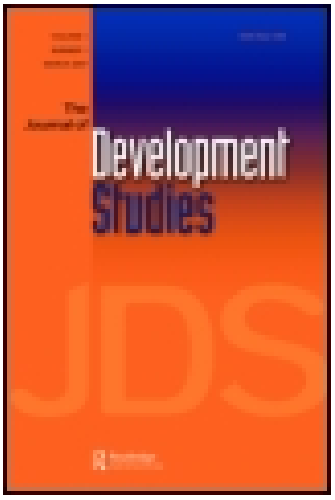

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Microfinance and Poverty in Bolivia

PAUL MOSLEY

Both in its institutional range and in its penetration of financial markets, the microfinance sector in Bolivia rivals any in the world, and has played a major part in extracting the macro-economy from meltdown since the mid-1980s. We seek specifically to assess its impact on poverty, and do this through small-sample surveys on four microfinance institutions, two urban and two rural, using a range of poverty concepts: income (generated both through the borrower's enterprise and through the labour market), asset holdings and diversity, and various measures of vulnerability. All the institutions studied had, on balance, positive impacts on income and asset levels, with income impacts correlating negatively with income on account of poor households choosing to invest in low-risk, low-return assets. Microfinance may, however, augment vulnerability: average debt–service ratios of microfinance clients are disturbingly high, and if the coping mechanisms used by borrowers fail, borrowers may be forced out of the microfinance system, possibly resulting in decapitalisation and impoverishment. Poorer households are more restricted in their choice of coping strategy, and many as a consequence 'choose' coping strategies more likely to jeopardise their long-term income prospects, in particular asset sales and cuts in children's schooling. The more successful low-income borrowers are those who have voluntary savings deposits and do not rush into fixed capital purchases too early: collapse back into poverty is associated with multiple crises and the failure of one or more 'safety nets', in particular support from a member's solidarity group.

The following actions appear to be promising for the further reduction of poverty in Bolivia: stronger efforts to mobilise rural

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savings, removal of lower limits on loan size, and the introduction of appropriate insurance mechanisms. In comparison with other anti-poverty measures, microfinance appears to be successful and relative cheap at reducing the poverty of those close to the poverty line, but ineffective, by comparison with labour-market and infrastructural measures, in reducing extreme poverty.

I. INTRODUCTION

Enormous hopes continue to be held out for microfinance as an instrument of poverty reduction; the Microcredit Summit of February 1997, it will be recalled, pledged itself, perhaps over-optimistically [*Rogaly, 1997; Mosley and Hulme, 1998*] to reach 100 million families, or one-half of the world's poor, with this one instrument alone before 2005. The instrument is evolving rapidly, in particular from a focus on group lending technologies to a much broader emphasis on providing a range of financial products required by different categories of poor people; but at the level of evaluation, many questions remain to be answered concerning the impact of microfinance on the different dimensions of poverty and the trade-offs between these dimensions (as stressed most recently by Morduch [*2000*] and Chapter 7 of the *World Development Report* [*World Bank, 2000*]), and as long as these questions remain unanswered the appropriate design technology for microfinance and the division of labour between it and other instruments of poverty reduction themselves remain open questions.

This article addresses these questions in relation to Bolivia, which, as explained in section II, offers one of the largest ranges of microfinance design technology in Latin America and possibly the world. Using a methodology which takes into account indirect as well as direct effects of lending on poverty, we show in section III that a variety of lending models have achieved the reduction of income and asset poverty, but have had little impact on extreme poverty. The vulnerability of microfinance clients on the liability side has often been increased by borrowing, and the coping strategies which those clients use have often been especially risky in the case of the poorest clients. As a consequence, a number of gaps still remain in what has become a very sophisticated structure of informal finance, and the nature of these gaps and the right way of closing them is discussed in the concluding section IV.

II. THE BOLIVIAN FINANCIAL BACKGROUND

With a per capita income of $950, a life expectancy of 61 and under-five mortality of over one in ten *(World Development Report 1998/9)* Bolivia is

the poorest country in South America, and poorer than the average for developing countries as a whole. From the 1950s through to the early 1980s a succession of governments had attempted to wrench Bolivia out of poverty through 'structuralist' policy measures, including a thoroughgoing land reform in 1952, nationalisation of the mines in the same year and of the country's natural gas reserves in 1965, and widespread controls on the exchange rate and other 'key prices'. Except under the impetus of petro-dollar inflows in the 1970s, however, the Bolivian economy did not respond well to these stimuli. Further, the government made no attempt to adapt to the collapse of world demand and of foreign investment in the wake of the international economic crisis of the early 1980s, except by imposing controls on yet more prices. The consequence was a withdrawal from the country, after the collapse of an early structural adjustment programme, by the World Bank and IMF in 1981; six consecutive years of negative economic growth from 1981 onward; a public-sector budget deficit rising to 21 per cent of national income in 1984; and, as a direct consequence of the decision to finance this deficit with the help of the printing press, one of the great hyperinflations of modern times, reaching its peak at an annual rate of 24,000 per cent in August 1985.

This was a watershed. In that same month, a new government under the father-figure of Victor Paz Estenssoro (who had previously been president from 1950 to 1958) committed itself to an unusually drastic stabilisation programme, involving the liberalisation of all prices (including interest rates), foreign trade and much state enterprise. This quickly restored stability to the financial economy: the rate of inflation fell to 14 per cent within two years, and it has remained in the range of 10–20 per cent since 1987. Growth in the real economy has been slower in coming, but it has been positive since 1987, and positive in per capita terms since 1991. What is particularly relevant to the present discussion are the social effects of the stabilisation programme and its effects on the banking system.

Having been delayed so long, the 1985 stabilisation hit hard when it came, and hit especially hard at low-income groups who were unable to defend themselves. In particular, in the wake of both stabilisation and a dramatic fall in tin prices in 1985, most of the tin mines operated by the state mining company, COMIBOL (previously the core of the export economy), were closed, and the majority of tin miners lost their jobs.[1] The World Bank's 1996 poverty report, to be discussed in detail later, suggests that 'urban poverty is widespread, affecting more than 60 per cent of the urban population'; data on rural poverty are worse, but the indications are that more than 85 per cent of the rural population lives in poverty' [*World Bank, 1996: 1*]. As may be inferred from these data, agriculture was not even remotely able to take up the slack of a collapsing mining sector: between

1986 and 1988, when the rest of the economy was beginning to recover, agricultural GDP declined and yields for most crops (apart from soya and a few others produced in the fertile east of the country) are continuing to fall [*Morales, 1991: 12, 155*]. The consequence was a flood of migrants into La Paz, and to a lesser degree the other main cities. A few were able to find employment in the formal manufacturing and services sector, or in the relief projects set up by the government;[2] but the majority were forced into the informal sector, operating mostly from squats in municipal property or shanty towns on the fringes of the main cities: one of these, El Alto on the *altiplano* outside La Paz, is estimated to have grown in size from 100,000 to almost 1,000,000 over the last 15 years. A recent newspaper report suggests that 45 per cent of the population of La Paz may be living in illegal housing, some of it actually dangerous in that it is situated in areas of landslide risk on the near-vertical escarpments which surround the city. These people, none the less, constitute, as in many other countries, a major market for microfinance lenders.

We have thus enumerated three of the circumstances which made Bolivia in the late 1980s a fertile seeding-ground for microfinance operations: high urban population density, making it possible to expand operations rapidly and at low cost; deregulated interest rates; and growth in the economy. We must now describe the fourth, which is the virtual collapse of the formal financial sector.

Bolivia's banking system, even more than other parts of the economy, was characterised during the pre-1985 period by extreme inefficiency and, for the most part, by an inability to reach the small borrower. Both the three main state-financed banks and the twelve main commercial banks, before 1985, were hampered by the natural instinct of all Bolivians who could engineer it to place their money in overseas accounts at world market interest rates rather than locally at controlled, and in real terms negative, interest rates. The consequent shortage of savings in local currency bred financial conservatism among Bolivian banks and, in particular, a reluctance to embark on high-risk projects such as lending to small farmers or micro-entrepreneurs.

