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Simple Poverty Scorecard® Tool
Albania

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This document and a data-collection tool are in English at scorocs.com

Abstract

The Scorocs Simple Poverty Scorecard-brand poverty-assessment tool is a low-cost, transparent way for pro-poor programs in Albania to prove and improve their social performance by getting to know the socio-economic status of their participants. Responses to the scorecard's 11 indicators can be collected in about 10 minutes and then used to estimate consumption-based poverty rates, to track changes in poverty rates, or to segment participants for differentiated treatment.

Acknowledgements

Scorocs™ Simple Poverty Scorecard® Tool

Interview ID: _____		**Name**	**Identifier**
Interview date: _____	Participant: _____		
Country: ALB	Field agent: _____		
Scorecard: 001	Service point: _____		
Sampling wgt.: _____	Number of household members: _____		

Indicator	Response	Points
1. In what prefecture does the household live?	A. Fier, or Gjirokastër	0
	B. Tiranë, or Vlorë	1
	C. Durrës, or Kukës	2
	D. Elbasan	3
	E. Berat, or Lezhë	5
	F. Korçë, Shkodër, or Dibër	6
2. How many household members are there?	A. Six or more	0
	B. Five	9
	C. Four	18
	D. Three	26
	E. One, or two	45
3. Do any household members suffer from any disability that has lasted for more than three months?	A. Yes	0
	B. No	2
4. In the past 7 days, did the male head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual? Or did he work on a farm owned or rented by him or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to him or a household member? Or did he work on his own account or in a business belonging to him or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? Or did he have a permanent/long-term job from which he was temporarily absent?	A. No	0
	B. No male head/spouse	2
	C. Yes	6
5. What is the household's tenancy status in its residence?	A. Owned (title in process), rented, rent-free, or other	0
	B. Owned with title	4
6. How many rooms does the household occupy, excluding verandas, balconies, bathrooms, toilets, corridors, storage areas, or rooms smaller than 4 m^2)?	A. One, or two	0
	B. Three	4
	C. Four or more	6
7. Does the residence have a separate kitchen?	A. No	0
	B. Yes	3
8. Does the household have a WC inside the residence? (Do not count a WC that is inside the building but not inside the residence)	A. No	0
	B. Yes	4
9. Does the household own a video player/DVD player, satellite dish/cable receiver, or TV decoder in good working condition?	A. No	0
	B. Video player/DVD player, or satellite dish/cable receiver, but no TV decoder	3
	C. TV decoder (regardless of all else)	8
10. Does the household own a water boiler in good working condition?	A. No	0
	B. Yes	4
11. How many mobile phones does the household own in good working condition?	A. None	0
	B. One	5
	C. Two	9
	D. Three or more	12

Back-page Worksheet: Household Members

Fill out the scorecard header first. Include the interview's unique identifier (if known), the interview date, and the sampling weight of the participant (if known). Then record the full name and the unique identification number of the participant (who may differ from the respondent), of the participant's field agent (who may differ from you the enumerator), and of the service point that the participant uses (if known). Circle the response to the first scorecard indicator based on the prefecture where the household lives.

Then read to the respondent: *Please tell me the first names (or nicknames) of all the members of your household, starting with the head and followed by his/her spouse (if there is one). A* household *is an economic unit of one or more people—regardless of blood or martial relationship—who live together in the same residence, who share a common budget, and who eat together at least once daily. Household members must have met these criteria for at least 11 months, or be meeting them now and intend to continue for a total duration of at least 11 months.*

Write down the first name/nickname of each member. Mark who is the male head/spouse (if he exists) and who is the female head/spouse (if she exists). Record the number of household members in the scorecard header next to "Number of household members:". Then circle the response to the second scorecard indicator about the number of household members.

Read the remaining nine questions aloud, marking the responses.

Always keep in mind and apply the detailed instructions in the "Interview Guide".

First name or nickname	Head or spouse of head?
1.	Head (male)
	Head (female)
2.	Spouse of head (male)
	Spouse of head (female)
	Other
3.	Other
4.	Other
5.	Other
6.	Other
7.	Other
8.	Other
9.	Other
10.	Other
11.	Other
12.	Other
Number of members:	—

Look-up table to convert scores to poverty likelihoods: National poverty lines

| Score | Poverty likelihood (%) National (2012 def.) | | |
	100%	150%	200%
0–29	49.4	90.8	98.5
30–33	32.0	80.1	90.6
34–37	23.9	74.1	90.6
38–40	19.6	67.8	90.6
41–43	18.0	62.0	88.1
44–45	9.8	49.2	75.8
46–47	9.8	49.2	75.8
48–49	5.8	39.0	69.5
50–51	2.4	34.8	69.5
52–53	2.4	27.9	56.9
54–55	2.4	23.9	56.9
56–57	2.4	23.9	56.9
58–59	2.0	13.2	45.2
60–62	1.4	11.9	36.9
63–64	1.1	9.1	33.1
65–67	1.1	7.3	26.8
68–70	0.4	3.9	21.0
71–73	0.0	2.2	14.0
74–77	0.0	0.4	10.1
78–100	0.0	0.3	6.8

Look-up table to convert scores to poverty likelihoods: International 2011 PPP lines

	Poverty likelihood (%)			
	Intl. 2011 PPP (2012 def.)			
Score	$1.90	$3.20	$5.50	$21.70
0–29	4.1	31.1	86.9	100.0
30–33	1.4	17.2	74.3	100.0
34–37	1.2	9.3	70.2	100.0
38–40	0.9	8.3	61.2	100.0
41–43	0.1	6.5	56.1	100.0
44–45	0.0	3.1	40.9	100.0
46–47	0.0	2.7	40.9	100.0
48–49	0.0	1.7	33.6	100.0
50–51	0.0	0.7	30.1	100.0
52–53	0.0	0.7	20.8	100.0
54–55	0.0	0.7	19.3	100.0
56–57	0.0	0.7	19.3	100.0
58–59	0.0	0.3	11.7	99.3
60–62	0.0	0.1	8.6	98.6
63–64	0.0	0.0	6.0	98.6
65–67	0.0	0.0	6.0	98.6
68–70	0.0	0.0	2.9	97.5
71–73	0.0	0.0	2.0	94.6
74–77	0.0	0.0	0.4	94.6
78–100	0.0	0.0	0.3	88.3

Look-up table to convert scores to poverty likelihoods: Relative and percentile-based poverty lines

	Poverty likelihood (%)						
	Poorest 1/2	Percentile-based lines (2012 def.)					
Score	< 100% Natl.	10th	20th	40th	50th	60th	80th
0–29	31.1	39.2	62.4	86.9	93.5	97.6	99.2
30–33	17.2	22.1	39.4	73.8	81.7	87.0	97.1
34–37	9.3	16.8	34.7	68.9	77.6	86.7	96.8
38–40	8.3	12.8	28.7	60.0	75.5	84.4	96.8
41–43	6.5	9.0	25.2	53.8	68.4	79.6	94.9
44–45	3.1	4.7	16.9	40.2	55.6	69.4	93.5
46–47	2.7	4.7	15.4	40.2	55.6	69.4	93.5
48–49	1.7	3.9	9.2	33.6	47.1	59.3	88.5
50–51	0.7	1.9	5.8	29.5	42.0	58.7	88.5
52–53	0.7	1.9	5.0	20.5	36.5	49.5	75.1
54–55	0.7	1.9	5.0	18.8	31.6	47.3	75.0
56–57	0.7	1.9	5.0	18.8	31.6	47.3	75.0
58–59	0.3	0.3	3.0	11.6	16.1	33.9	65.4
60–62	0.1	0.1	2.4	8.5	15.3	25.4	58.4
63–64	0.0	0.0	2.1	6.0	14.2	21.6	56.9
65–67	0.0	0.0	2.1	6.0	8.2	18.2	43.2
68–70	0.0	0.0	0.7	2.7	6.2	15.0	39.2
71–73	0.0	0.0	0.0	1.1	4.1	8.9	35.4
74–77	0.0	0.0	0.0	0.4	2.9	7.3	31.0
78–100	0.0	0.0	0.0	0.3	1.5	4.4	21.5

Scorocs™ Simple Poverty Scorecard® Tool Albania

1. Introduction

The Scorocs Simple Poverty Scorecard poverty-assessment tool for Albania is a low-cost, transparent way for pro-poor programs to prove and improve their social performance by getting to know their participants better. The scorecard can be used to estimate the likelihood that a household has consumption below a given poverty line, to estimate a population's poverty rate at a point in time, to estimate the change in a population's poverty rate over time, and to segment participants for differentiated treatment.

The direct approach to poverty assessment via consumption surveys is difficult and costly. A case in point is the 2012 Living Standards Measurement Survey (LSMS) by Albania's Institute of Statistics (INSTAT). Its household questionnaire runs about 75 pages and covers more than 700 questions, many of which have follow-up questions or are asked multiple times (for example, for each household member, each consumer durable, or each source of income). Enumerators completed interviews at a rate of about one household per day, and interviewed households kept a diary of their food expenditure for two weeks.

In comparison, the scorecard's indirect approach is quick and low-cost. It uses 11 verifiable indicators drawn from the 2012 LSMS (such as "Does the household own a

water boiler in good working condition?" and "What is the household's tenancy status in its residence?"). Responses to the indicators are used to get a score that is correlated with poverty status as measured by the exhaustive LSMS survey.

The scorecard differs from "proxy-means tests" (Coady, Grosh, and Hoddinott, 2004) in that it is transparent, it is freely available,[1] and it is tailored to the capabilities and purposes not of national governments but rather of local pro-poor organizations in Albania. The feasible poverty-assessment options for such organizations are typically blunt (such as rules based on land ownership or housing quality) or subjective and relative (such as participatory wealth ranking facilitated by skilled field workers). Poverty estimates from these approaches may be costly, their accuracy is unknown, and they are not comparable across places, organizations, nor time.

The scorecard can be used to estimate the share of a program's participants who are below a given poverty line (for example, Albania's national line). USAID microenterprise partners in Albania can use the scorecard with the line that marks the poorest half of people below 100% of the national line to report how many of their participants are "very poor".[2] The scorecard can also be used to estimate changes in poverty rates. For all these applications, the scorecard is low-cost, consumption-based, and quantitative. While consumption surveys are costly even for governments, some

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[1] The scorecard for Albania is not in the public domain; it is copyright © 2018 Scorocs.
[2] USAID defines a household as *very poor* if its daily per-capita consumption is less than the highest of the $1.90/day 2011 PPP line in 2012 (ALL113, Table 1) or the line that marks the poorest half of people below 100% of the national line (ALL190).

pro-poor organizations may be able to implement the low-cost scorecard to help with monitoring poverty and (if desired) segmenting clients for differentiated treatment.

The technical approach aims to be understood by non-specialists. After all, if program managers are to adopt the scorecard on their own and apply it to inform their decisions, then they must first trust that it works. Transparency and straightforwardness build trust. Getting "buy-in" matters; proxy-means tests and regressions on the "determinants of poverty" have been around for decades, but they are rarely used to inform decisions by pro-poor organizations. This is not because these tools do not work, but because they are often presented (when they are presented at all) as tables of regression coefficients incomprehensible to non-specialists (with cryptic indicator names such as "`LGHHSZ_2`" and with points with negative values and many decimal places). Thanks to the predictive-modeling phenomenon known as the "flat maximum", straightforward, transparent approaches are usually about as accurate as complex, opaque ones (Schreiner, 2012a; Caire and Schreiner, 2012).

Beyond its low cost and transparency, the scorecard's technical approach is innovative in how it associates scores with poverty likelihoods, in the extent of its accuracy tests, and in how it derives formulas for standard errors. Although the accuracy tests are straightforward and commonplace in statistical practice and in the for-profit field of credit-risk scorecards, the tests are rarely applied to poverty-assessment tools.

The scorecard is based on data from the 2012 LSMS from Albania's INSTAT. Indicators are selected to be:

- Inexpensive to collect, easy to answer quickly, and straightforward to verify
- Strongly correlated with socio-economic status
- Liable to change over time as socio-economic status changes
- Applicable in all regions of Albania

All points in the scorecard are non-negative integers, and total scores range from 0 (most likely below a poverty line) to 100 (least likely below a poverty line). Non-specialists can collect data and tally scores on paper or on hand-held devices in the field in about ten minutes.

The scorecard can be used to estimate three basic quantities. First, it can estimate a particular household's *poverty likelihood*, that is, the probability that the household has per-capita consumption below a given poverty line.

Second, the scorecard can estimate the poverty rate of a population of households at a point in time. This estimate is the average of estimated poverty likelihoods among a representative sample of households from the population.

Third, the scorecard can estimate annual changes in poverty rates. With two independent samples of households from the same population, this is the difference in the average estimated poverty likelihood in the baseline sample versus the average estimated likelihood in the follow-up sample, divided by the difference (in years) between the average interview date in the baseline sample and the average interview date in the follow-up sample.

With one sample in which each household is scored twice, the estimate of the annual change in a poverty rate is the sum of the changes in each household's estimated poverty likelihood from baseline to follow-up, divided by the sum of years between each household's pair of interviews (Schreiner, 2014a).

The scorecard can also be used to segment participants for differentiated treatment. To help managers choose appropriate targeting cut-offs for their purposes, targeting accuracy is reported for a range of possible cut-offs.

This paper presents a single scorecard whose indicators and points are derived with Albania's national poverty line and data from a random sample of about three-fifths of households in the 2012 LSMS. Scores from this one scorecard are calibrated with this same data to poverty likelihoods for 14 poverty lines. Data from the other two-fifths of households in the 2012 LSMS is used to validate the scorecard's accuracy for estimating households' poverty likelihoods, for estimating populations' poverty rates at a point in time, and for segmenting participants.

Given their assumptions, all three scorecard-based estimators (the poverty likelihood of a household, the poverty rate of a population at a point in time, and the change in a population's poverty rate over time) are *unbiased*. That is, the true value matches the average of estimates in repeated samples from a single, unchanging population in which the relationship between scorecard indicators and poverty is unchanging. Like all predictive models, the scorecard has estimation errors when applied (as in this paper) to a validation sample. Furthermore, it makes errors to some

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unknown extent when applied (in practice) to a different population or when applied after 2012 (because the relationships between indicators and poverty do change over time).[3]

Thus, while the indirect-scorecard approach is less costly than the direct-survey approach, the scorecard has estimation errors when applied in practice. (Observed values from the direct-survey approach are taken as correct, ignoring sampling variation.) There are errors because the scorecard necessarily assumes that future relationships between indicators and poverty in all populations will be the same as in the construction data. Of course, this assumption—inevitable in predictive modeling— holds only partly.

The average error in the scorecard's estimated poverty rate at a point in time (that is, the average of differences between estimated and observed values across 1,000 bootstrap samples of $n = 16{,}384$ from the validation sample) for 100% of the national poverty line is about –0.2 percentage points. The average across all 14 poverty lines of the absolute values of the average error is about 0.6 percentage points, and the maximum of the absolute values of the average error is 1.6 percentage points. These estimation errors are due to sampling variation, not bias; the average error would be zero if the whole 2012 LSMS were to be repeatedly re-fielded and re-divided into sub-

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[3] Examples include nationally representative samples at a later point in time and sub-populations that are not nationally representative (Diamond *et al.*, 2016; Tarozzi and Deaton, 2009).

samples before repeating the entire process of constructing and validating the resulting scorecards.

With $n = 16{,}384$, the 90-percent confidence intervals are ± 0.6 percentage points or smaller. For $n = 1{,}024$, the 90-percent intervals are ± 2.3 percentage points or smaller.

The scorecard's accuracy in practice for estimating changes in poverty rates over time is not known; there is no comparable data from a post-2012 LSMS that could be used as a follow-up to estimate change against a baseline estimated from the 2012 LSMS validation sample.

Section 2 below documents data and poverty lines. Sections 3 and 4 describe scorecard construction and offer guidelines for implementation. Sections 5 and 6 tell how to estimate households' poverty likelihoods and a population's poverty rate at a point in time. Section 7 discusses estimating changes in a population's poverty rate. Section 8 covers targeting. Section 9 places the scorecard here in the context of related exercises for Albania. The last section is a summary.

The "Interview Guide" (found after the References) tells how to ask questions—and how to interpret responses—so as to mimic practice in Albania's 2012 LSMS as closely as possible. The "Interview Guide" (and the "Back-page Worksheet") are integral parts of the scorecard for Albania.

2. Data and poverty lines

This section presents the data used to construct and validate the scorecard. It also documents Albania's definition of *poverty* as well as the 14 poverty lines to which scores are calibrated.

2.1 Data

Indicators and points for the scorecard are selected (*constructed*) based on data from a random three-fifths of the 6,671 households in the 2012 LSMS, Albania's most-recent national household consumption survey. These same three-fifths of households are also used to associate (*calibrate*) scores with poverty likelihoods for all poverty lines.

Data from the other two-fifths of households from the 2012 LSMS is used to test (*validate*) scorecard accuracy for point-in-time estimates of poverty rates *out-of-sample*, that is, with data that is not used in construction/calibration. Data from those same two-fifths of households are also used to test out-of-sample targeting accuracy.

Field work for the 2012 LSMS took place from September to November 2012.

2.2 Poverty rates at the household, person, and participant level

A *poverty rate* is the share of units in households in which total household consumption (divided by the number of household members) is below a given poverty line. The unit of analysis is either the household itself or a person in the household. By assumption, all members in a given household have the same poverty status (or estimated poverty likelihood).

2.2.1 Household-level estimates

To illustrate, suppose that a pro-poor program serves two households. The first household is poor (its per-capita consumption is less than a given poverty line), and it has three members, one of whom is a program participant. The second household is non-poor and has four members, two of whom are program participants.

Poverty rates are in terms of either households or people. If the program defines its *participants* as households, then the household level is relevant. The estimated household-level poverty rate is the weighted[4] average of poverty statuses (or estimated poverty likelihoods) across households with participants. This is

$\frac{1 \cdot 1 + 1 \cdot 0}{1 + 1} = \frac{1}{2} = 0.5 = 50$ percent. In the "$1 \cdot 1$" term in the numerator, the first "1" is

the first household's household-level sampling weight, and the second "1" represents the first household's poverty status (poor) or its estimated poverty likelihood. In the "$1 \cdot 0$" term in the numerator, the "1" is the second household's household-level sampling

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[4] The examples here assume simple random sampling at the household level. This means that each household has the same selection probability and thus the same household-level sampling weight, taken here to be one (1).

weight, and the "0" represents the second household's poverty status (non-poor) or its estimated poverty likelihood. The "$1 + 1$" in the denominator is the sum of the household-level sampling weights of the two households. Household-level sampling weights are used because the unit of analysis is the household.

2.2.2 Person-level estimates

Alternatively, a person-level rate is relevant if a program defines all people in the households that benefit from its services as *participants*. In the example here, the person-level rate is the household-size-weighted[5] average of poverty statuses (or estimated poverty likelihoods) for households with participants, that is,

$\frac{3 \cdot 1 + 4 \cdot 0}{3 + 4} = \frac{3}{7} = 0.43 = 43$ percent. In the "$3 \cdot 1$" term in the numerator, the "3" is the first household's person-level sampling weight because it has three members, and the "1" represents its poverty status (poor) or its estimated poverty likelihood. In the "$4 \cdot 0$" term in the numerator, the "4" is the second household's person-level sampling weight because it has four members, and the zero represents its poverty status (non-poor) or its estimated poverty likelihood. The "$3 + 4$" in the denominator is the sum of the person-level sampling weights of the two households. Person-level sampling weights are used because the unit of analysis is the household member.

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[5] Given simple random sampling at the household level, a household's person-level weight is the number of people in the household.

2.2.3   Participant-level estimates

As a final example, a pro-poor program might count as *participants* only those household members who directly participate in the program. For the example here, this means that some—but not all—household members are counted. The estimated person-level poverty rate is then the participant-weighted average[6] of the poverty statuses (or estimated poverty likelihoods) of households with participants, that is,

$\frac{1 \cdot 1 + 2 \cdot 0}{1 + 2} = \frac{1}{3} = 0.33 = 33$ percent. The first "1" in the "$1 \cdot 1$" in the numerator is the first household's participant-level sampling weight because it has one participant, and the second "1" represents its poverty status (poor) or its estimated poverty likelihood. In the "$2 \cdot 0$" term in the numerator, the "2" is the second household's participant-level sampling weight because it has two participants, and the zero represents its poverty status (non-poor) or its estimated poverty likelihood. The "$1 + 2$" in the denominator is the sum of the participant-level sampling weights of the two households. Participant-level sampling weights are used because the unit of analysis is the participant.[7]

To sum up, estimated poverty rates are weighted averages of households' poverty statuses (or estimated poverty likelihoods), where—assuming simple random sampling at the household level—the weights are the number of relevant units in the household. When reporting scorecard-based estimates, organizations should clearly state the unit of

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[6] Given simple random sampling at the household level, a household's participant-level weight is the number of participants in that household.

[7] If all households with participants have (or are assumed to have) one participant each, then the participant-level poverty rate is the same as the household-level rate.

analysis—whether households, household members, or participants—and explain why that unit is relevant.

Table 1 reports poverty lines and poverty rates for households and people in the 2012 LSMS for Albania as a whole and for each its 12 prefectures by urban/rural/all.

Household-level poverty rates are reported because—as shown above— sampling is almost always done at the level of households and because household-level poverty likelihoods can be straightforwardly converted into poverty rates for other units of analysis. This is also why the scorecard is constructed, calibrated, and validated with household weights. Person-level poverty rates are also included in Table 1 because these are the rates reported by the government of Albania. Furthermore, popular discussions and policy discourse usually proceed in terms of person-level rates, and the goal of pro-poor programs is to help people (not households) to improve their well-being.

2.3 Definition of *poverty*, and poverty lines

A household's *poverty status* as poor or non-poor depends on whether its per-capita consumption (ALL per person per day in median prices for Albania overall on average during the 2012 LSMS field work) is below a given poverty line. Thus, a definition of *poverty* is a poverty line together with a measure of consumption.

World Bank (2007, pp. 1–7) tells how household aggregate consumption is defined for Albania in the 2002, 2005, 2008, and 2012 LSMS.

Because pro-poor programs in Albania may want to use different or various poverty lines, this paper calibrates scores from its single scorecard to poverty likelihoods for 14 lines:

- 100% of national
- 150% of national
- 200% of national
- $1.90/day 2011 PPP
- $3.20/day 2011 PPP
- $5.50/day 2011 PPP
- $21.70/day 2011 PPP
- Line marking the poorest half of people below 100% of the national line
- First-decile (10th-percentile) line
- First-quintile (20th-percentile) line
- Second-quintile (40th-percentile) line
- Median (50th-percentile) line
- Third-quintile (60th-percentile) line
- Fourth-quintile (80th-percentile) line

2.3.1 National poverty line

Albania's national poverty line (usually called here "100% of the national line") is derived with the cost-of-basic-needs method (Ravallion, 1998) as the sum of a minimum standard for food consumption and a minimum standard for non-food consumption (World Bank, 2007, pp. 9–10).

The food standard is the cost of 2,288 Calories—adjusted for price differences across primary sampling units in the LSMS—of a 60-item food basket that accounts for 97 percent of food expenditure among a reference group of people in the second, third, and fourth deciles of per-capita consumption in the 2002 (not 2012) LSMS. Items' shares in the basket mirror their shares for the reference group. In median prices for

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Albania overall on average during field work for the 2002 LSMS, the average food standard is ALL100 per person per day. After adjusting for price increases from 2002 to 2012, the food standard is ALL143 per person per day.

Albania's national (food-plus-non-food) poverty line is the food standard, plus a minimum standard of non-food consumption. In 2002 prices, the non-food standard is ALL70, defined as the daily non-food consumption of people whose food consumption is close to the food standard in the 2002 LSMS (World Bank, 2007, p. 9). After adjusting for price increases from 2002 to 2012 as well as for price differences in 2012 across primary sampling units, the resulting national (food-plus-non-food) poverty line in median prices for Albania overall on average during field work for the 2012 LSMS is ALL229 per person per day (Table 1). This gives an all-Albania household-level poverty rate of 9.8 percent and a person-level rate of 14.3 percent.[8]

150% and 200% of the national line are multiples of 100% of the national line.

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[8] This person-level poverty rate for 100% of the national line matches INSTAT (2015, p. 2), suggesting that this paper uses the same data and calculations as INSTAT.

2.3.2 International 2011 PPP poverty lines

International 2011 PPP lines are derived from:

- 2011 PPP exchange rate for Albania for "individual consumption expenditure by households":[9] ALL58.17 per $1.00
- Consumer Price Index (CPI):[10]
  — Calendar-year 2011 average: 304.68
  — Average during 2012 LSMS field work: 310.47
  — Average all-Albania regional price deflator: 1.0891241

Given these parameters, the $1.90/day 2005 PPP line for Albania overall in median prices on average during field work for the 2012 LSMS is

$$\$1.90 \cdot 2011 \, \text{PPP factor} \cdot \left(\frac{\text{CPI}_{2012\text{LSMS}}}{\text{CPI}_{2011}} \right) = \$1.90 \cdot 58.17 \cdot \left(\frac{310.47}{304.68} \right) = \text{ALL}112.62 \,.$$

The $1.90/day line for a given household in a given primary sampling unit is this all-Albania line, multiplied by the PSU-specific price deflator, and divided by the all-Albania average regional price deflator.

Overall, the $1.90/day line gives a household-level poverty rate of 0.5 percent and a person-level rate of 0.8 percent (Table 1).

The World Bank's PovcalNet[11] reports a $1.90/day 2011 PPP line of ALL112.76 per person per day, almost matching the ALL112.62 used here. PovcalNet, however, reports a person-level poverty rate of 0.1 percent (versus 0.8 percent here). Why the

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[9] `iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&CO=ALB_3&PPPO=58.168&PLO=1.90&YO=2012&NumOfCountries=1`, retrieved 15 September 2018.

[10] The monthly CPI is base = 100 in December 1993. `http://databaza.instat.gov.al/pxweb/en/DST/START__PR__PRCPI/CPI001/?rxid=266d41ca-8bb5-404e-bdd9-a5e2d5f62995`, retrieved 23 March 2018.

[11] `iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&CO=ALB_3&PPPO=58.168&PLO=1.90&YO=2012&NumOfCountries=1`, retrieved 15 September 2018.

difference? One minor source may be PovcalNet's use of an approximation to the distribution of consumption based on the data from the 2012 LSMS, rather than estimating with household-by-household data. Beyond that, PovcalNet seems to have used an average regional price deflator of 1.000, rather than the actual 1.0891241. It turns out that deriving the $1.90/day line with an average deflator of 1.000 gives an estimate of 0.1 percent.

As argued in Schreiner (2014b), the figures here for PPP poverty lines are to be preferred because they are documented more completely than those of PovcalNet. Furthermore, replicating PovcalNet requires using an incorrect average regional deflator.

The 2011 PPP poverty lines for $3.20/day, $5.50/day, and $21.70/day are multiples of the $1.90/day line.[12]

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[12] Jolliffe and Prydz (2016) discuss the World Bank's choice of the four 2011 PPP lines.

2.3.3 Relative poverty lines

2.3.4.1   USAID "very poor" line

Microenterprise programs in Albania that use the scorecard to report the number

of their participants who are "very poor" to USAID should use the line that marks the

poorest half of people below 100% of the national line. This is because USAID defines

the "very poor" as those people in households whose daily per-capita consumption is

below the highest of the following two poverty lines (U.S. Congress, 2004):

- The line that marks the poorest half of people below 100% of the national line
  (ALL190, with a person-level poverty rate of 7.2 percent, Table 1)
- The $1.90/day 2011 PPP line (ALL113, with a person-level poverty rate of 0.8
  percent)

2.3.4.2   Percentile-based lines

The scorecard for Albania also supports percentile-based poverty lines.[13] This

facilitates a number of types of analyses. For example, the second-quintile (40th-

percentile) line might be used to help track Albania's progress toward the World Bank's

(2013) goal of "shared prosperity/inclusive economic growth", defined as income growth

among the bottom 40 percent of the world's people.

