

Impact of Microfinance Programs on Children's Education

Do the Gender of the Borrower and the Delivery Model Matter?

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Abstract: This article highlights the effects particular features of microfinance programs have on childhood education. Using data from a South India household survey, the article examines how microfinance impacts schooling and literacy, how credit enters the household, and who brings it in. Regression results show that, in the case of direct bank-borrower credit delivery, it does not matter whether credit enters the household through the mother or the father. However, large differences occur when mothers obtain credit through women's groups. Analysis indicates that combined financial and social-group intermediation leads to higher educational inputs and outputs, mainly for girls. Individual interviews with borrowers and interviews with women's groups suggest that changes in underlying allocative rules that are provoked by group membership could be explanatory for the results obtained.

Nowadays, a broad-based consensus has emerged that children's education, and in particular the education of girls, is one of the crucial ingredients for a country's economic growth and its sustained human and economic development. That the international consensus should also be considered as a guideline for policy making may be read from the fact that two of

the UN Millennium Development Goals are directly linked to children's education. They stipulate that by the year 2015, "all boys and girls should complete a full course of primary schooling" and that "the gender disparity in primary and secondary education should preferably be eliminated by 2005, and at all levels by 2015" (IMF, OECD, UN, & World Bank, 2000). In this context, one of the pressing issues for policy makers in the international and national arena is to find effective ways to reach the goals set.

It is against this background that we explore the possible role microfinance could play. In the last decade microfinance has been extolled as a panacea for poverty alleviation and increasing human well-being. Over the years, studies have compiled evidence regarding the effect of microfinance schemes on a variety of factors, including household expenditures, household assets, women's contraceptive use, women's empowerment, and children's human capital investment in health and education. Success stories such as those of the Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC) in Bangladesh, the BancoSol in Bolivia, and Bank Raykat Indonesia's Unit Desa in Indonesia (BRI) have been widely reported on (see, for instance, Chaves & Gonzalez-Vega, 1996; Hashemi & Schuler, 1994; Hulme & Mosley, 1996; Khandker, 1998), and some of the achievements have also been put into perspective (see e.g., Goetz & Sen Gupta, 1996; Mosley, 2001; Navajas, Schreiner, Meyer, Gonzalez-Vega, & Rodriguez-Meza, 2000; Rahman, 1998).

Putting all the evidence together, it is clear that there is no clear-cut or definite answer regarding the impact of microfinance schemes. Conclusions might differ because of different methodologies used, because of diverse subjective interpretations given to the same research findings, or because of the particular features of the program one is studying. While studies that focus on the net, and particularly the gross, impact of microfinance programs are

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many, there are few studies that compare the impact of slightly diverging credit schemes. These kinds of exercises could, however, provide us with highly relevant information for policy making. They might indicate what particular features of programs are successful, and which modalities should be replicated, and which are redundant or even counterproductive.

If the aim of policy is to promote children's education, then it might be interesting to explore whether it matters for children's schooling if credit is given in the hands of the mother or the father. Other features of interest could be the particular delivery channel that is used, the quantity of credit, or the type of credit provided. Does consumptive credit produce the same effects as credit whose use is restricted to productive activities? Are schemes that extend higher amounts of credit more effective than those whose credit ceilings are lower? Does channelling of credit through a financial and social intermediary impinge differently on children's schooling than direct bank-borrower lending? In particular, because girls' education is high on the agenda, policy relevance may further be sharpened by differentiating between effects on boys and girls.

In the present study, we attempt to test the importance of the borrower's gender and the delivery channel for boys' and girls' education. More specifically, firstly, we have compared the impact of direct bank-borrower credit in the hands of mothers and fathers on selected indicators of children's educational status. Secondly, we have tested whether channelling individual credit to mothers through women's groups created differential effects as compared to the case where no intermediary was used at all. In doing this, we have used data from our 1998 survey of 300 rural South-Indian households living below the poverty line who received credit in slightly different ways.¹ As the validity of impact assessment results are highly influenced by the underlying research methodology, we have devoted considerable attention to research design. We have mainly used quantitative methodologies for the data collection and analysis, while data gathered through qualitative techniques has provided us with interesting insights on possible explanatory factors. Before elaborating on this, we set out a framework that might

help us to explore better the relationship between microfinance and children's education.

