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The Hole at the Bottom of the Bucket: Household Poverty Dynamics in Forty Communities of the Peruvian Andes

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Abstract

Achieving the Millennium Development Goal of reducing poverty by half will require taking action simultaneously on two separate fronts. It will require helping poor people make an escape out of poverty. It will also call for stemming the flow of people into poverty. Descents into poverty have occurred alongside escapes in every one of the forty Peruvian communities investigated here. Different reasons are related, respectively with escapes and with descents. Making progress in poverty reduction will require accelerating escapes while simultaneously slowing down descents. Different policies will be required to serve these two separate purposes.

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A two-way flow of households has been found in investigations conducted recently in different regions of the developing world: some poor households have successfully made an escape out of poverty; simultaneously, some non-poor households have fallen into poverty (e.g., Baulch and Hoddinott 2000; Carter and May 1999; Deininger and Okidi 2003; Glewwe and Hall 1998; Hentschel and Waters 2002; Krishna 2004; Krishna et al. 2004; Sen 2003). Movements in both directions, upward and downward, are concurrently in evidence everywhere such investigations have been conducted. New poverty is being created even as old poverty destroyed, and the pool of people in poverty is constantly being refreshed.

Between August and October 2004, we undertook a study of household poverty dynamics in forty rural communities of the Andean highlands of Peru to ascertain how different households have fared over time in these regions. We utilized the Stages of Progress methodology, discussed in Section 2, which has been used earlier for similar studies conducted in different parts of India, Kenya and Uganda.

A locally relevant understanding of poverty is important for this method. People identified as being poor according to standardized monetary measures do not always consider themselves poor in their own terms (McGee 2004). Relatively little overlap exists between categories of the poor identified using self-perceptions and monetary measures (Chambers 1995; Franco 2003; Jodha 1988; Laderchi et al. 2003).

For a number of reasons, while examining household dynamics, it is preferable to work with people's own definitions. Households' strategies for dealing with poverty are hard to discern otherwise.

People in poverty also do not usually sit idle, waiting for economic growth or program benefits to come their way. Instead, they adopt numerous strategies to combat poverty in their midst (Narayan et al. 2000; Sen 1999). What they fight to overcome, however, is not poverty as it is defined and measured by professional analysts (in global terms, such as dollars per day or calories per day). Rather, what households target through their strategies is poverty as this condition is understood and defined locally. In order to understand household strategies, it is better to start with the people's own understandings of poverty. Without knowing what it means for someone to be 'poor' within a certain societal context, it becomes hard to understand what poor people do to

cope with this state – and without understanding what poor people are doing by themselves, it becomes hard to provide any meaningful assistance.

Utilizing the local definition – which, interestingly, was the same across all forty communities that we studied – we found that households in these communities have experienced quite dissimilar fates. While some formerly poor households have come out of poverty over the past ten years or twenty-five years, some formerly non-poor households have become impoverished during the same periods.

Descents must be cured before escapes can be assured. There is a hole at the bottom of the bucket through which households slip into poverty. This hole must be plugged before there is any chance of filling the bucket.

Section 2 below discusses site selection and methodology. Section 3 examines the rates of escape and descent observed over two different time periods, respectively, the last ten years and the last twenty-five years. The longer time period corresponds roughly to one generation in time. Since households formulate their own anti-poverty strategies with generational time horizons in mind, it seemed worthwhile to consider the longer time period in addition to the shorter one while tracing the trajectories of all 3,817 households currently resident in these forty communities. Section 4 examines the reasons for ascent and descent that were explored in the case of 1,041 households, who were selected by a process of random sampling. Section 5 concludes with a brief overview of policy implications.

2. Methodology and Location

The Stages of Progress approach was developed in order to ascertain better the reasons that are associated, respectively, with escaping poverty and falling into poverty within a particular region. This method, described below, was applied in a group of forth communities of two regions, Cajamarca and Puno. Figure 1 indicates the location of the study sites on a map of Peru. We selected these two regions because they are among the poorest regions of this country, as identified by different analysts.[2] In addition, livestock is an important part of the rural economy, and studying livestock's role vis-à-vis poverty reduction was an important aspect of this project.[3]

-- Figure 1 about here --

Within each region we selected twenty diverse communities. This selection of communities attempted to capture diversity with respect to five criteria: altitude, livestock activity, market access, size of community, and especially in the Puno region, ethnic group and language. The communities we selected are located from a low of 1,900 meters to a high of 4,500 meters above mean sea level. Economic activity varies as a result. Some, especially lower lying, communities are more dependent upon cattle raising as a principal activity, while communities at much higher altitudes are dependent more upon alpacas. Market access also varies considerably. At one end are communities such as El Aliso, which can be accessed only by a steep and narrow foot trail and is twelve kilometers away from the nearest market town, Pizon. At the other end are communities such as Cochapampa, only 2.5 kilometers by all-weather road from the market town of Cochilla and served by regular bus services. Number of household vary from a low of forty-one (in Santa María) to a high of 441 (in Hayrapata). Ethnic group and language also vary. Spanish is the spoken language in the Cajamarca communities, while in Puno the selected communities include twelve that are Quechua speakers and eight that speak Aymara. This mix of villages is not representative in the statistical sense of the term, but it does represent different patterns of rural settlements that are commonly found in these regions.[4]

A total of 3,817 households are currently resident in these villages, and following the participatory, community-based methodology outlined below we reconstructed the poverty trajectory followed by members of each present-day household over the previous twenty-five years. In addition, for a random sample of twenty-five percent of these households – 1,041 households in all – we also ascertained the reasons associated with their particular trajectories.

