CONTRASTING METHODOLOGIES FOR EXPANDING MICROFINANCE OUTREACH TO THE RURAL POOR: TRADE-OFFS AND LESSONS FROM MEXICO'S PATMIR PROJECT

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Abstract

PATMIR (Project of Technical Assistance for Rural Microfinance) began in Mexico as an initiative aimed at expanding outreach of financial services to the rural poor in a sustainable manner. Using international technical assistance, three primary methodologies were employed in 34 cooperatives: i.) creating new cooperatives, ii.) strengthening existing cooperatives, and iii.) encouraging existing institutions to expand into underserved areas. Various outreach indicators, including two composite measures, were calculated to compare across institutions. In general, new and expanding cooperatives attained better depth of outreach than the strengthened institutions. While it is true that some of the smaller subsidized institutions have nearly all of their clients meeting the prototypical PATMIR outreach standards, it is important to recognize that larger institutions can and do serve the same segment of marginalized clients in addition *to their middle and upper income clients. This strategy has advantages in that it allows for portfolio diversification, liquidity management, economies of scale, and financial viability.*

There does appear to be a trade-off between many measures of outreach and sustainability. A higher dependence on subsidies is correlated with better depth of outreach, smaller loan and deposit sizes, and lower staff productivity. Not surprisingly, institutions trying to serve a large, rural area per branch have impressive depth of outreach and lower average loan sizes. However, these institutions have a greater reliance on subsidies, lower staff productivity, and higher transaction costs for clients in the form of travel time. There was no clear winner among methodologies as certain cooperatives from each category achieved both outreach and sustainability. New institutions have strong outreach indicators and are making strides to be-

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coming sustainable. However, there is a large start-up cost in time, training, and resources. Existing institutions start with potentially significant scale, but face ingrained corporate culture that can impede necessary changes. To the extent that the management is committed to attaining a deeper outreach and the new portfolio is cost effective, more existing institutions will be inclined to serve marginalized groups.

In the past several years, Mexico has embarked on an interesting experiment in rural finance: to determine which methodologies are the most appropriate for expanding outreach to the rural poor while becoming financially sustainable. The purpose of this study is to examine various measures of outreach and their relationship to the financial sustainability of the rural cooperatives that received technical assistance under Mexico's ongoing PATMIR (Project of Technical Assistance for Rural Microfinance) project. The analysis focuses on specific trade-offs between outreach and sustainability that appeared among these institutions. Three primary methodologies of expanding outreach to the rural poor are contrasted including i.) creating new institutions, ii.) strengthening existing institutions, and iii.) expanding existing institutions by opening new branches.

1. OVERVIEW OF PATMIR

Background

In 2003, the Mexican Secretary of Agriculture, Livestock, Rural Development, Fisheries, and Food (SAGARPA) collaborated with the National Bank of Savings and Financial Services (BANSEFI) on a project to provide technical assistance to financial intermediaries serving populations with underdeveloped financial markets. With funding from the World Bank, the PATMIR project was initiated. Its objective has been to promote secure and sustainable financial services and insurance in rural areas orientated to populations normally not provided these services.

Given their predominance in rural Mexico, cooperatives (also referred to as cajas in this paper) were selected as an ideal institutional paradigm for strengthening the rural financial sector. The project has highly specialized technical assistance proportioned by three international consulting firms: i) Développement International Desjardins (DID), ii) World Council of Credit Unions (WOCCU) and iii) Deutscher Genossenschafts-und Raiffeisenverband (DGRV) working in seven regions. Interestingly, the firms were given great latitude in adapting their methodologies to the context of the states in which they were working, thereby facilitating innovations.

Based on a preliminary study of rural savings by the World Bank, several states were selected as having high degrees of marginalization. Marginality scores were based on the study by the *Consejo Nacional de Población* (CONAPO).[1] The PATMIR region spans throughout central and southern Mexico including the states of Chiapas, Tabasco, Veracruz, Hidalgo, San Luis Potosí, Guerrero, Oaxaca, Michoacán, Puebla, and Tlaxcala. Seven technical consultants were contracted to work within a given state or region with the objective of reaching poor and underserved rural populations with financial services. A timeframe of 3 to 5 years was given in order to create and/or strengthen institutions with a foundation based on member savings and to achieve financial viability. Each state had its own timeframe, but the first projects were initiated in April, 2003.

PATMIR represents one of the most unique experiments in microfinance design in the world. By allowing for varying approaches and methodologies, it represents a bottom-up approach to verifying the most useful means of serving the designated population in a sustainable manner. It is a results-oriented program, thereby allowing for cross-comparison. Another key feature of PATMIR is that it is based on local savings, rather than external lines of credit or donations. To the extent that the institutions are solvent, the prospect of sustainability is excellent since they are not reliant on the whims of donor funding. Finally, PATMIR breaks the mold of many microfinance projects in that it seeks to attain bank-like financial viability in order to impress upon local financial institutions that serving the rural poor can be a profitable venture.

1.2. Methodologies for building a strong rural financial system

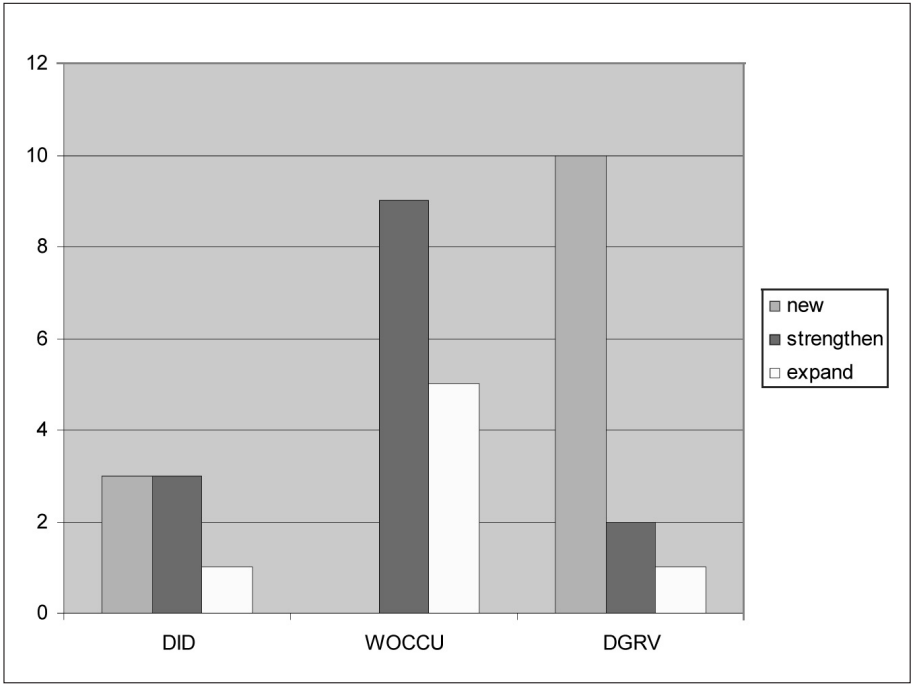
The technical consultants employed three varying methodologies of technical assistance: i.) creating of new financial intermediaries; ii.) strengthening and consolidating existing institutions, and iii.) helping existing institutions expand into marginalized areas.