The squeeze on demand imposed by the 1985 stabilisation turned a number of the banks' good customers into bad customers and produced a situation in which, as an AID report put it, 'virtually every financial institution in Bolivia was eliminated' and 'savings disappeared' [*Fischer et al., 1992: 2*]. Although this may be poetic licence,[3] what is clear is that the portfolios of those financial institutions which survived the crisis were too badly contaminated to make any experiment in banking for low-income groups possible for them. Nor did the 'quasi-formal' institutions – the surviving credit unions and the Fondo de Desarrollo Campesino –

contribute effectively, for reasons which will become apparent later, to filling the vacuum which existed where the supply of credit for small enterprises should have been. When PRODEM[4] and other microfinance institutions set up operations in the later 1980s, therefore, they did so in an environment of pent-up concentrated demand from the informal micro-enterprise sector, widespread mistrust in the formal banking system, and little effective competition from the informal banking system. Together with the other favourable circumstances mentioned earlier, these constituted perhaps a uniquely promising environment for the growth of microfinance.

The Case Study Institutions

Not having been a pioneer in the field of microfinance, Bolivia has made up lost ground with a vengeance, and now has some 35 microfinance institutions (MFIs) with 262,000 borrowers (40 per cent of the national total) and a portfolio of $287 million (six per cent of the national total).[5] The grandmother of these (although still aged only fourteen) is Banco Solidario, generally known and referred to hereafter as BancoSol, now one of the most respected MFIs in the world and until very recently the most profitable bank in Bolivia. It began as PRODEM, a non-governmental organisation established by the American organisation ACCION and the recipient of large initial investments from USAID, the Emergency Social Fund established by the banker and former Finance Minister Fernando Romero, and a group of Bolivian businessmen also orchestrated by Romero. It substitutes for collateral by lending to individuals within 'solidarity groups' of between three and eight individuals; no member of a solidarity group can continue to receive credit whilst any member of that group is in default on a loan.

The lending process for new borrowers starts with a small initial loan (minimum $100) which is intended to act as a self-targeting device precluding the non-poor from receiving credit, and the loan size is then scaled up if, and only if, the borrower demonstrates an ability to repay on time. In 1992 PRODEM was split into a commercial wing – BancoSol, at the time the first NGO in the world to convert itself into a commercial bank, – and a not-for-profit wing, still known as PRODEM, undertaking research, training and experimental activities particularly in rural areas. From 1992 onwards BancoSol took on voluntary savings deposits and other normal banking business. It now has just under 80,000 borrowers, bringing it close in size to the medium-sized Asian institutions and much bigger than any other in Latin America, Africa or Eastern Europe. It has generated a sizeable literature, for example Glosser [*1993*], Otero and Rhyne [*1994*], Gonzales-Vega *et al.* [*1995*] Mosley [*1996*] and Navajas *et al.* [*1998*], the last two of which analyse the poverty impact of the institution.

Since the emergence of BancoSol in the early 1990s there have been major developments both in the structure of microfinance and within microfinance institutions. The success of BancoSol in achieving bank status prompted a rush of emulation, but rather than allow all NGOs with commercial ambitions to become banks, the Bolivian regulatory authorities created an intermediate category of *fondo financiero privado* (FFP),or private financial fund, authorised to take savings deposits but not to offer current accounts or engage in foreign currency operations. There now exist eight of these (including now PRODEM, which has spawned its own not-for profit wing), many of them managing money on behalf of non-governmental organisations not authorised or not wishing to register themselves as FFPs.

BancoSol, together with the FFPs, constitute the officially designated 'commercial' sector of microfinance in Bolivia: however, the term is misleading. Most of the developmental non-governmental organisations operating in the country have resolved to achieve commercial self-sufficiency at least in their microfinance work, and with only two major exceptions have achieved this, the only difference between them and 'commercial' financial institutions being their legal and fiscal status[7] and their continuing acceptance of concessional money from Northern NGOs or other sources. It is important to note the outward spread of microfinance in the 1990s from urban areas and from the 'central axis' of La Paz-Cochabamba-Santa Cruz into the poorer, less banked and higher-cost rural areas, with some specialisation and capture of market niches by individual MFIs in the process but with some institutions, including BancoSol, aspiring to market share in both sectors.

Finally, various very recent developments should be noted: new and more stringent customs laws combined with the Brazilian crisis of early 1999 and the incursion of new, unregulated microfinance lenders to produce major financial crisis, still unresolved, in several of the established 'names', most of all BancoSol. Between January and December of 1999 the overall default rate of the sector rose from 4.6 per cent to 7.8 per cent (*Microfinanzas,* Dec. 1999, p.3*)* and it remains to be seen whether these problems can be contained or will escalate.

The resulting structure, as it stands in May 2000, is pictured in Table 1. Probably the major gap in the market which currently remains is the lack of institutions authorised to take savings deposits in rural areas: most of the institutions in the bottom left-hand corner are new and untried and nearly all of the revival of savings which has occurred in the Bolivian economy[8] has taken place in the urban areas. This has implications for the access of the poor to financial services, which are taken up in the concluding section.

TABLE 1
STRUCTURE OF BOLIVIAN MICROFINANCE, APRIL 2000

	'Commercial' (*fiscalisadas)*	'Non-commercial' (sponsor in brackets)
Operations mostly urban	ACCESO	CIDRE
	BancoSol	IDEPRO
	Caja Los Andes	PROMUJER
	COMUNIDAD	FUNBODEM
	FASSIL	
	Fondo de Inversiones Economicas (FIE)	
Operations mostly rural	PRODEM	ANED (non-denominational religious foundation)
	ECOFUTURO (receiving funds from FADES, ANED, IDEPRO and CIDRE)	CRECER* (Freedom from Hunger)
	AGROCAPITAL	DIACONIA* (Norwegian churches)
		FADES
		FONDECO
		SARTAWI (German Lutheran church)

• Not financially self-sufficient in 1999.

As important as the developments in the structure of the microfinance industry are the developments within individual institutions. As indicated earlier, the majority of Bolivian MFIs, whatever their legal status, now see the achievement of financial self-sufficiency as an overriding goal, and by contrast with many other countries, organisations onlending free or concessional credit at a concessional interest rate, which dominated the NGO sector in the early 1990s, are now a small, rare, and endangered species. Within BancoSol, organisational change has gone much further, both in style and in substance. Compulsory saving, initially introduced to insure group loans against default, disappeared in 1994, and there is now a lower limit of $20 on individual savings deposits. The initial minimum loan size of $100 remains, but only on the statute book; the average initial loan is now of the order of $500, and the institution is being taken still further

up-market in response to the 1999 crisis mentioned earlier. Individual loans (maximum size $100,000, which is not microfinance by most standards) are now granted to people with a successful history of borrowing within solidarity groups, and a collateral guarantee is requested from the borrower if the loan size exceeds $5,000. The loan period has been extended for specialised purposes such as housing and student fees, but thus far only as far as two years. And the original inspirational Managing Director, Pancho Otero, was replaced in 1995 by a banker less likely to appear in public in sandals and open-necked shirts.

The diversity of both design features and organisational culture, however, within Bolivian microfinance is to be stressed. Although, as we have argued, the pressures of globalisation have created almost universal pressures towards institutional self-sufficiency within the country, they have not succeeded in defining a 'consensus model' of how to achieve that financial sustainability, either in Bolivia or elsewhere, and much less of how best to reduce poverty. The institutions listed in Table 1 contain examples of individual lending, solidarity (small) and co-operative (large) group lending; targeted and untargeted loan operations; voluntary and compulsory saving; mission-based and heavily secular organisations; 'minimalist' (credit only) operations and loans blended with business training or with complementary technical assistance in the health, education, extension or research areas; and infinite varieties of loan size, repayment periods and incentives to repay. With such a diversified market and such enormous varieties of technology on offer, defining best practice represents a challenge even in relation to the basic objective of achieving financial self-sufficiency; and a far greater challenge in relation to the poverty reduction objective, where the data are worse, the existing literature weaker and the subtleties of definition infinite.

In face of this challenge – and associated resource limitations – we adopt the following procedure. We have selected one institution from each of the quadrants of Table 1. From the 'commercial' (formally-registered company) sector we have BancoSol, a fully-fledged commercial bank operating so far mainly in urban areas, and PRODEM, which has evolved from BancoSol's parent to research and training NGO to a complex MFI possessing both for-profit and non-profit components, but operating mainly in rural areas. Both these use mainly the solidarity group modality but BancoSol, as earlier discussed, now also offers individual loans. From the 'non-commercial' (essentially NGO) sector we have PROMUJER, which lends to mainly urban women within co-operative groups and SARTAWI, an integrated technical assistance foundation whose microfinance component offers both individual and group loans in rural areas. The main design features of these institutions are listed in Table 2.