Microfinance and Intrahousehold Allocation

There is a growing body of literature focusing on the determinants of children's education and that of girls in particular (see, for instance, King & Hill, 1993; World Bank, 2001). While influences seem to be many and their interplay complex, it is commonly understood that the level of investment in children's education is the result of a number of supply factors and an individual household's demand for education. While a nation's human capital efficiency may influence the level and quality of the supply, decisions regarding children's schooling result predominantly from an implicit cost-benefit analysis made within the household. Costs include direct financial costs, indirect or opportunity costs which result from income foregone, and possibly also nonpecuniary costs that individual parents have to put up with when their choices deviate from the norms regarding children's, and in particular girls', schooling. Benefits include returns to the family arising from higher earnings to children that may be partly returned to parents (King & Hill, 1993, pp. 21–34). Which costs and benefits are entered in the calculus, as well as their relative importance, largely depends on the perception of household decision makers. It is further not necessarily so that individual parents exhibit identical preferences, and they may perceive costs and benefits differently. There is for instance evidence from diverse cultural settings about mothers preferring to allocate a higher percentage of the household budget to children's human capital goods as compared to fathers (Kennedy & Peters, 1992; Mencher, 1988; Phipps & Burton, 1998; Thomas, 1997). These findings are particularly interesting from a policy point of view. If the preferences of one of the parents are closer to those of policy makers, it may be worthwhile investigating routes to increase this person's leverage in the decision-making process.

The possible impact of microfinance on children's education might be better explored when put against this framework of intra-household allocation. Microfinance schemes do not target children directly, but the influence of the scheme goes through the nonneutral intermediary of the household. Credit enters the household and might influence several of the factors that determine children's education, including the overall financial budget as well as the individual parent's budget, the time allocation, the individual parent's degree of participation in household decision making, and the perceptions regarding the importance of children's education. Besides, it is highly hypothetical that diverging schemes will affect the same factors in the same way. Productive and consumptive credit will probably impinge differently on time allocation and income generation, while credit targeted to one particular parent might in particular influence that parent's financial and time budget and his/her leverage in decision making.

Notwithstanding the policy relevance of exploring the importance of particular features of microfinance programs, comparative empirical studies remain scarce. For instance, impact assessment of gender-specific credit is exceptional. One of the few exceptions is the study of Pitt and Khandker (1998) that explicitly tests whether Grameen Bank and similar group-based lending credit programs have effects on allocative outcomes that are related to the gender of the borrower. They found that credit allocated to mothers had a higher impact on boys' and girls' (ages 5–17) schooling than credit to fathers, but differences failed to be statistically significant.

While there is a vast literature documenting the importance of a group's financial and social intermediation for the lowering of transaction costs and the increase in repayment rates (see, for instance, Hoff & Stiglitz, 1990; Hulme & Mosley, 1996; Huppi & Feder, 1990; Sharma & Zeller, 1997), there is no study that has explicitly compared the impact of direct bank-borrower and group-mediated credit on intrahousehold allocative behavior. It is, however, unlikely that group membership would leave intrahousehold behavior unchanged. Originally organized around the fulfilment of a practical gender need, such as the easing of a credit constraint,

groups often engage in collective action and extra-household bargaining with the community, strengthening in this way a member's position within the household (Agarwal, 1994, pp. 421–504; Kabeer, 1995, pp. 223–263).

The present study also disaggregates data for boys and girls. This enables us to test whether a borrower's gender has differential effects on boys and girls and similarly whether group membership has any such effects. In her study about the empowerment potential of the Small Enterprise Development Project in Bangladesh, Kabeer (2001, pp. 77–78) found that among male loanee households, the gross enrollment rates were on average higher for boys than for girls, while the opposite pattern occurred among female loanee households. Although these findings are at first sight surprising, they endorse previous research conclusions that have indicated that the preferences of mothers and fathers as regards investment in boys and girls may differ. Thomas (1997) for instance found evidence for Brazil on the phenomenon of gendered preferences, with mothers preferring to invest more in their daughters' health and education, while fathers preferred to devote more resources to improve their sons' nutritional status and schooling.

