Simple Poverty Scorecard® Tool
Niger

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Abstract

The Scorocs Simple Poverty Scorecard-brand poverty-assessment tool for Niger is a low-cost, transparent way for pro-poor programs to get to know the socio-economic status of their participants so as to prove and improve their social performance. Responses to its nine indicators can be collected in about 10 minutes and then used to estimate consumption-based poverty rates, to track changes in poverty rates, and to segment clients for differentiated treatment.

Version note

The new scorecard here is based on data from 2014/15. It replaces the old scorecard in Schreiner (2013a) that uses data from 2007/8. The two scorecards use different definitions of *poverty*, so their estimates cannot be compared with each other.

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Scorocs™ Simple Poverty Scorecard® Tool

			Name	Identifier
Interview ID:				
Interview date:		Participant:		
Country:	NER	Field agent:		
Scorecard:	002	Service point:		
Sampling wgt.:		Number of household members:		

Indicator	Response	Points Score
1. In what region does the household live?	A. Maradi	0
	B. Zinder, or Dosso	4
	C. Tahoua, Tillabéri, Diffa, Agadez, or Niamey	12
2. How many household members are there?	A. Ten or more	0
	B. Six, seven, eight, or nine	9
	C. Four, or five	22
	D. Three	29
	E. One, or two	38
3. How many rooms does the household occupy? (Do not count kitchens, bathrooms, hallways, or balconies)	A. One	0
	B. Two	3
	C. Three	4
	D. Four or more	9
4. What is the main construction material of the roof?	A. Straw, earth, wood, or hides	0
	B. Metal sheets, reinforced concrete, tile, or other	5
5. What toilet arrangement does the household use?	A. None (bush), or other	0
	B. Crude hole/open ditch	5
	C. Improved latrine (covered or uncovered), or flush toilet	14
6. What is the residence's main source of lighting?	A. Flashlight, generator, kerosene lamp, solar panels, or other	0
	B. Electricity	4
7. Does any household member have a lounge chair in good working order?	A. No	0
	B. Yes	4
8. How many cell phones in good working order do members of the household have?	A. None	0
	B. One	1
	C. Two or more	10
9. Does any household member have a bicycle, motorcycle/scooter, or private vehicle (not for provided by an employer) in good working order?	A. No	0
	B. Yes	4

Score:

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.

Record the response to the first scorecard indicator based on your knowledge of the region in which the interviewed household lives.

Then read to the respondent: *Please tell me the first names (or nicknames) of all the members of your household. A* household *is a single person who lives alone or a group of people (regardless of blood or marital relationship) who usually sleep under the same roof, pool their income, share meals, and acknowledge the authority of one household member as the head of the household.*

Write down the name/nickname of each member. Record the number of household members in the scorecard header next to "Number of household members:", and then circle the answer to the second scorecard indicator.

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

First name (or nickname)
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
Number of HH members:

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

	Poverty likelihood (%)		
	National (2011 def.)		
Score	100%	150%	200%
0–12	91.3	99.6	100.0
13–15	87.0	99.0	100.0
16–17	79.2	99.0	100.0
18–21	68.1	90.6	97.4
22–23	62.1	86.2	95.8
24–25	55.3	83.7	95.6
26–27	53.7	82.6	95.6
28–30	39.6	77.2	94.0
31–32	38.6	69.3	94.0
33–34	30.0	69.2	89.1
35–37	27.4	69.2	86.7
38–39	23.4	56.5	80.2
40–42	18.1	51.9	79.0
43–45	13.5	45.1	73.7
46–49	7.7	44.8	70.6
50–53	5.3	40.2	58.3
54–59	2.7	22.4	46.2
60–66	1.1	10.9	27.1
67–100	0.0	0.8	7.2

Look-up table to convert scores to poverty likelihoods: International 2005 and 2011 PPP lines

	Poverty likelihood (%)							
	Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
Score	$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
0–12	85.7	99.6	99.7	100.0	91.3	99.6	100.0	100.0
13–15	81.8	98.9	99.2	100.0	87.0	99.0	100.0	100.0
16–17	72.2	98.3	99.2	100.0	79.2	99.0	100.0	100.0
18–21	61.6	88.2	95.9	100.0	68.1	94.9	100.0	100.0
22–23	57.3	84.4	93.8	100.0	62.1	93.4	100.0	100.0
24–25	43.9	83.1	93.8	100.0	55.3	93.4	100.0	100.0
26–27	40.2	82.2	93.8	100.0	53.7	91.7	100.0	100.0
28–30	26.5	74.9	87.2	99.5	39.6	83.3	98.5	100.0
31–32	20.5	68.2	86.7	99.5	38.6	79.0	98.4	100.0
33–34	14.9	66.0	81.3	99.5	30.0	77.1	98.4	100.0
35–37	13.1	65.3	79.5	99.5	27.4	76.4	97.8	100.0
38–39	13.1	52.5	73.3	99.4	23.4	68.3	97.8	100.0
40–42	8.8	46.8	69.7	99.4	18.1	63.2	97.1	100.0
43–45	7.6	40.9	62.5	98.9	13.5	53.3	94.2	100.0
46–49	4.7	36.6	58.6	96.4	7.7	53.2	89.4	100.0
50–53	3.8	31.8	51.0	93.4	5.3	48.8	85.5	100.0
54–59	0.5	18.6	36.2	92.3	2.7	32.3	82.5	100.0
60–66	0.5	8.6	22.9	88.4	1.1	18.7	68.8	100.0
67–100	0.0	0.7	4.9	49.1	0.0	3.6	34.3	98.7

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

	Poverty likelihood (%)						
	Poorest 1/2	Percentile-based lines (2011 def.)					
Score	< 100% Natl.	10th	20th	40th	50th	60th	80th
0–12	61.0	47.1	60.6	85.7	94.9	98.5	99.7
13–15	58.2	33.3	57.8	83.4	90.8	96.1	99.2
16–17	48.7	18.1	41.2	75.8	85.2	94.2	99.2
18–21	36.2	11.3	29.3	64.8	73.7	83.1	95.8
22–23	32.3	11.3	29.3	59.9	68.5	77.9	93.7
24–25	23.3	7.1	20.8	47.7	64.2	74.3	93.7
26–27	18.6	5.7	17.0	44.3	61.6	73.1	93.7
28–30	14.5	4.1	11.8	31.4	44.6	59.0	87.2
31–32	9.9	4.0	5.9	30.6	43.8	58.4	86.7
33–34	8.4	2.5	5.9	20.0	33.4	47.7	81.0
35–37	8.4	2.0	5.9	16.4	31.6	44.0	79.2
38–39	8.4	1.5	5.9	16.0	27.0	41.7	73.3
40–42	4.6	0.8	2.9	10.8	20.8	34.3	69.7
43–45	4.3	0.8	2.1	9.5	16.5	28.4	62.3
46–49	1.7	0.8	1.2	4.7	11.4	23.1	57.9
50–53	1.7	0.6	0.9	4.3	7.6	23.1	50.6
54–59	0.3	0.0	0.2	0.5	3.0	9.2	36.2
60–66	0.0	0.0	0.0	0.5	1.1	4.0	22.3
67–100	0.0	0.0	0.0	0.0	0.0	0.7	4.9

Scorocs™ Simple Poverty Scorecard® Tool
Niger

1. Introduction

The Scorocs Simple Poverty Scorecard poverty-assessment tool is a low-cost, transparent way for pro-poor programs in Niger to get to know their participants better and to prove and improve their social performance. 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 2014/15 Living Standards and Agriculture Survey (*Enquête Nationale sur les Conditions de Vie des Ménages et la Agriculture*, ECVMA) by Niger's *Institut National de la Statistique* (INS). Its household questionnaire (ignoring the agricultural questionnaire) has 88 pages and covers about 900 questions, most of which have follow-up questions and/or are asked multiple times (for example, for each household member, negative shock, or consumption item).

In comparison, the scorecard's indirect approach is quick and low-cost. It uses nine verifiable indicators drawn from the 2014/15 ECVMA (such as "What is the main construction material of the roof?" and "What toilet arrangement does the household

use?") to get a score that is correlated with poverty status as measured by the exhaustive ECVMA 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. 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, Niger's national line). USAID microenterprise partners in Niger can use the scorecard with the $1.90/day 2011 PPP 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 objective. While consumption surveys are costly even for governments, some pro-poor organizations may be able to implement a low-cost

[1] The Scorocs Simple Poverty Scorecard tool for Niger is not, however, in the public domain. Copyright is held by Scorocs, L.L.C.

[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 2014/15 (XOF445, Table 1) or the line that marks the poorest half of people below 100% of the national line (XOF318).

scorecard to help with monitoring poverty and (if desired) segmenting clients for differentiated treatment.

The technical approach here 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 technical approach of the scorecard 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 2014/15 ECVMA from Niger's INS. Indicators are selected to be:

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

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 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, several aspects of targeting accuracy are reported for a range of possible cut-offs.

This paper presents a single scorecard whose indicators and points are derived with Niger's national poverty line and data from the 2014/5 ECVMA. Scores from this one scorecard are calibrated with this same data to poverty likelihoods for 18 poverty lines.

The scorecard is constructed using data from about three-fifths of the households in the 2014/15 ECVMA. Data from that same three-fifths of households is also used to calibrate scores to poverty likelihoods for the 18 poverty lines. Data from the other two-fifths of households is used to validate the scorecard's accuracy for estimating households' poverty likelihoods, for estimating populations' poverty rates at a point in time, for estimating changes in poverty rates over 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 makes errors when applied (as in this paper) to a validation sample. Furthermore, it makes errors to some unknown extent when applied (in practice) to a different population or when applied after 2014/15 (because the relationships between indicators and poverty change over time).[3]

Thus, while the indirect-scorecard approach is less costly than the direct-survey approach, the scorecard makes 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 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 2014/15 validation sample) for 100% of the national poverty line is +0.2 percentage points. The average across all 18 poverty lines of the absolute values of the average error is about 1.5 percentage points, and the maximum of the absolute values of the average error is 4.5 percentage points. These estimation errors are due to sampling variation, not bias; the average error would be zero if the whole 2014/15 ECVMA were to be repeatedly re-fielded and re-divided into sub-samples

[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).

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

With $n = 16{,}384$, the 90-percent confidence intervals are ± 0.7 percentage points or smaller. For $n = 1{,}024$, the 90-percent intervals are ± 2.7 percentage points or smaller.

The scorecard's accuracy in practice for estimating changes in poverty rates over time cannot be known; there is no data from a post-2014/15 ECVMA that could be used as a follow-up to estimate change against a baseline from the 2014/15 ECVMA validation sample.

To get a better idea of the accuracy of scorecards in general (across countries, and not specifically for Niger's new scorecard from now on), this paper estimates change between the 2014/15 ECVMA's validation sample (baseline) and the entire 2011 ECVMA (follow-up). For 100% of the national line at the household level, the observed change was an increase of 2.3 percentage points (that is, the poverty rate was 39.9 percent in 2011 and 37.6 percent in the 2014/15 validation sample), and the scorecard's estimate—taking each round as an independent cross-section and ignoring that some households appear in both the 2011 and 2014/15 ECVMA—was an increase of 4.3 percentage points. Thus, the scorecard's estimate is 2.0 percentage points too high.

Across the 11 non-relative poverty lines for which estimates of change are meaningful, the average of the absolute changes is 4.4 percentage points, while the average of the absolute errors is 4.1 percentage points. These results are typical of those

from similar tests for 18 other countries (see Section 7 below). The 90-percent confidence interval for the estimated direction of change excludes zero for four of 11 lines, and this interval for these same four lines also includes the observed change. While accuracy is highest for the lowest lines, these results—consistent with those typical for other countries with similar tests—do not encourage the hope that the scorecard in general (as opposed to specifically in Niger) can pinpoint changes over time with the two-independent-sample approach.

The accuracy of scorecard estimates of change improves when based only on the 1,535 households that are in both the 2014/15 ECVMA validation sample (baseline) and the 2011 ECVMA (follow-up). In this case, the estimated increase in the household-level poverty rate for 100% of the national line is 1.8 percentage points, 0.1 percentage points lower than the observed change. Across the 11 non-relative poverty lines, the average of the absolute changes is 3.6 percentage points, while the average of the absolute errors is 1.1 percentage points. The 90-percent confidence interval for the estimated direction of change excludes zero for six of 11 lines, and that interval includes the observed change for six of 11 lines. This suggests that, for the scorecard in general (although not necessarily for the new Niger scorecard from now on), estimates of change based on the one-sample-scored-twice approach (where both baseline and follow-up cover a single set of households) are more accurate than estimates of change based on two-independent-samples approach (where baseline and follow-up cover different samples of households).

The accuracy of the new Niger scorecard will differ from these backward-looking results in unknown ways, as its future accuracy depends on how well its two basic assumptions hold from 2014/15 on (that is, that the relationship between indicators and poverty do not change and that the composition of Niger's population does not change).

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 populations' poverty rates 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 Niger. 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 Niger's 2014/15 ECVMA as closely as possible. The "Interview Guide" (and the "Back-page Worksheet") are integral parts of the scorecard for Niger.

2. Data and poverty lines

This section presents the data used to construct and validate the scorecard. It also documents Niger's definition of *poverty* as well as the 18 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 3,649 households in the 2014/15 ECVMA, Niger's most-recent national household consumption survey. These same three-fifths of households are also used to associate (*calibrate*) scores to poverty likelihoods for all poverty lines.

Data from the other two-fifths of households from the 2014/15 ECVMA 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 households are also used to test out-of-sample targeting accuracy, and it also serves as the baseline when testing out-of-sample/out-of-time estimates of change. Data on households in the 2011 ECVMA are used in the follow-up sample when testing estimates of change.

The 2011 and 2014/15 ECVMA form a *panel*. That is, the 2014/15 ECVMA only covers households that are also interviewed in the 2011 ECVMA (as well as new households that split off from households in the 2011 ECVMA).

The 2014/15 ECVMA collected data from households twice, once from 9 September 2014 to 15 November 2014 and again from 28 January 2015 to 9 March 2015. Likewise, the 2011 ECVMA collected data from households twice, once from mid-July to mid-September 2011 and again in November/December 2011.[4] For a given survey round (2011 or 2014/15), the measure of consumption combines measures from the round's two visits. Household size is the average number of household members across the two visits. All other scorecard indicators come from the first visit.

[4] Household size could vary from the first to second visit in an ECVMA round. The INS' poverty data, however, reports only average size across the two visits. For 476 households in 2011 and for 291 households in 2014/15, household size was odd in one visit (say, five) and even in the other (say, six) so that the average reported size was not an integer (say, 5.5). For household size to be an indicator in the scorecard requires that all response options be integers. Thus, households with non-integer average sizes were divided into two replicates, each identical except for the sampling weight (which was halved) and household size (which was set to integers whose average across the replicates matched the reported non-integer size). For example, if the household's average size was 5.5, then one replicate had six members and the other had five. It was assumed that a household with an average size of $x.5$ had x members in one visit and $x + 1$ in the other. Of course, this may not hold, as households could have, for example, $x - 1$ members in one visit and $x + 2$ in the other. Also, there was no easy way to detect cases where size differed by an even number across visits. In addition, any household that was replicated in one of the ECVMA rounds was also replicated in the other round as needed to ensure that each replicate had a (potential) panel match. Finally, replicates in the 2014/15 ECVMA were independently drawn into the contruction and validation samples, implying that a replicated household could be in both.

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[5] 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 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 weight, and the "0" represents the second household's

[5] 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 sampling weight, taken here to be one (1).

poverty status (non-poor) or its estimated poverty likelihood. The "$1 + 1$" in the denominator is the sum of the weights of the two households. Household-level 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[6] 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 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 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 weights of the two households. A household's weight is its number of members because the unit of analysis is the household member.

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

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

means that some—but not all—household members are counted. The person-level rate is then the participant-weighted average[7] 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 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 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 weights of the two households. Each household's weight is its number of participants because the unit of analysis is the participant.[8]

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, organizations should clearly state the unit of 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 2011 and 2014/15 ECVMA for Niger as a whole and for each its eight regions by urban/rural/all.

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

[8] 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.

Household-level poverty rates are reported because—as shown above—household-level poverty likelihoods can be straightforwardly converted into poverty rates for other units of analysis and because sampling is almost always done at the level of households. 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 Niger. 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 (XOF per person per day in prices in Niamey on average during the first visit of a given round of the ECVMA) is below a given poverty line. Thus, a definition of *poverty* is a poverty line together with a measure of consumption.

Backiny-Yetna and Steele (2015, pp. 9–10) and INS (2013, pp. 9–11) describe the measure of *consumption* in Niger's 2011 and 2014/15 ECVMA. This measure is not comparable with that in the 2007/8 *Enquête Nationale sur le Budget et la Consommation des Ménages* (ENBCM, National Household Budget and Expenditure Survey) used by Schreiner (2013a) to make Niger's old scorecard (World Bank, 2017; Backiny-Yetna and Steele, 2015; Backiny-Yetna, Steele, and Djima, 2014; INS, 2016

and 2013). Thus, estimates from the old 2007/8 scorecard are not comparable with those of the new 2014/15 scorecard here.

Because pro-poor programs in Niger may want to use different or various poverty lines, this paper calibrates scores from its single scorecard to poverty likelihoods for 18 lines:

- 100% of national
- 150% of national
- 200% of national
- $1.25/day 2005 PPP
- $2.00/day 2005 PPP
- $2.50/day 2005 PPP
- $5.00/day 2005 PPP
- $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 (10^{th}-percentile) line
- First-quintile (20^{th}-percentile) line
- Second-quintile (40^{th}-percentile) line
- Median (50^{th}-percentile) line
- Third-quintile (60^{th}-percentile) line
- Fourth-quintile (80^{th}-percentile) line

2.3.1 National poverty line

Niger's national poverty 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 (INS, 2013, pp. 11–15). For 2011, the food standard is the cost in the 2011 ECVMA of 2400 Calories from a basket of 25 food items from the first visit and 27 items from the second visit that together account for about 90 percent of food consumption. A single food basket is used for all of Niger with adjustments for differences in prices across five agro-ecological zones.[9] In prices in Niamey on average during the first visit of the 2011 ECVMA, the minimum standard for food consumption is XOF326 per person per day.

Niger's national (food-plus-non-food) poverty line is this minimum food standard, plus a minimum non-food standard. This is defined as the observed non-food consumption of households in the 2011 ECVMA for whom total (food-plus-non-food) consumption is equal to the minimum food standard. Using a regression approach proposed by Ravallion (1998), this non-food standard is XOF174 per person per day in prices in Niamey during the first visit of the 2011 ECVMA. Thus the national (food-plus-non-food) line for 2011 is XOF500 in prices in Niamey during the first visit of the 2011 ECVMA. That line on average for Niger as a whole in 2011 is XOF430 per person

[9] The zone are Niamey, other urban, farming, herding, and farming and herding.

per day (Table 1), giving a household-level poverty rate of 39.9 percent and a person-level rate of 48.4 percent.[10]

Niger's national line (usually called here "100% of the national line") for 2014/15 is the 2011 line, updated for inflation (INS, 2016, p. 16). For Niger as a whole, this is XOF445 per person per day in prices in Niamey during the first visit of the 2014/15 ECVMA (Table 1), giving a household-level poverty rate of 37.6 percent and a person-level rate of 45.4 percent.[11]

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

[10] The 48.4 percent here differs from the 48.2 percent in INS (2013, p. 15) because the INS rounds up non-integer values of average household size before finding poverty status and person-level sampling weights from household-level weights. This is incorrect, and this paper instead creates two replicates whose average integer sizes is the average value in the data before finding poverty status and person-level weights.
[11] The 45.4 percent here matches INS (2016, p. 23), even after correcting for INS' rounding up of non-integer values of the average household size.

2.3.2 2005 and 2011 PPP poverty lines

International 2005 and 2011 PPP lines are derived from:

- PPP exchange rates for Niger for "individual consumption expenditure by households":
  - 2005:[12] XOF267.311 per $1.00
  - 2011:[13] XOF228.753 per $1.00
- Consumer Price Index (CPI):[14]
  - Calendar-year 2005 average: 88.5264
  - Calendar-year 2011 average: 102.8192
  - Average July to Sept. 2011 (first visit, ECVMA): 104.3807
  - Average 9 Sept. to 15 Nov. 2014 (first visit, ECVMA): 105.2190
- Average person-weighted price deflators for Niger as a whole:
  - 2011: 0.8595522
  - 2014/15: 0.8577444
- Person-weighted price deflators by agro-ecological zone:[15]
  - Niamey 1.0000000
  - Other urban 0.8954605
  - Farming 0.8254455
  - Herding 0.8774248
  - Farming and herding 0.8853618

[12] World Bank, 2008.
[13] iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&CO=NER_3&PPPO=228.753&PLO=1.90&YO=2014&NumOfCountries=1, retrieved 3 April 2018.
[14] The monthly CPI is from http://data.imf.org/regular.aspx?key=61545861, retrieved 22 December 2017. It is base = 100 in calendar-year 2010.
[15] INS, 2013, p. 15.

2.3.2.1 $1.25/day 2005 PPP line

For a given agro-ecological zone in Niger, the $1.25/day 2005 PPP line in prices in Niamey during the first visit of the 2014/15 ECVMA is

$$\frac{\$1.25 \cdot 2005 \text{ PPP factor} \cdot \left(\frac{\text{CPI}_{\text{ECVMA14/15}}}{\text{CPI}_{2005}} \right) \cdot \text{Zonal deflator}}{\text{Average all - Niger deflator}}.$$

For the example of Niamey (the only political region that coincides with an agro-ecological zone), the zonal deflator is 1.0000000, so the $1.25/day 2005 PPP line is

$$\frac{\$1.25 \cdot \left(\frac{\text{XOF267.311}}{\$1} \right) \cdot \left(\frac{105.2190}{88.5264} \right) \cdot 1.0000000}{0.8577444} = \text{XOF463 (Table 1)}.$$

The all-Niger $1.25/day 2005 PPP line is the person-weighted average of the five zonal lines. This is XOF397 per person per day, with a household-level poverty rate of 29.9 percent and a person-level poverty rate of 36.9 percent (Table 1).

The lines for $2.00/day, $2.50/day, and $5.00/day 2005 PPP are multiples of the $1.25/day 2005 PPP line.

The World Bank's PovcalNet does not report poverty lines nor poverty rates for \$1.25/day 2005 PPP based on the 2014/15 ECVMA. For the 2011 ECVMA, it reports a person-level poverty rate (40.7 percent) but no poverty line.[16] Here, the corresponding poverty rate is 41.3 percent (Table 1). As argued in Schreiner (2014b), the figure here is to be preferred because PovcalNet does not report:

- The time/place of its price units
- Whether/how it adjusts for price differences across zones
- How it deflates 2005 PPP factors over time
- Whether it uses the same data as INS (2013)

2.3.2.2 \$1.90/day 2011 PPP line

Given the parameters in the previous sub-section, the \$1.90/day 2011 PPP line for a given agro-ecological zone in Niger is

$$\frac{\$1.90 \cdot 2011 \text{ PPP factor} \cdot \left(\frac{\text{CPI}_{\text{ECVMA14/15}}}{\text{CPI}_{2011}}\right) \cdot \text{Zonal deflator}}{\text{Average all - Niger deflator}}$$

For the example of Niamey, the zonal deflator is 1.0000000, so the \$1.90/day 2011 PPP line is

$$\frac{\$1.90 \cdot \left(\frac{\text{XOF228.753}}{\$1}\right) \cdot \left(\frac{105.2190}{102.8192}\right) \cdot 1.0000000}{0.8577444} = \text{XOF519 (Table 1).}$$

[16] iresearch.worldbank.org/PovcalNetPPP2005/Detail.aspx?Format=Detail&CO=NER_3&PPPO=267.33&PLO=1.25&YO=2011&NumOfCountries=1, retrieved 3 April 2018.

The all-Niger $1.90/day 2011 PPP line is the person-weighted average of the five zonal lines. This is XOF445 per person per day, with a household-level poverty rate of 37.6 percent and a person-level poverty rate of 45.4 percent (Table 1).

PovcalNet[17] reports almost the same $1.90/day 2011 PPP line (XOF443 versus 445) for the 2014/15 ECVMA as well as almost the same person-level poverty rate (45.5 percent versus 45.4).

The 2011 PPP poverty lines for $3.20/day, $5.50/day, and $21.70/day are multiples of the $1.90/day line.[18]

2.3.3 USAID "very poor" line

Microenterprise programs in Niger that use the scorecard to report the number of their participants who are "very poor" to USAID should use the $1.90/day 2011 PPP 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 (XOF318, with a person-level poverty rate of 22.7 percent, Table 1)
- The $1.90/day 2011 PPP line (XOF445, with a person-level poverty rate of 45.4 percent)

[17] iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&CO=NER_3&PPPO=228.753&PLO=1.90&YO=2014&NumOfCountries=1, retrieved 3 April 2018.
[18] Jolliffe and Prydz (2016) discuss the World Bank's choice of the four 2011 PPP lines.

2.3.4 Percentile-based lines

The scorecard for Niger also supports percentile-based poverty lines.[19] This facilitates a number of types of analyses. For example, the second-quintile (40^{th}-percentile) line might be used to help track Niger'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 analyses that typically have used a "wealth index" such as that supplied with the data from the Demographic and Health Surveys (Rutstein and Johnson, 2004) to compare some estimate of wealth 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)

[19] Following the DHS wealth index, percentiles are in terms of people (not households) for Niger as a whole. For example, the all-Niger person-level poverty rate for the first-quintile (20^{th}-percentile) poverty line is 20 percent (Table 1). The household-level poverty rate for that same line is not 20 percent but rather 15.8 percent.

Unlike the scorecard, wealth indexes serve only to analyze relative wealth. Furthermore, the scorecard—unlike wealth 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 related to a poverty line defined in monetary units).

In contrast, a wealth index opaquely defines *poverty* in terms of its own indicators and points, without reference to an external standard. This means that two wealth 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 Niger, about 55 candidate indicators are initially prepared in the areas of:

- Household composition (such as the number of household members)
- Education (such as the school attendance of household members ages 7 to 14)
- Housing (such as the main material of the roof)
- Ownership of durable assets (such as lounge chairs or cell 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.[20]

One possible application of the scorecard is to estimate the change 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 lounge chair is probably more likely to change in response to changes in poverty 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

[20] 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 round. 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 nine 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[21] 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.