The four quintile lines, analyzed together, can also be used to look at the

relationship of consumption with health outcomes (or anything else related with the

distribution of consumption). The scorecard thus offers an alternative for health-equity

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[13] Following the asset index associated with the Demographic and Health Surveys,
percentiles are in terms of people (not households) for Albania as a whole. For example,
the all-Albania person-level poverty rate for the first-quintile (20th-percentile) poverty
line is 20 percent (Table 1). The household-level poverty rate for that same line is not
20 percent but rather 14.1 percent.

analyses that typically have used an "asset index" such as that supplied with the data from the Demographic and Health Surveys (Rutstein and Johnson, 2004) to compare some estimate of socio-economic status with health outcomes.

Of course, relative-wealth analyses were always possible (and still are possible) with scores from the scorecard. But support for relative consumption lines allows for a more straightforward use of a single tool to analyze any or all of:

- Relative wealth (via scores)
- Absolute consumption (via poverty likelihoods and absolute poverty lines)
- Relative consumption (via poverty likelihoods and percentile-based poverty lines)

Unlike the scorecard, asset indexes serve only to analyze relative wealth. Furthermore, the scorecard—unlike asset indexes based on Principal Component Analysis or similar approaches—uses a straightforward, well-understood poverty standard whose definition is external to the tool itself (consumption relative to a poverty line defined in monetary units).

In contrast, an asset index opaquely defines *poverty* in terms of its own indicators and points, without reference to an external standard. This means that two asset indexes with different indicators or different points—even if derived from the same data for a given country—imply two different definitions of *poverty*. In the same set-up, two scorecards would provide comparable estimates under a single definition of *poverty*.

3. Scorecard construction

For Albania, about 80 candidate indicators are initially prepared in the areas of:

- Household composition (such as the number of household members)
- Education (such as the highest grade the female head/spouse completed)
- Housing (such as the existence of a separate kitchen)
- Ownership of durable assets (such as water boilers or mobile phones)

Table 2 lists the candidate indicators, ordered by the entropy-based "uncertainty coefficient" (Goodman and Kruskal, 1979) that measures how well a given indicator predicts poverty status on its own.[14]

One possible application of the scorecard is to estimate changes in poverty rates. Thus, when selecting indicators—and holding other considerations constant—preference is given to more sensitive indicators. For example, the possession of a video player/DVD player is probably more likely to change in response to changes in socio-economic status than is the age of the male head/spouse.

The scorecard itself is built using 100% of the national poverty line and Logit regression on the construction sub-sample. Indicator selection is based on both judgment and statistics. The first step is to use Logit to build one scorecard for each candidate indicator. The power of each one-indicator scorecard to rank households by poverty status is measured as "c" (SAS Institute Inc., 2004).

One of these one-indicator scorecards is then selected based on several factors (Schreiner *et al.*, 2014; Zeller, 2004). These include improvement in accuracy, likelihood

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[14] The uncertainty coefficient is not used when selecting scorecard indicators. It is only used as a way to order the candidate indicators listed in Table 2.

of acceptance by users (determined by simplicity, cost of collection, and "face validity" in terms of experience, theory, and common sense), sensitivity to changes in consumption, variety among types of indicators, applicability across regions, tendency to have a slow-changing relationship with poverty over time, relevance for distinguishing among households at the poorer end of the distribution of consumption, and verifiability.

A series of two-indicator scorecards are then built, each adding a second indicator to the one-indicator scorecard selected from the first stage. The best two-indicator scorecard is then selected, again using judgment to balance statistical accuracy with the non-statistical criteria. These steps are repeated until the scorecard has 11 indicators that work well together.

The final step is to transform the Logit coefficients into non-negative integers such that total scores range from 0 (most likely below a poverty line) to 100 (least likely below a poverty line).

This algorithm is similar to common R^2-based stepwise least-squares regression. It differs from naïve stepwise in that the selection of indicators considers both statistical[15] and non-statistical criteria. The use of non-statistical criteria can improve robustness through time and across non-nationally representative groups. It also helps ensure that indicators are straightforward, common-sense, inexpensive-to-collect, and acceptable to users.

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[15] The statistical criterion for selecting an indicator is not the p values of its coefficients but rather the indicator's contribution to the ranking of households by poverty status.

The single scorecard here applies to all of Albania. Segmenting poverty-assessment tools by urban/rural does not improve targeting accuracy much. This is reported for nine countries in Sub-Saharan Africa (Brown, Ravaillon, and van de Walle, 2016)[16], Indonesia (World Bank, 2012), Bangladesh (Sharif, 2009), India and Mexico (Schreiner, 2006 and 2005a), Sri Lanka (Narayan and Yoshida, 2005), and Jamaica (Grosh and Baker, 1995). In general, segmented poverty-assessment tools may improve the accuracy of estimates of poverty rates (Diamond *et al.*, 2016; Tarozzi and Deaton, 2009), but it may also increase the risk of overfitting (Haslett, 2012).

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[16] Burkina Faso, Ethiopia, Ghana, Malawi, Mali, Niger, Nigeria, Tanzania, and Uganda. On average across these countries when targeting people in the lowest quintile or in the lowest two quintiles of scores and when 20 or 40 percent of people are poor, segmenting by urban/rural increases the number of poor people successfully targeted by about one per 200 or one per 400 poor people.

4. Practical guidelines for scorecard use

The main challenge of scorecard design is not to maximize statistical accuracy but rather to improve the chances that the scorecard is actually used and used properly (Schreiner, 2005b). When scorecard projects fail, the reason is not usually statistical inaccuracy but rather the failure of an organization to decide to do what is needed to integrate the scorecard in its processes and to train and convince its employees to use the scorecard properly (Schreiner, 2002). After all, most reasonable scorecards have similar targeting accuracy, thanks to the empirical phenomenon known as the "flat maximum" (Dupriez, 2018; Caire and Schreiner, 2012; Hand, 2006; Baesens *et al.*, 2003; Lovie and Lovie, 1986; Kolesar and Showers, 1985; Stillwell, Barron, and Edwards, 1983; Dawes, 1979; Wainer, 1976; Myers and Forgy, 1963). The bottleneck is less technical and more human, not statistics but organizational-change management. Accuracy is easier to achieve than adoption.

The scorecard for Albania is designed to encourage understanding and trust so that users will want to adopt it on their own and use it properly. Of course, accuracy matters, but it must be balanced with cost, ease-of-use, and "face validity". Programs are more likely to collect data, compute scores, and pay careful attention to the results if, in their view, the scorecard does not imply a lot of additional work and if the whole process generally make sense to them.

To this end, Albania's scorecard fits on one page. The construction process, indicators, and points are straightforward and transparent. Additional work is minimized; non-specialists can compute scores by hand in the field because the scorecard has:

- Only 11 indicators
- Only "multiple-choice" indicators
- Only simple points (non-negative integers, and no arithmetic beyond addition)

The scorecard (and its "Back-page Worksheet") is ready to be photocopied. A field worker using Albania's scorecard would:

- Record the interview identifier, interview date, country code ("ALB"), scorecard code ("001") and the sampling weight assigned to the household of the participant by the organization's survey design (if known)
- Record the names and identifiers of the participant (who is not necessarily the same as the respondent), of the field agent (if there is one) who is the participant's main point of contact with the organization (and who is not necessarily the same as the enumerator), and of the organizational service point that is relevant for the participant (if there is such a service point)
- Mark the response to the first scorecard indicator ("In what prefecture does the household live?") based on what you know about where the interviewed household lives
- Complete the "Back-page Worksheet" with each household member's first name (or nickname), noting who is the male head/spouse (if he exists) and who is the female head/spouse (if she exists)
- Based on the "Back-page Worksheet", record the number of household members in the scorecard header next to "Number of household members:"
- Based on the "Back-page Worksheet", mark the response to the second scorecard indicator ("How many household members are there?")
- Read the rest of the scorecard indicators to the respondent one-by-one. Circle each of the responses and their pre-printed points, and write each point value in the far right-hand column
- Add up the points to get a total score (if desired)
- Implement targeting policy (if any) based on the score
- Deliver the paper scorecard to a central office for data entry and filing or upload the data with a mobile data-collection tool

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Of course, field workers must be trained. The quality of outputs depends on the quality of inputs. The training of field workers should be based solely on the "Interview Guide" found after the "References" in this document.

If organizations or field workers gather their own data and if they believe that they have an incentive to exaggerate poverty rates (for example, if managers or funders reward them for higher poverty rates), then it is wise to do on-going quality control via data review and random audits (Matul and Kline, 2003).[17] IRIS Center (2007a) and Toohig (2008) are useful nuts-and-bolts guides for logistics, budgeting, training field workers and supervisors, sampling, interviewing, piloting, recording data, and controlling quality. Schreiner (2014a) explains how to compute estimates and analyze them.

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[17] If a program does not want field workers or respondents to know the points associated with responses, then it can use a mobile data-collection tool or provide a version of the paper scorecard that does not display the points and then apply the points and compute scores later at a central office. Even if points are hidden, however, field workers and respondents can use common sense to guess how answers are linked with poverty. Schreiner (2012b) argues that hiding points in Colombia (Camacho and Conover, 2011) did little to deter cheating and that, in any case, cheating by the user's central office was more damaging than cheating by field workers and respondents.

While collecting scorecard indicators is relatively easier than alternative ways of assessing poverty, it is still absolutely difficult. Training and explicit definitions of the terms and concepts in the scorecard are essential, and field workers should scrupulously study and follow the "Interview Guide" found after the "References" section in this paper, as this "Interview Guide"—along with the "Back-page Worksheet"—is an integral part of the scorecard.[18]

For the example of Nigeria, one study (Onwujekwe, Hanson, and Fox-Rushby, 2006) found distressingly low inter-rater and test-retest correlations for indicators as seemingly incontrovertible as whether a household owns an automobile. Yet Grosh and Baker (1995) suggest that gross underreporting of assets does not affect targeting. For the first stage of targeting in a conditional cash-transfer program in Mexico, Martinelli and Parker (2007, pp. 24–25) find that "under-reporting [of asset ownership] is widespread but not overwhelming, except for a few goods . . . [and] over-reporting is common for a few goods". Still, as is done in Mexico in the second stage of its targeting process, most false self-reports can be corrected (or avoided in the first place) by field workers who make a home visit. This is the recommended procedure for organizations that use the scorecard for targeting in Albania.

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[18] The guidelines here are the only ones that organizations should give to enumerators. All other issues of interpretation should be left to the judgment of enumerators and respondents, as this seems to be what Albania's INSTAT did in the 2012 LSMS.

In terms of implementation and sampling design, an organization must make choices about:

- Who will do the interviews
- Where interviews will be done
- How responses and scores will be recorded
- Which households of participants will be interviewed
- How many households of participants will be interviewed
- How frequently households of participants will be interviewed
- Whether the scorecard will be applied at more than one point in time
- Whether the same households of participants will be scored at more than one point in time

In general, the sampling design should follow from the organization's goals for the exercise, the questions to be answered, and the budget. The main goals should be:

- To make sure that the sample is representative of a well-defined population
- To inform issues that matter to the organization

The non-specialists who apply the scorecard in the field with the households of an organization's participants can be:

- Employees of the organization
- Third parties

There is only one correct, recommended way to do interviews: in-person, at the sampled household's residence, with an enumerator trained to follow the "Interview Guide". This is how INSTAT did interviews in Albania's 2012 LSMS, and this provides the most-accurate and most-consistent data (and thus the best estimates).

Of course, it is possible to do interviews in other ways such as:

- Without an enumerator (for example, by asking respondents to fill out paper or web forms on their own or to answer questions sent via e-mail, text messaging, or automated voice-response systems)
- Away from the residence (for example, at an organizational service point or at a group-meeting place)
- Not in-person (for example, with an enumerator interviewing by phone)

While such non-recommended methods may reduce costs, they also affect responses (Schreiner, 2015a) and thus reduce the accuracy of scorecard estimates. This is why interviewing by a trained enumerator at the residence is recommended and why other, off-label methods are not recommended.

In some contexts—such as when an organization's field agents do not already visit participants periodically at home anyway as part of their normal work—an organization might judge that the lower costs a non-recommended approach are enough to compensate for less-accurate estimates. The business wisdom of off-label methods depends on context-specific factors that an organization must judge for itself. To judge carefully, an organization that is considering a non-recommended method should test how responses differ with the non-recommended method versus with a trained enumerator at the residence. Furthermore, any reporting should note the use of the non-recommended data-collection method and discuss its possible consequences.

Responses, scores, and poverty likelihoods can be recorded by enumerators on:

- Paper in the field, and then filed at a central office
- Paper in the field, and then keyed into a database or spreadsheet at a central office
- Hand-held devices in the field, and then uploaded to a database[19]

Given a population of participants relevant for a particular business question, the participants whose households will be interviewed can be:

- All relevant participants (a census)
- A representative sample of relevant participants
- All relevant participants in a representative sample of relevant field offices and/or in a representative sample of relevant field agents
- A representative sample of relevant participants in a representative sample of relevant field offices and/or in a representative sample of relevant field agents

If not determined by other factors, the number of participants whose households are to be interviewed can be derived from sample-size formulas (presented later) to achieve a desired confidence level and a desired confidence interval. To have the best chance to meaningfully inform questions that matter to the organization, however, the focus should be less on having a sample size large enough to achieve some arbitrary level of statistical significance and more on having a representative sample from a well-defined population that is relevant for informing issues that matter to the organization. In practice, errors due to implementation issues and due to interviewing a non-representative sample can easily swamp errors due to having a somewhat smaller sample size.

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[19] Scorocs can support organizations that want to set up a system to collect data with mobile devices or to capture data in a database at the office once paper forms come in. Support is also available for calculating estimates as well as for reporting and analysis.

The frequency of application can be:

- As a once-off project (precluding estimating change)
- Every three years (or at any other fixed or variable time interval, allowing estimating change)
- Each time a field agent visits a participant at home (allowing estimating change)

If a scorecard is applied more than once in order to estimate changes in poverty rates, then it can be applied:

- With a different sample of participants from the same population
- With the same sample of participants

An example set of choices is illustrated by BRAC and ASA, two microfinance organizations in Bangladesh who each have about 7 million participants and who declared their intention to apply the scorecard for Bangladesh (Schreiner, 2013a) with a sample of about 25,000 participants. Their design is that all loan officers in a random sample of branches score all participants each time the loan officers visit a homestead (about once a year) as part of their standard due diligence prior to loan disbursement. The loan officers record responses on paper in the field before sending the forms to a central office to be entered into a database and converted to poverty likelihoods.

5. Estimates of a household's poverty likelihood

The sum of scorecard points for a household is called the *score*. For Albania, scores range from 0 (most likely below a poverty line) to 100 (least likely below a poverty line). While higher scores indicate less likelihood of being poor, the scores themselves have only relative units. For example, doubling the score decreases the likelihood of being below a given poverty line, but it does not cut it in half.

To get absolute units, scores are converted to *poverty likelihoods*, that is, probabilities of being below a poverty line. This is done via easy-to-use look-up tables. For the example of 100% of the national line, scores of 48–49 have a poverty likelihood of 5.8 percent, and scores of 50–51 have a poverty likelihood of 2.4 percent (Table 3).

The poverty likelihood associated with a score varies by poverty line. For example, scores of 48–49 are associated with a poverty likelihood of 5.8 percent for 100% of the national line but of 39.0 percent for 150% of the national line.[20]

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[20] From Table 3 on, many tables have 14 versions, one for each of the 14 supported poverty lines. To keep them straight, they are grouped by line. Single tables pertaining to all lines appear with the first group of tables for 100% of the national line.

5.1 Calibrating scores with poverty likelihoods

A given score is associated ("calibrated") with a *poverty likelihood* that is defined as the share of households in the calibration sub-sample who have the score and who have per-capita consumption below a given poverty line.

For the example of 100% of the national line and a score of 48–49 (Table 4), there are 4,569 (normalized) households in the calibration sample. Of these, 266 (normalized) are below the poverty line. The estimated poverty likelihood associated with a score of 48–49 is then 5.8 percent, because 266 ÷ 4,569 = 5.8 percent.

To illustrate with 100% of the national line and a score of 50–51, there are 4,625 (normalized) households in the calibration sub-sample, of whom 112 (normalized) are below the line (Table 4). The poverty likelihood for this score range is then 112 ÷ 4,625 = 2.4 percent.

The same method is used to calibrate scores with estimated poverty likelihoods for all 14 poverty lines.[21]

Even though the scorecard is constructed partly based on judgment related to non-statistical criteria, the calibration process produces poverty likelihoods that are objective, that is, derived from monetary poverty lines and from survey data on consumption. The calibrated poverty likelihoods would be objective even if the process

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[21] To ensure that poverty likelihoods never increase as scores increase, likelihoods across pairs of adjacent scores may be iteratively averaged before grouping scores into ranges. This preserves unbiasedness while keeping users from balking when sampling variation in score ranges with few households would otherwise lead to higher scores being linked with higher poverty likelihoods.

of selecting indicators and points did not use any data at all. In fact, objective

scorecards of proven accuracy are often constructed using only expert judgment to

select indicators and points (Fuller, 2006; Caire, 2004; Schreiner *et al.*, 2014). Of course,

the scorecard here is constructed with both data and judgment. The fact that this paper

acknowledges that some choices in scorecard construction—as in any statistical

analysis—are informed by judgment in no way impugns the objectivity of the poverty

likelihoods, as their objectivity depends on using data in score calibration, not on using

data (and nothing else) in scorecard construction.

Although the points in Albania's scorecard are transformed coefficients from a

Logit regression, (untransformed) scores are not converted to poverty likelihoods via the

Logit formula of $2.718281828^{\text{score}}$ x $(1 + 2.718281828^{\text{score}})^{-1}$. This is because the Logit

formula is esoteric and difficult to compute by hand. It is more intuitive to define the

poverty likelihood as the share of households with a given score in the calibration

sample who are below a poverty line. Going from scores to poverty likelihoods in this

way requires no arithmetic at all, just a look-up table. This approach to calibration can

also improve accuracy, especially with large samples.

5.2 Accuracy of estimates of households' poverty likelihoods

As long as the relationships between indicators and poverty do not change over time, and as long as the scorecard is applied to samples of households who are representative of the same population as that from which the scorecard was originally constructed, then this calibration process produces unbiased estimates of poverty likelihoods. *Unbiased* means that in repeated samples from the same population, the average estimate matches the population's true value. Given the assumptions above, the scorecard also produces unbiased estimates of poverty rates at a point in time and unbiased estimates of the change in poverty rates between two points in time.[22]

Of course, the relationships between indicators and poverty do change to some unknown extent over time, and they also vary across sub-national groups in Albania's population. Thus, scorecard estimates will generally have errors when applied after November 2012 (the last month of field work for the 2012 LSMS) or when applied with sub-groups that are not nationally representative.

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[22] This is because these estimates of populations' poverty rates are linear functions of the unbiased estimates of households' poverty likelihoods.

How accurate are estimates of households' poverty likelihoods, given the

assumption of unchanging relationships between indicators and poverty over time and

the assumption of a sample that is representative of Albania as a whole? To find out,

the scorecard is applied to 1,000 bootstrap samples of size $n = 16,384$ from the

validation sample. Bootstrapping means to:

- Score each household in the validation sample
- Draw a bootstrap sample *with replacement* from the validation sample, accounting for household-level sampling weights
- For each score range, compute the observed poverty likelihood in the bootstrap sample, that is, the share of households with the score and with consumption below a poverty line
- For each score range, record the difference between the estimated poverty likelihood (Table 3) and the observed poverty likelihood in the bootstrap sample
- Repeat the previous three steps 1,000 times
- For each score range, report the average difference between estimated and observed poverty likelihoods across the 1,000 bootstrap samples
- For each score range, report the intervals containing the central 900, 950, and 990 differences between estimated and observed poverty likelihoods

For each score range and for $n = 16,384$, Table 5 shows the errors in the

estimates of poverty likelihoods, that is, the average of differences between the

estimates and observed values. It also shows confidence intervals for the errors.

For 100% of the national line and on average across bootstrap samples from the

validation sample, the estimated poverty likelihood for scores of 48–49 (5.8 percent,

Table 3) is too high by 0.6 percentage points. For scores of 50–51, the estimate is too

low by 2.0 percentage points.[23]

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[23] These differences are not zero, in spite of the estimator's unbiasedness, because the scorecard comes from a single sample. The average difference by score would be zero if

The 90-percent confidence interval for the differences for scores of 48–49 is ±1.3 percentage points (Table 5). This means that in 900 of 1,000 bootstraps, the average difference between the estimate and the observed value for households in this score range is between –0.7 and +1.9 percentage points (because +0.6 – 1.3 = –0.7, and +0.6 + 1.3 = +1.9). In 950 of 1,000 bootstraps (95 percent), the difference is +0.6 ± 1.6 percentage points, and in 990 of 1,000 bootstraps (99 percent), the difference is +0.6 ± 2.0 percentage points.

A few of the absolute errors between estimated and observed poverty likelihoods in Table 5 for 100% of the national line are large. The differences are at least partly due to the fact that the validation sample is a single sample that—thanks to sampling variation—differs in distribution from the construction/calibration sub-sample and from the population of Albania. For targeting, however, what matters is less the difference in all score ranges and more the differences in the score ranges just above and just below the targeting cut-off. This mitigates the effects of error and sampling variation on targeting (Friedman, 1997). Section 8 below looks at targeting accuracy in detail.

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samples were repeatedly drawn from the population and split into sub-samples before repeating the entire process of scorecard construction/calibration and validation.

In addition, if estimates of populations' poverty rates are to be usefully accurate, then errors for individual households' poverty likelihoods must largely balance out. As discussed in the next section, this is generally the case for nationally representative samples in 2012 in Albania, although it will hold less well for samples from sub-national populations and in other time periods.

Another possible source of errors between estimates and observed values is overfitting. The scorecard here is unbiased, but it may still be *overfit* when applied after the end of the LSMS field work in November 2012. That is, the scorecard may fit the construction/calibration data from 2012 so closely that it captures not only some real patterns that exist in the population of Albania but also some random patterns that, due to sampling variation, show up only in the 2012 LSMS construction/calibration data. Or the scorecard may be overfit in the sense that it is not robust when relationships between indicators and poverty change over time or when the scorecard is applied to sub-groups that are not nationally representative.

Overfitting can be mitigated by simplifying the scorecard and by not relying only on data but rather also considering theory, experience, and judgment. Of course, the scorecard does this. Combining scorecards can also reduce overfitting, at the cost of greater complexity.

Most errors in individual households' likelihoods do balance out in the estimates of poverty rates for nationally representative samples (see the next two sections). Furthermore, at least some of the differences in change-over-time estimates come from non-scorecard sources such as changes in the relationships between indicators and poverty, sampling variation, changes in poverty lines, inconsistencies in data quality across time, and imperfections in price adjustments across time and across geographic regions. These factors can be addressed only by improving the availability, frequency, quantity, and quality of data from national consumption surveys (which is beyond the scope of the scorecard) or by reducing overfitting (which likely has limited returns, given the scorecard's parsimony).

6. Estimates of a poverty rate at a point in time

A population's estimated poverty rate at a point in time is the average of the estimated poverty likelihoods of the sampled households.

To illustrate, suppose a program samples three households on 1 January 2020 and that they have scores of 20, 30, and 40, corresponding to estimated poverty likelihoods of 49.4, 32.0, and 19.6 percent (100% of the national line, Table 3). The population's estimated poverty rate is the households' average poverty likelihood of $(49.4 + 32.0 + 19.6) \div 3 = 33.7$ percent.[24]

Be careful; the population's estimated poverty rate is *not* the poverty likelihood associated with the average score. Here, the average score is 30, which corresponds to an estimated poverty likelihood of 32.0 percent. This differs from the 33.7 percent found as the average of the three individual poverty likelihoods associated with each of the three scores. Unlike poverty likelihoods, scores are ordinal symbols, like letters in the alphabet or colors in the spectrum. Because scores are not cardinal numbers, they cannot meaningfully be added up or averaged across households. Only three operations are valid for scores: conversion to poverty likelihoods, analysis of distributions (Schreiner, 2012a), or comparison—if desired—with a cut-off for segmentation. There are a few contexts in which the analysis of scores is appropriate, but, in general, the

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[24] This example assumes simple random sampling (or a census) and analysis at the level of households so that each household's household-level weight is one (1). The weights would differ by household if there were stratified sampling or—as discussed in Section 2—if the analysis were at the level of the person or at the level of the participant.

safest rule to follow is: If you are not completely sure what to do, then use poverty

likelihoods, not scores.

Scores from the scorecard are calibrated with data from the 2012 LSMS for all 14

poverty lines. The process of calibrating scores to poverty likelihoods and the approach

to estimating poverty rates is exactly the same for all poverty lines. For users, the only

difference in terms of what they do with one poverty line versus with another has to do

with the specific look-up table used to convert scores to poverty likelihoods.

6.1 Accuracy of estimated poverty rates at a point in time

For the scorecard applied to 1,000 bootstraps of $n = 16,384$ for 100% of the

national line, the average error (average difference between the estimate and observed

value in the validation sample) for a poverty rate at a point in time is –0.2 percentage

points (Table 7, which summarizes Table 6 across all poverty lines). For the 14 poverty

lines in the validation sample, the maximum of the absolute values of the error is 1.6

percentage points, and the average of the absolute values of the average errors is about

0.6 percentage points. At least part of these differences is due to sampling variation in

the division of the 2012 LSMS into sub-samples.

When estimating poverty rates at a point in time for a given poverty line, the error reported in Table 7 should be subtracted from the average poverty likelihood to give a corrected estimate. For the example of the scorecard and 100% of the national line in the validation sample, the error is about –0.2 percentage points, so the corrected estimate in the three-household example above is $33.7 - (-0.2) = 33.9$ percent.

In terms of precision, the 90-percent confidence interval for a population's estimated poverty rate at a point in time with $n = 16{,}384$ is ± 0.6 percentage points or smaller for all poverty lines (Table 7). Given the scorecard's standard assumptions, this means that in 900 of 1,000 bootstraps of this size, the estimate (after correcting for the known average error) is within 0.6 percentage points of the observed value.

For example, suppose that the (uncorrected) average poverty likelihood in a sample of $n = 16{,}384$ with the scorecard and 100% of the national line is 33.7 percent. Then estimates in 90 percent of such samples would be expected to fall in the range of $33.7 - (-0.2) - 0.5 = 33.4$ percent to $33.7 - (-0.2) + 0.5 = 34.4$ percent, with the most likely observed value being the corrected estimate in the middle of this range, that is, $33.7 - (-0.2) = 33.9$ percent. This is because the original (uncorrected) estimate is 33.7 percent, the average error is about –0.2 percentage points, and the 90-percent confidence interval for 100% of the national line in the validation sample with this sample size is ± 0.5 percentage points (Table 7).

6.2 Formula for standard errors for estimates of poverty rates

How precise are the point-in-time estimates? Because these estimates are averages, they have (in "large" samples) a Normal distribution and can be characterized by their error (average difference vis-à-vis observed values), together with their standard error (precision).

Schreiner (2008) proposes an approach to deriving a formula for the standard errors of estimated poverty rates at a point in time from indirect estimation via a poverty-assessment tool. It starts with Cochran's (1977) textbook formula of $\pm c = \pm z \cdot \sigma$ that relates confidence intervals with standard errors in the case of the direct measurement of ratios, where:

$\pm c$ is a confidence interval as a proportion (*e.g.*, ± 0.02 for ± 2 percentage points),

z is from the Normal distribution and is $\begin{cases} 1.04 \text{ for confidence levels of 70 percent} \\ 1.28 \text{ for confidence levels of 80 percent} \\ 1.64 \text{ for confidence levels of 90 percent} \end{cases}$,

σ is the standard error of the estimated poverty rate, that is, $\sqrt{\dfrac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \phi$,

$\hat{p}$ is the estimated proportion of households below the poverty line in the sample,

ϕ is the finite population correction factor $\sqrt{\dfrac{N - n}{N - 1}}$,

N is the population size, and

n is the sample size.

