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Effects of Microfinance Penetration Rates on Education Participation

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Abstract

Microfinance, or the extension of financial services to low-income individuals unserved or underserved by traditional financial institutions, has been championed as a method of reducing poverty and creating social change, especially in developing countries. However, empirical studies examining the effects of microcredit programs have found mixed results as to the success of these loans. This study attempts to determine the impact that the presence of microfinance institutions in a country has on education participation rates, specifically examining country-level World Bank data over a 10-year period. Regression results for this data suggest positive effects of microfinance penetration on secondary education rates, especially among females, but insignificant effects on primary education participation.

Keywords: Microfinance, Secondary Education, Economic Development, Credit Access

Introduction

A large part of the world's population, especially the population living in poverty, has traditionally had limited or no access to credit through traditional financial institutions. Without access to credit, or with credit gained through informal sources which are potentially more expensive, households may have limited entrepreneurship opportunities (Augsburg et al., 2012) and may have to forgo consumption in order to pay for unexpected or large expenses, such as health treatment (De La Cruz et al., 2008). Microfinance institutions (MFIs) have gained traction as a remedy to global poverty through the extension of credit to traditionally unserved populations. Previous research has studied the effects of microfinance on various measures of success, such as household expenditures, health, and educational attainment. However, these studies have found varying or inconclusive results regarding the success of microfinance programs.

This paper specifically examines the relationship between credit access via microfinance institutions and education participation. The populations served by MFIs that lack access to traditional finance may also have limited access to education due to demand choices between education and essential goods and services, or the need for children to participate in the workforce to support the household (Maldonado and Gonzalez-Vega, 2008). However, educational attainment can not only provide returns to those enrolled in school, but can also increase economic growth for a country as a whole. In cross-country comparisons, increased educational enrollment has been correlated with higher growth rates in following decades (Bils and Klenow, 2000).

For households that already have limited access to credit, obtaining loans to finance education can be especially challenging. Unlike investments in physical capital, human capital

investments cannot be held as collateral to secure loans. Thus, “the poor must fund their education out of past wealth or through abstention from productive work or from current consumption rather than with loans” (Maldonado and Gonzalez-Vega, 2008). Microfinance institutions have the potential to alleviate this problem of education funding by allowing households to obtain loans based on factors other than collateral; often, MFIs serve specific areas, so borrowers’ community reputation can vouch for their repayment ability.

Microfinance and Education

Microfinance can support educational participation in multiple ways. As mentioned, education is a human capital investment that can generate positive returns; however, for a household that would have to abstain from consumption to fund children’s education, the future benefits to schooling can be outweighed by present needs. By allowing households to fund education through microloans, MFIs can increase demand for education.

Furthermore, without the consumption-smoothing effects of credit access, household income shocks may negatively affect education enrollment, especially sustaining participation over multiple years. In response to outside shocks to income, families may be forced to reduce expenditures on education or be forced to withdraw children from school in order to put them in the workforce. Examining household data from Tanzania, Beegle et al. (2005) find that child labor is used as a “buffer against transitory shocks” (81). This is to say, when weighing the short-term benefits of putting a child in the workforce versus the long-term benefits of education, a household faced with an exogenous income shock may decide that the current income increase from child labor is more valuable. By providing access to credit and emergency loans, microfinance institutions can smooth these type of shocks, allowing children to remain in school.

Additionally, although the findings from Beegle et al. (2005) support the idea that child labor is often used as a smoothing mechanism, children also may participate in the workforce to support the basic consumption needs of the household. Microfinance is frequently touted as a way for poor households to make the initial capital investments needed to start a business or upgrade an existing business to a more profitable level. Through these type of investments, a household may reach a sufficient income level without the assistance of child workers, thereby increasing educational participation.

Previous literature has suggested mixed effects on education from microloans. For example, Holvoet (2004) finds that direct credit through an MFI (i.e. loans given without stipulation as to the use of the funds) did not have significant impacts on educational participation for the households surveyed. Other studies have found positive effects on schooling from microfinance, especially among borrowers that have an extended (> 1 year) relationship with the microfinance institute. Maldonado and Gonzalez-Vega (2008) find a positive relationship between participation in Bolivian microfinance programs and reduced education gaps- that is to say, children in households served by MFIs miss less school and are less likely to drop out of school.

However, a potential issue in the Bolivian households studied by Maldonado and Gonzalez-Vega (2008) is the risk that a household may start or invest in a business via a microloan, thus requiring children to drop out of school in order to participate in the new or expanded family business. Their study found a negative relationship between farm acreage and educational participation; households that used microloans to expand their farms also had higher demand for child labor in order to work the new land. This finding is similar to the results found by Augsburg et al. (2012) in Bosnia. The results of their study indicated “a large decline in

school participation and an increase in labor supply of children aged 16 to 19” (3) for households that received loans from the MFI. The authors discuss the relationship between new business opportunities and the demand for employing children. When expanding a business, children can be beneficial to the family as workers because they can wait for payment until the business is profitable or be paid through non-monetary means. Furthermore, it may be less expensive to hire children in a new business than hiring older workers. These factors both increase the demand for child labor in households, leading to lower educational rates among MFI borrowers.