Based on early assessments, most of the consultants in the seven regions proposed working with existing institutions, either to expand them into more rural areas or to strengthen their operation. However, once the project started, several consultants modified their proposed strategy in order to create institutions since there were frustrations in working with existing institutions. As seen in Figure 1, DGRV focused most heavily on new institutions,

[1] The CONAPO calculates the Marginality Index based on seven socio-economic indicators grouped under three categories: education, occupation and housing.

DID had a mixed strategy, and WOCCU worked exclusively with existing institutions, both to strengthen and expand them.

Figure 1: Number of Institutions according to Methodology by Consultant



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1.3. Data

A rich dataset is available for the analysis of the PATMIR project since project monitoring and evaluation has been an essential component of the program design. Since its inception, a monitoring team (Sistema Continuo de Monitoreo, Seguimiento y Evaluación (SICOMSE)) has been established to observe, evaluate, and make decisions about the evolution of PATMIR. Data from each of the 34 cooperatives have been collected on a regular basis, providing information of the size, scope, and financial performance of the institutions. The indicators collected from each of the cooperatives were primarily based on income statements and balance sheets, thereby limiting the depth of analysis. Thus, additional information was solicited by a survey to

the technical assistants for each of the 34 cooperatives. The analysis presented in this paper was collected as part of a comprehensive third year analysis of PATMIR to determine the key policy implications arising from the different methodologies in order to help the directors of PATMIR with strategic planning. The third year evaluation was budgeted from the inception of PATMIR and was conducted during 1995 and 1996.

As a part of this study, additional data were collected in the form of in-depth case studies. Fifteen of the 34 cooperatives had field visits focusing on various issues of outreach and sustainability. These studies not only provided more rigorous financial data, but also shed light on the particular challenges and innovations that the PATMIR institutions have experienced. In order to reinforce the lessons learned from the case studies, each of the technical consultants from the seven state headquarters was interviewed as well as a number of bank managers. The field visits and interviews enhanced the qualitative evaluation of PATMIR.

2. MEASURES OF OUTREACH

One of PATMIR's most important goals has been to provide financial services to those typically outside of the reach of formal finance, particularly in rural areas. PATMIR institutions were required to have at least 70 percent of their clients residing in towns of less than 10,000 inhabitants. The cajas were also required to report statistics on the percentage of female and indigenous clients. No consensus on measuring outreach has been attained within the field. In a comprehensive analysis of microfinance outreach, Navajas, et al. divide outreach into six modalities including worth, cost, depth, breadth, length, and scope (Navajas, et. al., 2000: 333-346). Most microfinance practitioners use various proxies for depth of outreach including average loan size and average client income. Since individual outreach proxies can be misleading, this study uses a broad range of outreach measures, including two composite measures.

2.1. Regional socioeconomic conditions

Socioeconomic conditions range dramatically in Mexico from state to state. The technical consultants contracted by PATMIR were assigned the task of expanding financial services in rural areas in seven different regions. While each of the states has a significant population of marginalized inhabitants, some of the states in the PATMIR sample are poorer and more isolated.

Extremely marginal conditions exist in Chiapas, Guerrero and Oaxaca where human capital constraints have created obstacles for the cajas, both at the client level and at the caja level. According to the national marginality index, the states of Michoacán, Puebla, and San Luis Potosí would represent a somewhat easier operating environment.

2.2. Breadth of Outreach

Numerous definitions of outreach exist, all of which cast different light on the client composition of a microfinance institution. Clearly, one of the first metrics used in measuring outreach is the breadth of outreach: the sheer number of clients attended.

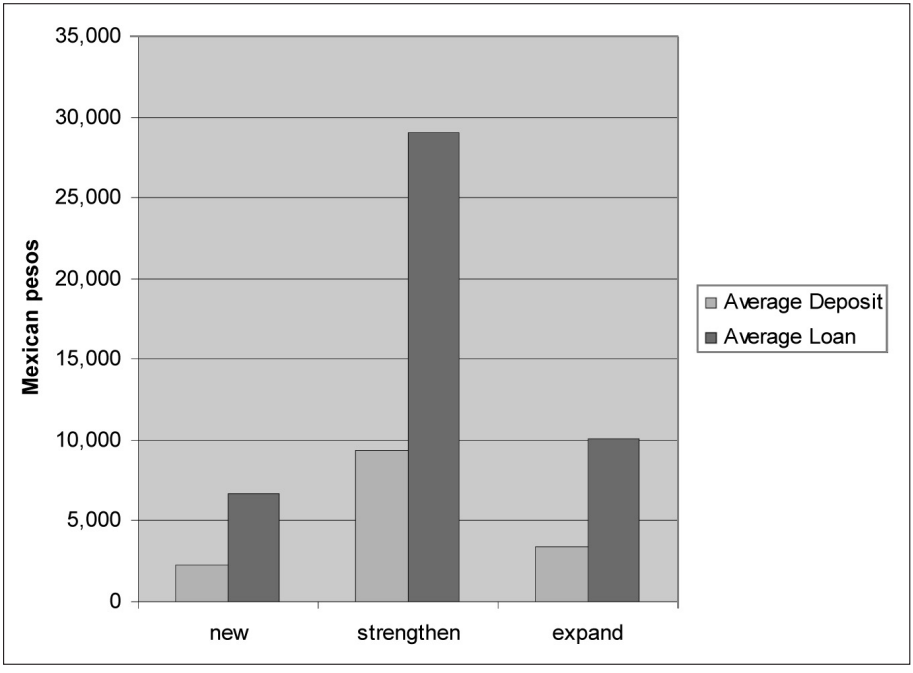
Unfortunately, a clear measure of true PATMIR clients is difficult given that existing institutions already had a client base and determining which clients are PATMIR clients is problematic. Conservatively, between 172,200 and 303,000 PATMIR clients were served from 2003 to 2005 of the PATMIR project. The total clients served were spread relatively equally between the three consulting firms.

