Simple Poverty Scorecard® Poverty-Assessment Tool Gabon

Mark Schreiner

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Abstract

The Simple Poverty Scorecard-brand poverty-assessment tool uses 11 low-cost indicators from Gabon's 2005 Poverty Monitoring Survey to estimate the likelihood that a household has consumption below a given poverty line. Field workers can collect responses in about ten minutes. Accuracy is reported for a range of poverty lines. The scorecard is a practical way for pro-poor programs in Gabon to estimate poverty rates, to track changes in poverty rates over time, and to segment clients for differentiated treatment.

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Author

Mark Schreiner directs Microfinance Risk Management, L.L.C. He is also a Senior Scholar at the Center for Social Development at Washington University in Saint Louis.

Simple Poverty Scorecard® Poverty-Assessment Tool

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

Indicator	Response	Points Score
1. How many members does the household have?	A. Nine or more	0
	B. Eight	6
	C. Seven	7
	D. Six	11
	E. Five	13
	F. Four	18
	G. Three	28
	H. Two	36
	I. One	45
2. Do all household members ages 6 to 18 currently go to a public, private, or religious school?	A. No	0
	B. Yes, all go to public	3
	C. No members ages 6 to 18	5
	D. Yes, at least one goes to private or religious	6
3. Can the male head/spouse read and write?	A. No	0
	B. No male head/spouse	2
	C. Yes	3
4. Can the (eldest) female head/spouse read and write?	A. No	0
	B. Yes	2
	C. No female head/spouse	3
5. How many distinct rooms does the residence have?	A. One	0
	B. Two	1
	C. Three or four	4
	D. Five	6
	E. Six or more	9
6. What are the walls of the residence made of?	A. Packed earth, mud bricks, traditional materials, or salvaged materials	0
	B. Wood, or other	5
	C. Both wood and cinder blocks, or only cinder blocks	9
7. What is the roof of the residence made of?	A. Thatch, corrugated metal sheets without beams, or other	0
	B. Corrugated metal sheets with beams, concrete, tile, or slate	4
8. Does the household have a refrigerator/freezer?	A. No	0
	B. Yes	6
9. Does the household have a TV/VCR/DVD player?	A. No	0
	B. Yes	5
10. Does the household have a radio/car radio/radio-cassette/CD player?	A. No	0
	B. Yes	4
11. Does the household have a wardrobe or dresser?	A. No	0
	B. Yes	6

Score:

Back-page Worksheet:
Household Membership, Age, and School Attendance

In the scorecard header, write the interview's unique identifier (if known), the interview date, and the sampling weight of the participant (if known). Then record the name and the unique identification number of the participant (who may differ from the respondent), of yourself as the field agent, and of the service point that the participant uses.

Read to the respondent: *Please tell me the first names (or nicknames) and ages of the members of your household, starting with the head. A* household *is one or more people who normally live and eat meals together and who recognize the authority of one of their members as the head.*

Write down the name/nickname and age of each member, noting for your own future use who is the male head/spouse (if he exists) and who is the (eldest) female head/spouse (if she exists). You need to know the precise age only if the true age may be close to 6 or 18. Count the number of household members, and write it in the scorecard header by "Number of household members:". Then mark the response to the first scorecard indicator.

For each member ages 6 to 18, ask whether he/she currently goes to school. For each member who goes to school, ask whether the school is public, private, or religious. Then mark the response to the second scorecard indicator. Mark "C. No members ages 6 to 18" if there are no school-age members. Mark "A. No" if there are school-age members but one or more do not attend school. Mark "B. Yes, all go to public" if there are school-age members and if all attend a public school. Finally, mark "D. Yes, at least one goes to private or religious" if there are school-age members, if all of them attend school, and if at least one attends a private or religious school.

Always follow the "Guidelines for the Interpretation of Scorecard Indicators".

First name (or nickname)	**How old was [NAME] on his/her last birthday?**	**If [NAME] is 6- to 18-years-old, does he/she currently go to school?**	**If [NAME] currently goes to school, is it public, private, or religious?**
1. (Head)		<6 or >18 No Yes	Does not attend Public Private/religious
2.		<6 or >18 No Yes	Does not attend Public Private/religious
3.		<6 or >18 No Yes	Does not attend Public Private/religious
4.		<6 or >18 No Yes	Does not attend Public Private/religious
5.		<6 or >18 No Yes	Does not attend Public Private/religious
6.		<6 or >18 No Yes	Does not attend Public Private/religious
7.		<6 or >18 No Yes	Does not attend Public Private/religious
8.		<6 or >18 No Yes	Does not attend Public Private/religious
9.		<6 or >18 No Yes	Does not attend Public Private/religious
10.		<6 or >18 No Yes	Does not attend Public Private/religious
11.		<6 or >18 No Yes	Does not attend Public Private/religious
12.		<6 or >18 No Yes	Does not attend Public Private/religious
13.		<6 or >18 No Yes	Does not attend Public Private/religious
14.		<6 or >18 No Yes	Does not attend Public Private/religious
15.		<6 or >18 No Yes	Does not attend Public Private/religious
16.		<6 or >18 No Yes	Does not attend Public Private/religious

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

	Poverty likelihood (%)			
		National lines		
Score	**Food**	**100%**	**150%**	**200%**
0–4	100.0	100.0	100.0	100.0
5–9	78.0	93.6	100.0	100.0
10–14	64.1	88.9	98.9	98.9
15–19	59.1	82.6	96.7	97.9
20–24	49.1	77.0	93.4	95.9
25–29	33.4	65.4	90.2	94.9
30–34	18.0	53.8	87.8	94.9
35–39	11.7	41.6	78.4	92.5
40–44	6.3	34.9	68.7	86.9
45–49	2.1	15.7	50.8	73.0
50–54	1.1	8.1	34.4	64.8
55–59	0.8	5.8	25.6	44.1
60–64	0.2	3.4	12.0	31.3
65–69	0.0	1.5	5.1	18.9
70–74	0.0	0.5	2.2	8.4
75–79	0.0	0.0	0.3	2.3
80–84	0.0	0.0	0.0	0.9
85–89	0.0	0.0	0.0	0.4
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

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

	Poverty likelihood (%)					
	Intl. 2005 PPP lines				Intl. 2011 PPP lines	
Score	**$1.25**	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
0–4	100.0	100.0	100.0	100.0	100.0	100.0
5–9	49.1	86.9	93.6	100.0	67.9	86.9
10–14	34.0	73.3	88.9	98.9	41.5	78.0
15–19	30.1	63.8	80.7	97.9	35.7	72.5
20–24	18.5	57.1	75.6	95.8	25.9	67.5
25–29	14.6	41.0	61.4	94.7	16.6	51.1
30–34	6.0	26.5	49.3	94.7	8.3	36.8
35–39	2.6	19.7	38.0	91.6	3.2	26.4
40–44	1.3	13.3	28.1	84.6	1.7	19.6
45–49	0.6	5.1	13.6	68.9	0.7	8.4
50–54	0.3	2.0	6.2	60.0	0.4	3.3
55–59	0.3	1.3	3.3	41.1	0.4	2.2
60–64	0.1	0.2	1.0	27.6	0.1	0.5
65–69	0.0	0.0	0.4	13.4	0.0	0.0
70–74	0.0	0.0	0.2	7.2	0.0	0.0
75–79	0.0	0.0	0.0	2.3	0.0	0.0
80–84	0.0	0.0	0.0	0.6	0.0	0.0
85–89	0.0	0.0	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0	0.0	0.0

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

	Poverty likelihood (%)					
	Poorest half of people	Percentile-based lines				
Score	below 100% Natl. line	20th	40th	50th	60th	80th
0–4	100.0	100.0	100.0	100.0	100.0	100.0
5–9	93.6	93.6	100.0	100.0	100.0	100.0
10–14	77.0	78.3	97.6	98.9	98.9	100.0
15–19	66.2	70.8	92.5	94.7	97.9	100.0
20–24	59.3	68.1	87.0	90.5	95.3	99.4
25–29	42.5	51.1	84.6	90.5	93.7	98.9
30–34	24.4	32.6	64.8	83.1	90.7	98.4
35–39	16.2	21.9	51.9	68.7	83.6	96.2
40–44	6.5	13.3	41.5	56.5	73.5	93.3
45–49	3.4	5.5	23.5	39.6	53.1	85.2
50–54	1.5	2.4	14.5	22.9	41.4	77.1
55–59	1.1	1.6	10.8	17.8	31.0	66.0
60–64	0.0	0.1	5.1	9.4	15.2	54.8
65–69	0.0	0.0	2.6	4.3	9.0	36.2
70–74	0.0	0.0	0.5	1.1	3.0	19.8
75–79	0.0	0.0	0.0	0.0	0.6	11.7
80–84	0.0	0.0	0.0	0.0	0.3	3.4
85–89	0.0	0.0	0.0	0.0	0.0	0.8
90–94	0.0	0.0	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0	0.0	0.0

Simple Poverty Scorecard® Poverty-Assessment Tool Gabon

1. Introduction

This paper presents the Simple Poverty Scorecard poverty-assessment tool. Pro-poor programs in Gabon can use it 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 track changes 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. The 2005 *Enquête Gabonaise pour l'Évaluation et le Suivi de la Pauvreté* (EGEP, the Poverty Monitoring Survey) done by Gabon's *Direction Générale des Statistiques*, DGS) is a case in point. Enumerators for the EGEP asked about 500 questions, most of which had a number of follow-up sub-questions.

In comparison, the indirect approach of the scorecard is quick and low-cost. It uses 11 verifiable indicators drawn from the 2005 EGEP (such as "What are the walls of the residence made of?" and "Does the household have a wardrobe or dresser?") to get a score that is correlated with poverty status as measured by the exhaustive EGEP 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, Gabon's national line). USAID microenterprise partners in Gabon can use the scorecard with the line marking the poorest half of people below 100% of the national poverty line to report how many of their participants are "very poor".[2] The scorecard can also be used to estimate net movement across a poverty line over time. In all these applications, the scorecard provides a consumption-based, objective tool. While consumption surveys are costly even for governments, some local pro-poor organizations may be able to implement a low-cost poverty-assessment tool to help with monitoring poverty and (if desired) segmenting clients for differentiated treatment.