TABLE 2

THE CASE-STUDY INSTITUTIONS

	Mainly urban		*Mainly rural*	
	BancoSol	*ProMujer*	*PRODEM*	*Fundacion SARTAWI*
Founded	1986 as PRODEM (bank only since 1993)	1990 (credit programmes only since 1993)	1986	1985 (credit programmes only since 1990)
Borrowers (end 1999)	74,000	20,000	59,000	6,581
Organisational form	Commercial bank (formerly NGO)	NGO	NGO having investments in a private financial fund (see p.106)	NGO
Design features: Real interest rate (Jan.99)	46% per annum (27% per annum on dollar loans)		Normally 3% per month(43% effective annual rate); more on small loans, less in areas of tight competition	4.5% per month (72% effective annual rate) but lower as loan size increases
Organisation of Borrowers	Solidarity groups (size 5–7) and individual loans, collateralised above $5,000	Co-operative groups (average size 30, maximum 45)	Solidarity groups (size 3–7) and individual loans, sometimes collateralised	Solidarity groups (average size 5) and individual loans
Savings and Insurance Arrangements	Voluntary savings (minimum balance $20)	Insurance in the form of compulsory saving of 20% of the loan value	None	None
Source of finance	Voluntary savings; Borrowing in capital markets; substantial launch funding from Northern foundations and aid donors, initially organised through PRODEM (*q.v.)*	Social Investment Fund (*q.v.)* plus a range of international foundations	Borrowing in capital markets; initial support from a range of international foundations	German Lutheran Church, CGAP, and a range of international foundations
Method of loan Collection	Fortnightly or monthly at bank offices	Weekly or fortnightly at PROMUJER offices	Monthly at local PRODEM office	Monthly at local SARTAWI office
Incentives to staff and borrowers	'Progressive lending'	'Progressive lending'	Progressive lending; performance-related pay	Progressive lending and financial penalties for late payment

TABLE 2 (cont.)

	Mainly urban		*Mainly rural*	
	BancoSol	*ProMujer*	*PRODEM*	*Fundacion SARTAWI*
Minimum loan size ($) (1999)	100	50	100	100
Average loan size($) (1998)	827	230	450	430
Targeting strategy	Any pre-existing business	Women in pre-existing roscas only	Any pre-existing business	Any business one year old or more; no borrowing from other institutions allowed
Performance indicators:				
Arrears rate (more than 6 months, end 1999)	9.3	0.6	15.2	12.5
Poverty impact 1993–99 (poverty gap measure, % change)	5.03	2.73	4.26	2.69
Poorest clients sampled (estimated annual income)	$60	$45	$52	$45

Source: Named institutions and Table 5 below.

Methodology

For each of the case-study institutions listed in Table 2, we employed three methodologies:

(i) a *questionnaire* (reproduced in the appendix to Hulme and Mosley, 1996) applied to samples of borrowers from each institution as shown in Table 3. For BancoSol the sample consisted of 45 experienced borrowers originally chosen at random from the La Paz register of BancoSol clients in 1993 (for details see Hulme and Mosley [*1996: Ch.11*]); these were repeat-inteviewed either in January 1999 or in April 2000. For the other institutions, it consisted of between 15 and 40 borrowers chosen at random from the register of the offices named in Table 2. In each case a control group of accepted borrowers who had not yet taken a loan was selected for comparison. The questionnaire varied slightly from institution to institution to respond to the information requirements of the institutions themselves, but its core

was a search for information concerning the various dimensions of poverty mentioned earlier – income, assets, and vulnerability – and their correlates. In the case of BancoSol, the survey partially replicates an earlier survey by the present author [*Mosley, 1996*] and the comparisons between 1993 and 1999 reported here can be treated as reasonably exact. In the case of the other three institutions, interviewees were in some cases being asked to recall income and assets data for up to six years back, and these particular data can be treated as correspondingly inexact. Sample sizes and locations are as

TABLE 3
SAMPLE SIZES AND LOCATIONS

	Urban		*Rural*	
	BancoSol	ProMujer	PRODEM	SARTAWI
Location	La Paz (La Garita, Alonso de Mendoza, Miraflores); El Alto	El Alto	Batallas	Batallas
Number in borrower sample	*45*	20	40	15
(of which: numbers interviewed in focus groups)	25 'experienced borrowers', 20 new borrowers	10 'experienced borrowers', 10 new borrowers	15 'experienced borrowers', 15 new borrowers	All experienced borrowers
Number in control sample	15	15	15	10
Borrower sample averages:				
Household income ($/month) 1998	356	200	139	126
Average number of income sources per household	1.9	2.3	2.5	1.6
Average number of loans received	6.5	4.6	5.1	5.4
Household asset value(Bs Jan 1999)*:				
savings	2666	797	1386	665
other	6344	1181	3064	986
total	9010	1978	4450	1651
Percentage of borrowers female	56	100	62	39

* $1(Jan 1999)= Bs 5.66.

set out in Table 3.

(ii) *focus group interviews* with clusters of borrowers, who had already filled in the questionnaire, drawn both from the 'experienced' and from the 'new' (that is, control) samples of borrowers described under (i) above.

(iii) *key informant interviews* with staff of microfinance organisations, with selected clients and with those borrowers who had dropped out of BancoSol since the 1993 survey but could still be traced.

The intention was that the focus group and key informant interviews would both provide a check on some of the quantitative information supplied, and also illuminate qualitative and subjective matters such as perceptions of poverty, risk and vulnerability.

III. MAIN EMPIRICAL RESULTS

Before offering any assessment of impact it is important to elaborate our earlier bald discussion of poverty in Bolivia. Table 4, drawn from Bolivian Government household income data which are limited in relation to rural areas, suggests that in spite of encouraging recent rates of economic growth absolute poverty is stable as a proportion of the population and increasing in absolute terms. The proportion of poor people and especially the

TABLE 4

POVERTY IN BOLIVIA, 1989–95
(NUMBERS OF INDIVIDUALS; PERCENTAGES OF ROW TOTALS IN BRACKETS)

	Extremely poor	Poor	Non-poor	Total
Urban, 1989	0.2	1.9	1.3	3.4
		(55.8)	*(38.2)*	
Urban, 1993	0.2	2.1	1.4	3.7
Urban, 1995	0.2	2.3	1.4	3.9
	(0.5)	*(58.9)*	*(35.8)*	
Rural, 1995	0.3	2.1	0.4	2.8
	(10.7)	*(75.0)*	*(14.2)*	
Total, 1995	0.5	4.4	1.8	6.7
	(7.4)	*(65.6)*	*(26.8)*	

Notes: *Poor* denotes a monthly household income below 271 bolivianos per month at 1995 prices (urban areas) or 159 bolivianos per month (rural areas). $1 = Bolivianos 5.66.

Source: Instituto Nacional de Estadistica: *Encuesta Integrada de Hogares* 1989 and 1993; Limited Rural Household Survey 1995.

Extremely poor denotes a monthly household income less than half the above values, i.e. 135 bolivianos per month(urban areas) or 80 bolivianos per month (rural areas).

proportion of extremely poor people are higher in rural than in urban areas. Analysis conducted by the World Bank suggests that poverty rates, both in urban and rural areas, correlate negatively with education, age, and ability to speak Spanish but do not correlate with gender; in other words, poverty was deepest amongst uneducated individuals in large families unable to speak Spanish, and especially their children; however, female-headed households, especially in urban areas, had *lower* poverty rates than male-headed households [*World Bank, 1996: 14*]. The deepest poverty is found among agricultural wage earners, most of whom lack significant physical assets of any sort [*World Bank, 1996: 13*]. Further down the same page, the Bank further argues, significantly in relation to any analysis of microfinance, that 'econometric analysis indicates that returns to both capital (16.8 per cent) and land (28.1 per cent) are high among the rural poor, suggesting that the lack of physical assets and restrictions in the credit and land markets prevent an efficient allocation of resources'.

We shall now examine the performance of microfinance institutions in attempting to reduce this massive weight of poverty, and the channels through which they do it. Table 5 provides sample data for each of the four institutions examined. For each of these institutions, the percentage of borrowers who were poor (below the $72/Bs 410 poverty line) at the time of survey varied between 14 per cent and 30 per cent, with BancoSol having the lowest proportion of poor borrowers and Sartawi having the highest proportion. Not a single one of the borrowers examined was *extremely poor,* in the sense of Table 4. The 1993 percentages of poor borrowers were higher, and a number of borrowers within each institution had crossed the poverty line between 1993 and 1999. Of course, it is possible that this might have happened in the course of nature with or without microfinance, and in order to separate out the impact of microfinance institutions we measure the change in income of borrowers (both poor and nonpoor) as a percentage of the change in income of a control group selected so as to be as similar as possible to the borrower group. (In our samples, this control group consisted of individuals who had been approved for loans but had not had time to make much or any use of them: they thus came from the same geographical catchment and occupational group as borrowers but lacked experience of borrowing from the organisation under examination.) For all the institutions examined, the change in average borrower income is greater than that of the control group, suggesting that for borrowers *on the average* the net impact of borrowing on income is positive. However, in the case of all the institutions examined it is higher for borrowers as a whole than for poor borrowers, suggesting that the net impact which richer borrowers experience may be greater than the net impact which poorer borrowers experience. This idea is further taken up in the discussion surrounding Figure 1 below.