For example, Albania's 2012 LSMS gives a direct-measure household-level poverty rate for 100% of the national line of $\hat{p} = 9.8$ percent (Table 1).[25] If this measure came from a sample of $n = 16,384$ households from a population N of 756,129 (the number of households in Albania in 2012 according to the LSMS sampling weights), then the finite population correction ϕ is $\sqrt{\dfrac{756,129 - 16,384}{756,129 - 1}} = 0.9891$, which is close to $\phi = 1$. If the desired confidence level is 90-percent ($z = 1.64$), then the confidence interval $\pm c$ is $\pm z \cdot \sqrt{\dfrac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\dfrac{N - n}{N - 1}} = \pm 1.64 \cdot \sqrt{\dfrac{0.098 \cdot (1 - 0.098)}{16,384}} \cdot \sqrt{\dfrac{756,129 - 16,384}{756,129 - 1}} = \pm 0.377$ percentage points. If ϕ were taken as 1, then the interval would be ± 0.381 percentage points.

Unlike the 2012 LSMS, however, the scorecard does not measure poverty directly, so this formula is not applicable. To derive a formula for the scorecard, consider Table 6, which reports empirical confidence intervals $\pm c$ for the errors for the scorecard applied to 1,000 bootstrap samples of various sizes from the validation sample. For example, with $n = 16,384$ and 100% of the national line in the validation sample, the 90-percent confidence interval is ± 0.467 percentage points.[26]

Thus, the scorecard's 90-percent confidence interval with $n = 16,384$ is ± 0.467 percentage points, while the interval for direct measurement is ± 0.377 percentage points. The ratio of the two intervals is $0.467 \div 0.377 = 1.24$.

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[25] This analysis ignores that poverty-rate estimates from the LSMS are themselves based on a sample and so have their own sampling distribution.

[26] Due to rounding, Table 6 displays 0.5, not 0.467.

Now consider the same exercise, but with $n = 8{,}192$. The confidence interval

under direct measurement and 100% of the national line in the validation sample is

$$\pm\, 1.64 \cdot \sqrt{\frac{0.098 \cdot (1 - 0.098)}{8{,}192}} \cdot \sqrt{\frac{756{,}129 - 8{,}192}{756{,}129 - 1}} = \pm 0.536 \text{ percentage points. The empirical}$$

confidence interval with the scorecard (Table 6) is ± 0.636 percentage points. Thus for n

$= 8{,}192$, the ratio of the two intervals is $0.636 \div 0.536 = 1.19$.

This ratio of 1.19 for $n = 8{,}192$ is not far from the ratio of 1.24 for $n = 16{,}384$.

Across all sample sizes of 256 or more in Table 6, these ratios are generally close to

each other, and the average of these ratios in the validation sample turns out to be

1.19. This implies that confidence intervals for indirect estimates of poverty rates via

Albania's scorecard and 100% of the national line are—for a given sample size—about

20 percent wider than the confidence intervals for direct estimates via the 2012 LSMS.

This 1.19 appears in Table 7 as the "α factor for precision" because if $\alpha = 1.19$, then the

formula for approximate confidence intervals $\pm c$ for the scorecard is $\pm c = \pm z \cdot \alpha \cdot \sigma$.

That is, the formula for the approximate standard error σ for point-in-time estimates of

poverty rates via the scorecard is $\alpha \cdot \sqrt{\dfrac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\dfrac{N - n}{N - 1}}$.

In general, α can be greater than or less than 1.00. When α is less than 1.00, it

means that the scorecard is more precise than direct measurement. It turns out that α

is less than 1.00 for six of the 14 poverty lines in Table 7, and its highest value is 1.31.

The formula relating confidence intervals with standard errors for the scorecard

can be rearranged to give a formula for determining sample size before estimation. If $\tilde{p}$

is the expected poverty rate before estimation, then the formula for sample size n from a population of size N that is based on the desired confidence level that corresponds to z and the desired confidence interval $\pm c$ is $n = N \cdot \left(\dfrac{z^2 \cdot \alpha^2 \cdot \tilde{p} \cdot (1 - \tilde{p})}{z^2 \cdot \alpha^2 \cdot \tilde{p} \cdot (1 - \tilde{p}) + c^2 \cdot (N - 1)} \right)$. If the population N is "large" relative to the sample size n, then the finite-population correction factor ϕ can be taken as one (1), and the formula becomes

$$n = \left(\frac{\alpha \cdot z}{c} \right)^2 \cdot \tilde{p} \cdot (1 - \tilde{p}).$$

To illustrate how to use this, suppose the population N is 756,129 (the number of households in Albania in 2012), suppose $c = 0.03694$, $z = 1.64$ (90-percent confidence), and the relevant poverty line is 100% of the national line so that the most sensible expected poverty rate $\tilde{p}$ is Albania's overall poverty rate for that line in 2012 (9.8 percent at the household level, Table 1). The α factor is 1.19 (Table 7). Then the sample-size formula gives

$$n = 756{,}129 \cdot \left(\frac{1.64^2 \cdot 1.19^2 \cdot 0.098 \cdot (1 - 0.098)}{1.64^2 \cdot 1.19^2 \cdot 0.098 \cdot (1 - 0.098) + 0.03694^2 \cdot (756{,}129 - 1)} \right) = 247\text{, which close}$$

to the sample size of 256 observed for these parameters in Table 6 for 100% of the national line. Taking the finite population correction factor ϕ as one (1) gives the same result, as $n = \left(\dfrac{1.19 \cdot 1.64}{0.03694} \right)^2 \cdot 0.098 \cdot (1 - 0.098) = 247.$[27]

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[27] Although USAID has not specified confidence levels nor intervals, IRIS Center (2007a and 2007b) says that a sample size of $n = 300$ is sufficient for USAID reporting. USAID's microenterprise partners in Albania should report using the line that marks

Of course, the α factors in Table 7 are specific to Albania, its poverty lines, its poverty rates, and this scorecard. The derivation of the formulas for approximate standard errors using the α factors, however, is valid for any poverty-assessment tool following the approach in this paper.

In practice after the end of field work for the LSMS in November 2012, a program would select a poverty line (say, 100% of the national line), note its participants' population size (for example, $N = 10,000$ participants), select a desired confidence level (say, 90 percent, or $z = 1.64$), select a desired confidence interval (say, ± 2.0 percentage points, or $c = \pm 0.02$), make an assumption about $\tilde{p}$ (perhaps based on a previous estimate such as the household-level poverty rate for 100% of the national line for Albania of 9.8 percent in the 2012 LSMS in Table 1), look up α (here, 1.19 in Table 7), assume that the scorecard will still work in the future and for sub-groups that are not nationally representative,[28] and then compute the required sample size. In this

illustration, $n = 10,000 \cdot \left(\dfrac{1.64^2 \cdot 1.19^2 \cdot 0.098 \cdot (1-0.098)}{1.64^2 \cdot 1.19^2 \cdot 0.098 \cdot (1-0.098) + 0.02^2 \cdot (10{,}000-1)} \right) = 777.$

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the poorest half of people below 100% of the national line. Given the α factor of 1.31 for this line (Table 7), an expected before-measurement household-level poverty rate of 4.6 percent (the all-Albania rate for this line in 2012, Table 1), and a confidence level of 90 percent ($z = 1.64$), then $n = 300$ implies a confidence interval of

$\pm 1.64 \cdot 1.31 \cdot \sqrt{\dfrac{0.046 \cdot (1-0.046)}{300}} = \pm 2.6$ percentage points.

[28] This paper reports accuracy for the scorecard applied to its validation sample, but it does not test accuracy for later years nor for sub-populations that are not nationally representative. Performance after November 2012 will resemble that in the 2012 LSMS with deterioration over time and across non-nationally representative sub-groups to the extent that the relationships between indicators and poverty status change.

7. Estimates of changes in poverty rates over time

The change in a population's poverty rate between two points in time is estimated as the change in the average poverty likelihood of a sample of households from the population.

The accuracy of estimates of change over time in which both baseline and follow-up estimates are from Albania's scorecard are not tested, and this paper can only suggest approximate formulas for standard errors. Nonetheless, the relevant concepts are discussed because in practice pro-poor organizations in Albania can apply the scorecard to collect their own data and measure change through time.

7.1 Warning: *Change* is not necessarily *impact*

The scorecard can estimate change. Of course, poverty could get better or worse, and the scorecard does not indicate what caused change. This point is often forgotten or confused, so it bears repeating: the scorecard merely estimates change, and it does not, in and of itself, indicate the causes of change. In particular, estimating the impact of participation requires knowledge or assumptions about what would have happened to participants if they had not been participants. Making judgments or drawing conclusions about causality requires either strong assumptions or a control group that resembles participants in all ways except participation. To belabor the point, the scorecard can help estimate the impact of participation only if there is some way to

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know—or explicit assumptions about—what would have happened in the absence of participation. And that must come from beyond the scorecard.

7.2 Estimating changes in poverty rates

The rest of this section explains how to estimate changes over time.

Consider the illustration begun in the previous section. On 1 January 2020, an organization samples three households who score 20, 30, and 40 and so have poverty likelihoods of 49.4, 32.0, and 19.6 percent (100% of the national line, Table 3). Given the known average error for this line in the validation sample of about –0.2 percentage points, Table 7), the corrected baseline estimated poverty rate is the households' average poverty likelihood of [(49.4 + 32.0 + 19.6) ÷ 3] – (–0.2) = 33.9 percent.

After baseline, two sampling approaches are possible for the follow-up round:

- *Two independent samples*: Score a new, independent sample from the same population that was sampled from at baseline
- *One sample scored twice*: Score the same sample that was scored at baseline

7.2.1 Estimating change with two independent samples

By way of illustration, suppose that three years later on 1 January 2023, the organization draws a new, independent sample of three additional households who are in the same population as the three original households and finds that their scores are 25, 35, and 45 (poverty likelihoods of 49.4, 23.9, and 9.8 percent, 100% of the national line, Table 3). Adjusting for the known average error, the average poverty likelihood at follow-up is [(49.4 + 23.9 + 9.8) ÷ 3] – (–0.2) = 27.9 percent. The reduction in the

poverty rate is then 33.9 − 27.9 = 6.0 percentage points.[29] Supposing that exactly three

years passed between the average baseline interview and the average follow-up

interview, the estimated annual decrease in the poverty rate is 6.0 ÷ 3 = 2.0 percentage

points per year. That is, about one in 50 participants in this hypothetical example cross

the poverty line each year.[30] Among those who start below the line, about one in 17 (2.0

÷ 33.9 = 5.9 percent) on net end up above the line each year.[31]

7.2.2 Estimating change with one sample scored twice

Alternatively, suppose that the same three original households who were scored

at baseline are scored again on 1 January 2023. Given scores of 25, 35, and 45, their

follow-up poverty likelihoods are 49.4, 23.9, and 9.8 percent. The average across

households of the difference in each given household's baseline poverty likelihood and its

follow-up poverty likelihood is [(49.4 − 49.4) + (32.0 − 23.9) + (19.6 − 9.8)] ÷ 3 = 6.0

percentage points.[32] Assuming in this example that there are exactly three years

between each household's interviews, the estimated annual decrease in the poverty rate

is (again) 6.0 ÷ 3 = 2.0 percentage points per year.

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[29] Of course, such a large reduction in poverty in three years is unlikely, but this is just
an example to show how the scorecard can be used to estimate change.

[30] This is a net figure; some start above the line and end below it, and vice versa.

[31] The scorecard does not reveal the reasons for this change.

[32] With one sample scored twice, the error for this line from Table 7 should *not* be
subtracted off.

Given the assumptions of the scorecard, both approaches give unbiased estimates of the annual change in poverty rates. In general and in practice, however, they will give different estimates due to differences in the timing of interviews, in the composition of samples, and in the nature of two independent samples (each scored once) versus one sample scored twice (Schreiner, 2014a).

7.3 Precision for estimated changes

7.3.1 Precision when scoring two independent samples

For two equal-sized independent samples, the same logic as in the previous section can be used to derive a formula relating the confidence interval $\pm c$ with the standard error σ of a poverty-assessment tool's estimate of the change in poverty rates over time:

$$\pm\, c = \pm z \cdot \sigma = \pm z \cdot \alpha \cdot \sqrt{\frac{2 \cdot \hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\frac{N - n}{N - 1}}\ .$$

Here, z, c, $\hat{p}$ and N are defined as above, n is the sample size at both baseline and follow-up,[33] and α is the average (across a range of bootstrapped sample sizes) of the ratio of the observed confidence interval from a scorecard divided by the theoretical confidence interval under direct measurement.

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[33] This means that—for a given level of precision—estimating the change in a poverty rate between two points in time requires four times as many interviews (not twice as many) as does estimating a poverty rate at a point in time.

As before, the formula for standard errors can be rearranged to give a formula for sample sizes before indirect estimation via a poverty-assessment tool, where $\widetilde{p}$ is based on previous estimates and is assumed equal at both baseline and follow-up:

$$n = 2 \cdot N \cdot \left(\frac{z^2 \cdot \alpha^2 \cdot \widetilde{p} \cdot (1 - \widetilde{p})}{z^2 \cdot \alpha^2 \cdot \widetilde{p} \cdot (1 - \widetilde{p}) + c^2 \cdot (N - 1)} \right).$$ If ϕ can be taken as one (1), then the

formula becomes $n = 2 \cdot \left(\dfrac{\alpha \cdot z}{c} \right)^2 \cdot \widetilde{p} \cdot (1 - \widetilde{p})$.

With two independent samples, α has been estimated for scorecards for 19 countries (Schreiner 2018, 2017a, 2017b, 2017c, 2016a, 2016b, 2016c, 2016d, 2015b, 2015c, 2015d, 2015e, 2013a, 2013b, 2012c, 2010, 2009a, 2009b, and Chen and Schreiner, 2009). The unweighted average of α across these 19 countries—after averaging α across poverty lines and pairs of survey rounds within each country—is 1.08. This rough figure is as reasonable as any to use for Albania (or any other scorecard) from now on.

To illustrate the use of this formula to determine sample size for estimating changes in poverty rates with two independent samples, suppose the desired confidence level is 90 percent ($z = 1.64$), the desired confidence interval is ± 2 percentage points ($\pm c = \pm 0.02$), the poverty line is 100% of the national line, $\alpha = 1.08$, $\widetilde{p} = 0.098$ (the household-level poverty rate in 2012 for 100% of the national line in Table 1), and the population N is large enough relative to the expected sample size n that the finite population correction ϕ can be taken as one (1). Then the baseline sample size is

$$n = 2 \cdot \left(\frac{1.08 \cdot 1.64}{0.02} \right)^2 \cdot 0.098 \cdot (1 - 0.098) \cdot 1 \;=\; 1{,}387, \text{ and the follow-up sample size is also}$$

1,387.

7.3.2 Precision with one sample scored twice

Analogous to previous derivations, the general formula relating the confidence interval $\pm c$ to the standard error σ when using a scorecard to estimate change for one sample scored twice is:[34]

$$\pm \, c = \pm z \cdot \sigma = \pm z \cdot \alpha \cdot \sqrt{\frac{\hat{p}_{12} \cdot (1 - \hat{p}_{12}) + \hat{p}_{21} \cdot (1 - \hat{p}_{21}) + 2 \cdot \hat{p}_{12} \cdot \hat{p}_{21}}{n}} \cdot \sqrt{\frac{N - n}{n - 1}},$$

where z, c, α, N, and n are defined as usual, $\hat{p}_{12}$ is the share of all sampled households that move from below the poverty line to above it, and $\hat{p}_{21}$ is the share of all sampled households that move from above the line to below it.

The formula for confidence intervals can be re-arranged to give a formula for sample size before estimation. This requires an estimate (based on information available before estimation) of the expected shares of all households who will cross the poverty line $\tilde{p}_{12}$ and $\tilde{p}_{21}$. Before estimation, an agnostic assumption is that the change in the poverty rate will be zero, which implies $\tilde{p}_{12} = \tilde{p}_{21} = \tilde{p}_*$, giving:

$$n = 2 \cdot \left(\frac{\alpha \cdot z}{c} \right)^2 \cdot \tilde{p}_* \cdot \sqrt{\frac{N - n}{n - 1}}.$$

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[34] See McNemar (1947) and Johnson (2007). John Pezzullo helped find this formula.

Because $\widetilde{p}_*$ could be anything between 0 and 0.5, more information is needed to apply this formula. The average observed relationship in Niger (Schreiner, 2018) and Peru (Schreiner, 2009c) between $\widetilde{p}_*$, the number of years y between baseline and follow-up, and $p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})$ is close to:

$$\widetilde{p}_* = -0.01 + 0.016 \cdot y + 0.56 \cdot [p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})].$$

Given this approximate result, a sample-size formula for a sample of households to whom the Albania scorecard is applied twice (once after November 2012 and then again later) is

$$n = 2 \cdot \left(\frac{\alpha \cdot z}{c}\right)^2 \cdot [-0.01 + 0.016 \cdot y + 0.56 \cdot p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})] \cdot \sqrt{\frac{N - n}{n - 1}} \, .$$

The average α across poverty lines for Niger and Peru is about 1.14. This 1.14 figure for α is as reasonable as any other for the Albania scorecard (as well as for other scorecards in general).

To illustrate the use of this formula, suppose the desired confidence level is 90 percent ($z = 1.64$), the desired confidence interval is ± 2.0 percentage points ($\pm c = \pm 0.02$), the poverty line is 100% of the national line, the sample will first be scored in 2020 and then again in 2023 ($y = 3$), and the population N is so large relative to the expected sample size n that the finite population correction ϕ can be taken as one (1). The pre-baseline household-level poverty rate p_{2020} is taken as 9.8 percent (Table 1), and α is assumed to be 1.14. Then the baseline sample size is

$$n = 2 \cdot \left(\frac{1.14 \cdot 1.64}{0.02}\right)^2 \cdot \{-0.01 + 0.016 \cdot 3 + [0.56 \cdot 0.098 \cdot (1 - 0.098)]\} \cdot 1 = 1,530.$$ The same

group of 1,530 households is scored at follow-up as well.

8. Targeting

When a program uses the scorecard for segmenting clients for differentiated treatment (*targeting*), households with scores at or below a cut-off are labeled *targeted* and given one type of treatment by the program. Households with scores above a cut-off are labeled *non-targeted* and given another type of treatment.

There is a distinction between *targeting status* (having a score at or below a targeting cut-off) and *poverty status* (having consumption below a poverty line). Poverty status is a fact that is defined by whether consumption is below a poverty line as directly measured by a survey. In contrast, targeting status is a program's policy choice that depends on a cut-off and on an indirect estimate from a poverty-assessment tool.

Households that score at or below a given cut-off should be labeled as *targeted*,[35] not as *poor*. After all, unless all targeted households have poverty likelihoods of 100 percent, it is possible that at least some of them are non-poor (their consumption is above a given poverty line). In the context of the scorecard, the terms *poor* and *non-poor* have specific definitions. Using these same terms for targeting status is incorrect and misleading.

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[35] Other labels can be meaningful as long as they describe the segment and do not confuse targeting status (having a score below a program-selected cut-off) with poverty status (having consumption below an externally-defined poverty line). Examples include: *Groups A, B, and C*; *Households with scores of 29 or less, 30 to 69, or 70 or more*; and *Households that qualify for reduced fees, or that do not qualify.*

Targeting is successful to the extent that households truly below a poverty line are targeted (*inclusion*) or households truly above a poverty line are not targeted (*exclusion*). Of course, no poverty-assessment tool is perfect, and targeting is unsuccessful to the extent that households truly below a poverty line are not targeted (*undercoverage*) or households truly above a poverty line are targeted (*leakage*).

Table 8 depicts these four possible targeting outcomes. Targeting accuracy varies by the cut-off score. A higher cut-off has better inclusion and better undercoverage (but worse exclusion and worse leakage), while a lower cut-off has better exclusion and better leakage (but worse inclusion and worse undercoverage).

Programs should weigh these trade-offs when setting a cut-off. A formal way to do this is to assign net benefits—based on a program's values and mission—to each of the four possible targeting outcomes and then to choose the cut-off that maximizes the sum of net benefits (Adams and Hand, 2000; Hoadley and Oliver, 1998).

Table 9 shows the distribution of households by targeting outcome for Albania. For an example cut-off of 49 or less, outcomes for 100% of the national line in the validation sample are:

- Inclusion: 8.4 percent are below the line and correctly targeted
- Undercoverage: 1.3 percent are below the line and mistakenly not targeted
- Leakage: 32.0 percent are above the line and mistakenly targeted
- Exclusion: 58.3 percent are above the line and correctly not targeted

Increasing the cut-off to 51 or less improves inclusion and undercoverage but worsens leakage and exclusion:

- Inclusion: 8.6 percent are below the line and correctly targeted
- Undercoverage: 1.1 percent are below the line and mistakenly not targeted
- Leakage: 36.7 percent are above the line and mistakenly targeted
- Exclusion: 53.5 percent are above the line and correctly not targeted

Which cut-off is preferred depends on the sum of net benefits. If each targeting outcome has a per-household benefit or cost, then total net benefit for a given cut-off is:

Benefit per household correctly included   x   Households correctly included   –
Cost per household mistakenly not covered   x   Households mistakenly not covered   –
Cost per household mistakenly leaked   x   Households mistakenly leaked   +
Benefit per household correctly excluded   x   Households correctly excluded.

To set an optimal cut-off, a program would:

- Assign benefits and costs to possible outcomes, based on its values and mission
- Tally total net benefits for each cut-off using Table 9 for a chosen poverty line
- Select the cut-off with the highest total net benefit

The most difficult step is assigning benefits and costs to targeting outcomes. A program that uses targeting—with or without the scorecard—should thoughtfully consider how it values successful inclusion and exclusion versus errors of undercoverage and leakage. It is healthy to go through a process of thinking explicitly and intentionally about how possible targeting outcomes are valued.

A common choice of benefits and costs is the "hit rate", where total net benefit is the number of households correctly included or correctly excluded:

Hit rate =   1   x   Households correctly included   –
              0   x   Households mistakenly undercovered   –
              0   x   Households mistakenly leaked   +
              1   x   Households correctly excluded.

Table 9 shows the hit rate for all cut-offs for the scorecard. For the example of 100% of the national line in the validation sample, total net benefit under the hit rate for a cut-off of 49 or less is 66.7 percent, with about two in three households in Albania correctly classified.

The hit rate weighs successful inclusion of households below the poverty line the same as successful exclusion of households above the line. If a program values inclusion more (say, twice as much) than exclusion, then it can reflect this by setting the benefit for inclusion to 2 and the benefit for exclusion to 1. Then the chosen cut-off will maximize (2 x Households correctly included) + (1 x Households correctly excluded).[36]

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[36] Table 9 also reports BPAC, the Balanced Poverty Accuracy Criterion adopted by USAID for certifying poverty-assessment tools for use by its microenterprise partners. IRIS Center (2005) made BPAC to consider accuracy in terms of the errors in estimated poverty rates and in terms of targeting inclusion. BPAC = (Inclusion – |Undercoverage – Leakage|) ÷ (Population poverty rate), with all components in percentages. Schreiner (2014b) explains why BPAC does not add information over-and-above that provided by the more-standard, more-disaggregated measures used here.

As an alternative to assigning benefits and costs to targeting outcomes and then choosing a cut-off to maximize total net benefits, a program could set a cut-off to achieve a desired poverty rate among targeted households. The third column of Table 10 ("% targeted HHs who are poor") shows, for the scorecard applied to the validation sample, the estimated poverty rate among households who score at or below a given cut-off. For the example of 100% of the national line, targeting households who score 49 or less would target 40.3 percent of all households (second column) and would be associated with an estimated poverty rate among those targeted of 20.7 percent (third column).

Table 10 also reports two other measures of targeting accuracy. The first is a version of coverage ("% poor HHs who are targeted"). For the example of 100% of the national line with the validation sample and a cut-off of 49 or less, 86.1 percent of all poor households are covered.

The final targeting measure in Table 10 is the number of successfully targeted poor households for each non-poor household mistakenly targeted (right-most column). For 100% of the national line with the validation sample and a cut-off of 49 or less, covering about 0.3 poor households means leaking to 1 non-poor household.

9. Context of poverty-assessment tools in Albania

This section discusses four existing poverty-assessment tools for Albania in terms of their goals, methods, definitions of *poverty*, data, indicators, errors, precision, and cost. In general, the strengths of the scorecard are its:

- Using data from the most-recent nationally representative consumption survey
- Having fewer and lower-cost indicators
- Using a consumption-based definition of *poverty* that is widely understood and that is used by the government of Albania
- Reporting errors and standard errors for estimates of poverty rates at a point in time from out-of-sample tests, including formulas for approximate standard errors
- Reporting targeting accuracy from out-of-sample tests, and having targeting accuracy that probably is similar to that of alternative approaches
- Being feasible for pro-poor programs in Albania, due to its low cost and transparency

9.1 Azzarri *et al.*

Azzarri *et al.* (2005) test ways to estimate changes in consumption-based poverty in the years between rounds of a national consumption survey. Of relevance here, Azzarri *et al.* make a poverty-assessment tool with data from the 2002 LSMS and apply it to data from a shorter, light-weight 2003 survey that re-visited a sub-set of the 2002 LSMS households but that did not collect consumption data. Much like the scorecard, this allows the estimation of consumption-based poverty rates in 2003—and thus changes in poverty rates between 2002 and 2003—even in the absence of consumption data from 2003.

Azzarri *et al.* use stepwise ordinary-least-squares regression to relate the

logarithm of per-capita consumption with indicators that were collected both in the

2002 LSMS and in the 2003 light survey. Their all-Albania tool has 23 indicators:

- Demographics:
  — Number of household members
  — Number of children
  — Marital status of the head
- Education:
  — Highest level completed by the head
  — Average education level completed by adult household members
  — Whether a household member holds a professional degree
- Employment:
  — Whether a household member has a non-agricultural wage/salary job
  — Whether a household member works in agriculture
  — Whether a household member is self-employed in non-agriculture
  — Whether a household member has more than one economic activity
- Number of sleeping rooms with more than three people
- Ownership of consumer durables:
  — Washing machine
  — Air conditioner
  — Computer
  — Car or truck
  — Landline telephone
- Ownership of agricultural assets:
  — Hectares of farm land
  — Number of sheep
- Location of residence:
  — Urban/rural
  — Region
  — Distance in minutes to a bus stop
- Subjective assessment of socio-economic level:
  — Food adequacy
  — Relative level on a 10-step ladder

Some of Azzarri *et al.*'s 23 indicators are similar to some of the scorecard's 11

indicators (number of household members, employment, washing machine, landline

telephone, and region). Others are more complex (average education level completed by

adult household members, number of sleeping rooms with more than three people) or are subjective and unverifiable with meanings that vary by household (assessments of food adequacy and relative socio-economic level).

Azzarri *et al.* check the accuracy of their tool by applying it *in-sample*, that is, with the same data from which it was made. In-sample tests over-state a tool's accuracy to some unknown degree, vis-à-vis its actual accuracy when applied with new data at a later point in time.

There is no fully apples-to-apples way to compare the accuracy of Azzarri *et al.*'s tool (applied with 2002 data) with that of the scorecard (applied with 2012 data). To get a rough idea, the best that can be done is to test the scorecard in-sample with a poverty line that gives the same person-level poverty rate as in 2002 (25.4 percent for 100% of the national line).

The Azzarri *et al.* tool estimates an all-Albania person-level poverty rate in the full 2002 LSMS of 20.6 percent (p. 8), which is 4.8 percentage points lower than the true rate of 25.4 percent. When the scorecard is applied in-sample to its original (non-bootstrapped) construction sample from three-fifths of the 2012 LSMS at the person-level with a poverty line that is set to give a 25.0 percent poverty rate in the full 2012 LSMS, its error is –0.2 percentage points. Of course, the comparison is far from perfect, but it does suggest that the shorter, simpler, and more transparent scorecard is probably not greatly worse for estimating poverty rates at a point in time than the tool in Azzarri *et al.*

9.2 Iris Center

USAID commissioned IRIS Center (2011) to construct the "Poverty Assessment Tool" (PAT) to help its microenterprise partners in Albania fulfill a mandate to report the share of their participants who are "very poor", defined for Albania as having consumption below the line that marks the poorest half of people below 100% of the national line (U.S. Congress, 2004).