2.3. Traditional Measures of Depth of Outreach

Depth is a particularly important component of outreach and is the most commonly perceived outreach indicator since it alludes to how marginalized the clients of a microfinance are. A definition of exactly what "marginalized" is can be hard to ascertain and therefore, different institutions use different metrics, depending on institutional objectives. Typically, depth of outreach is proxied by average loan size, percentage of female clients, and percentage of rural clients. Loan size is used as a proxy for depth of outreach since other indicators of depth of outreach are costly to collect. For example, Woller (2000) uses average loan size divided by GNP per capita as a measure of "depth."

Overall, PATMIR institutions have achieved their mission of reaching the rural poor. Close to 80 percent of the PATMIR clients live in towns of less than 10,000. In addition, 55 percent of the clients are female and 15 percent are illiterate. Average loan and deposit sizes for PATMIR institutions are displayed in Figure 2. In general, the new and expanded branches had the lowest average loan and deposit sizes. In contrast, the strengthened institutions which had been operating without the PATMIR outreach objectives for many years, have noticeably larger average loan and deposit sizes.

Figure 2: Average Loan and Deposit size by Methodology Mexican pesos (US$1 = 10.6 Mexican pesos) Dec. 2006



source: PATMIR

Both loan and deposit averages can be misleading as proxies for outreach. Small deposit sizes may simply reflect an underdeveloped voluntary deposit effort on the part of the institutions (the 'forgotten half of financial intermediation'). Loan size, on the other hand, is an imperfect measure of depth of outreach since it may not reflect the poverty level or the degree of isolation from formal finance but instead may relate to the term or type of loan granted or to the lending methodology of the institution. Therefore, more detailed composite measures of outreach are insightful in revealing the true depth of outreach for microfinance institutions. Two of these measures include the depth of outreach index (DOI) and the poverty outreach index (PO).

2.4. The Depth of Outreach Index

In an attempt to overcome the well-known problems associated with income based measures of welfare (Blackwood and Lynch, 1994; World Bank,

2000), several microfinance outreach indices have incorporated a human needs approach to poverty measurement (Navajas, et al., 2000; Henry, et al. 2000). These indices require detailed socioeconomic and income measures for all microfinance clients. Many microfinance institutions do not collect such detailed statistics and do not have the time and resources to calculate complex formulas.

The depth of outreach index (DOI) has been created as a practitioners' guide for examining the depth of outreach of microfinance organizations (Paxton and Cuevas, 1998). This framework includes readily available variables relating to clients who have traditionally been excluded from formal finance. The DOI includes demographic variables relating to clients who have traditionally been excluded from formal finance, including women, illiterate and poor people, and rural inhabitants (Von Pischke, 1991). The DOI sums the differences between the institutional outreach average (*i)* and the country averages (*c*) for (N) categories of people excluded from formal finance (*e*):

$$DOI = \sum_{n=1}^{N} (e_{in} - e_{cn}) \qquad [1]$$

When using these four categories, the formula can be written as:

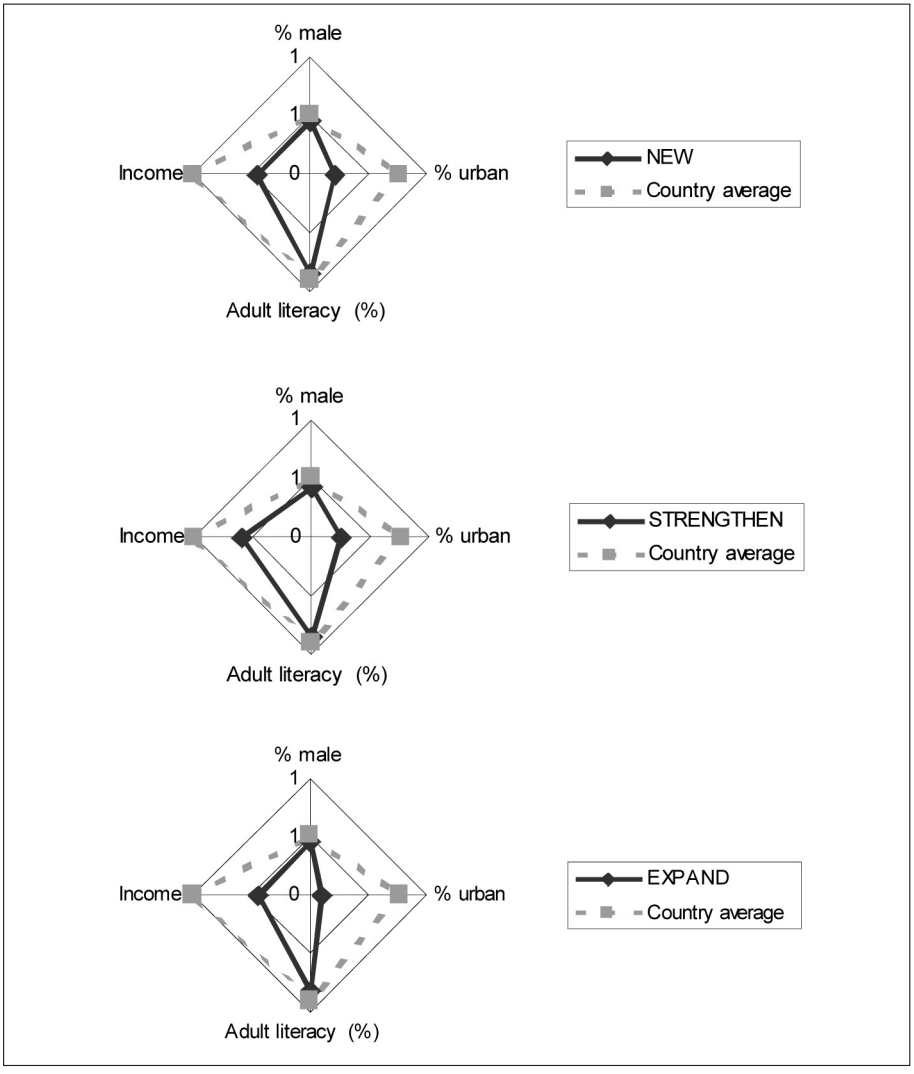
$$DOI = (rur_i - rur_c) + (inc_c - inc_i) + (fem_i - fem_c) + (illit_i - illit_c) \qquad [2]$$

A positive number indicates that the institution serves a clientele that is more rural, poor, female, and illiterate than the country average. Given the likely correlation between the variables, many people fall into several or all of the categories. The DOI improves on the use of traditional outreach proxies such as loan size since it incorporates client-based variables, takes country averages into account, and offers an intuitive measure using data that is readily available (Paxton and Cuevas, 1998). The variables used to measure exclusion from formal finance can be modified easily in order to match the country context. In this case, three of the variables (urban, male, and literate) are percentages calculated on a 0 to 1 scale. The country wide GNP per capita was normalized to one for the country average. The average income of the microfinance institutions' clients was put on the same scale by dividing their average income by the country level average income.