Two teams of twelve individuals each conducted these investigations in each separate region. We trained together for ten days in the Stages-of-Progress methodology. During this time we also went out to two communities where we learned how to implement this methodology in practice. Some changes were made following these investigations, and the methodology was adapted in part to better suit the particular

circumstances of these highland Peruvian communities. A brief description of seven steps involved in the Stages-of-Progress Methodology follows.[5]

Step 1. Assembling a representative community group: Prior information was provided by letters of invitation written ahead of time to the authorities of the communities studied. Upon arrival in the community contact was made first with these local authorities (including Lieutenant Governor, Municipal Agent, Neighborhood Mayor or President of the *Campesino* Security Patrol).

A representative community group was convened separately in each village. At least thirty members of each community and as many as eighty in some cases took part in these meetings. This group of participants was made up of men and women of different ages, and they participated very actively. We took particular care to ensure that poorer and lower status members were present at these meetings. Women needed some additional encouragement to participate in some communities, and some study team members were assigned to work specifically with them.

Step 2. Presenting our objectives: We introduced ourselves as researchers, and we made it clear that we did not represent any government agency or NGO, so there would be no benefits or losses from speaking freely and frankly to us. We mentioned these facts in order to remove any incentives people might have had for misrepresenting the poverty status of any household in their village.[6]

Step 3. Defining 'poverty' collectively: We asked community groups in each village to consider the situation of an extremely poor household, and we asked them to delineate the locally applicable stages of progress that such a household typically follows on its pathway out of poverty. What does a poor household in your community typically do, we asked the assembled villagers, when it climbs out gradually from a state of acute poverty? Which expenditures are the very first ones to be made? 'Food' was the answer invariably in every single village community that we studied. Which expenditures follow immediately after? 'Some clothes' we were told almost invariably. As more money flows in incrementally, what does this household do in the third stage, in the fourth stage, and so on?

Lively discussions ensued among villagers in these community groups. However, the answers that they provided, particularly about the first eight to ten stages of progress,

were relatively invariant across all communities. After crossing which stage is a household no longer considered poor, we asked the assembled villagers, after drawing up the progression of stages in each village community meeting. The placement of the poverty cutoff, and also the nature of the seven stages below this cutoff, did not vary at all across all forty communities. Some differences did arise in the manner different communities ordered these first seven stages. There was no difference, however, in the identification of these items, indicating that poverty in these forty village communities commonly signifies a lack of the very same things.

-- Table 1 about here --

Table 1 presents these stages and the common poverty cutoff. Lack of food, clothing, and basic housing, and inability to possess even smaller or indigenous breeds of animals, to have even a tiny bit of land, and to provide for even basic education for children connote commonly in these forty communities the conditions of poverty as locally understood.[7]

It is a commonly known and widely agreed-upon understanding of poverty, and this everyday understanding of poverty is much more real for these villagers than any definition that is proposed from the outside. Working with this local yet common and comparable understanding of poverty is helpful, therefore, for understanding better the strategies that households adopt to deal with poverty as they know it. Community groups developed these criteria among themselves, and they used these well-understood and commonly known criteria to classify which households are poor at the present time and which households were poor at two earlier points of time.[8] The next few steps indicate how this classification exercise was conducted.

Step 4. Treating households of today as the unit of analysis, inquiring about households' poverty status today, ten years ago, and twenty-five years ago: In this step a complete list of all households in each village was prepared. In some cases, the local authorities had prepared this list in advance, as we had requested in our initial letters. In other cases, however, we had to prepare this list afresh after arriving in the village.

This list of households and the locally applicable stages of progress were recorded in large letters on flip charts that were pasted prominently for all assembled members to see. Referring to the shared understanding of poverty developed in the previous step, the assembled community groups identified each household's status in terms of stage achieved at the present time, for ten years ago, and separately, for twenty-five years ago.

We needed a common event in order to denote clearly and commonly the two earlier periods. We made reference wherever possible to a national political event (the second government of President Belaunde and the re-election of President Fujimori, respectively). However, members of some communities were made uncomfortable by reference to political events such as these, and in these communities we defined ten years ago and twenty-five years ago with reference to the age of the oldest present member. The intent in each case was to have a common point of reference for all present to consider while thinking back to the earlier periods.

Households of today formed the units of analysis for this exercise. When we asked about poverty today, we spoke in terms of households that exist today, and when we asked about poverty ten years or twenty-five years ago, we asked in reference to members of the same households. Households today and households twenty-five years ago are not strictly comparable, nor can they ever be strictly compared in this type of exercise. Some present-day households, particularly those headed by older villagers, existed even twenty-five years ago. However, presently younger households did not exist at that time; such villagers lived in their parents' or guardians' households twenty-five years ago; and in their cases we asked about poverty in relation to these earlier households. What we were examining in such cases was inherited acquired status: Did a person who was born to poverty remain poor, or did s/he manage to escape from poverty in the past twenty-five years? Is another person who was part of a non-poor household twenty-five years ago still non-poor, or has her household become poverty anew during this time?[9]

Step 5. Assigning households to particular categories: After ascertaining their poverty status for the present time, for ten years ago and for twenty-five years ago, each household was assigned to one of four separate categories:

Category A. Poor twenty-five years ago and poor now (*Remained poor*);

Category B. Poor twenty-five years ago but not poor now (*Escaped poverty*);
Category C. Not poor twenty-five years ago but poor now (*Became poor*); and
Category D. Not poor twenty-five years ago and not poor now (*Remained not poor*).