TABLE 5

SAMPLE INSTITUTIONS:
IMPACT OF MICROFINANCE ON POVERTY: INCOME DEFINITION

	BancoSol	*ProMujer*	*PRODEM*	*Sartawi*
Sample average income (1999) ($/month)	349	200	145	126
Poverty line ($/month, 1999)	*72*	*72*	*43*	*43*
Percentage poor in 1993	33	30	36	34
Percentage poor in 1999	14	27	22	26
Poorest client 1999 ($ /month)	60	45	52	45
Average income impact[1] 1993–99:				
all borrowers	214.3	137.7	157.4	132.2
poor borrowers	151.1	128.5	136.4	113.1
t-statistic for difference between sample means (income change in borrower group in relation to income change in control group)[4]	3.64**	2.03*	2.51**	1.84 (NS)
Estimated total poverty impact, 1993–99				
(headcount measure,%)[2]	12	10	20	13
(poverty gap measure, %)[3]	4.98	2.73	*4.27*	*2.69*
Decomposition of poverty impact:				
1. Increases in income of poor borrowers	*1.57*	*2.00*	*2.78*	*2.11*
2. Increases in income of poor employees of borrowers	*3.41*	*0.73*	*1.49*	*0.58*

Notes: 1. 'Income impact' is change in income of borrowers interviewed as percentage of income change of control group.

2. *Headcount index* is the number of people below the poverty line (here, as a percentage of the total number in the sample); poverty impact using this measure is the number of people who crossed the poverty line as a percentage of those who did so within the control group.

3. *Poverty gap* is measured $\Sigma_i(Z\text{-}Y_i)/Z$ where Y_i are individual incomes below the poverty line and Z is the poverty line. Poverty impact is the change in the poverty gap deflated by the average change in income of the control group. Note that the poverty gap measure cannot be compared with the headcount measure in absolute terms: the divisor of the headcount measure is the number of people in the community, the divisor of the poverty gap measure is the poverty line.

4. T-statistic is measured: $$\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1}{n_1} + \frac{s_2}{n_2}}}$$

where $\bar{x}_1$, $\bar{x}_2$ are the sample means and s_1, s_2 are the sample standard deviations.

Before we get there we need to make the step from poverty impact *through borrower incomes* to total poverty impact. Microfinance affects poverty through a number of channels, not only through the borrower's

income. In the positive sense, it may enable the borrower to hire additional workers, who if poor will cause the level of poverty to fall. Secondly, the presence of a new microfinance institution in a particular market sector may have an effect both on the price of credit or on access to it. If poor people become less poor as a consequence of either effect, this will reduce the level of poverty independently of what happens to the income of borrowers. Finally, new economic activities stimulated by microfinance loans (both production and consumption) will, to the extent that they raise the purchasing power of poor individuals, influence the level of poverty. In the negative sense, the taking on of microfinance may expose a borrower to a higher risk of insufficient disposable income, which if it materialises may force her to sell assets in order to maintain her repayments, which may reduce her long-term income level. These 'general-equilibrium effects' of finance on overall poverty may swamp the effects of finance on the poverty of individual borrowers. Sadly, it is not possible to measure all of these effects without an appropriate and fully estimated computable general-equilibrium model, which is not available here.[9] However, we can make a stab at estimating those effects of microfinance which operate through the labour market, which turn out to be of considerable importance; and also the effects of microfinance on risk.

In the bottom part of Table 4 we make two attempts at estimating the impact of our selected institutions on poverty. The *headcount measure* is simply the number of individuals who cross the poverty line as a result of microfinance; the *poverty gap measure* is the difference which microfinance makes to the number of poor people multiplied by the distance they fall below the poverty line, which unlike the headcount measure picks up effects on the intensity of poverty. We examine, at this stage, only effects operating through borrower incomes and through the labour market, and seek to isolate the impact of microfinance by deflating the raw change in poverty (whatever measure is used) by the income change of poor borrowers in the control group. We discover the following:

- All the institutions examined have a positive influence in terms of increasing income and in reducing poverty levels, whatever measure of poverty is used. On the evidence available to us, between 10 and 20 per cent of the borrowers we studied crossed the poverty line between 1993 and 1999 *as a consequence of microfinance*, that is, they would not have crossed the poverty line in any case. Of course, not all communities have access to microfinance, and so the result cannot be generalised to the country as a whole.
- ProMujer, PRODEM, and SARTAWI, which reach further down the borrower income scale than BancoSol, have a larger poverty impact *on*

borrowers than BancoSol, but this is counterbalanced by the larger effect which BancoSol exerts through the labour market: its borrowers have, at present, a higher propensity to take on labour from within poor income groups, which also works to the advantage of PRODEM's overall poverty impact, especially through its individual lending schemes. The vast majority of ProMujer and SARTAWI borrowers do not, at present, hire labour through the market.

- ProMujer and SARTAWI have the deepest outreach (the poorest clients), but they do *not* have the highest poverty impact, either in total or per dollar spent.

Since labour-hiring is so important a component of poverty reduction it will be useful to spend a short time investigating its determinants. Labour hiring for cash is:

- highly correlated with income, and in general not undertaken by borrowers with per capita incomes less than Bs 700 per month, that is, 125 per cent of the poverty line;
- surprisingly often on a permanent basis, even in rural areas: 83 per cent of workers employed by sampled enterprises in urban areas, and 73 per cent in rural areas, were employed all year round;
- within both urban and rural areas, more extensive among manufacturing than among service and primary-producing enterprises.

The first two of these characteristics are connected, and disturbing: it appears that low-income borrowers are reluctant to hire non-family labour because they see it as increasing their fixed cost burden and hence their vulnerability. One BancoSol interviewee was insistent about this: 'I would work all night', he said, 'rather than hire outside the family.' Asked why he felt unable to hire on a casual basis, he replied, 'Casual workers steal from you'. These suspicions, by inhibiting the growth of markets in casual labour, also inhibit the poverty-reduction potential of microfinance, in particular among those institutions aimed at lower-income borrowers.

Asset levels may be a more stable and reliable indicator of poverty levels than income measures, and we now proceed to examine these. Table 6 examines changes in asset levels and composition for poor and non-poor borrowers for each of our case-study institutions. We discover that:

- all the case-study institutions achieved positive impact for borrowers on asset levels over the 1993–99 period in relation to a control group of non-borrowers;
- poor borrowers, as hypothesised above, tend to have lower levels of asset accumulation, and also different patterns of asset accumulation:

TABLE 6

SAMPLE INSTITUTIONS: IMPACT OF MICROFINANCE ON POVERTY: ASSET DEFINITION

	BancoSol	*ProMujer*	*PRODEM*	*Sartawi*
All borrowers				
Average asset value, (1999) (current $)	9010	1978	4450	1651
Average asset value, all sampled borrowers (1993) (current $)	2237	376	619	329
Change in average nominal asset value (1993–99:):				
Nominal value(%)	402	526	718	501
'impact': change as a percentage of control group change	181	302	323	222
t-statistic for difference between sample means (asset change in borrower group in relation to asset change in control group)[4]	3.44**	3.89**	2.86**	2.11*
Poor borrowers				
Change in average asset value, (1993–99:): nominal value(%)	505	325	313	297
'impact': change as a percentage of control group change	224	186	171	146
Correlation coefficient (r^2) between asset impact and credit impact:				
all borrowers	0.56**	0.47**		
poor borrowers only	0.16	0.34*		

Note: ** coefficient statistically significant at 1% level;* coefficient statistically significant at 5% level.

Source: 1999 survey.

they do not hire labour and do not invest in fixed capital except of the cheapest and simplest type;

- there is no significant difference in the asset accumulation behaviour of male- and female-headed households, except that female-headed households appear to have slightly greater rates of increase of savings;
- at a given level of income, BancoSol and PRODEM borrowers have higher levels of asset accumulation than the others;
- there are strong correlations *overall* (bottom row of the table) between asset accumulation and income levels, and therefore between income poverty and asset poverty.