The single scorecard here applies to all of Niger. Segmenting poverty-assessment tools by urban/rural does not improve targeting accuracy much. This is documented for Niger and eight other countries in Sub-Saharan Africa (Brown, Ravaillon, and van de Walle, 2016)[22], 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, segmentation 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).

[21] 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.
[22] The eight other countries are Burkina Faso, Ethiopia, Ghana, Malawi, Mali, 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 correctly 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" (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 here 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 seems to them to make sense.

To this end, Niger'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 nine 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 Niger's scorecard would:

- Record the interview identifier, interview date, country code ("NER"), scorecard code ("002") 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 who is the participant's main point of contact with the organization (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)
- Complete the "Back-page Worksheet" with each household member's first name (or nickname)
- Based on the "Back-page Worksheet", record household size (that is, the number of household members) in the scorecard header next to "Number of household members:"
- Mark the response to the first scorecard indicator ("In what region does the household live?") based on the enumerator's knowledge of the region where the interviewed household lives
- 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 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

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" in this document.

If organizations or field workers gather their own data and 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).[23] 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.

[23] If a program does not want field workers or respondents to know the points associated with responses, then it can give them a version of the 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 response options 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.

In particular, 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 in this paper, as this "Interview Guide"—along with the "Back-page Worksheet"—is an integral part of the scorecard.[24]

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 Niger.

[24] The guidelines here are the only ones that organizations should give to field workers. All other issues of interpretation should be left to the judgment of field workers and respondents, as this seems to be what Niger's INS did in the 2014/15 ECVMA.

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 and that the use of the scorecard will 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, on-label way to do interviews: in-person, at the sampled household's residence, with an enumerator trained to follow the "Interview Guide". This is how Niger's INS did interviews in the 2014/15 ECVMA, 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, respondents fill out paper or web forms on their own or 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, an enumerator interviewing by phone)

While such off-label 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 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—the organization might judge that the lower costs an off-label 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 an off-label method should do a test to check how responses differ with the off-label method versus with a trained enumerator at the residence.

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
- Portable electronic devices in the field, and then uploaded to a database[25]

[25] The author of this paper can support organizations that want to set up a system to collect data with portable electronic devices in the field or to capture data in a database at the office once paper forms come in from the field. Support is also available for automating the calculation of estimates as well as for reporting and analysis.

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 issues that matter to the organization. In practice, errors due to implementation issues and due to interviewing a non-representative sample usually swamp errors due to not having a somewhat larger sample size.

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 worker 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 set of participants from the same population
- With the same set 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, 2013b) 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 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 Niger, 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 26–27 have a poverty likelihood of 53.7 percent, and scores of 28–30 have a poverty likelihood of 39.6 percent (Table 3).

The poverty likelihood associated with a score varies by poverty line. For example, scores of 26–27 are associated with a poverty likelihood of 53.7 percent for 100% of the national line but of 40.2 percent for the $1.25/day 2005 PPP line.[26]

[26] From Table 3 on, many tables have 18 versions, one for each of the 18 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 (Table 4), there are 10,426 (normalized) households in the calibration sub-sample with a score of 26–27. Of these, 5,598 (normalized) are below the poverty line. The estimated poverty likelihood associated with a score of 26–27 is then 53.7 percent, because 5,598 ÷ 10,426 = 53.7 percent.

To illustrate with 100% of the national line and a score of 28–30, there are 10,621 (normalized) households in the calibration sub-sample, of whom 4,208 (normalized) are below the line (Table 4). The poverty likelihood for this score range is then 4,208 ÷ 10,621 = 39.6 percent.

The same method is used to calibrate scores with estimated poverty likelihoods for all 18 poverty lines.[27]

[27] 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.

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 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 Niger's scorecard are transformed coefficients from a Logit regression, (untransformed) scores are not converted to poverty likelihoods via the Logit formula of 2.718281828^{score} x $(1 + 2.718281828^{score})^{-1}$. 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.[28]

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 Niger's population. Thus, scorecard estimates will generally have errors when applied after March 2015 (the last month of field work for the 2014/15 ECVMA) or when applied with sub-groups that are not nationally representative.

[28] 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 Niger as a whole? To find out, the scorecard is applied to 1,000 bootstrap samples of size $n = 16{,}384$ from the 2014/15 validation sample. Bootstrapping means to:

- Score each household in the validation sample
- Draw a bootstrap sample *with replacement* from the validation sample and 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 2014/15 validation sample, the estimated poverty likelihood for scores of 26–27 (53.7 percent, Table 3) is too low by 7.3 percentage points. For scores of 28–30, the estimate is too low by 4.8 percentage points.[29]

[29] 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 26–27 is ±5.1 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 –12.4 and –2.2 percentage points (because –7.3 – 5.1 = –12.4, and –7.3 + 5.1 = –2.2). In 950 of 1,000 bootstraps (95 percent), the difference is –7.3 ± 5.3 percentage points, and in 990 of 1,000 bootstraps (99 percent), the difference is –7.3 ± 5.6 percentage points.

Some 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 Niger. 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 2014/15 in Niger, 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 ECVMA field work in March 2015. That is, the scorecard may fit the construction/calibration data from 2014/15 so closely that it captures not only some real patterns that exist in the population of Niger but also some random patterns that, due to sampling variation, show up only in the 2014/15 ECVMA 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 here 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 areas. 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 2019 and that they have scores of 20, 30, and 40, corresponding to estimated poverty likelihoods of 68.1, 39.6, and 18.1 percent (100% of the national line, Table 3). The population's estimated poverty rate is the households' average poverty likelihood of $(68.1 + 39.6 + 18.1) \div 3 = 41.9$ percent.[30]

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 39.6 percent. This differs from the 41.9 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

[30] 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 2014/15 ECVMA for all 18 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 $n = 16{,}384$ from the 2014/15 validation sample and 100% of the national line, the error (average difference between the estimate and observed value in the 2014/15 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 18 poverty lines in the 2014/15 validation sample, the maximum of the absolute values of the error is 4.5 percentage points, and the average of the absolute values of the average error is about 1.5 percentage points. At least part of these differences is due to sampling variation in the division of the 2014/15 ECVMA 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 2014/15 validation sample, the error is +0.2 percentage points, so the corrected estimate in the three-household example above is 41.9 – (+0.2) = 41.7 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 ±0.7 percentage points or smaller for all poverty lines (Table 7). This means that in 900 of 1,000 bootstraps of this size, the estimate (after correcting for the known average error) is within 0.7 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 41.9 percent. Then estimates in 90 percent of such samples would be expected to fall in the range of 41.9 – (+0.2) – 0.6 = 41.1 percent to 41.9 – (+0.2) + 0.6 = 42.3 percent, with the most likely observed value being the corrected estimate in the middle of this range, that is, 41.9 – (+0.2) = 41.7 percent. This is because the original (uncorrected) estimate is 41.9 percent, the average error is +0.2 percentage points, and the 90-percent confidence interval for 100% of the national line in the 2014/15 validation sample with this sample size is ±0.6 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, $\sqrt{\frac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \phi$,

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

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

N is the population size, and

n is the sample size.

For example, Niger's 2014/15 ECVMA gives a direct-measure household-level poverty rate for 100% of the national line of $\hat{p} = 37.6$ percent (Table 1).[31] If this measure came from a sample of $n = 16{,}384$ households from a population N of 2,780,477 (the number of households in Niger in 2014/15 according to the ECVMA sampling weights), then the finite population correction ϕ is $\sqrt{\frac{2{,}780{,}477 - 16{,}384}{2{,}780{,}477 - 1}} = 0.9970$, which is very close to $\phi = 1$. If the desired confidence level is 90-percent ($z = 1.64$), then the confidence interval $\pm c$ is

$$\pm z \cdot \sqrt{\frac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\frac{N - n}{N - 1}} = \pm 1.64 \cdot \sqrt{\frac{0.376 \cdot (1 - 0.376)}{16{,}384}} \cdot \sqrt{\frac{2{,}780{,}477 - 16{,}384}{2{,}780{,}477 - 1}} = \pm 0.619$$

percentage points. If ϕ were taken as 1, then the interval is ± 0.621 percentage points.

Unlike the 2014/15 ECVMA, 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 2014/15 validation sample. For example, with $n = 16{,}384$ and 100% of the national line in the 2014/15 validation sample, the 90-percent confidence interval is ± 0.564 percentage points.[32]

[31] The analysis here ignores that poverty-rate estimates from the ECVMA are themselves based on a sample and so have their own sampling distribution.
[32] Due to rounding, Table 6 displays 0.6, not 0.564.

Thus, the 90-percent confidence interval with $n = 16{,}384$ is ± 0.564 percentage points for the scorecard and ± 0.619 percentage points for direct measurement. The ratio of the two intervals is $0.564 \div 0.619 = 0.91$.

Now consider the same exercise, but with $n = 8{,}192$. The confidence interval under direct measurement and 100% of the national line in the 2014/15 validation sample is $\pm 1.64 \cdot \sqrt{\frac{0.376 \cdot (1 - 0.376)}{8{,}192}} \cdot \sqrt{\frac{2{,}780{,}477 - 8{,}192}{2{,}780{,}477 - 1}} = \pm 0.876$ percentage points. The empirical confidence interval with the scorecard (Table 6) is ± 0.821 percentage points. Thus for $n = 8{,}192$, the ratio of the two intervals is $0.821 \div 0.876 = 0.94$.

This ratio of 0.94 for $n = 8{,}192$ is close to the ratio of 0.91 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 2014/15 validation sample turns out to be 0.91. This implies that confidence intervals for indirect estimates of poverty rates via Niger's scorecard and 100% of the national line are—for a given sample size—about 9-percent smaller than the confidence intervals for direct estimates via the 2014/15 ECVMA. This 0.91 appears in Table 7 as the "α factor for precision" because if $\alpha = 0.91$, 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 $\alpha \cdot \sqrt{\frac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\frac{N - n}{N - 1}}$.

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 eight of the 18 poverty lines in Table 7, and its highest value is 2.28.

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

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

To illustrate how to use this, suppose the population N is 2,780,477 (the number of households in Niger in 2014/15), suppose $c = 0.04293$, $z = 1.64$ (90-percent confidence), and the relevant poverty line is 100% of the national line so that the most sensible expected poverty rate $\widetilde{p}$ is Niger's overall poverty rate for that line in 2014/15 (37.6 percent at the household level, Table 1). The α factor is 0.91 (Table 7). Then the sample-size formula gives

$$n = 2{,}780{,}477 \cdot \left(\frac{1.64^2 \cdot 0.91^2 \cdot 0.376 \cdot (1 - 0.376)}{1.64^2 \cdot 0.91^2 \cdot 0.376 \cdot (1 - 0.376) + 0.04293^2 \cdot (2{,}780{,}477 - 1)} \right) = 284,$$ which

not too far from 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 $n = \left(\frac{0.91 \cdot 1.64}{0.04293}\right)^2 \cdot 0.376 \cdot (1 - 0.376) = 284$.[33]

Of course, the α factors in Table 7 are specific to Niger, 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.

[33] 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 Niger should report using the $1.90/day 2011 PPP line. Given the α factor of 0.90 for this line (Table 7), an expected before-measurement household-level poverty rate of 37.6 percent (the all-Niger rate for this line in 2014/15, Table 1), and a confidence level of 90 percent ($z = 1.64$), then $n = 300$ implies a confidence interval of $\pm 1.64 \cdot 0.90 \cdot \sqrt{\frac{0.376 \cdot (1 - 0.376)}{300}} = \pm 4.1$ percentage points.

In practice after the end of field work for the ECVMA in March 2015, 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 $\widetilde{p}$ (perhaps based on a previous estimate such as the household-level poverty rate for 100% of the national line for Niger of 37.6 percent in the 2014/15 ECVMA in Table 1), look up α (here, 0.91 in Table 7), assume that the scorecard will still work in the future and for sub-groups that are not nationally representative,[34] and then compute the required sample size. In this illustration, $n = 10{,}000 \cdot \left(\frac{1.64^2 \cdot 0.91^2 \cdot 0.376 \cdot (1 - 0.376)}{1.64^2 \cdot 0.91^2 \cdot 0.376 \cdot (1 - 0.376) + 0.02^2 \cdot (10{,}000 - 1)} \right) = 1{,}156.$

[34] 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 March 2015 will resemble that in the 2014/15 ECVMA 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.

To give an idea of how accurate scorecards in general (but not necessarily the new Niger scorecard) may be when used to measure changes in poverty rates over time, this section looks at the accuracy of the Niger scorecard applied with a baseline estimate for the 2014/15 validation sample and a follow-up estimate for the entire 2011 ECVMA.[35]

Two approaches to estimating change are tested:

- The two-independent-samples approach ignores the panel nature of the ECVMA in 2011 and 2014/15 and instead treats the two survey rounds as if they came from two independent samples
- The score-one-sample-twice approach accounts for the panel nature of the ECVMA and uses only households that are interviewed in both rounds and that are in the 2014/15 validation sample

[35] In practice, of course, baseline data is collected before follow-up data. The 2014/15 data is the baseline here (and the 2011 data is the follow-up) because there is no post-2014/15 data to use as a follow-up. Given that the definition of *poverty* used with the old 2007/8 scorecard (Schreiner, 2013a) differs from the definition used with the new 2014/15 scorecard, it is not possible to combine a baseline estimate from the old scorecard with a follow-up estimate from the new scorecard. In any case, the tests are merely indicative—not definitive—of the accuracy of scorecards in general (and not of the accuracy of the new Niger scorecard in particular), as there is no way to know for certain how well the new scorecard will work in the future.

The tests here are stringent because:

- They compare scorecard estimates with observed values from the ECVMA
- They estimate poverty rates both at baseline and at follow-up, just like the scorecard would be used in practice
- They are *out-of-sample* in that they use—in both baseline and follow-up—only ECVMA data for households that are not used in the construction or calibration of the new 2014/15 scorecard
- They are *out-of-time* in that the follow-up data is from a different time (2011) than the data used to construct the scorecard (2014/15)

Again, these necessarily backward-looking tests can only give—at best—a rough idea of how accurate scorecards in general may be. After all, the factors that affect accuracy in the past in Niger differ in type and degree from the factors that will affect accuracy (in Niger and in other countries with scorecards) in the future. While the test results for the new Niger scorecard add to what is known about the distibribution of scorecard accuracy in general, they do not necessarily indicate much about the future accuracy of Niger's new scorecard.

Because estimates from the scorecard are unbiased when applied to an unchanging population in which there are unchanging relationships between indicators and poverty, inaccuracies in estimates of change between the 2014/15 and 2011 ECVMA must be due to some combination of:

- Changes in the relationships between indicators and poverty
- Changes in the composition of Niger's population
- Sampling variation in the ECVMA rounds
- Differences in how scorecard indicators are asked/answered across ECVMA rounds
- Inconsistent data quality
- Inconstant definitions of *poverty*
- Imperfections in how well a definition of *poverty* captures a household's consumption-based poverty

Of course, the more resistent the scorecard's estimates are to deviations from its assumptions and to problems with the data, the better. If the scorecard's real-world inaccuracies render it useless for measuring change in a given context for a given purpose, then there is little consolation to be had in how well the scorecard would work in a (non-existent) world in which all of its assumptions hold.

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 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. It also reports out-of-sample/out-of-time tests of the accuracy of scorecard estimates of change.

Consider the illustration begun in the previous section. On 1 January 2019, an organization samples three households who score 20, 30, and 40 and so have poverty likelihoods of 68.1, 39.6, and 18.1 percent (100% of the national line, Table 3). Given the known average error for this line in the validation sample of +0.2 percentage points (Table 7), the corrected baseline estimated poverty rate is the households' average poverty likelihood of [(68.1 + 39.6 + 18.1) ÷ 3] – (+0.2) = 41.7 percent.

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

- Score a new, independent sample from the same population ("two independent samples"
- Score the same sample that was scored at baseline ("score one sample twice")

7.2.1 Estimating change with two independent samples

By way of illustration, suppose that three years later on 1 January 2022, 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 55.3, 27.4, and 13.5 percent, 100% of the national line, Table 3). Adjusting for the known average error, the average poverty likelihood at follow-up is [(55.3 + 27.4 + 13.5) ÷ 3] – (+0.2) = 31.9 percent. The reduction in the

poverty rate is then 41.7 – 31.9 = 9.8 percentage points.[36] 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 9.8 ÷ 3 = 3.3 percentage points per year. That is, about one in 30 participants in this hypothetical example cross the poverty line each year.[37] Among those who start below the line, about one in 13 (3.3 ÷ 41.7 = 7.9 percent) on net end up above the line each year.[38]

For the 11 absolute poverty lines,[39] Table 8 reports the accuracy of the two-independent-samples approach in 1,000 bootstrap samples of n = 16,384 with a baseline estimate from the 2014/15 validation sample and a follow-up estimate from all of the 2011 ECVMA. For example, the observed change for the household-level poverty rate by 100% of the national line is +2.3 percentage points,[40] but the scorecard's estimated change is +4.3 percentage points, implying an error of +2.0 percentage points.

Across the 11 absolute poverty lines, the average of the absolute values of the observed change is 4.4 percentage points, while the average of the absolute errors is 4.1 percentage points. Thus, the error is about as large as the observed change. For seven of the 11 lines, the estimated direction of change matches the observed direction. For four of those seven lines, the estimated direction is "statistically significant" in that the

[36] 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.
[37] This is a net figure; some start above the line and end below it, and vice versa.
[38] The scorecard does not reveal the reasons for this change.
[39] It is not meaningful to estimate changes in poverty rates based on relative poverty lines because these lines' purchasing power is not constant over time.
[40] The observed rate in 2011 is 39.9 percent, and the observed rate in the 2014/15 validation sample is 37.6 percent, so the observed change is +2.3 percentage points.

estimate's 90-percent confidence interval does not include zero (0). For those same four lines (but not for any others), the estimate's 90-percent confidence interval includes the observed value. Overall, the accuracy of estimates of change in this two-independent-samples test does not encourage the hope that the scorecard in general can pinpoint the level of change or even consistently indicate the direction of change.

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 2022. Given scores of 25, 35, and 45, their follow-up poverty likelihoods are 55.3, 27.4, and 13.5 percent. The average across households of the difference in each given household's baseline poverty likelihood and its follow-up poverty likelihood is $[(68.1 - 55.3) + (39.6 - 27.4) + (18.1 - 13.5)] \div 3 = 9.9$ percentage points.[41] 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) $9.9 \div 3 = 3.3$ percentage points per year.

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 being scored once) versus one sample being scored twice (Schreiner, 2014a).

[41] In this score-one-sample-twice approach, the error for this line in Table 7 should *not* be subtracted off. The 9.9 percent in this approach differs from the 9.8 percent in the score-two-independent-samples approach due to rounding at different steps.

For the out-of-sample/out-of-time test with a baseline estimate from the 2014/15 validation sample and a follow-up estimate from all of the 2011 ECVMA, accuracy is better for estimates of change from one sample scored twice than from two independent samples. In particular, the average of the absolute values of the errors across the 11 absolute poverty lines for the one-sample-scored-twice approach is about 1.1 percentage points (versus an average of the absolute observed changes of about 3.6 percentage points). Thus, the average errors are less than one-third of the average observed changes. For the example of 100% of the national line at the household level (and considering only the 1,535 households that are in both the 2014/15 validation sample and in the 2011 ECVMA), the estimated change is +1.8 percentage points and the observed change is about +1.9 percentage points,[42] implying that the scorecard's estimate is 0.1 percentage points too low (Table 9).

The estimated direction of change matches the observed direction for nine of 11 lines.[43] For six of nine lines, the estimated direction is "statistically significant" in that the estimate's 90-percent confidence interval does not include zero (0). For eight of the nine lines, the observed value falls in the estimate's 90-percent confidence interval. Overall, the accuracy of estimates of change in the score-one-sample-twice approach does allow some hope that scorecards in general may estimate the level and direction of

[42] For households in both the 2014/15 validation sample and in the 2011 ECVMA, the 2014/15 rate is 37.8 percent and the 2011 rate is 39.7 percent.

[43] The two exceptions are $5.50/day and $21.70/day 2011 PPP. Household-level poverty rates for these two lines in the 2011 ECVMA are 95.3 and 100.0 percent, so these lines are hardly relevant for Niger.

change with a useful degree of accuracy. Of course, these backward-looking results do not necessarily imply anything about the accuracy of the new scorecard's estimates of change for Niger from now on.

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,[44] 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.

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

Table 8 reports α for the 11 absolute poverty lines supported for the new Niger scorecard from the backward-looking test described above. The average α is 1.11, and—excluding the three highest 2011 PPP lines—the range is from 1.07 to 1.16. While these specific values of α are not relevant for use with the Niger scorecard from now on, they do add to the information available about the distribution of α for scorecards in general. In particular, α for the two-independent-sample approach has been previously estimated for 18 countries (Schreiner 2017a, 2017b, 2017c, 2016a, 2016b, 2016c, 2016d, 2015b, 2015c, 2015d, 2015e, 2013b, 2013c, 2012c, 2010, 2009a, 2009b, and Chen and Schreiner, 2009). The unweighted average of α across these 18 countries and Niger—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 Niger (or any other scorecard) from now on.

To illustrate the use of this formula to determine sample size for estimating changes in poverty rates across 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, $\alpha = 1.08$, $\widetilde{p} = 0.376$ (the household-level poverty rate in 2014/15 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 $n = 2 \cdot \left(\frac{1.08 \cdot 1.64}{0.02} \right)^2 \cdot 0.376 \cdot (1 - 0.376) \cdot 1 = 3{,}681$, and the follow-up sample size is also 3,681.

7.3.2 Precision when scoring one sample 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 a single sample of households, all of whom are scored at two points in time, is:[45]

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

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.

With the backward-looking test here and the one-sample-scored-twice approach, the average α across the 11 absolute poverty lines for the new Niger scorecard is 0.98. As above, this α says little about the Niger scorecard's precision from now on, but it does provide a second data point in terms of the precision of scorecards in general (the first data point is for Peru, Schreiner, 2009c).

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

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 cross the poverty line $\widetilde{p}_{12}$ and $\widetilde{p}_{21}$. Before estimation, an agnostic assumption is that the change in the poverty rate will be zero, which implies $\widetilde{p}_{12} = \widetilde{p}_{21} = \widetilde{p}_{*}$, giving:

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

Because $\widetilde{p}_{*}$ could be anything between 0 and 0.5, more information is needed to apply this formula. In Peru (Schreiner, 2009c), the observed relationship 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:

$$\widetilde{p}_{*} = -0.02 + 0.016 \cdot y + 0.47 \cdot [p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})].$$

The time between baseline and follow-up does not vary in the backward-looking test for Niger here, but the observed relationship between $\widetilde{p}_{*}$ and $p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})$ across the 11 poverty lines is close to:

$$\widetilde{p}_{*} = -0.0045 + 0.64 \cdot [p_{\text{pre-baseline}} \cdot (1 - p_{\text{pre-baseline}})].$$

Averaging the intercepts and the slopes for the baseline poverty rate across Peru and Niger while keeping the slope for the years between baseline and follow-up from Peru gives:

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

Given this (obviously patchwork and approximate) result, a sample-size formula for a sample of households to whom the Niger scorecard is applied twice (once after March 2015 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 here is about 0.98 (Table 9), and the only other data-based estimate is 1.30 (for Peru, in Schreiner, 2009c). The average of these (1.14) is as reasonable as any other assumption for scorecards in general (including for the new Niger scorecard here).

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 2019 and then again in 2022 ($y = 3$), 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_{2019} is taken as 37.6 percent (Table 1), and α is assumed to be 1.14. Then the baseline sample size is $n = 2 \cdot \left(\frac{1.14 \cdot 1.64}{0.02} \right)^2 \cdot \{-0.01 + 0.016 \cdot 3 + [0.56 \cdot 0.376 \cdot (1 - 0.376)]\} \cdot 1 = 2{,}961$. The same group of 2,961 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*,[46] not as *poor*. After all, unless all targeted households have poverty likelihoods of 100 percent, 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.

[46] Other labels are 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 10 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 total net benefits (Adams and Hand, 2000; Hoadley and Oliver, 1998).

Table 11 shows the distribution of households by targeting outcome for Niger. For an example cut-off of 27 or less, outcomes for 100% of the national line in the 2014/15 validation sample are:

- Inclusion: 26.5 percent are below the line and correctly targeted
- Undercoverage: 11.2 percent are below the line and mistakenly not targeted
- Leakage: 10.3 percent are above the line and mistakenly targeted
- Exclusion: 52.0 percent are above the line and correctly not targeted

Increasing the cut-off to 30 or less improves inclusion and undercoverage but worsens leakage and exclusion:

- Inclusion: 30.0 percent are below the line and correctly targeted
- Undercoverage: 7.7 percent are below the line and mistakenly not targeted
- Leakage: 13.9 percent are above the line and mistakenly targeted
- Exclusion: 48.5 percent are above the line and correctly not targeted

Which cut-off is preferred depends on total net benefit. 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 11 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 11 shows the hit rate for all cut-offs for the scorecard. For the example of 100% of the national line in the 2014/15 validation sample, total net benefit under the hit rate is highest (78.5) for a cut-off of 27 or less, with about three in four households in Niger 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).[47]

[47] Table 11 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|) x [100 ÷ (Inclusion + Undercoverage)]. Schreiner (2014b) explains why BPAC does not add information over-and-above that provided by the other, more-standard, 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 12 ("% targeted HHs who are poor") shows, for the scorecard applied to the 2014/15 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 27 or less would target 36.8 percent of all households (second column) and would be associated with an estimated poverty rate among those targeted of 71.9 percent (third column).

Table 12 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 2014/15 validation sample and a cut-off of 27 or less, 70.3 percent of all poor households are covered.

The final targeting measure in Table 12 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 2014/15 validation sample and a cut-off of 27 or less, covering about 2.6 poor households means leaking to 1 non-poor household.