While our research agenda is straightforward, the validity of our conclusions will to a large extent depend on the methodologies used for measuring impact. As the threat of selection bias is particularly plausible in credit impact assessment, we have drawn special attention to this issue. The next section sets out in more detail the survey design and the data source used.

Survey Design and Data Source

Most impact studies of credit programs highlight “selection bias” as one of the most serious threats to internal validity. Selection bias may occur because of nonrandom program placement, through selection by program staff, or because of self-selection by program participants. It puts into perspective the impact of credit programs, because one does not know whether effects may be attributed to program participation or whether initially existing differences among different groups, which eventually led to program participation, are responsible for the observed negative or positive effects.

In the underlying research, the issue at stake is whether households that received credit in different ways had initially significantly different scores on relevant background characteristics, which might explain why they became beneficiaries of particular programs in the first place and which might eventually also explain differences in later scores on children's education. Did credit programs applying different delivery models for instance operate in different kinds of villages (the direct bank-borrower schemes in larger villages where banks—and schools—are available)? Did credit programs directed at women (un)deliberately target those women with a higher schooling status who already had a higher stake in household decision making?

The only way in which to rule out completely the possibility of selection bias is through an experimental design with random assignment of individuals over the different credit programs. As it was impossible to find highly similar credit schemes with the necessary differences in the borrower's gender and delivery channel that were in a takeoff stage, it was impossible to proceed this way. We instead opted for a quasiexperimental design using matching on some important characteristics during the design phase of the research while controlling statistically for remaining differences at the moment of analysis.² Matching between different credit programs at the design phase was done through the selection of credit programs that were highly similar in outlook (except for the needed variation in the gender of the beneficiary and the delivery model), that targeted households with similar socio-economic characteristics (below poverty line, less than two acres of landholdings), and that were randomly implemented over villages in the same area. Once we had identified in this way the research population, we randomly selected from each group a sample of 50 households. We subsequently made a more detailed profile of different subsamples of households and we tested formally how successful our matching during the design phase had been. Remaining statistically significant differences were controlled for during the regression analysis. In what follows, we subsequently describe the selection of credit programs, the research area, the

study population, the sample, and the dependent variables. Table 1 at the end of this section summarizes relevant background characteristics of different subsamples and gives an overview of test results.

Selection of Credit Programs

Microfinance programs were selected on the basis of a review of schemes that were operational in southern India. We thereby focused on a number of criteria, such as characteristics of the target group, eligibility and financial criteria, delivery model, placement strategy, and member selection processes. We finally selected the Integrated Rural Development Programme (IRDP) and the Tamil Nadu Women's Development Programme (TNWDP), programs that are highly similar in outlook except for the needed difference in the borrower's gender and in the delivery model. The Integrated Rural Development Programme (IRDP) is a country-level poverty alleviation program launched throughout India in 1978. It directly targets credit and earmarks loans for productive purposes only. Clients are both men and women below the poverty line³ and with maximum landholdings of two acres. Although IRDP guidelines emphasize the importance of the follow-up of beneficiaries, the assistance provided has proved to be largely inadequate (Gaiha, Imai, & Kaushik, 2001, pp. 314; IFAD, 1989, pp. 9; World Bank, 1991, pp. 162–168). As a consequence, IRDP in practice provides a one-shot credit intervention, a fact that has contributed to its failure. Different studies have highlighted the considerable misuse of IRDP loans (on average, 20% to 40%), the extremely low repayment (on average, 24% to 40%), as well as the low percentage of beneficiaries (on average, 28% to 35%) who manage to improve their financial situation and to cross the poverty line (Ghosh, 1998; IFAD, 1989, pp. 9).