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[1] The Simple Poverty Scorecard poverty-assessment tool is not, however, in the public domain. Copyright is held by Microfinance Risk Management, 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 (XAF598, Table 1) or the line that marks the poorest half of people below 100% of the national line (XAF734).

The statistical approach here aims to be understood by non-specialists. After all, if 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 local 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 scoring, they have rarely been applied to poverty-assessment tools.

The scorecard is based on data from the 2005 EGEP by Gabon's DGS.

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 in Gabon

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 poverty likelihoods among a representative sample of households from the population.

Third, the scorecard can estimate the annual rate of change in the poverty rate. With two independent samples from the same population, this is the difference in the average poverty likelihood in the baseline sample versus the average 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 rate of change in the poverty rate is the sum of the changes in each household's

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 measures 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 150% of Gabon's national poverty line applied to data from the 2005 EGEP. Scores from this one scorecard are calibrated with this same data to poverty likelihoods for 16 poverty lines.

The scorecard is constructed using data from half of the households in the 2005 EGEP. Data from that same half of households is also used to calibrate scores to poverty likelihoods for the 16 poverty lines. Data from the other half 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, and for segmenting participants.

Given their assumptions, all three scorecard-based estimators (a household's poverty likelihood, a population's poverty rate at a point in time, and a population's annual rate of change in its poverty rate) are *unbiased*. That is, their average matches the population's true value in repeated samples when constructed from (and applied to) a single, unchanging population in which the relationship between scorecard indicators and poverty is unchanging. Like all predictive models, the scorecard is constructed from

a single sample and so misses the mark to some unknown extent when applied (as in this paper) to a validation sample. Furthermore, it makes errors when applied (in practice) to a different population or when applied after 2005 (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, it 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.

On average across 1,000 bootstraps of $n = 16{,}384$ from the validation sample, the average error (difference between the scorecard's estimate of a poverty rate versus the observed rate in the 2005 EGEP) at a point in time for 100% of the national poverty line is +2.5 percentage points. The average across all 16 poverty lines of the average absolute errors is about 1.9 percentage points, and the maximum of the average absolute errors is 3.6 percentage points. These estimation errors are due to sampling variation, not bias; the average difference would be zero if the whole 2005 EGEP were to be repeatedly re-fielded and re-divided into sub-samples before repeating the entire process of constructing and validating the resulting scorecards.

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

With $n = 16{,}384$, the 90-percent confidence intervals are ± 0.6 percentage points or less. For $n = 1{,}024$, the 90-percent intervals are ± 2.4 percentage points or less.

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 populations' poverty rates over time. Section 8 covers targeting. Section 9 places the scorecard here in the context of a related exercise for Gabon. The last section is a summary.

The "Guidelines for the Interpretation of Scorecard Indicators" tells how to ask questions—and how to interpret responses—so as to mimic practice in Gabon's 2005 EGEP as closely as possible. These "Guidelines" (and the "Back-page Worksheet") are integral parts of the Simple Poverty Scorecard tool.

2. Data and poverty lines

This section presents the data used to construct and validate the scorecard. It also documents the 16 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 half of the 7,913 households in Gabon's 2005 EGEP. The 2005 EGEP is Gabon's most-recent national consumption survey.

The data from the half of households from the 2005 EGEP that is used to construct the scorecard is also used to associate (*calibrate*) scores to poverty likelihoods for all poverty lines.

Data from the other half of households from the 2005 EGEP 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.

Field work for the 2005 EGEP ran from 1 May to 7 July 2005. Consumption is in units of XAF per person per day in Libreville on average during the EGEP fieldwork.

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, each member of a given household has the same poverty status (or estimated poverty likelihood) as the other members in that household.

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

Poverty rates are in terms of either households or people. If the program defines its *participants* as households, then the household level is relevant. The estimated household-level poverty rate is the weighted[4] average of poverty statuses (or estimated poverty likelihoods) across households with participants. This is $\frac{1 \cdot 1 + 1 \cdot 0}{1 + 1} = \frac{1}{2} = 0.5 = 50$ percent. In the "$1 \cdot 1$" term in the numerator, the first "1" is the first household's 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 poverty status (non-poor) or its estimated poverty likelihood. The "$1 + 1$" in the

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

denominator is the sum of the weights of the two households. Household-level weights are used because the unit of analysis is the household.

Alternatively, a person-level rate is relevant if a program defines all people in households that benefit from its services as *participants*. In the example here, the person-level rate is the household-size-weighted[5] average of poverty statuses (or estimated poverty likelihoods) for households with participants, or $\frac{3 \cdot 1 + 4 \cdot 0}{3 + 4} = \frac{3}{7} = 0.43 = 43$ 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.

As a final example, a program might count as *participants* only those household members who directly participate in the program. For the example here, this means that some—but not all—household members are counted. The person-level rate is now

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

the participant-weighted average[6] of the poverty statuses (or estimated poverty likelihoods) of households with participants, or $\frac{1 \cdot 1 + 2 \cdot 0}{1 + 2} = \frac{1}{3} = 0.33 = 33$ 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.

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 make explicit the unit of analysis—whether household, household member, or participant—and explain why that unit is relevant.

Table 1 reports poverty lines and poverty rates for households and people in the 2005 EGEP for Gabon as a whole, for the construction/calibration sample, and for the validation sample. For all of Gabon and for each of its six geographic regions, Table 2 reports poverty lines and poverty rates for households and people by urban/rural/all.

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

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 Tables 1 and 2 because these are the rates reported by the government of Gabon. 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 is below a given poverty line. Thus, a definition of *poverty* is a poverty line together with a measure of consumption.

2.3.1 National poverty lines

Backiny-Yetna and Wodon (2009) document the measure of consumption used with the 2005 EGEP. Using Ravallion's (1998) cost-of-basic-needs approach, their derivation of the national line starts with a food line that is the observed cost of 2,100 Calories in a basket of 29 food items that accounts for 75 percent of food consumption in the 2005 EGEP. This cost is found separately for 10 regions (Libreville, Port-Gentil, and urban and rural areas in the four geographic regions of Nord, Sud, Est, and

Ouest).[7] The average food line for Gabon as a whole is XAF773 per person per day in prices in Libreville on average during for the 2005 EGEP fieldwork (Table 1), giving poverty rates of 7.5 percent (households) and 13.9 percent (people).

The national line (usually called here "100% of the national line") is then defined for each the 10 geographic regions as the food line, plus a non-food component that is the estimated per-capita non-food consumption of households whose total (food-plus-non-food) consumption is at the food line (Backiny-Yetna and Wodon, 2009). For the 2005 EGEP, 100% of the national (food-plus-non-food) line for Gabon as a whole is XAF1,170 per person per day, implying a household-level poverty rate of 20.0 percent and a person-level rate of 32.8 percent (Table 1).[8]

[7] There is no adjustment for changes in prices in the two months of EGEP fieldwork.
[8] The person-level poverty rate for 100% of the national line here is 0.1 percentage points higher than in Backiny-Yetna and Wodon (2009, p. 11). This suggests that this paper uses almost the same data/calculations as they and the World Bank (2006) did.

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

Because pro-poor organizations in Gabon may want to use different or various poverty lines, this paper calibrates scores from its single scorecard to poverty likelihoods for 16 lines:

- Food
- 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
- $3.10/day 2011 PPP
- Line marking the poorest half of people below 100% of the national 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

2.3.2 International 2005 and 2011 PPP lines

International 2005 and 2011 PPP lines are derived from:

- PPP exchange rates for Gabon for "individual consumption expenditure by households":
  - 2005:[9] XAF443.749 per $1.00
  - 2011:[10] XAF359.219 per $1.00
- Consumer Price Index (CPI):[11]
  - Average May/June/July 2005 (EGEP fieldwork): 103.767
  - Calendar-year 2005 average: 103.708
  - Calendar-year 2011 average: 118.342
- All-Gabon and regional price deflators:[12]
  - All-Gabon person-weighted average deflator: 0.9922892
  - Libreville: 0.9985166
  - Port-Gentil: 1.6457266
  - Nord (urban): 0.9029649
  - Sud (urban): 0.8269145
  - Est (urban): 0.8180821
  - Ouest (urban): 1.0419577
  - Nord (rural): 0.8698669
  - Sud (rural): 0.8723194
  - Est (rural): 0.9413908
  - Ouest (rural): 0.9062732

[9] World Bank, 2008.

[10] `iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&C0=GAB_3&PPP0=359.219&PL0=1.90&Y0=2005&NumOfCountries=1`, retrieved 27jul2017.

[11] The CPI series has base = 100 in each month of 2004. It is taken from DGS (2010) *Annuaire Statistique 2009* (`stat-gabon.org/documents/PDF/Donnees%20stat/Compteannuaire/Ann09.pdf`, retrieved 27 July 2017) and from a number of monthly CPI reports on `statgabon.ga`.

[12] The deflators here are calculated from the EGEP 2005 data and differ slightly—even after considering rounding—from Backiny-Yetna and Wodon (2009).

2.4.1.1. $1.25/day 2005 PPP line

For a given poverty-line region in Gabon, the $1.25/day 2005 PPP line in prices in Libreville on average during fieldwork for the 2005 EGEP is

$$\frac{\$1.25 \cdot \left(\frac{\text{2005 PPP factor}}{\$1.00}\right)\left(\frac{\text{CPI}_{\text{2005 EGEP}}}{\text{CPI}_{\text{2005}}}\right) \cdot \text{Regional deflator}}{\text{All - Gabon deflator}}.$$

For the example of Libreville, the $1.25/day 2005 PPP line is

$$\frac{\$1.25 \cdot \left(\frac{\text{XAF443.749}}{\$1.00}\right)\left(\frac{103.767}{103.708}\right) \cdot 0.9985166}{0.9922892} = \text{XOF558}.$$

The all-Gabon $1.25/day 2005 PPP line is the person-weighted average of the 10 regional $1.25/day lines. This is XAF555 per person per day, with a household-level poverty rate of 2.6 percent and a person-level poverty rate of 5.7 percent (Table 1).