In general, the PAT for Albania is like the scorecard except that it:

- Estimates consumption itself (not whether a household's consumption is below a poverty line) and then converts estimated consumption to a poverty likelihood of either 0 or 100 percent (rather than a poverty likelihood between 0 and 100)
- Is based on data from 2002 (rather than 2012)
- Has 18 indicators (rather than 11)
- Reports targeting accuracy for two cut-offs (rather than 21)
- Does not report out-of-sample accuracy
- Does not report standard errors for estimates of poverty rates at a point in time
- Does not report sample-size formula for any estimates
- Supports four poverty lines (rather than 14)
    — Line marking the poorest half of people under 100% of the national line
    — 100% of the national line
    — $1.25/day 2005 PPP line
    — $2.50/day 2005 PPP line

IRIS tests four regression-based approaches, settling on a quantile regression that estimates the 30$^{\text{th}}$ percentile of the logarithm of per-capita household consumption, conditional on the household's responses to the PAT's 18 indicators (IRIS, 2011):

- Demographics:
    — Number of household members
    — Age of the head
- Education:
    — Highest level completed by the head
    — Share of household members whose highest level completed is:
        ▪ None
        ▪ Some, but less than primary school
        ▪ Primary school
- Number of rooms in the residence
- Consumer durables:
    — VCRs
    — Refrigerators
    — Landline telephones
    — Generators
    — Water pumps
    — Water boilers
    — Automobiles
    — Trucks
    — Horses
- Location of residence:
    — Urban/rural
    — Region

All these indicators are inexpensive and verifiable.

As with Azzarri *et al.*, an apples-to-apples comparison accuracy for the PAT versus the scorecard is not possible; the two tools use data that are ten years apart, and the PAT's tests are in-sample.[37] Still, a rough comparison is possible by:

- Keeping the scorecard's indicators and points but testing it in-sample
- Setting a poverty line that gives the same poverty rate as in IRIS Center

For targeting, IRIS Center reports in-sample inclusion of 4.1 percent and a hit rate of 88.4 percent when the household-level (not person-level) poverty rate is 9.7 percent and when 10.2 percent of all households are targeted. When the scorecard is applied out-of-sample to target 10 percent of a population with a 9.8 percent person-level poverty rate, inclusion is 3.6 percent and the hit rate is 87.5 percent. When applied in-sample (to match the PAT), the scorecard's inclusion is 4.3 percent and the hit rate is 88.8 percent. The comparison is again imperfect because the results come from different LSMS rounds. Nevertheless, the scorecard is no worse than a more complex and costly alternative.

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[37] Schreiner (2014b) provides apples-to-apples comparisons for 10 countries (Ecuador, El Salvador, Ghana, Kenya, Malawi, Mexico, Nicaragua, Nigeria, Peru, and Rwanda) for which there is both a scorecard and a PAT based on the same data. The conclusions there are consistent with those of the imperfect comparisons here.

Looking at the error of the estimated poverty rate for the poverty line with a household-level rate of 9.7 percent, the PAT's in-sample error is 0.5 percentage points, while the scorecard's error is –0.2 percentage points (out-of-sample) and +0.1 percentage points (in-sample). Again, there is no evidence that the scorecard is any worse than the PAT.[38]

IRIS Center also reports accuracy in terms of the Balanced Poverty Accuracy Criterion. IRIS Center (2005) introduced BPAC, and USAID adopted it as its criterion for approving poverty-assessment tools for use by its microenterprise partners. With everything in units of percentages, BPAC considers accuracy in terms of inclusion and in terms of the absolute difference between undercoverage and leakage (which under the PAT's approach—but not under the scorecard's approach—is equal to the absolute error of the estimated poverty rate):

$$\text{BPAC} = \left(\frac{\text{Inclusion} - |\,\text{Undercoverage} - \text{Leakage}\,|}{\text{Inclusion} + \text{Undercoverage}} \right).$$

Because the error (in the PAT approach) is the difference between undercoverage and leakage, and because the normalization term $\frac{1}{\text{Inclusion} + \text{Undercoverage}}$ may be relevant only when comparing poverty-assessment tools across populations with different poverty rates (but irrelevant when comparing alternative tools for a given country in a given year for a given poverty line or when the poverty rate is otherwise

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[38] In any case, the average errors are known and so can be removed, making both the PAT and the scorecard unbiased.

held constant), the cleaner formula of BPAC = Inclusion− | Error |. This cleaner formula ranks poverty-assessment tools the same as the more complex formula.

Expressing BPAC as Inclusion− | Error | helps to show why BPAC is not useful for comparing the PAT with the scorecard (Schreiner, 2014b). Given the assumptions discussed earlier,[39] scorecard estimates of poverty rates are unbiased, regardless of whether undercoverage differs from leakage when (or if) targeting. While BPAC can be used to compare alternatives that use the PAT's consumption-estimation approach, it does not make sense to apply the BPAC formula to the scorecard's likelihood-estimation approach. This is because the scorecard does not use a single consumption cut-off to classify households as either 100-percent poor or 0-percent poor. Instead, households have an estimated poverty likelihood somewhere between 0 to 100 percent. If a scorecard user sets a targeting cut-off, then that cut-off matters only for rank-based targeting, and it does not affect the estimation of poverty rates at all.

Although IRIS Center reports the PAT's targeting accuracy and although the BPAC formula considers targeting accuracy in terms of inclusion, IRIS Centre disavows the use of the PAT for targeting.[40]

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[39] The unbiasedness of the PAT—or of any other poverty-assessment tool—also requires these same assumptions.

[40] FHI360 (2013) and `povertytools.org/faq/faq2.html`, retrieved 14 September 2018.

IRIS Center also disavows using the PAT to estimate change over time: "It is unclear that the tools will be able to identify real changes in poverty over time due to their inherent measurement errors. Unless the changes in the poverty rate are exceptionally large and unless the tools are exceptionally accurate, then the changes identified are likely to be contained within the margin of error."[41] Even though IRIS Center does not report accuracy for estimates of change over time for Albania nor for any other country, it nevertheless asserts that the confidence interval for estimates of change—for some unstated confidence level and some unstated sample size—will usually include zero. In contrast and as noted in Section 7, the accuracy of the scorecard's estimates of change has been reported for 19 countries.

In any case, the scorecard supports targeting and estimating changes over time by reporting accuracy for these possible uses. This allows users to decide for themselves whether the scorecard is adequate for their purposes.

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[41] `povertytools.org/faq/faq2.html`, retrieved 14 September 2018.

9.3 Sohnesen and Stender

Sohnesen and Stender (2017, p. 120) consider "alternative algorithm[s] for model selection and prediction of poverty status." In particular, they test accuracy for random forests and for stepwise multiple-imputation with least-squares with LASSO. Random forests and LASSO are of interest for three reasons. First, they are new. Second, they use machine learning to select indicators without analyst input. Third, some papers suggest that they may improve accuracy out-of-sample.

As background, McBride and Nichols (2016, p. 18) test the targeting accuracy of the cross-validation and stochastic-ensemble approach of quantile random forests for Bolivia, Malawi, and Timor Leste. They find that it "produces a gain in [inclusion], a reduction in undercoverage, and an overall improvement in BPAC in comparison to traditional methods."

Is the benefit of random forests clear-cut? When comparing approaches, McBride and Nichols do not hold constant the share of the population targeted, and random forests' higher inclusion also comes with worse leakage. The paper cannot judge whether this leads to a net improvement (unless leakage is costless) because it does not propose a way to value the trade-off between inclusion and leakage.

BPAC is also a flawed measure. Recall that BPAC is (Inclusion – |Undercoverage – Leakage|) ÷ (Population poverty rate), where everything is in percentages and where |Undercoverage – Leakage| is equivalent to the estimation error of a poverty rate when households below a cut-off are assigned 100-percent poverty

likelihoods and all others are assigned zero-percent likelihoods. Instead of BPAC, it would be clearer to assess targeting accuracy separately from estimation error, as this allows the analyst to weigh the components according to an organization's values and mission. For example, an organization that uses a tool only for targeting (or a paper—such as McBride and Nichols—that deals only with targeting) will care only about inclusion and other aspects of targeting accuracy, putting no weight at all on errors in estimating poverty rates. But BPAC weighs a 1-percentage-point increase in inclusion the same as a 1-percentage-point decrease in estimation error. Furthermore, BPAC scales the combination of inclusion and estimation error up proportionately more for lower population poverty rates. Indeed, McBride and Nichols find larger relative improvements in BPAC for countries with lower poverty rates.

The fact that random forests increased inclusion and improved BPAC in McBride and Nichols need not imply that random forests are better than other approaches. After all, if leakage does not matter (as implied by McBride and Nichols' conclusion), then then inclusion is maximized (and undercoverage minimized) by "targeting" the entire population, something that does not require a poverty-assessment tool at all. But the cost of leakage is what motivates targeting in the first place. And if McBride and Nichols do not show that random forests improve targeting (because leakage is not costless, and their analysis assumes leakage is costless), then they also do

not show that random forests improve BPAC (which is based partly on targeting accuracy).[42]

Like random forests, the LASSO approach is of interest because it is a new, machine-learning approach that may—due to the use of cross-validation—improve accuracy out-of-sample.

But like random forests, LASSO has yet to be shown to be more accurate. For example, the Poverty Probability Index® of Innovations for Poverty Action (IPA) is a poverty-assessment tool based on an elastic-net Logit regression that combines aspects of LASSO and ridge regression (Kshirsagar *et al.*, 2017). IPA calls the approach "new and improved",[43] presumably relative to the scorecard approach, which was used to make indexes before September 2017. It is new, but is it also improved? There are indexes for five countries (Burkina Faso, Côte d'Ivoire, Senegal, Togo, and Zambia) for which, at the time of the indexes' release, a scorecard had already been released that was based on the same data that was later used to make the index. Yet IPA has not reported an apples-to-apples accuracy comparison for the two approaches.

Random forests and LASSO probably do improve accuracy, especially in sub-national samples; with large construction samples, cross-validation and ensembles—as well as combining more than one poverty-assessment tool—should help and is unlikely

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[42] Given the "flat maximum", it may be that any improvement in BPAC due to quantile random forests over stepwise ordinary-least-squares comes from the "quantile" part, as that allows the targeting cut-off to differ from the poverty line.

[43] `povertyindex.org/announcing-new-improved-ppi-construction-methodology`, retrieved 14 September 2018.

to hurt. At the same time, the improvement may be small, given the strength of the flat maximum (Hand, 2006). One data point comes from Durpriez (2018) who reports that a worldwide poverty-assessment-tool competition among about 500 machine-learning analysts working on data from Malawi improved "c" (the measure of ranking power used when making scorecards) by only about 1 percentage point vis-à-vis Logit regression (the method used with the scorecard).

Sohnesen and Stender (2017) provide another data point. They poverty-assessment tools for Albania (and five other countries) based on the 2005 LSMS with random forests and with multiple-imputation with LASSO. They report out-of-sample estimation errors for poverty rates, but they do not report indicators or points (which would be possible for LASSO but impossible for the 500 trees in the random forest).

As with Azzarri *et al.* above, there is no fully apples-to-apples way to compare the accuracy of Sohnesen and Stender's tools (applied with 2005 data) with that of the scorecard (applied with 2012 data). To get a rough idea, the best that can be done is to test the scorecard out-of-sample with a poverty line set to give the same person-level poverty rates as in Sohnesen and Stender in the 2005 LSMS (p. 24), that is, 18.5 percent for Albania as a whole, 11.2 percent in urban areas, and 24.2 percent in rural areas.[44]

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[44] These rates differ from INSTAT (2015, p. 3) because Sohnesen and Stender drop some households due to missing data for indicators.

Sohnesen and Stender report (p. 132) estimation errors for random forests of –1 percentage point (all-Albania), –2 percentage points (urban), and –1 percentage point (rural). For multiple-imputation with LASSO, they report estimation errors of –1 percentage point (all-Albania), –2 percentage points (urban), and –2 percentage points (rural).

When the scorecard is applied with the validation sample of the 2012 LSMS at the person-level with a poverty line that gives poverty rates that match those in Sohnesen and Stender, its errors are –0.1 percentage point (all-Albania), –0.4 percentage points (urban), and –1.5 percentage points (rural).

As with Azzarri *et al.* and IRIS Center, this imperfect comparison suggests that the shorter, simpler, and more transparent scorecard is probably not greatly worse for estimating poverty rates at a point in time as the tools in Sohnesen and Stender.

9.4 Filmer and Scott

Filmer and Scott (2012) test how different types of asset indexes for Albania (and 10 other countries) produce ranks that correlate with ranks from:[45]

- Other asset indexes, especially those made using Principal Component Analysis[46]
- Consumption as directly measured by a survey
- Consumption as estimated by a regression-based poverty-assessment tool such as the scorecard)[47]

A PCA asset index is like the scorecard here except that—because it is based on data from a light-weight survey that does not collect data on consumption—it uses a different (asset-based) definition of *poverty*.

Filmer and Scott find that different asset-index approaches generally lead to similar rankings vis-à-vis the benchmarks of directly measured consumption and estimates of consumption from consumption-based poverty-assessment tools. Furthermore, estimated links between socio-economic status and inequality in terms of education, use of health care, fertility, child mortality, and labor-market outcomes do not vary much across regression-based poverty-assessment tools and types of asset

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[45] Other comparisons of rankings by PCA indexes, directly-measured consumption, and estimates of consumption from consumption-based poverty-assessment tools include Ngo and Christiaensen (2018), Howe *et al.* (2009), Lindelow (2006), Sahn and Stifel (2003), Wagstaff and Watanabe (2003), and Montgomery *et al.* (2000).

[46] These include PCA asset indexes for 56 countries based on data from Demographic and Health Surveys (Rutstein and Johnson, 2004, and for example, Gwatkin *et al.*, 2007) as well as PCA indexes in Stifel and Christiaensen (2007), Zeller *et al.* (2006), Sahn and Stifel (2003 and 2000), Henry *et al.* (2003), and Filmer and Pritchett (2001).

[47] Filmer and Scott look only at regression-based tools that, like Azzarri *et al.* and IRIS Center, use ordinary-least-squares to estimate the level of consumption. Still, Filmer and Scott's results are relevant for the scorecard, even though the scorecard uses Logit to estimate the likelihood of being below a consumption-based poverty line.

indexes. This "it-don't-make-no-nevermind"[48] result is strongest for countries where regression works well for estimating consumption and where consumption is measured accurately. The result is weakest for more-poor countries where food is a larger share of total consumption and where consumption is more subject to short-term shocks (such as dry countries that depend heavily on rain-fed agriculture). Filmer and Scott's results probably also apply to scorecards; it is more accurate when consumption is well-measured, when food is a smaller share of total consumption, and when short-term shocks do not often break the long-term link between consumption and the scorecard's slow-to-change, asset-based indicators.

For Albania, Filmer and Scott use data from 3,598 households in the 2002 LSMS, selecting 37 indicators that are low-cost and verifiable:

- Characteristics of the residence:
    — Number of rooms per household member
    — Presence of a separate kitchen
    — Presence of a bathroom/shower
    — Presence of a balcony/terrace
    — Presence of a pantry
    — Construction material of walls
    — Finish of exterior walls
    — Main source of energy for cooking
    — Type of heating arrangement
    — Source of drinking water
    — Type of toilet arrangement

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[48] Wainer, 1976.

- Ownership of consumer durables:
    — Black-and-white televisions
    — Color televisions
    — Video players
    — Satellite dishes
    — Tape players/CD players
    — Cameras
    — Video cameras
    — Computers
    — Landline telephones
    — Generators
    — Air conditioners
    — Electric radiators
    — Stoves:
        ▪ Electric or gas
        ▪ Kerosene
        ▪ Wood
    — Water boilers
    — Refrigerators
    — Freezers
    — Dishwashers
    — Washing machines
    — Sewing or knitting machines
    — Bicycles
    — Motorcycles
    — Cars
    — Trucks
    — Dumdum tractors

Filmer and Scott do not report the points for their indexes because their goal is to compare ranks from various approaches to constructing indexes rather than to provide indexes for use by local pro-poor programs.

In general, four uses are suggested for PCA asset indexes (Filmer and Scott,

2012; Gwatkin, *et al.*, 2007):

- Segmenting households by percentiles of their index value to see how socio-economic status correlates with education, use of health care, fertility, child mortality, and labor-market outcomes
- Monitoring (via exit surveys) how well local service posts reach the poor
- Estimating local coverage of services via small-scale surveys
- Tracking an alternative, lower-cost definition of *poverty* in the absence of a full-fledged, high-cost consumption survey

The first goal is segmentation, and the second, third, and fourth goals deal with

performance monitoring, so in those ways an asset index would be used much like the

scorecard. In particular, the scorecard's support for relative (percentile-based) poverty

lines allows for the segmentation of households by percentile of consumption to see how

non-consumption indicators of well-being vary with consumption. Of course, it is also

possible to segment households by percentiles based on scores from the scorecard to see

how non-consumption indicators of well-being vary with assets.

The use of scores from the scorecard also fulfills asset indexes' fourth goal of

tracking an alternative, lower-cost definition of *poverty* that does not require data on

consumption. And of course, converting scores to poverty likelihoods allows the

scorecard to estimate consumption-based poverty without collecting data on

consumption.

Filmer and Scott's PCA asset index is more costly and difficult-to-use than the

scorecard. The index has 37 indicators (versus 10), and while the scorecard requires

adding up 10 integers (some of them usually zeroes), the PCA asset index (for example,

in the form reported by Gwatkin *et al.*, 2007) requires adding up at least 37 numbers, each with several decimal places and half with negative signs.

A strength of asset indexes is that, because they do not require consumption data, they can be constructed with data from a wide array of "light" surveys such as censuses, Demographic and Health Surveys, Welfare Monitoring Surveys, and Core Welfare Indicator Questionnaires. In comparison, the scorecard is linked directly to a consumption-based poverty line. Thus, while both approaches can rank households based on the internal definitions of *poverty* implied by their particular indicators and points, only the scorecard can also estimate consumption-based poverty status based on externally-defined poverty lines.

In essence, a PCA asset index defines *poverty* in terms of the indicators and points in the index itself. Thus, the index is not a proxy standing in for something else (such as consumption). Rather, it is a direct measure of an asset-based (non-consumption-based) definition of *poverty*. There is nothing wrong—and a lot right—about defining *poverty* in this way, but it is not as common as a consumption-based definition. It also means that results are not comparable across different asset indexes because the definition of *poverty* varies with a given index's indicators and points. And an asset index can estimate only the direction of change in its definition of *poverty* over time, not the magnitude of change (or at least not in units with a straightforward interpretation).

In general, the asset-based approach defines people as *poor* if their assets

(physical, human, financial, or social) fall below a threshold. Arguments for an asset-

based view of development and well-being include Carter and Barrett (2006), Schreiner

and Sherraden (2006), Sahn and Stifel (2003), and Sherraden (1991). The main

advantages of the asset-based view are that:

- Asset ownership is easier to measure accurately than consumption
- Access to resources in the long term—and thus capacity to produce income and to consume—depends on the control of assets
- Assets get at specific capabilities more directly, the difference between, say, "Can you afford adequate sanitation on your income?" versus "Do you have a flush toilet?"

While the asset view and the income/consumption view are distinct, they are

also tightly linked. After all, income and consumption are flows of resources

received/consumed from the use of stocks of assets, while assets accumulate as a result

of saving income rather than consuming it. Both views are low-dimensional

simplifications—due to practical limits on definitions and measurement—of a higher-

dimensional and more-complete conception of the production of human well-being.

10. Summary

The scorecard helps pro-poor programs in Albania to get to know their participants better so as to prove and improve their social performance. It can segment clients for differentiated treatment as well as estimate:

- The likelihood that a household has consumption below a given poverty line
- The poverty rate of a population at a point in time
- The change in the poverty rate of a population

The scorecard is inexpensive to use and can be understood by non-specialists. It is designed to be practical for pro-poor programs in Albania that want to improve how they monitor and manage their social performance.

The scorecard is constructed with data from about three-fifths of the households in Albania's 2012 LSMS. Those households' scores are then calibrated to poverty likelihoods for 14 poverty lines. The scorecard's accuracy (errors and standard errors) is tested out-of-sample on data that was not used to make the scorecard.

When the scorecard is applied to the 14 poverty lines in the validation sample, the maximum of the absolute values of the average error for point-in-time estimates of poverty rates is 1.6 percentage points, and the average of the absolute values of the average error across the 14 lines is about 0.6 percentage points. Corrected estimates may be found by subtracting the known error for a given poverty line from original, uncorrected estimates.

For $n = 16,384$ and 90-percent confidence, the confidence intervals for point-in-time estimates of poverty rates are ±0.6 percentage points or better. With $n = 1,024$, the 90-percent confidence intervals are ±2.3 percentage points or better.

If an organization wants to use the scorecard for segmenting clients for differentiated treatment, then this paper provides useful information for selecting a targeting cut-off that fits its values and mission.

Although the statistical technique is innovative, and although technical accuracy is important, the design of the scorecard focuses on low-cost, transparency, and ease-of-use. After all, accuracy is irrelevant if an organization's managers feel so daunted by a tool's complexity or by its cost that they do not even try to use it.

For this reason, the scorecard uses 11 indicators that are straightforward, low-cost, and verifiable. Points are all zeros or positive integers, and scores range from 0 (most likely below a poverty line) to 100 (least likely below a poverty line). Scores are converted to poverty likelihoods via look-up tables, and targeting cut-offs are likewise straightforward to apply. The design attempts to facilitate voluntary adoption by helping program managers to understand and to trust the scorecard and by allowing non-specialists to add up scores quickly in the field.

In summary, the scorecard is a low-cost, practical, objective, transparent way for pro-poor programs in Albania to estimate consumption-based poverty rates, track changes in poverty rates over time, and segment participants for differentiated treatment. A scorecard can be made for any country with similar data.

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Interview Guide

The excerpts quoted here are from:

Institute of Statistics. (2012) "Interview Manual: Living Standards Measurement Survey
2012" [the *Manual*].

Basic interview instructions

The scorecard can be filled out on paper, with responses entered later in a spreadsheet
or your own database. Alternatively, Scorocs' cloud-based data-collection tool works in
a web browser or an Android app, allowing data entry in the field (or in the office). If
there is no connection, then data is stored locally until it can be uploaded. Test the
data-entry tool here, or ask about a private account.

The scorecard should be completed in-person at the participant's residence by an
enumerator trained to follow this "Guide".

Fill out the scorecard header and the "Back-page Worksheet" first, following the
directions on the "Back-page Worksheet".

In the scorecard header, fill in the number of household members based on the list you
made as part of the "Back-page Worksheet".

Do not directly ask the first scorecard indicator ("In what prefecture does the household
live?"). Instead, fill in the answer based on your knowledge of the prefecture where the
household lives.

In the same way, do not directly ask the second scorecard indicator ("How many
household members are there?"). Instead, mark the response based on the number of
household members that you listed on the "Back-page Worksheet".

Ask all of the remaining scorecard questions directly of the respondent.

General interviewing advice

Study this "Guide" carefully, and carry it with you while you work. Follow the instructions in this "Guide" (including this one).

Remember that the respondent for the interview need not be the household member who is a participant with your organization.

Likewise, the field agent to be recorded in the scorecard header is not necessarily the same as you the enumerator who does the interview. Rather, the field agent is the employee of the pro-poor program with whom the participant has an on-going relationship. If there is no such field agent, then leave those spaces in the scorecard header blank.

Read each question word-for-word, in the order presented in the scorecard. Do not read the response options aloud.

When you mark a response to a scorecard indicator, circle the spelled-out response option and its point value, and write the point value in the "Score" column, like this:

6. How many rooms does the household occupy, excluding verandas, balconies, bathrooms, toilets, corridors, storage areas, or rooms smaller than 4 m^2)?	A. One, or two	0	
	B. Three	4	4
	C. Four or more	6	

To help to reduce errors, you should:

- Circle the pre-printed response option
- Circle the pre-printed points on the scorecard, and
- Circle the hand-written points that correspond to the response

When an issue comes up that is not addressed here, its resolution should be left to the unaided judgment of the enumerator, as that apparently was the practice of INSTAT in the 2012 LSMS. That is, an organization using the scorecard should not promulgate any definitions or rules (other than those in this "Guide") to be used by all its enumerators. Anything not explicitly addressed in this "Guide" is to be left to the unaided judgment of each individual enumerator.

Do not read the response options to the respondent. Simply read the question, and then stop; wait for a response. If the respondent asks for clarification or otherwise hesitates or seems confused, then read the question again or provide additional assistance based on this "Guide" or as you, the enumerator, deem appropriate.

In general, you should accept the responses given by the respondent. Nevertheless, if the respondent says something—or if you see or sense something—that suggests that the response may not be accurate, that the respondent is uncertain, or that the respondent desires assistance in figuring out how to respond, then you should read the question again and provide whatever help you deem appropriate based on this "Guide".

While most indicators in the scorecard are verifiable, in most cases you do not need to verify responses. You should verify only if something suggests to you that a response may be inaccurate and thus that verification might improve data quality. For example, you might choose to verify if the respondent hesitates, seems nervous, or otherwise gives signals that he/she may be lying, confused, or uncertain. Likewise, verification is probably appropriate if a child in the household or a neighbor says something that does not square with a respondent's answer. Verification is also a good idea if you can see something yourself—such as a consumer durable that the respondent avers not to possess, or a child eating in the room who has not been counted as a member of the household—that suggests that a response may be inaccurate.

In general, the application of the scorecard should mimic as closely as possible the application of the 2012 LSMS by INSTAT. For example, interviews should done in-person by a trained enumerator at the participant's residence because that is what INSTAT did in the 2012 LSMS.

Translation:

As of this writing, the scorecard itself, the "Back-page Worksheet", and this "Guide" are available only in English and Albanian. There are not yet official, professional translations to other languages spoken in Albania. Users should check scorocs.com to see what translations have been done since this writing.

If there is not yet a professional translation to a given language, then users should contact Scorocs for help in creating such a translation.

Who should be the respondent?

Remember that the respondent does not need to be the household member who is a participant with your organization (although the respondent may be that person).

According to p. 11 of the *Manual*, the preferred respondent is the head of the household.

If a household comprises two or more married couples (with or without children), then the preferred respondent is the oldest of the spouses who works. If no spouse works, then the preferred respondent is the oldest spouse.

If a household has a single parent—whether a mother or a father without a spouse or whose spouse is not a member of the household—then that parent is the preferred respondent. If a household has two or more single parents, then the preferred respondent is the oldest single parent.

According to p. 39 of the *Manual*, questions should be directed to the most knowledgable household member.

Who is the head of the household?

Note that the head of the household may or may not be the household member who is a participant with your organization (although the head may be that person).

According to p. 11 of the *Manual*, you can determine who is the head of the household by asking the members of the interviewed household, "Who is the person with the best knowledge of the economic and social aspects of the household?" Generally, this will be the oldest male member who works. If the household has married adults (with or without children), the head will generally be the male spouse.

Guidelines for each indicator in the scorecard

1. In what prefecture does the household live?
    A. Fier, or Gjirokastër
    B. Tiranë, or Vlorë
    C. Durrës, or Kukës
    D. Elbasan
    E. Berat, or Lezhë
    F. Korçë, Shkodër, or Dibër

Unless you need to, do not ask this indicator directly of the respondent. Instead, mark the response based on your knowledge of the prefecture in which the interviewed household lives.

2. How many household members are there?
   A. Six or more
   B. Five
   C. Four
   D. Three
   E. One, or two

According to pp. 10–11 of the *Manual*, a *household* is "an economic unit of one or more people—regardless of blood or martial relationship—who live together in the same residence, who share a common budget, and who eat together at least once daily.