Many of the previous studies examining the relationship between microfinance and education have looked at data from specific microfinance institutions, tracking borrowers who have received microloans and determining those households’ education choices¹. This study looks at microfinance and education at an aggregate, country-wide level and attempts to find a connection between overall microfinance presence and education rates. Hopefully, using aggregate data will help identify the dominant effect between the demand for child labor and the household’s interest in education.

Data

This study compares cross-country data over a time period from 2003 to 2012. Instead of tracking borrowers from a specific microfinance institution, this study uses aggregate data measuring overall microfinance participation at a country-wide level. Microfinance data was obtained through the University of Zurich’s Center for Microfinance. Specifically, participation in MFIs is measured through the microfinance penetration rate, which is calculated as the

¹ Studies of this nature, as mentioned by Holvoet (2008) run a potential risk of selection bias due to the selection process of determining loan recipients and self-selection of MFI customers (who may have higher preferences for education).

number of clients served by microfinance institutions, expressed as a percentage of the total population in poverty for that country. Microfinance-served clients are determined through reporting to the Microfinance Information eXchange (MIX). MIX is a non-profit data-gathering organization founded through the Consultative Group to Assist the Poor that collects self-reported data from 2000-plus MFIs².

Education participation is measured through the World Bank's World Development Indicators, specifically the net enrollment ratio in secondary school. This dataset expresses education participation as the number of enrollees in secondary school expressed as a percentage of the secondary school-age population. Secondary school is chosen as the primary measure of education participation because of the relationship between secondary-school aged individuals and child labor. When examining a household's decision to enroll a child in school versus having that child participate in the workforce, secondary school enrollment may show greater effects because at secondary school age, the child may be more likely to join the workforce. Augsburg et al. (2012) discuss that young adults are more likely to face the choice between work or school, and may have lower perceived benefits from continued education. Thus, looking at enrollment in school among this age groups more effectively shows the household's decision between current income increase through child labor or future investment in the child's human capital.

While the primary regression focuses on secondary school enrollment for the reasons discussed above, this study also examines the effects of microfinance on primary education rates. The dataset used in the regression also, as mentioned, includes primary school enrollment, which is also measured through the World Bank WDI (net enrollment ratio in primary school). As seen

² Because this data is self-reported, there is the possibility of the existence of MFIs (especially small or new organizations) that do not report data to the MIX.

in the regression results below, measuring the effects of microfinance through primary education rates does not show a significant relationship between microfinance and education rates..

Another factor in a household's decision to send a child to school is the gender of the child. In addition to focusing on increasing education attainment, microfinance programs have also focused on decreasing the gender disparity in education. The study by Holvoet (2008) focuses on the differences between delivering microcredit to males or females in households, finding that when microloans are mediated through women's groups and given to the female in a household, overall education expenditures increase, especially for girls' schooling. Thus, this study runs a secondary regression which also looks at secondary education enrollment, however this time separating male and female enrollment rates.

Finally, this study also sets out to control for the fact that credit can be offered through microfinance institutions as well as traditional financial institutions. Microcredit organizations often target, or are located in, areas that are underserved by traditional finance. However, when looking at aggregate data on a country level, it will be important to account for the level of traditional credit offered. Data for this control variable was found through the World Bank, using the measure of domestic credit provided by the financial sector. This refers to the overall amount of credit provided through traditional institutions, expressed as a percentage of GDP.

Regression Results

The first regression employs a fixed-effects model with net secondary education enrollment as the dependent variable, and microfinance penetration as the independent variable. From the theoretical basis of the model, the expectation was of a positive coefficient for the microfinance variable, i.e. that increased microfinance presence is correlated with an increased

educational attainment rate. The regression was run for 156 countries, with 916 total observations. Results from this regression are summarized below in Table 1.

Table 1: Secondary Education and Microfinance Penetration

Dependent variable: net secondary education enrollment	Coefficient	t-statistic
Microfinance penetration rate	0.1012794	5.22
Constant	69.88419	441.93
Model R ²	0.0340	
Observations	916	

The coefficient for microfinance is positive, and thus consistent with the expected coefficient. It is also statistically significant. However, the overall fit of the model is low, based on the low R² value. As mentioned in the data discussion, this study also attempts to control for the presence of traditional finance in a country. Thus, a similar fixed-effects model was run, with the addition of a variable measuring domestic credit provided by traditional financial institutions.