How Impacts Materialised: Microfinance and the Management of Risk

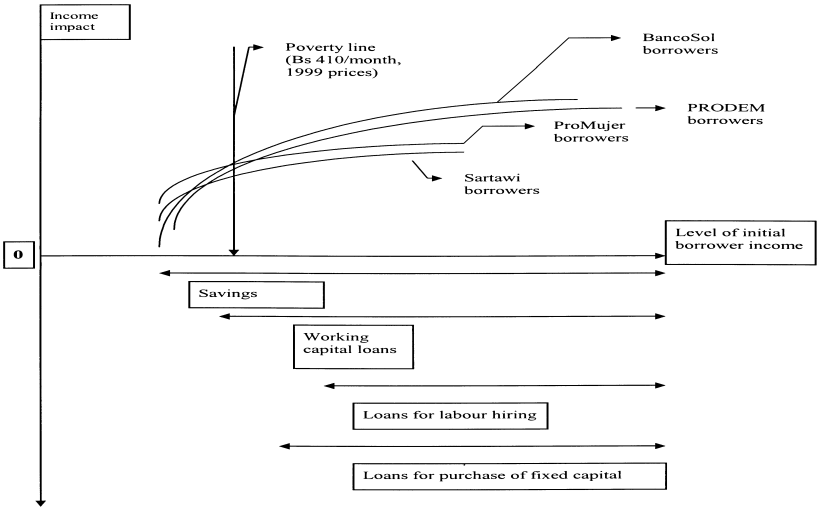
To understand more about the relationship between microfinance and poverty we now have to look at the measured effects of microfinance on individual borrowers. Figure 1 charts the relationship between income impact and level of initial income. The relationship is (as we have previously discovered both within and between institutions [*Mosley and Hulme, 1998*]) a curve which slopes upwards (*a fortiori* if effects operating through the labour market are taken into account) but at a decreasing rate.[10] Well below the poverty line (where admittedly there are few observations) impact becomes negative, and the curve becomes almost vertical. However, the 'impact-possibility curve' (as we call it) for the institutions with the highest recovery rates – BancoSol and PRODEM – lies above the impact-possibility curve for the institutions with lower recovery rates, Pro Mujer and SARTAWI.

Our interpretation of Figure 1 is as follows. Borrowers with very low incomes will seek at all costs to avoid exposing themselves to increased levels of risk, and as a consequence will make use of financial services essentially for purposes which protect their livelihood – protecting their consumption levels, protecting their savings, and insuring both of those against decline. If as a result of this strategy (or as the result of a windfall) the level of income and its security increase, households may consider borrowing for the purchase of working capital. If this strategy increases income on a sustainable basis, that will enable the household to tolerate more risk, and it may at that point consider hiring labour and making purchases of fixed assets (such as shop premises, electrical equipment and vehicles) which have much higher rates of return than consumption or purchases of working capital backed by no or primitive equipment; but they are also more risky. If the risk pays off and income increases again, further investment in fixed capital is possible; this may, in the event of spectacular success, enable the borrower to 'gravitate' to a formal financial sector institution or even to finance her business expansion out of retained profits, thus terminating her existence as a microfinance borrower. If it fails, leading to the threat of loan default (or if there is an extraneous negative income shock such as illness, accident or market collapse, which has the same effect) various coping strategies can be called into play; but if those fail the whole process goes into reverse, with assets being sold, labour laid off, risk aversion increasing and a traumatised borrower either dropping out of the capital market or scaling down loan size and technology. Both these spiral sequences – vicious and virtuous – are illustrated in Figure 2.

The essence of the argument is that although microfinance is intended *(ex ante)* as a risk management tool, and succeeds in this role across the average of borrowers as represented in Table 6, it may fail in this role for some borrowers for reasons which are either technical (for example, lower-

FIGURE 1

SAMPLE INSTITUTIONS: INCOME CHANGE IN RELATION TO INITIAL INCOME



Regression equations for 'impact-possibility curves' (upper quadrant):
Dependent variable: 'impact' (borrower's income increase 1993–99 as percentage of control group increase; borrower household income measured in $/month.

Institution	*Regression coefficients on independent variables:* *Constant*	*Borrower income*	*Borrower income squared*	*p*	*n*
BancoSol	13.9	0.23** (2.81)	–0.00019* (1.99)	0.44	45
PRODEM	–15.3	0.24** (3.73)	–0.00018** (4.12)	0.51	40
ProMujer	–25.1	0.22* (2.16)	–0.00031** (3.37)	0.47	20
SARTAWI	–30.4	0.24* (2.19)	–0.00039(NS) (1.45)	0.31	15

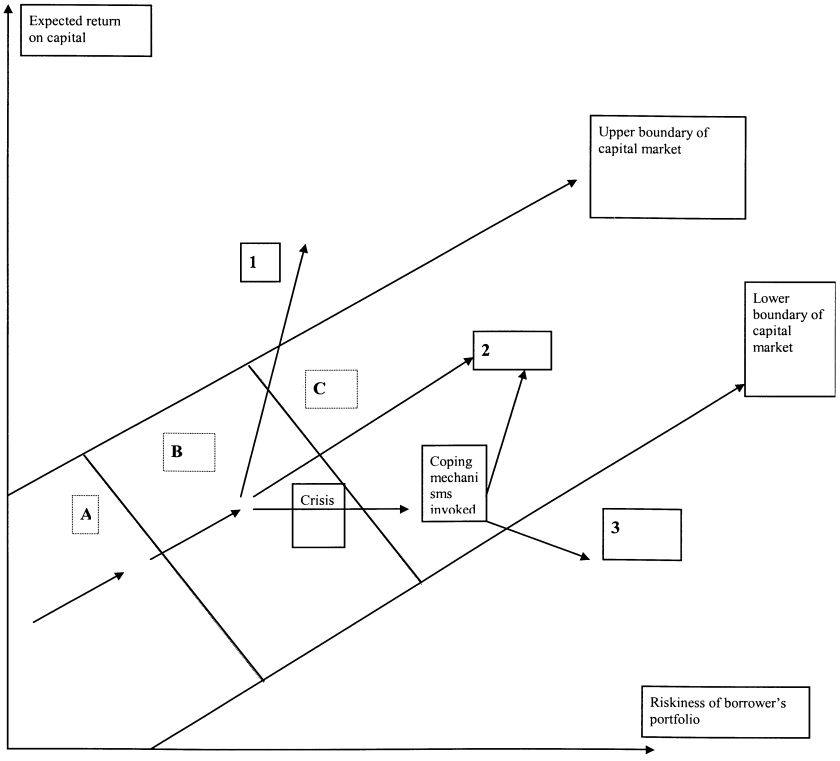
Regression equations for particular factors of production:

Savings (in $) = –60.5 + 0.16** income, r^2 = 0.61, n = 120 (pooled data, all institutions studied)
(5.61)
Working capital (in $) = –24 + 0.54** income, r^2 = 0.54, n = 120 (pooled data)
(4.31)
Labour use (persons hired for cash) = –3.56 + 0.017* income, r^2 = 0.53, n = 120 (pooled data)
(1.97)
Fixed capital use($) = –79 + 0.23** income, r^2 = 0.49, n = 120 (pooled data).
(3.34)

Source for all data: January 1999 survey (75 observations) and April 2000 survey (95 additional observations on BancoSol and PRODEM). Figures in brackets below coefficients are Student's t-statistics: ** denotes significance at 1% level and * denotes significance at 5% level.

FIGURE 2

RISK AND YIELD IN MICROFINANCE



Key to symbols:

Zones of the capital market and patterns of borrower behaviour:

A: low risk, low yield, very low income and asset levels, financial services demanded as 'protectional' services, mainly in the form of savings.

B: moderate risk, moderate yield, financial services demanded mainly for working capital with very small fixed capital investment (see Table 4).

C: high risk (unless insurance available), high average yield, financial services demanded for fixed capital equipment (esp. housing and vehicles) and labour hiring as well as fixed capital.

Possible outcomes for individual borrowers:

1: the 'super-ladder': yields so high (or augmented by a windfall) as to enable the borrower to dispense with microfinance services.

2: the normal ladder: borrower balances yield and risk through a sequence of loans, with stable or increasing levels of labour and capital input.