"The central criteria for membership in a household is whether a person eats at least one meal a day with other members of the household.

"A household consist of:

- One person living alone who supports him/herself and covers his/her own expenses with his/her own income
- Two or more people who live together in the same residence, who share a common budget, and who eat a meal together daily
- Two or more people who are unrelated by blood or marriage (such as students) who share a residence, a common budget, and who eat a meal together daily"

According to p. 13 of the *Manual*, a person qualifies as a household member only if he/she has lived together with the household for at least 11 months. Exceptions to this rule include people who live with the household now and who expect the total duration of their stay to be at least 11 months. Examples include:

- Babies younger than 11 months who were born to members of the household
- Newly-wed spouse(s) who joined the household or who themselves form a new household

3. Do any household members suffer from any disability that has lasted for more than three months?
   A. Yes
   B. No

The *Manual* has no additional information about this indicator.

4. In the past 7 days, did the male head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual? Or did he work on a farm owned or rented by him or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to him or a household member? Or did he work on his own account or in a business belonging to him or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? Or did he have a permanent/long-term job from which he was temporarily absent?

    A. No

    B. No male head/spouse

    C. Yes

According to pp. 18–19 of the *Manual*, the first sub-question of this indicator ("In the past 7 days, did the male head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual?") has to do with work for a wage or salary.

The second sub-question ("Or did he work on a farm owned or rented by him or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to him or a household member?") has to do with the household's farming or animal husbandry/herding done by the male head/spouse, that is, self-employment in agriculture.

The third sub-question ("Or did he work on his own account or in a business belonging to him or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on?") has to do with non-agricultural self-employment.

The fourth sub-question ("Or did he have a permanent/long-term job from which he was temporarily absent?") has to do with whether the male head/spouse has wage/salary work, self-employment in agriculture, or self-employment in non-agriculture which he normally does as a regular occupation but, for whatever reason, did not do in the past seven days.

Do not ask this indicator as it appears in the scorecard, that is, as four sub-questions read all at once. Instead, do the following:

- If there is no male head/spouse (which you will know from having compiled the household roster on the "Back-page Worksheet"), then do not ask any of the sub-questions at all. Instead, mark "B. No male head/spouse" and go on to the next indicator about the household's tenancy status in its residence
- If there is a male head/spouse, then:
  — Ask the first sub-question, and wait for a response. If the answer is affirmative, then mark "C. Yes" and skip to the next indicator without asking the other three sub-questions
  — Ask the second sub-question, and wait for a response. If the answer is affirmative, then mark "C. Yes" and skip to the next indicator without asking the other two sub-questions
  — Ask the third sub-question, and wait for a response. If the answer is affirmative, then mark "C. Yes" and skip to the next indicator without asking the last sub-question
  — Ask the fourth (last) sub-question, and wait for a response:
    - If the answer is affirmative, then mark "C. Yes"
    - If the answer is negative, mark "A. No"

To sum up, mark "B. No male head/spouse" if there is no male head/spouse. Otherwise, ask each of the four sub-questions one-by-one, waiting for a response after each. As soon as there is an affirmative response, mark "C. Yes" and go to the next indicator, skipping any remaining sub-questions. If all four responses are negative, then mark "A. No".

Remember that you already know the name of the male head/spouse (and whether he exists) from compiling the "Back-page Worksheet". Thus, if there is a male head/spouse, do not mechanically ask (for the example of the first sub-question), "In the past 7 days, did the male head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual?". Instead, use the actual first name or nickname of the male head/spouse, for example: "In the past 7 days, did Tariq work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual?" If there is no male head/spouse, then do not ask any of the four sub-questions of the respondent but rather mark "B. No male head/spouse" and go to the next indicator about the tenancy status of the household in its residence.

For the purposes of the scorecard, the *male head/spouse* is defined as:

- The household head, if the head is male
- The spouse/conjugal partner of the household head, if the head is female
- Non-existent, if the head is female and if she does not have a spouse/conjugal partner who is a member of her household

Note that the head of the household may or may not be the same household member who is a participant with your organization (although the head may be that person).

5. What is the household's tenancy status in its residence?
    A. Owned (title in process), rented, rent-free, or other
    B. Owned with title

According to p. 8 of the *Manual*, a *residence* is "a unit of shelter intended for housing people that has an independent entrance or door providing access to a street, hall, courtyard, or other public area."

6. How many rooms does the household occupy, excluding verandas, balconies, bathrooms, toilets, corridors, storage areas, or rooms smaller than 4 m^2)?
   - A. One, or two
   - B. Three
   - C. Four or more

According to p. 40 of the *Manual*, a *room* is "a space that is part of a residence that receives light and air from outside and that is big enough to fit a bed while still leaving enough space for a person to get in and out.

"Rooms or out-buildings that are not connected directly to the main residence are still considered as part of the residence if they are occupied by the household."

According to p. 8 of the *Manual*, a *residence* is "a unit of shelter intended for housing people that has an independent entrance or door providing access to a street, hall, courtyard, or other public area."

7. Does the residence have a separate kitchen?
    A. No
    B. Yes

According to p. 40 of the *Manual*, "A *kitchen* is a room whose sole purpose is cooking."

According to p. 42 of the *Manual*, you should count as *kitchens* "all distinct rooms—including any out-buildings—whose sole purpose is cooking."

According to p. 8 of the *Manual*, a *residence* is "a unit of shelter intended for housing people that has an independent entrance or door providing access to a street, hall, courtyard, or other public area."

8. Does the household have a WC inside the residence? (Do not count a WC that is inside the building but not inside the residence)
    A. No
    B. Yes

According to p. 8 of the *Manual*, a *residence* is "a unit of shelter intended for housing people that has an independent entrance or door providing access to a street, hall, courtyard, or other public area."

For the purposes of this question, a *residence* is the particular dwelling where the interviewed household lives, and a *building* is an apartment building or other multi-residence building. For example, you should mark "B. Yes" for a household that lives in an apartment in an apartment building and that has a WC inside its own particular apartment. In contrast, you should mark "A. No" for a household that lives in an apartment but that does not have a WC inside its own particular apartment, even if the household uses a WC that is nevertheless inside the apartment building (but outside of the household's own apartment).

9. Does the household own a video player/DVD player, satellite dish/cable receiver, or TV decoder in good working condition?
    A. No
    B. Video player/DVD player, or satellite dish/cable receiver, but no TV decoder
    C. TV decoder (regardless of all else)

Do not read this question as written. Instead, ask three No/Yes questions:

- Does the household own a video player/DVD player in good working condition?
- Does the household own a satellite dish/cable receiver in good working condition?
- Does the household own a TV decoder in good working condition?

Based on the three answers, mark the response to the scorecard indicator as follows:

| Does the household own an <ITEM>? | | | Response |
Video/DVD	Satellite dish/cable receiver	TV decoder	to mark
No	No	No	A
Yes	No	No	B
No	Yes	No	B
Yes	Yes	No	B
No	No	Yes	C
Yes	No	Yes	C
No	Yes	Yes	C
Yes	Yes	Yes	C

10. Does the household own a water boiler in good working condition?
    A. No
    B. Yes

The *Manual* has no additional information about this indicator.

11. How many mobile phones does the household own in good working condition?
  A. None
  B. One
  C. Two
  D. Three or more

The *Manual* has no additional information about this indicator.

Table 1 (Albania): National poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates National (2012 def.) | | |
				100%	150%	200%
Urban	Line	People		223	335	446
	Rate	Households	3,063	11.1	38.3	60.7
	Rate	People		15.5	48.2	70.7
Rural	Line	People		234	352	469
	Rate	Households	3,608	8.9	31.4	52.4
	Rate	People		13.3	42.1	63.6
All	Line	People		229	344	459
	Rate	Households	6,671	9.8	34.3	55.9
	Rate	People		14.3	44.9	66.8

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Albania): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		110	185	317	1,252
	Rate	Households	3,063	0.6	4.8	34.6	98.8
	Rate	People		0.9	7.2	44.2	99.6
Rural	Line	People		115	194	333	1,315
	Rate	Households	3,608	0.3	4.3	27.5	98.1
	Rate	People		0.7	7.1	37.6	99.1
All	Line	People		113	190	326	1,286
	Rate	Households	6,671	0.5	4.5	30.5	98.4
	Rate	People		0.8	7.1	40.5	99.3

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Albania): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		185	201	244	314	356	406	546
	Rate	Households	3,063	4.8	7.1	16.4	34.2	43.4	53.1	75.2
	Rate	People		7.2	10.2	22.5	43.6	53.6	63.5	82.9
Rural	Line	People		194	211	256	330	374	426	573
	Rate	Households	3,608	4.4	6.2	12.4	27.0	35.9	45.7	68.3
	Rate	People		7.2	9.9	18.0	37.1	47.0	57.1	77.6
All	Line	People		190	207	251	323	366	417	561
	Rate	Households	6,671	4.6	6.6	14.1	30.0	39.0	48.8	71.2
	Rate	People		7.2	10.1	20.0	40.0	50.0	60.0	80.0

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Berat): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	*n*	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		225	337	450
	Rate	Households	256	11.1	33.4	57.7
	Rate	People		14.5	40.7	64.2
Rural	Line	People		230	344	459
	Rate	Households	256	6.1	29.0	51.4
	Rate	People		9.6	37.0	60.9
All	Line	People		227	340	454
	Rate	Households	512	8.6	31.1	54.5
	Rate	People		12.3	39.0	62.8

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Berat): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		110	186	320	1,261
	Rate	Households	256	1.3	6.3	29.4	99.2
	Rate	People		1.6	8.1	36.6	99.8
Rural	Line	People		113	190	326	1,287
	Rate	Households	256	0.0	1.8	23.9	97.0
	Rate	People		0.0	2.8	31.1	97.8
All	Line	People		111	188	322	1,272
	Rate	Households	512	0.7	4.0	26.6	98.1
	Rate	People		0.9	5.7	34.2	98.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Berat): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates						
				Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		186	203	246	317	359	409	550
	Rate	Households	256	6.3	7.8	14.6	29.4	38.5	48.8	72.4
	Rate	People		8.1	10.2	18.6	36.6	45.7	57.2	78.2
Rural	Line	People		190	207	251	323	366	417	561
	Rate	Households	256	1.8	3.3	9.9	23.9	33.8	45.1	69.6
	Rate	People		2.8	5.4	14.6	31.1	43.2	54.8	76.8
All	Line	People		188	205	248	320	362	413	555
	Rate	Households	512	4.0	5.5	12.2	26.6	36.1	46.9	71.0
	Rate	People		5.7	8.1	16.8	34.2	44.6	56.1	77.6

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Dibër): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		219	328	438
	Rate	Households	360	9.5	49.7	77.0
	Rate	People		12.9	57.8	83.2
Rural	Line	People		230	345	461
	Rate	Households	200	8.1	30.6	54.3
	Rate	People		11.9	43.1	69.0
All	Line	People		222	333	444
	Rate	Households	560	9.0	43.1	69.1
	Rate	People		12.7	54.0	79.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Dibër): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		107	181	311	1,227
	Rate	Households	360	0.0	4.0	42.8	99.8
	Rate	People		0.0	5.9	49.4	100.0
Rural	Line	People		113	190	327	1,291
	Rate	Households	200	0.0	4.0	28.2	98.9
	Rate	People		0.0	6.3	39.8	99.7
All	Line	People		109	183	315	1,244
	Rate	Households	560	0.0	4.0	37.7	99.5
	Rate	People		0.0	6.0	46.9	99.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Dibër): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poorest 1/2 < 100% Natl. | Percentile-based lines (2012 def.) | | | | | |
					10th	20th	40th	50th	60th	80th
Urban	Line	People		181	197	239	308	349	398	535
	Rate	Households	360	4.0	6.3	16.3	41.3	56.5	69.5	90.1
	Rate	People		5.9	8.4	20.9	47.8	64.4	76.7	93.8
Rural	Line	People		190	208	252	324	367	419	563
	Rate	Households	200	4.0	4.6	12.1	28.0	36.4	46.6	66.0
	Rate	People		6.3	7.3	17.7	39.5	50.0	60.3	80.0
All	Line	People		183	200	242	312	354	403	543
	Rate	Households	560	4.0	5.7	14.8	36.7	49.5	61.5	81.7
	Rate	People		6.0	8.1	20.1	45.7	60.7	72.4	90.2

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Durrës): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	National (2012 def.) 100%	National (2012 def.) 150%	National (2012 def.) 200%
Urban	Line	People		229	344	458
	Rate	Households	120	8.5	28.4	48.9
	Rate	People		12.2	38.0	58.7
Rural	Line	People		232	349	465
	Rate	Households	392	12.8	41.5	61.6
	Rate	People		17.7	51.0	71.2
All	Line	People		232	348	463
	Rate	Households	512	11.6	38.0	58.2
	Rate	People		16.5	48.1	68.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Durrës): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		112	189	326	1,284
	Rate	Households	120	0.0	2.3	25.0	100.0
	Rate	People		0.0	3.3	34.8	100.0
Rural	Line	People		114	192	330	1,303
	Rate	Households	392	0.6	6.9	34.7	99.1
	Rate	People		1.7	9.8	44.1	99.5
All	Line	People		114	192	329	1,299
	Rate	Households	512	0.5	5.7	32.1	99.4
	Rate	People		1.3	8.4	42.1	99.6

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Durrës): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poorest 1/2 < 100% Natl. | Percentile-based lines (2012 def.) | | | | | |
					10th	20th	40th	50th	60th	80th
Urban	Line	People		189	207	250	323	366	417	560
	Rate	Households	120	2.3	5.2	12.8	24.5	32.0	42.8	64.7
	Rate	People		3.3	7.1	17.9	33.8	42.0	53.2	73.6
Rural	Line	People		192	210	254	327	371	423	568
	Rate	Households	392	6.9	9.8	15.6	33.6	45.9	56.2	76.7
	Rate	People		9.8	14.1	20.7	42.9	55.3	66.0	83.2
All	Line	People		192	209	253	326	370	421	567
	Rate	Households	512	5.7	8.6	14.9	31.1	42.2	52.6	73.5
	Rate	People		8.4	12.6	20.1	40.9	52.4	63.2	81.1

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Elbasan): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		213	320	426
	Rate	Households	288	7.7	48.1	74.5
	Rate	People		11.9	57.8	82.9
Rural	Line	People		229	344	459
	Rate	Households	264	6.2	22.6	48.1
	Rate	People		10.2	32.1	60.3
All	Line	People		220	329	439
	Rate	Households	552	7.0	36.0	62.0
	Rate	People		11.3	47.8	74.1

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Elbasan): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		105	176	303	1,196
	Rate	Households	288	0.0	2.3	43.9	99.6
	Rate	People		0.0	4.3	54.0	99.8
Rural	Line	People		113	190	326	1,286
	Rate	Households	264	0.3	3.2	19.7	98.3
	Rate	People		0.9	5.8	28.6	99.0
All	Line	People		108	182	312	1,231
	Rate	Households	552	0.1	2.7	32.4	99.0
	Rate	People		0.3	4.8	44.1	99.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Elbasan): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poorest 1/2 < 100% Natl. | Percentile-based lines (2012 def.) | | | | | |
					10th	20th	40th	50th	60th	80th
Urban	Line	People		176	192	233	300	340	388	521
	Rate	Households	288	2.3	4.7	15.8	43.9	56.5	66.4	87.0
	Rate	People		4.3	7.7	21.9	54.0	66.5	75.0	92.6
Rural	Line	People		190	207	251	323	366	417	561
	Rate	Households	264	3.2	4.7	9.8	18.9	28.0	40.2	63.3
	Rate	People		5.8	8.1	15.3	27.7	37.8	51.1	71.6
All	Line	People		182	198	240	309	350	399	537
	Rate	Households	552	2.7	4.7	13.0	32.0	42.9	53.9	75.8
	Rate	People		4.8	7.9	19.3	43.7	55.3	65.6	84.4

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Fier): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		219	329	439
	Rate	Households	296	17.0	52.2	75.4
	Rate	People		21.4	60.5	83.0
Rural	Line	People		231	346	461
	Rate	Households	216	7.7	30.1	56.4
	Rate	People		10.6	36.6	64.5
All	Line	People		224	336	448
	Rate	Households	512	13.0	42.6	67.1
	Rate	People		17.1	50.9	75.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Fier): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		108	181	312	1,231
	Rate	Households	296	0.7	7.4	47.6	99.6
	Rate	People		1.1	10.1	55.8	99.9
Rural	Line	People		113	191	328	1,294
	Rate	Households	216	0.0	5.3	26.1	98.7
	Rate	People		0.0	7.7	32.4	99.6
All	Line	People		110	185	318	1,256
	Rate	Households	512	0.4	6.5	38.3	99.2
	Rate	People		0.7	9.1	46.3	99.8

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Fier): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		181	198	240	309	350	399	537
	Rate	Households	296	7.4	11.2	25.2	47.6	59.6	69.7	86.9
	Rate	People		10.1	14.6	31.7	55.8	68.2	78.3	91.2
Rural	Line	People		191	208	252	325	368	420	564
	Rate	Households	216	5.3	5.8	11.3	24.8	36.2	48.4	73.2
	Rate	People		7.7	8.3	14.9	31.1	43.8	56.2	80.8
All	Line	People		185	202	245	315	357	407	548
	Rate	Households	512	6.5	8.9	19.1	37.7	49.4	60.5	81.0
	Rate	People		9.1	12.1	25.0	45.8	58.3	69.4	87.0

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Gjirokastër): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		235	353	470
	Rate	Households	239	8.5	29.3	59.5
	Rate	People		11.9	38.2	69.3
Rural	Line	People		239	358	478
	Rate	Households	272	6.6	27.4	48.7
	Rate	People		9.4	35.5	57.8
All	Line	People		237	356	474
	Rate	Households	511	7.5	28.3	53.6
	Rate	People		10.6	36.8	63.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Gjirokastër): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
<u>Urban</u>	Line	People		115	194	334	1,319
	Rate	Households	239	1.0	4.7	24.2	100.0
	Rate	People		2.2	7.3	31.6	100.0
<u>Rural</u>	Line	People		117	197	339	1,339
	Rate	Households	272	0.4	2.4	23.7	99.0
	Rate	People		0.5	3.6	31.0	99.7
<u>All</u>	Line	People		116	196	337	1,329
	Rate	Households	511	0.7	3.4	23.9	99.5
	Rate	People		1.3	5.5	31.3	99.8

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Gjirokastër): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates							
				Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)						
					10th	20th	40th	50th	60th	80th
Urban	Line	People		194	212	257	331	375	428	575
	Rate	Households	239	4.7	5.6	11.3	24.2	41.2	54.4	76.2
	Rate	People		7.3	8.8	16.1	31.6	52.0	64.9	82.9
Rural	Line	People		197	215	261	336	381	434	584
	Rate	Households	272	2.4	2.7	8.8	23.7	32.2	43.8	68.6
	Rate	People		3.6	3.9	12.2	31.0	40.3	52.9	77.1
All	Line	People		196	214	259	334	378	431	580
	Rate	Households	511	3.4	4.0	9.9	23.9	36.3	48.6	72.1
	Rate	People		5.5	6.3	14.1	31.3	46.1	58.8	79.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Korçë): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
Urban	Line	People		219	328	438
	Rate	Households	288	10.5	32.6	59.3
	Rate	People		14.0	40.8	69.4
Rural	Line	People		230	345	460
	Rate	Households	224	6.4	28.0	52.6
	Rate	People		10.1	39.2	64.9
All	Line	People		223	335	446
	Rate	Households	512	8.7	30.6	56.3
	Rate	People		12.4	40.2	67.6

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Korçë): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		107	181	311	1,227
	Rate	Households	288	0.4	5.7	29.9	98.6
	Rate	People		0.7	7.8	38.1	99.5
Rural	Line	People		113	190	327	1,290
	Rate	Households	224	0.0	3.9	25.3	98.2
	Rate	People		0.0	6.5	36.0	98.6
All	Line	People		110	185	317	1,252
	Rate	Households	512	0.2	4.9	27.9	98.4
	Rate	People		0.4	7.3	37.3	99.2

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Korçë): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		181	197	239	308	349	398	535
	Rate	Households	288	5.7	7.4	12.9	29.4	37.4	48.1	74.3
	Rate	People		7.8	9.8	17.2	37.7	46.2	58.1	82.9
Rural	Line	People		190	208	251	324	367	419	563
	Rate	Households	224	3.9	5.2	10.6	24.8	34.5	45.9	66.5
	Rate	People		6.5	8.7	15.9	35.7	47.0	58.4	76.0
All	Line	People		185	201	244	314	356	406	546
	Rate	Households	512	4.9	6.4	11.9	27.4	36.1	47.1	70.8
	Rate	People		7.3	9.4	16.7	36.9	46.5	58.2	80.2

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

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Table 1 (Kukës): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.)		
				100%	150%	200%
<u>Urban</u>	Line	People		227	341	454
	Rate	Households	320	23.6	58.6	78.0
	Rate	People		31.1	70.0	85.8
<u>Rural</u>	Line	People		228	342	456
	Rate	Households	248	4.1	32.1	54.4
	Rate	People		6.0	42.1	65.7
<u>All</u>	Line	People		228	341	455
	Rate	Households	568	15.6	47.8	68.3
	Rate	People		22.5	60.4	78.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Kukës): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		112	188	323	1,274
	Rate	Households	320	0.0	10.8	56.0	99.3
	Rate	People		0.0	15.3	67.5	99.8
Rural	Line	People		112	189	324	1,280
	Rate	Households	248	0.0	0.5	28.3	99.2
	Rate	People		0.0	0.6	37.4	99.6
All	Line	People		112	188	323	1,276
	Rate	Households	568	0.0	6.6	44.7	99.3
	Rate	People		0.0	10.3	57.2	99.8

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Kukës): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		188	205	248	320	362	413	555
	Rate	Households	320	10.8	15.6	32.1	55.2	63.2	72.2	86.3
	Rate	People		15.3	21.0	41.6	66.6	73.8	81.4	91.2
Rural	Line	People		189	206	249	321	364	415	558
	Rate	Households	248	0.5	1.0	8.7	26.9	37.9	51.2	74.1
	Rate	People		0.6	1.3	12.8	35.8	49.4	62.7	82.4
All	Line	People		188	205	249	320	363	414	556
	Rate	Households	568	6.6	9.7	22.6	43.7	52.9	63.7	81.3
	Rate	People		10.3	14.3	31.7	56.0	65.5	75.0	88.2

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Lezhë): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.) 100%	150%	200%
Urban	Line	People		222	333	444
	Rate	Households	232	10.0	28.2	49.0
	Rate	People		14.8	37.4	61.9
Rural	Line	People		225	338	450
	Rate	Households	280	15.8	45.5	65.8
	Rate	People		21.1	56.0	75.1
All	Line	People		224	336	448
	Rate	Households	512	13.0	37.2	57.7
	Rate	People		18.4	48.1	69.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Lezhë): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates Intl. 2011 PPP (2012 def.) | | | |
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		109	184	316	1,246
	Rate	Households	232	0.2	6.1	25.2	100.0
	Rate	People		0.6	9.8	33.5	100.0
Rural	Line	People		111	186	320	1,262
	Rate	Households	280	1.6	7.3	40.8	98.2
	Rate	People		3.3	11.6	50.5	99.3
All	Line	People		110	185	318	1,255
	Rate	Households	512	0.9	6.7	33.3	99.1
	Rate	People		2.1	10.9	43.3	99.6

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Lezhë): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates						
				Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		184	200	243	313	355	404	543
	Rate	Households	232	6.1	8.1	12.2	25.2	31.9	43.6	66.3
	Rate	People		9.8	12.4	18.1	33.5	41.6	56.1	77.1
Rural	Line	People		186	203	246	317	359	409	550
	Rate	Households	280	7.3	10.0	21.1	40.8	50.4	57.6	79.1
	Rate	People		11.6	14.7	27.1	50.5	61.0	67.8	87.3
All	Line	People		185	202	245	315	357	407	547
	Rate	Households	512	6.7	9.1	16.8	33.3	41.5	50.9	73.0
	Rate	People		10.9	13.7	23.3	43.3	52.8	62.9	83.0

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Shkodër): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.) 100%	150%	200%
Urban	Line	People		220	331	441
	Rate	Households	272	11.4	31.2	47.2
	Rate	People		16.2	39.3	55.8
Rural	Line	People		222	333	444
	Rate	Households	240	10.8	34.2	56.5
	Rate	People		14.4	43.9	65.6
All	Line	People		221	332	442
	Rate	Households	512	11.1	32.6	51.6
	Rate	People		15.4	41.3	60.2

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Shkodër): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		108	182	313	1,236
	Rate	Households	272	2.2	5.9	27.8	97.1
	Rate	People		3.3	8.4	36.0	98.8
Rural	Line	People		109	184	316	1,245
	Rate	Households	240	0.4	5.2	29.2	99.6
	Rate	People		0.7	6.8	38.3	99.9
All	Line	People		109	183	314	1,240
	Rate	Households	512	1.3	5.6	28.5	98.3
	Rate	People		2.1	7.7	37.0	99.3

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Shkodër): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		182	199	241	310	352	401	539
	Rate	Households	272	5.9	5.9	17.0	27.6	34.2	41.8	59.9
	Rate	People		8.4	8.4	23.7	35.8	42.2	49.6	67.3
Rural	Line	People		184	200	243	313	354	404	543
	Rate	Households	240	5.2	8.8	12.4	29.2	38.8	47.6	68.7
	Rate	People		6.8	11.4	17.1	38.3	48.2	56.8	77.1
All	Line	People		183	199	242	311	353	402	541
	Rate	Households	512	5.6	7.3	14.8	28.3	36.4	44.6	64.1
	Rate	People		7.7	9.7	20.7	36.9	44.9	52.8	71.7

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Tiranë): National poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates National (2012 def.) 100%	150%	200%
Urban	Line	People		235	353	471
	Rate	Households	216	10.4	30.3	45.7
	Rate	People		14.9	39.4	55.9
Rural	Line	People		241	362	483
	Rate	Households	680	9.1	30.6	47.4
	Rate	People		13.6	42.2	59.2
All	Line	People		240	360	479
	Rate	Households	896	9.4	30.5	47.0
	Rate	People		13.9	41.5	58.4

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Tiranë): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		116	195	334	1,319
	Rate	Households	216	0.9	3.7	27.6	97.9
	Rate	People		1.1	6.1	36.6	99.2
Rural	Line	People		118	200	343	1,353
	Rate	Households	680	0.2	3.9	27.4	97.2
	Rate	People		0.2	6.8	38.2	98.8
All	Line	People		118	198	341	1,344
	Rate	Households	896	0.3	3.9	27.4	97.4
	Rate	People		0.4	6.6	37.8	98.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Tiranë): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		195	212	257	331	375	428	575
	Rate	Households	216	3.7	6.5	13.7	26.2	32.4	38.5	65.7
	Rate	People		6.1	10.1	19.7	34.8	42.1	49.0	74.5
Rural	Line	People		200	218	264	340	385	439	590
	Rate	Households	680	4.2	6.2	12.5	27.2	33.7	41.2	64.1
	Rate	People		7.1	10.1	18.3	37.9	45.6	53.4	74.5
All	Line	People		198	216	262	338	383	436	586
	Rate	Households	896	4.0	6.3	12.8	26.9	33.4	40.5	64.5
	Rate	People		6.9	10.1	18.7	37.1	44.7	52.2	74.5

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Vlorë): National poverty lines and poverty rates for households and people by urban/rural/all

| Area | Line or Rate | Households or People | n | Poverty lines and poverty rates National (2012 def.) | | |
				100%	150%	200%
Urban	Line	People		229	343	458
	Rate	Households	176	5.6	31.9	58.9
	Rate	People		9.3	44.3	72.9
Rural	Line	People		238	357	475
	Rate	Households	336	7.2	26.7	51.9
	Rate	People		12.0	38.2	64.0
All	Line	People		235	352	470
	Rate	Households	512	6.7	28.4	54.3
	Rate	People		11.1	40.2	66.9

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-adult-equivalent per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Vlorë): International 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poverty lines and poverty rates Intl. 2011 PPP (2012 def.)			
				$1.90	$3.20	$5.50	$21.70
Urban	Line	People		112	189	325	1,284
	Rate	Households	176	0.0	0.9	29.3	96.6
	Rate	People		0.0	1.6	40.6	99.0
Rural	Line	People		117	197	338	1,333
	Rate	Households	336	1.0	3.6	23.5	97.9
	Rate	People		1.8	7.0	34.3	99.2
All	Line	People		115	194	334	1,317
	Rate	Households	512	0.7	2.7	25.4	97.5
	Rate	People		1.2	5.2	36.4	99.1

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 1 (Vlorë): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all

Area	Line or Rate	Households or People	n	Poorest 1/2 < 100% Natl.	Percentile-based lines (2012 def.)					
					10th	20th	40th	50th	60th	80th
Urban	Line	People		189	207	250	322	365	416	560
	Rate	Households	176	0.9	2.5	11.0	29.3	33.0	45.4	70.7
	Rate	People		1.6	4.2	17.0	40.6	46.0	58.7	83.2
Rural	Line	People		197	214	260	335	379	432	581
	Rate	Households	336	3.6	4.7	11.6	23.1	32.1	45.2	68.5
	Rate	People		7.0	8.9	18.4	33.8	44.1	58.2	77.9
All	Line	People		194	212	257	331	375	427	574
	Rate	Households	512	2.7	3.9	11.4	25.2	32.4	45.3	69.3
	Rate	People		5.2	7.3	17.9	36.1	44.7	58.3	79.7

Source: 2012 LSMS

Poverty rates are percentages.