The IFAD-funded Tamil Nadu Women's Development Programme (TNWDP) has been conceptualized to remedy IRDP deficiencies in the selection, monitoring, and enforcement process.⁴ It is operational in the southern state of Tamil Nadu since 1990 and started off in those districts where the score on social

indicators of female status was lowest (i.e., first in Dharmapuri and later on in South Arcot, Salem, Ramanathapuram, and Madurai). Within districts, program placement is at random and no evidence could be found that the program has, for instance, only started off in more accessible and larger villages, leaving aside more remote villages. The program targets households with a similar socio-economic profile as the IRDP and uses similar financial conditions regarding interest rates, subsidies, loan repayment period, and loan use requirements. The main innovative element of the TNWDP is the use of women's groups, often called self-help groups, for the channelling of the individual IRDP loans and other services, such as information-sharing; training in technical areas, management, and leadership; and awareness-raising activities related to gender and social development issues. Non-governmental organisations are heavily involved in the TNWDP. They establish women's groups and link them to rural bank branches after they have functioned as savings and credit groups for a short period. Members contribute compulsory savings to their individual savings account and to the group fund that is used to provide small consumption and emergency loans to its members. NGOs operational in the research area are the Mysore Resettlement and Development Agency (Myrada) and the Rural Integrated Development Organisation (Rido). The former has a more developed organizational and management structure and brings women together every week, whereas Rido groups meet only every other week. While both organizations provide social welfare services, Myrada invests more in building up human resources of marginalized groups, transforming women's groups into actors of local institutional change. The TNWDP was first implemented in the Dharmapuri District, where groups were formed from 1990 until 1994. We have selected this research area because it allowed testing the importance of membership duration.

In summary, the following five credit program variables were used:

1. Direct credit to men extended through IRDP in 1993–1994 (IRDP Male)

2. Direct credit to women extended through IRDP in 1993–1994 (IRDP Female)
3. Credit extended in 1993–1994 to women member of Myrada groups since 1993–1994 (TNWDP Myrada Young)
4. Credit extended in 1990–1991 to women member of Myrada groups since 1990–1991 (TNWDP Myrada Old)
5. Credit channelled in 1990–1991 to women member of Rido groups since 1990–1991 (TNWDP Rido Old)

Comparing the impact of IRDP Male and IRDP Female (schemes 1 and 2) allows testing the importance of the borrower's gender, whereas a comparison of the impact of the IRDP Female and TNWDP Myrada Young (schemes 2 and 3) highlights the importance of financial and social group intermediation. Aside from these two issues, which are the scope of this article, comparing the effect of Myrada Young and Myrada Old schemes provides insights into the impact of longer group membership, while the effect of organizing an NGO may be tested through a comparison of impact on Myrada and Rido beneficiaries.⁵

Research Site

One particular area within the Dharmapuri District, Morappur Block, was selected where IRDP and TNWDP loans are extended through three bank branches of the Indian Bank that use the same standard regulations and that are partly staffed by the same persons. The research area is an exclusive agricultural area where the 1991 Household Survey identified about 42% of the overall population living below the poverty line. Morappur Block is part of the Baramahal area, where Tamil is the dominant language. While South India is characterized by the Dravidian culture, which in general poses less severe limitations on girls' and women's behavior than the Aryan culture of the North, any such appreciation should be set against the general background of female discrimination. Even within Tamil Nadu, sex ratios are below 1000 and results of subsequent household surveys suggest a worsening over time. Although in 1961 there were 992 women for every 1000 men, the

ratio declined to 977 in 1981 and 972 in 1991 (Subrahmanyam & Rao, 1995).

Study Population and Sample

In an effort to avoid the confounding (spillover) effects of credit schemes, households were excluded that received credit through both IRDP and TNWDP. While there is mutual exclusivity between the different credit programs, diffusion effects may take place in more subtle ways. Merely living in a village where women's groups are operational, without being a member oneself, could be enough to undergo part of its effects (see, for instance, Hashemi & Schuler, 1994). The study population of IRDP beneficiaries was thus restricted to villages where women's groups were not present but that were highly similar in outlook. In addition, the survey included a section on the degree of interface between non-TNWDP beneficiaries and women's groups.