9. Context of poverty-assessment tools in Niger

This section discusses three[48] existing poverty-assessment tools for Niger in terms of their goals, methods, definition 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 Niger
- Reporting errors and precision for estimates of poverty rates at a point in time from out-of-sample tests, including formulas for approximate standard errors
- Reporting errors and precision for estimates of changes in poverty rates over time from out-of-sample/out-of-time tests, including formulas for approximate standard errors
- Reporting targeting accuracy from out-of-sample tests, and having targeting accuracy that is not much worse than that of alternative approaches
- Being feasible for pro-poor programs in Niger, due to its low cost and transparency

9.1 Gwatkin *et al.*

Gwatkin *et al.* (2007) construct a poverty-assessment tool for Niger with an approach that they use in 56 countries with Demographic and Health Surveys (Rutstein and Johnson, 2004). They use Principal Component Analysis to make an asset index from low-cost indicators available for the 5,369 households in Niger's 1998 DHS.[49] The

[48] McBride (2015) studies targeting with a poverty-assessment tool for Niger that, like Schreiner (2013a), is derived from the 2007/8 ENBCM. It is not reviewed here because the tool's indicators are not specified and because targeting accuracy is not reported in a way that can be compared with that of the new scorecard here.

[49] DHS data for Niger since 1998 include each household's asset-index value (`dhsprogram.com/topics/wealth-index/Wealth-Index-Construction.cfm`, retrieved 4 April 2018).

PCA index is like the scorecard here except that—because the DHS does not collect data on consumption—the index uses a different (asset-based) definition of *poverty*, its accuracy vis-à-vis consumption-based poverty is unknown, and it can only be assumed to be a proxy for long-term wealth/economic status.[50] Well-known examples of the PCA asset-index approach include Stifel and Christiaensen (2007), Zeller *et al.* (2006), Sahn and Stifel (2003 and 2000), Henry *et al.* (2003), and Filmer and Pritchett (2001).

The 14 indicators in Gwatkin *et al.* are similar to those in the scorecard in terms of their ease-of-collection and verifiability:

- Characteristics of the residence:
  - — Presence of electricity
  - — Type of floor
  - — Source of drinking water
  - — Type of toilet arrangement
  - — Number of household members per sleeping room
- Ownership of consumer durables:
  - — Radios
  - — Televisions
  - — Refrigerators
  - — Telephones
  - — Bicycles
  - — Motorcycles
  - — Cars or trucks
- Employment of a domestic worker not related to the head
- Whether a household member works his/her own or family's agricultural land

[50] Nevertheless, the indicators are similar and the "flat maximum" is important, so carefully built PCA indexes and consumption-based poverty-assessment tools rank households much the same and may pick up the same underlying construct (perhaps "permanent income", see Bollen, Glanville, and Stecklov, 2007). Comparisons of rankings of households by PCA indexes, directly-measured consumption, and consumption-based poverty-assessment tools include Ngo and Christiaensen (2018), Filmer and Scott (2012), Howe *et al.* (2009), Lindelow (2006), Sahn and Stifel (2003), Wagstaff and Watanabe (2003), and Montgomery *et al.* (2000).

Gwatkin *et al.* suggest three possible uses for their index:

- Segmenting households by the quintile of their index value to see how health varies with socio-economic status
- Monitoring (via exit surveys) how well local health-service posts reach the poor
- Estimating local coverage of health services via small-scale surveys

The first goal is segmentation, and the last two goals deal with performance monitoring, so in those ways the 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 quintile of consumption to see how health (or other things) vary with consumption. Of course, it is also possible to segment households by quintiles based on scores from the scorecard to see how health (or other things) vary with wealth.

The Gwatkin *et al.* index is more costly and difficult-to-use than the scorecard. The index has 14 indicators (versus nine), and while the scorecard requires adding up nine integers (some of them usually zeroes), Gwatkin *et al.*'s index requires adding up 33 numbers, each with five decimal places and about 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 their internal definitions of *poverty* implied by their paricular indicators and

points, only the scorecard can also estimate consumption-based poverty status based on externally-defined poverty lines.

In essence, Gwatkin *et al.*—like all asset indexes—define *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. 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.

9.2 Schnitzer

Schnitzer (2016) studies approaches to targeting quick-response safety-net programs for poor households in Niger. In particular, she uses ordinary least-squares regression to construct a poverty-assessment tool that relates indicators with per-capita consumption based on data from the 2007/8 ENBCM. The specific indicators are not reported, but they fall in the areas of demographics, characteristics of the residence, and the ownership of durable assets, livestock, and land.

When Schnitzer's tool is applied out-of-sample and out-of-time to data at the person level from the 2011 ECVMA when 30 percent of households are poor and when households in the lowest three deciles of estimated per-capita consumption are targeted, inclusion is 17.1 percent.[51]

[51] Schnitzer reports a 43-percent "inclusion error" (the share of targeted households who are non-poor). With 30 percent of households being poor and 30 percent of households being targeted, inclusion (as defined here) is (1 – 0.43) x 0.3 = 17.1 percent.

For an apples-to-apples comparison, the new scorecard here is applied out-of-sample and out-of-time at the person level (not the household level) in the 2011 ECVMA with a poverty line set at the 30th percentile. When targeting the lowest-scoring 30 percent of households, inclusion for the scorecard is 14.5 percent, implying that among every 30 people targeted, Schnitzer captures 17.1 – 14.5 = 2.6 more poor people than the scorecard. The gap in targeting accuracy across the two tools is not consistent with the "flat max" nor with similar comparisons between the scorecard and regression-based tools in Schreiner (2014b).

9.3 Brown, Ravallion, and van de Walle

Brown, Ravallion, and van de Walle (2016) study the accuracy of poverty-assessment tools for Niger (and eight other countries in Sub-Saharan Africa). In terms of inclusion when the share of people who are targeted is the same as the share of people who are poor, average accuracy across the nine countries is highest for their "Extended proxy-means test"[52] that regresses the logarithm of per-capita consumption on 47 low-cost, verifiable indicators that are commonly used in poverty-assessment tools:

- Household demographics:
  - Share of household members by age and sex:
    - Girls ages 5 or younger
    - Boys ages 5 or younger
    - Girls ages 6 to 14
    - Boys ages 6 to 14
    - Women ages 65 or older
    - Men ages 65 or older
    - Widows of any age
    - Disabled women ages 15 or older
    - Disabled men ages 15 or older
    - Orphan girls ages 14 or younger
    - Orphan boys ages 14 or younger

[52] When people are targeted if and only if their estimated consumption is below a given poverty line, then Brown *et al.* find that another approach—"Extended poverty quantile"—does better in terms of maximizing the difference between the share of the poor who are targeted and the share of the non-poor who are targeted. In this same scenario, "Extended centered-quantile" and "Extended proxy-means" provide about the same average reduction in the head-count poverty rate with a uniform cash transfer set at the aggregate poverty gap divided by the number of pre-transfer poor people.

  - Characteristics of the head of the household:
    - Sex
    - Age
    - Marital status
    - Highest level of education completed
    - Religion
  - Highest level of education completed by any household member
  - Whether the head is a female who is single/never-married, widowed, or divorced/separated
- Characteristics of residence:
  - Presence of electricity
  - Type of floor
  - Type of wall
  - Type of roof
  - Type of cooking fuel
  - Source of drinking water
  - Type of toilet arrangement
  - Number of people per room
- Employment status of head
- Ownership of durable assets:
  - Dwelling
  - Electrical generator
  - Stove of any type
  - Refrigerator or freezer
  - Air conditioner or fan
  - Sewing machine
  - Iron
  - Radio
  - Television
  - Video player
  - Satellite dish
  - Bicycle
  - Motorcycle/scooter
  - Car or truck
  - Land-line telephone
  - Cellular telephone
  - Computer

- Location of residence:
  - Region
  - Urban/rural
- Month in which the household is surveyed[53]

For Niger, Brown *et al.* both construct and test their tools at the level of people with all the data from the 2011 ECVMA. The most-accurate tool for Niger in terms of targeting inclusion is "Extended proxy-means" with 47 indicators. For the first-quintile (20^{th}-percentile) poverty line when targeting 20 percent of people, its inclusion is 9.2 percent. For the second-quintile (40^{th}-percentile) poverty line when targeting 40 percent of people, its inclusion is 26.9 percent. Their "Extended centered-quantile" tool is less accurate, with inclusion of 7.9 and 24.9 percent.

Inclusion for the 2014/15 Niger scorecard is 6.9 and 24.4 percent when tested out-of-sample/out-of-time with people in the 2011 ECVMA. That is, 6.9 of every 20 people (or 24.4 of every 40 people) targeted by the scorecard are poor, while "Extended proxy-means" targets 9.2 poor people per 20 targeted (or 26.9 per 40 targeted).

This comparison is not fully apples-to-apples; Brown *et al.* test their tools in-sample at the person level, while the scorecard is constructed at the household level and then tested (for this comparison) at the person level and out-of-sample/out-of-time.

If the scorecard's points are re-derived at the person level (keeping the same nine indicators) using the entire 2014/15 ECVMA and then is tested in-sample, inclusion for the two scenarios is 11.0 and 28.2 percent, better than the inclusion of any of the tools

[53] The 2011 ECVMA was fielded in July, August, September, November, and December, so it is not clear how, in practice, the tools in Brown *et al.* would compute its estimates in the other seven months of the year.

tested for Niger with the 2011 ECVMA in Brown *et al.* and very close to the average accuracy across the nine countries in Brown *et al.* for "Extended proxy-means" of 10.9 and 28.3 percent.

Still, the test is not yet apples-to-apples; it may be easier to estimate poverty in the 2014/15 ECVMA than in the 2011 ECVMA. Thus, a scorecard based on the entire 2011 ECVMA is derived, using the same nine indicators as the new scorecard here. When tested in-sample at the person level, its inclusion is 7.5 and 24.6 percent. This is better than the 2014/15 scorecard applied to 2011, but it is still about two people per 20 (or two per 40) worse than "Extended proxy-means" in Brown *et al.*

The nine-indicator scorecard here is less accurate than the 47-indicator "Extended proxy-means". The exercise also suggests:

- Accuracy in Brown *et al.* is overstated (reinforcing their main point that regression approaches are not as accurate vis-à-vis simpler approaches as many policy-makers and academics seem to believe)
- Targeting with tools that estimate binary (poor/non-poor) outcomes may be less inaccurate than found by Brown *et al.* (who dropped such tools from their study because their "targeting errors were substantially higher", p. 9).[54]

[54] The reasons for this are unknown. If one or more categorical response options are highly lop-sided, then a binary-outcome model may be barely estimable and might then target everyone or no one. Perhaps the probability threshold for targeting is too high or too low, or maybe the share targeted is not held constant. Or maybe a difference of two people per 20 (or two per 40) is a substantial difference.

10. Summary

The scorecard helps pro-poor programs in Niger to get to know their participants better and 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 Niger that want to improve how they monitor and manage their social performance.

The scorecard is constructed with data from about three-fifths of the observations on households in Niger's 2014/15 ECVMA. Those households' scores are then calibrated to poverty likelihoods for 18 poverty lines. The scorecard's accuracy (errors and standard errors) is tested out-of-sample on data that is not used in scorecard construction.

When the scorecard is applied to the 18 poverty lines in the 2014/15 validation sample, the maximum of the absolute values of the average error for point-in-time estimates of poverty rates is 4.5 percentage points, and the average of the absolute values of the average error across the 18 lines is about 1.5 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 precision of point-in-time estimates of poverty rates is ± 0.7 percentage points or better. With $n = 1{,}024$, the 90-percent confidence intervals are ± 2.7 percentage points or better.

When estimating change over time for the 11 absolute poverty lines with the two-independent-samples approach and with a baseline estimate from the 2014/15 validation sample and a follow-up estimate from the entire 2011 ECVMA, the average of the absolute errors is 4.1 percentage points when the average of the absolute observed changes is about 4.4 percentage points. The estimated direction of change matches the observed direction and is "statistically significant" for four of the 11 lines. While these results do not indicate much about the (in)accuracy of the new scorecard for Niger, it probably is too low (if they generalize) to be useful.

In contrast, the scorecard's estimates of change for the score-one-sample-twice approach probably are accurate enough (if they generalize) to be useful. In particular, the average of the absolute errors across the 11 poverty lines is about 1.1 percentage points, while the average of the absolute observed changes is about 3.6 percentage points. Furthermore, the estimated direction of change matches the observed direction and is "statistically significant" for six of the eight lowest (and most-policy-relevant) lines.

If an organization wants to use the scorecard for segmenting clients for differentiated treatment, then the results here provide useful information for selecting the targeting cut-off that best 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 its cost that they do not even try to use it.

For this reason, the scorecard uses nine 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 Niger 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:

Institut National de la Statistique. (2011) « Enquête Nationale sur les Conditions de Vie des Ménages et l'Agriculture de 2011: Manuel de l'Agent Enquêteur, Premier Passage » [the *Manual*].

Basic interview instructions

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 compiled as part of the "Back-page Worksheet".

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

Do not directly ask the second scorecard indicator ("How many household members are there?") of the respondent. Instead, fill in the appropriate answer based on the number of household members that you have listed on the "Back-page Worksheet".

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

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 same person as 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 is conducting the interview. Rather, the "field agent" is the employee of the pro-poor program with whom the participant has an on-going relationship. If the program does not have such a field agent, then the relevant spaces in the scorecard header may be left blank.

Read each question word-for-word, in the order presented in the scorecard. Do not read the response options aloud (except as noted below).

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:

3. How many rooms does the household occupy? (Do not count kitchens, bathrooms, hallways, or balconies)	A. One	0	
	B. Two	3	3
	C. Three	4	
	D. Four or more	9	

To help to reduce transcription errors, you should circle the response option, the printed points, and 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 your unaided judgment as the enumerator, as that apparently was the practice of Niger's INS in the 2014/15 ECVMA. That is, an organization that uses 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 (except as noted below). 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 answers 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, you do not—in general—need to verify responses. You should verify a response only if something suggests to you that the response may be inaccurate and thus that verification might improve data accuracy. For example, you might choose to verify if the respondent hesitates, seems nervous, or otherwise gives signals that he/she may be lying or be confused. Likewise, verification is probably appropriate if a child in the household or a neighbor says something that does not square with the 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 2014/15 ECVMA by Niger's INS. For example, interviews should take place in respondents' homesteads because the 2014/15 ECVMA took place in respondents' homesteads.

Translation

As of this writing, the scorecard itself, the "Back-page Worksheet", and this "Guide" are available only in French, Hausa, Zarma, and English. There are not yet official, professional translations to other major local languages spoken in Niger such as Fula and Tuareg. Users should check scorocs.com to see what translations have been completed since this writing.

If there is not yet a professional translation to a given local language, then users should contact the author of this document for help in creating such a translation. In particular, the translation of scorecard indicators should follow as closely as possible the meaning of the original French wording in the 2014/15 ECVMA questionnaire. Likewise, the *Enumerator Manual* for the 2014/15 ECVMA is written in French, so this "Guide" must be translated from the *Manual*'s original French, not from this English "Guide".

Who should be the respondent?

Remember that the respondent does not need to be the same person as the household member who is a participant with your organization.

According to page 7 of the *Manual*, the data "should be provided mainly by the head of the household and by other knowledgable household members."

According to page 19 of the *Manual*, "If the head of the household is not available, then the respondent may be any other household member who is at least 15-years-old and who is able to provide the required information."

Who is the head of the household?

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

Your work as an enumerator

According to pp. 5–6 of the *Manual*, "The purpose of this 'Guide' is to help you the enumerator . . . to collect the highest-quality data possible. . . . In the end, the success of the survey rests on the quality (that is, the accuracy) of the data. Thus, you need to understand the intent and meaning of all the questions in [the scorecard]. . . . You must understand the definitions and concepts used. . . . Always follow this 'Guide' and not your own judgment or experience; this is the purpose of this 'Guide'."

According to pp. 9–11 of the *Manual*, "As an enumerator, your job is to collect data from the households assigned to you. While you do this, refer to this 'Guide' and follow it.

"To collect high-quality, accurate information, model the virtues of politeness, courtesy, patience, and common sense. When you first introduce yourself to the interviewed household, inform them of the purpose of the survey, and assure them that all data collected will be kept strictly confidential. In particular, the data will only be used in combination with data from other households, and no one will know what data comes from the interviewed household. Also, let the household know that you will not speak about their responses or show the completed [scorecard to anyone outside of the survey team].

"From the moment you meet the interviewed household, you should work to build trust and good will. The household's first impression of you has a strong influence on its willingness to cooperate. Dress professionally, and be friendly. Show the household your badge that proves that you work for [your organization]. Avoiding discussing anything related to political parties or politics in general.

"Interviewing is an art, not a mechanical process. Treat each interview as a new source of interesting information, and try to make the whole process fun and pleasant for the interviewed household. An interview is not a police interrogation but rather a friendly conversation between you the enumerator and the respondent. Your challenge is to ask questions in a way that elicits accurate responses. If you must explain the meaning of a question, then be careful to hew closely its original spirit and to the instructions in this ['Guide'].

"Some households will ask questions before agreeing to the interview. For example, a household may ask about the purpose of the survey or why it was selected. In your answer, be forthright and friendly. If the respondent is worried about the length of the interview or is not available right now, then offer to come back at a better time.

"Here are a number of principles to follow to improve the quality of the interview:

"*Confidentiality.* A respondent may be less than open and honest if a non-household member is present at the interview. Thus, do the interview in private. Accept responses only from members of the interviewed household, not from others.

"*Neutrality.* Most people are polite, and so respondents tend to give the types of answers that they suppose that you the enumerator would like to hear. Thus, you must maintain a strictly neutral attitude and appearance. Do not give the impression—whether by your tone of voice, facial expression, or body language—that the respondent has said something 'correct' or 'incorrect'. Do not seem to approve or disapprove of his/her responses. If a respondent says something that is unclear, incomplete, or irrelevant, then do not try to help him/her by saying something like 'I guess that you mean to say something like . . . . Is that right?' Often, the respondent will say that he/she agrees with you, even if he/she really meant nothing of the sort. Instead, you

should re-state the question, adding more explanation if necessary, and perhaps even reading the response options aloud (if there are any pre-coded response options).

"*Tact*. Sometimes a respondent will say, 'I don't know', wander off-topic, seem uninterested or distracted, contradict something that he/she said previously, or refuse to answer a question. When this happens, try—tactfully—to revive his/her interest and trust before going on to ask the next question. Take a few moments to chat about something other than the survey (for example, his/her place of origin, the weather, his/her daily activities, and so on). When a respondent gives a careless, frivolous, or inconsistent answer, do not brusquely cut him/her off. Instead, listen politely. Then take up the thread again, starting with the question whose response is inconsistent with the response that you just received. Never embarrass the respondent.

"*Values*. Avoid assumptions or preconceived ideas about what the respondent knows or can do. Remember that disconnects between you the enumerator and the respondent can affect the quality of the interview. If the respondent believes that you disagree with him/her, then he/she may distrust you. To avoid this, always speak and behave so as to make the respondent comfortable.

"*Timing*. Do not rush the interview; keep it at a conversational pace. Ask the questions slowly so that the respondent understands what you are asking. After you ask a question, wait; give the respondent time to think. If the respondent feels pressured or does not feel free to give his/her own frank opinion, then he/she may just say 'I do not know' or give an inaccurate answer. If it seems to you that the respondent is not thinking carefully before speaking, then casually say: 'There is no hurry. Your response is very important; please take the time you need to answer carefully.'

"At the end of the interview—and before you take your leave of the household—check [the scorecard] for completeness."

Relating with the respondent

According to pp. 14–16 of the *Manual*, "Your relationship with the respondent is a fundamental determinant of the quality of the data that you collect. For example, be aware of other commitments that the respondent many have. . . .

"To obtain accurate information, you must state questions carefully, especially if the respondent does not speak French. . . . It is your job to make sure that the respondent understands the question. If the respondent does not understand, then you must clarify the question without departing from the spirit of the original wording. While it is your job to ensure that the respondent understands the question, it is the respondent's job to come up with an answer. Try not to judge the accuracy of the response . . . . Nevertheless, you should ask for clarification if the respondent says something that is inconsistent with a previous response. In case the respondent misunderstood the previous question, you should politely revisit that question. In all cases, re-state a question if it is clear to you that the respondent does not understand. Furthermore, if a respondent says [(for example)] that he/she does not have any

livestock and yet you see some livestock in the yard of the interviewed household, then it is wise to politely ask about the owner of the livestock.

"To collect accurate data, treat the respondent with respect; do not condescend. Judging or disapproving of the respondent's answers is disrespectful and will make him/her uncomfortable. Once the respondent understands a question, the main factor affecting accuracy is your relationship of trust and good will. Your job is to record the respondent's answers, not to interpret them.

"At times, a respondent may refuse to answer a question. In such cases, simply remind him/her that all data [from the scorecard survey] is kept strictly confidential and that it is important to have a response to all the questions.

"Respondents will sometimes misunderstand or misinterpret a question. When that happens, re-read the question, clarifying while maintaining the original meaning.

"For some questions, the respondent must select a response from a pre-coded list of options. Do not do anything that might implicitly suggest a response to the respondent; he/she should select the relevant option on his/her own. If the respondent has difficulty making a choice, then re-read the pre-coded list of options before again asking the respondent to make a selection from the list. Read the whole list, not just part of it; reading just part could lead to an inaccurate response.

"At times, the first thing that a respondent says is 'I do not know'. Do not accept this as a response. Instead, ask probing questions until you get a better answer. There are a number of possibilities:

- The respondent says 'I do not know' as a way to gain time to come up with a better response. In this case, encourage him/her to take all the time that he/she needs
- The respondent says 'I do not know' because he/she actually does not know (or is not sure). If another member of the household might know better, then seek out that person and ask him/her the question"

Guidelines for each indicator in the scorecard

1. In what region does the household live?
    A. Maradi
    B. Zinder, or Dosso
    C. Tahoua, Tillabéri, Diffa, Agadez, or Niamey

Do not directly ask this indicator of the respondent. Instead, fill in the appropriate answer based on your knowledge of the region in which the interviewed household lives.

2. How many household members are there?
    A. Ten or more
    B. Six, seven, eight, or nine
    C. Four, or five
    D. Three
    E. One, or two

Do not directly ask this indicator directly of the respondent. Instead, fill in the appropriate answer based on the number of household members that you have listed on the "Back-page Worksheet".

According to pages 7–8 of the *Manual*, "A *household* is [a single person who lives alone or] a group of people (regardless of blood or marital relationship) who usually sleep under the same roof, who share meals, and who acknowledge the authority of one household member as the head of the household.

"A household may be made up of only one person (for example, a student who rents a room by him/herself) or more than one person. Multi-member households commonly consist of a man and his wife or wives and their children, and such households may also include others who are not part of the head's nuclear family but who [meet the criteria for household membership] (such as relatives, friends, domestic servants, and so on). A household may also be made up of people who live together without any blood or martial relationship (for example, two single men who rent a studio apartment together).

"Do not confuse *household* and *family*. [The concept of *family* (a social unit defined by blood or marital relationships) differs from the concept of *household* (an economic unit defined by sharing relationships).] It is possible for a family to be made up of multiple households [and vice versa].

- A member of the nuclear family (for example, a son who is a college student) who no longer lives in the residence of the head of the interviewed household is his own distinct household, even if he sometimes visits (and eats with) his parents in the interviewed household
- A son (with or without a wife) who lives in the same compound as his parents counts as his own distinct household if he controls the use of his income independently of his parents and if he usually eats meals on his own (even if the two households sometimes share a meal). If, however, the two groups pool their incomes and usually share meals, then the son counts as a member of the household of his parents

- If parents live in the same compound with one of their children, and if that child provides his/her parents with their meals, then the parents count as members of the household of that child. On the other hand, if the parents receive their meals from two or more of their children, then they are counted as members of the household of the oldest child among those who provide them with meals
- Suppose that two or more brothers (each having his own wife or wives and their own children) live together in a single compound but do not pool their income and do not cook their meals together. Suppose further than the wives of the brothers take turns cooking (with each wife's food and fuel provided by her own husband), with the cooked meals being shared with everyone in the compound. Even though the groups share meals, they are each counted as their own distinct households
- Single people (except for soldiers in barracks and students in college dormitories) who share meals and who live together in the same residence are counted as members of a single household
- If the students (*talibés*) of a religious teacher (*marabout*) live together in the same residence with the teacher, then the students are counted as members of the teacher's household
- A man with more than one wife—one or more of whom do not live in the same compound as the polygamous man—should be counted as the head of only one household. A man's wives who do not live in the man's compound are counted as the heads of their own distinct households

"A *household member* is a person who usually lives with the household. A person *usually lives with the household* if one of the two following conditions hold:

- He/she has lived with the household for at least six months, or
- He/she has lived with the household for less than six months but expects to live with the household for a total duration of at least six months

"For example:

- On the day of the interview, it has been two months since Moussa (a college student) started to live with the interviewed household. He counts as a member of the interviewed household because he expects to remain there until the end of the school year
- Two weeks before the day of the interview, Fanta (a native of Dosso) married Issa (who lives in Niamey). She counts as a member of Issa's household in Niamey because she expects to remain there for a total duration of at least six months
- A person who has lived for less than six months with a household and who does not expect to remain with the household for a total duration of at least six months is a *visitor* and does not count as a member of the household. For example, if the mother of Fanta is visiting her daughter and her new husband in Niamey to help them set up house-keeping, and if Fanta's mother plans to stay for only three weeks, then she is a visitor and does not count as a member of Fanta's and Issa's household"

According to page 22 of the *Manual*, "Examples of people who count as members of the household because they expect to live with the household for a total duration of at least six months (even though they have not yet lived with the household for at least six months) include a new-born whose mother is a household member, a newly-wed wife, and a student who lives with the household during the school year. In contrast, a child who is visiting his/her grandparents while on vacation does not expect to remain in the grandparents' household for a total duration of at least six months and so does not count as a member of their household."

According to page 19 of the *Manual*, "The first step is to make a list of all of the members of the household [using the 'Back-page Worksheet']. Start with the head, followed by any children of the head whose mothers are not members of the household. Then list the first wife along with her children (from youngest to oldest). If the head has more than one wife who is a member of the interviewed household, then repeat this process for her and for all such wives. Then list any brothers or sisters of the head who are members of the household, the parents (father and mother) of the head, and any other relatives (in-laws, cousins, and so on). Finally, list any household members who are not relatives of the head. The description here assumes that the head is a man, but the process can easily be adapted to the case in which the head is a woman."