Poverty lines are ALL per-person per-day.

Lines are ALL in median prices in Albania during the 2012 LSMS field work.

Table 2: Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
2,276	How many household members are there? (Six or more; Five; Four; Three; One, or two)
1,582	How many household members are 18-years-old or younger? (Three or more; Two; One; None)
1,495	How many household members are 17-years-old or younger? (Three or more; Two; One; None)
1,461	How many household members are 16-years-old or younger? (Three or more; Two; One; None)
1,386	How many household members are 15-years-old or younger? (Three or more; Two; One; None)
1,293	How many household members are 14-years-old or younger? (Three or more; Two; One; None)
1,196	How many household members are 13-years-old or younger? (Two or more; One; None)
1,087	How many household members are 12-years-old or younger? (Two or more; One; None)
1,013	How many household members are 11-years-old or younger? (Two or more; One; None)
728	Did all household members ages 7 to 18 attend school in the past academic year? (No; Yes; No members are in that age range)
695	Did all household members ages 7 to 16 attend school in the past academic year? (No; Yes; No members are in that age range)
687	Did all household members ages 7 to 17 attend school in the past academic year? (No; Yes; No members are in that age range)
682	Did all household members ages 7 to 15 attend school in the past academic year? (No; Yes; No members are in that age range)
679	How many household members are 6-years-old or younger? (Two or more; One; None)
627	Did all household members ages 7 to 14 attend school in the past academic year? (No; Yes; No members are in that age range)
619	Did all household members ages 7 to 13 attend school in the past academic year? (No; Yes; No members are in that age range)
552	Did all household members ages 7 to 12 attend school in the past academic year? (No; Yes; No members are in that age range)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
519	Did all household members ages 7 to 11 attend school in the past academic year? (No; Yes; No members are in that age range)
416	What is the highest grade the male head/spouse completed in school? (None, or years 1 to 7 in 8-or-9-years school; Year 8 or 9 in 8-or-9-years school; Gymnazium (secondary general), any year; Two-year tecnicum (any year), 2-or-3-year vocational (any year), 4-or-5-year vocational (any year), or university (year 1 to 3); No male head/spouse; University (year 4), or more (masters or doctorate/PhD))
401	What is the highest grade the female head/spouse completed in school? (None, or years 1 to 7 in 8-or-9-years school; Year 8 or 9 in 8-or-9-years school; Gymnazium (secondary general, any year), 2-year tecnicum (any year), 2-or-3-year vocational (any year), 4-or-5-year vocational (any year), or university (year 1 to 3); No female head/spouse; University (year 4), or more (masters or doctorate/PhD))
362	Does the household own a land-line phone in good working condition? (No; Yes)
337	Does the household have a phone line inside its residence? (No; Yes)
319	In what type of residence does the household live? (Semi-detached house, detached house, or other; Row (or terraced) house (at least three linked, each with separate entrance), or in a building with up to 15 apartments; In a building with more than 15 apartments)
269	Does the household own a wood stove, electric or gas stove, or microwave oven in good working condition? (No, or only wood stove; Electric or gas stove, but no microwave oven (regardless of wood stove); Microwave oven (regardless of all others))
244	Does the household own a computer in good working condition? (No; Yes)
233	What source of heating does your household mainly use? (None, or wood; Gas; Oil or petrol, coal, electricity, or other)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
217	Does the household own a video player/DVD player, satellite dish/cable receiver, or TV decoder in good working condition? (No; Video player/DVD player, or satellite dish/cable receiver, but no TV decoder; TV decoder (regardless of all else))
210	Does the household own a washing machine in good working condition? (No; Yes)
207	Does the household own a microwave in good working condition? (No; Yes)
204	Approximately how much electricity did your household consume last month? (No data; Up to 100 kwh; 101-300 kwh; 301 kwh or more)
181	Does the household own a bicycle, motorcycle/scooter, a car, truck, or dumdum tractor in good working condition? (Only bicycle; None; Motorcycle/scooter, but no car, nor truck, nor dumdum tractor (regardless of bicycle); Car, truck, or dumdum tractor (regardless of bicycle or motorycle/scooter))
178	What is the main water-supply system used by this household? (Public tap, running water outside the building, river, lake, pond, or similar, or other; Running water outside the residence but inside the building, spring or well, or water truck; Running water inside the residence)
172	Does the household have a WC inside the residence? (Do not count a WC that is inside the building but not inside the residence) (No; Yes)
172	Does the household own a car, truck, or dumdum tractor in good working condition? (No; Yes)
163	In the last 12 months, has any member of your household received any payment from Ndihme Ekonomike? (Yes; No)
163	Does the household head have a spouse/conjugal partner? (Male head without a spouse/conjugal partner; Yes; Female head without a spouse/conjugal partner)
159	During the past 7 days, did the female head/spouse work (at least one hour) for someone who is not a member of her household, for example, a public or private enterprise or company, an NGO, or any other individual? (No; Yes; No female head/spouse)
153	Does your household own a TV decoder in good working condition? (No; Yes)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
151	In the past 7 days, did the female head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual? Or did she work on a farm owned or rented by her or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to him or a household member? Or did she work on her own account or in a business belonging to her or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? Or did she have a permanent/long-term job from which she was temporarily absent? (No; Yes; No female head/spouse)
145	Does your household own a wood stove in good working condition? (Yes; No)
134	Does the household own a water boiler in good working condition? (No; Yes)
125	In the past 7 days, did the male head/spouse work (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual? Or did he work on a farm owned or rented by him or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to him or a household member? Or did he work on his own account or in a business belonging to him or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? Or did he have a permanent/long-term job from which he was temporarily absent? (No; No male head/spouse; Yes)
125	During the past 7 days, did the male head/spouse work (at least one hour) on his own account or in a business belonging to him or to someone in his household, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? (No; Yes; No male head/spouse)
114	What is the household's tenancy status in its residence? (Owned (title in process), rented, rent-free, or other; Owned with title)
112	During the past 7 days, did the male head/spouse work (at least one hour) for someone who is not a member of his household, for example, a public or private enterprise or company, an NGO, or any other individual? (No; Yes; No male head/spouse)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
112	Does the household own an electric or gas stove in good working condition? (No; Yes)
99	Does your residence have a balcony or terrace? (No; Yes)
98	What is the building's outside appearance? (Not plastered, eternit, or tin; Partially plastered; Plastered)
90	During the past 7 days, did the female head/spouse work (at least one hour) on her own account or in a business belonging to her or to someone in her household, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? (No; Yes; No female head/spouse)
89	Is your residence too small? (Yes; No)
89	Does the household own a video player/DVD player in good working condition? (No; Yes)
88	Does the household use electricity for heating water? (No; Yes)
86	Does the residence have a separate kitchen? (No; Yes)
86	Does the household use electricity for cooling? (No; Yes)
85	Does the residence have a separate bath/shower? (No; Yes)
83	During the past 7 days, did the female head/spouse work (at least one hour) on a farm owned or rented by her or by a member of her household, whether in cultivating crops or in other farm-maintenance tasks, or has she cared for livestock belonging to her or to a member of her household? (No; Yes; No female head/spouse)
82	Does the female head/spouse suffer from any disability that has lasted for more than three months? (Yes; No; No female head/spouse)
82	Can the female head/spouse read a newspaper easily? (No; Yes; No female head/spouse)
81	Does the male head/spouse suffer from any disability that has lasted for more than three months? (Yes; No; No male head/spouse)
75	During the past 7 days, did the male head/spouse work (at least one hour) on a farm owned or rented by him or by a member of his household, whether in cultivating crops or in other farm-maintenance tasks, or has he cared for livestock belonging to him or to a member of his household? (Yes; No; No male head/spouse)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
75	Does the residence have inadequate heating? (Yes; No)
74	Can the male head/spouse read a newspaper easily? (No; Yes; No male head/spouse)
73	Does anyone in your household own any livestock, poultry, beehives, or engage in aquaculture? (Yes; No)
65	In what prefecture does the household live? (Central (Lezhë, Kurbin, Kavajë, Mallakaster, Lushnje, Delvine, Sarande, Durres, Fier, and Vlore); Coastal (Devoll, Kolonjë, Pogradec, Mirdite, Puke, Malesi e Madhe, Mat, Kuçove, Skrapar, Krujë, Peqin, Gjirokastër, Permet, Tepelenë, Shkoder, Elbasan, Berat, Korçë, and Tirana (rural)); Mountain (Kukes, Has, Tropoje, Bulqize, Diber, Gramsh, and Librazhd); Tirana (Tirana urbane, and Tirana te tjera urbane))
43	Do any household members suffer from any disability that has lasted for more than three months? (Yes; No)
41	Does your household own any agricultural land? (Yes; No)
40	During the past 7 days, how many household members 15-years-old or older worked (at least one hour) on a farm owned or rented by them or a member of their household, whether in cultivating crops or in other farm-maintenance tasks, or did they care for livestock belonging to them or a member of their household? (Two or more; One; None)
36	During the past 7 days, how many household members 15-years-old or older worked (at least one hour) for someone who is not a member of their household, for example, a public or private enterprise or company, an NGO, or any other individual? (None; One; Two or more)
32	In what prefecture does the household live? (Fier, or Gjirokastër; Tiranë, or Vlorë; Durrës, or Kukës; Elbasan; Berat, or Lezhë; Korçë, Shkodër, or Dibër)
30	Does the household own a tape player/CD player in good working condition? (No; Yes)
29	In the last 12 months, has any member of your household received any payment from an old-age pension (urban or rural)? (No; Yes)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
27	In the past 7 days, how many household members ages 15-years-old or older worked (at least one hour) for someone outside the household, for example, for a public or private enterprise or company, an NGO, or any other individual? Or worked on a farm owned or rented by them or a household member, whether in cultivating crops, in other farm-maintenance tasks, or caring for livestock belonging to them or a household member? Or worked on their own account or in a business belonging to them or a household member, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car washer, and so on? Or had a permanent/long-term job from which they were temporarily absent? (None; One; Two; Three or more)
26	Does your household own a satellite dish/cable receiver in good working condition? (No; Yes)
23	During the past 7 days, did any household members 15-years-old or older work (at least one hour) on their own account or in a business belonging to them or someone in their household, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver, car wash, and so on? (No; Yes)
22	Does the residence have a water-storage tank? (No; Yes)
17	What is the area of the residence in m^2, (including living room and accessory rooms)? (Less than 69 m^2, or no data; More than 70 m^2)
8	Does your household own a bicycle in good working condition? (Yes; No)
7	How many rooms does the household occupy, excluding verandas, balconies, bathrooms, toilets, corridors, storage areas, or rooms smaller than 4 m^2)? (One, or two; Three; Four or more)
7	Does your household own a motorcycle/scooter in good working condition? (No; Yes)
4	How many mobile phones does the household own in good working condition? (None; One; Two; Three or more)
2	Does your household use gas for cooking or heating? (No; Yes)
2	Does your household use gas for heating? (No; Yes)
0	Does your household use gas for cooking? (No; Yes)

Source: 2012 LSMS with 150% of the national poverty line

Tables for
100% of the National Poverty Line

(and Tables Pertaining
to All Poverty Lines)

Table 3 (100% of the national line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	49.4
30–33	32.0
34–37	23.9
38–40	19.6
41–43	18.0
44–45	9.8
46–47	9.8
48–49	5.8
50–51	2.4
52–53	2.4
54–55	2.4
56–57	2.4
58–59	2.0
60–62	1.4
63–64	1.1
65–67	1.1
68–70	0.4
71–73	0.0
74–77	0.0
78–100	0.0

Table 4 (100% of the national line): Derivation of estimated poverty likelihoods

Score	Households in range and < poverty line		All households in range		Poverty likelihood (%)
0–29	3,217	÷	6,505	=	49.4
30–33	1,378	÷	4,309	=	32.0
34–37	1,401	÷	5,859	=	23.9
38–40	980	÷	4,994	=	19.6
41–43	1,071	÷	5,942	=	18.0
44–45	421	÷	4,281	=	9.8
46–47	431	÷	4,386	=	9.8
48–49	266	÷	4,569	=	5.8
50–51	112	÷	4,625	=	2.4
52–53	121	÷	4,972	=	2.4
54–55	116	÷	4,770	=	2.4
56–57	95	÷	3,900	=	2.4
58–59	102	÷	5,064	=	2.0
60–62	83	÷	5,930	=	1.4
63–64	44	÷	3,883	=	1.1
65–67	63	÷	5,514	=	1.1
68–70	17	÷	4,834	=	0.4
71–73	0	÷	5,121	=	0.0
74–77	0	÷	4,544	=	0.0
78–100	0	÷	5,997	=	0.0

Number of all households normalized to sum to 100,000.

Table 5 (100% of the national line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+7.5	3.0	3.5	4.8
30–33	+2.1	3.3	3.9	5.0
34–37	−11.5	7.2	7.5	8.1
38–40	+6.6	1.9	2.2	3.1
41–43	+1.4	2.5	2.9	4.0
44–45	+1.0	1.7	2.1	3.0
46–47	+4.5	1.4	1.7	2.3
48–49	+0.6	1.3	1.6	2.0
50–51	−2.0	1.7	1.8	2.2
52–53	−4.8	3.3	3.5	3.9
54–55	−9.8	6.2	6.4	6.8
56–57	−3.3	2.5	2.6	2.9
58–59	+2.0	0.0	0.0	0.0
60–62	−0.7	0.8	0.9	1.1
63–64	−2.4	1.9	2.1	2.3
65–67	+1.1	0.0	0.0	0.0
68–70	+0.4	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (100% of the national line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	−0.3	54.0	61.3	73.5
4	−1.4	28.6	34.2	43.1
8	−0.4	19.2	22.5	31.6
16	−0.2	13.6	16.1	23.4
32	−0.1	10.0	11.6	15.4
64	−0.3	7.1	8.6	10.7
128	−0.2	5.1	6.2	8.3
256	−0.2	3.7	4.4	5.6
512	−0.2	2.5	3.1	3.9
1,024	−0.2	1.8	2.1	2.9
2,048	−0.2	1.3	1.5	2.0
4,096	−0.3	0.9	1.1	1.4
8,192	−0.2	0.6	0.7	1.0
16,384	−0.2	0.5	0.5	0.7

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 7 (National lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision

	Poverty lines		
	National (2012 def.)		
	100%	150%	200%
Error (estimate minus observed value)	−0.2	−0.4	0.0
Precision of estimate	0.5	0.6	0.5
Alpha factor for precision	1.19	0.96	0.86

Scorecard applied to 1,000 bootstraps from the validation sample.

Errors (differences between estimates and observed values) are in units of percentage points.

Precision is measured as 90-percent confidence intervals in units of ± percentage points.

Errors and precision estimated from 1,000 bootstraps with n = 16,384.

Alpha is based on 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 7 (International 2011 PPP lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision

	Poverty lines			
	Intl. 2011 PPP (2012 def.)			
	$1.90	$3.20	$5.50	$21.70
Error (estimate minus observed value)	0.0	–0.2	–1.0	+0.1
Precision of estimate	0.1	0.3	0.6	0.2
Alpha factor for precision	1.14	1.26	1.01	0.97

Scorecard applied to 1,000 bootstraps from the validation sample.

Errors (differences between estimates and observed values) are in units of percentage points.

Precision is measured as 90-percent confidence intervals in units of ± percentage points.

Errors and precision estimated from 1,000 bootstraps with n = 16,384.

Alpha is based on 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 7 (Relative and percentile-based lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision

| | Poorest 1/2 < 100% Natl. | Percentile-based lines (2012 def.) | | | | | |
		10th	20th	40th	50th	60th	80th
Error (estimate minus observed value)	−0.6	−0.7	−1.6	−1.1	−0.4	+1.0	+0.4
Precision of estimate	0.4	0.4	0.6	0.6	0.6	0.5	0.5
Alpha factor for precision	1.31	1.27	1.26	1.00	0.92	0.86	0.93

Scorecard applied to 1,000 bootstraps from the validation sample.

Errors (differences between estimates and observed values) are in units of percentage points.

Precision is measured as 90-percent confidence intervals in units of ± percentage points.

Errors and precision estimated from 1,000 bootstraps with n = 16,384.

Alpha is based on 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 8 (All poverty lines): Possible targeting outcomes

		Targeting segment	
		Targeted	**Non-targeted**
Observed poverty status	**Poor**	**Inclusion** Poor correctly targeted	**Undercoverage** Poor mistakenly not targeted
	Non-poor	**Leakage** Non-poor mistakenly targeted	**Exclusion** Non-poor correctly not targeted

Table 9 (100% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	2.2	7.5	2.9	87.4	89.6	−24.3
<=33	3.6	6.1	6.5	83.8	87.5	+33.4
<=37	5.6	4.1	10.4	79.8	85.4	−7.7
<=40	6.5	3.2	14.7	75.6	82.1	−51.7
<=43	7.3	2.4	19.5	70.8	78.1	−100.7
<=45	7.8	1.9	23.5	66.8	74.6	−142.1
<=47	8.0	1.7	27.7	62.6	70.7	−185.2
<=49	8.4	1.3	32.0	58.3	66.7	−229.5
<=51	8.6	1.1	36.7	53.5	62.1	−278.5
<=53	8.9	0.8	41.2	49.1	58.0	−324.4
<=55	9.2	0.5	45.2	45.1	54.4	−365.3
<=57	9.4	0.3	49.7	40.6	50.0	−412.4
<=59	9.4	0.3	54.1	36.2	45.7	−457.0
<=62	9.6	0.1	59.4	30.9	40.4	−512.4
<=64	9.7	0.0	63.7	26.6	36.3	−556.2
<=67	9.7	0.0	68.8	21.5	31.2	−608.8
<=70	9.7	0.0	73.7	16.6	26.3	−659.2
<=73	9.7	0.0	79.0	11.3	21.0	−713.7
<=77	9.7	0.0	84.6	5.7	15.4	−771.2
<=100	9.7	0.0	90.3	0.0	9.7	−830.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (100% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	43.3	22.9	0.8:1
<=33	10.1	35.9	37.4	0.6:1
<=37	16.0	34.8	57.5	0.5:1
<=40	21.3	30.7	67.3	0.4:1
<=43	26.8	27.3	75.2	0.4:1
<=45	31.3	24.8	80.0	0.3:1
<=47	35.7	22.5	82.9	0.3:1
<=49	40.3	20.7	86.1	0.3:1
<=51	45.3	18.9	88.3	0.2:1
<=53	50.1	17.7	91.4	0.2:1
<=55	54.4	17.0	95.1	0.2:1
<=57	59.2	16.0	97.3	0.2:1
<=59	63.5	14.9	97.3	0.2:1
<=62	69.0	13.9	98.7	0.2:1
<=64	73.4	13.2	100.0	0.2:1
<=67	78.5	12.4	100.0	0.1:1
<=70	83.4	11.6	100.0	0.1:1
<=73	88.7	10.9	100.0	0.1:1
<=77	94.3	10.3	100.0	0.1:1
<=100	100.0	9.7	100.0	0.1:1

Scorecard applied to the validation sample.

Tables for
150% of the National Poverty Line

Table 3 (150% of the national line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	90.8
30–33	80.1
34–37	74.1
38–40	67.8
41–43	62.0
44–45	49.2
46–47	49.2
48–49	39.0
50–51	34.8
52–53	27.9
54–55	23.9
56–57	23.9
58–59	13.2
60–62	11.9
63–64	9.1
65–67	7.3
68–70	3.9
71–73	2.2
74–77	0.4
78–100	0.3

Table 5 (150% of the national line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

Score	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
0–29	+3.8	2.1	2.4	3.3
30–33	+0.4	2.6	3.2	4.1
34–37	+6.6	3.0	3.5	4.5
38–40	+8.6	3.3	4.1	5.5
41–43	+2.2	3.0	3.7	4.3
44–45	−30.2	16.3	16.5	17.1
46–47	+0.7	3.3	4.0	5.4
48–49	+6.1	2.9	3.6	4.8
50–51	−0.6	3.0	3.6	4.9
52–53	−4.6	3.8	4.1	5.0
54–55	−6.3	4.6	4.9	5.8
56–57	+3.7	2.5	2.9	3.8
58–59	−0.9	2.2	2.7	3.7
60–62	+1.5	1.7	1.9	2.6
63–64	−1.5	1.9	2.2	3.1
65–67	+5.1	0.7	0.8	1.1
68–70	+1.0	0.8	1.0	1.3
71–73	−0.2	0.8	1.0	1.4
74–77	−2.9	2.0	2.1	2.3
78–100	−0.1	0.3	0.3	0.4

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (150% of the national line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size n	Error	Difference between estimate and observed value Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
1	+1.2	70.0	75.1	92.6
4	+0.5	35.9	43.6	55.3
8	+0.1	26.3	30.7	40.4
16	−0.1	18.6	23.1	29.0
32	−0.3	12.9	15.0	19.9
64	−0.4	9.6	11.0	14.7
128	−0.4	6.6	7.8	10.9
256	−0.4	4.6	5.6	7.3
512	−0.3	3.2	3.8	5.0
1,024	−0.3	2.3	2.7	3.4
2,048	−0.3	1.7	2.0	2.7
4,096	−0.4	1.2	1.4	1.8
8,192	−0.4	0.8	1.0	1.3
16,384	−0.4	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (150% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	4.4	29.8	0.8	65.1	69.4	−72.2
<=33	8.2	26.0	1.9	63.9	72.0	−46.6
<=37	12.4	21.8	3.7	62.2	74.5	−16.9
<=40	15.5	18.7	5.7	60.1	75.6	+7.6
<=43	18.8	15.3	7.9	57.9	76.7	+33.5
<=45	21.9	12.3	9.4	56.5	78.4	+55.6
<=47	24.0	10.2	11.7	54.1	78.1	+65.7
<=49	25.6	8.5	14.7	51.1	76.7	+57.0
<=51	27.8	6.4	17.5	48.3	76.1	+48.7
<=53	29.3	4.9	20.7	45.1	74.4	+39.3
<=55	30.5	3.7	23.9	41.9	72.5	+30.2
<=57	31.5	2.7	27.7	38.1	69.5	+18.9
<=59	32.1	2.0	31.4	34.5	66.6	+8.2
<=62	32.9	1.3	36.2	29.7	62.5	−5.8
<=64	33.4	0.8	40.0	25.8	59.2	−17.1
<=67	33.6	0.6	44.9	20.9	54.5	−31.4
<=70	33.8	0.4	49.6	16.2	50.0	−45.1
<=73	33.9	0.2	54.8	11.1	45.0	−60.2
<=77	34.1	0.0	60.1	5.7	39.8	−75.9
<=100	34.2	0.0	65.8	0.0	34.2	−92.6

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (150% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	85.2	12.8	5.8:1
<=33	10.1	80.8	23.9	4.2:1
<=37	16.0	77.2	36.2	3.4:1
<=40	21.3	73.0	45.4	2.7:1
<=43	26.8	70.4	55.1	2.4:1
<=45	31.3	70.1	64.1	2.3:1
<=47	35.7	67.2	70.2	2.0:1
<=49	40.3	63.5	75.0	1.7:1
<=51	45.3	61.3	81.3	1.6:1
<=53	50.1	58.6	85.8	1.4:1
<=55	54.4	56.1	89.3	1.3:1
<=57	59.2	53.1	92.0	1.1:1
<=59	63.5	50.6	94.1	1.0:1
<=62	69.0	47.6	96.1	0.9:1
<=64	73.4	45.5	97.7	0.8:1
<=67	78.5	42.8	98.3	0.7:1
<=70	83.4	40.5	98.9	0.7:1
<=73	88.7	38.3	99.3	0.6:1
<=77	94.3	36.2	99.9	0.6:1
<=100	100.0	34.2	100.0	0.5:1

Scorecard applied to the validation sample.

Tables for
200% of the National Poverty Line

Table 3 (200% of the national line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	98.5
30–33	90.6
34–37	90.6
38–40	90.6
41–43	88.1
44–45	75.8
46–47	75.8
48–49	69.5
50–51	69.5
52–53	56.9
54–55	56.9
56–57	56.9
58–59	45.2
60–62	36.9
63–64	33.1
65–67	26.8
68–70	21.0
71–73	14.0
74–77	10.1
78–100	6.8

Table 5 (200% of the national line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+0.8	0.9	1.0	1.3
30–33	−1.2	1.5	1.8	2.4
34–37	+0.5	1.9	2.3	2.9
38–40	+2.2	2.2	2.7	3.5
41–43	+6.5	2.4	2.8	3.8
44–45	−21.0	10.9	11.0	11.1
46–47	−5.7	4.1	4.2	4.8
48–49	+8.8	3.3	3.9	5.1
50–51	−11.9	7.1	7.3	7.8
52–53	−9.1	6.0	6.4	6.7
54–55	+3.2	3.3	3.9	5.1
56–57	+14.9	3.0	3.7	4.8
58–59	+8.8	3.3	3.7	5.2
60–62	−1.1	2.9	3.5	4.7
63–64	+4.0	2.8	3.4	4.2
65–67	+8.3	2.1	2.5	3.2
68–70	+9.8	1.7	2.0	3.0
71–73	−5.5	4.1	4.4	4.8
74–77	−2.5	2.3	2.6	3.3
78–100	−0.7	1.5	1.8	2.4

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (200% of the national line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+2.3	66.3	83.5	90.3
4	+1.1	33.4	39.5	56.3
8	+0.8	25.4	28.5	38.7
16	+0.7	17.7	20.8	27.2
32	+0.6	12.5	14.9	19.5
64	+0.2	8.8	10.5	13.3
128	+0.1	6.0	7.3	9.4
256	−0.1	4.3	5.1	6.9
512	0.0	3.0	3.6	4.5
1,024	0.0	2.2	2.7	3.4
2,048	0.0	1.6	1.9	2.3
4,096	0.0	1.1	1.3	1.7
8,192	0.0	0.8	0.9	1.1
16,384	0.0	0.5	0.7	0.8

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (200% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	5.0	50.8	0.2	44.1	49.0	−81.9
<=33	9.4	46.4	0.7	43.5	52.8	−65.1
<=37	14.8	41.0	1.2	43.0	57.8	−44.7
<=40	19.4	36.4	1.9	42.4	61.7	−27.1
<=43	24.0	31.8	2.8	41.4	65.4	−9.0
<=45	28.1	27.7	3.1	41.1	69.2	+6.5
<=47	31.6	24.2	4.1	40.1	71.7	+20.7
<=49	34.6	21.2	5.8	38.4	73.0	+34.3
<=51	38.5	17.3	6.8	37.4	75.9	+50.2
<=53	41.7	14.1	8.4	35.8	77.5	+64.4
<=55	44.1	11.7	10.3	33.9	78.0	+76.6
<=57	46.2	9.6	13.0	31.3	77.5	+76.8
<=59	48.0	7.7	15.5	28.7	76.8	+72.3
<=62	50.3	5.5	18.7	25.5	75.8	+66.4
<=64	51.8	4.0	21.6	22.6	74.4	+61.3
<=67	53.0	2.8	25.5	18.7	71.6	+54.2
<=70	53.7	2.1	29.7	14.5	68.2	+46.7
<=73	54.7	1.1	34.0	10.2	64.9	+39.0
<=77	55.3	0.5	38.9	5.3	60.6	+30.2
<=100	55.8	0.0	44.2	0.0	55.8	+20.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (200% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	96.8	8.9	30.5:1
<=33	10.1	92.7	16.8	12.8:1
<=37	16.0	92.3	26.5	12.0:1
<=40	21.3	91.2	34.8	10.4:1
<=43	26.8	89.5	43.0	8.5:1
<=45	31.3	89.9	50.4	8.9:1
<=47	35.7	88.4	56.7	7.7:1
<=49	40.3	85.6	62.0	6.0:1
<=51	45.3	84.9	69.0	5.6:1
<=53	50.1	83.2	74.7	5.0:1
<=55	54.4	81.1	79.1	4.3:1
<=57	59.2	78.1	82.9	3.6:1
<=59	63.5	75.6	86.1	3.1:1
<=62	69.0	72.8	90.1	2.7:1
<=64	73.4	70.6	92.9	2.4:1
<=67	78.5	67.5	94.9	2.1:1
<=70	83.4	64.3	96.2	1.8:1
<=73	88.7	61.6	98.0	1.6:1
<=77	94.3	58.7	99.2	1.4:1
<=100	100.0	55.8	100.0	1.3:1

Scorecard applied to the validation sample.