3: 'the snake': coping mechanisms unable to cope with increased levels of risk; borrower quits the capital market.

than-expected rates of return) or social (for example, unanticipated refusal of a solidarity group member to honour a request for a distress loan). In such case, microfinance, although conceived by both lender and borrower as an instrument for reducing vulnerability, may have the opposite effect, as we shall proceed to illustrate.

Did microfinance, in general, enable borrowers to manage their assets better? Table 7 provides a range of indicators of management quality, derived from pooled data for the four sampled institutions, and again subdivided by 'zone' to test for behavioural differences between different groups of borrowers. We may distinguish four routes through which borrowers might improve their 'management of assets', defined as either an improvement on their rate of return on their asset portfolio, or a decline in its riskiness, or both:

(i) an improvement in *knowledge of the environment* , which converts uncertainty into a known level of risk. The adoption of written (or, in the limit, computerised) accounts assists this process.

(ii) an improvement in *social capacity to manage risk* achieved through the development of social relationships making it possible to cope with a crisis better.

(iii) a decline in riskiness achieved either through a *diversification* of the asset portfolio, or through the adoption of an explicit insurance mechanism.

(iv) an improvement in *rate of return* as the consequence of the adoption of a particular asset, which yields resources which can be used either for reinvestment or as a liquid-asset balance.

The *a priori* expectation is that the first two will be always relevant, but that there will be a shift from emphasis on the third to emphasis on the fourth as income increases and risk-aversion declines.

As shown in the table, membership of microfinance organisations is generally associated with better management of risk in each of these senses. Programme group members make greater use of written accounts, have higher levels of savings and have a more diversified asset portfolio. However, there are two important caveats.

In the first place, there is very little asset diversification in zones A and B, indeed in zone A borrowers have few assets of any sort, and diversification is actually less among the interview group than among the control group. Serious asset diversification only occurs in zone C, among those with incomes at least twice the poverty line. In addition, diversification has two dimensions: number and liquidity. Businesses in a rapid growth phase had a tendency to multiply their number of assets and to diminish, if anything, their average liquidity; businesses that were static or

TABLE 7

BORROWERS AND NON-BORROWERS: INDICES OF MANAGEMENT QUALITY AND RESPONSE TO RISK

	Zone A borrowers (household income <$90/month)	*Zone B borrowers (household income $90–$200/month)*	*Zone C borrowers (household income >$200/month)*
% keeping written accounts			
borrower groups specified	65	79	86
borrower groups specified as % of control group	117	114	105
t-stat for difference between control group mean and borrower group mean	1.54(ns)	1.47(ns)	0.99(ns)
% with savings in a financial institution[11]			
borrower groups specified	72	76	81
borrower groups specified as % of control group	156	145	132
t-stat for difference between control group mean and borrower group mean	3.61**	2.89**	2.43*
Average asset holdings (current bolivianos, Jan 1999)	450	2015	8646
Asset diversification index[12]			
Borrower groups specified	0.8	1.5	3.2
Borrower groups specified as % of control group	98	115	156
t-stat for difference between control group mean and borrower group mean	0.88(ns)	1.67(ns)	3.89**
Main risks to livelihood perceived as	Illness, accidents (100%) Competition and market collapse (37%)	Illness and accidents (83%) Competition and market collapse (50%) Crime and theft (28%)	Illness and accidents (78%) Competition and market collapse (59%) Crime and theft (43%)
Debt service ratio(%)	58	56	43

Notes: ns = difference between sample means insignificant , * = difference between sample means significant at 5% level, ** = difference between sample means significant at 1% level.

Source: *1999 and 2000 surveys.*

shrinking had a tendency to convert their fixed assets into more liquid assets as a coping strategy to protect against the ultimate risk of default and keep their line of credit open.

In the second place the risk faced by a borrower is a blend of risk on the income side and risk on the cost side. As we see from the table, cost-side risks (especially crime and theft) rise in relation to income-side risks (especially illness and accidents) as borrowing increases. Although it is indeed the case that borrowing reduces the risk of short-term consumption deficiency, it augments the risk of decapitalisation due to default. Whether this increase in risk is a serious one depends of course on the rate of return achieved on assets and whether this corresponds to the return expected. We decided to examine the vulnerability imposed by credit (that is, debt) on borrowers in the sense of the 'debt-service ratio', or ratio of debt payments to income. The average debt–service ratio of 57 per cent for Zone A and Zone B borrowers looks high – if the borrower is a government it is a commonplace to treat a debt–service ratio of more than 25 per cent as a problem – but whether or not it actually represented a problem for borrowers depended not on the debt–service ratio alone, but on the debt–service ratio in relation to growth of income. On whether it did represent a problem there was a sharp split between institutions: in relation to their respective control groups, BancoSol borrowers had no greater worries of being forced into poverty, but the only slightly poorer ProMujer borrowers unanimously feared being forced into a lower zone, and sometimes even into extreme poverty. And we have been able to document cases [*Mosley, 1999: Box 2*] in which even BancoSol borrowers were forced into asset sale and destitution as a consequence of the failure of their coping strategies in relation to a sudden negative shock. These negative consequences did not happen all that often – we estimate in about two to three per cent of BancoSol cases – but they happened. We examine them in more detail at the end of this section.

Adverse Shocks and Coping Strategies (i) Individual

A major test of microfinance institutions is their ability to assist clients to cope with adverse shocks. Clients attempt to do this in two ways: first, through *indvidualistic* strategies and second, through *collective* strategies which depend on the collaboration of other people. We shall discuss individualistic coping strategies first.

A range of responses is available: people can cut expenditure, draw on assets, seek to raise income or borrow. Not all of these are available to everyone: only those with assets can draw on them, and some people are excluded from the credit market, which is precisely the situation which microfinance seeks to remedy. Not all have the same consequences: disposal of assets or asset-like expenditures such as schooling may cause a

long-term drop in income, whereas other options may protect or even in the long term enhance the household's livelihood. The proposition we wish to test is that *poorer individuals, because of risk aversion and the lack of options available to them, are more likely to choose coping strategies which reduce the household's long term income prospects.*

This idea finds striking support from Table 8, derived from the replies of those focus group respondents who had experienced a severe negative shock to their income or assets, which suggests that the poorer (Zone A) borrowers were more likely, in the event of a severe income shock, to reduce school expenses and more likely to sell assets, which of course runs the risk of putting them in a downward income spiral.[13] They were also less likely to adopt the risky option of searching for work and the energy-intensive option of putting longer hours into the enterprise. All of this indicates a role for microfinance – to prevent those afflicted by negative income shocks from responding in a way which reduces their earning prospects. As indicated in the table, borrowers in both income strata were happier to put in longer work hours than the control group, but the poor group of borrowers, unlike the richer group of borrowers, were more likely to sell assets and more likely to cut their (small) expenditure on children's schooling than the control group. All this suggests that microfinance might be able to play an expanded role in giving poorer people an incentive to borrow more – and thus to respond to crisis in a manner that does not endanger their future livelihood.

TABLE 8

RESPONSES TO QUESTION 'HOW DID YOU COPE WITH A SEVERE NEGATIVE SHOCK TO YOUR LIVELIHOOD?'

Types of response	Borrowers in Zone A (below poverty line) (n=16)	Borrowers in Zones B and C (above poverty line) (n=33)	t-stat for difference between sample means: Zone A in relation to Zones B and C	Non-borrower control group (n=19)
Expenditure cuts – consumption	71%	77%	1.09(ns)	74%
Expenditure cuts – children's schooling	55%	33%	2.77**	48%
Search for extra work	14%	36%	2.53*	29%
Extra hours in existing enterprise	46%	54%	1.04(ns)	40%
Sell assets	46%	21%	3.01**	32%
Draw on savings	30%	47%	2.47*	42%
Borrow – family and friends	47%	41%	0.95(ns)	44%
Borrow more – microfinance organisation	30%	46%	2.41*	0%
Borrow – commercial organisation	3%	24%	3.64**	17%

Source: Focus group interviews 22–28 Jan. 1999 and 11–12 April 2000: replies are pooled within income categories specified. Because of multiple replies, column totals sum to more than 100%. Prompts were not used. ** denotes difference between sample means significant at 1% level and * denotes difference significant at 5% level.