For comparison, the World Bank's PovcalNet reports a person-level poverty rate for its $1.25/day 2005 PPP line of 6.1 percent.[13] The slightly lower estimate here of 5.7 percent is to be preferred (Schreiner, 2014b) because PovcalNet does not report:

- Its $1.25/day 2005 PPP line in XAF
- The time/place of its price units
- Whether/how it adjusts for regional differences in prices
- How it deflates 2005 PPP factors over time

Also, PovcalNet's estimates are based on a 20-quantile approximation of the distribution of consumption as opposed to this paper's direct use of the household-level microdata.

[13] `iresearch.worldbank.org/PovcalNetPPP2005/Detail.aspx?Format=Detail&C0=GAB_3&PPP0=443.75&PL0=1.25&Y0=2005&NumOfCountries=1`, retrieved 27 July 2017.

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

2.4.1.2. $1.90/day 2011 PPP line

For a given poverty-line region in Gabon, the $1.90/day 2011 PPP line in prices in Libreville on average during fieldwork for the 2005 EGEP is

$$\frac{\$1.90 \cdot \left(\frac{\text{2011 PPP factor}}{\$1.00}\right)\left(\frac{\text{CPI}_{\text{2005 EGEP}}}{\text{CPI}_{\text{2011}}}\right) \cdot \text{Regional deflator}}{\text{All - Gabon deflator}}.$$

For the example of Libreville, the $1.90/day 2011 PPP line is

$$\frac{\$1.90 \cdot \left(\frac{\text{XAF359.219}}{\$1.00}\right)\left(\frac{103.767}{118.342}\right) \cdot 0.9985166}{0.9922892} = \text{XAF602}.$$

The all-Gabon $1.90/day 2011 PPP line is the person-weighted average of the 10 regional $1.90/day lines. This is XAF598 per person per day, with a household-level poverty rate of 3.4 percent and a person-level poverty rate of 6.6 percent (Table 1).

PovcalNet reports the same $1.90/day 2011 PPP line of XOF598 but a higher person-level poverty rate of 8.0 percent.[14] Given PovcalNet's documentation, it is difficult to determine the source(s) of the difference, so the estimate here is again to be preferred.

The $3.10/day 2011 PPP line is a multiple of the $1.90/day line.

[14] `iresearch.worldbank.org/PovcalNet/Detail.aspx?Format=Detail&C0=GAB_3&PPP0=359.219&PL0=1.90&Y0=2005&NumOfCountries=1`, retrieved 27 July 2017.

2.3.3 USAID "very poor" line

Microenterprise programs in Gabon who use the scorecard to report the number of their participants who are "very poor" to USAID should use the line marking the poorest half of people below 100% of the national line. This is because USAID defines the "very poor" as those people in households whose daily per-capita (not per-adult equivalent) 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 (XAF734, with a person-level poverty rate of 16.4 percent, Table 1)
- The $1.90/day 2011 PPP line (XAF598, with a person-level poverty rate of 6.6 percent)

2.3.4 Percentile-based lines

The scorecard also supports percentile-based poverty lines for Gabon. This facilitates a number of types of analyses. For example, the second-quintile (40^{th}-percentile) line might be used to help track Gabon'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, could 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, analysts could always do (and can still do) relative-wealth analyses with scores from the scorecard. But support for relative consumption lines allows a more straightforward use of a single tool (the scorecard) to analyze any or all of:

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

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

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 Gabon, about 75 candidate indicators are initially prepared in the areas of:

- Household composition (such as the number of members)
- Education (such as whether the (eldest) female head/spouse can read and write)
- Housing (such as whether the type of walls or roof)
- Ownership of durable assets (such as wardrobes or dressers)
- Employment (such as the number of household members who work)

Table 3 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.[15]

One possible application of the scorecard is to estimate *changes* in poverty through time. Thus, when selecting indicators—and holding other considerations constant—preference is given to more sensitive indicators. For example, the possession of a wardrobe or dresser 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 150% 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).

[15] The uncertainty coefficient is *not* used when selecting scorecard indicators. It is just a way to order the candidate indicators listed in Table 3.

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 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 poverty, 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 11 indicators that work well together.

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

This algorithm is similar to common R^2-based stepwise least-squares regression. It differs from naïve stepwise in that the selection of indicators considers both statistical[16] 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, and acceptable to users.

The single scorecard here applies to all of Gabon. Segmenting poverty-assessment tools by urban/rural does not improve targeting accuracy much. This is documented for nine countries in Sub-Saharan Africa (Brown, Ravaillon, and van de Walle, 2016)[17], 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 (Schreiner, forthcoming; Diamond *et al.*, 2016; Tarozzi and Deaton, 2009), but it may also increase the risk of overfitting (Haslett, 2012).

[16] 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.
[17] The nine countries are Burkina Faso, Ethiopia, Ghana, Malawi, Mali, Niger, Nigeria, Tanzania, and Uganda. On average across these countries when targeting people in the lowest quintile or in the lowest two quintiles of scores and when 20 or 40 percent of people are poor, segmenting by urban/rural increased the number of poor people correctly targeted by about one per 200 or one per 400 poor people (Schreiner, 2017c).

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

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

The scorecard (and its "Back-page Worksheet") is ready to be photocopied. A field worker using the scorecard in Gabon would:

- Record the interview identifier, interview date, country code ("GAB"), scorecard code ("001") and the sampling weight assigned by the organization's survey design to the household of the participant (if known)
- Record the names and identifiers of the participant (who may not be the same as the respondent), of the field agent, and of the organizational service point that is relevant for the participant
- Complete the "Back-page Worksheet" with each household member's first name or nickname and age, noting who is the male head/spouse (if he exists) and who is the (eldest) female head/spouse (if she exists)
- For each household member ages 6 to 18, ask whether the member currently goes to school
- For each child who currently goes to school, ask whether the school is public, private, or religious
- Based on what has already been recorded on the "Back-page Worksheet", record household size (the number of household members) in the scorecard header next to "Number of household members:"
- Based on what has already been recorded on the "Back-page Worksheet", mark the response to the first scorecard indicator ("How many members does the household have?") based on the number of household members
- Based on what has already been recorded on the "Back-page Worksheet", mark the response to the second scorecard indicator ("Do all household members ages 6 to 18 currently go to a public, private, or religious school?")
- Read the rest of the scorecard indicators to the respondent one-by-one
- Draw circles around the relevant responses and their points, and write each point value in the far right-hand column
- Add up the points to get a total score
- 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. 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).[18] IRIS Center (2007a) and Toohig (2008) are useful nuts-and-bolts guides for budgeting, training field workers and supervisors, logistics, sampling, interviewing, piloting, recording data, and controlling quality. Schreiner (2014a) explains how to compute estimates and analyze them.

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 "Guidelines for the Interpretation of Scorecard

[18] If a program does not want field workers and 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.

Indicators" found after the References in this paper, as these "Guidelines"—along with the "Back-page Worksheet"—are integral parts of the Simple Poverty Scorecard tool.[19]

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. At the same time, 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 "underreporting [of asset ownership] is widespread but not overwhelming, except for a few goods . . . [and] overreporting 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 who use the scorecard for targeting in Gabon.

[19] 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 Gabon's DGS did in the 2005 EGEP.

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 participants will be interviewed
- How many participants will be interviewed
- How frequently participants will be interviewed
- Whether the scorecard will be applied at more than one point in time
- Whether the same 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 goal should be to make sure that the sample is representative of a well-defined population and that the use of the scorecard will inform an issue that matters to the organization.

The non-specialists who apply the scorecard with participants in the field can be:

- Employees of the organization
- Third parties

There is only one correct, on-label way to do interviews: they should be done in-person at the sampled household's residence with an enumerator trained to follow the "Guidelines for the Interpretation of Scorecard Indicators". This is how Gabon's DGS did interviews in the 2005 EGEP, and this provides the most-accurate data and thus the best poverty-rate 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 interactive 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. Thus, interviewing by a trained enumerator at the residence is recommended; off-label methods are not recommended.

In some contexts—such as when field agents do not already visit participants periodically at home anyway—an 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 organizations must judge for themselves. To judge carefully, organizations who are considering off-label methods should do a test to check how much responses differ with an off-label method versus with a trained enumerator at the residence.

Responses, scores, and poverty likelihoods can be recorded 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[20]

[20] The author of this paper can support pro-poor 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.

Given a population of participants relevant for a particular business question, the participants to be scored 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 to be scored can be derived from sample-size formulas (presented later) to achieve a desired confidence level and a desired confidence interval. To have a 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 program.

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)

When a scorecard is applied more than once in order to estimate changes in poverty rates, 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 (Schreiner, 2013a) with a sample of about 25,000. Their design is that all loan officers in a random sample of branches will score all participants each time they visit a homestead (about once a year) as part of their standard due diligence prior to loan disbursement. They 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 Gabon, 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 35–39 have a poverty likelihood of 41.6 percent, and scores of 40–44 have a poverty likelihood of 34.9 percent (Table 4).

The poverty likelihood associated with a score varies by poverty line. For example, scores of 35–39 are associated with a poverty likelihood of 41.6 percent for 100% of the national line but 3.2 percent for the $1.90/day 2011 PPP line.[21]

[21] From Table 4 on, many tables have 16 versions, one for each of the 16 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 by defining the poverty likelihood 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 5), there are 6,896 (normalized) households in the calibration sub-sample with a score of 35–39. Of these, 2,867 (normalized) are below the poverty line. The estimated poverty likelihood associated with a score of 35–39 is then 41.6 percent, because 2,867 ÷ 6,896 = 41.6 percent.