A separate categorization was also developed, which compared households' stages ten years ago and today. In the next section, we present results related to both time periods, respectively, the last twenty-five years and the last ten years.

Step 6. Inquiring about reasons for escape and reasons for descent in respect of a random sample of households: Reasons associated with movements upward and downward were ascertained in this step from the assembled community groups. We took a random sample of about twenty-five percent of all households within each category, and we inquired in detail about causes and contributory factors associated with each such household's trajectory over the past twenty-five years. These event histories were checked independently for each selected household with the community groups, and they were reaffirmed through interviews conducted separately with household members.

Step 7. Following up by interviewing household members: At least two members of each household selected were interviewed separately in their homes. Members of the study team spoke individually with each household member. Multiple sources of information were consulted thus for ascertaining reasons associated with the trajectories of each selected household.

Completing these investigations within each selected community took between two and three days, depending on the size of the community. The community assembly was held on the first day, and it lasted for an average of five hours. The next two days were utilized for household interviews and data compilation.

The Stages-of-Progress method provides a useful methodological device, a benchmark or yardstick, for placing households within these four separate categories and for assessing how high up the ladder of material prosperity a particular household has climbed within a particular region. Compiling these trajectories – of stability and change – helped us to assess the overall situation of poverty over time. More important, learning about the reasons for change in each individual case helped to identify chains of events that were associated, respectively, with escaping poverty and falling into poverty.

Uncovering and working with a locally relevant definition of poverty was very useful for these purposes. People understood these poverty measurements clearly, and they could relate to the changes that were described for each of them. Because each stage represents a large or lumpy movement, and because it refers to some easily remembered achievement or possession, household members could quite easily recall their previous status in terms of stages of progress. We worked in rural communities that are quite close knit and that have lived together for long periods of time, so community members could also recall and verify each others' status in previous periods.[10]

This local definition of poverty is closely related to some other indicators, more usually utilized to rank differences in material status. For instance, there is a monotonically increasing relationship between household stage and average number of assets owned, as Table 2 shows.

-- Table 2 about here --

This close correspondence between stages and asset ownership suggests that our method of assessing poverty is not dissimilar to the asset-based approach proposed by Barrett and Carter (2004). These figures also suggest that communities' rankings of households in terms of stages correspond quite closely to *material* poverty. Other aspects of poverty, including social exclusion or political disempowerment, are not directly reflected within these assessments by communities.

3. Results

Even in these poorest regions of Peru, large numbers of households have made an escape from poverty. The dark side, however, is that large numbers have also fallen into poverty.

Among all 3,817 households currently resident in these forty communities, thirty-eight percent were poor ten years ago, and twenty-eight percent are poor at the present time. Overall, therefore, an improvement of eleven percent has been experienced. Considering the longer twenty-five-year period, poverty has fallen even further, from forty-seven percent in 1979 to twenty-eight percent at the present time. Paralleling the

overall national trend, poverty in these forty communities has declined consistently over the past twenty-five years (Altamarino et al. 2005; Laderchi 2001; World Bank 1999). Forty-seven percent of households in these communities were in dire poverty twenty-five years ago, thirty-eight percent were poor ten years ago, and twenty-eight percent are poor at the present time.[11] A net improvement of nineteen percent has been experienced over the twenty-five-year period.

Quite disparate fates have been met, however, by different households within the same communities. Nineteen percent of households escaped from poverty over the past ten years, however, another eight percent of households simultaneously fell into poverty. This distinction between escape and descent is even sharper when considered over a longer time period. Twenty-nine percent of households escaped poverty during the twenty-five-year period from 1979 to 2004, but another ten percent of households became impoverished during the same time.

Not all currently poor households have always been poor. Of the twenty-eight percent of households that are poor at the present time, eighteen percent have remained poor over the twenty-five-year period – and another ten percent have fallen into poverty anew during this period. More than one-third of currently poor households were not always poor, thus; they have joined the ranks of the poor sometime during the course of the last twenty-five years.[12]

It is a sad finding of this study that even as governments, NGOs, donors and other agencies are devoting resources toward the reduction of poverty, new poverty is being created concurrently. Reducing descents into poverty more expeditiously through appropriate policies and programmatic supports will be critical for achieving the Millennium Goals concerning poverty reduction. We will discuss in the next section what reasons are associated with descent in each region and what policies might be appropriate for addressing these location-specific reasons.

Let us look first at the trend data for the last ten years and twenty-five years, respectively. Table 3 presents these results.

