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The Incomes and Participant Careers of the Poor

Insights from the RDRS Bangladesh 2003 Impact Survey

Summary

RDRS, like other development NGOs, is asked, more often and more insistently, about the hard-core poor in its working area and the effectiveness of its program interventions to lift them out of extreme poverty. It has started investigated these and related questions through a series of household sample surveys, internally known as Impact Surveys. These have been developed in the process of reforming its program monitoring. Four such surveys have been conducted, the latest in 2003. A presentation of findings during the November 2004 Partners' Meeting was received with applause. A well-noted centerpiece summarized participant household incomes in response to different levels of program involvement. At this level of description, households that had received training as well as loans from RDRS reported average annual incomes,

for 2002, of Tk. 33,000, up 40 percent from Tk. 23,500, the mean income of the sample group that had not yet enjoyed those benefits.

This study picks up where the November 2004 presentation stopped, in a more analytical framework. We limit ourselves to the relationship between program participation and incomes (as the poverty indicator); the rich material that RDRS presented on social development is not further investigated here.

At first we estimate the prevalence of poverty with the same 2003 Impact Survey data. Using a Government of Bangladesh poverty line for the Northwest, set at Tk. 582 income per person per month in 2000, we estimate that 77 percent of the RDRS participant population was poor, as against 63 percent in the general population. A common standard for extreme poverty is not at hand. We use the income, of World Bank fame, of one *US dollar per person per day* as the line. Applying a suitable factor for purchasing power parity, we estimate that 30 percent of the RDRS participant population was extremely poor.

Those poverty definitions are income-based. The income effects of the RDRS program interventions cannot be directly estimated, for lack of baseline information. Plausibly, the true effects lie between those estimated under two totally unrealistic assumptions. On one extreme, any difference related to levels of program involvement is fully attributed to RDRS effects. This would be the case if the 40 percent additional income noted for those with RDRS loans and trainings were not influenced by baseline assets and other unobserved factors selecting a household for RDRS assistance.

On the other extreme, one assumes that none of the assets used to produce income during 2002 had been acquired or protected with RDRS assistance. One may then think of the 2002 assets as being proportionate to the baseline assets. In this counterfactual scenario, the effect of RDRS loans and trainings on incomes is about 8 percent. This may seem small, but the effect is statistically significant. It is an impact above and beyond the direct effect of the 2002 assets. This is evidence that some of the RDRS core technologies – loans and trainings – do have significant poverty reduction effects. Thus, if we assume that the mean effect on incomes was around 20

percent (instead of the unrealistic 8 percent or 40 percent), this sufficed, given the sample distribution, to bring the rate of extreme poverty down from 45 percent (no RDRS) to the observed 30 percent (with RDRS).

Other technologies may not be producing such effects. The income effects of social organization are harder to determine. Federation members pay a small penalty, as a result of the relative neglect that their groups (the so-called secondary groups) suffered during certain periods. Affiliation with other NGOs, on the other hand, has a significant income-enhancing effect.

An obvious question concerns the stability of income gains, particularly the *vulnerability* of the household to income shocks due to various disasters. A survey taken at one point in time cannot answer it. However, it can be shown that the way to higher incomes leads through reduced labor dependency. This makes the analysis of income shares by activity crucial. Such information was collected in the 2003 Impact Surveys. If RDRS had indeed succeeded in reducing the vulnerability of the poor, its program interventions should produce a reduction in the income share from labor-selling beyond the effects of assets, education and other factors. This effect, if present at all, is not statistically significant.

In order to probe into the – apparently missing – insurance effects of RDRS programs, a small sub-sample (12 out of 798) of the 2003 Impact Survey households was revisited for in-depth case studies. These households reveal a high degree of income mobility, but no conclusive evidence of systematic income stabilization from RDRS program effects. They do lead to fascinating questions, however, regarding important life changes and exit from poverty. For example, the cost of litigation can ruin families who, with RDRS and other help, had been upwardly mobile, and thus court cases (which the RDRS Legal Education program and the Federations' mediation activities seek to contain) are relevant types of life changes that need to be looked at in the Impact Surveys. These insights will be worked into the format for the resurvey of 2003 sample during 2005.

Many of the survey estimates presented in this study are very tentative (the poverty rate estimates, though, are unlikely to be revised), given the absence of baseline

information and a considerable amount of measurement error in most variables. This has to be kept in mind when communicating these findings. Also, given the competing demands on the monitoring and evaluation unit, some caution is advised regarding the prospects for future Impact Surveys. These are being carried out in a philosophical climate that puts greater value on participatory research and monitoring. However, it should be possible to use both in cross-fertilizing ways, with the Impact Survey samples serving as a selection basis for sites of participatory studies.

Also, some policy implications are outlined. As a guiding principle emerging from the findings of this study, and with a view to the 2006 – 2010 strategic planning exercise, RDRS may want to think through the concept of insurance for the poor – reducing the vulnerability to future income loss – as a supplement to interventions that chiefly add to current productive assets.

RDRS in a nutshell

RDRS was established in 1971 as a field program of the Geneva-based Lutheran World Federation / Department for World Service (LWF/WS), when Bangladesh was an emerging nation and the vast majority of its population lived on the edges of starvation. Its first task was to provide relief and rehabilitation for refugees and those left destitute after the War of Independence. RDRS derives from "Rangpur Dinajpur Rural Service", named after the Rangpur and Dinajpur region in north-west Bangladesh.

During the period 1976 to 1990, RDRS completed its transformation from a relief agency to a multi-sectoral rural development NGO, retaining its regional identity and focus in the northwestern poverty belt. Its working area comprises almost 10,000 sq km, spreading across 37 sub-districts with 307 Union councils. Among an estimated population of 8 million, 1.5 million are involved in the RDRS development programs.

During the 1990s, a radical shift took place in RDRS' philosophy and field activities towards a group-based delivery system, with Union Federations and other community-based organizations emerging as the medium for the message. In this decade, RDRS, like many other Bangladeshi NGOs, built up a large micro-credit program.

In 1997, after 25 years as a field office with expatriate senior administrators, RDRS finally became an autonomous, national development NGO, governed by a Board of Trustees and run by Bangladeshi managers. The supportive relationship with LWF Geneva and its partners continues. In 2004, RDRS was working with over 17,500 organized groups, with members drawn form 281,000 households. It had a total staff of 1,958, of whom twenty-nine percent were women, and administered resources worth US$ 6.6 million.

This information has been compiled from the 2003 and 2004 Annual Reports.

The research team

This study was achieved though the collaboration of many persons. Key contributors include the staff of the Rangpur Monitoring and Evaluation Unit (RMEU):

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They designed, conducted, analyzed and presented the four Impact Surveys including the case studies used in this report. Aldo Benini, as a consultant and RDRS Strategic Advisor, performed most of the statistical analyses and wrote the bulk of the report. The views offered in this report do not necessarily reflect those of the RDRS management, and any errors, factual or other, are solely the authors'.

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Introduction

RDRS is being asked, more often and more insistently, how many of its participants are hard-core poor, and how many have come out of that condition. Although neither RDRS nor its partners have been applying specific poverty definitions, these discussions are taking place amid greater concern for aid effectiveness and for demonstrated results. RDRS has been sharpening its internal monitoring tools for a number of years in order to attempt valid and reliable answers to fundamental questions like the ones concerning the poverty dynamics in northwestern Bangladesh. A keener notion of this dynamic and the impact that RDRS is having in the population segment that it serves is wanted also for the upcoming 2006 – 2010 strategic planning.

As part of its transition from a heavy, full-census type of *activity* monitoring to a nimbler system capable of addressing program *impact* question, the RDRS monitoring unit in Rangpur has conducted sample surveys of participant households over the past four years. The latest of these, the "2003 Impact Survey", collected household income data that is plausibly more reliable than that of some of its predecessors. We use this data, which refers to the annual income in *2002*, to investigate the levels and composition of sample households, many of which have worked with RDRS for more than ten years. Also, we ask and, with the help of a small number of case studies of re-visited households, illustrate questions on vulnerability, the ability of households to maintain incomes above the poverty line. The findings furnish preliminary answers to some of the frequently asked questions about RDRS participants and poverty. Also, we have used them to refine the topics used in the upcoming re-survey of this sample of 798 households.

Two poverty lines

The Government of Bangladesh defined the poverty line for rural dwellers of the Bogra – Rangpur – Dinajpur region in 2000 as Tk. 582 income per person per month (Ahmed 2004:11), or almost Tk. 7,000 per person per year. By this standard, 63 percent of the households in the *government* study sample were poor.

While the government study took account of specific regional conditions, its varying poverty lines make for a less graphic summary than the much talked-about, World Bank-promoted notion of a poor person "surviving on less than one dollar a day". This measure, however, requires conversion of income or expenditure to US dollars and, for that, an assumption on the purchasing power parity. In 2000, Bangladesh had a per capita GNP of US$ 341; valued at purchasing power parity, this figure was $1,833 – up by a factor of 5.38. Obviously, any poverty rate against the one-dollar a-day magic line will be very sensitive to the conversion factor.

RDRS has always organized and assisted people recruited from different poverty groups. At its most basic, it has had programs, sometimes organizationally distinct ones, benefiting landless laborers, small and marginal farmers and single-parent families. The intake criteria variously included land holding, peer assessment, self-reported income and family composition, sometimes also specific disability. Although occasionally some of its programs did collect data on participant income and

production costs, systematic surveys of the target population and assisted participant incomes were out of reach for RDRS program monitors until recently. To this date, surveys of household *expenditure* (as opposed to income), although the preferred basis for poverty estimates (Grosh and Glewwe: 2000), exceed in-house capacity. For its Impact Surveys, the monitoring unit deliberately chose to use incomes instead.

A brief note on the history of RDRS' monitoring efforts is in order here. In the late nineties, RDRS transformed some of its systems from a static, cumbersome full-census routine to a combination of activity monitoring, as needed for the changing bilateral projects, with various experiments. These included small-sample and case studies investigating a great variety of topics as well as larger systematic sample surveys of organized groups and group member households. In addition, "data mining exercises" were done marrying re-assessments, by frontline workers, of the organized groups with extracts from the micro-finance database. The changes were motivated by a number of factors. Chief among them were the desire to let the data from major programs "talk to each other", to gain more insight relative to the effort of collection, and to get results faster. Also, the word "impact" came to be used more often, in an awareness that RDRS needed to demonstrate program effects beyond simple activity monitoring.

At the same time, there was a sober awareness that, amid partnerships that, with thousands of participants, went back for 10 – 15 years, cause and effect were flowing in two-way roads. Many poor people in the RDRS fold have progressed, and openly say so, but which fraction of gain on any indicator can be attributed to RDRS interventions is hard to determine. As programs became popular and were scaled up, they attracted new users different from the pioneers.

There is plenty of anecdotal evidence, for example, that the rapid expansion of the micro-credit program was captured by a good number of households that started their RDRS participant careers from a higher asset baseline that the typical poor primary group members held over from pre-credit days. Current incomes among RDRS program participants, therefore, reflect not only the impact of certain programs, but also the selection effects that these programs exerted on the choice of who was to benefit from them, and how much. The baseline information that would permit us to separate these effects was largely lost in the transition between monitoring systems.

A starting point: The 2003 Impact Survey

With these limitations in mind, RDRS has been cautious not to draw overambitious conclusions from the Impact Survey findings that it presented at several of its annual Partners' Meetings. The November 2004 meeting applauded a summary of social and economic measures taken on the latest household sample, with income data that referred to the calendar year 2002. This data had been collected and analyzed by the Rangpur-based Monitoring and Evaluation Unit (RMEU) without external assistance. A much-noted centerpiece of the presentation, the table below, was built around a condensed representation of two key outputs – loans and trainings. It showed considerable income differences among the four broadly defined participation groups. These differences suggested that, if the loan and training histories of the participants were known in greater detail, a very significant impact of the RDRS interventions on poverty reduction could be demonstrated.

Table 1: Income table shown at the RDRS 2004 Partners' Meeting

Exposure to RDRS interventions	Mean annual household income (Taka)	Percent of base
No credit, no skills training	23,517	100%
One or more loans, no skills training	28,573	121%
One or more skills training, no loans	30,743	131%
At least one loan & one training	33,067	141%

Note: "Percent of base" column added later

These figures are indeed a good starting point for further analysis because they are based on household incomes totaled from estimates for 13 different types of activity. They thus should be more reliable than the "one-question only"-based estimates used in the previous surveys. At the same time, no amount of analytical sophistication can possibly remove the limitation that the absence of solid baseline information and the incompleteness of loan and training histories impose.