There is one type of shock which deserves special mention, and this is the shock to farmers' incomes which occurs during the months before the harvest – in Bolivia, the period from November to March, during which the survey fell. The shock is regular and predictable, and therefore quite different from the kind of shocks which had hit most of the respondents of Table 8 (sudden death or injury in the family, mechanical breakdown, robbery, swindle); and many farmers in Batallas, where the rural surveys took place, had done a great deal to mitigate the shock in advance through diversification of assets, and thus of livelihoods – for example, the development of non-farm businesses, and of farm businesses which yield regular income (dairying, milling, trade in hides, in one or two cases the production of cut flowers and tropical fruits for exports). These are however not options which all – and especially poorer farmers – can take up. An important role for microfinance in relation to poorer farmers is the provision of emergency consumption loans during the hungry season before the harvest; the working out of schemes for crop insurance, in particular income decline caused by drought to which no moral hazard problems apply (this idea is developed further in the concluding section) and the devising of repayment patterns which are adapted to the farmer's income. PRODEM has worked out a range of models, extending from 'balloon repayment' in which the borrower pays interest only on a monthly basis and the capital repayment in one lump at harvest time, through gradually increasing elements of capital repayment to the 'normal' microfinance model in which capital and interest are paid in equal monthly instalments. Such flexibility can do a great deal to motivate the farmer-borrower away from coping strategies which jeopardise her future livelihood.

Adverse Shocks and Coping Strategies (ii) Collective: Informal Borrowing as 'Social Risk Management'

An alternative response to adversity is collective: to borrow from others, usually in return for a reciprocal promise to provide similar support in case of need. As we see from Table 8, relatives were the most common source of support of this kind for poorer borrowers, but the rotating savings and credit association (*pasanaku)* provides a useful formalisation of such arrangements; forced savings arrangements, such as those practised by ProMujer, ANED[14] and formerly BancoSol, formalise such arrangements further, by requiring members to make a fixed weekly or monthly payment into an 'internal account' or 'emergency fund', which can be used to make emergency consumption loans – or debt-repayment loans – which will enable distressed but trusted borrowers to remain current on their loan repayments.

Sixty-five per cent of BancoSol borrowers interviewed, and 100 per cent of ProMujer borrowers, said that they had been asked for support of this type, and most of those had agreed to give a 'within-group emergency loan'

on a reciprocal – but totally informal – support basis. In addition ProMujer provides an 'internal account' financed from forced savings contributions, which provides emergency loans to those with good repayment records; six out of 11 ProMujer borrowers interviewed had accessed the internal account for this purpose.

These mechanisms of mutual support may be seen as creating 'social capital', over and above the physical capital analysed in Table 6: mechanisms of trust which reinforce and insure individuals' existing stocks of physical and financial capital. However, it is important to stress that the mere formation of groups – or even the provision of financial support for existing roscas such as those of PROMUJER – does not inevitably create social capital. It was clear from our research that solidarity groups could fall apart if each member insisted on trying to borrow from others without prior agreement, and the evidence from our focus groups was eloquent that the survival of solidarity groups over a long period was itself a factor which bred stability: the longer groups stayed together, the better they got to know each other and the less likely they would impose mutually incompatible requests on one another.

It is clearly of key importance to understand what it is that causes solidarity groups to stay together or alternatively fall apart. Previous research in Bolivia suggests that the correlates of group success are rather surprising: groups which meet more regularly, with lower rates of absenteeism, do *not* have a lower propensity to default or fall apart [*Gonzales-Vega, 1996; Hulme and Mosley, 1996*]; nor do groups with higher internal income dispersion perform better in this sense [*Hulme and Mosley, 1996: Ch.11*]. We reopened the question of determinants of group cohesiveness in focus groups during the current research. It emerged that:

- women-only groups did have a tendency towards greater cohesiveness, in the specific sense of greater willingness to extend a short-term emergency loan to a group member in trouble, than men-only or mixed groups;
- an 'emergency fund' created by forced saving was a valuable resource for emergency loans of this type, enabling potentially humiliating requests by one group member to another to be replaced by requests to borrow from the internal account which could be dealt with in a less emotive manner;
- there is a slight tendency for groups of poorer members to be more cohesive than groups of richer members.

The key issue in determining group cohesiveness appears to be the desire of group members to protect the reputation, or social capital, which has accumulated with the formation of the group. For nearly all women

borrowers, and poorer individuals of both sexes, the maintenance of this asset was crucial and dominated most other considerations. As individuals' asset base improved and the alternative borrowing options expanded, such considerations receded in the minds of some (not a majority) of borrowers, leaving them feeling free to turn down requests for intra-group emergency loans. If that attitude was reciprocated by other members, the group could fall apart,[15] leaving borrowers with one less coping mechanism to hand.

In some pathological cases, therefore, microfinance may misfire as an instrument of risk management and may *increase* poverty, certainly in the sense of vulnerability and possibly in all senses. This may be for either of two reasons: (i) individual coping strategies fail to achieve their purpose or (ii) group solidarity collapses. Whereas the second, on our subjective focus-group evidence, is likelier as income increases, the first is likelier as income falls, since the poorer one is, the fewer and the more damaging are the coping strategies which are available.

IV. IMPLICATIONS AND POLICY CONCLUSIONS

It is now time to examine the differences in institutional performance, both in relation to income poverty and in relation to asset accumulation, between microfinance institutions. By choosing what are basically well-performing institutions, both from the point of view of financial performance and poverty reduction, we have not made it easy to extract the kind of lessons which say: 'X worked and Y did not, so institutions should emulate X'. However, there are some ideas which can be extracted by correlating differences in design features and policy with differences in performance; and there are many more ideas which countries elaborating their own poverty reduction strategy can draw from a study of the Bolivian experience. In this section we seek to tease out those lessons.

The relationship between design features and institutional performance on both poverty reduction and financial criteria has already been summarised in Table 2.

The policy and design lessons which we believe flow from these data are the following. They should be seen against the background not only of the research findings of the previous section but also of economic and political pressures within Bolivia, in particular the saturation of the urban microfinance market and recent governmental moves to decentralise budgetary power to local governments, both of which represent a major opportunity where the worst poverty (Table 4 above) is emphatically rural and untouched in any direct way by microfinance services.

First, even though *savings development* has been impressive in Bolivia in

recent years, it is has not always been possible for poor people to save within the microfinance system, particularly in rural areas. The movement of microfinance institutions into rural areas in numbers is of course recent, and most of it has been by NGOs currently barred from taking deposits. However, although they cannot take deposits, there is nothing to stop them from charging an interest rate in excess of cost and treating the surplus as a forced savings account in the hands of borrowers, as is done by ProMujer;[16] nor is there anything in the law to stop them administering voluntary saving by solidarity groups. Finally, although banks and FFP's can take deposits, they often limit the access of the poor to financial services by imposing a minimum limit on deposits which acts as a discouragement to poor people entering the market. Limitations on the minimum size of loans and savings deposits, whatever their short-term financial advantages, have severe costs from the point of view of poverty reduction. It is clear from Table 2 that the willingness of ProMujer in urban areas to accept very small savings deposits and offer very small loans have minimised barriers to entry into the capital market and have enabled it to reach further down the income scale than most of their rivals. In this way they have both taken over the bottom of the market niche originally occupied by BancoSol and made inroads into the almost untapped market of poor rural producers outside of Bolivia's central axis.

In the second place, *pluralism of design* continues to thrive, and no one model of supplying microfinance can claim to dominate in Bolivia, any more than it does in the world at large. The data of Table 9 suggest that there is little difference in poverty impact *and in recovery rates* between commercial schemes and the principal NGOs; between the 'minimalist' principles of BancoSol and PRODEM and the 'integrated' approach of ProMujer and SARTAWI, in which credit is supplied in conjunction with additional input such as training, health and agricultural services; or between institutions practising individual, solidarity-group and co-operative-group lending. The dogmatism which suggests that there is one correct technology for microfinance services finds little support in Bolivia, and there is much evidence to support the idea of operation with multiple credit modalities according to the needs of the individual, or collective, client.

Thirdly, and crucially for poverty reduction, the issue of appropriate *insurance* has not been resolved. As we have seen, microfinance clients, urban and rural, are highly vulnerable and open to risks of decapitalisation, and a major reason for this is their lack of access to any viable insurance arrangements. For eight years BancoSol used a forced saving arrangement in which 20 per cent of the interest charge was used as a group insurance premium to protect the repayment of loans; but this arrangement was done away with in 1994 so that, as we have seen, the impact of negative shocks on borrower income is now thrown on to coping mechanisms such as

reciprocal lending within solidarity groups. In rural areas where poverty is worst, the insurance issue is particularly urgent because of the instability of income and high associated level of risk. The solution of the problem will not be easy: previous crop insurance schemes such as ANAGSA in Mexico have run into moral hazard problems and hence into bankruptcy. However, moral hazard can be overcome if insurance is linked to an indicator which potential claimants cannot control, such as the weather [*Hazell, 1992*] and we strongly recommend that insurance schemes of this type be tried out as adjuncts to credit in rural Bolivia.