In 1990–1991, about 497 women living in the Morappur Block received loans under the TNWDP. Of the 497, about 397 belonged to Myrada groups and 100 to Rido groups. In the period 1993–1994, about 200 women received loans through Myrada groups (MAHAM, 1996). Bank staff estimated that in the same period about 420 men and 180 women benefited from IRDP loans, of which 250 men and 100 women lived in non-TNWDP villages. Out of each group we have drawn a random sample of 50 households. Aside from the differential impact of different credit schemes, we were also interested in their net impact. We consequently also included a comparison group of 50 below-poverty-line households living in Morappur Block who were eligible candidates for IRDP credit and TNWDP membership but who had so far not received any credit. Data on school enrollment was only collected for children in the age group four to seventeen years (a sample of 759 children), whereas data on the kind of schooling was collected for those children who were ever enrolled in schools (a sample of 635 children).

Once the six subsamples of 50 households were selected, we made a detailed profile of each subsample on the basis of in-depth interviewing using retrospective questions on relevant household

and individual-level characteristics. A comparison of the profile of the different subsamples shows that the beneficiaries did not have a significantly different profile at the moment of credit receipt. The large majority of all households belonged to the most-backward castes, were landless, or owned only a small piece of land. The majority of the women were illiterate, whereas on average about 50% of the husbands could read and write. In-depth interviewing further revealed that the majority of the TNWDP beneficiaries did not decide themselves to become a member of a women's group. Most of them had actually been "forced" by their husbands who had been attracted themselves by the selective incentive of future credit receipt.

As this study focuses on the differential impact of firstly IRDP Male versus IRDP Female and secondly TNWDP Myrada Young versus IRDP Female (and IRDP Male), we have restricted the comparative analysis to those groups. Statistically significant differences resulting from t-tests are presented at the bottom of Table 1. Differences between the subsamples are at the level of the household landownership, the literacy status of the female respondents, and the literacy status of their husbands. More specifically, children in IRDP Male households had a higher chance of having literate parents (as compared to children in IRDP Female and TNWDP Young), while female members of a women's group tended to belong more to landed households (as compared to IRDP Female and Male households). If anything, our data does not support the idea that women's groups recruited women who had a higher literacy status: of the 50 Myrada Young beneficiaries, only six were literate at the outset (against 15 wives of IRDP Male beneficiaries). They do seem to have recruited among the slightly better off: landownership among TNWDP households was higher than it was among IRDP beneficiaries. Statistical analysis and qualitative information from interviews, however, suggest that landownership has no unequivocally beneficial effect on children's schooling. Children are engaged at younger ages in all kinds of agricultural labor tasks, in particular where supervision of hired laborers is difficult or expensive, and moral hazard problems occur.⁶ Our own data suggest that a household's landownership

Table 1. Sampling information and scores on selected background characteristics

	IRDP Male	IRDP Female	TNWDP Myrada Young	TNWDP Myrada Old	TNWDP Rido Old	Control Group
Sampling Details						
Number of households	50	50	50	50	50	50
Number of children (4–17 years)						
girls	50	56	67	72	63	49
boys	58	66	69	81	73	55
Number of children ever enrolled in schools						
girls	30	38	56	61	51	32
boys	54	60	62	77	67	47
Background characteristics						
Mean age of children	14 (5.4)	16 (5.2)	15 (4.9)	18 (5.4)	17 (5.1)	12 (4.7)
Caste						
% most backward	92	82	94	86	84	84
% scheduled	8	18	6	14	16	16
Landownership ^a						
% yes	56	46	66	58	62	46
% no	44	54	34	42	38	54
Mean quantity of land owned (in acres)	2.12 (1.6)	1.91 (2.1)	1.98 (1)	1.75 (1.2)	1.83 (1.12)	1.97 (1.5)
Literacy status of female respondent ^b						
% yes	30	12	12	20	30	28
% no	70	88	88	80	70	72
Literacy status of husband ^c						
% yes	66	56	46	54	50	54
% no	34	44	54	46	50	46

Note. Figures in parentheses are standard deviations.

^a Difference between TNWDP Myrada Young and IRDP Female is statistically significant at 5% level (t-value: 2.157).