To illustrate with 100% of the national line and a score of 40–44, there are 8,281 (normalized) households in the calibration sub-sample, of whom 2,886 (normalized) are below the line (Table 5). The poverty likelihood for this score range is then 2,886 ÷ 8,281 = 34.9 percent.

The same method is used to calibrate scores with estimated poverty likelihoods for all 16 poverty lines.[22]

[22] To ensure that poverty likelihoods never increase as scores increase, likelihoods across series 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 the Gabon scorecard are transformed coefficients from a Logit regression, (untransformed) scores are not converted to poverty likelihoods via the Logit formula of $2.718281828^{\text{score}} \text{ x } (1 + 2.718281828^{\text{score}})^{-1}$. This is because the Logit formula is esoteric and difficult to compute by hand. Non-specialists find it 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 households who are representative of the same population 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 true value in the population. Given the assumptions above, the scorecard also produces unbiased estimates of poverty rates at a point in time and unbiased estimates of changes in poverty rates between two points in time.[23]

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 Gabon's population. Thus, scorecard estimates will generally have errors when applied after July 2005 (the last month of fieldwork for the 2005 EGEP) or when applied with sub-groups that are not nationally representative.

[23] 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 Gabon as a whole? To find out, the scorecard is applied to 1,000 bootstrap samples of size $n = 16{,}384$ with the validation sample. Bootstrapping means to:

- Score each household in the validation sample
- Draw a bootstrap sample *with replacement* from the validation sample
- 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 4) and the poverty likelihood observed 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 two-sided 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 6 shows the errors, that is, the average differences between estimated versus observed poverty likelihoods. It also shows confidence intervals for the differences.

For 100% of the national line and on average across bootstrap samples in the validation sample, the estimated poverty likelihood for scores of 35–39 (41.6 percent, Table 4) is too high by 9.2 percentage points. For scores of 40–44, the estimate is too high by 17.4 percentage points.[24]

[24] 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 35–39 is ±2.7 percentage points (Table 6). 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 +6.5 and +11.9 percentage points (because +9.2 – 2.7 = +6.5, and +9.2 + 2.7 = +11.9). In 950 of 1,000 bootstraps (95 percent), the difference is +9.2 ± 3.3 percentage points, and in 990 of 1,000 bootstraps (99 percent), the difference is +9.2 ± 4.3 percentage points.

Some of the absolute errors between estimated and observed poverty likelihoods in Table 6 for 100% of the national line are large. There are differences because the validation sample is a single sample that—thanks to sampling variation—differs in distribution from the construction/calibration sub-samples and from Gabon's population. For targeting, however, what matters is less the difference in all score ranges and more the difference 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.

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

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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.

samples in 2005, although it holds less well for samples from sub-national populations or in other time periods.

Another possible source of differences 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 EGEP fieldwork in July 2005. That is, the scorecard may fit the construction/calibration data from 2005 so closely that it captures not only some real patterns but also some random patterns that, due to sampling variation, show up only in the 2005 EGEP construction/calibration data but not in the overall population of Gabon. 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 samples 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 regions. These factors can be addressed only by improving the availability, frequency, quantity, and quality of data from national consumption surveys (which is beyond the scope of the scorecard) or by reducing overfitting (which likely has limited returns, given the scorecard's parsimony).

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

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

To illustrate, suppose a program samples three households on 1 January 2018 and that they have scores of 20, 30, and 40, corresponding to poverty likelihoods of 77.0, 53.8, and 34.9 percent (100% of the national line, Table 4). The population's estimated poverty rate is the households' average poverty likelihood of (77.0 + 53.8 + 34.9) ÷ 3 = 55.2 percent.

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 a poverty likelihood of 53.8 percent. This differs from the 55.2 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 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 2005 EGEP for all 16 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 is 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 validation sample and 100% of national poverty line, the average error (difference between the estimate and observed value in the 2005 EGEP) for a poverty rate at a point in time is +2.5 percentage points (Table 8, summarizing Table 7 across all poverty lines). Across all 16 poverty lines in the validation sample, the maximum of the average absolute errors is 3.6 percentage points, and the average of the average absolute errors is about 1.9 percentage points. At least part of these differences is due to sampling variation in the division of the 2005 EGEP into sub-samples.

When estimating poverty rates at a point in time for a given poverty line, the average error reported in Table 8 should be subtracted from the average poverty likelihood to give a corrected estimate. For the example of the scorecard and 100% of the national line in the validation sample, the error is +2.5 percentage points, so the corrected estimate in the three-household example above is 55.2 – (+2.5) = 52.7 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 ±0.6 percentage points or better for all poverty lines (Table 8). This means that in 900 of 1,000 bootstraps of this size, the estimate (after correcting for the known average error) is within 0.6 percentage points of the observed value.

For example, suppose that the (uncorrected) average poverty likelihood in a sample of $n = 16{,}384$ with the scorecard and 100% of the national line is 55.2 percent. Then estimates in 90 percent of such samples would be expected to fall in the range of 55.2 – (+2.5) – 0.4 = 52.3 percent to 55.2 – (+2.5) + 0.4 = 53.1 percent, with the most likely observed value being the corrected estimate in the middle of this range, that is, 55.2 – (+2.5) = 52.7 percent. This is because the original (uncorrected) estimate is 55.2 percent, the average error is +2.5 percentage points, and the 90-percent confidence interval for 100% of the national line in the validation sample with this sample size is ±0.4 percentage points (Table 8).

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, Gabon's 2005 EGEP gives a direct-measure household-level poverty rate for 100% of the national line in the validation sample of $\hat{p} = 20.0$ percent (Table 1).[25] If this measure came from a sample of $n = 16{,}384$ households from a population N of 287,069 (the number of households in Gabon in 2005 according to the EGEP sampling weights), then the finite population correction ϕ is $\sqrt{\frac{287{,}069 - 16{,}384}{287{,}069 - 1}} = 0.9710$, which is not too far from $\phi = 1$. If the desired confidence level is 90-percent ($z = 1.64$), then the confidence interval $\pm c$ is

$$\pm z \cdot \sqrt{\frac{\hat{p} \cdot (1 - \hat{p})}{n}} \cdot \sqrt{\frac{N - n}{N - 1}} = \pm 1.64 \cdot \sqrt{\frac{0.200 \cdot (1 - 0.200)}{16{,}384}} \cdot \sqrt{\frac{287{,}069 - 16{,}384}{287{,}069 - 1}} = \pm 0.498$$

percentage points. (If ϕ were taken as 1, then the interval is ± 0.513 percentage points.)

Unlike the 2005 EGEP, however, the scorecard does not measure poverty directly, so this formula is not applicable. To derive a formula for the scorecard, consider Table 7, which reports empirical confidence intervals $\pm c$ for the errors for the scorecard applied to 1,000 bootstrap samples of various sizes from the validation sample. For example, with $n = 16{,}384$ and 100% of the national line in the validation sample, the 90-percent confidence interval is ± 0.433 percentage points.[26]

[25] The analysis here ignores that poverty-rate estimates from the EGEP are themselves based on a sample and so have their own sampling distribution.
[26] Due to rounding, Table 7 displays 0.4, not 0.433.

Thus, the 90-percent confidence interval with $n = 16{,}384$ is ± 0.433 percentage points for the scorecard and ± 0.498 percentage points for direct measurement. The ratio of the two intervals is $0.433 \div 0.498 = 0.87$.

Now consider the same exercise, but with $n = 8{,}192$. The confidence interval under direct measurement and 100% of the national line in the validation sample is $\pm 1.64 \cdot \sqrt{\frac{0.200 \cdot (1 - 0.200)}{8{,}192}} \cdot \sqrt{\frac{287{,}069 - 8{,}192}{287{,}069 - 1}} = \pm 0.714$ percentage points. The empirical confidence interval with the scorecard (Table 7) is ± 0.620 percentage points. Thus for $n = 8{,}192$, the ratio of the two intervals is $0.620 \div 0.714 = 0.87$.

This ratio of 0.87 for $n = 8{,}192$ is the same as the ratio for $n = 16{,}384$. Across all sample sizes of 256 or more in Table 7, these ratios are generally close to each other, and the average of these ratios in the validation sample turns out to be 0.85, implying that confidence intervals for indirect estimates of poverty rates via Gabon's scorecard and 100% of the national line are—for a given sample size—about 15-percent narrower than confidence intervals for direct estimates via the 2005 EGEP. This 0.85 appears in Table 8 as the "α factor for precision" because if $\alpha = 0.85$, then the formula for approximate confidence intervals 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 more 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 all 16 poverty lines in Table 8, and its hightest value is 0.93.

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 287,069 (the number of households in Gabon in 2005), suppose $c = 0.03487$, $z = 1.64$ (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 Gabon's overall poverty rate for that line in 2005 (20.0 percent at the household level, Table 1). The α factor is 0.85 (Table 8). Then the sample-size formula gives

$$n = 287{,}069 \cdot \left(\frac{1.64^2 \cdot 0.85^2 \cdot 0.200 \cdot (1 - 0.200)}{1.64^2 \cdot 0.85^2 \cdot 0.200 \cdot (1 - 0.200) + 0.03487^2 \cdot (287{,}069 - 1)} \right) = 256,$$ the same

as the sample size of 256 observed for these parameters in Table 7 for 100% of the

national line. Taking the finite population correction factor ϕ as one (1) gives the same result, as $n = \left(\frac{0.85 \cdot 1.64}{0.03487}\right)^2 \cdot 0.200 \cdot (1 - 0.200) = 256$.[27]

Of course, the α factors in Table 8 are specific to Gabon, its poverty lines, its poverty rates, and this scorecard. The derivation of the formulas for standard errors using the α factors, however, is valid for any poverty-assessment tool following the approach in this paper.