-- Table 3 about here --

Quite large differences in trends are apparent between communities of the two different regions. Over the past ten years, while thirteen percent of households in Cajamarca communities escaped poverty and eleven percent fell into poverty, a much higher proportion of households in Puno, 24.5 percent, escaped from poverty, and a much lower proportion, just five percent, fell into poverty. Overall, households in poverty fell from thirty-six percent to thirty-four percent in the twenty Cajamarca communities, and from forty-one to twenty-one percent in the twenty Puno communities over the past ten years.

Over the twenty-five-year period, too, households in the Puno communities have tended to do better, on average, compared to households in the Cajamarca communities. Twenty-five years ago, poverty was much higher in the twenty Puno communities – fifty-nine percent – compared to thirty-six percent in the twenty Cajamarca communities. Presently, average poverty is 21.5 percent in these Puno communities, and it is much higher, thirty-four percent, in the twenty Cajamarca communities. Differential rates of escape and descent have reversed the relative positions of these Puno and Cajamarca communities.

Quite large differences exist among communities within a region. Even within the same province and district, communities differ considerably in terms of escape and descent. Table 4 shows some illustrative figures from one district in each region.

-- Table 4 about here --

Over the past ten years, poverty fell in the community of Alto Peru of Miguel Iglesias district in Celendin province of the Cajamarca region. Twenty-four percent of households escaped from poverty in this community, while many fewer, thirteen percent, fell into poverty during this period. Very different trends were observed, however, in two other communities of the same province and district. Poverty remained constant in El Aliso community; and it actually <u>increased</u> in Campo Alegre: six percent of households in this community came out of poverty, but as many as seventeen percent became poor during the same period. A similar pattern of reduced poverty, constant poverty, and

increased poverty is revealed by the three communities – Tiruyo, Alto Huaraconi, and Santa Maria – that are all located in Azangaro district of the Puno region.[13]

Substantial movements into and out of poverty have occurred even in communities – such as El Aliso and Alto Huaraconi – where net poverty remained constant over the past ten years. Twenty-seven percent of households moved out of or into poverty in El Aliso, i.e., the situation was hardly dull or static. However, looking only at the figure for net change – zero – would tend to convey the opposite picture. Considering escape and descent separately is essential for figuring out the changes that actually happened.

The extent of change is larger when a longer time period is considered. Table 5 divides the twenty-five-year period into two sub-periods, a first sub-period of fifteen years (from 1979 to 1994), and a second sub-period of ten years (from 1994 to 2004). Households' movements are represented in terms of the numbers of stages that different households either rose or fell in each sub-period.[14] In either sub-period about one-third of all households remained static, i.e., their stage did not change from the beginning to the end of this period. Over the longer time period, however, this percentage falls: only twenty-one percent of households experienced no change in stage over the twenty-five-year period.

-- Table 5 about here --

In general, the larger the change in stage of progress the greater is the percentage of households who experienced it over the longer period compared to the shorter sub-periods. For example, while only 0.4 percent of households experienced a positive change of eight stages or more during the first sub-period, three times as many households experienced this extent of change over the twenty-five-year period.

Change in the first sub-period is not usually offset, therefore, by change in the second sub-period. Ascents and descents are not mostly temporary or reversible occurrences; they tend to persist and harden over time. Quite large movements downward were experienced by many falling households – as many as twelve percent of households fell by three stages or more over the twenty-five-year period – indicating that

poverty in their case is likely to be chronic rather than transitory (Hulme and Shepherd 2003).[15]

4. Reasons for Escape and Descent

While one set of reasons is associated with escaping poverty, other and different reasons are associated with falling into poverty. We will first discuss the reasons associated with falling into poverty. We will then turn to discussing the reasons for escape.

Descents into poverty mostly occur gradually and cumulatively and not from one moment to the next. No single reason is usually associated with falling into poverty. Multiple linked factors propel most descents. Cutting this chain at any one link can severely reduce the incidence and probability of descent.

Health is the principal reason associated with the descent in both regions. The majority of Category C households, fifty-one percent in all, cited ill health and high healthcare expenses among the three foremost reasons responsible for their descent.

The importance of health as a precipitator of descent has also increased over the past ten years. Over the first period (1979-1994), health was a factor of descent for thirty percent of descending households in the Cajamarca communities and twenty-three percent in the Puno communities. Over the second time period (1994-2004), however, the deleterious effects of health and health expenses increased substantially. For fifty-two percent of households in the Cajamarca communities and as many as sixty-seven percent in the Puno communities, health was a principal reason for descent suffered during the second period.

Physical disability added to this number. Another twenty-five percent of falling households in the Cajamarca communities and another eighteen percent in the Puno communities included disability as an additional factor associated with descent over the previous ten years. This factor also became more prominent as a contributor to descent during the second sub-period.

Reducing descents more effectively – plugging the hole in the bucket – will require paying considerable attention to health-related factors. Not only does ill-health reduce the earning capacity of a household's members; in the absence of affordable and

easy-to-access healthcare facilities, it also adds considerably to the household's burden of expenditure, thereby striking a double blow, which quite often results in tragedy.[16]

Marcos Honorio Carrera of Cholocal in the district of Cachachi, Peru had the following story to tell: 'I was much better off than my neighbors when my wife of 25 years became ill with cancer of the uterus. I was obliged to sell my animals, cows, oxen, and donkeys, and I also went into debt in order to care for her, and later, bury her. Today, old and sick, I have to find work as a day laborer'.