Yet the income distribution can offer fascinating insights, particularly when correlated with the different *client careers* of the participants[1]. One aspect that has not been exploited is the *composition* of incomes. RDRS aims not only at income growth, but also at vulnerability reduction. In the economic realm, this has meant the creation of diversified earning opportunities, particularly for those dependent solely on their labor. Again this is a complex area in which cause and effect cannot be separated with the help of cross-sectional data only.

In the following, we will estimate the percentage of the RDRS participant population that is poor, respectively extremely poor, using two poverty lines. Subsequently, we will shed light on the composition of household incomes by source and confirm a well-known regularity that households with higher labor dependency are poorer. This leads to the question how RDRS has helped them open income sources other than labor selling. En route, we characterize the RDRS client careers and demonstrate that the relationship, seemingly very complex, between participant background and program exposure can be conveniently reduced to just two statistical dimensions.

We then turn to a model looking at program effects on household incomes when the baseline incomes are not known (as is the case for this sample). From income *levels*, we return to income *composition* in order to see whether RDRS interventions have indeed helped to reduce labor dependency. If so, it may be assumed that the households are less vulnerable to future income shocks. We shed some additional light on the vulnerability question with a help of case studies that resulted from re-interviewing a small sub-sample of the 2003 respondents. This leads to some policy

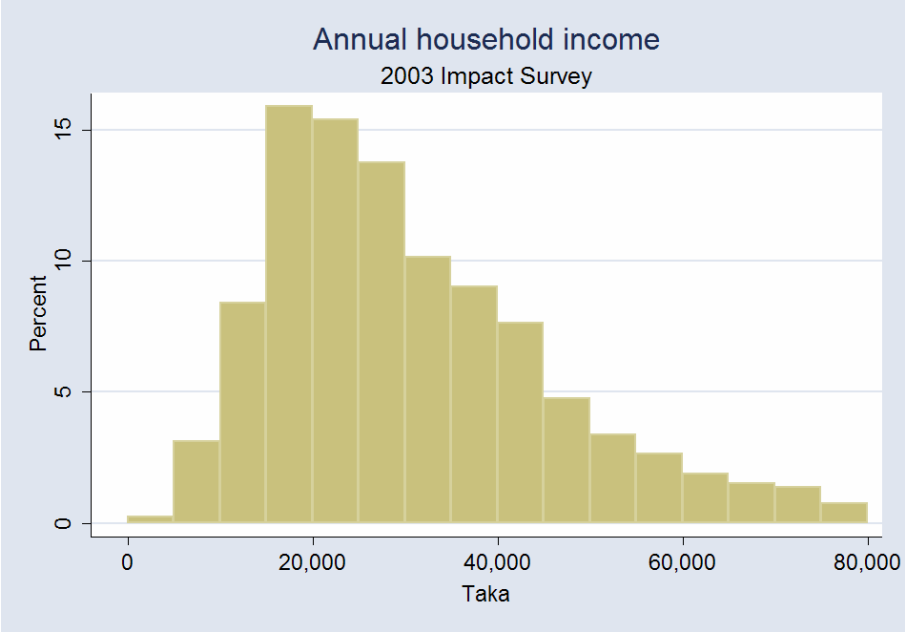
[1] From a sociology-of-organizations viewpoint, the term "client career" seems preferable to "participant career". The former only suggests that a non-employee was given a quasi-member status for the purpose of regulating interaction, not that he / she necessarily received any services, let alone useful services. This is more than a terminological infatuation; it points to a difficulty with which this study (and presumably many similar studies in the NGO realm) is struggling: how to measure program *exposure* as different from program *participation*. For example, it can be argued that "number of years with RDRS" is a valid measure of exposure (to manifold RDRS programs), while "number of loans taken" is shorthand for a type of participation. This is correct only up to a point. "Number of years with RDRS" also proxies for participation in many programs that remain unobserved in this study whereas "number of loans taken" summarizes exposure to offers of more loans (during the past careers as well as in future, assuming a borrower did not default immediately after the first disbursement).

considerations as well as a reflection on the future of the Impact Survey in a philosophical climate that calls for more participatory approaches to monitoring and evaluation activities.

RDRS program participants and the poverty line

The mean 2002 income of the 798 sample households was Tk. 30,500. The histogram below visualizes its distribution over a range from Tk. 3,900 to Tk. 79,800. When dividing by the number of family members, we obtain the per capita annual income. Its range is from Tk. 557 to Tk. 29,300. It is obvious that the minimum is well below the survival expenditure level. This and other very low-income households must have underreported income or must have met the deficit from loans, savings or asset sales. For example, it is known that some of the very poor women surviving as household servants did not report in-kind income (chiefly meals). The household-size weighted mean p.c. income is Tk. 5,865.

Figure 1: Distribution of sample household annual income



The Government of Bangladesh-defined poverty line was for the year 2000. Assuming 5 percent annual inflation, the annual per person income at the 2002 line would have been Tk. 7,700. Over three quarters of the RDRS sample household population - 77 percent - fell below this line[2]. This is 14 percent higher than the rate that the government study estimated for the general population in the northwest.

Poor and extremely poor

The "One dollar per person per day" poverty line, at US$ 1 = Tk. 60 and then PPP-adjusted, works out as Tk. 4,074 per year. No fewer than 30 percent of the sample household population met this standard of extreme poverty. Since people falling below this line are often described with various adjectives, it seems fair to use this figure also for the approximate fraction of *hard-core poor* among the RDRS

[2] The occurrence of twice the number "7" in those two figures is accidental and not a typing error.

participants. We need to keep in mind, though, that "hard-core", pervasively used in Rangpur lingo, has additional connotations that are not conveyed by a single income figure. Independently of those calculations, 26 percent of the households described themselves as lacking sufficient food during the year 2002, and an additional five percent went through "extreme food crises".

Some vague corroboration comes from the CARE – DFID Northwest Bangladesh livelihoods study conducted in 2002. We mention this study because it used a different method - wealth ranking. It classified 66 percent of its sample households as "always poor or occasionally poor" (Rasid 2002: 33). 40 percent of the sample owned assets worth less than Tk.10,000 and was classified as extremely poor (ibd.: 102; it appears that the denominator for the latter fraction excluded the non-poor). In the RDRS sample, only 17 percent of the households fell below the CARE-defined asset line. CARE included only items from a catalogue with price list; the RDRS categories are broader and, for some types of assets, use respondent estimates. Except for this reference to the CARE-DFID study, we use income-based poverty estimates.

Income composition

The 798 sample households reported incomes totaling Tk. 24.3 million in 2002. When some of the sources detailed in the interviews are lumped together, five categories can be meaningfully distinguished:

Table 2: Sum of 2002 household incomes by activity

Activity type	Total 2002 income (Taka)	Income share	HH largest share in	HH deriving >20% from
Farm-based	9,861,375	41%	35%	62%
Off-farm small business	6,960,471	29%	27%	40%
Service	1,340,160	6%	5%	8%
Labor	4,586,700	19%	28%	39%
Other	1,591,845	7%	5%	11%
Total	24,340,551	100%	100%	160%

Typically, households pursue income-earning activities of more than one type. 50 percent of the sample drew 20 percent or more of their annual income from each of two types, and 6 percent reported incomes spread over three types each contributing at least 20 percent. Except perhaps for rare formal-sector employees, this spread may reflect a rational strategy to make the best use of family labor and minimize earning risks. This is borne out by the mean incomes arranged by the largest income share other than from service. With increasing concentration on one source, mean incomes steadily diminished in the 2003 Impact Survey sample. One may suspect that this is so because of many extremely poor households exclusively dependent on the sale of their labor. However, on the next page, three diagrams, each for a different type, suggest that beyond a certain point concentration is an optimal strategy neither in farm-based nor in off-farm activities.

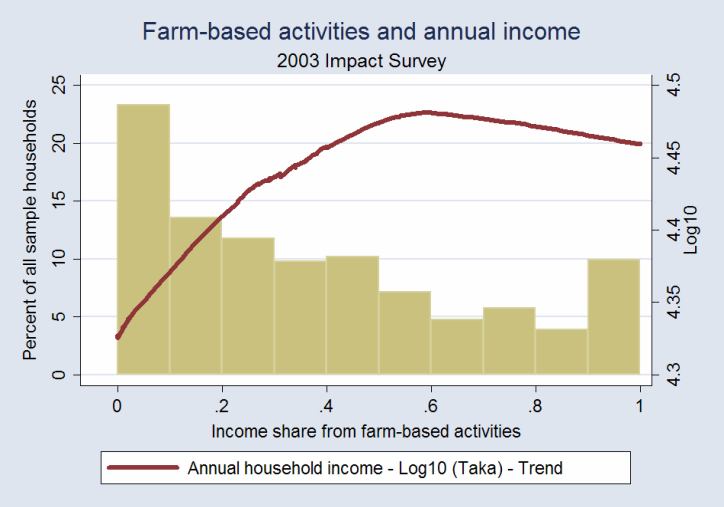
Figure 2: Household income in response to income shares

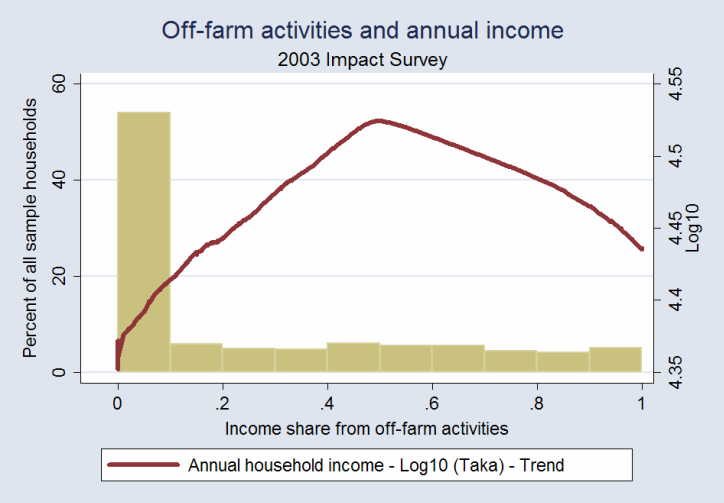
Three histograms are displayed to show the distribution of sample households by their income shares from different types of activities. The variability is largest for the shares that households reported for income from farm-based activities. More than half of the households reported no or very low income shares from off-farm business and from labor, but the remainder of households are distributed almost evenly over the 10 – 100 percent ranges.

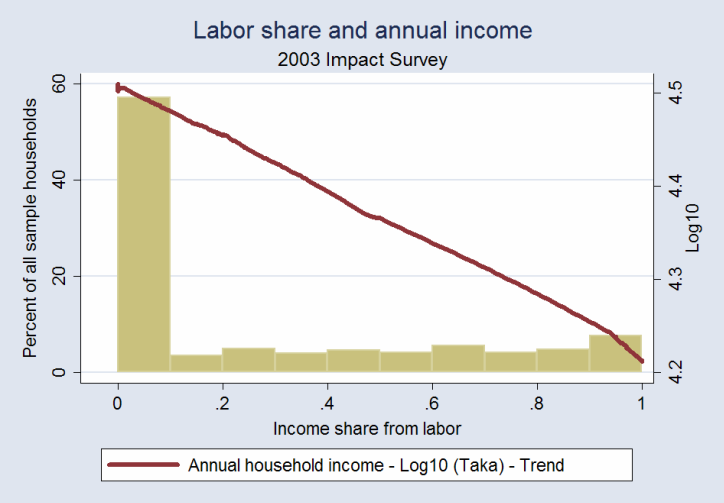
These histograms are then overlaid with a trendcurve that shows the mean income in response to the share from the activity in point (it would be more correct to speak of a locally weighted regression curve, but all understand "trend"). For easy graphing (and other reasons), the incomes are given in logarithms.

These curves are strikingly different. Incomes initially increase steeply with increasing farm-based income share; then they flatten out. For the non-farm business fraction, they increase steeply, then decrease again, suggesting that high dependence on this type of activity is paid with lower incomes. The relationship in the case of labor is strictly linear. If we travel along the x-axis from right to left, we see that incomes steadily increase as the household reduces its income share from labor.

The same principles are applied for the graph next page that combines the income shares from several sources.