[27] Although USAID has not specified confidence levels nor intervals, IRIS Center (2007a and 2007b) says that a sample size of $n = 300$ is sufficient for USAID reporting. USAID's microenterprise partners in Gabon should report using the line marking the poorest half of people below 100% of the national line. Given the α factor of 0.70 for this line (Table 8), an expected before-measurement household-level poverty rate of 9.3 percent (the all-Gabon rate for this line in 2005, Table 1), and a confidence level of 90 percent ($z = 1.64$), then $n = 300$ implies a confidence interval of $\pm 1.64 \cdot 0.70 \cdot \sqrt{\frac{0.093 \cdot (1 - 0.093)}{300}} = \pm 1.9$ percentage points.

In practice after the end of fieldwork for the EGEP in July 2005, 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 Gabon of 20.0 percent in the 2005 EGEP in Table 1), look up α (here, 0.85 in Table 8), assume that the scorecard will still work in the future and for sub-groups that are not nationally representative,[28] and then compute the required sample size. In this illustration, $n = 10{,}000 \cdot \left(\frac{1.64^2 \cdot 0.85^2 \cdot 0.200 \cdot (1 - 0.200)}{1.64^2 \cdot 0.85^2 \cdot 0.200 \cdot (1 - 0.200) + 0.02^2 \cdot (10{,}000 - 1)} \right) = 722.$

[28] This paper reports accuracy for the scorecard applied to its validation sample, but it does not test accuracy for later years or for sub-populations that are not nationally representative. Performance after July 2005 will resemble that in the 2005 EGEP 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.

With only data from the 2005 EGEP, this paper cannot test estimates of change over time for Gabon, and it can only suggest approximate formulas for standard errors. Nonetheless, the relevant concepts are presented here because, in practice, local pro-poor organizations in Gabon can apply the scorecard to collect their own data and estimate change through time.

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

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

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 over time

Consider the illustration begun in the previous section. On 1 January 2018, an organization samples three households who score 20, 30, and 40 and so have poverty likelihoods of 77.0, 53.8, and 34.9 percent (100% of the national line, Table 4). Given the known average error for this line in the validation sample of +2.5 percentage points (Table 8), the corrected baseline estimated poverty rate is the households' average poverty likelihood of [(77.0 + 53.8 + 34.9) ÷ 3] – (+2.5) = 52.7 percent.

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

- Score a new, independent sample from the same population
- Score the same sample that was scored at baseline

By way of illustration, suppose that three years later on 1 January 2021, the organization samples 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 65.4, 41.6, and 15.7 percent, 100% of the national line, Table 4). Adjusting for the known average error, the average poverty likelihood at follow-up is [(65.4 + 41.6 + 15.7) ÷ 3] – (+2.5) = 38.4 percent, an improvement of 52.7 – 38.4 =

14.3 percentage points.[29] Supposing that exactly three years passed between the average baseline interview and the average follow-up interview, the estimated annual rate of decrease in poverty is 14.3 ÷ 3 = 4.8 percentage points per year. That is, about one in seven participants in this hypothetical example cross the poverty line between 2018 and 2021.[30] Among those who start below the line, about one in four (14.3 ÷ 52.7 = 27.1 percent) on net end up above the line.[31]

Alternatively, suppose that the same three original households who were scored at baseline are scored again on 1 January 2021. Given scores of 25, 35, and 45, their follow-up poverty likelihoods are 65.4, 41.6, and 15.7 percent. The average across households of the difference in each given household's baseline poverty likelihood and its follow-up poverty likelihood is [(77.0 – 65.4) + (53.8 – 41.6) + (34.9 – 15.7)] ÷ 3 = 14.3 percentage points.[32] Assuming in this example that there are exactly three years between each household's interviews, the estimated annual decrease in poverty is (again) 14.3 ÷ 3 = 4.8 percentage points per year.

[29] Of course, such a huge reduction in poverty in three years is highly unlikely, but this is just an example to show how the scorecard can be used to estimate change.
[30] This is a net figure; some start above the line and end below it, and vice versa.
[31] The scorecard does not reveal the reasons for this change.
[32] In this case, the error for this line in Table 8 should *not* be subtracted off.

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

7.3 Precision for estimated change in two independent samples

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

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

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

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 $\tilde{p}$ is based on previous estimates and is assumed equal at both baseline and follow-up:

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

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

With the available data for Gabon, it is not possible to estimate values of α here. Nevertheless, this α has been estimated for 17 countries (Schreiner 2017a, 2017b, 2016a, 2016b, 2016c, 2016d, 2015b, 2015c, 2015d, 2015e, 2013a, 2013b, 2012c, 2010, 2009a, 2009b, and Chen and Schreiner, 2009). The unweighted average of α across countries—after averaging α across poverty lines and survey years within each country—is 1.09. This rough figure is as reasonable as any to use for Gabon.

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, $\alpha = 1.09$, $\hat{p} = 0.200$ (the household-level poverty rate in 2005 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 $n = 2 \cdot \left(\frac{1.09 \cdot 1.64}{0.02} \right)^2 \cdot 0.200 \cdot (1 - 0.200) \cdot 1 = 2{,}557$, and the follow-up sample size is also 2,557.

7.4 Precision of estimates of change for one sample, scored twice

Analogous to previous derivations, the general formula relating the confidence interval $\pm c$ to the standard error σ when using a scorecard to estimate change for a single sample of households, all of whom are scored at two points in time, is:[34]

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

where z, c, α, N, and n are defined as usual, $\hat{p}_{12}$ is the share of all sampled households that move from below the poverty line to above it, and $\hat{p}_{21}$ is the share of all sampled households that move from above the line to below it. With the available data for Gabon, it is not possible to estimate values of α here.

The formula for confidence intervals can be rearranged 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 $\tilde{p}_{12}$ and $\tilde{p}_{21}$. Before estimation, a conservative assumption is that the change in the poverty rate will be zero, which implies $\tilde{p}_{12} = \tilde{p}_{21} = \tilde{p}_{*}$, giving:

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

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

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

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

Given this, a sample-size formula for a sample of households to whom the scorecard is applied twice (once after July 2005 and then again later) is

$$n = 2 \cdot \left(\frac{\alpha \cdot z}{c}\right)^2 \cdot \left[-0.02 + 0.016 \cdot y + 0.47 \cdot p_{\text{pre-baseline}} \cdot \left(1 - p_{\text{pre-baseline}}\right)\right] \cdot \sqrt{\frac{N - n}{n - 1}}.$$

In Peru (the only source of a data-based estimate, Schreiner, 2009c), the average α across years and poverty lines is about 1.30.

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 2018 and then again in 2021 ($y = 3$), 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_{2018} is taken as 20.0 percent (Table 1), and α is assumed to be 1.30. Then the baseline sample size is

$n = 2 \cdot \left(\frac{1.30 \cdot 1.64}{0.02}\right)^2 \cdot \left[-0.02 + 0.016 \cdot 3 + 0.47 \cdot 0.200 \cdot \left(1 - 0.200\right)\right] \cdot 1 = 2{,}346$. The same group of 2,346 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 who score at or below a given cut-off should be labeled as *targeted*,[35] not as *poor*. After all, unless all targeted households have poverty likelihoods of 100 percent, some of them are non-poor (their consumption is above a given poverty line). With the scorecard, the terms *poor* and *non-poor* have specific definitions. Using these same terms for targeting status is incorrect and misleading.

[35] Others labels are acceptable 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 of acceptable labels include *Groups A, B, and C*; *Households with scores of 29 or less, 30 to 69, or 70 or more*; and *Households who qualify for reduced fees, or do not qualify.*

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

Table 9 depicts these four possible targeting outcomes. Targeting accuracy varies by the cut-off score; a higher cut-off has better inclusion (but worse leakage), while a lower cut-off has better exclusion (but 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 10 shows the distribution of households by targeting outcome for Gabon. For an example cut-off of 39 or less, outcomes for 100% of the national line in the validation sample are:

- Inclusion: 13.1 percent are below the line and correctly targeted
- Undercoverage: 6.8 percent are below the line and mistakenly not targeted
- Leakage: 9.9 percent are above the line and mistakenly targeted
- Exclusion: 70.1 percent are above the line and correctly not targeted

Increasing the cut-off to 44 or less improves inclusion and undercoverage but worsens leakage and exclusion:

- Inclusion: 15.3 percent are below the line and correctly targeted
- Undercoverage: 4.7 percent are below the line and mistakenly not targeted
- Leakage: 16.1 percent are above the line and mistakenly targeted
- Exclusion: 64.0 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 10 for a given 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 10 shows the hit rate for all cut-offs for the scorecard. For 100% of the national line in the validation sample, total net benefit—under the hit rate—is greatest (85.0) for a cut-off of 34 or less, with about five in six households in Gabon correctly classified.

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

[36] Table 10 also reports BPAC, the Balanced Poverty Accuracy Criteria adopted by USAID for certifying poverty-assessment tools. 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 (2014) explains why BPAC does not add information over-and-above that provided by the other, more-standard measures 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 11 ("% targeted HHs who are poor") shows, for the scorecard applied to the validation sample, the expected poverty rate among households who score at or below a given cut-off. For the example of 100% of the national line, targeting households in the validation sample who score 39 or less would target 23.0 percent of all households (second column) and would be associated with a poverty rate among those targeted of 57.0 percent (third column).

Table 11 also reports two other measures of targeting accuracy. The first is a version of coverage ("% poor HHs who are targeted"). For the example of 100% of the national line with the validation sample and a cut-off of 39 or less, 65.8 percent of all poor households are covered.

The final targeting measure in Table 11 is the number of successfully targeted poor households for each non-poor household mistakenly targeted (right-most column). For 100% of the national line with the validation sample and a cut-off of 39 or less, covering about 1.3 poor households means leaking to 1 non-poor household.