3. How many rooms does the household occupy? (Do not count kitchens, bathrooms, hallways, or balconies)
    A. One
    B. Two
    C. Three
    D. Four or more

According to page 52 of the *Manual*, "This question concerns the total number of rooms occupied by the household. If a household's residence comprises more than one building, then count the occupied rooms in all the buildings, excepting kitchens, bathrooms, hallways, and balconies."

According to page 7 of the *Manual*, a *residence* "is a building or buildings (houses or huts of packed earth, straw huts, tents, and so on) that people live in. A *residence* is a shelter in which a household lives."

4. What is the main construction material of the roof?
    A. Straw, earth, wood, or hides
    B. Metal sheets, reinforced concrete, tile, or other

According to page 53 of the *Manual*, "If a household's residence is made up of more than one building, then record the main construction material of the roof of the main building."

Pages 11 and 15 of the *Manual* imply that you should read the response options to the respondent and that he/she should then choose one of them.

According to page 7 of the *Manual*, a *residence* "is a building or buildings (houses or huts of packed earth, straw huts, tents, and so on) that people live in. A *residence* is a shelter in which a household lives."

5. What toilet arrangement does the household use?
    A. None (bush), or other
    B. Crude hole/open ditch
    C. Improved latrine (covered or uncovered), or flush toilet

Pages 11 and 15 of the *Manual* imply that you should read the response options to the respondent and that he/she should then choose one of them.

6. What is the residence's main source of lighting?
    A. Flashlight, generator, kerosene lamp, solar panels, or other
    B. Electricity

Pages 11 and 15 of the *Manual* imply that you should read the response options to the respondent and that he/she should then choose one of them.

According to page 7 of the *Manual*, the *residence* "is a building or buildings (houses or huts of packed earth, straw huts, tents, and so on) that people live in. A *residence* is a shelter in which a household lives."

7. Does any household member have a lounge chair in good working order?
    A. No
    B. Yes

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

8. How many cell phones in good working order do members of the household have?
    A. None
    B. One
    C. Two or more

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

9. Does any household member have a bicycle, motorcycle/scooter, or private vehicle (not for provided by an employer) in good working order?
    A. No
    B. Yes

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

Table 1 (All of Niger): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		466	699	932
		Rate	Households	1,516	13.5	35.2	52.1
		Rate	People		18.0	42.5	60.2
2011	Rural	Line	People		423	634	845
		Rate	Households	2,343	45.7	78.7	92.1
		Rate	People		54.7	85.3	95.3
2011	All	Line	People		430	645	860
		Rate	Households	3,859	39.9	70.9	84.9
		Rate	People		48.4	78.0	89.3
2014/15	Urban	Line	People		484	726	969
		Rate	Households	1,316	6.3	25.5	44.2
		Rate	People		9.0	32.4	53.7
2014/15	Rural	Line	People		437	656	874
		Rate	Households	2,333	44.0	71.9	86.9
		Rate	People		52.5	78.5	91.2
2014/15	All	Line	People		445	667	889
		Rate	Households	3,649	37.6	64.0	79.7
		Rate	People		45.4	71.0	85.1

Source: 2011 and 2014/15 ECMVA
Poverty rates are percentages.
Poverty lines are XOF per-person per-day.
Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (All of Niger): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		427	683	854	1,708	478	805	1,384	5,461
		Rate	Households	1,516	9.6	33.3	47.2	84.1	14.0	43.8	76.2	99.8
		Rate	People		13.3	40.6	55.7	89.3	18.5	52.2	83.2	99.9
2011	Rural	Line	People		387	619	774	1,549	434	730	1,255	4,952
		Rate	Households	2,343	38.5	76.7	89.1	99.7	48.3	86.6	98.5	100.0
		Rate	People		47.1	83.5	93.3	99.8	57.4	91.5	99.2	100.0
2011	All	Line	People		394	630	788	1,576	441	743	1,277	5,039
		Rate	Households	3,859	33.3	68.9	81.6	96.9	42.1	78.9	94.5	100.0
		Rate	People		41.3	76.1	86.8	98.0	50.7	84.8	96.5	100.0
2014/15	Urban	Line	People		433	692	865	1,730	484	816	1,402	5,532
		Rate	Households	1,316	3.5	23.2	37.7	80.8	6.3	33.6	69.8	99.6
		Rate	People		5.0	30.2	45.8	86.7	9.0	41.9	77.5	99.8
2014/15	Rural	Line	People		390	625	781	1,561	437	736	1,265	4,992
		Rate	Households	2,333	35.3	68.8	81.2	98.5	44.0	78.2	96.5	100.0
		Rate	People		43.1	76.0	86.8	99.3	52.5	84.0	98.2	100.0
2014/15	All	Line	People		397	635	794	1,589	445	749	1,288	5,080
		Rate	Households	3,649	29.9	61.1	73.9	95.5	37.6	70.7	92.0	99.9
		Rate	People		36.9	68.6	80.2	97.3	45.4	77.2	94.8	100.0
		Rate	Households	#N/A	29.8	61.2	74.0	95.7	37.8	70.8	92.1	99.9
		Rate	Households	#N/A	30.5	61.4	74.0	95.3	37.6	70.8	91.9	99.9
		Panel validation 2011		1,535	32.1	69.1	82.3	97.9	42.1	79.5	95.3	100.0
		Panel validation 2014		1,535	30.5	62.8	76.2	96.0	37.8	72.2	93.4	99.9

Source: 2011 and 2014/15 ECMVA
Poverty rates are percentages.
Poverty lines are XOF per-person per-day.
Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (All of Niger): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		349	296	329	420	474	541	729
		Rate	Households	1,516	4.6	1.6	3.2	9.1	14.0	19.9	37.8
		Rate	People		6.4	1.9	4.0	12.3	18.5	25.8	45.6
2011	Rural	Line	People		317	296	298	381	430	491	661
		Rate	Households	2,343	21.5	8.8	18.0	36.9	47.5	57.8	81.2
		Rate	People		27.8	11.6	23.5	45.7	56.5	67.0	87.2
2011	All	Line	People		322	296	303	388	438	499	672
		Rate	Households	3,859	18.4	7.5	15.3	31.9	41.5	51.0	73.4
		Rate	People		24.1	10.0	20.1	40.0	50.0	59.9	80.1
2014/15	Urban	Line	People		346	294	332	454	516	604	862
		Rate	Households	1,316	1.4	0.5	1.0	4.4	8.4	15.6	37.1
		Rate	People		1.8	0.5	1.4	6.6	10.9	20.8	45.1
2014/15	Rural	Line	People		312	294	299	410	466	545	778
		Rate	Households	2,333	21.3	9.1	18.8	38.2	48.5	59.3	81.1
		Rate	People		26.8	11.8	23.6	46.4	57.6	67.7	86.7
2014/15	All	Line	People		318	294	304	417	474	555	792
		Rate	Households	3,649	18.0	7.7	15.8	32.5	41.7	52.0	73.6
		Rate	People		22.7	10.0	20.0	39.9	50.0	60.0	80.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Agadez): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	83	5.1	16.2	30.1
		Rate	People		5.1	16.6	31.3
2011	Rural	Line	People		443	665	886
		Rate	Households	324	37.2	74.2	89.0
		Rate	People		42.7	79.6	93.2
2011	All	Line	People		446	669	892
		Rate	Households	407	18.2	39.9	54.2
		Rate	People		20.8	42.9	57.2
2014/15	Urban	Line	People		464	696	928
		Rate	Households	72	0.8	2.9	18.9
		Rate	People		1.0	3.3	28.6
2014/15	Rural	Line	People		459	689	918
		Rate	Households	316	9.2	33.5	72.9
		Rate	People		13.1	39.9	82.1
2014/15	All	Line	People		460	691	921
		Rate	Households	388	7.0	25.4	58.8
		Rate	People		9.7	29.6	67.1

Source: 2011 and 2014/15 ECMVA
Poverty rates are percentages.
Poverty lines are XOF per-person per-day.
Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Agadez): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	83	0.8	15.0	26.4	74.0	5.1	23.9	63.3	100.0
		Rate	People		1.1	16.0	28.0	82.7	5.1	26.1	75.1	100.0
2011	Rural	Line	People		406	649	812	1,623	454	765	1,316	5,191
		Rate	Households	324	32.3	72.1	84.1	99.2	38.5	82.5	98.4	100.0
		Rate	People		36.7	77.4	88.5	99.7	43.8	87.5	99.3	100.0
2011	All	Line	People		409	654	817	1,634	458	771	1,324	5,225
		Rate	Households	407	13.7	38.4	50.0	84.3	18.8	47.8	77.7	100.0
		Rate	People		16.0	41.6	53.3	89.8	21.2	51.7	85.2	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	72	0.0	2.9	13.4	65.3	0.8	7.7	49.4	98.4
		Rate	People		0.0	3.3	16.8	78.0	1.0	10.1	61.6	99.0
2014/15	Rural	Line	People		410	656	820	1,640	459	773	1,329	5,243
		Rate	Households	316	2.7	28.4	51.0	96.7	9.2	43.5	90.5	100.0
		Rate	People		3.8	33.5	58.9	98.6	13.1	51.0	95.5	100.0
2014/15	All	Line	People		411	658	823	1,645	461	776	1,333	5,260
		Rate	Households	388	2.0	21.7	41.1	88.5	7.0	34.1	79.7	99.6
		Rate	People		2.7	25.0	47.1	92.8	9.7	39.5	86.0	99.7

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Agadez): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	83	0.0	0.0	0.0	0.8	5.1	10.5	20.2
		Rate	People		0.0	0.0	0.0	1.1	5.1	10.6	22.7
2011	Rural	Line	People		332	296	312	400	451	514	692
		Rate	Households	324	14.1	4.3	10.1	30.9	38.3	47.6	76.2
		Rate	People		17.0	6.3	13.1	35.8	43.6	53.1	82.0
2011	All	Line	People		334	296	315	402	454	518	697
		Rate	Households	407	5.8	1.7	4.2	13.1	18.7	25.7	43.1
		Rate	People		7.1	2.6	5.5	15.6	21.2	28.3	47.5
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	72	0.0	0.0	0.0	0.8	0.8	2.0	11.8
		Rate	People		0.0	0.0	0.0	1.0	1.0	2.1	15.8
2014/15	Rural	Line	People		328	294	314	431	489	573	817
		Rate	Households	316	1.2	0.2	1.2	4.2	10.9	14.9	51.0
		Rate	People		1.6	0.2	1.6	7.0	15.3	20.1	58.9
2014/15	All	Line	People		329	294	315	432	491	574	820
		Rate	Households	388	0.9	0.1	0.9	3.3	8.3	11.5	40.7
		Rate	People		1.2	0.2	1.2	5.3	11.3	15.1	46.8

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Diffa): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	34	0.0	8.7	39.2
		Rate	People		0.0	9.3	39.5
2011	Rural	Line	People		423	635	847
		Rate	Households	328	31.4	74.6	88.4
		Rate	People		40.5	83.0	93.8
2011	All	Line	People		427	641	855
		Rate	Households	362	26.0	63.2	79.9
		Rate	People		34.0	71.1	85.1
2014/15	Urban	Line	People		464	696	928
		Rate	Households	32	0.0	10.1	50.9
		Rate	People		0.0	9.7	55.9
2014/15	Rural	Line	People		439	658	878
		Rate	Households	332	33.7	63.1	84.7
		Rate	People		40.4	69.5	91.1
2014/15	All	Line	People		443	664	885
		Rate	Households	364	28.4	54.7	79.4
		Rate	People		34.1	60.2	85.6

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Diffa): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	34	0.0	8.7	26.3	93.6	0.0	19.9	86.9	100.0
		Rate	People		0.0	9.3	31.2	94.9	0.0	26.1	90.2	100.0
2011	Rural	Line	People		388	621	776	1,552	434	732	1,258	4,962
		Rate	Households	328	22.8	72.0	85.1	99.7	33.2	83.5	98.9	100.0
		Rate	People		31.1	80.9	91.5	99.9	42.4	90.3	99.3	100.0
2011	All	Line	People		392	626	783	1,566	438	738	1,269	5,008
		Rate	Households	362	18.8	61.1	75.0	98.7	27.5	72.5	96.8	100.0
		Rate	People		26.1	69.3	81.8	99.1	35.6	80.0	97.8	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	32	0.0	8.8	37.7	88.6	0.0	23.3	73.4	100.0
		Rate	People		0.0	7.7	44.4	92.5	0.0	28.0	81.9	100.0
2014/15	Rural	Line	People		392	627	784	1,568	439	739	1,270	5,012
		Rate	Households	332	27.6	58.1	77.9	98.9	33.7	75.5	95.8	100.0
		Rate	People		32.3	65.6	84.4	99.6	40.4	81.7	97.9	100.0
2014/15	All	Line	People		395	633	791	1,582	443	746	1,282	5,057
		Rate	Households	364	23.2	50.3	71.5	97.3	28.4	67.3	92.3	100.0
		Rate	People		27.3	56.7	78.2	98.5	34.1	73.4	95.5	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Diffa): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	34	0.0	0.0	0.0	0.0	0.0	0.0	12.8
		Rate	People		0.0	0.0	0.0	0.0	0.0	0.0	17.8
2011	Rural	Line	People		317	296	299	382	431	491	662
		Rate	Households	328	12.9	4.8	10.9	21.4	33.2	49.1	78.7
		Rate	People		16.3	5.4	14.2	28.8	42.4	58.6	86.7
2011	All	Line	People		320	296	301	386	435	496	668
		Rate	Households	362	10.6	4.0	9.0	17.7	27.5	40.6	67.4
		Rate	People		13.7	4.6	11.9	24.1	35.6	49.1	75.6
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	32	0.0	0.0	0.0	0.0	0.0	0.0	33.2
		Rate	People		0.0	0.0	0.0	0.0	0.0	0.0	36.6
2014/15	Rural	Line	People		313	294	300	412	468	547	781
		Rate	Households	332	13.4	3.6	8.7	30.9	36.9	47.5	77.9
		Rate	People		15.8	4.3	10.6	36.6	43.3	54.3	84.4
2014/15	All	Line	People		316	294	303	415	472	552	788
		Rate	Households	364	11.3	3.0	7.3	26.0	31.1	40.0	70.8
		Rate	People		13.3	3.6	8.9	31.0	36.7	45.9	77.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Dosso): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	66	11.1	27.9	37.1
		Rate	People		19.2	41.0	51.9
2011	Rural	Line	People		415	623	831
		Rate	Households	347	47.9	82.7	94.4
		Rate	People		56.4	87.9	96.4
2011	All	Line	People		418	628	837
		Rate	Households	413	43.9	76.7	88.2
		Rate	People		52.9	83.5	92.3
2014/15	Urban	Line	People		464	696	928
		Rate	Households	61	8.9	37.1	57.1
		Rate	People		19.7	49.1	69.1
2014/15	Rural	Line	People		431	646	862
		Rate	Households	332	54.5	82.8	92.7
		Rate	People		62.6	88.8	95.9
2014/15	All	Line	People		433	650	867
		Rate	Households	393	50.5	78.8	89.6
		Rate	People		59.4	85.8	93.8

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Dosso): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	66	7.5	23.5	35.2	79.6	11.1	32.5	70.0	100.0
		Rate	People		13.4	37.4	49.8	88.8	19.2	46.6	80.5	100.0
2011	Rural	Line	People		381	609	761	1,522	426	718	1,234	4,867
		Rate	Households	347	39.2	80.3	90.5	100.0	49.8	87.1	99.6	100.0
		Rate	People		46.4	85.8	93.8	100.0	58.4	91.5	99.9	100.0
2011	All	Line	People		383	613	767	1,533	429	723	1,243	4,902
		Rate	Households	413	35.7	74.1	84.5	97.8	45.6	81.1	96.4	100.0
		Rate	People		43.3	81.4	89.8	99.0	54.8	87.3	98.1	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	61	7.6	36.4	52.2	86.2	8.9	47.6	80.1	100.0
		Rate	People		17.7	48.0	63.3	93.0	19.7	59.3	89.8	100.0
2014/15	Rural	Line	People		385	616	769	1,539	431	726	1,247	4,921
		Rate	Households	332	41.1	80.9	89.0	99.9	54.5	87.4	99.5	99.9
		Rate	People		47.2	87.2	93.0	100.0	62.6	91.4	99.9	100.0
2014/15	All	Line	People		387	619	774	1,548	433	730	1,255	4,950
		Rate	Households	393	38.2	77.0	85.8	98.7	50.5	83.9	97.8	99.9
		Rate	People		45.0	84.2	90.7	99.4	59.4	89.0	99.1	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Dosso): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	66	0.9	0.0	0.9	7.5	11.1	13.9	29.2
		Rate	People		1.4	0.0	1.4	13.4	19.2	23.2	42.3
2011	Rural	Line	People		311	296	293	375	423	482	649
		Rate	Households	347	24.1	11.1	20.6	38.5	49.1	60.0	84.5
		Rate	People		28.5	14.1	24.9	45.7	57.8	69.0	89.4
2011	All	Line	People		314	296	295	377	426	486	654
		Rate	Households	413	21.5	9.9	18.4	35.1	45.0	55.0	78.4
		Rate	People		26.0	12.8	22.7	42.8	54.2	64.8	85.1
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	61	0.0	0.0	0.0	8.9	11.1	22.9	50.9
		Rate	People		0.0	0.0	0.0	19.7	21.6	37.8	62.2
2014/15	Rural	Line	People		308	294	295	404	459	537	767
		Rate	Households	332	24.5	10.3	21.4	47.2	59.6	72.0	89.0
		Rate	People		29.5	12.8	25.6	54.1	68.3	80.2	93.0
2014/15	All	Line	People		309	294	297	407	462	541	772
		Rate	Households	393	22.3	9.4	19.5	43.9	55.4	67.7	85.7
		Rate	People		27.2	11.8	23.6	51.5	64.7	77.0	90.6

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Maradi): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	128	22.6	50.5	69.9
		Rate	People		31.8	60.1	76.9
2011	Rural	Line	People		420	630	840
		Rate	Households	336	54.0	83.5	93.8
		Rate	People		61.6	89.0	96.3
2011	All	Line	People		424	635	847
		Rate	Households	464	49.9	79.1	90.7
		Rate	People		58.0	85.5	93.9
2014/15	Urban	Line	People		464	696	928
		Rate	Households	124	12.3	35.7	51.3
		Rate	People		18.4	46.5	62.3
2014/15	Rural	Line	People		434	652	869
		Rate	Households	342	62.7	84.1	95.1
		Rate	People		72.1	89.3	96.8
2014/15	All	Line	People		437	656	874
		Rate	Households	466	57.8	79.4	90.9
		Rate	People		67.2	85.4	93.7

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Maradi): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	128	17.6	45.0	62.3	91.1	23.2	60.1	85.7	100.0
		Rate	People		26.1	55.7	69.6	95.1	32.3	67.8	91.6	100.0
2011	Rural	Line	People		385	616	770	1,539	431	726	1,248	4,922
		Rate	Households	336	47.0	82.6	92.1	100.0	57.6	91.1	98.9	100.0
		Rate	People		54.7	88.4	95.1	100.0	64.9	94.6	99.3	100.0
2011	All	Line	People		388	621	776	1,552	434	732	1,258	4,962
		Rate	Households	464	43.1	77.6	88.2	98.8	53.1	87.0	97.1	100.0
		Rate	People		51.2	84.4	92.0	99.4	60.9	91.3	98.3	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	124	4.0	31.7	43.7	87.9	12.3	41.9	77.2	100.0
		Rate	People		6.7	43.4	53.6	92.2	18.4	52.3	82.9	100.0
2014/15	Rural	Line	People		388	621	776	1,552	434	732	1,258	4,962
		Rate	Households	342	53.0	81.9	91.2	99.8	62.7	88.0	99.3	100.0
		Rate	People		61.5	87.6	94.6	99.9	72.1	92.1	99.6	100.0
2014/15	All	Line	People		390	625	781	1,561	437	736	1,265	4,993
		Rate	Households	466	48.2	77.0	86.6	98.7	57.8	83.6	97.2	100.0
		Rate	People		56.5	83.6	90.9	99.2	67.2	88.5	98.1	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Maradi): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	128	12.8	4.7	7.4	17.6	23.2	31.6	53.2
		Rate	People		19.9	6.5	9.5	26.1	32.3	43.8	62.7
2011	Rural	Line	People		315	296	296	379	427	488	657
		Rate	Households	336	29.0	12.4	23.2	45.9	56.1	64.7	85.1
		Rate	People		34.3	14.5	26.6	53.9	63.8	72.4	90.7
2011	All	Line	People		317	296	299	382	431	492	662
		Rate	Households	464	26.9	11.4	21.1	42.2	51.8	60.4	80.9
		Rate	People		32.5	13.5	24.5	50.5	60.0	68.9	87.3
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	124	1.7	0.8	1.7	6.9	13.7	22.2	42.5
		Rate	People		3.8	1.2	3.8	11.7	20.0	29.3	52.6
2014/15	Rural	Line	People		310	294	297	408	463	542	774
		Rate	Households	342	35.3	20.8	33.3	56.2	64.9	75.1	91.2
		Rate	People		43.6	26.6	41.0	65.2	74.4	82.8	94.6
2014/15	All	Line	People		312	294	299	410	466	545	778
		Rate	Households	466	32.1	18.9	30.2	51.4	59.9	69.9	86.5
		Rate	People		40.0	24.3	37.7	60.4	69.5	77.9	90.8

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tahoua): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	115	15.2	40.9	57.6
		Rate	People		20.0	49.1	65.6
2011	Rural	Line	People		424	636	848
		Rate	Households	327	40.0	74.5	91.7
		Rate	People		51.4	81.1	95.4
2011	All	Line	People		426	640	853
		Rate	Households	442	37.5	71.1	88.2
		Rate	People		48.1	77.8	92.3
2014/15	Urban	Line	People		464	696	928
		Rate	Households	98	4.5	26.6	44.3
		Rate	People		4.1	33.1	56.3
2014/15	Rural	Line	People		434	652	869
		Rate	Households	331	28.8	52.1	75.2
		Rate	People		34.2	59.7	82.8
2014/15	All	Line	People		440	660	880
		Rate	Households	429	24.4	47.5	69.7
		Rate	People		28.8	54.9	78.0

Source: 2011 and 2014/15 ECMVA
Poverty rates are percentages.
Poverty lines are XOF per-person per-day.
Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tahoua): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	115	11.3	39.4	53.5	87.3	16.9	49.2	79.4	100.0
		Rate	People		16.2	47.0	63.0	93.4	21.2	57.8	85.7	100.0
2011	Rural	Line	People		388	621	777	1,553	435	732	1,259	4,966
		Rate	Households	327	33.2	70.6	87.5	99.7	42.2	84.6	99.4	100.0
		Rate	People		44.0	78.0	92.4	99.9	53.9	90.5	99.8	100.0
2011	All	Line	People		391	625	781	1,562	437	737	1,266	4,996
		Rate	Households	442	31.0	67.4	84.0	98.4	39.6	81.0	97.3	100.0
		Rate	People		41.1	74.7	89.3	99.2	50.5	87.1	98.3	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	98	2.3	24.0	38.9	84.4	4.5	35.5	75.1	100.0
		Rate	People		2.0	31.7	49.9	90.9	4.1	47.8	84.2	100.0
2014/15	Rural	Line	People		388	621	776	1,552	435	732	1,258	4,963
		Rate	Households	331	21.7	50.4	69.4	95.9	28.8	63.4	91.5	100.0
		Rate	People		26.3	58.3	78.2	97.9	34.2	71.9	95.5	100.0
2014/15	All	Line	People		393	629	786	1,571	440	741	1,273	5,024
		Rate	Households	429	18.2	45.6	63.9	93.8	24.4	58.4	88.6	100.0
		Rate	People		22.0	53.5	73.1	96.6	28.8	67.6	93.5	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tahoua): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	115	4.3	2.0	2.7	10.0	16.9	25.0	42.6
		Rate	People		6.4	2.2	3.4	14.7	21.2	31.7	50.6
2011	Rural	Line	People		318	296	299	382	431	492	662
		Rate	Households	327	17.6	5.2	15.0	31.2	41.1	50.9	75.9
		Rate	People		24.9	7.9	21.2	42.0	52.7	62.0	82.5
2011	All	Line	People		320	296	301	385	434	495	666
		Rate	Households	442	16.3	4.9	13.8	29.0	38.6	48.2	72.5
		Rate	People		23.0	7.3	19.3	39.1	49.4	58.9	79.2
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	98	1.7	1.3	1.7	2.5	9.3	17.9	38.9
		Rate	People		1.6	1.3	1.6	2.2	7.5	23.1	49.9
2014/15	Rural	Line	People		310	294	297	408	463	542	774
		Rate	Households	331	11.6	2.1	8.3	23.2	33.7	40.8	68.6
		Rate	People		12.7	1.8	8.8	27.8	41.1	48.6	77.6
2014/15	All	Line	People		314	294	301	413	469	549	783
		Rate	Households	429	9.8	1.9	7.1	19.5	29.3	36.7	63.2
		Rate	People		10.7	1.7	7.5	23.2	35.1	44.0	72.7

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tillabéri): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	40	23.6	62.0	74.5
		Rate	People		30.3	72.3	80.1
2011	Rural	Line	People		427	640	853
		Rate	Households	345	48.9	79.2	90.1
		Rate	People		57.1	86.2	95.0
2011	All	Line	People		427	641	855
		Rate	Households	385	47.7	78.4	89.3
		Rate	People		56.1	85.7	94.4
2014/15	Urban	Line	People		464	696	928
		Rate	Households	39	10.4	41.4	68.0
		Rate	People		12.4	43.6	76.4
2014/15	Rural	Line	People		443	664	885
		Rate	Households	329	32.5	64.9	80.6
		Rate	People		42.8	75.4	87.7
2014/15	All	Line	People		443	665	887
		Rate	Households	368	31.6	64.0	80.1
		Rate	People		41.8	74.3	87.3