The measure can be presented graphically as depth of outreach diamonds (Figure 3). One of the most salient features of the PATMIR institutions is the noticeably deep outreach, particularly with regard to the rural poor. The outreach diamonds are smaller than some other international microfinance in-

stitutions (Paxton, 2002), making its depth of outreach a prominent feature not only by Mexican standards, but by international ones. On average, PATMIR institutions serve slightly more female and illiterate clients than the country average, and considerably more rural poor clients.

Figure 3: Depth of Outreach Diamonds by Methodology



source: author's calculations

Figure 3 illustrates how different methodologies have led to varying depth of outreach. In general, the new and expanding cajas attained a better depth of outreach than the strengthened institutions. In particular, strengthened cajas tend to serve a higher income clientele (albeit still below the country average). This finding is logical since many of the existing institutions have operated for decades without any particular mandate to serve the rural poor. New and expanding institutions are going into regions that have been hand-selected to fit the PATMIR profile.

2.5. The Poverty Outreach Index

The shortcoming of using most depth of outreach indicators such as average loan size or percentage of rural or female clients is that they are merely a single average for the entire institution. Average measures can be misleading since they fail to provide information about the scale of operations and income distribution of clients. Therefore, a tiny institution serving the very poor would have tremendous outreach while a huge institution serving the poor, middle class, and rich would have weak outreach, even though it might serve a huge population of low income clients. In order to create an outreach indicator that credits institutions for both depth and breadth of outreach, the poverty outreach (PO) index is useful (Paxton, 2002).

The PO index incorporates the Sen's most commonly accepted poverty properties: focus, monotonicity, and transfer axioms. In addition to Sen's axioms, most poverty measures adhere to the nonpoverty growth axiom (Kundu and Smith, 1983) that states that poverty will decrease when the population of nonpoor grows. This axiom may not be desirable for an outreach measure. Imagine two banks in developing countries, each serving 1000 equally poor people below the poverty line. One bank also serves 10 million nonpoor clients while the other has no nonpoor clients. It can be argued that the depth of outreach to the poor is the same for the two banks.[2] In order to control for this, the PO index includes a nonpoverty invariance axiom.

A simple modification of the Foster, Greer, and Thorbecke poverty index (1984) satisfies Sen's axioms,[3] allows for nonpoverty invariance. The PO index measure is given by:

[2] In fact, the larger bank may fulfill a broader development goal by reaching the poor just above the poverty line and middle class and may be better diversified than small institutions.

[3] as well as continuity, symmetry, subgroup consistency, decomposability, and poverty line sensitivity. The transfer axiom is satisfied for $\alpha > 1$.

$$PO\ (x;\ z,\ \alpha) = \frac{Log\ (q)}{q} \sum_{i=1}^{q} (1 - \frac{x_i}{z})^{\alpha} \quad \alpha \geq 0 \qquad [3]$$

where x_i = income of the ith household below the poverty line
q = number of households below the poverty line
z = poverty line
α = researcher defined scaling weight

The PO index combines the number of clients below a specified poverty line and then measures how far below the poverty line they are. The nonlinear, concave function allows the PO index to compare very large and small institutions in a meaningful way while adhering to all of the specified axioms. The distinction of the PO measure is highlighted when examining country poverty rankings. Traditional poverty measures focus on the average level of poverty and rank sub-Saharan African countries as the poorest countries in the world. The PO would shift the ranking to countries with a large population of poor. For example, the Foster measure using $\alpha = 1$ ranks Ethiopia and Sierra Leone as the two poorest countries in the world. The poverty outreach measure would rank India and Nigeria as the countries with the highest depth of poverty.

The researcher can adjust in order to increase the importance of the relative poverty of the clients. For empirical work where scale is important, $0 \leq \alpha \leq 1$. When $\alpha = 0$, the formula reduces to Log q. When $\alpha > 0$, both the number of poor and the extent of immiseration become important. At $\alpha = 1$ or whenever $(1 - \frac{\bar{x}}{z})$ rather than $\sum_{i=1}^{q} (1 - \frac{x_i}{z})$ is available, the measure reduces to:[4]

$$PO\ (x;\ z,\ \alpha) = Log(q)\ (1 - \frac{\bar{x}}{z}) \qquad [4]$$

In order to calculate the PO Index for PATMIR, two main pieces of information were necessary to obtain: the number of clients below a given poverty line and the distribution of income below that line. Clients with incomes above the given threshold have no effect on the PO Index, although it could even be argued that having a wide variety of income levels would positively affect the profitability of the institution and reduce its portfolio risk. For each

[4] If the distribution is not available, the measure will not fulfill the transfer axiom.

of the cajas, the percentage of clients falling into income groups was estimated by through interviews with the technical consultants, loan officers and managers at the cajas during a series of case studies.

For the PATMIR project, several income ranges were captured including the indigent poor (below 750 pesos monthly), the poor (751-2000 pesos), the low-middle income (2001-5000 pesos) and the middle and upper income (above 5000) using an exchange rate of US$1 = 10.6 Mexican pesos in Dec. 2005. Ninety two percent of PATMIR clients of the 303,000 clients are considered to be at or below the low-middle income range. It should be noted that in many cases, the client income is the primary income for the entire household. A threshold of 750 pesos per month was selected as the PO index poverty line in order to approximate the $2/day poverty line and allow for international comparisons. Over 33,000 PATMIR clients fall into this indigent category. This number represents q in Equation [4].