9. Context of poverty-assessment tools in Gabon

This section discusses an existing poverty-assessment tool for Gabon in terms of its goals, methods, definition of *poverty*, data, indicators, errors, precision, and cost. In general, the advantages of the scorecard are its:

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

Gwatkin *et al.* (2007) construct a poverty-assessment tool for Gabon 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 6,203 households in Gabon's 2000 DHS.[37] The 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

[37] DHS data for Gabon since 2000 include each household's asset-index value (`dhsprogram.com/topics/wealth-index/Wealth-Index-Construction.cfm`, retrieved 27 July 2017).

to be a proxy for long-term wealth/economic status.[38] 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 21 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
  - — Type of walls
  - — Type of roof
  - — Type of cooking fuel
  - — Source of drinking water
  - — Type of toilet arrangement
  - — Distance from the residence to the toilet facility
  - — Depth of the latrine
- Ownership of consumer durables:
  - — Radios
  - — Televisions
  - — Video players
  - — Refrigerators
  - — Telephones
  - — Bicycles
  - — Motorcycles or scooters
  - — Cars or trucks
  - — Boats without an engine
  - — Boats with an engine
- Whether any household members work their own or family's agricultural land
- Number of household members per sleeping room

[38] 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 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 the asset index would be used much like the scorecard here. In particular, the scorecard's support for relative (percentile-based) poverty lines allows 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 21 indicators (versus 11), and while the scorecard requires adding up 11 integers (some of them usually zeroes), Gwatkin *et al.*'s index requires adding up 61 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, only the scorecard can estimate consumption-based poverty status. Like an already-constructed asset index, an already-constructed scorecard can be applied to data from a

"light" survey that does not collect consumption as long as the "light" survey collects indicators that match those in the consumption-based poverty-assessment tool (Schreiner, 2011).

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.

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.

10. Conclusion

Pro-poor programs in Gabon can use the scorecard to segment clients for differentiated treatment as well as to 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 over time

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

The scorecard is constructed with data from half of the households in Gabon's 2004 EGEP. Those households' scores are then calibrated to poverty likelihoods for 16 poverty lines. The accuracy (errors and standard errors) of the scorecard is tested out-of-sample on data that is not used in scorecard construction for targeting and for households' poverty likelihoods at a point in time.

When the scorecard is applied to the 16 poverty lines in the validation sample, the maximum average absolute error for point-in-time estimates of poverty rates is 3.6 percentage points, and the average of the average absolute errors across the 16 lines is about 1.9 percentage points. Corrected estimates may be had 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 ± 0.6 percentage points or better. With $n = 1{,}024$, the 90-percent confidence intervals are ± 2.4 percentage points or better.

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

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

For this reason, the scorecard uses 11 indicators that are straightforward, low-cost, and verifiable. Points are all zeros or positive integers, and scores range from 0 (most likely below a poverty line) to 100 (least likely below a poverty line). Scores are converted to poverty likelihoods via look-up tables, and targeting cut-offs are likewise straightforward to apply. The design attempts to facilitate voluntary adoption by helping 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 practical, objective way for pro-poor programs in Gabon to estimate consumption-based poverty rates, track changes in poverty rates over time, and segment participants for differentiated treatment. The same approach can be applied to any country with similar data.

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Guidelines for the Interpretation of Scorecard Indicators

The following guidelines are excerpts from:

Direction Générale de la Statistique et des Études Economiques. (2005) "l'Enquête Gabonaise pour l'Évaluation et le Suivi de la Pauvreté : Manuel de l'Enquêteur", [the *Manual*], `catalog.ihsn.org/index.php/catalog/41/download/28366`, retreived 14 July 2017.

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

Do not ask the first scorecard indicator directly ("How many members does the household have?"). Instead, fill in the appropriate response based on the total number of household members that you have listed on the "Back-page Worksheet".

Do not ask the second scorecard indicator directly ("Do all household members ages 6 to 18 currently go to a public, private, or religious school?"). Instead, mark the response based on the information you gather about household members, their ages, and their school attendance on the "Back-page Worksheet".

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

General interviewing advice

Study these "Guidelines" carefully, and carry them with you while you work.

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

Read each question word-for-word, in the order presented in the scorecard.

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. Can the male head/spouse read and write?	A. No	0	
	B. No male head/spouse	2	2
	C. Yes	3	

When an issue comes up that is not addressed here, its resolution should be left to the unaided judgment of the enumerator, as that apparently was the practice of Gabon's Direction Générale des Statistiques in the 2005 EGEP. That is, an organization using the scorecard should not promulgate any definitions or rules (other than those in these "Guidelines") to be used by all its field agents. Anything not explicitly addressed in these "Guidelines" is to be left to the unaided judgment of each individual enumerator.

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

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

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 2005 EGEP by Gabon's *Direction Générale des Statistiques*. For example, interviews should take place in respondents' homesteads because the 2005 EGEP took place in respondents' homesteads.

Translation of the scorecard:

As of this writing, the scorecard itself, the "Back-page Worksheet", and these "Guidelines" are available only in English and French. There are not yet official, standard translations to local languages spoken by many people in Gabon such as Fang, Punu, and Nzebi. Scorecard users should check `SimplePovertyScorecard.com` to see what translations have been completed since this writing.

If there is no official, standard 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 and response options should follow as closely as possible the meaning of the original French wording in the official 2005 EGEP questionnaire. The *Enumerator Manual* for the 2005 EGEP was written in French, so anything in these "Guidelines" that is quoted from the *Manual* must be translated from the *Manual*'s original French, not from these English "Guidelines" here. Likewise the scorecard questions and response options must be translated from the original French questionnaire, not from the English questions and responses here.

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 p. 7 of the *Manual*, "The respondent should be a responsible, adult member of the interviewed household. If such a person is not available, then you should set up an appointment to return at a time when such an adult will be present. The respondent must be at least 16-years-old."

According to p. 10 of the *Manual*, "As the household's main decision-maker, the head of the household is generally the person who has the best knowledge of what goes on in the household, so he/she is usually the preferred respondent. Nevertheless, sometimes the head of the household is not able to answer a given question accurately, or perhaps other members of the household may have their own areas of authority. In such cases, other household members may assist the head of the household in responding."

Who is the head of the household?

According to p. 10 of the *Manual*, "The *head of the household* is the household's main decision-maker, and his/her authority is acknowledged by all the other members of the household. The main bread-winner may be the head, but the main bread-winner is not always the head. Often in African society, the oldest adult man is considered to be the head of the household, even if he is not the main bread-winner.

"As the household's main decision-maker, the head of the household is generally the person who has the best knowledge of what goes on in the household, so he/she is usually the best candidate to be the survey respondent. Nevertheless, sometimes the head of the household is not able to answer a given question accurately, or perhaps other members of the household may have their own areas of authority. In such cases, other household members may assist the head of the household in responding.

"Two common situations are a head of the household who is temporarily absent at the time of the interview or a head who does not usually live with the household. This can occur, for example, with a polygamous man whose wives live in distinct. separate households but all of whom name the polygamous man as their head. Another example is when the head of a rural household moves to an urban area to seek employment and leaves his/her family behind in the village. In either case, the absent head may still be a given household's main decision-maker, even though he/she is absent for long periods. Such heads of households must be included in the household roster even if they have been absent for more than six of the past 12 months. At the same time, a person cannot be the head of more than one household."

Job of the interviewer

According to p. 2 of the *Manual*, "The survey's success depends on the ability of the enumerator to collect accurate information. The interviewer's job includes the following tasks:

- Identify all members of a given household
- Conduct interviews according to the procedures laid down in this "Guide"
- Check the questionnaire after each interview to make sure that all responses to all questions have been recorded correctly"

Establishing a rapport with the respondent

According to pp. 2–3 of the *Manual*, "The first impression that you make is a key factor in the respondent's willingness to cooperate with the survey.

Introduction: "Introduce yourself by stating your name clearly, showing the badge that identifies you as a representative of [your organization], and asking politely to speak with the head of the household.

First impressions: "When you meet the responding household, choose your words carefully so as to put the respondent at ease. Start the interview with a friendly greeting and a smile. While explaining things and doing your work, use language that is as plain as possible, as the excessive use of technical jargon may make the respondent uncomfortable.

> Good day sir/madam. My name is <your name>.
> I am an enumerator working with <your organization>.
> We are doing a survey to learn more about [how our participants live].
> Your household has been chosen via a process of random sampling.
> We would like to ask you a few questions
> about [how members of your household live].

"Dress appropriately. It shows respect for the respondents, and it helps you to represent <your organization> in an appropriately professional way.

Confidentiality: "Respondents must be certain that their responses will be treated as strictly confidential and will not be divulged to any unauthorized persons. The information from the survey will be used only for the survey's purposes. No information will be revealed in a way that can be traced back to any particular individual or household.

Be neutral: "Most respondents are polite and will tend to try to give the types of responses that they believe that you, as the enumerator, want to hear. Thus, you must remain completely neutral for the entire interview. You should never do anything—whether by your facial expression, body language, or tone of voice—that might lead the respondent to believe that they have given a 'right' or 'wrong' response to a survey question.

Read at an even speed, and ask the questions in the order listed: "Read the questions word-for-word as written in the questionnaire, and in the order listed. Maintain a consistent reading speed and an even tone. If a respondent does not understand a question, then read it again, slowy and clearly.

Be tactful: "Sometimes, the respondent will be uninterested, bored, or unmotivated. The respondent may even give inconsistent responses or outright refuse to respond. In all cases, it is your job as the enumerator to tactfully help the person to decide to make a good-faith effort to cooperate with the interview.

Do not rush the interview: "You should ask the questions slowly, giving the respondent time to reflect and to understand what has been asked. If you do not allow the respondent time to think and to gather his/her thoughts, then he/she may carelessly say, 'I do not know', or even give an inaccurate answer. If the respondent responds slowly, do not try to hurry him/her up. Do not let yourself get frustrated or give in to the temptation to postpone the rest of the interview for another day.