Social and customary expenses on marriages and funerals constitute another set of factors often associated with descent. Marriage expenses were cited as important factors in both regions, affecting particularly younger couples.[17] Funeral expenses were associated with relatively more descents in Cajamarca communities (seventeen percent) and they were relatively unimportant within Puno communities.

Over the twenty-five-year period, marriage expenses were associated with twenty-nine percent of all cases of households falling into poverty. This figure was somewhat higher for communities in Cajamarca, thirty-two percent, and somewhat lower for communities in Puno, nineteen percent. The salience of this factor has also, like health, been increasing over time.

Some differences exist, therefore, between communities located in the two separate regions. Some factors of descent that are important in one region are less important or unimportant in the other region. Funeral expenses provide one example of this difference.

Accidental loss of assets provides a second example. In communities of Puno, this factor was important for twenty-one percent of descents over the past ten years. In Cajamarca communities, on the other hand, this factor featured very rarely.

Land division provides a third source of difference between these two separate regions. It was mentioned for thirty-eight percent of Puno households that have fallen into poverty over the past ten years. It did not feature as a factor of descent among Cajamarca communitiess. Nor, indeed, was this factor associated significantly with descents suffered by Puno households during the first time period (1979-94), even though it is considerably important for Puno households during the second time period.

Factors associated with descent vary across regions, therefore. They also vary somewhat between the first and second time periods. Health, disability and marriage expenses have increased in salience over time as propellers of descent and maintainers of poverty, and land division has assumed importance in Puno though not in Cajamarca communities.

Households that have remained poor (Category A) have suffered limitations imposed by the same set of descent-inducing factors. Thirty-nine percent of households that were poor throughout in Cajamarca communities and forty-five percent in Puno communities cited ill health and healthcare expenses as a principal contributing cause for their enduring poverty. Physical disability was mentioned by another seventeen percent of Cajamarca households (but not by many Puno households), while accidental asset loss was mentioned by seventeen percent of Puno households (and not many Cajamarca households).

Households that have escaped poverty or that have remained not poor over the same period have not been unaffected by these descent-inducing factors. Members of these households have also suffered from ill health, for example, and they have also borne expenses related to marriages and funerals. In their cases, however, the effects of these negative factors have been more than offset by the operation of some positive factors.

One positive factor that has substantially reduced the incidence of descent in Puno (though not in Cajamarca) communities relates to support from community organizations. This factor had critical importance among twenty-four percent of households that escaped poverty (Category B) in Puno communities and twenty-two percent of households that remained not poor (Category D) in these communities. The availability of such community supports also enabled households in Puno communities to better cope with the effects of negative factors, such as healthcare and marriage expenses.[18] It also enabled them to work together with other community members for undertaking new economic ventures and diversify income sources.

Victor Tapara Ancco of Santa Cruz Sincata in Puno told us: ‘When I was a child, my dad and my mom were shepherds of the landowner. We never had land. My brothers and I could only go to primary school and no further. We also grew up working as

shepherds... I got married, and my wife was also a shepherd... Recently, six years ago, the community awarded me with a piece of land. Little by little I have bought cattle and now I sell milk to the cheese plant... One's own land always helps to be better off, we can have more livestock and we can live more peaceful. The community also helps when someone is sick or in need. It is through their support that I am so much better off today'.

Improvements in physical infrastructure have also helped households pursue diversification with more vigor and higher returns. All but one among the twenty communities we studied in Puno have motorized road transport services – and all of them obtained these services within the past ten years.[19]

This combination of 'organizational capital…and access to basic public services' (Attanasio and Szekely 2001) – strong community organizations and the provision of motorized transport services – is important for understanding why escapes from poverty have been so much higher over the past ten years in Puno communities compared to Cajamarca communities.[20] While twenty-five percent of households escaped from poverty in the twenty Puno communities, only thirteen percent of households were able to do so in the twenty Cajamarca communities.

Diversification of income sources has helped lift out of poverty households located in both these regions of Peru. Diversification of incomes through livestock has been most important numerically, but diversified cropping strategies, especially in Cajamarca, and new non-agricultural income sources in both regions, have contributed considerably to the escapes that were observed.

The relative importance of these factors has varied between the two separate regions. Diversification of livestock incomes has been consistently important in communities of Puno corresponding with fifty-five percent of escapes in the first time period and fifty-two percent of escapes in the second time period.[21] Acquisition of additional non-agricultural income sources has been associated additionally with thirty-two percent of escapes in the first time period in the Puno communities and with thirty percent of escapes in the second time period.

Rosalia Muñoz Saldaña of Vista Alegre (Cajamarca) stated that "twenty-five years ago, I always had livestock, cattle and small animals. I also harvested crops, but for me, livestock is the one that helped me more to improve my living. Livestock, specially

cattle helps... When we need something in the family, we can sell an animal. It also helps for my business of cheese... Raising more animals we are better off, the problem is that there is not more pasture [and] we need irrigation infrastructure."

Diversification of crop incomes has not been particularly important for escapes in the Puno region, reflecting the lower productive capacity of agricultural lands in these communities. In communities of Cajamarca, however, diversification of crop incomes was associated with forty-five percent of escapes in the first time period and thirty-six percent in the second time period.