Tables for
$1.90/day 2011 PPP Poverty Line

Table 3 ($1.90/day 2011 PPP line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	4.1
30–33	1.4
34–37	1.2
38–40	0.9
41–43	0.1
44–45	0.0
46–47	0.0
48–49	0.0
50–51	0.0
52–53	0.0
54–55	0.0
56–57	0.0
58–59	0.0
60–62	0.0
63–64	0.0
65–67	0.0
68–70	0.0
71–73	0.0
74–77	0.0
78–100	0.0

Table 5 ($1.90/day 2011 PPP line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| | | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
Score	Error	90-percent	95-percent	99-percent
0–29	+0.4	0.9	1.1	1.4
30–33	+1.0	0.2	0.3	0.3
34–37	−2.5	1.9	2.1	2.4
38–40	+0.9	0.0	0.0	0.0
41–43	+0.1	0.0	0.0	0.0
44–45	0.0	0.0	0.0	0.0
46–47	0.0	0.0	0.0	0.0
48–49	0.0	0.0	0.0	0.0
50–51	0.0	0.0	0.0	0.0
52–53	0.0	0.0	0.0	0.0
54–55	0.0	0.0	0.0	0.0
56–57	0.0	0.0	0.0	0.0
58–59	0.0	0.0	0.0	0.0
60–62	0.0	0.0	0.0	0.0
63–64	0.0	0.0	0.0	0.0
65–67	0.0	0.0	0.0	0.0
68–70	0.0	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 ($1.90/day 2011 PPP line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+0.1	1.4	2.0	2.0
4	−0.1	0.8	1.0	17.7
8	0.0	0.6	4.8	10.4
16	0.0	2.2	3.4	6.4
32	0.0	1.8	3.0	4.0
64	0.0	1.5	1.7	2.5
128	0.0	1.0	1.2	1.7
256	0.0	0.8	0.9	1.1
512	0.0	0.5	0.6	0.8
1,024	0.0	0.4	0.5	0.6
2,048	0.0	0.3	0.3	0.4
4,096	0.0	0.2	0.2	0.3
8,192	0.0	0.1	0.2	0.2
16,384	0.0	0.1	0.1	0.2

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 ($1.90/day 2011 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	0.3	0.2	4.9	94.7	94.9	−950.9
<=33	0.3	0.1	9.8	89.8	90.1	−2,012.5
<=37	0.5	0.0	15.6	84.0	84.4	−3,263.1
<=40	0.5	0.0	20.8	78.7	79.2	−4,390.4
<=43	0.5	0.0	26.3	73.2	73.7	−5,584.5
<=45	0.5	0.0	30.8	68.7	69.2	−6,552.6
<=47	0.5	0.0	35.3	64.3	64.7	−7,517.0
<=49	0.5	0.0	39.9	59.7	60.1	−8,514.3
<=51	0.5	0.0	44.8	54.7	55.2	−9,586.0
<=53	0.5	0.0	49.6	49.9	50.4	−10,612.1
<=55	0.5	0.0	53.9	45.6	46.1	−11,549.1
<=57	0.5	0.0	58.7	40.8	41.3	−12,583.4
<=59	0.5	0.0	63.1	36.5	36.9	−13,517.6
<=62	0.5	0.0	68.6	31.0	31.4	−14,706.6
<=64	0.5	0.0	72.9	26.6	27.1	−15,653.8
<=67	0.5	0.0	78.0	21.5	22.0	−16,756.2
<=70	0.5	0.0	82.9	16.6	17.1	−17,812.7
<=73	0.5	0.0	88.2	11.3	11.8	−18,955.5
<=77	0.5	0.0	93.8	5.7	6.2	−20,159.8
<=100	0.5	0.0	99.5	0.0	0.5	−21,397.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 ($1.90/day 2011 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	5.1	56.2	0.1:1
<=33	10.1	3.1	67.8	0.0:1
<=37	16.0	2.9	100.0	0.0:1
<=40	21.3	2.2	100.0	0.0:1
<=43	26.8	1.7	100.0	0.0:1
<=45	31.3	1.5	100.0	0.0:1
<=47	35.7	1.3	100.0	0.0:1
<=49	40.3	1.1	100.0	0.0:1
<=51	45.3	1.0	100.0	0.0:1
<=53	50.1	0.9	100.0	0.0:1
<=55	54.4	0.9	100.0	0.0:1
<=57	59.2	0.8	100.0	0.0:1
<=59	63.5	0.7	100.0	0.0:1
<=62	69.0	0.7	100.0	0.0:1
<=64	73.4	0.6	100.0	0.0:1
<=67	78.5	0.6	100.0	0.0:1
<=70	83.4	0.6	100.0	0.0:1
<=73	88.7	0.5	100.0	0.0:1
<=77	94.3	0.5	100.0	0.0:1
<=100	100.0	0.5	100.0	0.0:1

Scorecard applied to the validation sample.

Tables for
$3.20/day 2011 PPP Poverty Line

Table 3 ($3.20/day 2011 PPP line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	31.1
30–33	17.2
34–37	9.3
38–40	8.3
41–43	6.5
44–45	3.1
46–47	2.7
48–49	1.7
50–51	0.7
52–53	0.7
54–55	0.7
56–57	0.7
58–59	0.3
60–62	0.1
63–64	0.0
65–67	0.0
68–70	0.0
71–73	0.0
74–77	0.0
78–100	0.0

Table 5 ($3.20/day 2011 PPP line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

Score	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
0–29	+5.9	2.6	3.1	4.1
30–33	+3.5	2.6	3.1	3.9
34–37	−10.7	6.7	7.0	7.4
38–40	+4.6	0.8	1.0	1.3
41–43	−5.8	4.0	4.2	4.6
44–45	−1.2	1.3	1.5	2.1
46–47	−1.0	1.2	1.5	2.1
48–49	+0.7	0.5	0.6	0.8
50–51	−0.3	0.5	0.6	0.8
52–53	+0.4	0.2	0.2	0.3
54–55	+0.5	0.1	0.2	0.3
56–57	−0.7	0.7	0.9	1.2
58–59	+0.3	0.0	0.0	0.0
60–62	−0.9	0.7	0.8	0.9
63–64	0.0	0.0	0.0	0.0
65–67	0.0	0.0	0.0	0.0
68–70	0.0	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 ($3.20/day 2011 PPP line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+0.1	8.6	56.9	62.3
4	−1.1	23.0	28.6	36.3
8	−0.5	15.0	18.2	23.9
16	−0.1	10.1	11.9	16.5
32	−0.1	7.2	8.7	12.6
64	−0.2	5.2	6.4	8.8
128	−0.2	3.8	4.3	6.0
256	−0.2	2.7	3.1	4.2
512	−0.2	1.8	2.2	2.8
1,024	−0.2	1.4	1.6	2.0
2,048	−0.2	0.9	1.1	1.5
4,096	−0.2	0.7	0.8	1.1
8,192	−0.2	0.5	0.6	0.7
16,384	−0.2	0.3	0.4	0.5

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 ($3.20/day 2011 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	1.3	3.1	3.8	91.8	93.1	+14.6
<=33	2.0	2.5	8.1	87.4	89.4	−82.6
<=37	2.9	1.6	13.1	82.4	85.3	−195.5
<=40	3.3	1.2	18.0	77.6	80.8	−304.7
<=43	3.7	0.7	23.1	72.5	76.2	−418.7
<=45	4.0	0.5	27.3	68.3	72.2	−514.0
<=47	4.1	0.3	31.6	63.9	68.1	−610.7
<=49	4.2	0.2	36.1	59.4	63.7	−712.4
<=51	4.3	0.2	41.0	54.5	58.8	−822.5
<=53	4.3	0.1	45.7	49.8	54.1	−928.8
<=55	4.3	0.1	50.1	45.5	49.8	−1,025.9
<=57	4.4	0.1	54.8	40.8	45.1	−1,132.3
<=59	4.4	0.1	59.1	36.4	40.8	−1,229.6
<=62	4.4	0.0	64.6	31.0	35.4	−1,352.2
<=64	4.4	0.0	69.0	26.6	31.0	−1,450.8
<=67	4.4	0.0	74.1	21.5	25.9	−1,565.6
<=70	4.4	0.0	79.0	16.6	21.0	−1,675.6
<=73	4.4	0.0	84.2	11.3	15.8	−1,794.6
<=77	4.4	0.0	89.8	5.7	10.2	−1,920.0
<=100	4.4	0.0	95.6	0.0	4.4	−2,048.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 ($3.20/day 2011 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	26.0	29.9	0.4:1
<=33	10.1	19.6	44.4	0.2:1
<=37	16.0	18.1	65.1	0.2:1
<=40	21.3	15.3	73.2	0.2:1
<=43	26.8	13.9	83.6	0.2:1
<=45	31.3	12.7	89.1	0.1:1
<=47	35.7	11.5	92.8	0.1:1
<=49	40.3	10.5	95.0	0.1:1
<=51	45.3	9.5	96.5	0.1:1
<=53	50.1	8.6	97.0	0.1:1
<=55	54.4	8.0	97.5	0.1:1
<=57	59.2	7.4	98.8	0.1:1
<=59	63.5	6.9	98.8	0.1:1
<=62	69.0	6.4	100.0	0.1:1
<=64	73.4	6.1	100.0	0.1:1
<=67	78.5	5.7	100.0	0.1:1
<=70	83.4	5.3	100.0	0.1:1
<=73	88.7	5.0	100.0	0.1:1
<=77	94.3	4.7	100.0	0.0:1
<=100	100.0	4.4	100.0	0.0:1

Scorecard applied to the validation sample.

Tables for
$5.50/day 2011 PPP Poverty Line

Table 3 ($5.50/day 2011 PPP line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	86.9
30–33	74.3
34–37	70.2
38–40	61.2
41–43	56.1
44–45	40.9
46–47	40.9
48–49	33.6
50–51	30.1
52–53	20.8
54–55	19.3
56–57	19.3
58–59	11.7
60–62	8.6
63–64	6.0
65–67	6.0
68–70	2.9
71–73	2.0
74–77	0.4
78–100	0.3

Table 5 ($5.50/day 2011 PPP line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
Score	Error	90-percent	95-percent	99-percent
0–29	+0.1	2.1	2.4	3.3
30–33	−1.1	2.8	3.3	4.4
34–37	+5.5	3.1	3.5	4.7
38–40	+11.3	3.5	4.3	5.3
41–43	−1.4	3.1	3.8	4.5
44–45	−32.9	17.8	18.1	18.5
46–47	+2.8	3.3	3.8	5.1
48–49	+3.9	2.9	3.6	4.8
50–51	−0.6	2.9	3.4	4.6
52–53	−5.2	4.1	4.4	5.0
54–55	−9.0	6.1	6.3	6.8
56–57	+5.6	2.2	2.6	3.4
58–59	−1.5	2.2	2.7	3.7
60–62	−0.7	1.6	1.8	2.4
63–64	−3.1	2.5	2.7	3.1
65–67	+5.1	0.4	0.5	0.6
68–70	+2.1	0.4	0.5	0.6
71–73	−0.4	0.8	1.0	1.4
74–77	−0.6	0.5	0.6	0.7
78–100	−0.1	0.3	0.3	0.4

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 ($5.50/day 2011 PPP line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size n	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
1	+1.2	64.7	75.4	90.4
4	−0.1	35.6	43.0	55.0
8	−0.4	25.3	30.6	39.9
16	−0.9	18.8	22.8	28.1
32	−1.0	12.9	15.2	18.7
64	−1.1	9.3	10.8	14.4
128	−1.1	6.5	7.9	11.0
256	−1.1	4.7	5.5	7.5
512	−0.9	3.3	3.9	5.4
1,024	−0.9	2.2	2.6	3.5
2,048	−1.0	1.7	2.0	2.5
4,096	−1.0	1.2	1.4	1.9
8,192	−1.0	0.8	1.0	1.3
16,384	−1.0	0.6	0.7	1.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 ($5.50/day 2011 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	4.3	26.2	0.8	68.7	73.0	−69.0
<=33	7.7	22.8	2.4	67.2	74.9	−41.5
<=37	11.8	18.7	4.2	65.3	77.1	−8.7
<=40	14.6	15.8	6.6	62.9	77.6	+17.7
<=43	17.8	12.7	9.0	60.5	78.3	+46.1
<=45	20.5	10.0	10.8	58.7	79.2	+64.5
<=47	22.1	8.4	13.6	55.9	78.1	+55.4
<=49	23.6	6.9	16.7	52.8	76.4	+45.1
<=51	25.4	5.1	19.9	49.6	75.1	+34.8
<=53	26.6	3.8	23.4	46.1	72.7	+23.2
<=55	27.8	2.7	26.6	42.9	70.7	+12.7
<=57	28.4	2.1	30.8	38.7	67.1	−1.0
<=59	29.0	1.5	34.5	35.0	64.0	−13.2
<=62	29.6	0.9	39.4	30.1	59.7	−29.2
<=64	30.0	0.4	43.4	26.1	56.2	−42.2
<=67	30.1	0.3	48.4	21.2	51.3	−58.6
<=70	30.2	0.3	53.2	16.3	46.6	−74.4
<=73	30.4	0.1	58.3	11.2	41.5	−91.3
<=77	30.5	0.0	63.8	5.7	36.2	−109.3
<=100	30.5	0.0	69.5	0.0	30.5	−128.0

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 ($5.50/day 2011 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	84.4	14.2	5.4:1
<=33	10.1	76.7	25.4	3.3:1
<=37	16.0	73.6	38.7	2.8:1
<=40	21.3	68.9	48.0	2.2:1
<=43	26.8	66.4	58.3	2.0:1
<=45	31.3	65.4	67.1	1.9:1
<=47	35.7	62.0	72.6	1.6:1
<=49	40.3	58.5	77.4	1.4:1
<=51	45.3	56.1	83.4	1.3:1
<=53	50.1	53.2	87.4	1.1:1
<=55	54.4	51.1	91.1	1.0:1
<=57	59.2	48.0	93.1	0.9:1
<=59	63.5	45.6	95.1	0.8:1
<=62	69.0	42.9	97.2	0.8:1
<=64	73.4	40.9	98.5	0.7:1
<=67	78.5	38.4	98.9	0.6:1
<=70	83.4	36.2	99.1	0.6:1
<=73	88.7	34.2	99.6	0.5:1
<=77	94.3	32.3	99.9	0.5:1
<=100	100.0	30.5	100.0	0.4:1

Scorecard applied to the validation sample.

Tables for
$21.70/day 2011 PPP Poverty Line

Table 3 ($21.70/day 2011 PPP line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	100.0
30–33	100.0
34–37	100.0
38–40	100.0
41–43	100.0
44–45	100.0
46–47	100.0
48–49	100.0
50–51	100.0
52–53	100.0
54–55	100.0
56–57	100.0
58–59	99.3
60–62	98.6
63–64	98.6
65–67	98.6
68–70	97.5
71–73	94.6
74–77	94.6
78–100	88.3

Table 5 ($21.70/day 2011 PPP line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| | | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
Score	Error	90-percent	95-percent	99-percent
0–29	0.0	0.0	0.0	0.0
30–33	0.0	0.0	0.0	0.0
34–37	0.0	0.0	0.0	0.0
38–40	0.0	0.0	0.0	0.0
41–43	0.0	0.0	0.0	0.0
44–45	0.0	0.0	0.0	0.0
46–47	0.0	0.0	0.0	0.0
48–49	0.0	0.0	0.0	0.0
50–51	0.0	0.0	0.0	0.0
52–53	0.0	0.0	0.0	0.0
54–55	0.0	0.0	0.0	0.0
56–57	0.0	0.0	0.0	0.0
58–59	−0.7	0.4	0.4	0.4
60–62	−1.1	0.6	0.6	0.7
63–64	+3.7	1.5	1.7	2.3
65–67	+3.4	1.4	1.7	2.0
68–70	+0.9	1.1	1.3	1.7
71–73	−5.1	2.6	2.6	2.7
74–77	+3.6	1.7	2.0	2.6
78–100	−3.5	2.5	2.7	3.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 ($21.70/day 2011 PPP line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	−0.5	5.8	5.8	53.1
4	0.0	8.6	15.2	23.4
8	+0.1	7.7	9.6	12.9
16	0.0	4.7	5.8	8.0
32	0.0	3.2	3.9	5.3
64	0.0	2.2	2.6	3.7
128	0.0	1.7	2.1	2.6
256	0.0	1.3	1.5	1.9
512	+0.1	0.9	1.0	1.3
1,024	0.0	0.6	0.8	1.0
2,048	+0.1	0.4	0.5	0.7
4,096	+0.1	0.3	0.4	0.5
8,192	+0.1	0.2	0.3	0.3
16,384	+0.1	0.2	0.2	0.2

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 ($21.70/day 2011 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	5.1	93.2	0.0	1.6	6.8	−89.6
<=33	10.1	88.3	0.0	1.6	11.7	−79.5
<=37	16.0	82.3	0.0	1.6	17.7	−67.4
<=40	21.3	77.1	0.0	1.6	22.9	−56.8
<=43	26.8	71.6	0.0	1.6	28.4	−45.5
<=45	31.3	67.1	0.0	1.6	32.9	−36.4
<=47	35.7	62.6	0.0	1.6	37.4	−27.4
<=49	40.3	58.0	0.0	1.6	42.0	−18.0
<=51	45.3	53.1	0.0	1.6	46.9	−7.9
<=53	50.1	48.3	0.0	1.6	51.7	+1.8
<=55	54.4	44.0	0.0	1.6	56.0	+10.6
<=57	59.2	39.2	0.0	1.6	60.8	+20.3
<=59	63.5	34.9	0.0	1.6	65.1	+29.1
<=62	69.0	29.4	0.0	1.6	70.6	+40.3
<=64	73.2	25.2	0.2	1.4	74.6	+49.0
<=67	78.1	20.3	0.4	1.2	79.3	+59.2
<=70	82.8	15.6	0.6	1.0	83.8	+68.9
<=73	88.0	10.4	0.7	1.0	89.0	+79.6
<=77	93.1	5.3	1.2	0.5	93.5	+90.5
<=100	98.4	0.0	1.6	0.0	98.4	+98.3

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 ($21.70/day 2011 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	100.0	5.2	Only poor targeted
<=33	10.1	100.0	10.3	Only poor targeted
<=37	16.0	100.0	16.3	Only poor targeted
<=40	21.3	100.0	21.6	Only poor targeted
<=43	26.8	100.0	27.2	Only poor targeted
<=45	31.3	100.0	31.8	Only poor targeted
<=47	35.7	100.0	36.3	Only poor targeted
<=49	40.3	100.0	41.0	Only poor targeted
<=51	45.3	100.0	46.1	Only poor targeted
<=53	50.1	100.0	50.9	Only poor targeted
<=55	54.4	100.0	55.3	Only poor targeted
<=57	59.2	100.0	60.2	Only poor targeted
<=59	63.5	100.0	64.6	Only poor targeted
<=62	69.0	99.9	70.1	1,578.9:1
<=64	73.4	99.7	74.4	311.2:1
<=67	78.5	99.4	79.4	177.9:1
<=70	83.4	99.2	84.1	132.0:1
<=73	88.7	99.2	89.5	130.9:1
<=77	94.3	98.8	94.6	79.1:1
<=100	100.0	98.4	100.0	60.4:1

Scorecard applied to the validation sample.

Tables for
the Line Marking the Poorest Half of People
Below 100% of the National Poverty Line

Table 3 (Line marking the poorest half of people below 100% of the national line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	31.1
30–33	17.2
34–37	9.3
38–40	8.3
41–43	6.5
44–45	3.1
46–47	2.7
48–49	1.7
50–51	0.7
52–53	0.7
54–55	0.7
56–57	0.7
58–59	0.3
60–62	0.1
63–64	0.0
65–67	0.0
68–70	0.0
71–73	0.0
74–77	0.0
78–100	0.0

Table 5 (Line marking the poorest half of people below 100% of the national line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+5.9	2.6	3.1	4.1
30–33	−2.5	2.7	3.2	4.3
34–37	−10.7	6.7	7.0	7.4
38–40	+4.6	0.8	1.0	1.3
41–43	−5.8	4.0	4.2	4.6
44–45	−1.2	1.3	1.5	2.1
46–47	−1.0	1.2	1.5	2.1
48–49	+0.7	0.5	0.6	0.8
50–51	−0.3	0.5	0.6	0.8
52–53	+0.4	0.2	0.2	0.3
54–55	+0.5	0.1	0.2	0.3
56–57	−0.7	0.7	0.9	1.2
58–59	+0.3	0.0	0.0	0.0
60–62	−0.9	0.7	0.8	0.9
63–64	0.0	0.0	0.0	0.0
65–67	0.0	0.0	0.0	0.0
68–70	0.0	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (Line marking the poorest half of people below 100% of the national line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size n	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
1	+0.1	8.6	56.9	62.3
4	−1.3	23.2	28.6	36.3
8	−0.7	14.9	18.4	24.1
16	−0.4	10.4	12.0	16.8
32	−0.5	7.7	9.2	12.8
64	−0.6	5.6	6.6	8.9
128	−0.6	3.9	4.6	6.0
256	−0.6	2.8	3.3	4.4
512	−0.6	1.9	2.3	2.9
1,024	−0.6	1.4	1.6	2.0
2,048	−0.6	1.0	1.2	1.5
4,096	−0.6	0.7	0.8	1.1
8,192	−0.6	0.5	0.6	0.8
16,384	−0.6	0.4	0.4	0.5

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (Line marking the poorest half of people below 100% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	1.3	3.1	3.8	91.7	93.1	+14.6
<=33	2.0	2.5	7.9	87.6	89.6	−78.4
<=37	2.9	1.6	13.0	82.6	85.5	−191.2
<=40	3.3	1.2	17.8	77.7	81.0	−300.5
<=43	3.7	0.7	22.9	72.6	76.4	−414.5
<=45	4.0	0.5	27.2	68.4	72.3	−509.8
<=47	4.1	0.3	31.5	64.1	68.2	−606.5
<=49	4.2	0.2	36.0	59.5	63.8	−708.2
<=51	4.3	0.2	40.9	54.6	58.9	−818.3
<=53	4.3	0.1	45.6	49.9	54.2	−924.6
<=55	4.3	0.1	50.0	45.6	49.9	−1,021.7
<=57	4.4	0.1	54.7	40.8	45.2	−1,128.1
<=59	4.4	0.1	59.0	36.5	40.9	−1,225.3
<=62	4.5	0.0	64.5	31.0	35.5	−1,347.9
<=64	4.5	0.0	68.9	26.6	31.1	−1,446.5
<=67	4.5	0.0	74.0	21.5	26.0	−1,561.3
<=70	4.5	0.0	78.9	16.6	21.1	−1,671.3
<=73	4.5	0.0	84.2	11.3	15.8	−1,790.3
<=77	4.5	0.0	89.8	5.7	10.2	−1,915.7
<=100	4.5	0.0	95.5	0.0	4.5	−2,044.6

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (Line marking the poorest half of people below 100% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	26.0	29.9	0.4:1
<=33	9.9	19.9	44.4	0.2:1
<=37	15.9	18.3	65.1	0.2:1
<=40	21.1	15.5	73.2	0.2:1
<=43	26.6	14.0	83.6	0.2:1
<=45	31.1	12.7	89.1	0.1:1
<=47	35.6	11.6	92.8	0.1:1
<=49	40.2	10.5	95.0	0.1:1
<=51	45.2	9.5	96.5	0.1:1
<=53	50.0	8.7	97.0	0.1:1
<=55	54.3	8.0	97.5	0.1:1
<=57	59.1	7.4	98.8	0.1:1
<=59	63.4	6.9	98.8	0.1:1
<=62	69.0	6.5	100.0	0.1:1
<=64	73.4	6.1	100.0	0.1:1
<=67	78.5	5.7	100.0	0.1:1
<=70	83.4	5.3	100.0	0.1:1
<=73	88.7	5.0	100.0	0.1:1
<=77	94.3	4.7	100.0	0.0:1
<=100	100.0	4.5	100.0	0.0:1

Scorecard applied to the validation sample.