Guidelines for specific scorecard indicators

1. How many members does the household have?
    A. Nine or more
    B. Eight
    C. Seven
    D. Six
    E. Five
    F. Four
    G. Three
    H. Two
    I. One

Do not ask this question directly of the respondent. Instead, mark the response based on the information you gather about household members on the "Back-page Worksheet".

According to pp. 8–9 of the *Manual*, "A *household* is a group of people who usually live and eat meals together. All members of the household recognize the authority of one person (the head of the household) who currently lives with the other household members or is temporarily absent.

"A household is a unit composed of one or more people. Several criteria are serve to characterize a household. There is a distinction between a *household* and a *family*. On the one hand, members of a family are all related by blood, marriage, or adoption. On the other hand, a household can be made up of one or more families. Furthermore, the members of a single family can be members of more than one household, whether temporarily or permanently. For example, a child of parents who live in a rural area might live with a friend of his/her parents in town [and be a member of the household of his/her parents' friend].

"In the case of a polygamous man, a wife [and her children] counts as a separate, distinct household if she lives in a separate residence or compound, cooks separately, and makes decisions independent of the man's other wives.

"A polygamous man can be a member of only one household. For the purposes of the survey, that household is defined as the household of the wife where the polygamous man spent the night on the day before the interview.

"People who normally live with the household are considered as *de facto* members, regardless of whether they are present in the household at the time of the interview.

"A household is an economic unit in which the members are linked by their economic relationship. It follows that the members can work together in their economic activities, share their income, and so on. . . .

"Visitors who happen to be visiting the household at the time of the interview, even if the total duration of their stay is several weeks, are not to be counted as members of the interviewed household and should not [be listed on the 'Back-page Worksheet'].

When you fill out the list of members of the household on the "Back-page Worksheet", "The head of the household should always be listed first. Even if the respondent is not the head of the household, the head of the household should still be listed first (not the respondent). If the head of the household is absent at the time of the interview, then he/she should still be listed first.

"Fill out the household roster carefully to be completely certain that all members of the household are recorded. For households with multiples wives or multiple mothers, you should list the unmarried children of each wife/mother immediately after you list the relevant woman. Be sure that no member of the household is left out, and pay special attention to three categories of people that are sometimes overlooked:

- People who are temporarily absent
- Domestic servants and lodgers. If these people do not live with the interviewed household, then they do no count as members of the interviewed household. If they are not members of another household, however, then they should be counted as members of the interviewed household
- Infants are sometimes incorrectly omitted from the household roster, so be sure that you ask the respondent specifically about any infants or toddlers who may have not been listed

"To help avoid omissions or double-counting, you should methodically list household members in the following order:

- The head of the household should always be recorded first
- Unmarried children (from the youngest to the oldest) of the head of the household whose mothers are not members of the interviewed household
- The first wife of the head of the household
- Unmarried children (from the youngest to the oldest) of the first wife whose father is not a member of the interviewed household
- Unmarried children (from the youngest to the oldest) of the first wife whose father is the head of the interviewed household
- The second wife and her children (using the same process as for the first wife)
- The third wife and any additional wives (using the same process as for the first wife)
- Married children and their spouse(s), as well as any of their children who live with them (using the same process as for the head of the household and his wife or wives)
- The parents of the head of the household
- Other relatives of the head of the household who usually [eat and] sleep in the head's household and who recognize the head's authority, as well as their spouse(s) and their children
- The parents of the wife or wives of the head of the household
- Other relatives of the wife or wives of the head of the household
- Any non-relatives (including domestic servants [and lodgers]) who eat and sleep with the household, as well as their spouse(s) and their children. Anyone who does not eat and sleep with the household [or who does not recognize the authority of the head] is not to be counted as a member of the interviewed household"

2. Do all household members ages 6 to 18 currently go to a public, private, or religious school?
    A. No
    B. Yes, all go to public
    C. No members ages 6 to 18
    D. Yes, at least one goes to private or religious

Do not ask this question directly of the respondent. Instead, mark the response based on the information you gather about household members, their ages, and their school attendance on the "Back-page Worksheet".

When figuring out how to mark the appropriate response, keep in mind that this indicator can be viewed as a combination of three questions:

- Are there any household members ages 6 to 18?
- Do all household members ages 6 to 18 go to school?
- Do any household members ages 6 to 18 go to a private or religious school?

Mark the response on the scorecard according to the combination of responses the three questions above:

Are there any household members ages 6 to 18?	**Do all household members ages 6 to 18 go to school?**	**Do any household members ages 6 to 18 go to a private or religious school?**	**Response**
No	N/A	N/A	C
Yes	No	No	A
Yes	Yes	No	B
Yes	No	Yes	A
Yes	Yes	Yes	D

3. Can the male head/spouse read and write?
    A. No
    B. No male head/spouse
    C. Yes

According to p. 14 of the *Manual*, "This question concerns functional literacy (the ability to read and write everyday phrases as well as short texts such as letters or newspaper articles. The male head/spouse is considered *literate* if he can read and write in any language, not just in the main or official language. If he can read but cannot write, then he is considered to be illiterate, and you should mark [A. No]. The [scorecard] does not include a test for you to apply to determine whether the male head/spouse can read and write. Instead, you must use your judgment and the information provided by the respondent to assess the literacy of the male head/spouse."

Remember that you already know the name of the male head/spouse (and whether he exists) from the notes you took for your own use while compiling the "Back-page Worksheet". Thus, if there is a male head/spouse, do not mechanically ask, "Can the male head/spouse read and write?". Instead, use the actual name of the male head/spouse, for example: "Can Mohammed read and write?" If there is no male head/spouse, then do not ask the question of the respondent at all. Instead, just mark "B. No male head/spouse" and go to the next question.

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

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

According to p. 11 of the *Manual*, "The *spouse* is the husband/wife or the conyugal partner by mutual consent of the head of the household."

According to p. 10 of the *Manual*, "The *head of the household* is the household's main decision-maker. His/her authority is acknowledged by all the other members of the household. The main bread-winner may be the head, but the main bread-winner is not always the head. Often in African society, the oldest adult man is considered to be the head of the household, even if he is not the main bread-winner.

"As the household's main decision-maker, the head of the household is generally the person who has the best knowledge of what goes on in the household, so he/she is usually the best candidate to be the survey respondent. Nevertheless, sometimes the head of the household is not able to answer a given question accurately, or perhaps other members of the household may have their own areas of authority. In such cases, other household members may assist the head of the household in responding.

"Two common situations are a head of the household who is temporarily absent at the time of the interview or a head who does not usually live with the household. This can occur, for example, with a polygamous man whose wives live in separate households but all of whom name the polygamous man as their head. Another example is when the head of a rural household moves to an urban area to seek employment and leaves his/her family behind in the village. In either case, the absent head may still be a given household's main decision-maker, even though he/she is absent for long periods. Such heads of households must be included in the household roster even if they have been absent for more than six of the past 12 months. At the same time, a person cannot be the head of more than one household."

If the respondent refuses to respond, and if you as the enumerator is not able to determine the literacy of the male head/spouse, and if no household member knows the relevant response, then mark "A. No".

4. Can the (eldest) female head/spouse read and write?
    A. No
    B. Yes
    C. No female head/spouse

According to p. 14 of the *Manual*, "This question concerns functional literacy (the ability to read and write simple, everyday phrases as well as short texts such as letters or newspaper articles. The (eldest) female head/spouse is considered *literate* if she can read and write in any language, not just the main or official language. If she can read but cannot write, then she is considered to be illiterate, and you should mark [A. No]. The [scorecard] does not include a test for you to apply to determine whether the (eldest) female head/spouse can read and write. Instead, you must use your judgment and the information provided by the respondent to assess the literacy of the (eldest) female head/spouse."

Remember that you already know the name of the (eldest) female head/spouse (and whether she exists) from the notes you took for your own use while compiling the "Back-page Worksheet". Thus, if there is a female head/spouse, do not mechanically ask, "Can the (eldest) female head/spouse read and write?". Instead, use the actual name of the (eldest) female head/spouse, for example: "Can Kadidja read and write?" If there is no female head/spouse, then do not ask the question of the respondent at all. Instead, just mark "C. No female head/spouse" and go to the next question.

For the purposes of the scorecard, the *(eldest) female head/spouse* is defined as:

- The household head, if the head is female
- The (eldest) spouse/conjugal partner of the household head, if the head is male
- Non-existent, if the head is male and if he does not have a spouse/conjugal partner who is a member of the interviewed household

According to p. 11 of the *Manual*, "The spouse is the husband/wife or the conyugal partner by mutual consent of the head of the household."

According to p. 10 of the *Manual*, "The *head of the household* is the household's main decision-maker. His/her authority is acknowledged by all the other members of the household. The main bread-winner may be the head, but the main bread-winner is not always the head. Often in African society, the oldest adult man is considered to be the head of the household, even if he is not the main bread-winner.

"As the household's main decision-maker, the head of the household is generally the person who has the best knowledge of what goes on in the household, so he/she is usually the best candidate to be the survey respondent. Nevertheless, sometimes the head of the household is not able to answer a given question accurately, or perhaps other members of the household may have their own areas of authority. In such cases, other household members may assist the head of the household in responding.

"Two common situations are a head of the household who is temporarily absent at the time of the interview or a head who does not usually live with the household. This can occur, for example, with a polygamous man whose wives live in separate households but all of whom name the polygamous man as their head. Another example is when the head of a rural household moves to an urban area to seek employment and leaves his/her family behind in the village. In either case, the absent head may still be a given household's main decision-maker, even though he/she is absent for long periods. Such heads of households must be included in the household roster even if they have been absent for more than six of the past 12 months. At the same time, a person cannot be the head of more than one household."

If the respondent refuses to respond, and if you as the enumerator is not able to determine the literacy of the (eldest) female head/spouse, and if no household member knows the relevant response, then mark "A. No".