Compared to livestock diversification, which was most important for escapes in Puno communities, non-agricultural income sources were numerically most important for escapes in Cajamarca communities. Diversification of crop incomes came next, and diversification of livestock incomes was third in order of importance for the escapes that occurred in these communities.

Clearly, a number of households in both regions have been diversifying income sources simultaneously across a range of different activities, including livestock and crops, and many among them also have one or more members making a living in the non-agricultural sector. Household members have gone out to work a trade or an occupation in some city, located sometimes close by and often quite far from their home village (Hill 1988; Sabates 2000).[22] The burgeoning informal sector has accounted for a large number of these recent rural entrants (De Soto 1989; Watters 1994).

Households in Cajamarca have particularly benefited from remittances sent back by these city-based members. This factor, also identified in the analysis by Valdivia and Escobal (2004), was associated with twenty-five percent of escapes from poverty in the first time period and with twenty-nine percent of escapes in the second time period in these Cajamarca communities. In the twenty Puno communities, however, this factor was not significantly associated with escape in either time period.

Permanent migration out of these communities is not reflected, however, in the results presented here. It is a limitation of this methodology in its present form that it cannot take account of households that have migrated out, leaving no trace behind.[23]

Gains from business enterprises constitute the last important factor of escape. It was associated with twenty-seven percent of escapes in communities of Cajamarca and twenty-two percent of escapes in communities of Puno.

Households of Category D, which have remained not poor, have benefited from the same sets of factors as households escaping poverty. These factors, including diversification of income sources, improved market access, and progress in business have helped Category D households to offset the negative effects brought on by illnesses or customary expenditures. As in the case of households escaping poverty, livestock incomes have been relatively more important in Puno households, while non-agricultural incomes have mattered more in households of Cajamarca.

Factors that were not mentioned as important for significant numbers of relatively successful households included outside assistance from government or non-government programs, so more research would be needed to explore how much, if any, influence such programs have had. Altitude, which was suggested to us initially as a likely propeller of poverty, also has no significant influence in these 40 communities upon how many stayed poor and how many fell into poverty.

Interestingly, education is also not a predictor of escape or descent. People who have obtained jobs in the city are also in general better educated, but people who are educated do not all have jobs, i.e., education might be an important aspect of escaping poverty but it is neither sufficient (not all educated people have jobs) nor necessary (people have escaped poverty through other means). Investments in education alone are likely to be insufficient for raising poor households out of poverty in communities such as these.

Logistic regression analysis helped confirm these findings related to factors significantly associated with upward and downward movements. Table 6 presents results from the first set of analyses, comparing households that remained poor with those that escaped poverty (Categories A and B).[24]

-- Table 6 about here --

These regression results confirm what we have discussed earlier in this section. Diversification of income sources – from livestock, crops and non-agricultural sources – are positively and strongly related to escapes from poverty. Market access, gains from small businesses, and community organizations are also positively and significantly associated with escaping poverty. Coefficients of each of these variables is significant, and the associated odds ratio is greater than one, implying that the probability of escaping poverty is significantly enhanced when the variable concerned is present for some household. On the other hand, health, land division, and social expenses (on marriages and funerals) tend to perpetuate poverty. These variables are also significant, but their odds ratios are less than one, indicating that the probability of escaping poverty is correspondingly reduced when these variables are present in some case. The same negative factors also tend to plunge non-poor households into poverty, as revealed by the parallel analysis of Category C and Category D households.

5. Plugging the Hole at the Bottom of the Bucket

Aggregate national-level data are most often used for policy formation. However, aggregate data tend to obscure critical differences. Differences between escaping poverty and falling into poverty are very important to address in policy. When only the aggregate figure for net change is considered, however, these differences do not appear.

Overall, households in poverty declined by nineteen percent over twenty-five years in these forty Andean communities. This aggregate results, conceals, however, two quite distinct trends. While some households escaped from poverty, other households in the same communities fell into poverty and became poor.

Stopping or at least controlling descents is essential to reducing poverty. The hole at the bottom must be plugged before there is any chance of filling the bucket. Else, households will continue slipping into poverty even as other households escape.

Different reasons are related, respectively, with escaping poverty and falling into poverty. Different policy responses will be required thus to deal separately with each of these trends. Policies to plug the hole at the bottom are required in addition to policies for filling the bucket. However, what each set of policies should consist of is not clearly

known at the outset. Newer and more disaggregated data sources are required that can help make poverty policy more nuanced and better targeted.

Households in these Puno and Cajamarca communities have escaped from poverty in large numbers, primarily when they have diversified their income sources. Diversification of incomes from livestock, including change in breeds and change in products, have been critical for upward movements, as can be expected, given these highland communities' historic dependence upon livestock, but diversification of crops and new income from non-agricultural sources have also played a hand in households' escapes from poverty in these regions. Migration to towns, both temporary and permanent, has assisted in promoting some new income sources. However, village households who have diversified traditional activities of animal and crop breeding have also realized significant gains.

Households escape from poverty for one set of reasons, as seen above. Many households also fall into poverty at the same time, and they do so for different reasons.

Ill health and high healthcare expenses were primarily associated with descent in both regions. For fifty-one percent of households that fell into poverty, these health-related factors served as a principal contributing cause. Physical disability was associated with another eighteen percent of descents in communities of the Cajamarca region, while accidental losses were related with an additional seventeen percent of descents in villages of Puno that we studied.