Table 2: Secondary Education, Microfinance and Domestic Credit

Dependent variable: net secondary education enrollment	Coefficient	t-statistic
Microfinance penetration rate	.0958582	4.98
Domestic credit provision	.0308852	5.02

Constant	66.98424	133.20
Model R ²	0.0674	
Observations	863	

The expectation for the second model would be to see positive coefficients for both microfinance and domestic credit. One would expect that credit provided through either type of institution would increase education rates. As seen in Table 2 above, the regression produced positive, significant coefficients for both independent variables. Additionally, although still low, the overall fit of the model increased with the addition of the domestic credit variable. This demonstrates that even after controlling for domestic credit, microfinance rates still show a positive impact on education; thus, this suggests that microfinance institutions serve a population without access to traditional credit.

As mentioned earlier, this study has chosen to use secondary education rates as the measure of education participation, due to characteristics of the secondary-school age population. However, it is also possible that primary education participation is affected through microfinance as well. Table 3 provides regression results for a fixed-effects model, including microfinance penetration and domestic credit presence as independent variables. However, in this model the dependent variable is the net primary education enrollment percentage.

Table 3: Primary Education, Microfinance and Domestic Credit

Dependent variable: net primary education enrollment	Coefficient	t-statistic
Microfinance	.0354604	2.23

penetration rate		
Domestic credit provision	.0106321	1.54
Constant	87.66687	177.71
<hr/>		
Model R ²	0.0081	
Observations	1136	
<hr/>		

Similar to the regressions involving secondary education rates, this model finds positive coefficients for both independent variables. However, for a 95% confidence level, the coefficient for domestic credit is not significant. Additionally, the R² value for this model is far lower than the models involving secondary education, hence the reason this study chooses to focus on secondary education as a primary measure.

The next regressions attempt to separate the effects of microfinance on male and female education participation. Based on the previous results, the most significant results come from the regression involving secondary education and the inclusion of the domestic credit control variable. Thus, the next regressions continue based on these assumptions, but the dependent variable is no longer secondary education enrollment regardless of sex, but secondary enrollment for females (Table 4) and males (Table 5)

Table 4: Female secondary education, microfinance and domestic credit

Dependent variable: net secondary education enrollment, female	Coefficient	t-statistic
Microfinance	.1177066	5.60

penetration rate		
Domestic credit provision	.0314627	4.89
Constant	67.38939	129.68
<hr/>		
Model R ²	0.0760	
Observations	842	
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Table 5: Male secondary education, microfinance and domestic credit

Dependent variable: net secondary education enrollment, male	Coefficient	t-statistic
Microfinance penetration rate	.0978705	4.60
Domestic credit provision	.0291101	4.47
Constant	66.29542	126.17
<hr/>		
Model R ²	0.0578	
Observations	842	
<hr/>		

Consistent with the regression of overall secondary enrollment regardless of sex and microfinance and domestic credit (Table 2), these regressions show significant coefficients for both microfinance penetration and domestic credit, as would be expected. Additionally, the results shown in Table 4 and Table 5 indicate stronger results for female education from microfinance. The model regressing female education shows a higher overall R²; furthermore,

the coefficient for microfinance is higher than for male education, indicating that microfinance has a stronger effect on female education than on male education or overall education.

Conclusion

In general, while the overall model R^2 values are low, the regression results for this study show a positive, statistically significant relationship between microfinance penetration rates and secondary education participation, especially among females. This result has important policy implications regarding microfinance; microcredit has been touted as a way to solve social challenges outside of traditional non-profits, and the results of this study seem to indicate that it could be effective in increasing education participation. While the regression results indicate that there are likely other factors that affect a household's decision to enroll its children in school, they also indicate that increasing the existence of microfinance institutions in a country will have positive effects on education. This result is consistent with some of the results found in previous studies; for example, Maldonado et al. (2008) found that participation in a microfinance organization led to lower schooling gaps.

From a governmental standpoint, this means that education participation can be increased without the expenditure of state dollars, simply by permitting and facilitating the establishment of microfinance institutions. These results also have important significance from a non-profit perspective. Microloans differ from traditional non-profit objectives in that a microloan can support a social objective but is also repaid at the end of the loan's term, meaning that same funding can be given to another recipient.

Based on the results of this study and the literature reviewed, however, microfinance success does appear to differ based on the characteristics of the loan. This study found that

microloans show a stronger effect on female education participation; other studies (Holvoet 2008) found similar results, that microloans given to women through women's social groups have significant impacts on female education. Based on these results, further studies of this topic would focus on specific types of loans or on specific recipients, in order to determine the most effective implementation of microfinance. However, in general these results indicate that while microfinance may not solve every issue of education enrollment and gender disparity in education, it does have overall positive impacts on education and should continue to be implemented.

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