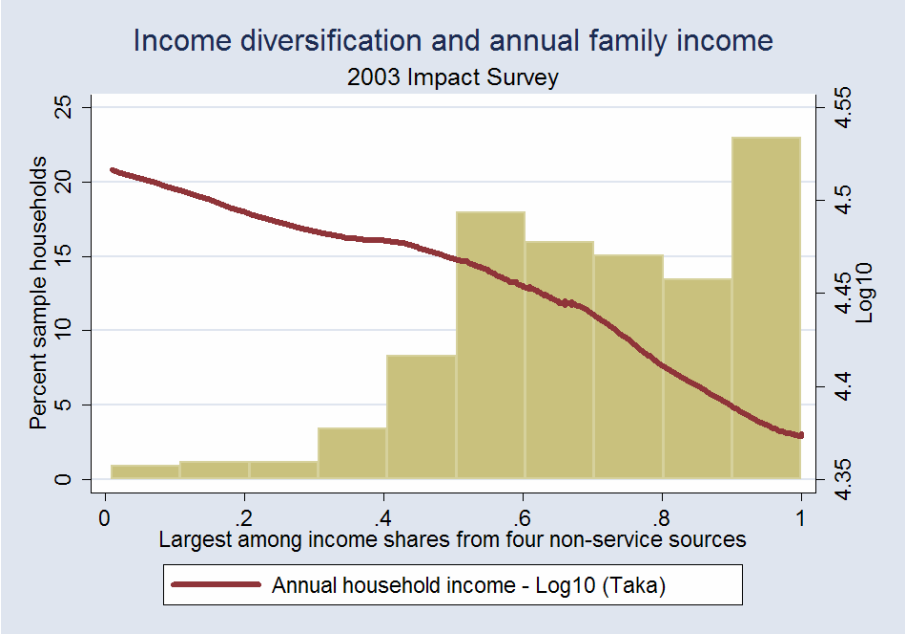




Alternatives to labor selling

It is also obvious that the relationship between household income and share from labor is linear across the full range and negative. The optimal strategy must be a mix in which the household sells no labor. This raises important questions, particularly about the ability of RDRS to help the poor find alternatives to labor-selling. And, since labor dependency is associated with extreme poverty, we will make the income share from labor one of the variables by which we characterize essential participant groups.

Figure 3: Household income in response to concentrated activity



Case # 1: Shaheda, who prospered in business, then was set back by litigation

Shaheda (45) is a RDRS group member. Her husband, Genda Mia, died in 1974 leaving four decimal of homestead land and a tin-shed house for Shaheda and two sons. She felt absolutely helpless at that time. Shaheda found no alternative than to be a working hand in the neighboring house. With her little earning she somehow managed their bread. Days did not wait for anybody. Her sons grew up and she, at some convenient time, got her sons married. In course of time, she became absolutely alone when her sons started living separately.

In the year 1995, Shaheda came in contact with a RDRS organizer, who persuaded her to join a group, Munshipara Mohila Dal. Discussions in weekly group meetings on different development issues made her gradually aware of many things. As a result, she planted different species of fruit and timber trees. She also started to grow vegetables. These homestead productions met part of her consumption needs earned her some income.

By 2003, she had obtained seven loans from RDRS totaling Tk.62,000. She used them for various projects, raising her income level. In the same year, she started selling sarees at household level, with reasonable profit. However, after 2003 RDRS loans dried up. Other members of the group also became disappointed, as they were not getting loan. Ultimately the group became inactive, and most of the members withdrew their savings.

In 2004, one of her sons faced a court case [on the nature of which she did not want to elaborate]. Shaheda had to sell one decimal of her land. Moreover, to provide financial support to her son, she took out a loan and drew down Tk.5,000 of her business capital. In total, the family spent Tk. 20,000 to remove the case. This, ultimately, again brought her back to a lower-income status. She is now a VGD cardholder.

Shaheda acknowledges that her association with RDRS helped her to improve her economic condition. She also feels that without being a RDRS group member, it would not have become aware of various social issues. As her group is now beyond RDRS supervision, she and other members are being excluded from services. This, Shaheda believes, has already impacted negatively on their lives.

RDRS client history

The history that ties RDRS to its thousands of organized groups and tens of thousands of individual participant households is deep. This is a commonplace repeated not only in the organization's self-presentations as a regionally focused NGO. The poor people of Rangpur and Dinajpur never tire of reaffirming this basic fact in their own language. Group members who are excluded from fresh loans because their group was in default, as the a.m. example of Shaheda testifies, will often present the RDRS decision as a betrayal of a long-term partnership and will express hope that it can be repaired. Interviews with participants tend to spontaneously produce detailed accounts of careers escalating with opportunities and punctuated with disasters, group graduations and transfers of trusted workers. In fact, the view could be advanced that this NGO has too much history, is laboring under some of its deadweight and is not seeking the degree of client turnover that would be optimal in a reckless "development as business" approach. People say: "RDRS is more considerate."

Faced with this wealth of relationships, cross-sectional surveys like the four Impact Surveys are challenged. They need to summarize greatly diverse and rich careers in a small number of variables that capture important differences and also elicit reliable recall from respondents' memories. Numerous elemental events scattered over ten or fifteen years will be fused into a few, vaguely grouped summaries. Anticipating that, the 2003 Impact Survey restricted itself to four key variables on the client career:

- The length of time the respondent for the sample household had been associated with RDRS
- The number of loans taken out
- The number of trainings received, and
- The status of the group to which the respondent belonged.

Years with RDRS, loans, trainings

The first variable is used as a proxy for the length of time the *household* has been associated with RDRS although in an unknown number of cases another family member may have been with an RDRS group for a longer time.

The loan history has been abbreviated to the number of loans that the respondent reported. RMEU did ask about the amounts but did not enter this data because of suspected frequent recall error. This reflects a state of affairs in the RDRS monitoring systems in which the micro-finance program has just started migrating customer identities from groups to individuals, and therefore can support the RMEU analyses with group histories but not individual account information yet.

Training information was grouped in the questionnaire into social and economic purpose columns and was summarized accordingly into two different count variables. Duration data was not taken, and variables for specific content were not formed. This analysis lumps social and economic trainings together.

Group status

For the non-RDRS reader, the two major types of organized groups need explaining. These are primary and secondary groups. For many years, RDRS followed a pedagogical, extension-based model of group formation and support. A member each from 15 – 25 poor households in a neighborhood would be joined in a primary group and would progress through a group curriculum of social and educational messages, savings and loans, small income generating activity, and trainings. With the advent of Union Federations, apex organizations of these small groups, primary groups evaluated as well performing would be graduated and became secondary groups joining their local Federations.

As a result of more recent program reorganizations, the pedagogical model was not consistently followed, and groups of both kinds have come to serve more as a loan disbursement and collection convenience than as a basic cooperation unit assessed on more criteria than just loan repayment. Secondary groups have become shorthand for those groups who are formally members of a Federation whereas primary groups are not or not yet. De facto, because of program history, secondary group member households have been with RDRS for longer than primary groups.

This and other Impact Survey samples were stratified into equal numbers of primary and secondary group households. In this sample, for example, the mean number of years with RDRS is 7.7 for primary, and 10.6 for secondary group households.

This explanation has been necessary to show that the group status information is in part redundant with the length of enrolment. Thus, the diversity of client careers can be depicted fairly well by all possible combinations of years with RDRS, loans and trainings. Of course, no one would pretend that these numerical variables express the wealth of partnerships that RDRS has built with lakhs of poor people in the Rangpur and Dinajpur region.

Participant groups and program exposure

In fact, the simplification works in the other direction: None of the three – years with RDRS, loans, or trainings – tells us much of interest by itself. Together, they form a pattern, and this pattern interacts with the participant group structure so as to create an even more fascinating super-pattern. Trivially, it is well known that the longer a poor person has been a member of some RDRS group, the higher the expected number of loans and trainings that he/she should have enjoyed.

And since some types of trainings are organized with the idea of enabling participants to make more productive use of their resources, including loans from RDRS, or are explicitly used as the gateway to such loans, one will also expect some association between the number of loans and that of trainings over all careers, regardless of the length of enrolment.

It is therefore only of fleeting interest to note that, on average, the 2003 sample households had benefited, over their entire RDRS client careers, from 2.5 loans and 0.86 trainings. The reader concerned with the descriptive statistics will find them in the appendix. 45 percent of the sample households reported never having taken any training with RDRS while the fraction of those who never drew any loan is only 7 percent.

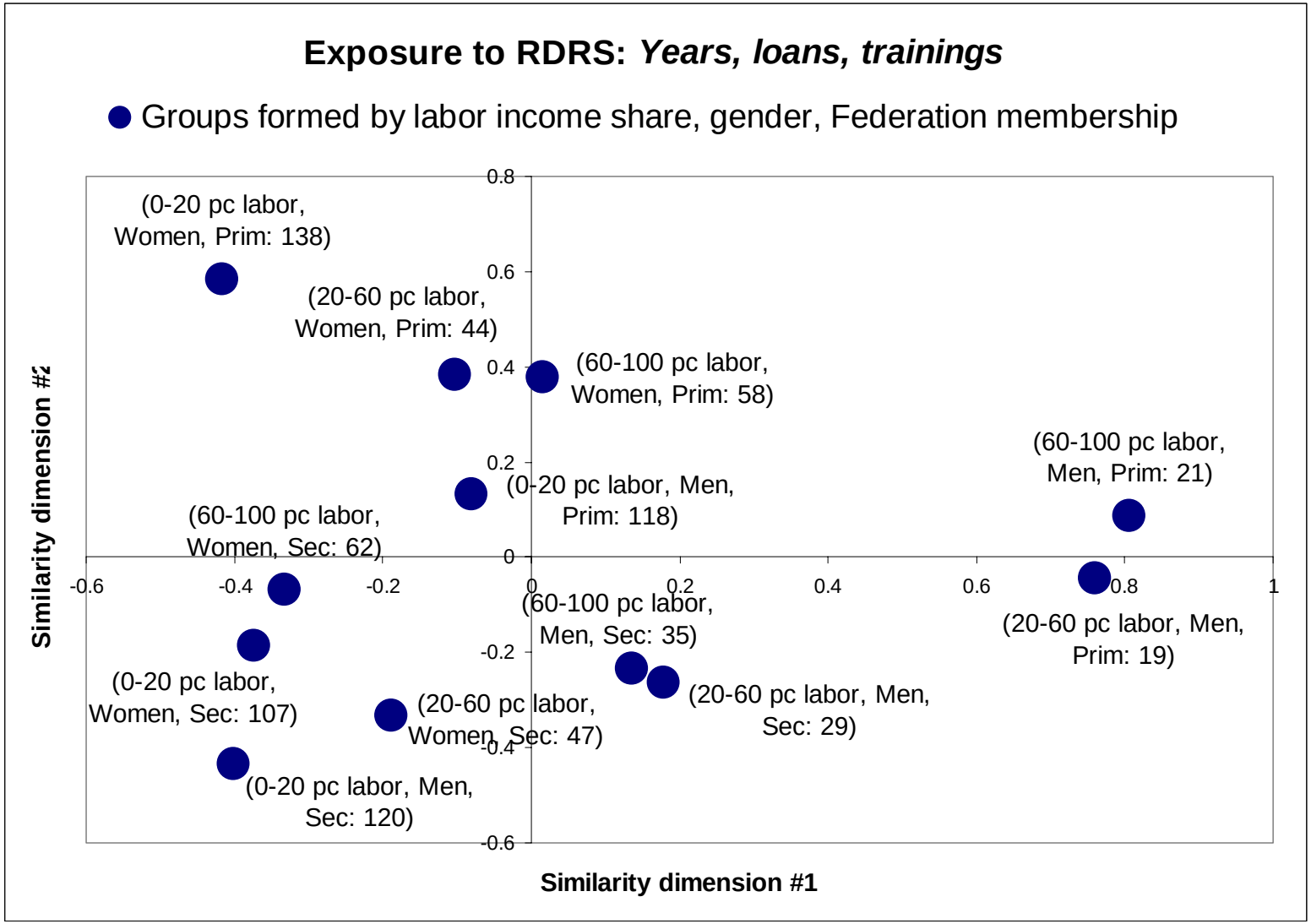
The average number of years with RDRS is almost meaningless since the non-technical part of the group experience, and some of the social relations built along the way, decay with time. RDRS policies change, familiar extension workers leave the area, and some fellow group members opt out. What fashionably is called "social capital", one would assume therefore, grows less than proportionate with the years spent as a group member. In fact, once this "time shrink" is considered, one can show, statistically, that the dissimilarities among the 798 sample households, with regards to years with RDRS, loans and trainings, are reduced to just two dimensions.