Tables for
the First-Decile (10th-Percentile) Poverty Line

Table 3 (First-decile (10th-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	39.2
30–33	22.1
34–37	16.8
38–40	12.8
41–43	9.0
44–45	4.7
46–47	4.7
48–49	3.9
50–51	1.9
52–53	1.9
54–55	1.9
56–57	1.9
58–59	0.3
60–62	0.1
63–64	0.0
65–67	0.0
68–70	0.0
71–73	0.0
74–77	0.0
78–100	0.0

Table 5 (First-decile (10th-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+11.9	2.7	3.1	4.2
30–33	−3.9	3.6	3.8	4.9
34–37	−13.5	8.2	8.5	9.0
38–40	+5.5	1.3	1.6	2.0
41–43	−4.2	3.2	3.5	3.9
44–45	−0.1	1.3	1.7	2.1
46–47	+0.2	1.3	1.6	2.3
48–49	+1.8	0.7	0.9	1.1
50–51	+0.4	0.6	0.7	1.0
52–53	−1.8	1.7	1.8	2.2
54–55	−5.6	3.8	4.1	4.5
56–57	−1.0	1.0	1.2	1.5
58–59	+0.3	0.0	0.0	0.0
60–62	−0.9	0.7	0.8	0.9
63–64	−2.7	2.0	2.1	2.4
65–67	0.0	0.0	0.0	0.0
68–70	0.0	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (First-decile (10th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+0.3	41.4	61.2	68.2
4	−1.5	26.9	32.4	40.2
8	−0.8	17.7	20.4	27.7
16	−0.5	12.4	14.5	19.7
32	−0.6	8.9	10.5	14.7
64	−0.6	6.6	7.5	10.1
128	−0.6	4.7	5.4	6.9
256	−0.7	3.3	3.9	5.3
512	−0.7	2.3	2.7	3.4
1,024	−0.7	1.6	1.9	2.5
2,048	−0.7	1.1	1.4	1.7
4,096	−0.7	0.8	1.0	1.3
8,192	−0.7	0.6	0.7	0.9
16,384	−0.7	0.4	0.5	0.6

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (First-decile (10th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	1.5	5.1	3.6	89.8	91.3	+0.6
<=33	2.6	4.0	7.5	85.9	88.5	−12.8
<=37	4.1	2.5	11.9	81.5	85.6	−79.9
<=40	4.7	1.9	16.6	76.8	81.5	−150.1
<=43	5.3	1.4	21.5	71.8	77.1	−225.0
<=45	5.5	1.1	25.7	67.6	73.2	−288.3
<=47	5.7	0.9	30.0	63.4	69.1	−352.5
<=49	5.9	0.7	34.4	58.9	64.9	−419.7
<=51	6.0	0.6	39.3	54.1	60.1	−492.9
<=53	6.2	0.5	43.9	49.5	55.6	−562.6
<=55	6.4	0.3	48.0	45.3	51.7	−624.8
<=57	6.5	0.1	52.7	40.7	47.2	−695.3
<=59	6.5	0.1	57.0	36.4	42.8	−760.6
<=62	6.5	0.1	62.5	30.9	37.4	−842.8
<=64	6.6	0.0	66.8	26.6	33.2	−907.8
<=67	6.6	0.0	71.9	21.5	28.1	−984.8
<=70	6.6	0.0	76.8	16.6	23.2	−1,058.7
<=73	6.6	0.0	82.1	11.3	17.9	−1,138.5
<=77	6.6	0.0	87.6	5.7	12.4	−1,222.7
<=100	6.6	0.0	93.4	0.0	6.6	−1,309.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (First-decile (10th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	30.1	23.3	0.4:1
<=33	10.1	26.0	39.6	0.4:1
<=37	16.0	25.7	62.1	0.3:1
<=40	21.3	22.0	70.7	0.3:1
<=43	26.8	19.6	79.2	0.2:1
<=45	31.3	17.7	83.6	0.2:1
<=47	35.7	16.1	86.8	0.2:1
<=49	40.3	14.7	89.2	0.2:1
<=51	45.3	13.3	90.9	0.2:1
<=53	50.1	12.3	92.9	0.1:1
<=55	54.4	11.7	96.2	0.1:1
<=57	59.2	11.0	98.0	0.1:1
<=59	63.5	10.2	98.0	0.1:1
<=62	69.0	9.5	98.8	0.1:1
<=64	73.4	9.0	100.0	0.1:1
<=67	78.5	8.4	100.0	0.1:1
<=70	83.4	7.9	100.0	0.1:1
<=73	88.7	7.5	100.0	0.1:1
<=77	94.3	7.0	100.0	0.1:1
<=100	100.0	6.6	100.0	0.1:1

Scorecard applied to the validation sample.

Tables for
the First-Quintile (20th-Percentile) Poverty Line

Table 3 (First-quintile (20th-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	62.4
30–33	39.4
34–37	34.7
38–40	28.7
41–43	25.2
44–45	16.9
46–47	15.4
48–49	9.2
50–51	5.8
52–53	5.0
54–55	5.0
56–57	5.0
58–59	3.0
60–62	2.4
63–64	2.1
65–67	2.1
68–70	0.7
71–73	0.0
74–77	0.0
78–100	0.0

Table 5 (First-quintile (20th-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+11.6	3.1	3.7	4.9
30–33	−1.9	3.6	4.1	5.0
34–37	−9.1	6.1	6.4	6.7
38–40	+9.9	2.4	2.8	3.6
41–43	−0.9	2.9	3.5	4.3
44–45	−28.5	16.2	16.6	17.8
46–47	+2.1	2.5	2.9	4.0
48–49	−2.6	2.3	2.6	3.2
50–51	−1.6	1.7	2.0	2.5
52–53	−3.7	2.8	3.0	3.5
54–55	−8.8	5.6	5.9	6.2
56–57	−0.8	1.6	1.9	2.4
58–59	+2.6	0.3	0.3	0.4
60–62	+0.3	0.8	0.9	1.1
63–64	−1.8	1.6	1.8	2.1
65–67	+1.7	0.3	0.3	0.4
68–70	+0.7	0.0	0.0	0.0
71–73	0.0	0.0	0.0	0.0
74–77	0.0	0.0	0.0	0.0
78–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (First-quintile (20th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	−0.6	57.1	65.1	78.7
4	−1.9	32.9	39.5	50.4
8	−1.4	23.6	29.2	38.1
16	−1.3	17.8	20.8	27.3
32	−1.4	12.8	15.0	20.0
64	−1.7	9.5	11.1	13.5
128	−1.6	6.6	7.8	10.0
256	−1.6	4.6	5.6	7.2
512	−1.5	3.3	3.9	5.3
1,024	−1.6	2.2	2.6	3.5
2,048	−1.6	1.6	1.9	2.4
4,096	−1.6	1.1	1.3	1.8
8,192	−1.6	0.8	0.9	1.3
16,384	−1.6	0.6	0.7	1.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (First-quintile (20th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	2.8	11.4	2.4	83.5	86.3	−44.2
<=33	4.7	9.4	5.4	80.5	85.2	+4.8
<=37	7.3	6.9	8.8	77.1	84.4	+37.9
<=40	8.6	5.6	12.7	73.2	81.7	+10.2
<=43	9.9	4.3	16.9	68.9	78.8	−19.7
<=45	11.1	3.0	20.1	65.7	76.9	−42.5
<=47	11.7	2.5	24.1	61.8	73.5	−70.3
<=49	12.2	1.9	28.1	57.8	70.0	−98.9
<=51	12.7	1.5	32.7	53.2	65.9	−131.1
<=53	13.1	1.1	37.0	48.9	61.9	−161.9
<=55	13.5	0.6	40.9	45.0	58.5	−189.3
<=57	13.8	0.4	45.4	40.4	54.2	−221.5
<=59	13.8	0.3	49.7	36.2	50.0	−251.8
<=62	13.9	0.2	55.1	30.8	44.7	−289.8
<=64	14.1	0.0	59.3	26.6	40.6	−319.8
<=67	14.1	0.0	64.4	21.5	35.6	−355.6
<=70	14.1	0.0	69.3	16.6	30.7	−390.2
<=73	14.1	0.0	74.6	11.3	25.4	−427.6
<=77	14.1	0.0	80.1	5.7	19.9	−467.1
<=100	14.1	0.0	85.9	0.0	14.1	−507.6

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (First-quintile (20th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	53.9	19.5	1.2:1
<=33	10.1	46.7	33.4	0.9:1
<=37	16.0	45.3	51.4	0.8:1
<=40	21.3	40.3	60.6	0.7:1
<=43	26.8	36.8	69.8	0.6:1
<=45	31.3	35.6	78.8	0.6:1
<=47	35.7	32.7	82.6	0.5:1
<=49	40.4	30.3	86.7	0.4:1
<=51	45.3	27.9	89.5	0.4:1
<=53	50.1	26.1	92.4	0.4:1
<=55	54.4	24.9	95.7	0.3:1
<=57	59.2	23.2	97.3	0.3:1
<=59	63.5	21.7	97.6	0.3:1
<=62	69.0	20.2	98.6	0.3:1
<=64	73.4	19.2	99.7	0.2:1
<=67	78.5	18.0	100.0	0.2:1
<=70	83.4	16.9	100.0	0.2:1
<=73	88.7	15.9	100.0	0.2:1
<=77	94.3	15.0	100.0	0.2:1
<=100	100.0	14.1	100.0	0.2:1

Scorecard applied to the validation sample.

Tables for
the Second-Quintile (40$^{\text{th}}$-Percentile) Poverty Line

Table 3 (Second-quintile (40th-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	86.9
30–33	73.8
34–37	68.9
38–40	60.0
41–43	53.8
44–45	40.2
46–47	40.2
48–49	33.6
50–51	29.5
52–53	20.5
54–55	18.8
56–57	18.8
58–59	11.6
60–62	8.5
63–64	6.0
65–67	6.0
68–70	2.7
71–73	1.1
74–77	0.4
78–100	0.3

Table 5 (Second-quintile (40th-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

| Score | Error | Difference between estimate and observed value | | |
| | | Confidence interval (±percentage points) | | |
		90-percent	95-percent	99-percent
0–29	+0.1	2.1	2.4	3.3
30–33	−0.6	2.7	3.3	4.4
34–37	+4.5	3.0	3.5	4.7
38–40	+10.1	3.5	4.3	5.3
41–43	−3.5	3.3	3.8	4.6
44–45	−33.2	18.0	18.3	18.7
46–47	+2.2	3.2	3.8	5.2
48–49	+7.2	2.7	3.3	4.4
50–51	+0.2	2.8	3.3	4.5
52–53	−5.5	4.2	4.5	5.1
54–55	−9.5	6.3	6.5	7.1
56–57	+5.1	2.2	2.6	3.4
58–59	−1.6	2.2	2.7	3.7
60–62	+0.6	1.4	1.7	2.2
63–64	−3.1	2.5	2.7	3.1
65–67	+5.1	0.4	0.5	0.6
68–70	+1.8	0.4	0.5	0.6
71–73	−1.3	1.1	1.2	1.5
74–77	−0.6	0.5	0.6	0.7
78–100	−0.1	0.3	0.3	0.4

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (Second-quintile (40th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+1.0	63.2	75.0	90.4
4	0.0	35.5	42.6	54.8
8	−0.4	25.1	30.4	39.9
16	−0.8	18.9	22.4	28.1
32	−1.0	12.8	15.2	19.2
64	−1.2	9.1	10.8	14.6
128	−1.1	6.4	7.8	10.7
256	−1.1	4.6	5.6	7.3
512	−1.0	3.3	3.9	5.4
1,024	−1.0	2.2	2.6	3.5
2,048	−1.1	1.7	2.0	2.5
4,096	−1.1	1.2	1.5	1.8
8,192	−1.1	0.8	1.0	1.3
16,384	−1.1	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (Second-quintile (40th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	4.3	25.7	0.8	69.1	73.5	−68.5
<=33	7.7	22.4	2.4	67.6	75.2	−41.2
<=37	11.7	18.4	4.3	65.7	77.4	−8.0
<=40	14.5	15.5	6.6	63.3	77.8	+18.8
<=43	17.6	12.4	9.1	60.9	78.5	+47.5
<=45	20.3	9.8	10.9	59.0	79.3	+63.7
<=47	21.9	8.1	13.7	56.2	78.2	+54.3
<=49	23.3	6.7	17.0	53.0	76.3	+43.5
<=51	25.1	5.0	20.2	49.7	74.8	+32.8
<=53	26.3	3.8	23.7	46.2	72.5	+21.0
<=55	27.4	2.7	27.0	43.0	70.4	+10.3
<=57	28.0	2.0	31.1	38.8	66.8	−3.6
<=59	28.6	1.4	34.9	35.1	63.7	−16.0
<=62	29.2	0.9	39.8	30.1	59.3	−32.4
<=64	29.6	0.4	43.8	26.2	55.8	−45.6
<=67	29.7	0.3	48.8	21.2	50.9	−62.2
<=70	29.8	0.3	53.6	16.4	46.2	−78.3
<=73	29.9	0.1	58.8	11.2	41.1	−95.4
<=77	30.0	0.0	64.2	5.7	35.7	−113.7
<=100	30.1	0.0	69.9	0.0	30.1	−132.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (Second-quintile (40th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	84.4	14.4	5.4:1
<=33	10.0	76.4	25.5	3.2:1
<=37	16.0	73.3	38.9	2.7:1
<=40	21.2	68.6	48.4	2.2:1
<=43	26.7	66.0	58.7	1.9:1
<=45	31.2	65.0	67.5	1.9:1
<=47	35.7	61.5	73.0	1.6:1
<=49	40.3	57.9	77.6	1.4:1
<=51	45.3	55.4	83.3	1.2:1
<=53	50.0	52.5	87.4	1.1:1
<=55	54.4	50.4	91.2	1.0:1
<=57	59.2	47.4	93.2	0.9:1
<=59	63.5	45.1	95.2	0.8:1
<=62	69.0	42.3	97.1	0.7:1
<=64	73.4	40.4	98.5	0.7:1
<=67	78.5	37.9	98.9	0.6:1
<=70	83.4	35.7	99.1	0.6:1
<=73	88.7	33.8	99.6	0.5:1
<=77	94.3	31.9	99.9	0.5:1
<=100	100.0	30.1	100.0	0.4:1

Scorecard applied to the validation sample.

Tables for
the Median (50th-Percentile) Poverty Line

Tables for
the Median (50th-Percentile) Poverty Line

Table 3 (Median (50ᵗʰ-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	93.5
30–33	81.7
34–37	77.6
38–40	75.5
41–43	68.4
44–45	55.6
46–47	55.6
48–49	47.1
50–51	42.0
52–53	36.5
54–55	31.6
56–57	31.6
58–59	16.1
60–62	15.3
63–64	14.2
65–67	8.2
68–70	6.2
71–73	4.1
74–77	2.9
78–100	1.5

Table 5 (Median (50th-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

Score	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
0–29	+6.3	2.1	2.4	3.3
30–33	−6.1	3.9	4.0	4.4
34–37	−3.7	3.0	3.2	3.8
38–40	+10.5	3.3	4.0	5.3
41–43	+3.3	2.9	3.4	4.6
44–45	−32.7	17.2	17.4	17.7
46–47	+2.6	3.4	4.1	5.7
48–49	+11.0	3.0	3.8	4.8
50–51	+3.1	3.2	3.6	4.9
52–53	−3.3	3.3	3.7	5.1
54–55	−5.2	4.2	4.5	5.1
56–57	+2.9	2.9	3.5	4.6
58–59	−0.2	2.3	2.8	3.6
60–62	+3.4	1.7	2.1	2.8
63–64	−2.2	2.4	2.8	3.9
65–67	+5.5	0.7	0.9	1.2
68–70	+1.1	1.2	1.4	1.8
71–73	+0.5	1.0	1.1	1.6
74–77	−0.4	1.0	1.2	1.6
78–100	0.0	0.7	0.8	1.0

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (Median (50th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+0.9	68.4	80.8	94.2
4	−0.4	34.6	42.1	53.1
8	−0.1	25.9	31.1	39.0
16	−0.2	18.8	21.9	29.1
32	−0.1	12.8	14.7	19.2
64	−0.4	9.4	10.7	13.4
128	−0.4	6.7	7.9	10.2
256	−0.5	4.6	5.5	7.2
512	−0.4	3.2	3.8	5.5
1,024	−0.4	2.2	2.6	3.6
2,048	−0.4	1.6	1.9	2.7
4,096	−0.4	1.2	1.4	1.8
8,192	−0.4	0.8	1.0	1.3
16,384	−0.4	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (Median (50th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	4.4	34.8	0.7	60.1	64.5	−75.7
<=33	8.6	30.6	1.5	59.3	67.8	−52.4
<=37	13.4	25.8	2.7	58.1	71.5	−25.0
<=40	16.9	22.3	4.3	56.5	73.4	−2.6
<=43	20.6	18.6	6.2	54.6	75.2	+20.8
<=45	24.1	15.1	7.1	53.7	77.8	+41.4
<=47	26.5	12.7	9.2	51.6	78.1	+58.8
<=49	28.3	10.9	12.0	48.8	77.1	+69.3
<=51	30.8	8.4	14.5	46.3	77.1	+62.9
<=53	32.8	6.4	17.3	43.5	76.3	+55.9
<=55	34.3	4.9	20.1	40.7	75.0	+48.8
<=57	35.6	3.6	23.6	37.2	72.8	+39.8
<=59	36.4	2.8	27.1	33.7	70.2	+30.9
<=62	37.3	1.9	31.7	29.1	66.4	+19.0
<=64	38.1	1.1	35.3	25.5	63.6	+9.9
<=67	38.3	0.9	40.2	20.6	58.9	−2.5
<=70	38.7	0.5	44.7	16.1	54.7	−14.1
<=73	38.9	0.3	49.8	11.0	49.9	−27.0
<=77	39.1	0.1	55.2	5.6	44.8	−40.7
<=100	39.2	0.0	60.8	0.0	39.2	−55.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (Median (50th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	86.1	11.3	6.2:1
<=33	10.1	84.8	21.8	5.6:1
<=37	16.0	83.4	34.1	5.0:1
<=40	21.3	79.6	43.2	3.9:1
<=43	26.8	76.8	52.5	3.3:1
<=45	31.3	77.2	61.6	3.4:1
<=47	35.7	74.2	67.7	2.9:1
<=49	40.4	70.2	72.3	2.4:1
<=51	45.3	67.9	78.5	2.1:1
<=53	50.1	65.5	83.6	1.9:1
<=55	54.4	63.1	87.5	1.7:1
<=57	59.2	60.1	90.8	1.5:1
<=59	63.5	57.4	93.0	1.3:1
<=62	69.0	54.0	95.1	1.2:1
<=64	73.4	51.9	97.2	1.1:1
<=67	78.5	48.8	97.8	1.0:1
<=70	83.4	46.4	98.7	0.9:1
<=73	88.7	43.9	99.2	0.8:1
<=77	94.3	41.5	99.8	0.7:1
<=100	100.0	39.2	100.0	0.6:1

Scorecard applied to the validation sample.

Tables for
the Third-Quintile (60th-Percentile) Poverty Line

Table 3 (Third-quintile (60th-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	97.6
30–33	87.0
34–37	86.7
38–40	84.4
41–43	79.6
44–45	69.4
46–47	69.4
48–49	59.3
50–51	58.7
52–53	49.5
54–55	47.3
56–57	47.3
58–59	33.9
60–62	25.4
63–64	21.6
65–67	18.2
68–70	15.0
71–73	8.9
74–77	7.3
78–100	4.4

Table 5 (Third-quintile (60ᵗʰ-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

Score	Error	Difference between estimate and observed value Confidence interval (±percentage points) 90-percent	95-percent	99-percent
0–29	+1.1	1.0	1.2	1.6
30–33	−4.1	2.8	3.0	3.3
34–37	−3.1	2.5	2.6	3.1
38–40	−1.1	2.3	2.9	3.7
41–43	+3.0	2.6	3.1	4.3
44–45	−24.8	12.9	13.0	13.2
46–47	+7.1	3.3	4.0	5.4
48–49	+4.9	3.3	4.0	5.3
50–51	+11.6	3.5	4.2	5.6
52–53	−5.0	4.1	4.6	5.3
54–55	+0.4	3.2	3.8	5.1
56–57	+10.7	3.0	3.6	4.6
58–59	+9.5	2.9	3.4	4.4
60–62	+3.2	2.5	2.9	3.5
63–64	−1.4	2.7	3.3	4.2
65–67	+11.7	1.1	1.4	1.9
68–70	+6.9	1.4	1.7	2.2
71–73	−1.7	1.8	2.2	2.8
74–77	+2.3	1.2	1.4	1.7
78–100	−2.3	1.9	2.0	2.4

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (Third-quintile (60th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+2.8	67.8	80.2	92.5
4	+1.6	34.1	40.3	57.1
8	+1.3	25.7	30.3	38.8
16	+1.2	18.1	21.0	26.7
32	+1.3	12.9	14.7	18.9
64	+1.1	9.4	10.8	14.0
128	+0.9	6.4	7.8	10.3
256	+1.0	4.4	5.2	7.1
512	+1.0	3.0	3.7	5.0
1,024	+1.1	2.2	2.5	3.3
2,048	+1.0	1.5	1.8	2.4
4,096	+1.0	1.1	1.3	1.7
8,192	+1.0	0.8	1.0	1.2
16,384	+1.0	0.5	0.6	0.9

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (Third-quintile (60th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	4.9	43.7	0.3	51.2	56.0	−79.4
<=33	9.2	39.4	0.9	50.5	59.7	−60.3
<=37	14.6	34.0	1.5	50.0	64.6	−37.0
<=40	19.0	29.6	2.3	49.1	68.1	−17.2
<=43	23.3	25.3	3.5	47.9	71.2	+3.0
<=45	27.2	21.4	4.0	47.4	74.6	+20.4
<=47	30.0	18.5	5.7	45.7	75.8	+35.4
<=49	32.7	15.9	7.7	43.7	76.4	+50.3
<=51	35.7	12.9	9.7	41.8	77.4	+66.7
<=53	38.4	10.2	11.7	39.7	78.1	+75.9
<=55	40.5	8.1	13.9	37.5	77.9	+71.3
<=57	42.2	6.4	17.0	34.5	76.7	+65.0
<=59	43.5	5.1	20.0	31.4	74.9	+58.8
<=62	44.9	3.7	24.1	27.3	72.2	+50.4
<=64	46.1	2.4	27.3	24.2	70.3	+43.8
<=67	46.6	1.9	31.9	19.6	66.2	+34.4
<=70	47.2	1.3	36.2	15.3	62.5	+25.5
<=73	47.8	0.7	40.9	10.6	58.4	+15.9
<=77	48.2	0.4	46.1	5.4	53.6	+5.2
<=100	48.6	0.0	51.4	0.0	48.6	−5.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (Third-quintile (60th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	95.0	10.0	18.8:1
<=33	10.1	91.1	18.9	10.3:1
<=37	16.0	90.9	30.0	10.0:1
<=40	21.3	89.2	39.0	8.2:1
<=43	26.8	86.9	47.9	6.6:1
<=45	31.3	87.1	56.0	6.7:1
<=47	35.7	84.1	61.9	5.3:1
<=49	40.3	80.9	67.2	4.2:1
<=51	45.3	78.7	73.4	3.7:1
<=53	50.1	76.7	79.0	3.3:1
<=55	54.4	74.4	83.3	2.9:1
<=57	59.2	71.3	86.9	2.5:1
<=59	63.5	68.5	89.5	2.2:1
<=62	69.0	65.1	92.5	1.9:1
<=64	73.4	62.8	95.0	1.7:1
<=67	78.5	59.4	96.0	1.5:1
<=70	83.4	56.6	97.2	1.3:1
<=73	88.7	53.9	98.5	1.2:1
<=77	94.3	51.1	99.2	1.0:1
<=100	100.0	48.6	100.0	0.9:1

Scorecard applied to the validation sample.

Tables for
the Fourth-Quintile (80th-Percentile) Poverty Line

Table 3 (Fourth-quintile (80th-percentile) line): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–29	99.2
30–33	97.1
34–37	96.8
38–40	96.8
41–43	94.9
44–45	93.5
46–47	93.5
48–49	88.5
50–51	88.5
52–53	75.1
54–55	75.0
56–57	75.0
58–59	65.4
60–62	58.4
63–64	56.9
65–67	43.2
68–70	39.2
71–73	35.4
74–77	31.0
78–100	21.5

Table 5 (Fourth-quintile (80th-percentile) line): Errors in a household's poverty likelihood (average of differences between estimated and observed values) by score range, with confidence intervals

Score	Error	Difference between estimate and observed value		
		Confidence interval (±percentage points)		
		90-percent	95-percent	99-percent
0–29	−0.2	0.3	0.4	0.5
30–33	−1.9	1.2	1.2	1.3
34–37	+2.0	1.4	1.7	2.2
38–40	+5.4	2.1	2.5	3.3
41–43	+1.4	1.5	1.7	2.3
44–45	−4.8	2.6	2.7	2.7
46–47	+2.7	1.7	2.0	2.8
48–49	+15.5	3.1	3.6	4.8
50–51	−0.2	1.8	2.2	2.9
52–53	−7.5	4.9	5.1	5.6
54–55	+1.3	3.0	3.7	4.8
56–57	−6.4	4.5	4.7	5.3
58–59	+2.8	3.3	4.0	5.3
60–62	+3.3	3.1	3.8	5.0
63–64	+2.6	3.3	3.9	5.3
65–67	+11.9	2.6	3.2	4.1
68–70	−2.8	3.2	3.9	5.2
71–73	−1.4	3.0	3.5	4.4
74–77	−2.4	2.9	3.5	4.6
78–100	−11.6	7.1	7.5	7.9

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 6 (Fourth-quintile (80th-percentile) line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), by sample size and with confidence intervals

Sample Size		Difference between estimate and observed value		
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+1.4	69.8	78.8	87.6
4	+1.6	36.3	42.1	51.7
8	+1.3	24.4	29.0	37.6
16	+1.0	17.7	20.7	25.6
32	+1.0	12.2	14.7	18.9
64	+0.9	8.7	10.0	12.5
128	+0.6	6.1	7.1	9.1
256	+0.4	4.2	4.9	6.4
512	+0.5	3.0	3.5	4.3
1,024	+0.5	2.2	2.6	3.4
2,048	+0.4	1.5	1.8	2.4
4,096	+0.4	1.1	1.2	1.7
8,192	+0.4	0.7	0.9	1.2
16,384	+0.4	0.5	0.6	0.8

Scorecard applied to 1,000 bootstraps from the validation sample.

Table 9 (Fourth-quintile (80th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC

Targeting cut-off	Inclusion: Poor correctly targeted	Undercoverage: Poor mistakenly not targeted	Leakage: Non-poor mistakenly targeted	Exclusion: Non-poor correctly not targeted	Hit rate Inclusion + Exclusion	BPAC See text
<=29	5.1	66.3	0.0	28.6	33.7	−85.7
<=33	10.0	61.4	0.1	28.5	38.4	−71.9
<=37	15.6	55.7	0.4	28.2	43.9	−55.6
<=40	20.5	50.8	0.7	27.9	48.4	−41.5
<=43	25.7	45.7	1.1	27.5	53.2	−26.5
<=45	30.0	41.4	1.3	27.3	57.3	−14.2
<=47	34.0	37.4	1.8	26.9	60.8	−2.3
<=49	37.6	33.8	2.8	25.8	63.4	+9.1
<=51	41.9	29.5	3.4	25.2	67.1	+22.2
<=53	45.9	25.5	4.2	24.4	70.3	+34.4
<=55	49.1	22.3	5.3	23.3	72.4	+45.0
<=57	52.9	18.5	6.3	22.3	75.2	+57.0
<=59	55.7	15.6	7.8	20.8	76.6	+67.1
<=62	59.1	12.3	9.9	18.7	77.7	+79.5
<=64	61.6	9.7	11.8	16.9	78.5	+83.5
<=67	63.6	7.8	14.9	13.7	77.3	+79.1
<=70	65.7	5.7	17.7	10.9	76.6	+75.2
<=73	67.6	3.8	21.1	7.5	75.1	+70.4
<=77	69.4	1.9	24.8	3.8	73.3	+65.2
<=100	71.4	0.0	28.6	0.0	71.4	+59.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the validation sample.

Table 10 (Fourth-quintile (80th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), share of targeted households who are poor, share of poor households who are targeted, and number of poor households successfully targeted per non-poor household mistakenly targeted

Targeting cut-off	% all HHs who are targeted	% targeted HHs who are poor	% poor HHs who are targeted	Poor HHs targeted per non-poor HH targeted
<=29	5.1	99.2	7.1	125.3:1
<=33	10.1	98.6	13.9	71.7:1
<=37	16.0	97.5	21.9	38.9:1
<=40	21.3	96.6	28.8	28.7:1
<=43	26.8	96.0	36.0	23.8:1
<=45	31.3	95.9	42.0	23.4:1
<=47	35.7	95.1	47.6	19.3:1
<=49	40.3	93.1	52.6	13.4:1
<=51	45.3	92.5	58.7	12.3:1
<=53	50.1	91.6	64.3	11.0:1
<=55	54.4	90.3	68.8	9.3:1
<=57	59.2	89.4	74.1	8.4:1
<=59	63.5	87.7	78.1	7.2:1
<=62	69.0	85.6	82.8	5.9:1
<=64	73.4	84.0	86.4	5.2:1
<=67	78.5	81.0	89.1	4.3:1
<=70	83.4	78.8	92.0	3.7:1
<=73	88.7	76.2	94.7	3.2:1
<=77	94.3	73.7	97.3	2.8:1
<=100	100.0	71.4	100.0	2.5:1

Scorecard applied to the validation sample.