^b Difference between IRDP Female and IRDP Male is statistically significant at 1% level (t-value: 3.028); difference between TNWDP Myrada Young and IRDP Male is statistically significant at 1% level (t-value: 3.026).

^c Difference between TNWDP Myrada Young and IRDP Male is statistically significant at 5% level (t-value: 2.040).

lowers school enrollment but increases the probability that when children are sent to school it will be to a more expensive and qualitatively better private school instead of to a public one. The abovementioned statistically significant differences among subsamples were controlled for when analyzing impacts of different credit schemes on children's education through regression analysis.

Dependent Variables

The choice for particular indicators has been guided by existing secondary literature (see, for instance, Drèze & Sen, 1995, pp. 109–139; King & Hill, 1993, pp. 1–50) and by the financial and time constraints of the study. Aside from a categorical variable, “incidence of schooling,” we have included a numerical variable “number of years of schooling” to capture the effect of differential dropout rates of boys and girls (King & Hill, 1993, pp. 6–9). We have further differentiated between private and public schooling, the former being considered of higher quality by parents. Sending children to a private school entails a number of direct costs, such as tuition and travelling expenditures, that can be avoided if children go to public schools that are more widely available and free of direct costs. Attention for the output of schooling was captured through the inclusion of the “incidence of literacy” measured by “the ability to read and write.”

Data collection was restricted to children in the age-group four to seventeen years. Data was primarily gathered through self-reporting by the mother, complemented by on-the-spot visits in schools and cross-checking of self-reported information with schooling records.

Regression Analysis and Findings

Assessing the impact of different credit programs on the different input and output indicators of children's educational status (ages 4–17) was done through the use of logistic regression models in the case of the categorical dependent variables (“incidence of schooling,” “kind of schooling,” and “incidence of literacy”) and through ordinary least squares regression in the case of the numerical dependent variable “number of years of schooling.” As the main

interest of our research is testing the differential impact of different credit programs (and not so much the net impact of a program versus a nontreatment group) on children's educational status, we have calculated statistics that summarize the effect of one credit program versus another. In the case of logistic regression models, we calculated odds ratios, while differences in coefficients were calculated in the case of the numerical dependent variable.

*Gender and Birth Order Effect in Educational
Inputs and Outputs*

Although it was not the primary focus of this research, the data collected supports earlier findings on the existence of a widespread pro-male bias in children's educational status (see, for example, World Bank, 2001, pp. 31–72). Regression results furnish evidence that there exists in our sample a severe pro-male bias in children's educational investments and literacy outcomes. It proves to be about 3.9 times more likely that boys rather than girls are enrolled in schools. On average, girls receive two years less of schooling than boys, while, in general, no evidence was found that girls, if being sent to school, had less chance of being in a private rather than a public school. The sex-differential pattern of investment in girls' schooling results in a female literacy rate that is only one-third of that of boys.

In addition to a gender effect, a birth order effect seems to play a role. Our data suggest that being born earlier (higher birth order) significantly reduces the average number of years of schooling. Interestingly, the birth order and gender effects seem to reinforce each other: being the eldest daughter makes it the least likely to be enrolled in school. Compared to the eldest son, the eldest daughter is about 12 times less likely to be enrolled in school. A second born daughter is about 1.7 times more likely to be enrolled compared to her elder sister. Observations during field research indicated that elder daughters are strongly engaged in all kinds of household activities, such as cleaning, sweeping, water, fuel collection, and childcare.