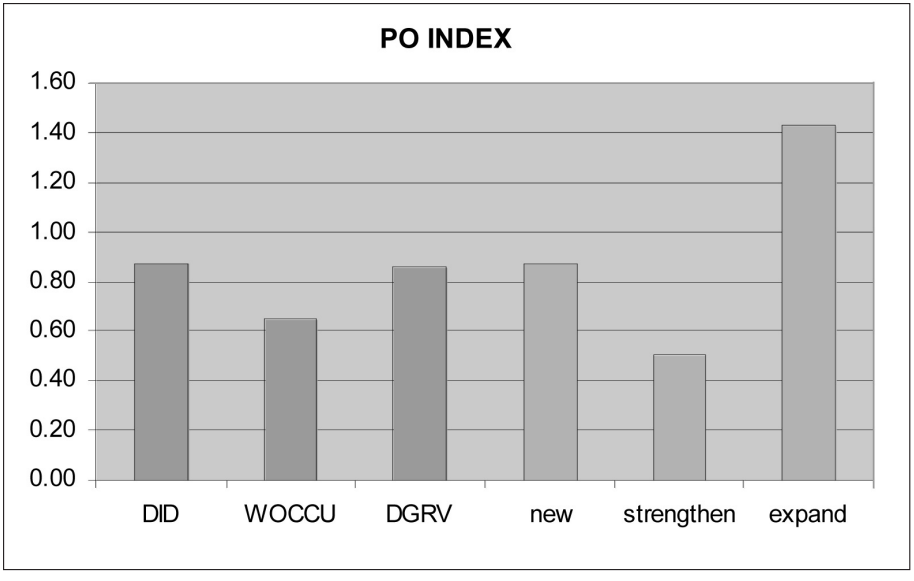
Another element of the PO index is to examine the poverty gap which measures just how far below the poverty line the indigent clients fall (the mean income shortfall from the poverty line). In order to calculate the poverty gap, an estimate of the average monthly income ($\bar{x}$) of only those clients falling below the 750 peso poverty line (z) was made through interviews with caja managers and loan officers and was plugged into Equation [4].

The PO index is not bounded theoretically but typically ranges from 0 – 4 in an international context using a $2/day poverty line. Because of the large number of people falling under the poverty line in Africa, its large microfinance institutions score relatively high PO indices. The PATMIR sample, in a higher income country, ranges from 0 – 2.25. Within the Latin American context, however, higher PO scores have been measured from microfinance institutions in other countries including banks (Caja Social (Colombia), BancoSol (Bolivia)), NGOs (FINCA Costa Rica and CARE Guatemala) and credit unions (Cupocrédito (Colombia), Unión Popular (Guatemala), and UPA (Guatemala)) (Paxton, 2003). The lower PATMIR PO scores are a function of Mexico's relatively higher income level and the relative paucity of large institutions. The PO index is helpful to compare which institutions within PATMIR have the highest levels of outreach in terms of breadth and depth.

Grouping the data by methodology and technical consultant provides insights into where outreach is the most profound. Figure 4 summarizes the average PO scores by technical consultant and by methodology. Each of the technical consultants has achieved a similar PO index score despite the fact that their methodologies vary significantly. The difference in methodology is more revealing for policy implications. Encouraging existing institutions to open branches in marginalized areas led to the highest PO index. Likewise,

new institutions had deep outreach. In contrast, the PO index for strengthening existing cajas led to the lowest PO index. In the case of DID Chiapas, SERFIR has effectively penetrated a highly marginalized state. In contrast, WOCCU Michoacán has a lower degree of marginalization, but the institutions there have attained a greater scale and are serving a large number of clients below the poverty line (in addition to many above the poverty line). Both techniques are successful in attaining the outreach goals set by PATMIR.

Figure 4: PO Index by Methodology and Consulting Firm



source: author's calculations

3. OUTREACH TRADE-OFFS

3.1 Tradeoff: Existing institutions may have good breadth of outreach but bring a pre-established culture that may not favor depth of outreach

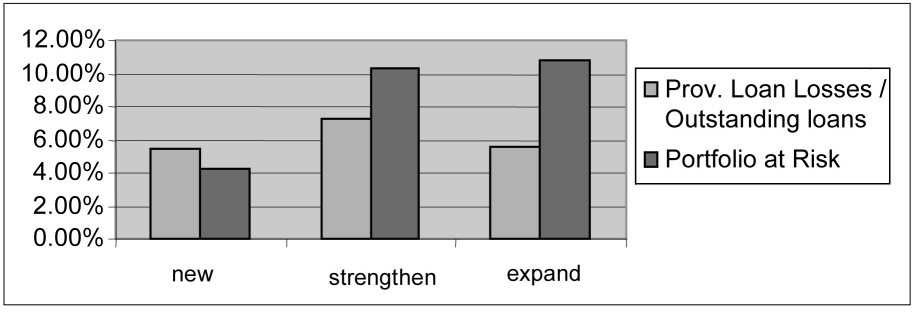
Working with pre-existing institutions implies an initial cost savings, allowing for the immediate access to a group of clients. In some cases, the corporate culture of an institution impeded work with PATMIR and in other cases, the objectives were complementary. For example, there were challenges in altering the institutional focus of several existing institutions. How-

ever, in the case of other existing institutions, a strong organizational structure facilitated technical assistance. WOCCU effectively used its contacts with the ALIANZA federation to initiate its work.

Another problem of working with existing groups, particularly those associated with another non-financial activity, is that screening is weak. Every member of the group feels entitled to a loan if they have contributed their equity, despite their creditworthiness. In the cases where pre-established cajas have been encouraged to invite poorer indigenous clients to join, an implicit discrimination has occurred where some clients have been treated with disrespect and have been forced to wait long hours at the caja.

Existing institutions can bring pre-existing management and portfolio problems. Insights into portfolio quality are given in Figure 5 which groups portfolio quality by methodology. The new institutions are well provisioned and have a low level of portfolio at risk. The existing institutions (both strengthened and expanded) have an average portfolio at risk exceeding 10 percent. The strengthened institutions are better provisioned to mitigate the portfolio risk than the expanded institutions. While the operational self-sufficiency of the expanded institutions was the highest, clearly there is a high degree of portfolio risk for these new branches. Their portfolio at risk is 11 percent while their provision for loan losses as a percentage of outstanding loans is less than 6 percent. For larger institutions that have chosen to create new branches in marginalized areas, it is reasonable to assume that they will only maintain their presence in the areas as long as the branches are financially viable. If the portfolio at risk results in unsustainable default rates, there would be little incentive for the branches to continue once subsidies disappear.