Gender and labor dependency

How the households are distributed in those two dimensions, however, is no trivial matter. RDRS has consistently endeavored to raise opportunities particularly for poor women; its group approach has the longest tradition with landless laborers and very small farmers, most of whom sell labor during some of the year; and it has, for over ten years, supported Union Federations and has sent them newly graduated groups. The relationship between Federation support and household-level economic opportunities, however, is not straightforward; at times, RDRS reserved the major part of its frontline worker energies for the primary groups, believing that the secondary groups could be benefited through their Federations.

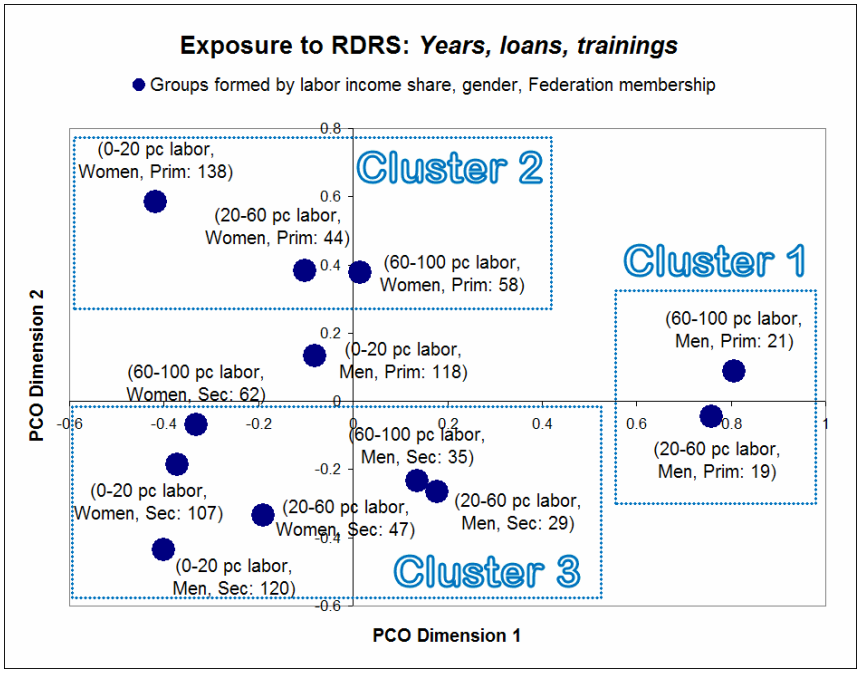
Breaking down the labor dependency into three ranges – 0-20 percent of the household income from labor, 20-60 percent, and 60-100 percent -, and combining with gender and group status, each sample household can be placed in one of 3 x 2 x 2 = 12 groups. When these are projected onto the similarities regarding years with RDRS, loans and trainings, the distinct pattern marked out in the full-page diagram surfaces.

Figure 4: Similarity among 12 groups with regards to RDRS program exposure



The 12 groups can be condensed into three clusters as in this diagram:

Figure 5: Clusters with regards to years with RDRS, loans and trainings



The first cluster is small; it consists only of the 19 + 21 = 40 male primary group member households with 20 percent or more of their annual income from labor sale. But this cluster is the most isolated from the others.

Cluster 2 embraces all the female primary group member households in the sample.

Cluster 3 roundly embraces all the sample households who are Federation members, regardless of gender and labor dependency,

Finally, there is an odd-ball group – the 118 households found among male primary groups and who sell little labor – sandwiched between two clusters.

Clusters and program participation

The meaning of these clusters becomes evident when they are translated back into their average years with RDRS, numbers of loans and numbers of trainings. This is done in the following table.

Table 3: Clusters with lowest and highest participation

Cluster	Characteristics	Sample	Years	Trainings	Loans
1	Men, primary, >20% labor	40	8.55	0.25	1.80
2	Women, primary	240	7.31	0.66	2.84
3	All secondary	400	10.56	1.05	2.48
Between cluster 2&3	Men, primary, <20% labor	118	8.08	0.83	2.46
All		798	9.12	0.86	2.55

- The labor-selling male primary group member households in cluster 1 have been with RDRS for longer than other primary group members, yet have received fewer trainings and loans than these. Whether RDRS disfavored them because of their weaker status, or rather they themselves were more cautious in contracting obligations and thus seized fewer opportunities to diversify out of labor-selling cannot be determined with this data.

- The 240 member households in women's primary groups are the ones with the fastest loan careers, as seen in the ratio of loans to years with RDRS. The age distribution of their groups suggests that they belonged to a vast swath of female groups, formed between 1994 and 1999, into which loans were pumped liberally during the rapid expansion of the micro-finance program.

- Cluster three - households from secondary groups – continued to receive trainings, proportionate to their years with RDRS, after they were graduated. The RDRS Social Organization unit's training schedules provided the access. Their access to loans progressed more slowly.

Finally, the male group-related households with little labor selling hold a middle position in all respects. The point is that once we identify the latent pattern in the count variables – years, loans, trainings -, the combinations formed on the basis of categorical variables – gender, group status, labor dependency – arrange themselves in a simple and meaningful way. Ultimately, and despite large individual variability, the structure is so simple because the organized poor and the RDRS program structure co-evolved hand in hand.

In a purely descriptive way, it is easy to compute the typical incomes of the 12 participant-type groups, as well as the percentage of their populations who survived on less than US$ 1 per day.

Table 4: Incomes and extreme poverty by participant type

Cluster	Participant type	Sample	Median 2002 household income (Taka)	Extremely poor
1	20-60 pc labor, Men, Primary	19	21,550	38%
	60-100 pc labor, Men, Primary	21	16,200	70%
2	0-20 pc labor, Women, Primary	138	31,550	18%
	20-60 pc labor, Women, Primary	44	31,000	43%
	60-100 pc labor, Women, Primary	58	18,100	66%
3	0-20 pc labor, Men, Secondary	120	36,700	16%
	0-20 pc labor, Women, Secondary	107	31,000	19%
	20-60 pc labor, Men, Secondary	29	20,950	33%
	20-60 pc labor, Women, Secondary	47	24,600	46%
	60-100 pc labor, Men, Secondary	35	21,000	50%
	60-100 pc labor, Women, Second.	62	19,500	49%
In-betw. 2&3	0-20 pc labor, Men, Primary	118	37,810	15%
All		798	28,660	30%

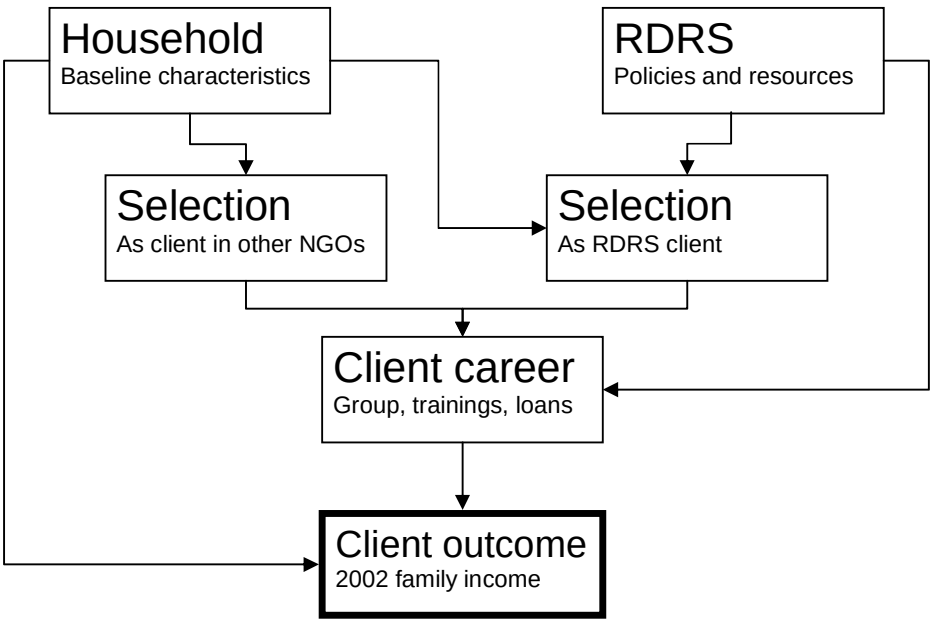
Note: Income and extreme poverty estimates in this table are weighted by family size.

Differences are conspicuous, particularly by gender and labor dependency. They are major *within* each cluster. Thus, while the clusters aptly summarize the relationship between client background and participation, they do not explain differences in program outcomes, as measured by annual incomes. For this, we need to turn to a more plausible model and to the limits within which it can be estimated with the 2003 Impact Survey data.

RDRS and the incomes of the poor

A simple conceptual model, for an environment like northwestern Bangladesh, where poor families enjoy some limited choice of working with RDRS and with other NGOs, is captured in this diagram:

Figure 6 : A conceptual model to explain income differences



A household, with certain characteristics some years before our survey (the baseline year), is at risk of being recruited into the clienteles of RDRS and/or other NGOs. If it is selected, it will follow what the sociology of service organizations sometimes calls a "client career". Specifically, it will receive zero, one, two or any number of loans and trainings (and may remain exposed to offers of more). Some of its members will spend time in meetings of a group of a certain kind, such as the RDRS primary and secondary groups. When the annual income is measured at survey time, the respective influence of baseline characteristics, NGO memberships, and program participation/exposure can be estimated. The impact of years with RDRS, as well as of loans and training from RDRS, will then speak to the effectiveness of RDRS programs.

Loss of baseline information

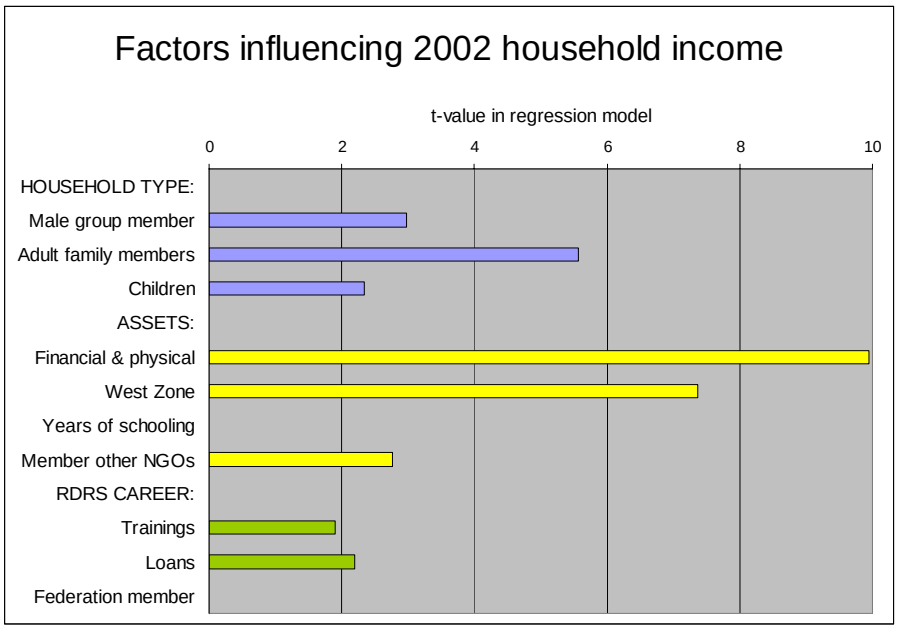
Such an ideal world, unfortunately, is not at the reach of the RDRS monitoring system. The group member household baseline information was lost when numerous field organizers stopped, in the late nineties, to maintain the books kept by the groups. Even if it had been preserved, the information would have been restricted to households that, at some point in time, were actually recruited into RDRS. In either case, we lack a comparison group composed of non-RDRS households. In other words, the effect of the baseline on the probability of selection by RDRS is not known. The selection effect remains uncontrolled.

Instead of the ideal data situation, we need to settle for one in which some of the contemporary characteristics are used as a baseline substitute. In particular, we take the value estimated for the 2003 household assets as a proxy for what the asset situation may have been at the time just before joining RDRS. This, of course, is highly unsatisfactory – for, if the RDRS programs have been effective, then some part at least of what the household owned in 2003 was the result of earlier RDRS program outputs. But it does enable us to see whether any significant RDRS program effects persist once the missing baseline has been taken care of by its substitute, the 2003 assets.

Surrogate model

The following diagram offers a didactic summary of the relative strength with which the program variables affected the impact in point: the household's income in 2002. It is didactic in the sense that bars are shown only for variables with statistically significant effects, and we do not want to engage in an academic discussion of this representation as compared to others (such as marginal effects or standardized coefficients).