Table 2. Contrasts in effects of different credit programs

Dependent Variables	Null-hypothesis: IRDP Female = IRDP Male	Null-hypothesis: TNWDP Myrada Young = IRDP Female	Null-hypothesis: TNWDP Myrada Young = IRDP Male	Failure to reject	Rejection
	Failure to reject	Failure to reject	Rejection	Failure to reject	Rejection
Incidence of Schooling (yes=1)					
All children	1.401	2.194			2.686**
Boys	0.975	1.059		1.033	
Girls	1.35		3.842**		5.191***
Kind of Schooling (private=1)					
All children	0.827		3.923***		3.245**
Boys	0.770	3.036		2.337	
Girls	0.993		5.938**		5.894*
Incidence of Literacy (yes=1)					
All children	1.307		2.656***		3.473***
Boys	1.228	1.124		1.381	
Girls	1.265		7.121***		9.007***
Number of Years of Schooling					
All children	+0.612		+1.054*		+1.666***
Boys	+0.106	+0.083		+0.189	
Girls	+0.836		+2.445***		+3.281***

Note. For categorical variables (“incidence of schooling,” “kind of schooling,” “incidence of literacy”), odds ratios are given. For numerical variables (“number of years of schooling”), differences in coefficients are given. T-tests are used to check whether differences in effects of credit programs are statistically significant at 10% (*), at 5% (**), or at 1% (***).

Does Direct Credit to the Mother and the Father Affect Children’s Schooling Differently?

Results of regression analysis summarized in Table 2 indicate that it does not matter for children’s education whether credit enters the household through the mother or the father. For almost all educational inputs and outputs, slightly higher scores are recorded when the mother receives the credit (odds ratios IRDP Female/IRDP Male >1 for the categorical dependent variables, positive differences for the numerical dependent variables) but the differences are minor and fail to be significant. Going back to the original estimates of the IRDP Male and IRDP Female impact even suggests that there are no statistically significant effects at all of direct credit on children’s schooling or literacy. Whether the loan

was used productively and generated additional revenues, or whether it was considered a gift from the government that was used for consumptive purposes (in about 42% of the cases for IRDP Male and 60% of the cases for IRDP Female), additional resources have not led to an increase in children's schooling or literacy.

The Importance of the Mother's Group Membership

Not only does using women's groups as intermediaries seem beneficial from the point of view of the credit supplier, there are also strong indications that it significantly increases the probability that children are kept in school longer, are sent to private schools, and become literate. Table 2 (third and fourth columns) shows that compared to children whose father or mother received credit directly, children living in households where credit entered through women's groups, remain on average about one to one-and-a-half years longer in school. It is about 3.2 to 3.9 times more probable that they will be enrolled in private rather than in public schools, and about 2.7 to 3.5 times more probable that they will be able to read and write.

Do Effects Play Out Differently for Girls and Boys?

Results of regression analysis summarized in Table 2 (third and fourth columns) show that only girls reap the benefits of their mother's group membership. Contrasts of net effects show that, for boys, we cannot reject the null-hypothesis that there are no additional effects of mother's group membership. This strongly contrasts with our findings for girls, where we reject the null-hypotheses for all variables. Compared to their counterparts in IRDP Female and Male households (third and fourth columns), it is about 3.8 to 5 times more probable that girls are sent to school rather than being kept at home, about 5.9 times more probable that they are in private rather than in public schools, and about 7 to 9 times more likely that they will become literate. They benefit from 2.4 to 3.3 additional years of schooling. In a context of a severe male bias, this induces a weakening of the existing gap in educational inputs and outputs, but fails to wash it out.

Exploring Possible Explanatory Factors

While these research findings are not unique and are supported by Kabeer (2001, pp. 77–78), among others, they are at least surprising. Conventional theory of income and substitution effects clearly fails to explain the sharply contrasting results of slightly diverging credit programs. On the contrary, as there is a close substitutability between mother's and daughter's labor, we would normally expect that the positive income effect of mother's borrowing and resulting employment would partially be outweighed by a negative substitution effect in the case of girls. It seems that in the case of the mother's group membership, other effects are at work than the pure income and substitution effects. Information from individual interviews combined with data from group interviews taken from selected women's groups suggest that at least part of the explanation may be sought in the influence of group membership on decision-making processes in the household.

During interviews, mothers often stressed the importance of their daughters' education. They explicitly pointed out that they always had thought that female education was crucial but that it was only because of their participation in women's groups that they were able to increase their say in household decision making and get their ideas implemented. According to them, women's groups were especially important in liberating access and control over resources from men's mediation. Consider the following statements made by individual members:

While the access to credit was important at the outset, it is the access and control over other resources that has become much more important. Because of my membership, I was able to put some of my own personal income on a personal savings account. Because all administrative formalities that are linked with this account are performed within the group, my husband has no access to this account.