Figure 5: Portfolio Quality by Methodology



source: PATMIR

3.2 Trade-off: Outreach and subsidy dependence

Throughout the PATMIR region, the technical consultants experimented with how deep they could reach and still remain sustainable. In many cases, the consultants reached too deep and reconsidered their target group. For example, DGRV Guerrero reports that working with the poorest of the poor can be problematic in terms of institutional transaction costs and financial viability. Indeed, Hulme and Mosley (1998) show that the poorest of the poor are not helped by microfinance and can even be hurt by incurring debt. Instead, the working poor are more likely to be helped by microfinance. PATMIR institutions seem to find that the working class clients are more likely to have regular income streams that are appropriate for cooperative financial instruments. For this reason, it has been hard for the cajas to operate in high migration areas where income streams are irregular.

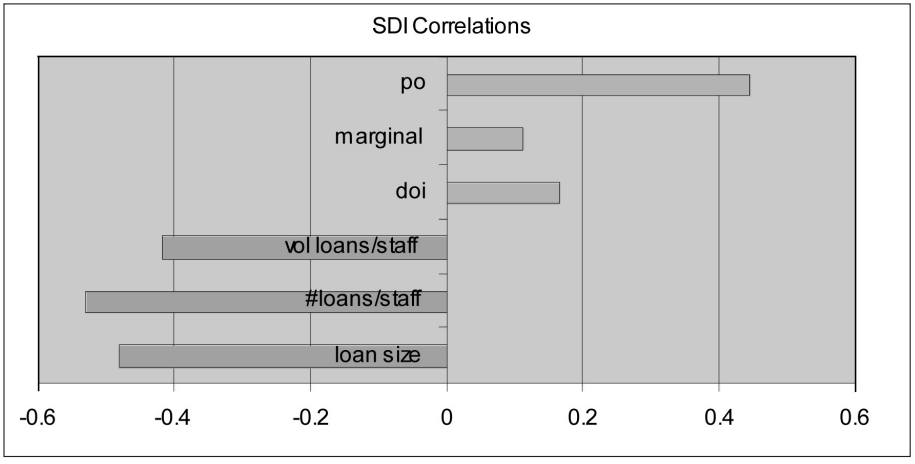
PATMIR emphasized the dual objectives of outreach and sustainability. Ideally, the subsidy dependence (SDI[5]) should be zero or negative and at the same time, the depth of outreach measured by the depth of outreach index (DOI) and poverty outreach index (PO) should be high. While some institutions have balanced the two goals of outreach and sustainability, there does appear to be a trade-off between the two goals. Figure 6 shows that a higher dependence on subsidies leads to a better depth of outreach as measured by the PO, DOI, and marginality indices. In addition, subsidy dependent institutions have smaller loan and deposit sizes and lower staff productivity. The more reliant an institution is on PATMIR subsidies, the more likely it is to pursue a marginalized clientele. Heavily subsidized institutions are more likely to offer smaller loans and deposits and are more likely to have deeper outreach measures stemming from the DOI and PO indices. Each branch spans a larger geographic coverage, extending into rural areas where clients have a higher travel time. As subsidies are weaned, there is potential for mission drift. Autonomous institutions will be more likely to offer higher average loan and deposit sizes and work in a more concentrated geographic area.

[5] The SDI measures by what percentage interest rates charged to clients would have to be increased hypothetically in order to cover program costs and eliminate subsidies (Yaron 1992). The formula for the SDI is given by:

$$\text{SDI} = \frac{m * E + A * (m - c) + K - P}{LP * i}$$

where m = opportunity cost of funds; E = average equity; A = average debt; c = interest rate of debt; K = grants + discounts on expenses; P = accounting profit; LP = loan portfolio outstanding; i = interest on loan portfolio

Figure 6: Subsidy Dependence Correlations



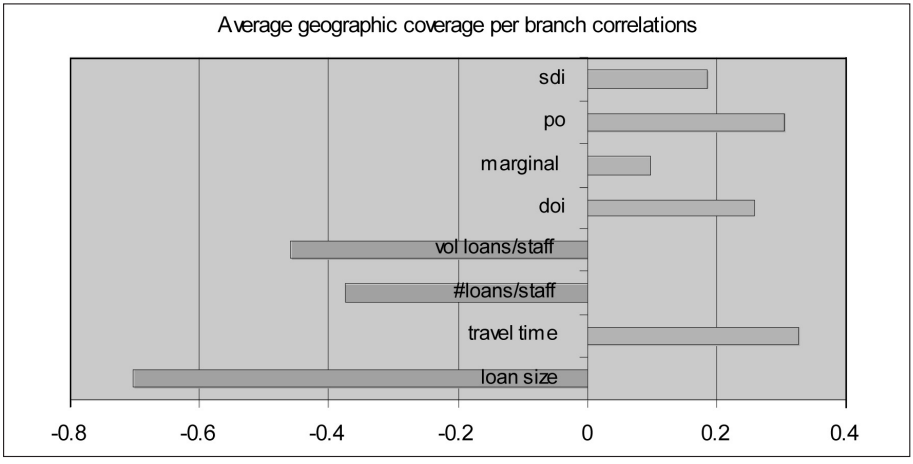
source: author's calculations

3.3 Trade-off: Geographic coverage and sustainability

Reaching the most rural inhabitants of Mexico can be costly. DID Huasteca has found better sustainability in semi-urban areas. The outreach to very rural areas has been attained through various geographical strategies. Some institutions, such as SERFIR, have chosen a highly marginalized state and worked to cover nearly ever corner of the state with branches. Interestingly, SERFIR originally attempted a 50 km radius for its branches but found it too costly and switched to a 25 km radius. The penetration is quite impressive given that this has been accomplished in only three years. This is quite distinct from the penetration of San Andrés Coyutla which has opted to serve a much tighter radius, thereby reducing cost. A geographical or travel time boundary was found to be important for financial viability. WOCCU Michoácan reports that serving clients outside of a one hour radius is not profitable.

Since one of the main objectives of PATMIR has been to serve rural areas that previously had few financial institutions, understanding exactly how geographic coverage is linked to outreach and sustainability is critical. Using GIS coordinates of client location, the perimeter distance of each branch was calculated as an estimate of geographic coverage. Not surprisingly, average geographic coverage per branch is correlated with higher depth of outreach including higher PO, DOI, and marginality indices and lower average loan sizes (Figure 7). This outreach is associated with a greater reliance on subsidies, a lower staff productivity, and higher transaction costs for clients in the form of travel time.