Figure 7: Factors influencing 2002 household incomes



As readers will expect, in an economy that provides formal employment to a small minority of earners only, the value of the household's *own financial and physical assets* is the strongest determinant of its earning ability. Location (due to the stronger disaster proneness and poorer local economy of the eastern program area) is another well-known strong factor. More years of schooling, however, did not help the sample households earn more (Note, however, that education is helpful in developing alternatives to labor selling, which is important in the context of vulnerability reduction).

These and the household variables are primarily important as controls in the context of what is at the center of this study: RDRS program outputs and outcomes. Both *trainings and loans* exercise statistically significant effects on the annual income even when household assets are taken into account. Federation members pay a price in that, other things being equal, they earned less than primary group members, but this is not statistically significant. We believe that this is a double effect from selection and program peculiarities. Many Federation members in 2003 had been members of primary groups that were formed before RDRS expanded its micro-credit program rapidly. They used to be of poorer means than the households streaming into newly set-up primary groups in the second half of the 1990s. Also, as mentioned earlier, the secondary groups did for some time not enjoy the same amount of frontline worker attention as the primary groups.

Program effects

The significant effects of loans and trainings above and beyond the asset strength of the households remain the key finding. It is important to note these effects are *in addition* to those from earlier RDRS-facilitated asset acquisitions. Since a large part of these must be contained in the value of the assets that the household reported for the survey year[3], the additional effects are

[3] One of the disturbing imperfections of this model is that it uses incomes estimated for the calendar year 2002, and the value of assets for the time of survey, i.e. spring 2003. However, it is not feasible to ask respondents to recall the value of assets for some theoretically meaningful point of time in the past, say, end of 2001. This reversal in the appropriate timings of these two variables may bias estimates because asset changes *during* 2002 were probably correlated with the incomes of that year.

modest. Considering also the Federation penalty (the cost of being shoved to a temporarily neglected secondary group), the income gain from all RDRS trainings and loans was about 8 percent in the 2003 sample average. To give another illustration, had a typical sample household, with average assets and client career, followed one more training, it could have expected to earn about 3.4 percent more in 2002 – or roughly Tk. 1,000.

At the level of an 8 percent mean income effect, it can be calculated that about 18 percent of *extremely poor* persons in the participant population have been led out of that condition, i.e. moved up across the "one dollar a person a day" line. However, this is an unrealistically low income effect estimate, as we indicated earlier. A more realistic one, say, mid-way between that and the overly ambitious one implicit in the Partners' Meeting presentation (40 percent), should be used. At, say, an assumed 20 percent effect, RDRS would have reduced extreme poverty among its participant households by one third.

Membership in other NGOs

An effect that deserves special attention is the association between membership in other NGOs and higher incomes. Only 15 percent of the sample respondents admitted that they were clients of other NGOs. RDRS observers commonly believe that the real percentage is much higher, not only for the respondents themselves, but particularly when the affiliations of other household members are counted. What is known from the sample responses, however, is that no less than *40 percent of all memberships* reported with various organizations and committees are with other NGOs. It may be that NGOs provide more opportunities than other types of local associations do for poor people to grow social capital – one of the reasons why RDRS is attractive to them. Although only one question was asked about membership with other NGOs, and only in a simple yes/no format, eliciting fairly unreliable answers, the significance for annual household incomes is as strong as that of the RDRS training and loan variables. These memberships may be more frequent and more productive for RDRS clients than hitherto thought of.

Case # 2: Mominuddin, who started a local savings-and-loans group

Purba Shap Khaowa is a small village in Raiganj Union. Mominuddin (37) is a resident of this village. Momin is married and the father of one son and one daughter. He is quite well known in his community. Anybody in the local bazaar can guide a stranger to find Momin. Momin, who had many ups and downs in life, is smart and hardworking.

Momin lost his father in early childhood. Due to financial crisis, he could not go far with his studies. He had to start his carrier as a day laborer. This was his only means of income for many years. One day in 1994, he was introduced to a RDRS worker who made him knowledgeable about RDRS organized groups. Though he had heard about such groups earlier, his interaction with RDRS staff made him understand the purpose and benefit of association with such groups. Naturally, he showed his interest and ultimately became a group member. He took to attending weekly meetings and to saving regularly. He was still a laborer.

In 1995, Momin entered a new life. He got married. His wife was from a nearby village. Momin's father-in-law gave him Tk. 3,000 to purchase a rickshaw, and thus he became the owner of a rickshaw. His income trend went up. Also, Momin managed to get Tk. 1,500 as a loan from RDRS. He invested this money as a share in some local business and earned some profit. At the end of the year, he had reasonable money in hand from multiple income sources and purchased 10 decimals of land.

Momin had his first child in 1996. Looking at the smiling face of his baby, Momin found added inspiration for more work and more money. His hand work kept the income level steady. In 1999 he had his second issue. By then Momin showed up as one of the active members of the group. Because of his regular

participation in group meetings and discussions, he became a socially aware person. As a result, he did not want to have another child.

In 1997 Momin received training in goat rearing. By that time, as an active member, he had obtained four loans from RDRS. He spent part of the money for the reconstruction of his house. He as a group member received basic record keeping skills. In course of time, due to conflicts among members, the group became disorganized. For the last four years it has been inactive.

While Momin was with RDRS, his wife became a BRAC group member. She took a Tk. 7,000 loan from this NGO. With this money the family purchased a rickshaw van. Momin then rented out his old rickshaw, which has earned him handsome money. Momin himself pulls the rickshaw-van and earns around Tk. 9,000 a year. Simultaneously he works in shallow tubewell installations, an activity that earns him another Tk. 7,000 a year. As Momin found multiple avenues of business, his income grew significantly.

Life is not a bed of roses. Nobody but Momin feels it so strongly. He had to struggle a lot to reach his current station. He feels that his association with a RDRS group helped in many ways to step forward. Therefore he felt the need to remain associated with some formal institutions. Out of his own initiative and with some other like-minded fellows, Momin established a laborers' cooperative group. Presently it has 171 members. Momin is the cashier. The members save Tk. 20 per month. The group has an office in the bazaar. Momin dreams that one day this group will emerge as a large organization which will render services to the poor people.

RDRS and income diversification

The optimal income diversification strategy for a household is to decrease its labor dependency. Again, it is the value of the financial and physical assets that has the largest influence on the income share from labor – it takes resources to found and operate one's own farm and off-farm businesses. Some of the assets will have been acquired and protected with help from RDRS, but the interesting question is whether, above and beyond the household characteristics and assets, the RDRS program outputs have caused participant households to open and maintain income sources other than labor.

The answer – at this point – is "*Very little*". In the regression models, the effects of loans and trainings do point in the right direction. That is, more loans or trainings push households towards other income sources. But this effect is not statistically significant. For example, in one of the models, if the typical household in the sample, with average assets and RDRS client history, had received another loan, it could have expected to lower its income share from labor by about 2.4 percent. This is not enough to make the effect robust. Instead, we find that formal education takes on a significant effect. For every additional year of schooling, the share from labor diminishes by 3.5 percent.

Federation penalty

Moreover, there is a significant Federation penalty. Secondary group members, other things being equal, draw 15 percent more of the annual incomes from labor sale than do their primary group counterparts. Again, we believe that this is a combination of selection and program effects, as earlier explained for the *size* of annual incomes. As regards the income *composition*, these effects are strongly significant.

Similarly, when we investigate what drives the non-farm business share in the incomes, participation in RDRS program appears irrelevant. Education and membership in other NGOs, however, send up that fraction. There may be an indirect effect at work, almost perverse from the

RDRS viewpoint: Over time group work, trainings and loan discipline acquired in RDRS groups may have helped build the skills to become a successful member of other NGOs.

The income shares from service and from other sources do respond to the number of trainings from RDRS. But service holders are a small minority, and "other income" is a residual category whose substantive composition is not known. Particularly with service holders, the causal direction is open to guessing; they may have been better positioned to get themselves selected into RDRS trainings.

Are RDRS participant households less vulnerable?

If we humbly admit that our models are makeshift, and the measurement error in our data may be considerable, these findings should not worry us too much. With repeated surveys of the same households, new insights may arise. However, they do mean that RDRS cannot yet prove that some of its major outputs – social organization, loans and trainings – have reduced the *vulnerability* of the poor via income diversification. This is different from what the data seem to suggest on the *size* of incomes in a given year, where program effects go beyond the asset effects.

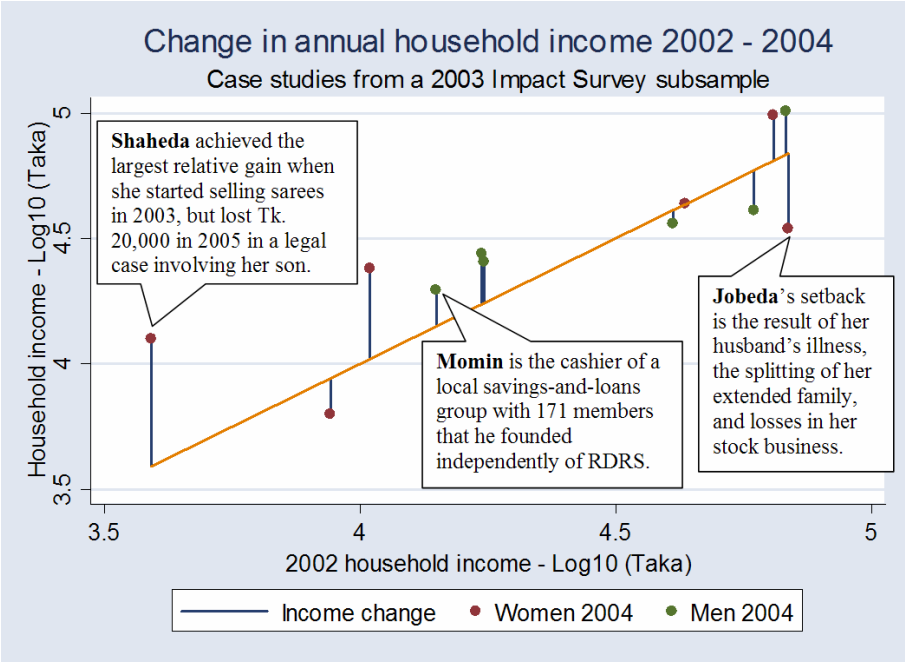
In a more practical language we may say that if the household loses assets (e.g. through a family disaster), the RDRS client career will not protect it from the consequent income losses. There is no insurance component built into trainings and loans, and none into the Federation membership that we might be able to observe with the survey data. Households self-insure; they build assets, including with RDRS help, and these assets help them open new income sources.

Twelve case studies

A small number of case studies were carried out to substantiate this point. In March 2005, RMEU monitors re-visited 12 respondents of the 2003 Impact Survey in Kurigram district. They conducted detailed interviews that began with open questions eliciting major changes in the households' welfare since 2003 and proceeded to estimate the 2004 household incomes using the same categories as in the 2003 interviews. This sub-sample was selected randomly 6 plus 6 from the lowest and highest 2002 income quartiles. The extremes were chosen in order to form contrasts given the small number of cases. 2004 annual incomes for them ranged from Tk. 6,300 to Tk. 101,000.

When these incomes are discounted by 5 percent inflation each for 2003 and 2004, 7 out of the 12 case study households have seen their incomes rise. The other five experienced a setback compared to their 2002 incomes. The income mobility expressed in these figures is considerable. The mean absolute change is 62 percent. The most static income changed by 10 percent; the most dramatic change was 192 percent, a tripling of the 2002 income. This was achieved by a poor woman, Shaheda, who had joined an RDRS group in 1993. She, and two others whose recent life changes we detail in sidebars, are identified in the following diagram.

Figure 8: Case studies of income change from a 2003 sub-sample



The incomes displayed in the above graph were expressed in logarithms, a concept that may not be immediately intuitive, but has both presentation and theoretical advantages. Regardless of the mode of presentation, the question that arises in the context of household vulnerability sooner or later will be: *How are changes in total annual incomes and in the mix of income-earning activities related?* Specifically, much as we noted the correlation between labor dependency and poverty for 2002, is this expressed also in the changes that took place between 2002 and 2004?

In-tandem changes in incomes and labor dependency

We consider this question, by way of examples, for those in the 12 cases for which some change in the income share from labor selling between 2002 and 2004 occurred. This is true of five of them. As far as these go, a perfect rank-order correlation between the changes in focus leaps to the eye. Two respondents, Josna and Aklima, mark the extremes. Josna's husband was a carpentry hand in 2002; by 2004 he had started his own shop. Plus, with a Tk. 4,000 loan from RDRS, Josma began a small rice husking operation in 2004. By contrast, Aklima was a poor share-cropper in 2002. By 2004, she lacked the means to share-crop any land and was almost totally dependent on work as a household servant.