The trickiest and largest issue, which we have left until last, is the relationship between microfinance and other modalities in reducing poverty. This issue has been surprisingly little researched, in Bolivia or elsewhere. It is commonly assumed [e.g., *World Bank, 2000, Ch.7*] that because microfinance is 'sustainable' and pays for itself whereas other typical methods of poverty reduction are mainly paid for out of public funds, microfinance is a more efficient means of reducing poverty: but, firstly, many of the typical alternative anti-poverty strategies (primary health, primary education, agricultural extension …) are moving out of the public into the NGO and private sectors, and secondly, any assertion must be tested against the data. This we do in a preliminary way in Table 9.

Data for the average cost of moving one person out of poverty, and out of extreme poverty, are estimated both for the four microfinance institutions examined in this paper and also for certain major categories of anti-poverty expenditure in Bolivia: primary health, primary education, rural road-building. The results are reasonably supportive of microfinance as an efficient means of reducing *poverty,* but not *extreme poverty,* in which, as we have seen from Table 4, seven per cent of Bolivians still live. The average cost of reducing poverty through microfinance we estimate, on the evidence of Table 9, at between $300 and $600 per individual moved across the poverty line depending on the organisation;[17] this is cheaper than any of the alternative anti-poverty modalities studied in Table 9 with the exception of, possibly, rural health expenditures. However, the picture changes when we look at the case of extreme poverty: for in a sample of nearly 200 over six years we could only find a single case where a microfinance organisation had managed to reduce extreme poverty, and that was in an indirect manner through the labour market. As will be recalled from Figure 1, poverty impact drops off dramatically as one moves down through the income scale. The tentative inference we draw is that Bolivian microfinance organisations are relatively effective at reaching the poor but not the poorest, and that other anti-poverty modalities need to be brought into play when attempting to reach the poorest. However, this proposition badly needs to be backed up by a wider and more robust range of data.

TABLE 9

COMPARATIVE COSTS OF ALTERNATIVE ANTI-POVERTY STRATEGIES: BOLIVIA

	Cost per unit reduction in headcount index ($): poor	Cost per unit reduction in headcount index ($): extremely poor
Microfinance:urban average		
BancoSol	603	∞
ProMujer	467	∞
Microfinance: rural average		
PRODEM	373	18976
SARTAWI	589	∞
Non-microfinance measures		
FIS(Social Investment Fund)		
Rural primary schools	1250	4197
Rural health centres	679	2012
Rural roads	876	2604

Method of calculation. For *microfinance organisations* (first four rows of table): the number of individuals who crossed the poverty line in 1998 in sample areas as a consequence of microfinance support (data are in Table 4 above) are divided by the cost of providing microfinance support in that area, which is the proportion of the organisation's total budget for that year which can be ascribed to that area. Thus if two people crossed the poverty line in an area covered by Office X, and Office X accounted for 1% of a total budget for that organisation of $1 million, then Office X's cost of reducing poverty is $10000/2 = $5000.

For *non-microfinance organisations* (last four rows of table) the same method is used, except that the poverty impact of expenditure in the category specified cannot be derived from our survey. Data on income impact for specified activities are provided in World Bank (1996: table 3-46, page 133, 'Determinants of earnings in rural Bolivia') and these have to be multiplied by the share of poor in the population to derive poverty impact.

$$\text{Thus, cost of reducing poverty} = \frac{\text{total budget for activity X}}{\text{poverty reduction for activity X}}$$

$$= \frac{\text{total budget for activity X}}{\text{income impact for activity X} \times \text{share of poor to nonpoor among target group affected by activity X}}$$

For example, if the total budget for primary education is $1000, the impact coefficient of primary education on income is 0.2 and the share of poor among those receiving primary education is 0.5, then the cost of reducing poverty by means of primary education is $(1000/(0.2 x 0.5)) = $10000.

The Bolivian achievement in microfinance, then, has been impressive, and Bangladesh and Indonesia are the only other countries in the world which can reasonably claim to have reached a similar level of creativity. That creativity has indeed reduced poverty (in the income and asset sense), but not always vulnerability, and not extreme poverty: experience not only from Bolivia but worldwide suggests that the 'entrepreneurial poor' are not among the poorest, and that microfinance-based policies of poverty alleviation need to be backed up by others. A focus on the vulnerability of the borrower can, we argue, yield approaches which will enable the impact of microfinance to stretch further down the income scale.

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NOTES

1. Chavez [*1992: 6*] estimates the number of tin miners put out of work at 23,000 out of a workforce of 30,000 or about 70 per cent, and Morales [*1991*] at 80 per cent. *The Economist* [*9 Jan. 1999*], states that only 2,000 tin miners are now at work.
2. As a means of mitigating the social costs of adjustment, the Bolivian government, with the help of the World Bank and others, set up a number of relief funds. One of these, the Emergency Social Fund (ESF), subsequently the Social Investment Fund *(Fondo de Inversion Social* or FIS), established by the banker and Minister of Finance Fernando Romero in 1986, became famous through its practice of granting funds not to individual poor people but to entrepreneurs in the private and NGO sectors. It his since become a model for the 'social funds' established by donors in many countries, especially in Africa [*Khadiagala, 1994*]. It is a major investor in (of the institutions studied in this paper) BancoSol and ProMujer. There is no doubt that the effects of the ESF/FIS have been positive – and indeed have benefited poorer employees more than richer – but they have been mainly confined to the construction industry, and therefore to male beneficiaries [*Newman et al., 1991*]. For comparison of the costs of reducing poverty through the FIS and microfinance modalities, see section IV below.
3. The twelve major private banks actually survived the crisis; but the credit union system shrunk from 300 credit unions to around 30. The main state-financed banks (BAB, BAMIN and BANEST) clung on until 1992, at which point they were closed under major pressure from the World Bank and the IDB.
4. Fundacion para la Promocion y Desarollo de la Microempresa, or Foundation for the Promotion and Development of Microenterprises: the chrysalis from which grew BancoSol, discussed in the next paragraph.
5. Latest available data from *Microfinanzas* (bulletin of the main Bolivian microfinance coordinatng organisations), June 1999.
6. The assistance of Romero was also vital in this complicated legal process, which has frustrated many other NGO around the world wishing to do the same.
7. The 'non-commercial charities' listed in the right-hand part of Table 1, however, pay all taxes except for the levy on utilities – as financial services are classified in Bolivia.
8. Savings deposits in Bolivia rose from $100 million in 1985 to $3658 million, or nearly 40 per cent of GNP in 1997 [*Marconi, 1997: 53*].
9. For an approximation to this kind of methodology see the paper by Khandker and Pitt [*1999*].
10. We believe these results are reasonably robust with respect to sample size for PRODEM and BancoSol: when the BancoSol sample was expanded from 30 to 45 the coefficients on income and squared income changed respectively from 0.21 to 0.23 and from –0.00021 to –0.00019 (significant in all cases) and when the PRODEM sample was expanded from 20 to 30 the coefficients on income and squared income changed only a little more, from 0.19 to 0.24 and from –0.00017 to –0.00018.
11. Includes 'forced' savings deposits with the lender institution.
12. The asset diversification index is an unweighted sum (minimum 0 maximum 6) of the number of the following criteria which the respondent satisfies:

    (1) has access to workshop separate from living quarters;
    (2) owned fixed capital assets (any);
    (3) owned housing (any);
    (4) domestic assets value >$500;
    (5) savings balance > $500;
    (6) owned land or livestock (any).

13. This is illustrated by Mosley [*1999: Box (case study) 2*].
14. This organisation (see Table 1 above) does not feature in our sample surveys, but contains a number of useful features in training, insurance and savings mobilisation which will make it useful in the discussion of Section 4 below.
15. This case is examined in Mosley [*1999: Box 2*].
16. One microfinance organisation not covered by this survey, ANED, uses the phrase 'capitalisation fund', which gets rid of some of the Stalinist overtones of the phrase 'forced saving'). It also manages savings on behalf of solidarity groups, see Mosley [*1999: Plate 3*].
17. This looks expensive in relation to the widely-cited figure of $10 per person moved across the poverty line by the Grameen Bank of Bangladesh (see, for example, Mosley and Hulme [*1998: 789*]; but even though Bolivia is a higher-wage country than Bangladesh, this figure looks suspiciously low.

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