Figure 7: Geographic Coverage Correlations



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4. DISCUSSION

Unfortunately, no easy policy recommendation flows from the comparative study of methodologies. There was no clear winner among the strategies employed since within each type of methodology, individual cajas excelled in both outreach and sustainability. Some generalizations are possible, however, when examining the three main methodologies.

4.1 New institutions

New institutions have good outreach and growing sustainability and client bases, however, they are costly to create. The new PATMIR institutions were created either from scratch or from working with a pre-existing social base. In either case, the cajas had to invest more time and resources into starting the financial institution. The operational self-sufficiency of new institutions used a pre-existing base was mixed, since on the one hand, the cajas had the advantage of an organized group to reduce transaction costs, but on the other hand, they had to overcome a pre-existing institutional culture that can impede banking norms.

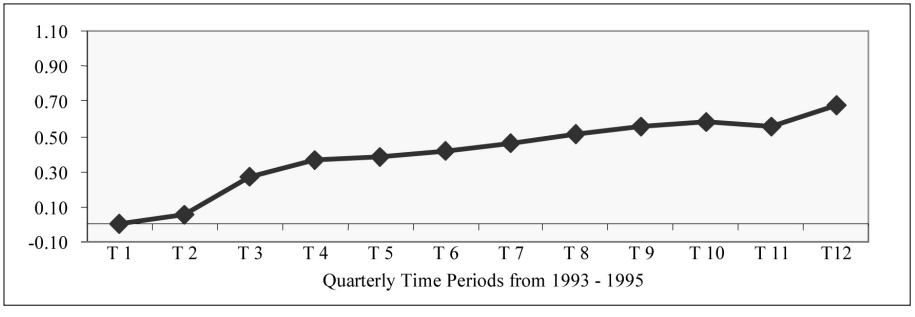
When institutions start from scratch, there are high administrative and operational costs with very little operational income in the first years. Therefore, new institutions tend to have negative ROA and ROE values compared

to the other two strategies. However, new institutions made significant improvements in profitability during the PATMIR project. Within three years, SERFIR had overcome this obstacle and started to generate a positive return on equity. This rapid growth toward sustainability is not uncommon worldwide. Gonzalez and Rosenberg (2006) find that half of the profitable microfinance institutions in a sample of 2600 broke even within only 3 years with nearly 70 percent becoming profitable in 6 years.

In general, new institutions have more favorable outreach indicators, but weaker sustainability as they are still in their infancy, However, the new institutions are growing the fastest, led by growth in their loan portfolios which more than doubled in one year. The expanding institutions have experienced the most growth in savings mobilization, particularly demand deposits. One PATMIR strategy for start up institutions or branches has been to first mobilize deposits and then grant credit. Having a solid foundation in locally mobilized deposits is an international best practice in microfinance. However, because rural inhabitants are often net savers, excess liquidity can become a problem. Many of the new institutions are not well networked into a larger financial institution, creating an inability to spread risk and liquidity.

One of the most encouraging signs of future sustainability for the PATMIR projects is their continual improvement in operational self-sufficiency. Figure 8 presents quarterly trends in average operational self-sufficiency for the new PATMIR cajas. There is a strong upward trend towards operational self-sufficiency as the institutions mature. The PATMIR experience closely follows the results found in Gonzalez and Rosenberg (2006) where half of the world's profitable microfinance institutions became self-sufficient in 3 years while 70 percent became profitable in 6 years. Those that did not achieve profitability in that timeframe were unlikely to become profitable.

Figure 8: Quarterly Operational Self-Sufficiency for New Cajas



source: Navarette, 2006.

Certainly, one of the standout success stories of PATMIR has been the experience and accomplishments of SERFIR in Chiapas, one of the most marginalized states in Mexico. In three years, DID entered a highly marginalized area with no measurable formal financial system and created a sustainable financial institution that has penetrated nearly every part of the state. By December 2005, the SDI for SERFIR reached 12 percent and if the trend continues, it should eliminate its reliance on subsidies in the next year. Its income per loan has surpassed its administrative expenses and its subsidies have been decreased.

These impressive achievements have been the result of grass-roots training of clients and staff on the principles of cooperatives and the importance of saving. Attention to cost saving was instilled at all levels and a system of bonuses was created to reward portfolio performance. In many cases, training of staff started with how to operate a mouse and use a calculator. Even under these conditions, SERFIR worked hard to expand in order to meet PATMIR targets, they were successful in covering the entire state. This success can be attributed in no small part to charismatic leadership and a willingness to trust and work with local staff.

4.2 Strengthened institutions

One of the most challenging aspects of evaluating PATMIR is determining what impact it has on the strengthening institutions. Because the institutions were already in existence and serving a clientele largely matching the PATMIR profile, it is complicated to evaluate the value-added of the PATMIR assistance. Many of the institutions had (or still have) portfolio quality issues and other management issues that require technical assistance. Growth rates among the strengthened institutions were quite low in contrast to the other two methodologies. Loan volume and savings volume grew by less than two percent on average from 2004 to 2005.

There are several reasons why one would expect strengthened institutions to have less impressive sustainability trends. First, the institutions themselves were in need of technical assistance before PATMIR started (hence their selection into PATMIR). Before the passage of the *Ley de Ahorro y Crédito Popular* in 2001, many of these cajas were able to operate without strict performance targets leading to high arrears rates, slow growth, and a lack of appropriate monitoring and evaluation of financial statistics. By participating in PATMIR, technical assistance was used to address these issues. Secondly, many of the strengthened cajas had repayment problems before PATMIR and the high portfolio at risk statistics reflect to some extent an existing problem. Finally, growth rates of the strengthened institutions would

be slower than cajas with new branches or institutions merely because they were already serving the target client base. Given the law of large numbers, adding new members to an already large client base does not affect growth rates as much as in small institutions. In new institutions and branches, it is easy to double the number of clients when starting from scratch. In the case of strengthened cajas, most of the PATMIR efforts have gone toward solidifying the financial viability of the institutions.

The affects of the technical assistance in strengthened institutions is still becoming apparent. In the first three years, most strengthened institutions had a noticeable drop in arrears and an improvement in operational self-sufficiency. However, this was not the case universally since some cajas actually saw a deterioration of the portfolio quality as the institution took on new PATMIR clients. Case study analysis of these cajas reveals that in some cajas, the established management of the cajas was resistant to technical assistance and to altering their business practices to serve the PATMIR clientele.