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tillabéri): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	40	14.9	62.0	70.2	98.2	23.6	68.6	95.5	100.0
		Rate	People		20.4	72.3	77.9	98.5	30.3	76.8	97.1	100.0
2011	Rural	Line	People		391	625	782	1,563	438	737	1,267	4,998
		Rate	Households	345	42.1	77.5	87.6	98.9	51.4	84.2	96.3	100.0
		Rate	People		50.4	84.4	93.2	99.3	59.3	90.3	98.5	100.0
2011	All	Line	People		392	626	783	1,566	438	738	1,269	5,008
		Rate	Households	385	40.9	76.8	86.8	98.8	50.1	83.5	96.3	100.0
		Rate	People		49.3	83.9	92.6	99.3	58.2	89.8	98.4	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	39	7.6	37.8	55.9	98.8	10.4	53.1	85.9	100.0
		Rate	People		7.0	40.6	60.5	99.1	12.4	58.7	93.5	100.0
2014/15	Rural	Line	People		395	633	791	1,581	443	746	1,282	5,057
		Rate	Households	329	24.6	59.1	74.6	97.6	32.5	72.1	94.4	100.0
		Rate	People		33.5	70.4	83.3	99.2	42.8	81.0	97.1	100.0
2014/15	All	Line	People		396	634	792	1,584	443	747	1,284	5,065
		Rate	Households	368	23.9	58.3	73.9	97.7	31.6	71.3	94.1	100.0
		Rate	People		32.6	69.4	82.5	99.2	41.8	80.2	97.0	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Tillabéri): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	40	11.5	0.0	5.4	14.9	23.6	46.7	65.3
		Rate	People		17.0	0.0	11.0	20.4	30.3	52.2	74.9
2011	Rural	Line	People		320	296	301	385	434	495	667
		Rate	Households	345	23.6	9.6	21.2	41.2	50.5	61.8	80.7
		Rate	People		31.0	11.9	28.8	49.4	58.1	70.1	87.2
2011	All	Line	People		320	296	301	386	435	496	668
		Rate	Households	385	23.1	9.2	20.5	40.0	49.3	61.1	80.0
		Rate	People		30.4	11.5	28.1	48.3	57.0	69.4	86.8
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	39	6.9	0.0	1.2	7.6	10.4	25.9	55.9
		Rate	People		6.5	0.0	1.6	7.0	12.4	27.7	60.5
2014/15	Rural	Line	People		316	294	303	415	472	552	788
		Rate	Households	329	14.2	5.3	12.2	27.4	37.4	50.4	74.6
		Rate	People		18.8	7.5	15.6	37.5	48.9	61.5	83.3
2014/15	All	Line	People		317	294	304	416	473	553	790
		Rate	Households	368	14.0	5.1	11.7	26.6	36.4	49.4	73.9
		Rate	People		18.4	7.3	15.2	36.4	47.6	60.3	82.5

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Zinder): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		448	672	896
		Rate	Households	142	24.9	52.6	74.3
		Rate	People		28.8	57.0	80.1
2011	Rural	Line	People		423	635	847
		Rate	Households	336	43.3	76.9	92.0
		Rate	People		50.9	84.3	94.4
2011	All	Line	People		427	640	854
		Rate	Households	478	41.1	74.0	89.9
		Rate	People		47.8	80.4	92.3
2014/15	Urban	Line	People		464	696	928
		Rate	Households	128	12.5	41.6	60.1
		Rate	People		16.5	48.9	68.9
2014/15	Rural	Line	People		438	657	876
		Rate	Households	351	48.2	82.5	92.6
		Rate	People		57.3	86.5	94.1
2014/15	All	Line	People		441	661	882
		Rate	Households	479	45.1	79.0	89.8
		Rate	People		53.0	82.6	91.5

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Zinder): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		410	657	821	1,642	460	774	1,331	5,250
		Rate	Households	142	17.9	51.8	70.5	95.4	25.5	65.4	91.4	100.0
		Rate	People		19.7	56.0	75.8	97.3	29.6	71.1	94.8	100.0
2011	Rural	Line	People		388	621	776	1,551	434	731	1,257	4,960
		Rate	Households	336	36.0	76.0	89.3	99.9	46.1	87.0	98.4	100.0
		Rate	People		43.3	82.5	92.7	100.0	54.2	91.1	98.8	100.0
2011	All	Line	People		391	626	782	1,564	438	738	1,268	5,001
		Rate	Households	478	33.9	73.2	87.0	99.4	43.6	84.5	97.6	100.0
		Rate	People		39.9	78.8	90.4	99.6	50.7	88.3	98.3	100.0
2014/15	Urban	Line	People		415	663	829	1,659	464	782	1,344	5,303
		Rate	Households	128	7.3	37.9	54.3	88.0	12.5	50.9	80.0	100.0
		Rate	People		8.1	43.3	59.9	89.8	16.5	56.5	83.6	100.0
2014/15	Rural	Line	People		391	626	783	1,565	438	738	1,269	5,005
		Rate	Households	351	40.6	79.5	86.8	99.5	48.2	85.6	98.7	100.0
		Rate	People		51.3	84.3	89.5	99.8	57.3	88.8	99.3	100.0
2014/15	All	Line	People		394	630	788	1,575	441	743	1,277	5,036
		Rate	Households	479	37.7	75.9	84.0	98.5	45.1	82.7	97.1	100.0
		Rate	People		46.8	80.0	86.4	98.7	53.0	85.4	97.7	100.0

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Zinder): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		336	296	316	404	456	520	700
		Rate	Households	142	6.4	3.2	5.8	16.0	25.5	29.2	56.1
		Rate	People		5.4	1.7	4.9	15.0	29.6	33.7	60.1
2011	Rural	Line	People		317	296	299	382	431	491	662
		Rate	Households	336	17.4	8.3	14.0	33.4	45.9	56.2	82.3
		Rate	People		23.6	12.1	19.3	41.3	53.9	65.0	87.6
2011	All	Line	People		320	296	301	385	434	495	667
		Rate	Households	478	16.1	7.7	13.0	31.3	43.5	53.0	79.2
		Rate	People		21.1	10.6	17.2	37.5	50.4	60.6	83.7
2014/15	Urban	Line	People		331	294	318	436	495	579	827
		Rate	Households	128	2.2	0.4	1.3	10.3	16.2	25.9	53.7
		Rate	People		2.7	0.6	1.4	13.4	20.4	29.6	59.4
2014/15	Rural	Line	People		313	294	300	411	467	547	780
		Rate	Households	351	24.1	8.8	21.9	42.6	54.3	67.5	86.8
		Rate	People		31.9	11.6	29.3	52.8	63.2	74.4	89.5
2014/15	All	Line	People		315	294	302	414	470	550	785
		Rate	Households	479	22.2	8.1	20.1	39.8	51.1	64.0	84.0
		Rate	People		28.9	10.4	26.4	48.7	58.8	69.7	86.3

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Niamey): National poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%) National (2011 def.) 100%	150%	200%
2011	Urban	Line	People		500	751	1,001
		Rate	Households	908	8.2	27.4	42.8
		Rate	People		10.3	33.5	51.2
2011	Rural	Line	People		—	—	—
		Rate	Households	—	—	—	—
		Rate	People		—	—	—
2011	All	Line	People		500	751	1,001
		Rate	Households	908	8.2	27.4	42.8
		Rate	People		10.3	33.5	51.2
2014/15	Urban	Line	People		518	778	1,037
		Rate	Households	762	4.5	18.8	36.4
		Rate	People		6.3	24.2	42.9
2014/15	Rural	Line	People		—	—	—
		Rate	Households	—	—	—	—
		Rate	People		—	—	—
2014/15	All	Line	People		518	778	1,037
		Rate	Households	762	4.5	18.8	36.4
		Rate	People		6.3	24.2	42.9

Source: 2011 and 2014/15 ECMVA
Poverty rates are percentages.
Poverty lines are XOF per-person per-day.
Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Niamey): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/15

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)							
					Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
					$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
2011	Urban	Line	People		458	733	917	1,834	513	865	1,486	5,863
		Rate	Households	908	5.9	26.2	38.4	77.2	8.4	35.1	67.2	99.5
		Rate	People		7.8	31.9	46.6	82.2	10.6	42.8	73.9	99.9
2011	Rural	Line	People		—	—	—	—	—	—	—	—
		Rate	Households	—	—	—	—	—	—	—	—	—
		Rate	People		—	—	—	—	—	—	—	—
2011	All	Line	People		458	733	917	1,834	513	865	1,486	5,863
		Rate	Households	908	5.9	26.2	38.4	77.2	8.4	35.1	67.2	99.5
		Rate	People		7.8	31.9	46.6	82.2	10.6	42.8	73.9	99.9
2014/15	Urban	Line	People		463	741	926	1,852	519	873	1,501	5,922
		Rate	Households	762	2.8	17.0	30.0	73.7	4.5	25.8	61.2	99.3
		Rate	People		4.1	22.6	36.0	79.9	6.3	31.4	68.3	99.7
2014/15	Rural	Line	People		—	—	—	—	—	—	—	—
		Rate	Households	—	—	—	—	—	—	—	—	—
		Rate	People		—	—	—	—	—	—	—	—
2014/15	All	Line	People		463	741	926	1,852	519	873	1,501	5,922
		Rate	Households	762	2.8	17.0	30.0	73.7	4.5	25.8	61.2	99.3
		Rate	People		4.1	22.6	36.0	79.9	6.3	31.4	68.3	99.7

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 1 (Niamey): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2011 and 2014/5

Year	Region	Line or Rate	Households or People	*n*	Poverty lines and poverty rates (%)						
					Poorest 1/2	Percentile-based lines (2011 def.)					
					< 100% Natl.	10th	20th	40th	50th	60th	80th
2011	Urban	Line	People		375	296	353	451	509	581	782
		Rate	Households	908	2.6	0.9	2.1	5.9	8.4	13.2	29.6
		Rate	People		3.6	1.2	2.9	7.8	10.6	17.1	36.3
2011	Rural	Line	People		—	—	—	—	—	—	—
		Rate	Households	—	—	—	—	—	—	—	—
		Rate	People		—	—	—	—	—	—	—
2011	All	Line	People		375	296	353	451	509	581	782
		Rate	Households	908	2.6	0.9	2.1	5.9	8.4	13.2	29.6
		Rate	People		3.6	1.2	2.9	7.8	10.6	17.1	36.3
2014/15	Urban	Line	People		370	294	355	487	553	647	923
		Rate	Households	762	1.0	0.1	0.8	3.1	5.3	10.9	29.9
		Rate	People		1.3	0.1	1.1	4.4	7.1	14.8	35.8
2014/15	Rural	Line	People		—	—	—	—	—	—	—
		Rate	Households	—	—	—	—	—	—	—	—
		Rate	People		—	—	—	—	—	—	—
2014/15	All	Line	People		370	294	355	487	553	647	923
		Rate	Households	762	1.0	0.1	0.8	3.1	5.3	10.9	29.9
		Rate	People		1.3	0.1	1.1	4.4	7.1	14.8	35.8

Source: 2011 and 2014/15 ECMVA

Poverty rates are percentages.

Poverty lines are XOF per-person per-day.

Lines are XOF in prices in Niamey from June-Sep. 2011 and July-Sep. 2014.

Table 2: Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
113	How many household members are 0- to 13-years-old? (Six or more; Five; Four; Three; Two; One; None)
110	How many household members are 0- to 14-years-old? (Six or more; Five; Four; Three; Two; One; None)
107	How many household members are 0- to 12-years-old? (Six or more; Five; Four; Three; Two; One; None)
106	How many household members are 0- to 16-years-old? (Seven or more; Six; Five; Four; Three; Two; One; None)
106	How many household members are 0- to 15-years-old? (Seven or more; Six; Five; Four; Three; Two; One; None)
105	How many household members are 0- to 18-years-old? (Eight or more; Seven; Six; Five; Four; Three; Two; One; None)
105	How many household members are 0- to 17-years-old? (Seven or more; Six; Five; Four; Three; Two; One; None)
103	How many household members are 0- to 11-years-old? (Six or more; Five; Four; Three; Two; One; None)
92	How many household members are there? (Ten or more; Six, seven, eight, or nine; Four, or five; Three; One, or two)
91	What is the household's main cooking fuel? (Collected firewood; Purchased firewood, or biomass; Charcoal, LPG, electricity, kerosene, or other)
90	What toilet arrangement does the household use? (None (bush), or other; Crude hole/open ditch; mproved latrine (covered or uncovered), or flush toilet)
80	How many household members are 0- to 11-years-old? (Three or more; Two; One; None)
80	Does any household member have a TV, VCR/CD/DVD, or satellite dish in good working order? (No TV (regardless of others); TV, but nothing else; TV and VCR/CD/DVD or satellite dish)
79	Does any household member have a TV in good working order? (No; Yes)
74	Does the female head/spouse have her own cell phone? (No; No female head/spouse; Yes)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
72	What is the main source of drinking water in the dry season? (Well (protected or not, in residence, yard/courtyard, or outside), or spring (protected or not); Public standpipe; Borehole, or local rural systems of channels; Faucet (in residence, yard/compound, or neighbor's), bottled water, water truck, or itinerant venders (*garoua*); Eau de pluie, rainwater, or other)
70	In what region does the household live? (Maradi; Zinder, or Dosso; Tahoua, Tillabéri, Diffa, Agadez, or Niamey)
68	What is the residence's main source of lighting? (Flashlight, generator, kerosene lamp, solar panels, or other; Electricity)
63	What is the main material of the covering of the floor of the household? (Dirt/sand; cement/reinforced concrete, tile/marble, smooth tile/parquet, or other)
62	Does any household member have a fan in good working order? (No; Yes)
62	Does any household member have a one-burner gas stove, kerosene stove, stove-oven combo, or modern oven in good working order? (No; Yes)
61	Is the residence connected to the NIGELEC public eletrical grid? (No; Yes)
60	Is the residence connected with the SEEN water system? (No; Yes)
56	What is your current tenenacy status in your residence? (Co-owner with family members without title; Owner without title/property certificate; Owner with title/property certificate, or other; Renter; rent-to-own; or rent-free in residence owned by employer; Rent-free in residence owned by relatives or friends, or co-owner with family members with title)
53	How many mattresses by themselves (no bed) in good working order do members of the household have? (None; One; Two or more)
50	Does any household member have a table of a complete dining-room set (table and chairs) in good working order? (No; Yes)
49	What is the main construction material of the roof? (Straw, earth, wood, or hides; Metal sheets, reinforced concrete, tile, or other)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
49	How many cell phones in good working order do members of the household have? (None; One; Two or more)
46	Does any household member have a VCR/CD/DVD in good working order? (No; Yes)
46	What is the main construction material of the outer walls? (Baked bricks, stones with packed earth, or wood/straw; Earth; Compressed earthen bricks, cement/reinforced concrete/stones with cement, metal sheets, packed earth with cement veneer, or other)
37	What is the household's type of residence? (Traditional rural hut (inside or outside of a compound); Traditional detached house; Room in rooming house; Tent/mobile shelter, or other; Dormitory; Modern house in a compound, modern villa, or apartment or studio in an apartment building)
34	What is the highest level in school (and the highest grade passed at that level) that the male head/spouse has reached? (None, or pre-school; Primary grades 1 to 6, or high school first general cycle 1; No male head/spouse; High school, first general cycle 2, or higher)
31	Does any household member have a lounge chair in good working order? (No; Yes)
31	Does any household member have a bicycle, motocycle/scooter, private vehicle (not for provided by an employer) in good working order? (No; Yes)
27	Does any household member have a refrigerator/freezer in good working order? (No; Yes)
23	What is the highest level in school (and the highest grade passed at that level)? (None, or pre-school; Primary grade 1, or higher; No female head/spouse)
21	Does any household member have a motocycle/scooter in good working order? (No; Yes)
20	What is the (eldest) female head/spouse's marital status? (Polygamously married; Monogamously married, or single/never-married; Widow, divorced, or separated; No female head/spouse)
18	Does any household member have a satellite dish in good working order? (No; Yes)
17	What is the ethnicity of the male head/spouse? (Kanouri-Manga; Haoussa; Peul; Djerma/Songhai; Touareg, Arabe, Gourmantche, Toubou, other ethnicities native to Niger, or foriegners from outside of Niger; No male head/spouse)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
16	Does the male head/spouse have his own cell phone? (No; Yes; No male head/spouse)
14	What is the ethnicity of the (eldest) female head/spouse? (Kanouri-Manga; Haoussa; Peul; Djerma/Songhai; Touareg, Arabe, Gourmantche, Toubou, other ethnicities native to Niger, or foriegners from outside of Niger; No female head/spouse)
14	Can the (eldest) female head/spouse read a short passage in some language? (No; Yes; No female head/spouse)
13	What is the male head/spouse's marital status? (Polygamously married; Monogamously married, single/never-married, widower, divorced, or separated; No male head/spouse)
12	Did all household members ages 7 to 18 go to school during the past school year? (No; Yes; No member are ages 7 to 18)
11	Does any household member have a private vehicle (not for provided by an employer) in good working order? (No; Yes)
10	Did all household members ages 7 to 17 go to school during the past school year? (No; Yes; No member are ages 7 to 17)
10	Can the male head/spouse read a short passage in some language? (No; Yes; No male head/spouse)
9	Did all household members ages 7 to 16 go to school during the past school year? (No; Yes; No member are ages 7 to 16)
8	Did all household members ages 7 to 15 go to school during the past school year? (No; Yes; No member are ages 7 to 15)
7	Did all household members ages 7 to 14 go to school during the past school year? (No; Yes; No member are ages 7 to 14)
5	How many rooms does the household occupy? (Do not count kitchens, bathrooms, hallways, or balconies) (One; Two; Three; Four or more)
5	Does any household member have a bicycle in good working order? (No; Yes)

Table 2 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
5	Did all household members ages 7 to 13 go to school during the past school year? (No; Yes; No member are ages 7 to 13)
5	Does any household member have a radio/radio-tape player in good working order? (No; Yes)
2	How many beds with mattresses in good working order do members of the household have? (None; One; Two or more)
2	Did all household members ages 7 to 12 go to school during the past school year? (No; Yes; No member are ages 7 to 12)
2	Did all household members ages 7 to 11 go to school during the past school year? (No; Yes; No member are ages 7 to 11)
2	Does any household member have a bed by itself (no mattress) in good working order? (No; Yes)

Source: 2014/15 ECMVA with 100% 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:
0–12	91.3
13–15	87.0
16–17	79.2
18–21	68.1
22–23	62.1
24–25	55.3
26–27	53.7
28–30	39.6
31–32	38.6
33–34	30.0
35–37	27.4
38–39	23.4
40–42	18.1
43–45	13.5
46–49	7.7
50–53	5.3
54–59	2.7
60–66	1.1
67–100	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 (%)
0–12	7,047	÷	7,722	=	91.3
13–15	8,229	÷	9,454	=	87.0
16–17	7,288	÷	9,197	=	79.2
18–21	6,506	÷	9,558	=	68.1
22–23	4,180	÷	6,727	=	62.1
24–25	5,609	÷	10,146	=	55.3
26–27	5,598	÷	10,426	=	53.7
28–30	4,208	÷	10,621	=	39.6
31–32	3,239	÷	8,389	=	38.6
33–34	2,305	÷	7,675	=	30.0
35–37	2,323	÷	8,488	=	27.4
38–39	1,923	÷	8,208	=	23.4
40–42	1,910	÷	10,544	=	18.1
43–45	1,191	÷	8,832	=	13.5
46–49	577	÷	7,529	=	7.7
50–53	433	÷	8,246	=	5.3
54–59	224	÷	8,173	=	2.7
60–66	88	÷	7,916	=	1.1
67–100	0	÷	8,669	=	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

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Error	90-percent	95-percent	99-percent
0–12	+1.9	2.0	2.2	3.0
13–15	–3.2	2.5	2.6	2.9
16–17	+0.7	2.5	3.0	3.9
18–21	–13.2	7.8	7.9	8.3
22–23	–8.7	6.0	6.3	6.8
24–25	–2.8	2.9	3.5	4.7
26–27	–7.3	5.1	5.3	5.6
28–30	–4.8	3.8	4.2	4.5
31–32	+9.3	2.8	3.4	4.8
33–34	–13.2	8.8	9.2	10.2
35–37	+15.7	1.6	2.0	2.6
38–39	+3.1	2.3	2.6	3.3
40–42	+1.9	2.3	2.7	3.7
43–45	+4.5	1.6	1.9	2.4
46–49	+7.3	0.1	0.1	0.2
50–53	+2.0	0.9	1.0	1.3
54–59	0.0	1.2	1.4	1.9
60–66	+1.1	0.0	0.0	0.0
67–100	–0.1	0.1	0.1	0.1

Scorecard applied to 1,000 bootstraps from the 2014/15 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), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–0.2	60.1	72.3	91.3
4	–0.3	38.7	43.5	56.6
8	+0.8	27.1	32.3	43.6
16	+0.6	19.3	22.4	27.7
32	+0.1	12.8	15.6	20.4
64	+0.2	9.2	10.9	15.5
128	+0.2	6.4	7.7	9.9
256	+0.3	4.3	5.1	6.9
512	+0.3	3.2	3.9	5.0
1,024	+0.2	2.4	2.7	3.5
2,048	+0.2	1.6	1.9	2.6
4,096	+0.2	1.2	1.4	1.9
8,192	+0.2	0.8	0.9	1.2
16,384	+0.2	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 7 (National lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision, scorecard applied with the 2014/15 validation sample

	Poverty lines		
	National (2011 def.)		
	100%	150%	200%
Error (estimate minus observed value)	+0.2	+1.3	+1.9
Precision of estimate	0.6	0.6	0.6
Alpha factor for precision	0.91	1.08	1.43

Scorecard applied to 1,000 bootstraps from the 2014/15 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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 7 (International 2005 and 2011 PPP lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision, scorecard applied with the 2014/15 validation sample

	Poverty lines							
	Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
	$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
Error (estimate minus observed value)	–1.3	+2.1	+2.7	+2.6	+0.2	+2.4	+4.5	0.0
Precision of estimate	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.0
Alpha factor for precision	0.95	1.03	1.25	2.28	0.90	1.18	2.25	0.23

Scorecard applied to 1,000 bootstraps from the 2014/15 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 estimated from 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, scorecard applied with the 2014/15 validation sample

	Poverty lines						
	Poorest 1/2	Percentile-based lines (2011 def.)					
	< 100% Natl.	10th	20th	40th	50th	60th	80th
Error (estimate minus observed value)	+1.5	+1.9	+0.8	–0.1	+0.2	+0.7	+2.9
Precision of estimate	0.5	0.3	0.5	0.6	0.6	0.6	0.6
Alpha factor for precision	1.03	0.96	1.10	0.97	0.94	0.95	1.09

Scorecard applied to 1,000 bootstraps from the 2014/15 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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 8 (National lines): Errors in households' estimated changes in poverty rates over time, precision, and the α factor for precision, scorecard applied with the 2014/15 validation sample and the 2011 validation samples treated as two independent samples

	Poverty lines		
	National (2011 def.)		
	100%	150%	200%
Error (estimate minus observed value)	+2.0	–4.2	–5.7
Precision of estimate	1.0	0.9	0.7
Alpha factor for precision	1.10	1.10	1.16

2014/15 scorecard applied to the 2014/15 validation sample (baseline) and 2011 validation sample (follow-up).
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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 8 (International 2005 and 2011 PPP lines): Errors in households' estimated changes in poverty rates over time, precision, and the α factor for precision, scorecard applied with the 2014/15 validation sample and the 2011 validation samples treated as two independent samples

	Poverty lines							
	Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
	$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
Error (estimate minus observed value)	+1.2	–5.3	–8.1	–3.7	–0.6	–8.0	–6.4	0.0
Precision of estimate	1.0	0.9	0.8	0.5	1.0	0.8	0.7	0.0
Alpha factor for precision	1.12	1.08	1.10	1.61	1.08	1.10	1.62	0.18

2014/15 scorecard applied to the 2014/15 validation sample (baseline) and 2011 validation sample (follow-up).

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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 9 (National lines): Errors in households' estimated changes in poverty rates over time, precision, and the α factor for precision, scorecard applied with households that are in both the 2014/15 and 2011 validation samples

	Poverty lines		
	National (2011 def.)		
	100%	150%	200%
Error (estimate minus observed value)	–0.1	–0.9	–0.4
Precision of estimate	1.0	0.9	0.7
Alpha factor for precision	1.22	1.26	1.15

2014/15 scorecard applied with households in both the 2014/15 (baseline) and 2011 (follow-up) validation samples.
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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 9 (International 2005 and 2011 PPP lines): Errors in households' estimated poverty rates at a point in time, precision, and the α factor for precision, scorecard applied with households that are in both the 2014/15 and 2011 validation samples

	Poverty lines							
	Intl. 2005 PPP (2011 def.)				Intl. 2011 PPP (2011 def.)			
	$1.25	$2.00	$2.50	$5.00	$1.90	$3.20	$5.50	$21.70
Error (estimate minus observed value)	+0.1	–2.1	–1.9	–1.6	–3.3	–0.6	0.0	+2.5
Precision of estimate	0.9	1.0	0.8	0.2	0.8	0.4	0.0	0.7
Alpha factor for precision	1.00	1.30	1.13	0.61	1.21	0.78	0.01	1.10

2014/15 scorecard applied with households in both the 2014/15 (baseline) and 2011 (follow-up) validation samples.

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 estimated from 1,000 bootstrap samples of n = 256, 512, 1,024, 2,048, 4,096, 8,192, and 16,384.