Preventing descents will thus require different adopting policy responses that are different from those utilized to assist escape from poverty. Different policies will also be required for the two separate regions. While some reasons for escape and descent are common between Puno and Cajamarca communities, other reasons differ, and these differences will need to be better reflected in region-specific policies and programs.

Our investigations on poverty in these forty rural Peruvian communities in the Andes highlands are particularly useful for distinguishing between the two separate trends, escape and descent, and for identifying the reasons associated with each trend in Ews

Fixing the hole at the bottom of the bucket is essential for fixing poverty. It makes little sense to support only those who are already poor. Many more will become poor unless descent is concurrently controlled.

Ascertaining reasons for descent and escape is important for this purpose. These reasons vary by region, as we saw, and they also vary over time. What was salient ten years ago is not so salient now. Policy effectiveness will be improved, therefore, by undertaking regular, decentralized studies. The Stages-of-Progress methodology provides a useful tool for this purpose. Combined with other methods, including panel data studies and participatory poverty appraisals, it can generate even more comprehensive knowledge about the nature and causes of poverty. Progress in poverty reduction will be improved as a result.

Figure 1. Study sites

PROVINCES

Cajamarca

Cajamarca

Hualgayoc

Celendín

San Marcos

Cajabamba

Puno

Azángaro

Melgar

Moho

El Collao

Table 1: Stages of Progress

1	Food	
2	Some clothes	
3	Basic housing/house repairs	
4	Small animals (chickens, guinea pigs)	
5	Basic education for children	
6	Purchase small plot of land	
7	Indigenous breeds of livestock (sheep, cattle, alpacas, llamas)	***Poverty Cutoff***
8	Purchase larger plot	
9	Improve/expand house	
10	Improved large breeds of larger animals	
11	Secondary/Tertiary education	
12	Small business	
13	Buy plot/ house in city	

Table 2: Households' Stages and Average Asset Ownership

Stage at present time	Average number of assets
1	1.33
2	1.90
3	2.37
4	2.88
5	3.11
6	3.31
7	3.58
8	4.07
9	4.56
10	4.62
11	5.27
12 and higher	5.78

Table 3. Poverty Trends Over the Past Ten and twenty-five Years

(percent of households)

Region	**Remained Poor**	**Escaped Poverty**	**Became Poor**	**Remained Not Poor**	***Poor at the Start of the Period***	***Poor at the End of the Period***
Last Ten Years (1994-2004)						
Cajamarca	22.9	12.8	10.9	53.4	25.7	33.8
Puno	16.1	24.5	5.4	54.0	40.6	21.5
Both Regions	19.5	18.6	8.1	53.7	38.1	27.6
Last twenty-five Years (1979-2004)						
Cajamarca	18.7	17.1	15.1	49.2	35.8	33.8
Puno	16.8	42.0	4.7	36.5	58.8	21.5
Both Regions	17.8	29.4	9.8	43.1	47.2	27.6

Table 4: Variation Among Villages Within the Same Region, Province and District

				Percentage of Households (past ten years)			
Region	Province	District	Village	***Remained Poor***	***Escaped Poverty***	***Became Poor***	***Remained Not Poor***
Cajamarca	**Celendin**	**Miguel Iglesias**	Alto Peru	9.1	**23.6**	**12.7**	54.5
			El Aliso	51.5	**13.6**	**13.6**	21.2
			Campo Alegre	9.4	**6.3**	**17.2**	67.2
Puno	**Azangaro**	**Azangaro**	Tiruyo	12.5	**26.8**	**3.6**	57.1
			Alto Huaraconi	4.4	**8.9**	**8.9**	77.8
			Santa Maria	2.4	**4.9**	**9.8**	82.9

Table 5. Households and Change Over Time

(percent of households in both regions)

Number of stages moved	**First Sub-Period** (1979-1994)	**Second Sub-Period** (1994-2004)	**Entire Period** (1979-2004)
<= -8	0.4	0.5	1.0
-7	0.6	0.3	0.8
-6	1.4	0.9	1.6
-5	1.2	1.1	1.6
-4	3.2	2.4	3.3
-3	3.0	2.8	4.1
-2	4.9	4.1	5.2
-1	6.6	6.2	6.2
0	34.8	33.0	21.1
1	16.4	13.5	9.6
2	11.9	13.8	11.4
3	7.4	8.1	9.4
4	3.7	6.3	9.1
5	2.4	3.6	6.5
6	1.1	1.6	4.3
7	0.3	0.6	1.8
>=8	0.4	1.0	3.0

Table 6: Results of Binary Logistic Regression for Escaping From Poverty

(Households that were poor twenty-five years ago, i.e., Category A and Category B households)