One of the outstanding performers among strengthened institutions is Suljaá, a caja supported by DGRV. The subsidies have gradually been weaned from the institution, yet at the same time, the income per loan has increased. This has allowed Suljaá to go from a 20 percent SDI in 2003 to a negative 4 percent SDI in 2005. Some of the strategies employed by DGRV that helped transform this institution's financial viability included: improving technology to help monitor and evaluate institutional and client progress, heavily invest in human capital through training of staff and clients, hiring loan officers from the region who speak indigenous languages, and targeting rural areas that have the strongest economic activity while still meeting the outreach goals of PATMIR.

4.3 Expanded institutions

Attributing an expansion of marginalized clients to PATMIR is difficult for institutions that are strengthened. However, it is easily measured for expanded institutions that open branches in new locations since all of the members in those branches are new. It is also easy to target marginalized areas for new branch locations. In order for the expansion to be successful, dedication to outreach and sustainability on the part of the managers is essential. If the expansion is merely looked at as an experiment or a bit of humanitarian work that will collapse once the subsidies are gone, the branches will close over time. However, if the managers are dedicated to making the branches profitable, more institutions will follow suit as they realize the potential of untapped markets.

One of the advantages of working with existing institutions is that they have a significant scale that helps them spread risk, diversify their portfolio, manage liquidity, and lower cost. Interestingly, large institutions can also have a significant depth of outreach. Despite the fact that Caja Morelia Valladolid has only 14 percent of its portfolio dedicated to indigent clients, it still serves more poor clients than any other project due to its sheer size. Given that it serves 131,000 clients, fourteen percent still results in serving 18,000 poor clients. Using an average outreach indicator such as average loan size or average client income, Caja Morelia Valladolid does not look impressive. In contrast, because it serves such a large number of indigent clients, it ranks high using the composite PO index.

5. CONCLUSIONS

The overall PATMIR experience has achieved a number of outreach and sustainability goals in a relatively short time span. In many senses, PATMIR has been an empirical laboratory for rural microfinance. By contrasting significantly different methodologies, regions, and consulting firms, a wealth of information is produced. Several trade-offs are identifiable. Existing institutions have a pre-established corporate culture and often bring portfolio and management issues to the table. While they may have an impressive depth of outreach, improving the breadth of outreach may be a challenge. While not universal, there is a trade-off between outreach and subsidy dependence. The most heavily subsidized institutions often serve the most marginalized, rural clientele. As subsidies are weaned, potential shifts in mission may be a problem. Another trade-off exists between geographic outreach and sustainability. The most rural areas do tend to require higher subsidies in order to reach their clientele. In order to better track the outreach of these institutions, improved client income data would be useful.

Traditional measures of outreach can be deceptive in project evaluation. Simply finding the institution with the lowest average loan size may not truly reveal the institutions serving a deep and broad range of clients. The use of the composite Poverty Outreach measure reveals the potential for larger institutions with a diverse clientele to be a model for PATMIR. While it is true that some of the smaller subsidized institutions have nearly all of their clients meeting the prototypical PATMIR outreach standards, it is important to recognize that larger institutions can and do serve the same segment of marginalized clients *in addition* to their middle and upper income clients.

The new institutions tended to be more rural and serve fewer numbers of clients. Their small scale represents a challenge as they strive to lower costs through scale economies and manage risk and liquidity.

The experiment of creating new institutions brought to light many insights. New institutions were able to avoid the pitfalls of pre-existing problems in the cajas, but start-up administrative and operational costs made the methodology quite costly. However, new institutions made significant gains in productivity and efficiency with several new cajas close to subsidy independence in only three years. The new institutions tended to be more rural and serve fewer numbers of clients. Many strengthened institutions had portfolio quality and management issues that required significant technical assistance. There is a problem attributing increased outreach to PATMIR in strengthened institutions since it is difficult to determine which new clients were served as a result of PATMIR. In expanded institutions, this issue is resolved since new branches were opened in rural areas. The expanded institutions had the highest outreach measures and many were operating in a sustainable manner. Their scale facilitated spreading risk through diversification, managing liquidity, and lowering cost.

These lessons are useful in the promulgation of the PATMIR model in Mexico as well as for microfinance institutions around the world. Results oriented targets facilitated the strong growth of the program. The PATMIR management did not specify *ex ante* how the financial institutions should achieve their outreach and sustainability goals and therefore allowed for context-specific adaptability and innovation. Some methodologies seemed to work better in different contexts. Due to the high cost associated with developing new institutions, the second phase of the PATMIR project is concentrating on working with existing institutions, both strengthened and expanded, in order to enhance financial accessibility to Mexico's rural poor.

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Résumé

Le projet PATMIR visait à l'expansion de l'outreach des services financiers tout en tenant compte de la rentabilité pour les ruraux pauvres. Trois méthodologies principales ont été adoptées sur 34 coopératives : 1) la création de nouvelles coopératives, 2) le renforcement des coopératives existantes, 3) l'encouragement des institutions à s'étendre dans les zones rurales. Une analyse à travers différents indicateurs de couverture – dont certains composés – démontre que les deux premières stratégies donnent des résultats meilleurs que la troisième. Les institutions plus petites ont un portefeuille concentré sur les clients typiques du PATMIR mais les plus grandes ajoutent le segment des clients marginaux aux autres segments, opérant ainsi une diversification du portefeuille, une meilleure gestion de la liquidité avec un meilleur équilibre financier.

Les mesures de la couverture et de l'équilibre économique/financier montrent des contreparties. La dépendance aux subventions est corrélée avec la profondeur de la couverture, des montants plus petits et une baisse productivité du personnel. Si les institutions servent des zones rurales très larges, les clients doivent supporter des coûts de transactions élevés. Il n'existe pas une méthodologie supérieure parce que certaines coopératives ont atteint la couverture et, en même temps, l'équilibre économique et financier. Les institutions nouvelles ont une couverture importante du territoire et se rapprochent vite de la rentabilité mais doivent supporter des coûts initiaux. Les institutions existantes doivent lutter contre les résistances internes aux changements. Là où la direction est dédiée à élargir l'*outreach* et il y a une couverture efficace des coûts pour le nouveau portefeuille, de plus en plus les institutions existantes se lanceront vers les groupes marginaux.