Table 10 (All poverty lines): Possible targeting outcomes

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

Table 11 (100% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.4	32.2	0.5	61.8	67.3	–69.6
<=15	8.8	28.8	1.1	61.2	70.1	–50.0
<=17	12.5	25.1	2.3	60.1	72.6	–27.4
<=21	16.8	20.8	3.6	58.8	75.6	–1.2
<=23	18.9	18.8	5.2	57.2	76.1	+14.0
<=25	22.6	15.0	7.7	54.7	77.3	+40.6
<=27	26.5	11.2	10.3	52.0	78.5	+68.2
<=30	30.0	7.7	13.9	48.5	78.4	+63.0
<=32	31.8	5.8	17.0	45.4	77.2	+54.9
<=34	32.9	4.7	19.2	43.2	76.1	+48.9
<=37	34.1	3.6	24.7	37.7	71.8	+34.4
<=39	35.4	2.2	29.9	32.4	67.8	+20.4
<=42	36.4	1.2	34.3	28.1	64.5	+8.8
<=45	37.1	0.6	38.7	23.7	60.8	–2.8
<=49	37.2	0.4	44.4	18.0	55.2	–18.1
<=53	37.5	0.1	48.8	13.6	51.1	–29.7
<=59	37.6	0.0	52.6	9.8	47.4	–39.8
<=66	37.6	0.0	57.2	5.2	42.8	–52.0
<=100	37.6	0.0	62.4	0.0	37.6	–65.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	90.8	14.5	9.9:1
<=15	10.0	88.5	23.5	7.7:1
<=17	14.8	84.6	33.3	5.5:1
<=21	20.4	82.4	44.6	4.7:1
<=23	24.0	78.5	50.1	3.6:1
<=25	30.3	74.5	60.0	2.9:1
<=27	36.8	71.9	70.3	2.6:1
<=30	43.9	68.3	79.7	2.2:1
<=32	48.8	65.2	84.6	1.9:1
<=34	52.1	63.1	87.5	1.7:1
<=37	58.7	58.0	90.6	1.4:1
<=39	65.3	54.1	94.0	1.2:1
<=42	70.7	51.5	96.8	1.1:1
<=45	75.7	48.9	98.5	1.0:1
<=49	81.6	45.6	99.0	0.8:1
<=53	86.3	43.5	99.7	0.8:1
<=59	90.2	41.7	99.9	0.7:1
<=66	94.8	39.7	100.0	0.7:1
<=100	100.0	37.6	100.0	0.6:1

Scorecard applied to the 2014/15 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:
0–12	99.6
13–15	99.0
16–17	99.0
18–21	90.6
22–23	86.2
24–25	83.7
26–27	82.6
28–30	77.2
31–32	69.3
33–34	69.2
35–37	69.2
38–39	56.5
40–42	51.9
43–45	45.1
46–49	44.8
50–53	40.2
54–59	22.4
60–66	10.9
67–100	0.8

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

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Error	90-percent	95-percent	99-percent
0–12	+1.4	0.7	0.8	1.0
13–15	–0.9	0.5	0.5	0.5
16–17	–0.9	0.5	0.5	0.5
18–21	–4.0	2.7	2.8	3.1
22–23	–8.4	4.8	4.8	5.0
24–25	–7.9	4.7	4.8	5.1
26–27	–5.3	3.4	3.6	3.9
28–30	–5.6	3.8	4.0	4.4
31–32	+15.9	3.2	3.9	5.3
33–34	–9.0	6.1	6.3	6.9
35–37	+10.2	2.8	3.3	4.2
38–39	–4.3	3.7	3.9	4.5
40–42	–3.4	3.4	3.9	5.5
43–45	–7.8	5.5	5.8	6.4
46–49	+28.2	2.0	2.3	3.0
50–53	–5.7	4.8	5.2	6.4
54–59	+13.4	1.6	1.9	2.5
60–66	+3.8	1.5	1.7	2.4
67–100	–16.9	10.4	10.8	11.5

Scorecard applied to 1,000 bootstraps from the 2014/15 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), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–1.6	62.2	71.2	84.8
4	–1.3	36.3	43.6	55.6
8	+0.2	27.1	32.4	42.0
16	+1.3	21.0	24.9	31.5
32	+1.2	14.7	17.9	23.8
64	+1.1	10.5	12.4	15.9
128	+1.2	7.2	8.8	11.4
256	+1.2	5.0	5.8	8.1
512	+1.3	3.5	4.3	5.6
1,024	+1.3	2.5	3.0	3.8
2,048	+1.3	1.8	2.1	3.0
4,096	+1.3	1.3	1.5	2.1
8,192	+1.3	0.9	1.0	1.3
16,384	+1.3	0.6	0.8	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (150% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.9	58.8	0.1	35.2	41.1	–81.7
<=15	9.8	54.8	0.2	35.2	45.0	–69.4
<=17	14.6	50.0	0.2	35.2	49.8	–54.5
<=21	19.9	44.8	0.5	34.9	54.7	–37.7
<=23	23.1	41.5	0.9	34.4	57.5	–27.1
<=25	28.7	36.0	1.6	33.7	62.4	–8.8
<=27	34.2	30.5	2.6	32.7	66.9	+9.8
<=30	39.7	24.9	4.1	31.2	70.9	+29.3
<=32	43.1	21.5	5.7	29.7	72.8	+42.3
<=34	45.6	19.0	6.5	28.9	74.5	+51.3
<=37	49.6	15.1	9.2	26.2	75.7	+67.6
<=39	53.5	11.2	11.8	23.5	77.0	+81.7
<=42	56.5	8.2	14.2	21.1	77.6	+78.0
<=45	59.2	5.4	16.5	18.8	78.0	+74.4
<=49	61.2	3.4	20.4	14.9	76.1	+68.4
<=53	63.1	1.5	23.2	12.2	75.3	+64.1
<=59	63.9	0.8	26.3	9.1	72.9	+59.3
<=66	64.3	0.3	30.4	4.9	69.3	+52.9
<=100	64.6	0.0	35.4	0.0	64.6	+45.3

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	97.7	9.1	42.7:1
<=15	10.0	98.4	15.2	62.3:1
<=17	14.8	98.8	22.6	82.2:1
<=21	20.4	97.6	30.7	40.4:1
<=23	24.0	96.1	35.7	24.5:1
<=25	30.3	94.6	44.3	17.5:1
<=27	36.8	92.9	52.9	13.0:1
<=30	43.9	90.6	61.4	9.6:1
<=32	48.8	88.4	66.7	7.6:1
<=34	52.1	87.6	70.6	7.0:1
<=37	58.7	84.4	76.7	5.4:1
<=39	65.3	81.9	82.7	4.5:1
<=42	70.7	79.9	87.4	4.0:1
<=45	75.7	78.2	91.6	3.6:1
<=49	81.6	75.0	94.7	3.0:1
<=53	86.3	73.1	97.6	2.7:1
<=59	90.2	70.8	98.8	2.4:1
<=66	94.8	67.9	99.5	2.1:1
<=100	100.0	64.6	100.0	1.8:1

Scorecard applied to the 2014/15 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:
0–12	100.0
13–15	100.0
16–17	100.0
18–21	97.4
22–23	95.8
24–25	95.6
26–27	95.6
28–30	94.0
31–32	94.0
33–34	89.1
35–37	86.7
38–39	80.2
40–42	79.0
43–45	73.7
46–49	70.6
50–53	58.3
54–59	46.2
60–66	27.1
67–100	7.2

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

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Error	90-percent	95-percent	99-percent
0–12	0.0	0.0	0.0	0.0
13–15	0.0	0.0	0.0	0.0
16–17	0.0	0.0	0.0	0.0
18–21	–2.6	1.3	1.3	1.3
22–23	–0.8	0.9	1.0	1.4
24–25	–3.6	1.9	2.0	2.0
26–27	+0.2	0.9	1.1	1.5
28–30	+1.1	1.2	1.5	2.2
31–32	+2.5	2.0	2.4	3.5
33–34	–7.3	4.3	4.4	4.6
35–37	–5.9	3.5	3.7	3.9
38–39	–6.5	4.2	4.4	4.8
40–42	–0.7	2.8	3.4	4.2
43–45	–5.0	3.9	4.1	4.6
46–49	+48.9	2.2	2.7	3.4
50–53	–24.7	13.5	13.7	14.0
54–59	–2.8	4.5	5.3	7.1
60–66	–14.7	9.5	9.8	10.4
67–100	–19.1	11.4	11.9	12.5

Scorecard applied to 1,000 bootstraps from the 2014/15 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), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–1.1	57.7	70.2	84.3
4	–0.4	34.3	41.5	57.4
8	+0.8	25.9	31.6	41.9
16	+1.5	19.6	23.6	31.4
32	+1.6	15.1	16.9	20.8
64	+1.7	10.6	12.3	16.1
128	+1.8	7.7	9.1	12.0
256	+1.8	5.3	6.3	8.1
512	+1.8	3.5	4.3	5.9
1,024	+1.9	2.7	3.3	4.1
2,048	+1.9	1.8	2.2	3.2
4,096	+1.9	1.4	1.6	2.2
8,192	+1.9	0.9	1.1	1.4
16,384	+1.9	0.6	0.8	1.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (200% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	74.5	0.0	19.5	25.5	–85.1
<=15	10.0	70.5	0.0	19.5	29.5	–75.2
<=17	14.8	65.7	0.0	19.5	34.3	–63.3
<=21	20.4	60.1	0.0	19.5	39.9	–49.4
<=23	23.8	56.7	0.3	19.2	43.0	–40.6
<=25	29.9	50.6	0.4	19.1	49.0	–25.2
<=27	36.0	44.5	0.8	18.7	54.6	–9.6
<=30	42.4	38.1	1.4	18.1	60.5	+7.2
<=32	47.1	33.4	1.7	17.8	64.9	+19.2
<=34	50.2	30.2	1.9	17.6	67.9	+27.2
<=37	56.2	24.3	2.5	17.0	73.2	+42.8
<=39	61.8	18.7	3.5	16.0	77.9	+58.0
<=42	66.1	14.3	4.6	15.0	81.1	+70.0
<=45	70.2	10.3	5.5	14.0	84.2	+81.3
<=49	73.1	7.4	8.6	10.9	84.0	+89.3
<=53	76.4	4.1	9.9	9.6	85.9	+87.6
<=59	78.1	2.4	12.1	7.4	85.5	+85.0
<=66	79.7	0.8	15.1	4.4	84.1	+81.3
<=100	80.5	0.0	19.5	0.0	80.5	+75.8

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	100.0	7.4	Only poor targeted
<=15	10.0	100.0	12.4	Only poor targeted
<=17	14.8	100.0	18.4	Only poor targeted
<=21	20.4	100.0	25.3	Only poor targeted
<=23	24.0	98.9	29.5	88.5:1
<=25	30.3	98.7	37.1	75.1:1
<=27	36.8	97.7	44.7	43.2:1
<=30	43.9	96.7	52.7	29.7:1
<=32	48.8	96.5	58.5	27.5:1
<=34	52.1	96.4	62.4	26.8:1
<=37	58.7	95.7	69.8	22.1:1
<=39	65.3	94.7	76.8	17.8:1
<=42	70.7	93.6	82.2	14.5:1
<=45	75.7	92.7	87.2	12.7:1
<=49	81.6	89.5	90.8	8.5:1
<=53	86.3	88.5	94.9	7.7:1
<=59	90.2	86.6	97.0	6.5:1
<=66	94.8	84.1	99.0	5.3:1
<=100	100.0	80.5	100.0	4.1:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$1.25/day 2005 PPP Poverty Line

Table 3 ($1.25/day 2005 PPP): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	85.7
13–15	81.8
16–17	72.2
18–21	61.6
22–23	57.3
24–25	43.9
26–27	40.2
28–30	26.5
31–32	20.5
33–34	14.9
35–37	13.1
38–39	13.1
40–42	8.8
43–45	7.6
46–49	4.7
50–53	3.8
54–59	0.5
60–66	0.5
67–100	0.0

Table 5 ($1.25/day 2005 PPP): 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
0–12	+6.3	2.6	3.1	4.1
13–15	+0.3	2.7	3.2	4.4
16–17	+19.2	3.3	3.9	5.1
18–21	–5.2	4.0	4.2	4.8
22–23	–12.6	7.9	8.2	8.8
24–25	–0.3	3.0	3.7	4.8
26–27	–10.3	6.5	6.8	7.3
28–30	–14.3	8.6	8.8	9.3
31–32	–6.0	4.4	4.7	5.4
33–34	+0.3	2.9	3.5	4.6
35–37	+9.6	0.8	0.9	1.3
38–39	–5.8	4.0	4.2	4.5
40–42	–5.5	3.9	4.1	4.6
43–45	+1.5	1.3	1.6	2.0
46–49	+4.6	0.1	0.1	0.1
50–53	+3.0	0.4	0.4	0.6
54–59	–2.2	1.7	1.9	2.2
60–66	+0.5	0.0	0.0	0.0
67–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($1.25/day 2005 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–1.1	67.5	79.6	89.8
4	–0.7	39.2	47.7	59.2
8	–0.2	27.9	33.7	46.4
16	–0.7	18.7	23.2	28.7
32	–1.1	13.1	15.5	20.9
64	–1.2	9.7	11.6	14.6
128	–1.2	6.4	7.7	10.3
256	–1.1	4.6	5.6	7.0
512	–1.2	3.3	3.9	5.2
1,024	–1.3	2.4	2.8	3.6
2,048	–1.3	1.6	2.0	2.7
4,096	–1.3	1.1	1.4	1.9
8,192	–1.3	0.8	1.0	1.3
16,384	–1.3	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($1.25/day 2005 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.0	25.5	1.0	68.5	73.4	–64.1
<=15	8.0	22.4	1.9	67.6	75.6	–40.9
<=17	10.8	19.7	4.0	65.5	76.3	–16.1
<=21	14.0	16.5	6.4	63.1	77.1	+12.7
<=23	15.9	14.6	8.2	61.4	77.2	+31.0
<=25	18.8	11.7	11.5	58.0	76.8	+61.0
<=27	22.1	8.4	14.7	54.8	76.8	+51.6
<=30	25.2	5.3	18.7	50.8	76.0	+38.7
<=32	26.8	3.7	22.0	47.5	74.3	+27.8
<=34	27.3	3.2	24.8	44.7	72.1	+18.6
<=37	27.8	2.7	30.9	38.6	66.4	–1.5
<=39	29.0	1.5	36.4	33.2	62.1	–19.3
<=42	29.8	0.7	40.9	28.6	58.4	–34.2
<=45	30.2	0.2	45.5	24.0	54.3	–49.2
<=49	30.3	0.2	51.4	18.2	48.5	–68.5
<=53	30.4	0.1	55.9	13.6	44.0	–83.4
<=59	30.5	0.0	59.7	9.8	40.3	–95.8
<=66	30.5	0.0	64.3	5.2	35.7	–110.9
<=100	30.5	0.0	69.5	0.0	30.5	–128.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($1.25/day 2005 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	82.7	16.3	4.8:1
<=15	10.0	80.7	26.4	4.2:1
<=17	14.8	73.0	35.4	2.7:1
<=21	20.4	68.6	45.8	2.2:1
<=23	24.0	66.1	52.1	1.9:1
<=25	30.3	62.0	61.7	1.6:1
<=27	36.8	59.9	72.4	1.5:1
<=30	43.9	57.4	82.6	1.3:1
<=32	48.8	54.9	87.9	1.2:1
<=34	52.1	52.4	89.7	1.1:1
<=37	58.7	47.3	91.2	0.9:1
<=39	65.3	44.3	95.0	0.8:1
<=42	70.7	42.1	97.7	0.7:1
<=45	75.7	39.9	99.2	0.7:1
<=49	81.6	37.1	99.4	0.6:1
<=53	86.3	35.2	99.7	0.5:1
<=59	90.2	33.8	100.0	0.5:1
<=66	94.8	32.2	100.0	0.5:1
<=100	100.0	30.5	100.0	0.4:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$2.00/day 2005 PPP Poverty Line

Table 3 ($2.00/day 2005 PPP): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	99.6
13–15	98.9
16–17	98.3
18–21	88.2
22–23	84.4
24–25	83.1
26–27	82.2
28–30	74.9
31–32	68.2
33–34	66.0
35–37	65.3
38–39	52.5
40–42	46.8
43–45	40.9
46–49	36.6
50–53	31.8
54–59	18.6
60–66	8.6
67–100	0.7

Table 5 ($2.00/day 2005 PPP): 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
0–12	+1.3	0.7	0.8	1.0
13–15	–1.1	0.6	0.6	0.6
16–17	+1.1	0.9	1.1	1.4
18–21	–5.5	3.5	3.6	3.8
22–23	–10.1	5.7	5.7	5.9
24–25	–8.4	4.9	5.0	5.3
26–27	+4.8	2.5	2.8	3.8
28–30	–5.1	3.7	3.9	4.3
31–32	+14.8	3.2	3.9	5.3
33–34	–8.3	5.8	6.1	6.6
35–37	+16.8	3.1	3.5	4.5
38–39	–7.2	5.1	5.3	5.9
40–42	–5.9	4.7	5.0	5.7
43–45	+10.6	2.8	3.4	4.2
46–49	+21.0	1.9	2.3	2.9
50–53	–12.3	8.1	8.7	9.2
54–59	+10.1	1.6	1.9	2.4
60–66	+1.6	1.5	1.7	2.4
67–100	+0.6	0.1	0.1	0.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($2.00/day 2005 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–0.8	69.2	75.2	87.3
4	–0.1	37.3	44.2	56.0
8	+1.4	27.9	31.8	41.4
16	+2.3	19.7	24.2	32.1
32	+2.1	14.3	16.6	23.3
64	+2.0	9.8	11.8	15.5
128	+2.0	7.1	8.5	10.8
256	+2.1	4.6	5.7	7.4
512	+2.1	3.5	4.2	5.6
1,024	+2.1	2.4	2.9	3.8
2,048	+2.1	1.8	2.1	2.9
4,096	+2.1	1.2	1.5	2.0
8,192	+2.1	0.9	1.0	1.3
16,384	+2.1	0.6	0.8	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($2.00/day 2005 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.9	55.6	0.1	38.4	44.3	–80.7
<=15	9.8	51.6	0.2	38.4	48.2	–67.8
<=17	14.4	47.0	0.3	38.2	52.7	–52.4
<=21	19.6	41.8	0.8	37.8	57.4	–35.0
<=23	22.8	38.6	1.2	37.4	60.2	–23.7
<=25	28.3	33.1	2.0	36.6	65.0	–4.6
<=27	33.5	27.9	3.3	35.3	68.8	+14.5
<=30	38.9	22.5	5.0	33.6	72.5	+34.7
<=32	42.3	19.1	6.5	32.1	74.4	+48.3
<=34	44.7	16.8	7.5	31.1	75.8	+57.6
<=37	48.1	13.3	10.6	28.0	76.1	+74.0
<=39	51.9	9.6	13.5	25.1	77.0	+78.1
<=42	54.6	6.8	16.1	22.5	77.1	+73.8
<=45	56.7	4.7	19.0	19.6	76.3	+69.0
<=49	58.5	2.9	23.1	15.5	74.0	+62.4
<=53	60.2	1.2	26.0	12.5	72.8	+57.6
<=59	60.9	0.5	29.2	9.4	70.3	+52.4
<=66	61.4	0.0	33.4	5.2	66.6	+45.7
<=100	61.4	0.0	38.6	0.0	61.4	+37.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($2.00/day 2005 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	97.7	9.5	42.7:1
<=15	10.0	98.4	16.0	62.3:1
<=17	14.8	97.7	23.5	43.0:1
<=21	20.4	96.2	31.9	25.0:1
<=23	24.0	94.9	37.1	18.5:1
<=25	30.3	93.5	46.1	14.5:1
<=27	36.8	91.0	54.6	10.2:1
<=30	43.9	88.6	63.3	7.8:1
<=32	48.8	86.7	68.9	6.5:1
<=34	52.1	85.7	72.7	6.0:1
<=37	58.7	81.9	78.3	4.5:1
<=39	65.3	79.4	84.4	3.9:1
<=42	70.7	77.2	88.9	3.4:1
<=45	75.7	74.9	92.3	3.0:1
<=49	81.6	71.7	95.3	2.5:1
<=53	86.3	69.8	98.1	2.3:1
<=59	90.2	67.6	99.2	2.1:1
<=66	94.8	64.8	100.0	1.8:1
<=100	100.0	61.4	100.0	1.6:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$2.50/day 2005 PPP Poverty Line

Table 3 ($2.50/day 2005 PPP): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	99.7
13–15	99.2
16–17	99.2
18–21	95.9
22–23	93.8
24–25	93.8
26–27	93.8
28–30	87.2
31–32	86.7
33–34	81.3
35–37	79.5
38–39	73.3
40–42	69.7
43–45	62.5
46–49	58.6
50–53	51.0
54–59	36.2
60–66	22.9
67–100	4.9

Table 5 ($2.50/day 2005 PPP): 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
0–12	+1.4	0.7	0.8	1.0
13–15	–0.8	0.4	0.4	0.4
16–17	–0.8	0.4	0.4	0.4
18–21	+0.8	1.5	1.7	2.1
22–23	–2.8	1.8	1.9	2.1
24–25	–5.4	2.8	2.9	2.9
26–27	+3.1	1.5	1.8	2.4
28–30	–5.0	3.1	3.3	3.5
31–32	–1.7	2.2	2.7	3.6
33–34	–4.1	3.4	3.7	4.4
35–37	+1.5	2.3	2.7	3.5
38–39	–7.5	4.7	5.0	5.4
40–42	–6.8	4.9	5.1	5.7
43–45	+1.3	3.3	3.8	5.1
46–49	+37.7	2.2	2.7	3.4
50–53	–0.9	3.9	4.8	6.3
54–59	+7.1	4.2	5.0	6.2
60–66	+8.7	2.2	2.6	3.3
67–100	–13.8	8.9	9.2	10.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($2.50/day 2005 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–0.2	61.2	75.5	85.5
4	+0.7	33.8	40.2	52.1
8	+1.7	25.5	30.1	39.3
16	+2.5	19.4	23.5	29.9
32	+2.6	14.0	16.4	20.9
64	+2.6	10.1	12.0	16.2
128	+2.5	7.2	8.5	10.7
256	+2.5	5.0	6.0	7.7
512	+2.6	3.5	4.2	5.3
1,024	+2.6	2.5	2.9	3.9
2,048	+2.6	1.7	2.1	3.0
4,096	+2.6	1.3	1.5	2.1
8,192	+2.6	0.9	1.1	1.4
16,384	+2.7	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($2.50/day 2005 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.9	68.2	0.1	25.9	31.7	–84.0
<=15	9.8	64.2	0.1	25.9	35.7	–73.2
<=17	14.7	59.4	0.1	25.9	40.5	–60.2
<=21	20.0	54.0	0.3	25.6	45.7	–45.4
<=23	23.4	50.6	0.6	25.4	48.8	–35.9
<=25	29.5	44.5	0.8	25.2	54.7	–19.2
<=27	35.4	38.7	1.4	24.5	59.9	–2.5
<=30	41.7	32.3	2.2	23.8	65.5	+15.6
<=32	46.1	27.9	2.7	23.3	69.4	+28.3
<=34	49.0	25.0	3.1	22.9	71.9	+36.6
<=37	54.2	19.8	4.6	21.4	75.6	+52.5
<=39	59.2	14.8	6.1	19.9	79.1	+68.2
<=42	63.2	10.9	7.5	18.5	81.6	+80.8
<=45	66.5	7.5	9.2	16.7	83.2	+87.5
<=49	69.0	5.0	12.6	13.4	82.4	+83.0
<=53	71.4	2.6	14.9	11.1	82.5	+79.9
<=59	72.7	1.3	17.4	8.5	81.2	+76.4
<=66	73.6	0.4	21.2	4.8	78.4	+71.4
<=100	74.0	0.0	26.0	0.0	74.0	+64.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($2.50/day 2005 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	97.9	7.9	47.5:1
<=15	10.0	98.8	13.3	79.6:1
<=17	14.8	99.2	19.8	118.6:1
<=21	20.4	98.4	27.1	60.6:1
<=23	24.0	97.5	31.7	39.1:1
<=25	30.3	97.5	39.9	38.8:1
<=27	36.8	96.1	47.8	24.5:1
<=30	43.9	95.0	56.3	19.1:1
<=32	48.8	94.5	62.3	17.3:1
<=34	52.1	94.0	66.2	15.7:1
<=37	58.7	92.2	73.2	11.9:1
<=39	65.3	90.7	80.0	9.7:1
<=42	70.7	89.4	85.3	8.4:1
<=45	75.7	87.8	89.8	7.2:1
<=49	81.6	84.5	93.3	5.5:1
<=53	86.3	82.8	96.5	4.8:1
<=59	90.2	80.6	98.2	4.2:1
<=66	94.8	77.7	99.4	3.5:1
<=100	100.0	74.0	100.0	2.8:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$5.00/day 2005 PPP Poverty Line

Table 3 ($5.00/day 2005 PPP): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	100.0
13–15	100.0
16–17	100.0
18–21	100.0
22–23	100.0
24–25	100.0
26–27	100.0
28–30	99.5
31–32	99.5
33–34	99.5
35–37	99.5
38–39	99.4
40–42	99.4
43–45	98.9
46–49	96.4
50–53	93.4
54–59	92.3
60–66	88.4
67–100	49.1

Table 5 ($5.00/day 2005 PPP): 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
0–12	0.0	0.0	0.0	0.0
13–15	0.0	0.0	0.0	0.0
16–17	0.0	0.0	0.0	0.0
18–21	0.0	0.0	0.0	0.0
22–23	0.0	0.0	0.0	0.0
24–25	0.0	0.0	0.0	0.0
26–27	0.0	0.0	0.0	0.0
28–30	–0.5	0.3	0.3	0.3
31–32	–0.5	0.3	0.3	0.3
33–34	–0.5	0.3	0.3	0.3
35–37	–0.5	0.3	0.3	0.3
38–39	–0.6	0.3	0.3	0.3
40–42	–0.4	0.2	0.3	0.3
43–45	–1.1	0.6	0.6	0.6
46–49	+28.9	3.7	4.3	6.0
50–53	–3.2	2.0	2.1	2.3
54–59	–4.8	2.8	2.9	3.0
60–66	–9.2	4.8	4.9	4.9
67–100	+7.4	4.0	4.7	6.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($5.00/day 2005 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+0.8	30.3	30.3	73.7
4	+1.3	12.2	27.1	44.6
8	+1.6	18.3	25.0	32.3
16	+1.8	14.5	17.1	22.0
32	+2.1	9.5	10.8	14.9
64	+2.3	7.3	8.5	10.4
128	+2.4	5.3	6.2	7.3
256	+2.5	4.0	4.6	5.6
512	+2.5	2.8	3.3	4.3
1,024	+2.6	2.0	2.4	3.2
2,048	+2.6	1.4	1.7	2.3
4,096	+2.6	1.0	1.2	1.7
8,192	+2.6	0.7	0.9	1.3
16,384	+2.6	0.5	0.6	0.8