	Coefficient	**S.E.**	**Wald**	**Significance**	**Odds Ratio**	**95% C.I.for Odds Ratio**	
						Lower	Upper
Constant	-0.78	0.22	12.67	0.0004	0.46		
Positive Factors							
Diversification (livestock)	1.03	0.30	11.64	0.0006	2.79	1.55	5.03
Diversification (non-agricultural incomes)	2.03	0.73	7.75	0.0054	7.59	1.82	31.64
Diversification (crops)	1.28	0.40	10.11	0.0015	3.60	1.63	7.92
Business Gains	1.77	0.57	9.80	0.0017	5.88	1.94	17.85
Market Access	1.31	0.53	6.06	0.0139	3.71	1.31	10.53
Community Organization	1.29	0.52	6.23	0.0125	3.65	1.32	10.08
Negative Factors							
Health	-1.11	0.38	8.32	0.0039	0.33	0.16	0.70
Land Division	-1.95	0.82	5.71	0.0169	0.14	0.03	0.70
Social Expenses	-1.56	0.77	4.13	0.0422	0.21	0.05	0.95
-2 Log likelihood	359.68						
Cox & Snell R-Square	0.45						
Nagelkerke R-Square	0.62						

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Notes

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[2] For example, CONDESAN 2003; FONCODES 2001; UNDP 2002; and Valdivia and Escobal 2004.

[3] Because of space limitations, more detailed results relating to livestock are presented in a separate forthcoming paper.

[4] The complete list of forty communities together with their relevant characteristics can be obtained on request from the authors.

[5] Readers interested to learn more about this methodology can consult [insert refs] or visit www.pubpol.duke.edu/krishna/householdpoverty. A video film in Spanish which illustrates these steps is available on request from the authors.

[6] A few communities that felt they had been deceived by outsiders in the past were somewhat reticent in sharing their views with us. It took longer and we had to work harder in such communities, but they did come around as they began to see the value of this exercise to themselves.

[7] Stages of progress higher than the poverty vary considerably more among these forty communities, and Table 2 indicates the most common progression observed. Differences in higher-level stages are not material, however, to the analysis that follows.

[8] Community groups also drew a second poverty cut-off, usually after Stage 11, indicating a level above which households are considered relatively well off. The analysis that follows works, however, with the first poverty cut-off, i.e., the one that communities constructed after Stage 7, which represents the shared common denominator of severe poverty in these villages.

[9] Some such assumption about units of analysis is necessary for all such longitudinal studies. Some panel data studies consider earlier-period households as their units of analysis. Instead, the Stages of Progress method considers later-period households. This method fails to capture households of twenty-five years ago from which no single member survives in the community at the present time, and some bias is likely on this account. A corresponding but opposite bias affects panel-data studies, when households examined in the previous period are not available to interview at the present time.

[10] A residual category (Category E) was available for consigning households whose material status could not be verified following this method for the present time or for any of the two earlier periods. Apart from four communities (out of 40), this category remained nearly void in all of the others, and less than two percent of all 3,817 households were assigned to this category.

[11] These figures are higher than the national average for extreme poverty in Peru, fifteen percent, but they are consistent with the corresponding figure for the Sierra Rural area, which is 30.2 percent (UNDP 2002). There are some differences between estimates provided by different sources, in particular, between ENAHO and ENNIV estimates (see Altamarino et al. 2004, and Escobal and Valdivia 2004).

[12] Actually, thirty-five percent (or 10/28) have become freshly poor during this twenty-five-year period.

[13] That very different poverty trends can be observed among and even within communities in the same region was also observed elsewhere by Elbers et al. (2004) and Jayne et al. (2003).

[14] While lower-level stages, especially those below the poverty cutoff, are similar across all forty villages, higher-level stages tend to vary somewhat. The variable, Stage Change, or number of stages moved between two years, is not strictly comparable across villages, therefore, and it should be treated as an approximate indicator of the extent of movement experienced by a household.

[15] Not all households that fell in terms of stages dropped all the way below the poverty cutoff. Households that were four stages above the cutoff at the start of a period could fall by as many as three stages without being registered within Category C.

[16] As Leatherman (1996: 477) noted in a previous investigation in Peru, 'illness is not only a symptom but a catalyst of poverty'.

[17] There is a difference in how this term is interpreted in the two different regions. Expenses related to wedding celebrations are more significant in the Puno communities. In Cajamarca communities, however, marriage expenses have to do more often with establishing a new household.

[18] The importance of such community-based social supports is particularly important given the weaknesses in Peru's social security program discerned by observers such as Glewwe and Hall (1998).

[19] The remaining community, Tisnauyo, at an altitude of 4,400 meters, is fourteen kilomoters away from the nearest market and school, and no motorized form of transportation is at yet available, so residents have to traverse this distance by foot or on bicycle.

[20] Analyzing differences in mean income corresponding to different geographic regions of Peru, Escobal and Torero (2003) find similarly that public infrastructure levels and household and community assets are critical for understanding these differences.

[21] The sequence of events – livestock diversification first or status improvement first – was verified carefully during household interviews. We found considerable evidence that the acquisition of more and improved livestock helped households improve their livelihoods, rather than merely being a sign of progress achieved through other means.

[22] As a recent summary report points out, 'rural households that draw their incomes mainly from [a single source] are more apt to lead poor lives' (JICA 2001: 2).

[23] Because we work with present-day households as our units of analysis, we cannot take account of such households that are no longer part of the community. We intend overcoming this limitation for subsequent field research and welcome readers' suggestions in this regard.

[24] The results from the second set of analyses, comparing households of Categories C and D, are similar in terms of significant positive and negative factors. These results are not reproduced here with the intention of saving space. Readers who are interested in obtaining these results can do so upon request to the authors.