. Village size is not correlated with other economic trends. Thus, the MBVF is equivalent to a credit program that was randomized at the village level.

Further, the MBVF is equivalent to a microcredit intervention. While the program was set up with grants from the central government, it operated in villages as a source of credit, not as transfers. Households were required to repay funds, and for the most part did so (Kaboski and Townsend (2011) find repayment rates of 97%). The money was not targeted to particular sub-groups, was not accompanied by any conditions on behavior or use, nor with any sort of business or skill training. Observed interest rates are well below those available from commercial lenders.

I use the MBVF to show that households that start businesses experience a decrease in the enrollment probability of teenagers. I propose a model of adult and teenage occupational choice and education decisions with credit and labor market frictions. I estimate this model structurally on pre-program data and validate it using post-program data. Through this dual approach, I establish the existence of effects on education via occupation choice and then quantify the roles of different mechanisms in causing it, as well as their relationship to household heterogeneity.

MODEL AND METHOD

I develop and estimate a model of joint occupation and education choice by heterogeneous households. In this model, keeping a child in school is a labor supply decision as well as an investment decision. Households differ in their productivity, which affects wage earnings and business profits, as well as in their expected cost of schooling, wealth, and demographic composition. They allocate their adult and teenage members to occupations - wage work, self employment, or school - and allocate savings to risk-free assets or business investment. A child in school earns nothing but may graduate as a skilled worker and be more productive in either occupation. A household's ability to optimize is limited by the presence of two frictions, in the credit and labor markets. The labor market friction increases the cost of hired, non-family workers relative to family workers, and hence lowers wages. This creates a preference for self employment over wage employment, and a preference for family labor relative to non-family workers. The preference for family over hired labor is well-established in developing countries, and has been attributed to a number of factors, including limited observability of effort, weak contract enforcement laws, and misaligned incentives. When microcredit is introduced to this environment, it has several connected effects. First, the net cost of capital decreases, weakly increasing business ownership, and business size conditional on ownership. If labor and capital are complements in the household business's production function, this increases the labor demand of the household business and increases the opportunity cost of education. This may cause decreased schooling. Second, schooling may increase as a form of long-run business investment if skilled labor is more valuable than unskilled labor. Third, general equilibrium effects may cause changes in the wage function, which could increase the opportunity cost of schooling as well as increase the expected return to schooling. The net effect depends on the size of these three mechanisms, all of which are incorporated in my model.

I estimate the model using indirect inference. I estimate the model using only data from before the MBVF implementation to obtain structural parameters. I treat the MBVF as a structural break in the credit environment that changes the credit constraint. I then use the estimated parameters of my model to predict household behavior in this changed credit environment. I compare these predictions to observed data from after the MBVF implementation to validate my model. My model's ability to match observed household choices in the post-program environment acts as an out-of-sample validation test and gives the model increased plausibility. I obtain parameter estimates that allow me to quantify the size of each of the three effects discussed above, and thus identify through what channels the observed effects operate. Household heterogeneity allows for different mechanisms to dominate for different types of households. I additionally estimate the type shares in the population, and their differing productivities and education costs.

My model replicates observed household choices well, reproducing the increased borrowing and self-employment responses to the MBVF, as well as the insignificant changes in aggregate educational enrollment. Wealthier households do not change their behavior significantly, which is in line with collateral-based credit constraints. Among poorer households, responses by household sub-group differ significantly. The increase in self-employment is driven by high productivity households starting enterprises: an additional 18 percent of these households own businesses after the change. They also experience a decrease in school enrollment, instead using their adolescent members as labor in the household firm. Enrollment in high productivity households declines by between 5.86 and 5.33 percentage points. These are large percentage changes: 23.16% in households that also have high educational ability, and 47.45% in households with low educational ability. This is balanced out in the aggregate by increases in schooling by households with high educational ability but low productivity, which experience an increase in enrollment of 14.09 percentage points (71.78%). Within the model, skilled workers have wage earnings 8.45% higher than unskilled workers. Thus, withdrawing a child from school potentially decreases their earnings each period substantially. In practice, selection on potential earnings will influence which households do not invest in education, but this figure highlights the possible cost of early withdrawal.

I use the model to simulate household responses to policies designed to limit school withdrawal by adding enrollment conditions to loans. I find that similar rates of borrowing can be achieved without the negative enrollment effects requiring borrowing households to keep currently enrolled children in school. This contrasts with large decreases in borrowing if households must have all children enrolled in school. This reflects the prevalence of borrowing among particularly poor households, which are less likely to have adolescents in school even prior to microcredit. Among these poor households, the loans may act as valuable consumption smoothing tools. Overall income may not increase but consumption variability may decrease, so discouraging borrowing by such households may have large welfare costs.