Table 5: Examples of changes in incomes and labor share

	2002		2004		Change	
Respondent	Income share from labor	Total household income	Income share from labor	Total household income	Income share from labor	Total household income
Josna	92%	10,460	11%	23,930	-81%	13,470
Shaheda	62%	3,900	24%	12,565	-38%	8,665
Shawkat	21%	17,500	8%	25,456	-13%	7,956
Momin	0%	14,100	38%	19,650	38%	5,550
Aklima	22%	8,750	95%	6,300	73%	-2,450

These findings need to be linked to program participation. To what extent RDRS loans made out in 2003 and 2004 may have helped to stabilize or even significantly improve incomes is difficult to say on the basis of 12 re-surveyed households only. Only four in this sub-sample drew any loans during this period of time; the amounts were modest, from Tk. 2,000 to Tk. 12,000. But the two women who borrowed Tk. 12,000, resp. Tk. 10,000 both decreased the labor dependency of their households and increased incomes vastly over the two years. In none of the major life-change narratives that the 12 respondents created with the RMEU interviewers did any hint appear that RDRS made out a loan specifically and promptly in response to a sudden loss of income or assets. In other words, loans did not stand in for insurance, at least not deliberately. RDRS has tended to deal with such situations distinctly, through relief. For example, two households in the sub-sample had lost property in a flood; they received donations of food and clothing.

This is an area that needs further investigation; and the proposed re-survey of this sample during 2005 will respond to it in some degree. Our point of departure regarding vulnerability was that data collected at one point in time – the 2003 Impact Survey – cannot identify a statistically significant decrease in labor dependency in response to more loans and trainings from RDRS. A re-survey will offer at least two measurement points. Despite their small number, it emerges from the case studies that certain types of major life changes will need to be featured in the interviews (and subsequently graded by severity) in order to come to terms with household vulnerability. They include

- Severe illness and medical expenses
- Litigation and out-of-court settlement costs
- Property loss in natural disasters

in addition to the more obvious shocks caused by loss of a breadwinner and asset disposals to raise dowry. On the positive side, the multiplication of other NGO memberships (6 or 7 in 2005, up from one in 2003, in the twelve case study households) and the successful re-linking of participants to active RDRS micro-finance customer groups are vulnerability-reducing processes.

Policy implications

Income diversification

Almost any support for income earning opportunities that reduce labor dependency may also help to reduce poverty. There is an important qualifier - "almost"; there are a number of sample households stuck in unprofitable businesses and therefore in poverty although technically the household heads are largely self-employed. Anecdotal knowledge of the careers of successful participants – notably Federation executive committee members who have been interviewed in other contexts – suggests that exit from the vulnerable zone is gradual, involves numerous, sometimes radically new economic activities, as well as repeated loans and trainings. The contents of some of the trainings hardly relate to any reported contemporary or subsequent income earning activities, but the mantra among RDRS clients is that *"as a result of so many group meetings and trainings, I became aware of, and came to understand, so many things"*. Some of these then led to new economic avenues.

Mystifying as it may sound, many of those effects may be largely indirect. For many participants, trainings may impart marginal effective skills, but they serve to hold the participant on the radar

screen of the RDRS micro-finance program and in technical extensionist circuits. As indicated earlier, the number of trainings from RDRS may confound two things: *participation* in observed programs as well as *exposure* to other programs, participation in which may not occur, or may occur but go unobserved by the monitoring system. Practically, one of the program mechanisms that may help to make participant careers more productive (and more attached to RDRS) is to quickly review groups disqualified from fresh loans and attach non-defaulting members to other groups where they can continue borrowing.

Other NGOs

Affiliations with other NGOs are probably more pervasive than commonly thought in RDRS. The measurement of how many households have memberships through the RDRS group member himself, and how many through family members may be imprecise, but ultimately also rather irrelevant. Traditionally, and more so in the micro-finance competition context, such affiliations were assumed to be with outsider NGOs expanding their hold in the RDRS working area and were seen in a negative light. However, local NGOs too have begun offering more opportunities. This includes the RDRS Federations, which increasingly conceive of themselves as local NGOs, and spontaneous local associations such as the one started by a former RDRS group member, Momin, mentioned in case study #2.

Development is largely about choice; and once the density of civil society crosses certain critical levels, holding participants captive no longer works, or only at a considerable cost to them as well as to RDRS. Membership in other NGOs has significant income effects for RDRS participant households, and policies should be found to facilitate them in well-understood self-interested ways while opening RDRS more widely also for clients of other NGOs.

Federations

The "Federation penalty", the comparative neglect of secondary groups in the allocation of program outputs, should be abolished if it exists as a real obstacle, not only as a statistical artifact. Informally, this may already happen. One of the twelve re-interviewed 2003 Impact Survey respondents, a secondary group member who attends Federation meetings, was quietly asked by a credit organizer to also join a primary group and receive fresh loans here. Secondary groups should qualify for loans and trainings on equal footing with primary groups, without repeating the previous mistake of involving their Federations in loan management.

In the context of household vulnerability, one of the most effective contributions that Federations and the RDRS Federation support program can make is to aggressively strengthen the dispute resolution skills and linkages, so as to contain litigation, whose cost is disastrous for the poor.

Insurance

In the context of the 2006 – 2010 strategic planning exercise, the idea of insuring the poor against some types of economic shocks should be brainstormed across the levels of the organization. This may not immediately lead to practical ideas resulting in the "selling of insurance policies". But the idea of insurance for the poor has been advanced lately in international donor circles, such as by the World Food Program for farming populations in regions that are frequently stricken by drought. It may be advisable to keep a "watching brief" on such developments and send out early feelers if and when such concepts and specific donor initiatives can be docked at RDRS program elements.

The outlook for Impact Surveys

The Rangpur-based RMEU unit has proven itself able to conduct systematic sample surveys, to refine some of the concepts and instruments (such as the annual income estimates), and to analyze the data with the means of descriptive statistics. One of the samples was replicated; the 2000 household sample was re-surveyed in 2002, with about 15 percent sample loss. On each of the four surveys, the unit produced at least a highlights report. Also, as mentioned earlier, it presented descriptive results for special occasions such as the Partners' Meetings.

Competencies and limits

There are a number of limitations and distracting forces militating against the further growth of this tradition:

- While the existing RMEU staff may well have the strongest skills, within the entire RDRS set-up, in survey design and analysis, and are rivaling their micro-finance colleagues in data management skills, their capacity to analyze data beyond descriptive statistics is very limited, and studies like the present one may not be sustainable with Rangpur resources.

- Also, it is doubtful whether past Impact Survey findings were consumed much beyond Dhaka, Rangpur and donor meetings. By contrast, RMEU is very much appreciated, and often invited, by project area staff for the small studies that the monitoring officers, sometimes at their personal initiative, conduct on specific program topics, resulting in neat, easily assimilated short reports in Bangla.

There is also a change underway in the philosophical environment of the monitoring activity. Demands for participatory monitoring and evaluations have grown stronger, from the RDRS partners and in the wider development community. RDRS has accepted this in principle although there is widespread confusion over how these approaches can be accommodated in its organizational culture and with the coordination burden that the multiplicity of bilateral projects has created. It is possible that competences of the RMEU staff will be harnessed to the diffusion within RDRS of assessment tools that are considered more participatory, leaving less capacity (and inclination) to conduct extractive-type data collections. The Federations may offer an experimental conduit for participatory monitoring initiatives.

Combining traditional and participatory approaches

There is an alternative combining both approaches. Participatory research methods, even assuming that they can be successfully built up in RDRS, always struggle with the problem of representativeness. This is evident, for example, in the human-interest stories that RDRS has been using in so many of its public communications, and which do contain a participatory element in as much as the persons portrayed volunteered narratives of their lives and work with RDRS. These are usually shining success stories, and it is not obvious to what extent they are typical of the larger class of participants in similar condition.

One of the strategies for dealing with the double challenge of representativeness and participation is to use traditional representative sample surveys as the sampling frame for qualitative research and for subsequent participatory activities. For a highly relevant general question – such as poverty and vulnerability – the sample survey format should be continued, using structured questionnaire interviews. This activity may result in more specific questions that the survey data itself does not answer. To an extent, these can, and need to, be addressed through

re-surveys of the full sample, in order to provide a measurement of change and to run critically needed new variables. However, it is often cheaper and faster to draw a small sub-sample of the surveyed population, such that contrasts on the question of interest are formed. These sub-samples can be efficiently re-surveyed, using whatever tools may be appropriate. Once the re-survey has been evaluated, the respondents can be invited to further explore the issues in a more genuinely participatory format.

Re-survey in 2005

With immediate regards to the 2003 Impact Survey, this sample of participant households should be re-surveyed in 2005, with an emphasis on the 2004 incomes, 2003 – 2004 program participation and on those major life changes that are important in the vulnerability context. If feasible, the assets should be re-estimated. Major life change questions may have to be translated to a number of standardized questions, more so than in the 12 case studies that the monitors conducted in March 2005. NGO and Federation involvement may also warrant some more clearly defined probing.

Following a detailed analysis of income *changes*, more specific questions, inspired by the survey analysis as well as by other discussions in RDRS, can then be investigated in a train of (RMEU-led) intensive small sub-sample studies. These can be followed up with events that involve the respondents, their RDRS frontline workers and local Federations in focus groups and other participatory formats. For example, the Thetray Union Federation, in Kurigram district, is planning to conduct a census of poor households in the Union. RMEU and Social Organization staff may be able to support such initiatives, without smothering the leading role of local groups.

Changes in micro-finance, re-assessment in 2006

In the longer run, the Impact Surveys may need to be reformulated as other important parameters change. One of them will be felt if and when RDRS achieves the migration of micro-finance customer identities from groups to individual borrowers. This will offer a much richer sampling frame than the existing primary and secondary group listings, which are now fast becoming obsolete. This transition may be completed by 2006.

This should then also lead to a re-assessment as to which types of survey designs, analyses and dissemination activities RDRS can be sure to manage for relevant results. Taking into account also the response from the Partners, the RDRS management and field staff survey consumers, the whole complex of social research, monitoring and evaluation will likely need a thorough review around 2006 or 2007.

In this, the capacity for, and organization of, monitoring, and adequate financial and manpower provisions will have to be looked at more seriously, given the almost inflationary demands that are made on this function. RDRS, with approx. 2,000 staff, relies on an eight-person general-purpose monitoring cell plus a small number of single-person monitoring support arrangements within some of the functional programs. By way of comparison, a well known international NGO, employing some 500 field staff for its Rangpur – Dinajpur regional programs, affords a monitoring and research cell with 26 staff in Rangpur. This sumptuous endowment may not be appropriate for an NGO committed to cost-effectiveness like RDRS, but it contributes to raising standards. These, via common donors, bounce back onto RDRS as a normative expectation to upgrade its monitoring products in terms of timeliness, quality and philosophical orientation. The tension between resources and ambitions is enormous, in program output as much as in the kind of self-observation that can speak to program impact.

Methodological notes

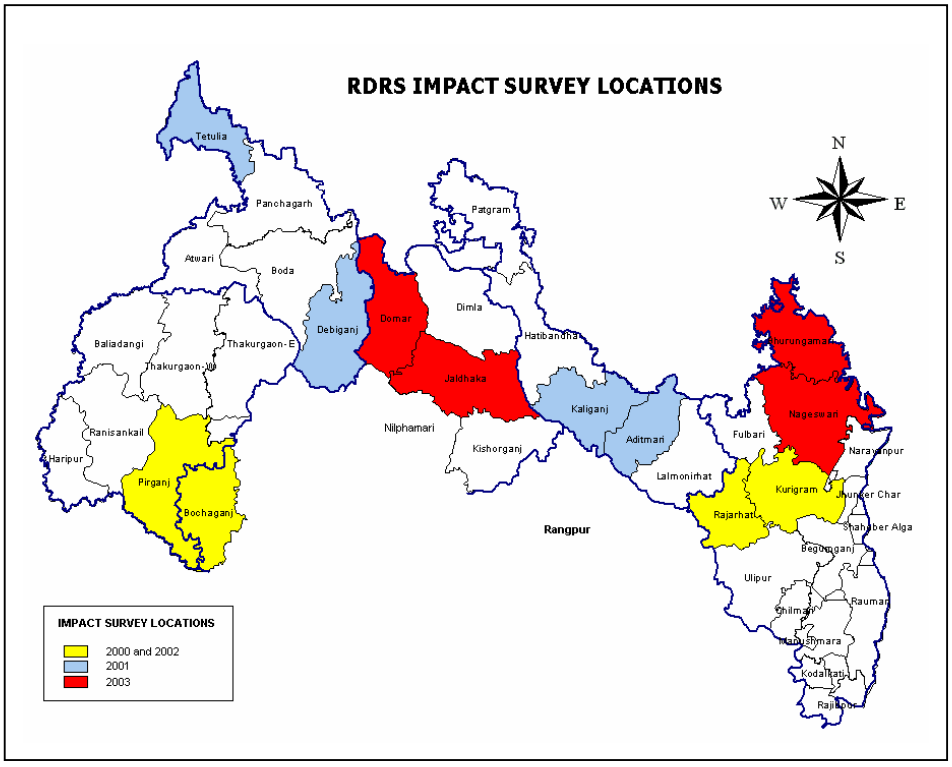
Impact Surveys

Past data collections

Impact survey data was collected in each of the years 2000 – 2003. As mentioned earlier, the 2002 survey was a re-survey of the 2000 sample. A conjoint analysis has not been done. In each wave, a respondent each from close to 800 group member households was interviewed using a structured questionnaire. The sampling procedure is explained, by way of example, for the 2003 survey further below.