The respect I get from my mother-in-law has increased because I'm the one who has access to money [from the group common

fund] when there are urgent household expenditures to be made.

Aside from the access to material resources, they also gained access and control over intangible, nonmaterial resources. Particularly important for most of them was the fact that group membership had expanded the “female space” by opening access to more heterogeneous spheres of public life, such as the village council, the teacher-parents association, the dairy cooperative society, or the forest committee. This participation in extrahousehold decision-making bodies clearly has an effect on intrahousehold decision-making processes. Consider the following statement:

Because of the linkage project I have become a member of the teacher-parents association in my son's school. Before, my husband would not have allowed and I would not have been bold enough to participate. Now, he is even proud that I go to talk with the others [women of higher castes]. He even believes that I know more now and he listens more to me.

This evidence does not stand alone. It is supported by evidence from earlier studies (see, for instance, Agarwal, 1994, pp. 421–504; Kabeer, 1995, pp. 223–263), which have shown that group membership and collective action may act as powerful leverages to change underlying allocative rules, which might eventually contribute to alterations in observed intrahousehold outcomes if parents exhibit different preferences.

Conclusions and Policy Implications

Comparing the effects of slightly diverging credit programs that are operational in South India leads to the conclusion that in the case of direct bank-borrower credit it does not matter for children's education whether credit is in the hands of mothers or fathers. Results from regression analysis even suggest that direct individual bank-borrower lending does not induce any effects at all on children's educational inputs and outputs. This conclusion is strongly put into perspective when we focus on the impact of group-

mediated credit. Data from our household survey indicates that women's group membership strongly affects girls' schooling and literacy while it leaves that of boys largely unchanged. In a context of a severe pro-male bias, women's group membership helps to reduce the existing gap in children's schooling and literacy, even if it fails to close it completely.

Individual interviewing with borrowers and interviews with focus groups suggest that the impact of women's group membership could be mediated through changes provoked in underlying decision-making processes. Women's group membership deliberates access and control over material and nonmaterial resources from men's mediation, which seems to increase their leverage within household decision making. Women's increased participation in household decision making has enabled them to see their preferences for their daughters' schooling more reflected in the final decisions regarding the allocation of educational inputs.

In a context of a growing consensus on the importance of girls' education for overall allocative efficiency, as well as for human development, these findings have important policy implications. For girls' education, it clearly matters who decides and who controls resources in the household. One of the most direct routes towards increasing girls' education seems to increase their mothers' intrahousehold decision making. Our research shows that channelling credit through well functioning women's groups could trigger this effect.

Notes

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1. See Holvoet (1999) for more details about this survey.
2. Sophisticated impact assessment studies often use two-stage estimation models (such as Heckman's econometric approach) to arrive at unbiased estimates of impact. Crucial (and a major problem) in these models is the selection of an instrumental variable that summarizes well the "selection effect." In my research, it was impossible to identify reasonable candidates, which prevented the use of a two-stage estimation model.

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3. In 1989, households below poverty line were identified as those whose annual household income was below Rs. 6400; from 1996 on the cut-off point was Rs. 11000.

4. While transaction costs have declined under the TNWDP both for borrowers and banks, repayment problems remain. Bennett, Goldberg, et al. (1996) blame the lack of group ownership of the financial service system, which partly comes from the essential nature of donor funding in the generation of loan capital. The disproportionate role of an NGO in the financial intermediation process, leaving little responsibility for the groups, further exacerbates this problem, negatively affecting repayment performance. Recently, however, the TNWDP has begun to shift more responsibility for financial intermediation to the groups, limiting NGOs to the role of social intermediary.

5. For an overview of these results, see Holvoet (1999).

6. Children of small farmers were, for instance, often engaged in animal herding. De Janvry et al. (1992, p. 433–434) report similar findings for Morocco and blame the imperfect substitution of the families' own children's labor for hired labor in animal herding.

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