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($5.00/day 2005 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	89.3	0.0	4.7	10.7	–87.4
<=15	10.0	85.3	0.0	4.7	14.7	–79.1
<=17	14.8	80.5	0.0	4.7	19.5	–69.0
<=21	20.4	74.9	0.0	4.7	25.1	–57.3
<=23	24.0	71.3	0.0	4.7	28.7	–49.6
<=25	30.3	65.0	0.0	4.7	35.0	–36.4
<=27	36.8	58.5	0.0	4.7	41.5	–22.8
<=30	43.9	51.5	0.0	4.7	48.5	–8.0
<=32	48.8	46.5	0.0	4.7	53.5	+2.4
<=34	52.1	43.2	0.0	4.7	56.8	+9.4
<=37	58.7	36.6	0.0	4.7	63.4	+23.3
<=39	65.3	30.0	0.0	4.7	70.0	+37.0
<=42	70.6	24.7	0.1	4.6	75.3	+48.3
<=45	75.7	19.6	0.1	4.6	80.3	+58.8
<=49	80.9	14.5	0.8	3.9	84.7	+70.5
<=53	85.2	10.1	1.1	3.6	88.9	+80.0
<=59	88.8	6.5	1.3	3.4	92.2	+87.8
<=66	92.9	2.4	1.8	2.9	95.8	+96.9
<=100	95.3	0.0	4.7	0.0	95.3	+95.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($5.00/day 2005 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	100.0	6.3	Only poor targeted
<=15	10.0	100.0	10.5	Only poor targeted
<=17	14.8	100.0	15.5	Only poor targeted
<=21	20.4	100.0	21.4	Only poor targeted
<=23	24.0	100.0	25.2	Only poor targeted
<=25	30.3	100.0	31.8	Only poor targeted
<=27	36.8	100.0	38.6	Only poor targeted
<=30	43.9	100.0	46.0	Only poor targeted
<=32	48.8	100.0	51.2	Only poor targeted
<=34	52.1	100.0	54.7	Only poor targeted
<=37	58.7	100.0	61.6	Only poor targeted
<=39	65.3	100.0	68.5	Only poor targeted
<=42	70.7	99.9	74.1	1,194.6:1
<=45	75.7	99.9	79.4	1,279.8:1
<=49	81.6	99.0	84.8	101.9:1
<=53	86.3	98.8	89.4	80.5:1
<=59	90.2	98.5	93.2	67.0:1
<=66	94.8	98.1	97.5	51.0:1
<=100	100.0	95.3	100.0	20.3:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$1.90/day 2011 PPP Poverty Line

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

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	91.3
13–15	87.0
16–17	79.2
18–21	68.1
22–23	62.1
24–25	55.3
26–27	53.7
28–30	39.6
31–32	38.6
33–34	30.0
35–37	27.4
38–39	23.4
40–42	18.1
43–45	13.5
46–49	7.7
50–53	5.3
54–59	2.7
60–66	1.1
67–100	0.0

Table 5 ($1.90/day 2011 PPP): 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
0–12	+1.9	2.0	2.2	3.0
13–15	–3.2	2.5	2.6	2.9
16–17	+0.7	2.5	3.0	3.9
18–21	–13.2	7.8	7.9	8.3
22–23	–8.7	6.0	6.3	6.8
24–25	–2.8	2.9	3.5	4.7
26–27	–7.3	5.1	5.3	5.6
28–30	–4.8	3.8	4.2	4.5
31–32	+9.3	2.8	3.4	4.8
33–34	–13.2	8.8	9.2	10.2
35–37	+15.7	1.6	2.0	2.6
38–39	+3.1	2.3	2.6	3.3
40–42	+1.9	2.3	2.7	3.7
43–45	+4.5	1.6	1.9	2.4
46–49	+7.3	0.1	0.1	0.2
50–53	+2.0	0.9	1.0	1.3
54–59	0.0	1.2	1.4	1.9
60–66	+1.1	0.0	0.0	0.0
67–100	–0.1	0.1	0.1	0.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

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

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–0.2	60.1	72.3	91.3
4	–0.3	38.7	43.5	56.6
8	+0.8	27.1	32.3	43.6
16	+0.6	19.3	22.4	27.7
32	+0.1	12.8	15.6	20.4
64	+0.2	9.2	10.9	15.5
128	+0.2	6.4	7.7	9.9
256	+0.3	4.3	5.1	6.9
512	+0.3	3.2	3.9	5.0
1,024	+0.2	2.4	2.7	3.5
2,048	+0.2	1.6	1.9	2.6
4,096	+0.2	1.2	1.4	1.9
8,192	+0.2	0.8	0.9	1.2
16,384	+0.2	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($1.90/day 2011 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.4	32.2	0.5	61.8	67.3	–69.6
<=15	8.8	28.8	1.1	61.2	70.1	–50.0
<=17	12.5	25.1	2.3	60.1	72.6	–27.4
<=21	16.8	20.8	3.6	58.8	75.6	–1.2
<=23	18.9	18.8	5.2	57.2	76.1	+14.0
<=25	22.6	15.0	7.7	54.7	77.3	+40.6
<=27	26.5	11.2	10.3	52.0	78.5	+68.2
<=30	30.0	7.7	13.9	48.5	78.4	+63.0
<=32	31.8	5.8	17.0	45.4	77.2	+54.9
<=34	32.9	4.7	19.2	43.2	76.1	+48.9
<=37	34.1	3.6	24.7	37.7	71.8	+34.4
<=39	35.4	2.2	29.9	32.4	67.8	+20.4
<=42	36.4	1.2	34.3	28.1	64.5	+8.8
<=45	37.1	0.6	38.7	23.7	60.8	–2.8
<=49	37.2	0.4	44.4	18.0	55.2	–18.1
<=53	37.5	0.1	48.8	13.6	51.1	–29.7
<=59	37.6	0.0	52.6	9.8	47.4	–39.8
<=66	37.6	0.0	57.2	5.2	42.8	–52.0
<=100	37.6	0.0	62.4	0.0	37.6	–65.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($1.90/day 2011 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	90.8	14.5	9.9:1
<=15	10.0	88.5	23.5	7.7:1
<=17	14.8	84.6	33.3	5.5:1
<=21	20.4	82.4	44.6	4.7:1
<=23	24.0	78.5	50.1	3.6:1
<=25	30.3	74.5	60.0	2.9:1
<=27	36.8	71.9	70.3	2.6:1
<=30	43.9	68.3	79.7	2.2:1
<=32	48.8	65.2	84.6	1.9:1
<=34	52.1	63.1	87.5	1.7:1
<=37	58.7	58.0	90.6	1.4:1
<=39	65.3	54.1	94.0	1.2:1
<=42	70.7	51.5	96.8	1.1:1
<=45	75.7	48.9	98.5	1.0:1
<=49	81.6	45.6	99.0	0.8:1
<=53	86.3	43.5	99.7	0.8:1
<=59	90.2	41.7	99.9	0.7:1
<=66	94.8	39.7	100.0	0.7:1
<=100	100.0	37.6	100.0	0.6:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$3.20/day 2011 PPP Poverty Line

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

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	99.6
13–15	99.0
16–17	99.0
18–21	94.9
22–23	93.4
24–25	93.4
26–27	91.7
28–30	83.3
31–32	79.0
33–34	77.1
35–37	76.4
38–39	68.3
40–42	63.2
43–45	53.3
46–49	53.2
50–53	48.8
54–59	32.3
60–66	18.7
67–100	3.6

Table 5 ($3.20/day 2011 PPP): 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
0–12	+1.4	0.7	0.8	1.0
13–15	–1.0	0.5	0.5	0.5
16–17	–0.9	0.5	0.5	0.5
18–21	+0.1	1.4	1.7	2.1
22–23	–1.3	1.2	1.3	1.7
24–25	+1.0	1.5	1.7	2.3
26–27	+1.0	1.5	1.8	2.4
28–30	–1.8	1.9	2.2	3.0
31–32	–1.7	2.7	3.3	4.8
33–34	–5.0	4.1	4.4	4.8
35–37	–0.1	2.3	2.8	3.6
38–39	–5.2	3.8	4.1	4.7
40–42	–7.9	5.5	5.9	6.5
43–45	–3.9	3.5	3.8	5.2
46–49	+35.5	2.1	2.4	3.1
50–53	–2.4	4.0	4.8	6.3
54–59	+3.8	4.2	5.0	6.2
60–66	+5.7	2.1	2.5	3.4
67–100	–15.0	9.5	9.8	10.7

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($3.20/day 2011 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	64.2	71.4	87.4
4	+0.6	35.8	41.0	56.9
8	+1.3	26.8	31.5	39.8
16	+2.2	20.2	24.1	31.1
32	+2.4	14.3	17.3	23.9
64	+2.4	10.0	12.3	16.1
128	+2.4	7.3	8.5	11.1
256	+2.3	5.0	6.1	7.7
512	+2.4	3.5	4.2	5.7
1,024	+2.4	2.5	3.0	3.9
2,048	+2.3	1.7	2.0	3.0
4,096	+2.4	1.2	1.4	2.1
8,192	+2.4	0.9	1.0	1.3
16,384	+2.4	0.6	0.8	1.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($3.20/day 2011 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.9	64.9	0.1	29.1	35.0	–83.2
<=15	9.8	60.9	0.1	29.1	39.0	–72.0
<=17	14.6	56.1	0.1	29.1	43.7	–58.4
<=21	20.0	50.8	0.4	28.8	48.8	–43.0
<=23	23.2	47.5	0.8	28.4	51.7	–33.2
<=25	29.0	41.8	1.3	27.9	56.9	–16.2
<=27	34.8	36.0	2.0	27.2	62.1	+1.2
<=30	40.6	30.1	3.2	26.0	66.7	+19.4
<=32	44.8	26.0	4.0	25.2	70.0	+32.3
<=34	47.5	23.3	4.6	24.6	72.1	+40.8
<=37	52.5	18.2	6.2	23.0	75.5	+57.2
<=39	57.2	13.6	8.1	21.1	78.3	+73.1
<=42	60.8	10.0	9.9	19.3	80.1	+85.8
<=45	63.8	7.0	11.9	17.3	81.1	+83.2
<=49	66.1	4.6	15.5	13.7	79.8	+78.1
<=53	68.4	2.3	17.9	11.4	79.8	+74.7
<=59	69.6	1.1	20.5	8.7	78.3	+71.0
<=66	70.4	0.4	24.4	4.8	75.2	+65.5
<=100	70.8	0.0	29.2	0.0	70.8	+58.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($3.20/day 2011 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	97.9	8.3	47.5:1
<=15	10.0	98.8	13.9	79.6:1
<=17	14.8	99.0	20.7	101.7:1
<=21	20.4	98.0	28.2	49.6:1
<=23	24.0	96.7	32.8	28.9:1
<=25	30.3	95.7	41.0	22.4:1
<=27	36.8	94.6	49.2	17.5:1
<=30	43.9	92.7	57.4	12.6:1
<=32	48.8	91.8	63.3	11.2:1
<=34	52.1	91.2	67.1	10.3:1
<=37	58.7	89.4	74.2	8.5:1
<=39	65.3	87.5	80.8	7.0:1
<=42	70.7	86.0	85.9	6.1:1
<=45	75.7	84.3	90.2	5.4:1
<=49	81.6	81.0	93.4	4.3:1
<=53	86.3	79.3	96.7	3.8:1
<=59	90.2	77.2	98.4	3.4:1
<=66	94.8	74.3	99.4	2.9:1
<=100	100.0	70.8	100.0	2.4:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$5.50/day 2011 PPP Poverty Line

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

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	100.0
13–15	100.0
16–17	100.0
18–21	100.0
22–23	100.0
24–25	100.0
26–27	100.0
28–30	98.5
31–32	98.4
33–34	98.4
35–37	97.8
38–39	97.8
40–42	97.1
43–45	94.2
46–49	89.4
50–53	85.5
54–59	82.5
60–66	68.8
67–100	34.3

Table 5 ($5.50/day 2011 PPP): 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
0–12	0.0	0.0	0.0	0.0
13–15	0.0	0.0	0.0	0.0
16–17	0.0	0.0	0.0	0.0
18–21	0.0	0.0	0.0	0.0
22–23	0.0	0.0	0.0	0.1
24–25	0.0	0.0	0.0	0.0
26–27	0.0	0.0	0.0	0.0
28–30	–0.9	0.6	0.6	0.6
31–32	–1.6	0.8	0.8	0.8
33–34	–1.6	0.8	0.8	0.8
35–37	–2.2	1.1	1.1	1.1
38–39	–2.2	1.1	1.1	1.1
40–42	–0.4	0.7	0.9	1.1
43–45	–5.8	2.9	2.9	2.9
46–49	+54.9	3.0	3.5	4.7
50–53	–9.2	5.2	5.3	5.5
54–59	+9.7	3.9	4.8	5.8
60–66	–14.3	8.4	8.6	9.0
67–100	–3.5	4.0	4.8	6.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 ($5.50/day 2011 PPP): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	50.0	58.4	77.6
4	+2.0	31.1	37.6	49.6
8	+3.0	24.6	28.6	40.1
16	+3.6	17.8	21.0	30.0
32	+4.1	13.9	16.7	20.6
64	+4.2	10.4	12.1	15.2
128	+4.4	7.6	9.2	11.7
256	+4.3	5.2	5.9	8.3
512	+4.4	3.7	4.3	6.2
1,024	+4.5	2.6	3.1	4.3
2,048	+4.5	1.8	2.2	3.1
4,096	+4.5	1.3	1.6	2.1
8,192	+4.5	0.9	1.1	1.4
16,384	+4.5	0.7	0.8	1.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($5.50/day 2011 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	85.9	0.0	8.1	14.1	–87.0
<=15	10.0	81.9	0.0	8.1	18.1	–78.3
<=17	14.8	77.1	0.0	8.1	22.9	–67.8
<=21	20.4	71.5	0.0	8.1	28.5	–55.7
<=23	24.0	67.8	0.0	8.1	32.1	–47.7
<=25	30.3	61.6	0.0	8.1	38.4	–34.1
<=27	36.8	55.1	0.0	8.1	44.9	–19.9
<=30	43.8	48.1	0.1	8.0	51.8	–4.6
<=32	48.7	43.2	0.1	8.0	56.7	+6.2
<=34	52.0	39.8	0.1	8.0	60.1	+13.4
<=37	58.6	33.2	0.1	8.0	66.7	+27.8
<=39	65.2	26.7	0.1	8.0	73.2	+42.1
<=42	70.3	21.5	0.4	7.8	78.1	+53.5
<=45	75.3	16.5	0.4	7.7	83.1	+64.4
<=49	79.7	12.2	2.0	6.2	85.9	+75.6
<=53	83.9	8.0	2.4	5.7	89.6	+85.2
<=59	86.8	5.0	3.3	4.8	91.7	+92.7
<=66	90.1	1.7	4.6	3.5	93.6	+95.0
<=100	91.9	0.0	8.1	0.0	91.9	+91.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($5.50/day 2011 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	100.0	6.5	Only poor targeted
<=15	10.0	100.0	10.9	Only poor targeted
<=17	14.8	100.0	16.1	Only poor targeted
<=21	20.4	100.0	22.2	Only poor targeted
<=23	24.0	99.9	26.1	1,177.1:1
<=25	30.3	99.9	32.9	1,483.6:1
<=27	36.8	99.9	40.0	1,803.0:1
<=30	43.9	99.8	47.6	428.7:1
<=32	48.8	99.8	53.0	477.2:1
<=34	52.1	99.8	56.6	509.7:1
<=37	58.7	99.8	63.8	574.5:1
<=39	65.3	99.8	71.0	638.8:1
<=42	70.7	99.5	76.6	195.6:1
<=45	75.7	99.5	82.0	194.1:1
<=49	81.6	97.6	86.8	40.8:1
<=53	86.3	97.2	91.3	34.6:1
<=59	90.2	96.3	94.5	26.2:1
<=66	94.8	95.1	98.1	19.5:1
<=100	100.0	91.9	100.0	11.3:1

Scorecard applied to the 2014/15 validation sample.

Tables for
$21.70/day 2011 PPP Poverty Line

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

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	100.0
13–15	100.0
16–17	100.0
18–21	100.0
22–23	100.0
24–25	100.0
26–27	100.0
28–30	100.0
31–32	100.0
33–34	100.0
35–37	100.0
38–39	100.0
40–42	100.0
43–45	100.0
46–49	100.0
50–53	100.0
54–59	100.0
60–66	100.0
67–100	98.7

Table 5 ($21.70/day 2011 PPP): 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
0–12	0.0	0.0	0.0	0.0
13–15	0.0	0.0	0.0	0.0
16–17	0.0	0.0	0.0	0.0
18–21	0.0	0.0	0.0	0.0
22–23	0.0	0.0	0.0	0.0
24–25	0.0	0.0	0.0	0.0
26–27	0.0	0.0	0.0	0.0
28–30	0.0	0.0	0.0	0.0
31–32	0.0	0.0	0.0	0.0
33–34	0.0	0.0	0.0	0.0
35–37	0.0	0.0	0.0	0.0
38–39	0.0	0.0	0.0	0.0
40–42	0.0	0.0	0.0	0.1
43–45	0.0	0.0	0.0	0.0
46–49	0.0	0.0	0.0	0.0
50–53	0.0	0.0	0.0	0.0
54–59	0.0	0.0	0.0	0.0
60–66	0.0	0.0	0.0	0.0
67–100	–1.1	0.6	0.6	0.6

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

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

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	0.0	0.7	0.7	0.7
4	0.0	0.2	0.3	0.4
8	0.0	0.1	0.1	0.5
16	0.0	0.1	0.1	0.5
32	0.0	0.1	0.1	0.3
64	0.0	0.1	0.1	0.2
128	0.0	0.1	0.1	0.1
256	0.0	0.0	0.1	0.1
512	0.0	0.0	0.0	0.0
1,024	0.0	0.0	0.0	0.0
2,048	0.0	0.0	0.0	0.0
4,096	0.0	0.0	0.0	0.0
8,192	0.0	0.0	0.0	0.0
16,384	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 ($21.70/day 2011 PPP): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	93.9	0.0	0.1	6.1	–88.0
<=15	10.0	90.0	0.0	0.1	10.0	–80.1
<=17	14.8	85.1	0.0	0.1	14.9	–70.4
<=21	20.4	79.6	0.0	0.1	20.4	–59.2
<=23	24.0	75.9	0.0	0.1	24.1	–51.9
<=25	30.3	69.6	0.0	0.1	30.4	–39.4
<=27	36.8	63.1	0.0	0.1	36.9	–26.3
<=30	43.9	56.1	0.0	0.1	43.9	–12.2
<=32	48.8	51.1	0.0	0.1	48.9	–2.3
<=34	52.1	47.8	0.0	0.1	52.2	+4.3
<=37	58.7	41.2	0.0	0.1	58.8	+17.6
<=39	65.3	34.6	0.0	0.1	65.4	+30.7
<=42	70.7	29.3	0.0	0.0	70.7	+41.5
<=45	75.7	24.2	0.0	0.0	75.7	+51.5
<=49	81.6	18.3	0.0	0.0	81.7	+63.4
<=53	86.3	13.7	0.0	0.0	86.3	+72.7
<=59	90.1	9.8	0.0	0.0	90.2	+80.4
<=66	94.7	5.2	0.0	0.0	94.8	+89.7
<=100	99.9	0.0	0.1	0.0	99.9	+99.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 ($21.70/day 2011 PPP): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	100.0	6.0	Only poor targeted
<=15	10.0	100.0	10.0	Only poor targeted
<=17	14.8	100.0	14.8	Only poor targeted
<=21	20.4	100.0	20.4	Only poor targeted
<=23	24.0	100.0	24.1	Only poor targeted
<=25	30.3	100.0	30.3	Only poor targeted
<=27	36.8	100.0	36.8	Only poor targeted
<=30	43.9	100.0	43.9	Only poor targeted
<=32	48.8	100.0	48.8	Only poor targeted
<=34	52.1	100.0	52.2	Only poor targeted
<=37	58.7	100.0	58.8	Only poor targeted
<=39	65.3	100.0	65.4	Only poor targeted
<=42	70.7	100.0	70.7	2,773.8:1
<=45	75.7	100.0	75.8	2,971.3:1
<=49	81.6	100.0	81.7	3,203.8:1
<=53	86.3	100.0	86.3	3,386.0:1
<=59	90.2	100.0	90.2	3,537.5:1
<=66	94.8	100.0	94.8	3,718.8:1
<=100	100.0	99.9	100.0	1,340.7:1

Scorecard applied to the 2014/15 validation sample.

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

Table 3 (Poorest half below 100% of 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:
0–12	61.0
13–15	58.2
16–17	48.7
18–21	36.2
22–23	32.3
24–25	23.3
26–27	18.6
28–30	14.5
31–32	9.9
33–34	8.4
35–37	8.4
38–39	8.4
40–42	4.6
43–45	4.3
46–49	1.7
50–53	1.7
54–59	0.3
60–66	0.0
67–100	0.0

Table 5 (Poorest half below 100% of national 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
0–12	–1.7	2.8	3.3	4.3
13–15	–8.1	5.8	6.1	6.7
16–17	+22.8	2.6	3.2	4.0
18–21	+8.9	2.8	3.4	4.5
22–23	+21.5	1.9	2.3	3.0
24–25	+1.5	2.1	2.6	3.4
26–27	–11.1	6.9	7.1	7.7
28–30	–12.9	7.7	7.9	8.4
31–32	+0.9	1.6	1.9	2.6
33–34	–3.6	3.2	3.5	4.1
35–37	+6.6	0.5	0.6	0.9
38–39	–4.6	3.3	3.4	3.7
40–42	+4.3	0.2	0.2	0.3
43–45	+4.0	0.2	0.2	0.3
46–49	+1.6	0.1	0.1	0.1
50–53	+1.0	0.3	0.4	0.5
54–59	+0.3	0.0	0.0	0.0
60–66	0.0	0.0	0.0	0.0
67–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (Poorest half below 100% of national line): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	65.1	73.3	76.3
4	0.0	34.6	42.2	55.7
8	+1.2	23.5	28.1	37.8
16	+1.1	16.0	19.7	26.8
32	+1.3	11.5	13.7	18.2
64	+1.6	7.8	9.8	12.9
128	+1.6	5.6	6.6	8.9
256	+1.6	4.0	4.9	6.1
512	+1.5	2.8	3.4	4.8
1,024	+1.5	2.0	2.4	3.3
2,048	+1.5	1.5	1.8	2.2
4,096	+1.5	1.0	1.2	1.6
8,192	+1.5	0.7	0.9	1.2
16,384	+1.5	0.5	0.6	0.8

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (Poorest half below 100% of national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	3.6	14.2	2.4	79.9	83.5	–45.9
<=15	5.9	11.9	4.0	78.2	84.1	–11.4
<=17	7.6	10.2	7.1	75.1	82.6	+25.3
<=21	9.2	8.6	11.1	71.1	80.3	+37.5
<=23	10.0	7.7	13.9	68.3	78.3	+21.7
<=25	11.8	6.0	18.5	63.7	75.5	–3.8
<=27	13.7	4.1	23.0	59.2	72.9	–29.4
<=30	15.7	2.1	28.1	54.1	69.7	–58.2
<=32	16.2	1.5	32.5	49.7	65.9	–82.8
<=34	16.6	1.2	35.5	46.7	63.3	–99.4
<=37	16.9	0.9	41.8	40.4	57.2	–135.2
<=39	17.6	0.2	47.7	34.5	52.1	–168.2
<=42	17.6	0.2	53.0	29.2	46.8	–198.1
<=45	17.7	0.1	58.0	24.2	41.9	–226.1
<=49	17.7	0.1	63.9	18.3	36.0	–259.1
<=53	17.8	0.0	68.5	13.7	31.5	–284.9
<=59	17.8	0.0	72.4	9.9	27.6	–306.7
<=66	17.8	0.0	77.0	5.2	23.0	–332.6
<=100	17.8	0.0	82.2	0.0	17.8	–362.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (Poorest half below 100% of 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	60.7	20.4	1.5:1
<=15	9.9	59.3	33.0	1.5:1
<=17	14.7	51.4	42.6	1.1:1
<=21	20.3	45.3	51.7	0.8:1
<=23	24.0	41.9	56.5	0.7:1
<=25	30.2	38.9	66.1	0.6:1
<=27	36.8	37.4	77.2	0.6:1
<=30	43.8	35.8	88.1	0.6:1
<=32	48.8	33.3	91.3	0.5:1
<=34	52.1	31.9	93.3	0.5:1
<=37	58.7	28.7	94.8	0.4:1
<=39	65.3	26.9	98.8	0.4:1
<=42	70.7	24.9	99.1	0.3:1
<=45	75.7	23.4	99.4	0.3:1
<=49	81.6	21.7	99.7	0.3:1
<=53	86.3	20.6	100.0	0.3:1
<=59	90.1	19.7	100.0	0.2:1
<=66	94.8	18.8	100.0	0.2:1
<=100	100.0	17.8	100.0	0.2:1

Scorecard applied to the 2014/15 validation sample.