The following map highlights the Upazelas in which the data was collected. The fact that several times Upazelas selected in a given year are contiguous is accidental.

Figure 9: Impact survey locations, 2000 - 2003



The 2003 sample

Planned

Each of the four Impact Survey waves aimed at 800 RDRS member households. The sample size was determined by capacity, not estimation considerations. Households were sampled from lists of all RDRS primary and secondary groups that RMEU obtained from the micro-finance project. Groups with less than three years with RDRS were excluded.

From the remaining list, the sample was drawn as a stratified multistage random sample. Strata were formed on disaster vulnerability (proxied for by the East and West Zones - the zones formed by cutting the crescent-shaped working RDRS area along the river Teesta) and on group status. Each stratum was to have 200 units.

In each zone, one of the project areas was randomly selected, and within it then two Upazelas (sub-districts). Within a selected Upazela, 5 Unions were selected, within each Union 20 groups and within each group two member households. In other words,

Projects	1 from each zone	2
Upazelas	2 from each selected project	4
Unions	5 from each selected Upazela	20
Groups	20 from each selected Union	400
Households	2 from each selected group	800

The size of the sample frames at a given level varied. For example, there were 16 Upazelas in the West Zone (counting Thakurgaon East and West as two), and 13 in the East (counting the entire Char Development Program area as one artificial Upazela). The average number of Unions in an Upazela was 9. The mean number of listed groups per Union, for the 5 Unions selected in Bhurungamari Upazela for example, was 61. The mean number of member households per group in the Bhurungamari 5-Union sampling frame was 17.

Realized

RMEU staff returned surveys of 798 households totaling 4,150 household members, after replacing unavailable group members or defunct groups ad-hoc in the field. 776 of these produced listwise complete information for the regression models.

Annual income estimation format

The following pro-forma, plus some footnoted instructions, was part of the questionnaire. Net income was transferred to the database for each of the 13 categories. For this study, categories # 1 - 6 were lumped together as farm-based income, # 7 and 8 as off-farm business income, and # 11 – 13 as other income.

Figure 10: Annual income proforma

Annual household income (last year income in Taka)

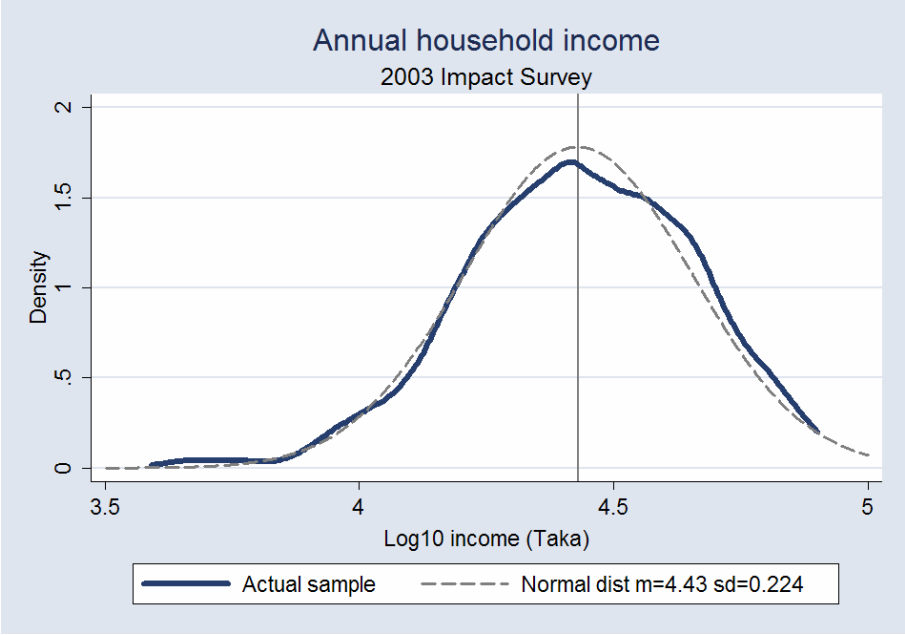
Income source	Involved family members	Gross income	Production/ Operational cost	Net income
Home-gardening				
Tree-product sales				
Crop production				
Livestock rearing				
Poultry rearing				
Fish-culture				
Off-farm IGA				
Small business				
Service (salary)			[x]	
Labor sale (wage)			[x]	
Rental income				
Remittance			[x]	
Other				
Total annual income	-	-	-	

Logarithmic representation of annual household incomes

Many income distributions follow a lognormal shape, in other words, the logarithm of the income is normally distributed. As a crude notion, it may be said that this distribution evolves because incomes result from random walks that are multiplicative, not additive. All other things being equal, the chance for A to see his income of Tk.50,000 rise to Tk. 60,000 next year are the same as for B with Tk. 100,000 to move to Tk. 120,000 – not just Tk. 110,000.

The distribution of the 2002 incomes in the sample indeed closely follows a lognormal distribution, as this graph demonstrates.

Figure 11: Logarithmic representation of the income distribution



Because the incomes are lognormally distributed, the log income is used in many regression models with income as the dependent variable. Even when such models are not produced, the use of logarithms in graphs may be preferable because they highlight changes at then lower end of the distribution better than absolute-scale graphs do.

To calculate the percentage change in two incomes (e.g. 2004 vs. 2002) when only the logarithm of the ratio is reported, we exponentiate as follows:

$$(y-x)/x = (10^{\log10(y/x)} - 1) * 100\%$$

Survey estimation

Assuming relatively high measurement error in annual household incomes and in income shares by activity type, the considerable effort of calculating probability weights from the sample frame was not considered worthwhile. Survey estimates were not done, but the group identity was used as a clustering variable in the regression models. For these reasons, confidence intervals are not used in the main body.

Statistical output

Regression models

Descriptive statistics

Dependent variables

```
              storage  display     value
variable name   type   format      label      variable label
------------------------------------------------------------------------------
AFI             long   %12.0g                 Annual family income (total)
logAFI          float  %9.0g                  Annual household income (log10)
                                                - Taka
SFI_LS          float  %9.0g                  Income share from labor sale
SFI_LScat       float  %14.0g      laborsharecat
                                               Income share of labor cate

Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         AFI |       798    30501.94    15110.52       3900      79800
      logAFI |       798    4.430046    .2240424   3.591065   4.902003
      SFI_LS |       798    .2550877    .3412475          0          1

Income share |
      of labor |
      category |      Freq.     Percent        Cum.
---------------+-----------------------------------
  0-20 percent |        483       60.53       60.53
 20-60 percent |        139       17.42       77.94
60-100 percent |        176       22.06      100.00
---------------+-----------------------------------
         Total |        798      100.00
```

Independent variables

```
              storage  display     value
variable name   type   format      label      variable label
------------------------------------------------------------------------------
tot_train       float  %9.0g                  Total no. trainings
CR_SF           byte   %8.0g                  Loans received so far
GroupStatus     long   %9.0g       GroupStatus
                                               Group status
sex2            long   %8.0g       sex2       Gender
FMA             byte   %8.0g                  Family members (adult)
FMC             byte   %8.0g                  Family members (children)
log_assets      float  %9.0g                  Estimated assets - Log10(x+1)
YSCHOOL         byte   %8.0g                  Years schooling completed
ngo_oth         float  %9.0g                  Member of some other NGO
isWestZone      byte   %8.0g                  Is in the West Zone

with sex2:
           1 F (household is member in an RDRS women's group)
           2 M (household is member in an RDRS men's group)
```

Variable	Obs	Mean	Std. Dev.	Min	Max
tot_train	798	.8596491	1.035312	0	7
CR_SF	798	2.548872	1.390772	0	8
GroupStatus	798	1.501253	.500312	1	2
sex2	798	1.428571	.495182	1	2
FMA	798	2.736842	1.189001	1	9
FMC	798	2.463659	1.324627	0	8
log_assets	776	4.615544	.7618854	0	6.455932
YSCHOOL	798	2.442356	3.44537	0	13
ngo_oth	798	.1541353	.3613049	0	1
isWestZone	798	.4987469	.500312	0	1

OLS of the log annual household income

```
Regression with robust standard errors                Number of obs =     776
                                                      F( 10,   395) =   33.50
                                                      Prob > F      =  0.0000
                                                      R-squared     =  0.3313
Number of clusters (GNO) = 396                        Root MSE      =  .18343
```

logAFI	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
tot_train	.0143868	.0075589	1.90	0.058	-.0004739	.0292476
CR_SF	.0123065	.0056207	2.19	0.029	.0012562	.0233568
GroupStatus	-.0193401	.0142276	-1.36	0.175	-.0473113	.0086311
sex2	.0457407	.0153446	2.98	0.003	.0155733	.0759081
FMA	.033287	.0059834	5.56	0.000	.0215237	.0450503
FMC	.0122752	.0052431	2.34	0.020	.0019673	.022583
log_assets	.1085124	.0109087	9.95	0.000	.0870661	.1299586
YSCHOOL	-.0001781	.0022024	-0.08	0.936	-.0045079	.0041517
ngo_oth	.051672	.0187354	2.76	0.006	.0148384	.0885055
isWestZone	.1032304	.0140132	7.37	0.000	.0756806	.1307803
_cons	3.672308	.059021	62.22	0.000	3.556274	3.788343

Ordered logit of the income share from labor

```
Ordered logit estimates                           Number of obs   =        776
                                                  Wald chi2(10)   =     152.57
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -617.70661                 Pseudo R2       =     0.1465

                              (standard errors adjusted for clustering on GNO)
------------------------------------------------------------------------------
             |               Robust
   SFI_LScat |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   tot_train |  -.1122832   .0882336    -1.27   0.203    -.2852179    .0606515
      CR_SF  |  -.0596508   .0685882    -0.87   0.384    -.1940812    .0747796
 GroupStatus |   .5142769   .1744084     2.95   0.003     .1724427     .856111
        sex2 |  -.2700966   .1882066    -1.44   0.151    -.6389748    .0987815
         FMA |   .0969719   .0595359     1.63   0.103    -.0197163    .2136602
         FMC |   .1345941   .0615848     2.19   0.029     .0138902    .2552981
  log_assets |  -1.205018   .1410691    -8.54   0.000    -1.481509   -.9285281
     YSCHOOL |  -.1049091   .0304332    -3.45   0.001    -.1645571   -.0452612
     ngo_oth |  -.0157174   .2399275    -0.07   0.948    -.4859668    .4545319
  isWestZone |  -.5940599    .168824    -3.52   0.000    -.9249489   -.2631708
-------------+----------------------------------------------------------------
       _cut1 |  -4.795854   .7495764          (Ancillary parameters)
       _cut2 |  -3.747347   .7416608
------------------------------------------------------------------------------
```

In addition, Tobit regressions were run on the income share from labor, with zero and values close to zero as censuring points. These produced similar results to the ordered logit model. Clustering on the group ID, however, was not allowed. Other Tobit models were estimated, separately, for the shares from non-farm business, service, and other sources.

Principal coordinate analysis of participation variables

Using the algorithm developed by Fenty (2004), a principal coordinate analysis (PCO) was performed on

```
              storage  display     value
variable name   type   format      label      variable label
------------------------------------------------------------------------------
yearsRDRS       float  %9.0g                  Years with RDRS
CR_SF           byte   %8.0g                  Loans received so far
tot_train       float  %9.0g                  Total no. trainings
```

Years with RDRS was transformed to its square root to reflect the decay in the value of social capital. Untransformed, the years are distributed as follows:

```
Years with  |
       RDRS |      Freq.     Percent        Cum.
------------+-----------------------------------
          3 |          4        0.50        0.50
          4 |         36        4.51        5.01
          5 |         46        5.76       10.78
          6 |         76        9.52       20.30
          7 |         39        4.89       25.19
          8 |         72        9.02       34.21
          9 |        143       17.92       52.13
         10 |        171       21.43       73.56
         11 |        117       14.66       88.22
         12 |         20        2.51       90.73
         13 |          7        0.88       91.60
         14 |         52        6.52       98.12
         15 |          4        0.50       98.62
```

```
         16 |          9        1.13       99.75
         18 |          2        0.25      100.00
------------+-----------------------------------
      Total |        798      100.00
```

The results for individual and grouped data are similar and virtually the same for the non-recovered proportion of squared distances. “timeshrinkRDRS” is the square root of yearsRDRS:

```
. pco  timeshrinkRDRS tot_train CR_SF, id(RID)


           Principal Coordinate Analysis
-------------------------------------------------------------
Proportion of squared distance recovered in dimension 1    0.634
Proportion of squared distance recovered in dimension 2    0.302
-------------------------------------------------------------
Total proportion                                           0.936
-------------------------------------------------------------


. pco  timeshrinkRDRS tot_train CR_SF, group( laborgendergroupstatus)


           Principal Coordinate Analysis
-------------------------------------------------------------
Proportion of squared distance recovered in dimension 1    0.598
Proportion of squared distance recovered in dimension 2    0.350
-------------------------------------------------------------
Total proportion                                           0.947
-------------------------------------------------------------
```

Income effect calculation

In the absence of baseline information, the true income effect of participation in RDRS programs can be thought of as lying between the effects of two counterfactual models. In one, any difference related to levels of participation is attributed to the program. This assumption implies that at baseline time households were equal with regards to assets and other unobserved factors that influence incomes in subsequent periods. This leads to unrealistically high estimates.

In the other extreme, we assume that none of the assets used to produce income in 2002 was acquired or protected with assistance from RDRS. In this scenario, assets are thought of as being proportionate to the baseline assets (plus some error term). This produces unrealistically low estimates.

High estimates: Assuming no baseline differences

This estimate comes in two flavors. One is of the more normative kind, meaning that the default situation for RDRS participant households is that in the normal process of group formation and program involvement all will receive loans and training. Those who have not are in the pipeline; delays in proceeding to loans and trainings are either deliberate (minimum waiting periods or minimum savings requirements) or to be considered unplanned deviations from planned delivery. The behavioral estimate relies on the actual distribution of the sample population over groups defined by participation levels.

Normative estimate

The income effect is estimated as the difference in mean annual household incomes between households who had received at least one loan and one training and those who had received none of either. When the (unweighted) figures presented in the 2004 Partners’ Meeting are taken, this difference is 41% of the mean incomes of the unassisted households.

Behavioral estimate

The individual household incomes are taken. Their ratios to the mean income of the group of unassisted household are computed, and the (harmonic) mean of these ratios is taken as the estimate. The incomes and group mean are weighted by household size:

```
              storage  display     value
variable name   type   format      label      variable label
------------------------------------------------------------------------------
FMT             byte   %8.0g                  Family members (total)
anytrainRDRS    byte   %8.0g                  Received some training from RDRS
anyloansRDRS    byte   %8.0g                  Received some loans from RDRS
AFI             long   %12.0g                 Annual family income (total)
logAFI          float  %9.0g                  Annual household income (log10)
                                                - Taka
logAFIcompToN~p float  %9.0g                  Log ratio HH income to mean
                                                unassisted HH income

with 0 = No, and 1 = Yes in anytrainRDRS and anyloansRDRS.
```

The sample household population is distributed over four groups formed as follows

```
  Received |
      some |  Received some loans
  training |       from RDRS
 from RDS? |         0          1 |     Total
-----------+----------------------+----------
         0 |       189      1,645 |     1,834
         1 |        73      2,243 |     2,316
-----------+----------------------+----------
     Total |       262      3,888 |     4,150
```

and the comparison value is the mean income for the 189 in unassisted households:

```
. table  anytrainRDRS anyloansRDRS [w=FMT], c(mean AFI)
(frequency weights assumed)

--------------------------------
Received  |
some      | Received some loans
training  |      from RDRS
from RDS? |         0          1
----------+---------------------
        0 | 23391.693  29607.779
        1 | 30197.877  34660.631
--------------------------------
```

which is Tk. 23,392. Thus:

```
. gen logAFIcompToNoLoanNoTrainGroup = logAFI - log10(23391.693)

. summ  logAFIcompToNoLoanNoTrainGroup [w=FMT]
(analytic weights assumed)

    Variable |     Obs      Weight        Mean   Std. Dev.       Min        Max
-------------+--------------------------------------------------------------------
logAFIcomp~p |     798        4150    .0833207   .2229899   -.777997   .5329412
```

Exponentiating the mean, we obtain 10^0.0833207 = 1.2114924, or a high estimate of 21 percent for the income effect.

Low estimate: Assuming 2002 assets independent from previous participation

This estimate is based on the OLS regression reported on page 36. The RDRS effect on income is limited the combined effects of group status, loans and trainings. "GroupStatus" is coded 1 for the primary groups, and 2 for secondary; thus, the base value (primary) has to be subtracted as in:

```
gen RDRSeffect1= _b[ tot_train] * tot_train + _b[ CR_SF] * CR_SF +
      _b[ GroupStatus] * (GroupStatus - 1)
```

where the coefficients were

```
             |               Robust
      logAFI |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   tot_train |   .0143868   .0075589     1.90   0.058    -.0004739    .0292476
       CR_SF |   .0123065   .0056207     2.19   0.029     .0012562    .0233568
 GroupStatus |  -.0193401   .0142276    -1.36   0.175    -.0473113    .0086311
```

with _b[GroupStatus] = -.0193401 interpretable as the "Federation penalty" of about 4 percent mean annual income loss for the members. Note that this coefficient is not significant at $p < 0.10$.

```
Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
 RDRSeffect1 |       798    .0340412    .0261657  -.0193401   .1416129
```

which leads to 10^0.0340412 = 1.0815365, the 8 percent income effect reported in the main body.

Case studies

In a three-day field trip to the Nageswari sub-unit in March 2005, RMEU staff re-interviewed 12 respondents of the 2003 sample in that area. These were selected from the first and forth quartiles of the 2002 annual household income distribution.

Interviews had two major parts. In a first, open approach, major life changes since the first interview were elicited. They included everything that seemed important to the respondent as far as it concerned the welfare of his/her household and the relationship with RDRS – from the tragic side of having a paralyzed husband to the comic side of getting a brother supported for the Upazela Parishad elections when one's own candidates does not look good.

The second part re-used the 2003 survey proforma for an estimate of the 2004 household income. Its estimates in 13 activities were then compared, in front of the respondent, with the estimates for 2002 in the earlier questionnaire, and important changes were discussed at once. Causes, and sometimes rectification of estimates, were noted.

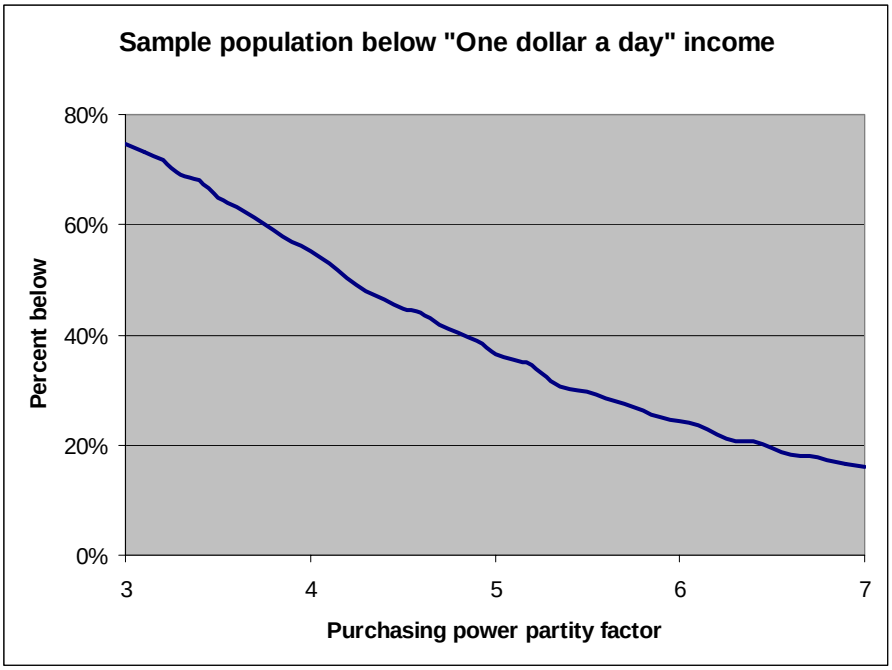
The income data was tabulated on return, resulting in, among other things, the graph on page 27. Life changes and other noted special circumstances were used in 1 – 2 page case write-ups, two of which the RMEU coordinator translated for this study. Other facts of interest were shared in the verbal debriefing and in subsequent conversations.

Simulations

Poverty line and purchasing power parity (PPP)

A simulation was run (using the MS Excel Table command) of the percentage of the 2003 Impact Survey household population falling under the US$ 1 per person per day income line. The exchange rate used was US$ 1 = Taka 60.

Figure 12: Sample population below USD 1 per day depending on PPP conversion

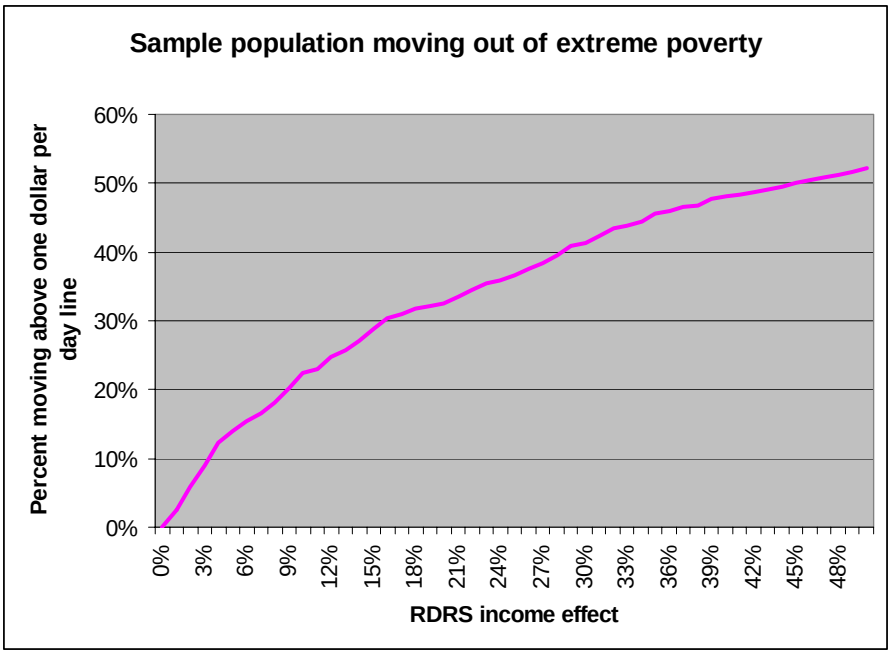


In further analyses, a conversion factor of 5.38 was used, as computed from a year 2000 statistic of nominal and adjusted Bangladesh per capita incomes found on the Web. This produced the estimate, several times used in the main body, of 30 percent of the sample household population being extremely poor.

Sample population moving out of extreme poverty

A further simulation was run of the number of persons who would be in extreme poverty if there income were discounted by an assumed average RDRS program effect on participant households.

Figure 13: Percent moving out of extreme poverty, given RDRS income effect



The reduction between the observed rate (30 percent) of extremely poor and the counterfactual (no RDRS; incomes therefore would be divided for every household by (1 + RDRS_income_effect)), expressed as ((simulated_rate – 0.30) / simulated_rate) has been graphed for the 0 to 50 percent income effect range. For an assumed effect of 20 percent, one third of the sample population has moved out of extreme poverty. For the low income effect estimate of 8 percent, a reduction of 18 percent is achieved.

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Rangpur and Dhaka, 6 April 2005

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