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

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

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	47.1
13–15	33.3
16–17	18.1
18–21	11.3
22–23	11.3
24–25	7.1
26–27	5.7
28–30	4.1
31–32	4.0
33–34	2.5
35–37	2.0
38–39	1.5
40–42	0.8
43–45	0.8
46–49	0.8
50–53	0.6
54–59	0.0
60–66	0.0
67–100	0.0

Table 5 (First-decile (10th-percentile)): 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
0–12	+6.7	2.7	3.3	4.4
13–15	+19.2	2.4	2.8	3.8
16–17	+3.4	2.2	2.6	3.5
18–21	–4.2	3.3	3.5	3.9
22–23	+8.5	0.7	0.9	1.1
24–25	–4.1	2.9	3.0	3.3
26–27	+2.9	0.7	0.8	1.0
28–30	+0.5	0.7	0.8	1.1
31–32	+3.3	0.3	0.4	0.5
33–34	+2.3	0.2	0.2	0.3
35–37	+1.6	0.2	0.2	0.3
38–39	–4.4	3.0	3.1	3.4
40–42	+0.8	0.0	0.0	0.0
43–45	+0.8	0.0	0.0	0.0
46–49	+0.8	0.0	0.0	0.0
50–53	–0.1	0.3	0.4	0.5
54–59	0.0	0.0	0.0	0.0
60–66	0.0	0.0	0.0	0.0
67–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

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

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	+1.3	43.1	67.9	71.5
4	+1.4	24.5	30.3	43.0
8	+1.8	15.0	19.4	25.8
16	+1.5	10.7	13.1	18.6
32	+1.8	7.4	9.0	11.7
64	+1.9	5.0	6.3	8.7
128	+2.0	3.5	4.2	6.0
256	+2.0	2.5	3.0	3.8
512	+1.9	1.8	2.2	3.0
1,024	+1.9	1.3	1.5	2.0
2,048	+1.9	0.9	1.1	1.5
4,096	+1.9	0.6	0.8	1.0
8,192	+1.9	0.5	0.5	0.7
16,384	+1.9	0.3	0.4	0.5

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (First-decile (10th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	2.5	4.9	3.5	89.1	91.5	+14.2
<=15	3.2	4.2	6.8	85.8	89.0	+8.2
<=17	4.0	3.4	10.8	81.8	85.9	–45.4
<=21	4.9	2.5	15.5	77.1	82.0	–109.3
<=23	5.2	2.2	18.8	73.8	79.0	–154.5
<=25	6.0	1.4	24.3	68.4	74.4	–227.9
<=27	6.4	1.0	30.4	62.2	68.5	–311.6
<=30	6.8	0.6	37.0	55.6	62.4	–400.8
<=32	6.9	0.5	41.9	50.7	57.6	–466.6
<=34	6.9	0.4	45.2	47.4	54.4	–510.8
<=37	7.0	0.4	51.7	40.9	47.9	–599.0
<=39	7.3	0.1	58.0	34.6	42.0	–683.7
<=42	7.3	0.1	63.4	29.3	36.6	–756.5
<=45	7.3	0.1	68.4	24.2	31.6	–824.5
<=49	7.3	0.1	74.3	18.3	25.6	–904.6
<=53	7.4	0.0	78.9	13.7	21.1	–966.6
<=59	7.4	0.0	82.8	9.8	17.2	–1,018.8
<=66	7.4	0.0	87.4	5.2	12.6	–1,081.2
<=100	7.4	0.0	92.6	0.0	7.4	–1,152.0

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (First-decile (10th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	41.1	33.3	0.7:1
<=15	10.0	31.9	43.0	0.5:1
<=17	14.8	27.3	54.5	0.4:1
<=21	20.4	24.0	66.0	0.3:1
<=23	24.0	21.7	70.4	0.3:1
<=25	30.3	19.9	81.6	0.2:1
<=27	36.8	17.3	85.9	0.2:1
<=30	43.9	15.5	92.2	0.2:1
<=32	48.8	14.1	93.2	0.2:1
<=34	52.1	13.3	93.9	0.2:1
<=37	58.7	12.0	95.1	0.1:1
<=39	65.3	11.2	99.2	0.1:1
<=42	70.7	10.4	99.2	0.1:1
<=45	75.7	9.7	99.2	0.1:1
<=49	81.6	9.0	99.2	0.1:1
<=53	86.3	8.6	100.0	0.1:1
<=59	90.2	8.2	100.0	0.1:1
<=66	94.8	7.8	100.0	0.1:1
<=100	100.0	7.4	100.0	0.1:1

Scorecard applied to the 2014/15 validation sample.

Tables for
the First-Quintile (20th-Percentile) Poverty Line

Table 3 (First-quintile (20th-percentile)): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	60.6
13–15	57.8
16–17	41.2
18–21	29.3
22–23	29.3
24–25	20.8
26–27	17.0
28–30	11.8
31–32	5.9
33–34	5.9
35–37	5.9
38–39	5.9
40–42	2.9
43–45	2.1
46–49	1.2
50–53	0.9
54–59	0.2
60–66	0.0
67–100	0.0

Table 5 (First-quintile (20th-percentile)): 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
0–12	+3.5	2.9	3.3	4.4
13–15	+2.9	3.8	4.5	5.7
16–17	+24.2	2.2	2.6	3.4
18–21	+2.0	2.8	3.4	4.5
22–23	+18.9	1.9	2.3	3.0
24–25	–0.3	2.1	2.6	3.3
26–27	–11.6	7.1	7.4	7.9
28–30	–14.2	8.4	8.5	8.9
31–32	–2.2	1.9	2.1	2.5
33–34	–6.0	4.4	4.6	5.1
35–37	+4.2	0.5	0.6	0.9
38–39	–7.0	4.5	4.6	4.9
40–42	+2.5	0.2	0.2	0.3
43–45	+1.8	0.2	0.2	0.3
46–49	+1.2	0.0	0.0	0.0
50–53	+0.3	0.3	0.4	0.5
54–59	+0.2	0.0	0.0	0.0
60–66	0.0	0.0	0.0	0.0
67–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (First-quintile (20th-percentile)): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	70.4	74.4	77.3
4	–0.4	34.1	42.7	58.2
8	+0.7	22.6	27.5	40.5
16	+0.4	16.0	18.5	24.8
32	+0.5	11.0	13.8	17.2
64	+0.8	7.8	9.3	12.8
128	+0.9	5.6	6.5	8.9
256	+0.9	4.1	4.9	6.4
512	+0.8	2.8	3.4	4.8
1,024	+0.7	2.1	2.4	3.3
2,048	+0.7	1.5	1.7	2.2
4,096	+0.7	1.0	1.2	1.5
8,192	+0.8	0.7	0.9	1.1
16,384	+0.8	0.5	0.6	0.8

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (First-quintile (20th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	3.4	12.3	2.6	81.7	85.1	–40.3
<=15	5.2	10.6	4.8	79.4	84.6	–4.0
<=17	6.3	9.5	8.5	75.8	82.0	+33.1
<=21	7.9	7.9	12.4	71.8	79.7	+21.1
<=23	8.7	7.1	15.3	68.9	77.6	+2.8
<=25	10.3	5.5	20.0	64.3	74.5	–26.8
<=27	12.1	3.7	24.7	59.6	71.6	–56.6
<=30	13.8	1.9	30.0	54.3	68.1	–90.3
<=32	14.3	1.5	34.5	49.8	64.1	–118.8
<=34	14.6	1.1	37.4	46.8	61.4	–137.6
<=37	14.9	0.9	43.8	40.4	55.3	–178.1
<=39	15.6	0.2	49.7	34.5	50.1	–215.4
<=42	15.6	0.1	55.0	29.2	44.8	–249.3
<=45	15.7	0.1	60.0	24.2	39.9	–280.9
<=49	15.7	0.1	65.9	18.3	34.0	–318.5
<=53	15.8	0.0	70.5	13.7	29.5	–347.6
<=59	15.8	0.0	74.4	9.9	25.6	–372.1
<=66	15.8	0.0	79.0	5.2	21.0	–401.4
<=100	15.8	0.0	84.2	0.0	15.8	–434.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (First-quintile (20th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	57.0	21.7	1.3:1
<=15	10.0	51.7	32.7	1.1:1
<=17	14.7	42.5	39.7	0.7:1
<=21	20.3	38.8	50.0	0.6:1
<=23	24.0	36.1	55.0	0.6:1
<=25	30.2	33.9	65.1	0.5:1
<=27	36.8	32.9	76.6	0.5:1
<=30	43.8	31.6	87.8	0.5:1
<=32	48.8	29.3	90.7	0.4:1
<=34	52.1	28.1	93.0	0.4:1
<=37	58.7	25.4	94.5	0.3:1
<=39	65.3	23.9	98.9	0.3:1
<=42	70.7	22.1	99.2	0.3:1
<=45	75.7	20.7	99.6	0.3:1
<=49	81.6	19.2	99.6	0.2:1
<=53	86.3	18.3	100.0	0.2:1
<=59	90.1	17.5	100.0	0.2:1
<=66	94.8	16.6	100.0	0.2:1
<=100	100.0	15.8	100.0	0.2:1

Scorecard applied to the 2014/15 validation sample.

Tables for
the Second-Quintile (40th-Percentile) Poverty Line

Table 3 (Second-quintile (40th-percentile)): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	85.7
13–15	83.4
16–17	75.8
18–21	64.8
22–23	59.9
24–25	47.7
26–27	44.3
28–30	31.4
31–32	30.6
33–34	20.0
35–37	16.4
38–39	16.0
40–42	10.8
43–45	9.5
46–49	4.7
50–53	4.3
54–59	0.5
60–66	0.5
67–100	0.0

Table 5 (Second-quintile (40th-percentile)): 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
0–12	+5.1	2.5	3.1	3.9
13–15	+0.2	2.5	2.9	3.7
16–17	+22.6	3.3	3.9	5.1
18–21	–9.2	5.9	6.1	6.9
22–23	–10.7	7.0	7.2	7.8
24–25	+1.4	3.0	3.7	5.0
26–27	–11.8	7.3	7.5	7.9
28–30	–11.5	7.2	7.4	7.8
31–32	+4.1	2.8	3.3	4.5
33–34	+5.4	2.9	3.5	4.6
35–37	+11.7	0.9	1.1	1.4
38–39	–3.0	2.5	2.7	3.3
40–42	–5.2	3.8	4.0	4.5
43–45	+3.4	1.3	1.6	2.1
46–49	+4.6	0.1	0.1	0.1
50–53	+1.7	0.7	0.9	1.2
54–59	–2.2	1.7	1.9	2.2
60–66	+0.5	0.0	0.0	0.0
67–100	0.0	0.0	0.0	0.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (Second-quintile (40th-percentile)): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	67.1	79.9	90.6
4	+0.2	39.2	45.6	56.6
8	+1.1	27.6	33.2	43.7
16	+0.5	18.9	22.1	27.9
32	0.0	12.9	15.3	20.8
64	0.0	9.5	11.4	15.3
128	0.0	6.3	7.5	10.3
256	+0.1	4.6	5.5	7.2
512	0.0	3.3	3.8	4.9
1,024	0.0	2.5	2.9	3.5
2,048	–0.1	1.6	2.0	2.7
4,096	–0.1	1.2	1.4	1.9
8,192	0.0	0.8	1.0	1.3
16,384	–0.1	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (Second-quintile (40th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.1	27.7	0.9	66.3	71.5	–66.0
<=15	8.2	24.6	1.5	65.7	73.9	–45.2
<=17	11.0	21.8	3.6	63.6	74.6	–22.0
<=21	14.8	18.0	5.4	61.8	76.5	+6.5
<=23	16.8	16.0	7.1	60.1	76.9	+23.9
<=25	19.9	12.9	10.2	57.0	76.9	+52.6
<=27	23.6	9.3	13.1	54.1	77.6	+60.1
<=30	26.9	5.9	16.8	50.4	77.3	+48.8
<=32	28.6	4.2	20.1	47.1	75.7	+38.7
<=34	29.1	3.7	22.9	44.3	73.4	+30.2
<=37	29.8	3.0	28.8	38.3	68.1	+12.1
<=39	31.0	1.8	34.2	33.0	64.0	–4.3
<=42	32.0	0.8	38.6	28.5	60.5	–17.8
<=45	32.5	0.3	43.2	24.0	56.4	–31.7
<=49	32.5	0.3	49.1	18.1	50.6	–49.6
<=53	32.7	0.1	53.5	13.6	46.4	–63.2
<=59	32.8	0.0	57.3	9.9	42.7	–74.7
<=66	32.8	0.0	61.9	5.2	38.1	–88.8
<=100	32.8	0.0	67.2	0.0	32.8	–104.8

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (Second-quintile (40th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	85.6	15.7	5.9:1
<=15	9.8	84.3	25.1	5.4:1
<=17	14.6	75.5	33.6	3.1:1
<=21	20.2	73.2	45.0	2.7:1
<=23	23.9	70.4	51.2	2.4:1
<=25	30.1	66.2	60.8	2.0:1
<=27	36.7	64.3	71.8	1.8:1
<=30	43.7	61.6	82.1	1.6:1
<=32	48.7	58.7	87.1	1.4:1
<=34	52.0	56.0	88.8	1.3:1
<=37	58.6	50.8	90.8	1.0:1
<=39	65.2	47.5	94.5	0.9:1
<=42	70.6	45.3	97.5	0.8:1
<=45	75.7	42.9	98.9	0.8:1
<=49	81.6	39.8	99.1	0.7:1
<=53	86.3	37.9	99.7	0.6:1
<=59	90.1	36.4	100.0	0.6:1
<=66	94.8	34.6	100.0	0.5:1
<=100	100.0	32.8	100.0	0.5:1

Scorecard applied to the 2014/15 validation sample.

Tables for the Median (50^{th}-Percentile) Poverty Line

Table 3 (Median (50th-percentile)): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	94.9
13–15	90.8
16–17	85.2
18–21	73.7
22–23	68.5
24–25	64.2
26–27	61.6
28–30	44.6
31–32	43.8
33–34	33.4
35–37	31.6
38–39	27.0
40–42	20.8
43–45	16.5
46–49	11.4
50–53	7.6
54–59	3.0
60–66	1.1
67–100	0.0

Table 5 (Median (50th-percentile)): 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
0–12	+5.0	1.9	2.3	2.9
13–15	–3.0	2.2	2.3	2.7
16–17	+1.7	2.3	2.7	3.5
18–21	–8.2	5.2	5.5	5.9
22–23	–2.8	3.3	3.9	5.7
24–25	+3.4	3.0	3.6	4.6
26–27	–5.3	4.0	4.2	4.6
28–30	–22.5	12.6	12.8	13.4
31–32	+8.2	3.2	3.8	4.9
33–34	–18.1	11.1	11.6	12.4
35–37	+13.5	2.2	2.6	3.5
38–39	+1.8	2.4	2.9	3.6
40–42	+4.1	2.4	2.8	3.6
43–45	+4.6	1.9	2.2	2.8
46–49	+11.1	0.1	0.1	0.2
50–53	–6.3	4.5	4.7	5.2
54–59	0.0	1.2	1.4	1.9
60–66	+1.1	0.0	0.0	0.0
67–100	–0.1	0.1	0.1	0.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (Median (50th-percentile)): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), with confidence intervals

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Error	90-percent	95-percent	99-percent
1	–0.2	66.3	76.5	92.6
4	–0.3	38.2	44.5	56.0
8	+0.9	28.0	33.5	43.7
16	+0.3	18.7	22.4	29.6
32	0.0	13.0	15.3	20.3
64	+0.2	9.6	11.2	14.5
128	+0.2	6.7	8.0	10.1
256	+0.2	4.6	5.6	7.2
512	+0.3	3.3	4.0	5.2
1,024	+0.2	2.3	2.7	3.5
2,048	+0.2	1.6	2.0	2.6
4,096	+0.2	1.2	1.5	1.9
8,192	+0.2	0.9	1.0	1.4
16,384	+0.2	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (Median (50th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.5	36.2	0.5	57.8	63.3	–72.4
<=15	9.1	32.6	0.9	57.4	66.5	–54.3
<=17	13.0	28.7	1.8	56.5	69.6	–33.3
<=21	17.4	24.3	3.0	55.3	72.7	–9.5
<=23	19.5	22.2	4.5	53.8	73.3	+4.4
<=25	23.5	18.2	6.8	51.5	75.0	+29.0
<=27	27.7	14.0	9.1	49.2	76.9	+54.7
<=30	32.0	9.7	11.8	46.5	78.5	+71.6
<=32	34.3	7.4	14.5	43.8	78.0	+65.2
<=34	35.7	6.0	16.4	41.9	77.6	+60.6
<=37	37.1	4.6	21.6	36.7	73.8	+48.2
<=39	38.8	2.9	26.5	31.8	70.6	+36.5
<=42	39.9	1.8	30.8	27.5	67.5	+26.2
<=45	40.8	0.9	34.9	23.4	64.1	+16.2
<=49	41.0	0.7	40.7	17.6	58.6	+2.5
<=53	41.6	0.1	44.7	13.6	55.1	–7.3
<=59	41.7	0.0	48.5	9.8	51.5	–16.2
<=66	41.7	0.0	53.1	5.2	46.9	–27.3
<=100	41.7	0.0	58.3	0.0	41.7	–39.8

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (Median (50th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	92.1	13.2	11.6:1
<=15	10.0	91.3	21.8	10.5:1
<=17	14.8	88.1	31.2	7.4:1
<=21	20.4	85.3	41.7	5.8:1
<=23	24.0	81.2	46.8	4.3:1
<=25	30.3	77.6	56.3	3.5:1
<=27	36.8	75.3	66.5	3.1:1
<=30	43.9	73.0	76.8	2.7:1
<=32	48.8	70.2	82.2	2.4:1
<=34	52.1	68.5	85.6	2.2:1
<=37	58.7	63.2	89.1	1.7:1
<=39	65.3	59.4	93.1	1.5:1
<=42	70.7	56.5	95.8	1.3:1
<=45	75.7	53.9	97.8	1.2:1
<=49	81.6	50.2	98.2	1.0:1
<=53	86.3	48.2	99.6	0.9:1
<=59	90.2	46.2	100.0	0.9:1
<=66	94.8	44.0	100.0	0.8:1
<=100	100.0	41.7	100.0	0.7:1

Scorecard applied to the 2014/15 validation sample.

Tables for the Third-Quintile (60th-Percentile) Poverty Line

Table 3 (Third-quintile (60th-percentile)): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	98.5
13–15	96.1
16–17	94.2
18–21	83.1
22–23	77.9
24–25	74.3
26–27	73.1
28–30	59.0
31–32	58.4
33–34	47.7
35–37	44.0
38–39	41.7
40–42	34.3
43–45	28.4
46–49	23.1
50–53	23.1
54–59	9.2
60–66	4.0
67–100	0.7

Table 5 (Third-quintile (60th-percentile)): 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
0–12	+8.2	1.9	2.3	2.8
13–15	–3.8	1.9	2.0	2.0
16–17	+0.9	1.5	1.8	2.4
18–21	–9.0	5.3	5.4	5.6
22–23	–3.7	3.1	3.4	4.2
24–25	–10.1	6.1	6.3	6.7
26–27	–2.6	2.6	2.9	3.7
28–30	–12.8	7.6	7.8	8.3
31–32	+15.2	3.1	3.9	5.1
33–34	–6.2	5.2	5.6	6.6
35–37	+13.8	2.7	3.2	4.5
38–39	–9.6	6.2	6.5	6.9
40–42	+3.8	2.9	3.5	4.3
43–45	+6.0	2.6	3.1	3.8
46–49	+15.3	1.4	1.7	2.2
50–53	–15.8	9.9	10.3	10.9
54–59	+3.3	1.4	1.7	2.1
60–66	+2.2	0.7	0.8	1.0
67–100	+0.6	0.1	0.1	0.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (Third-quintile (60th-percentile)): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	69.4	75.6	92.5
4	–0.4	38.8	47.1	59.5
8	+0.6	27.9	32.4	43.1
16	+0.8	18.9	22.5	32.9
32	+0.6	14.1	17.0	21.4
64	+0.7	9.9	11.8	14.6
128	+0.6	6.8	8.3	10.4
256	+0.6	4.7	5.7	7.3
512	+0.6	3.3	4.1	5.1
1,024	+0.7	2.3	2.8	3.7
2,048	+0.7	1.8	2.1	2.8
4,096	+0.7	1.3	1.5	2.1
8,192	+0.7	0.9	1.1	1.3
16,384	+0.7	0.6	0.7	1.0

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (Third-quintile (60th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.6	46.8	0.4	47.2	52.8	–77.9
<=15	9.5	42.8	0.4	47.2	56.7	–62.8
<=17	13.9	38.4	0.8	46.8	60.8	–45.1
<=21	18.9	33.5	1.5	46.2	65.0	–25.0
<=23	21.6	30.7	2.4	45.2	66.9	–12.8
<=25	26.6	25.7	3.7	44.0	70.6	+8.7
<=27	31.6	20.8	5.2	42.4	74.0	+30.6
<=30	36.4	16.0	7.5	40.2	76.6	+53.3
<=32	39.2	13.1	9.6	38.1	77.3	+68.2
<=34	40.9	11.5	11.2	36.4	77.3	+77.7
<=37	43.3	9.1	15.5	32.2	75.4	+70.4
<=39	46.2	6.1	19.1	28.6	74.8	+63.5
<=42	48.2	4.2	22.5	25.1	73.3	+57.0
<=45	49.6	2.7	26.1	21.6	71.2	+50.2
<=49	50.4	1.9	31.2	16.5	66.9	+40.4
<=53	51.8	0.6	34.5	13.1	64.9	+34.0
<=59	52.2	0.2	38.0	9.7	61.9	+27.5
<=66	52.3	0.0	42.4	5.2	57.5	+18.9
<=100	52.3	0.0	47.7	0.0	52.3	+9.0

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (Third-quintile (60th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	93.3	10.7	13.9:1
<=15	10.0	95.5	18.2	21.3:1
<=17	14.8	94.3	26.6	16.6:1
<=21	20.4	92.7	36.1	12.7:1
<=23	24.0	90.0	41.3	9.0:1
<=25	30.3	87.9	50.9	7.3:1
<=27	36.8	85.8	60.3	6.0:1
<=30	43.9	83.0	69.5	4.9:1
<=32	48.8	80.4	74.9	4.1:1
<=34	52.1	78.4	78.1	3.6:1
<=37	58.7	73.7	82.6	2.8:1
<=39	65.3	70.8	88.3	2.4:1
<=42	70.7	68.2	92.1	2.1:1
<=45	75.7	65.5	94.8	1.9:1
<=49	81.6	61.8	96.4	1.6:1
<=53	86.3	60.0	98.9	1.5:1
<=59	90.2	57.9	99.7	1.4:1
<=66	94.8	55.2	100.0	1.2:1
<=100	100.0	52.3	100.0	1.1:1

Scorecard applied to the 2014/15 validation sample.

Tables for
the Fourth-Quintile (80th-Percentile) Poverty Line

Table 3 (Fourth-quintile (80th-percentile)): Scores and their corresponding estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–12	99.7
13–15	99.2
16–17	99.2
18–21	95.8
22–23	93.7
24–25	93.7
26–27	93.7
28–30	87.2
31–32	86.7
33–34	81.0
35–37	79.2
38–39	73.3
40–42	69.7
43–45	62.3
46–49	57.9
50–53	50.6
54–59	36.2
60–66	22.3
67–100	4.9

Table 5 (Fourth-quintile (80th-percentile)): 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
0–12	+1.4	0.7	0.8	1.0
13–15	–0.8	0.4	0.4	0.4
16–17	–0.8	0.4	0.4	0.4
18–21	+0.8	1.5	1.7	2.1
22–23	–2.9	1.8	1.9	2.1
24–25	–4.3	2.4	2.5	2.6
26–27	+3.1	1.5	1.8	2.4
28–30	–5.0	3.1	3.3	3.5
31–32	–1.7	2.2	2.7	3.6
33–34	–4.3	3.6	3.8	4.4
35–37	+1.2	2.3	2.7	3.5
38–39	–7.5	4.7	5.0	5.4
40–42	–6.8	4.9	5.1	5.7
43–45	+1.1	3.3	3.8	5.1
46–49	+40.2	2.1	2.4	3.1
50–53	–1.2	3.9	4.8	6.3
54–59	+7.1	4.2	5.0	6.2
60–66	+8.4	2.2	2.6	3.5
67–100	–13.9	8.9	9.3	10.1

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 6 (Fourth-quintile (80th-percentile)): Errors in households' poverty rates at a point in time (average of differences between estimated and observed values), 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	64.3	75.5	85.7
4	+0.9	33.4	39.5	52.0
8	+1.9	25.5	30.1	39.1
16	+2.8	19.6	23.5	29.8
32	+2.9	13.9	16.1	20.8
64	+2.8	10.0	11.7	15.5
128	+2.8	7.2	8.3	11.2
256	+2.8	5.0	5.8	7.6
512	+2.9	3.5	4.2	5.4
1,024	+2.9	2.5	2.9	3.9
2,048	+2.9	1.7	2.1	3.0
4,096	+2.9	1.2	1.5	2.0
8,192	+2.9	0.9	1.1	1.4
16,384	+2.9	0.6	0.7	0.9

Scorecard applied to 1,000 bootstraps from the 2014/15 validation sample.

Table 11 (Fourth-quintile (80th-percentile)): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied with the 2014/15 validation sample

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
<=12	5.9	67.8	0.1	26.2	32.1	–83.9
<=15	9.8	63.8	0.1	26.2	36.1	–73.1
<=17	14.7	59.0	0.1	26.2	40.9	–60.0
<=21	20.0	53.6	0.3	26.0	46.0	–45.2
<=23	23.4	50.2	0.6	25.7	49.2	–35.6
<=25	29.4	44.2	0.9	25.5	54.9	–18.9
<=27	35.3	38.4	1.5	24.8	60.0	–2.2
<=30	41.6	32.1	2.3	24.1	65.6	+16.0
<=32	46.0	27.6	2.8	23.6	69.6	+28.8
<=34	48.9	24.8	3.2	23.1	72.0	+37.1
<=37	54.1	19.6	4.7	21.7	75.7	+53.1
<=39	59.1	14.5	6.2	20.1	79.3	+68.9
<=42	63.1	10.6	7.6	18.7	81.8	+81.6
<=45	66.4	7.3	9.3	17.0	83.4	+87.3
<=49	68.7	5.0	12.9	13.4	82.1	+82.4
<=53	71.1	2.6	15.2	11.1	82.2	+79.4
<=59	72.4	1.3	17.8	8.6	80.9	+75.9
<=66	73.2	0.4	21.5	4.8	78.0	+70.8
<=100	73.7	0.0	26.3	0.0	73.7	+64.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100. Scorecard applied to the 2014/15 validation sample.

Table 12 (Fourth-quintile (80th-percentile)): 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, scorecard applied with the 2014/15 validation sample

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
<=12	6.0	97.9	8.0	47.5:1
<=15	10.0	98.8	13.4	79.6:1
<=17	14.8	99.2	19.9	118.6:1
<=21	20.4	98.4	27.2	60.6:1
<=23	24.0	97.5	31.8	39.1:1
<=25	30.3	97.1	39.9	34.0:1
<=27	36.8	95.8	47.9	22.8:1
<=30	43.9	94.8	56.4	18.2:1
<=32	48.8	94.3	62.5	16.6:1
<=34	52.1	93.8	66.4	15.2:1
<=37	58.7	92.0	73.4	11.6:1
<=39	65.3	90.5	80.3	9.5:1
<=42	70.7	89.2	85.6	8.3:1
<=45	75.7	87.7	90.1	7.1:1
<=49	81.6	84.1	93.3	5.3:1
<=53	86.3	82.4	96.5	4.7:1
<=59	90.2	80.3	98.3	4.1:1
<=66	94.8	77.3	99.4	3.4:1
<=100	100.0	73.7	100.0	2.8:1

Scorecard applied to the 2014/15 validation sample.