5. How many distinct rooms does the residence have?
    A. One
    B. Two
    C. Three or four
    D. Five
    E. Six or more

According to p. 24 of the *Manual*, "This question concerns the total number of rooms occupied by the household in its residence. (A residence may comprise multiple buildings.) Count bedrooms, living rooms, and so on. Do not count kitchens or separate bathrooms. In the same way, do not count storage rooms or garages unless the household also uses them as bedrooms."

6. What are the walls of the residence made of?
    A. Packed earth, mud bricks, traditional materials, or salvaged materials
    B. Wood, or other
    C. Both wood and cinder blocks, or only cinder blocks

According to p. 29 of the *Manual*, "You should take note of the following definitions:

- *Traditional materials*: This includes tree bark, straw, and so on
- *Salvaged materials*: This includes re-used materials such flattened scrap metal from food cans, recycled wood, and so on"

According to p. 28 of the *Manual*, you should "make sure that you record the main type of material of the walls, as some residences are built with more than one type. Record the response based on the main material."

If the household's response does not correspond with any of the listed response options, then count it as "Other" and mark "B. Wood, or other".

If the respondent does not know the main material of the walls of the residence or otherwise cannot respond, and if you as the enumerator are unable to determine the main material of the walls of the residence, then record "A. Packed earth, mud bricks, traditional materials, or salvaged materials".

7. What is the roof of the residence made of ?
    A. Thatch, corrugated metal sheets without beams, or other
    B. Corrugated metal sheets with beams, concrete, tile, or slate

According to p. 28 of the *Manual*, you should "make sure that you record the main type of roofing material, as some residences are built with more than one type. Record the response based on the main material."

If the household's response does not correspond with any of the listed response options, then count it as "Other" and mark "A. Thatch, corrugated metal sheets without beams, or other".

If the respondent does not know the main material of the roof of the residence or otherwise cannot respond, and if you as the enumerator are unable to determine the main material of the walls of the residence, then record "A. Thatch, corrugated metal sheets without beams, or other".

8. Does the household have a refrigerator/freezer?
    A. No
    B. Yes

According to p. 39 of the *Manual*, "Mark 'B. Yes' if the household has at least one refrigerator/freezer in good working order. Otherwise, mark 'A. No'."

If the respondent does not know whether the household has a refrigerator/freezer or otherwise cannot respond, and if you as the enumerator are unable to determine whether the household has a refrigerator/freezer, then record "A. No".

9. Does the household have a TV/VCR/DVD player?
    A. No
    B. Yes

According to p. 39 of the *Manual*, "Mark 'B. Yes' if the household has at least one TV/VCR/DVD player in good working order. Otherwise, mark 'A. No'."

If the respondent does not know whether the household has a TV/VCR/DVD player or otherwise cannot respond, and if you as the enumerator are unable to determine whether the household has a TV/VCR/DVD player, then record "A. No".

10. Does the household have a radio/car radio/radio-cassette/CD player?
    A. No
    B. Yes

According to p. 39 of the *Manual*, "Mark 'B. Yes' if the household has at least one radio/car radio/radio-cassette/CD player in good working order. Otherwise, mark 'A. No'."

If the respondent does not know whether the household has a radio/car radio/radio-cassette/CD player or otherwise cannot respond, and if you as the enumerator are unable to determine whether the household has a radio/car radio/radio-cassette/CD player, then record "A. No".

11. Does the household have a wardrobe or dresser?
    A. No
    B. Yes

According to p. 39 of the *Manual*, "Mark 'B. Yes' if the household has at least one wardrobe or dresser in good working order. Otherwise, mark 'A. No'."

If the respondent does not know whether the household has a wardrobe or dresser or otherwise cannot respond, and if you as the enumerator are unable to determine whether the household has a wardrobe or dresser, then record "A. No".

Table 1: National poverty lines, poverty rates, and sample sizes for all of Gabon and for the construction and validation samples, by households and people in 2005

Year	Line or Rate	HHs or People	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	**100%**	**150%**	**200%**
All of Gabon							
	Line	People		773	1,170	1,755	2,339
2005	Rate	HHs	7,913	7.5	20.0	39.2	53.9
	Rate	People		13.9	32.8	57.0	71.7
Construction and calibration:							
(Selecting indicators and points, and associating scores with poverty likelihoods)							
2005	Rate	HHs	3,900	7.4	20.0	39.2	53.7
Validation:							
(Measuring accuracy)							
2005	Rate	HHs	4,013	7.5	20.0	39.1	54.1

Source: 2005 EGEP

Poverty lines are XAF per day per person in average prices in Libreville from 1may2005 to 7jul2005.

Table 1: International 2005 and 2011 PPP poverty lines, poverty rates, and sample sizes for all of Gabon and for the construction and validation samples, by households and people in 2005

	Line or	HHs or		Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
Year	**Rate**	**People**	n	**$1.25**	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
All of Gabon									
	Line	People		555	888	1,110	2,220	598	976
2005	Rate	HHs	7,913	2.6	10.4	17.8	51.1	3.4	13,43
	Rate	People		5.7	18.5	29.9	69.3	6.6	23.4
Construction and calibration:									
(Selecting indicators and points, and associating scores with poverty likelihoods)									
2005	Rate	HHs	3,900	2.8	10.3	17.6	51.2	3.6	13.4
Validation:									
(Measuring accuracy)									
2005	Rate	HHs	4,013	2.4	10.6	18.0	51.0	3.1	13.5

Source: 2005 EGEP

Poverty lines are XAF per day per person in average prices in Libreville from 1may2005 to 7jul2005.

Table 1: Relative and percentile-based poverty lines, poverty rates, and sample sizes for all of Gabon and for the construction and validation samples, by households and people in 2005

Year	Line or Rate	HHs or People	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
All of Gabon									
	Line	People		734	807	1,250	1,514	1,839	2,937
2005	Rate	HHs	7,913	9.3	11.6	25.5	33.8	42.5	64.7
	Rate	People		16.4	20.0	40.0	50.0	60.0	80.0
Construction and calibration:									
(Selecting indicators and points, and associating scores with poverty likelihoods)									
2005	Rate	HHs	3,900	9.2	11.8	25.6	33.5	42.7	65.1
Validation:									
(Measuring accuracy)									
2005	Rate	HHs	4,013	9.3	11.4	25.5	34.2	42.3	64.2

Source: 2005 EGEP

Poverty lines are XAF per day per person in average prices in Libreville from 1may2005 to 7jul2005.

Table 2 (All of Gabon): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	100%	150%	200%
Urban	2005	Line		780	1,198	1,797	2,395
		Rate (HHs)	5,798	5.6	17.3	36.0	51.1
		Rate (people)		11.0	29.8	54.1	69.8
Rural	2005	Line		745	1,057	1,585	2,114
		Rate (HHs)	2,115	15.1	30.6	51.9	65.2
		Rate (people)		25.6	45.0	68.8	79.6
All	2005	Line		773	1,170	1,755	2,339
		Rate (HHs)	7,913	7.5	20.0	39.2	53.9
		Rate (people)		13.9	32.8	57.0	71.7

Source and definitions: See Table 1 and text.

Table 2 (All of Gabon): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		568	909	1,137	2,273	613	1,000
		Rate (HHs)	5,798	1.8	8.4	15.2	48.1	2.5	11.0
		Rate (people)		3.9	15.6	26.9	67.0	5.2	20.2
Rural	2005	Line		501	802	1,003	2,005	541	882
		Rate (HHs)	2,115	5.7	18.9	28.5	63.2	6.8	23.3
		Rate (people)		10.3	30.4	42.4	78.3	12.5	36.1
All	2005	Line		555	888	1,110	2,220	598	976
		Rate (HHs)	7,913	2.6	10.4	17.8	51.1	3.4	13.4
		Rate (people)		5.2	18.5	29.9	69.3	6.6	23.4

Source and definitions: See Table 1 and text.

Table 2 (All of Gabon): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		751	826	1,280	1,551	1,883	3,008
		Rate (HHs)	5,798	6.6	8.5	21.0	28.6	37.2	60.5
		Rate (people)		12.6	15.8	34.9	44.7	55.4	77.3
Rural	2005	Line		663	729	1,129	1,368	1,661	2,653
		Rate (HHs)	2,115	20.1	24.1	44.1	54.8	64.1	81.5
		Rate (people)		32.0	37.0	60.7	71.3	78.7	91.1
All	2005	Line		734	807	1,250	1,514	1,839	2,937
		Rate (HHs)	7,913	9.3	11.6	25.5	33.8	42.5	64.7
		Rate (people)		16.4	20.0	40.0	50.0	60.0	80.0

Source and definitions: See Table 1 and text.

Table 2 (Libreville): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	100%	150%	200%
Urban	2005	Line		746	1,176	1,764	2,353
		Rate (HHs)	1,589	2.8	11.6	28.3	43.7
		Rate (people)		6.1	22.8	46.3	63.4
Rural	2005	Line		—	—	—	—
		Rate (HHs)	—	—	—	—	—
		Rate (people)		—	—	—	—
All	2005	Line		746	1,176	1,764	2,353
		Rate (HHs)	1,589	2.8	11.6	28.3	43.7
		Rate (people)		6.1	22.8	46.3	63.4

Source and definitions: See Table 1 and text.

Table 2 (Libreville): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		558	894	1,117	2,234	602	983
		Rate (HHs)	1,589	1.2	4.8	9.6	40.3	1.5	6.5
		Rate (people)		2.6	9.8	19.7	60.3	3.1	13.8
Rural	2005	Line		—	—	—	—	—	—
		Rate (HHs)	—	—	—	—	—	—	—
		Rate (people)		—	—	—	—	—	—
All	2005	Line		558	894	1,117	2,234	602	983
		Rate (HHs)	1,589	1.2	4.8	9.6	40.3	1.5	6.5
		Rate (people)		2.6	9.8	19.7	60.3	3.1	13.8

Source and definitions: See Table 1 and text.

Table 2 (Libreville): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		738	812	1,258	1,524	1,851	2,956
		Rate (HHs)	1,589	2.6	3.9	13.7	21.6	30.6	56.2
		Rate (people)		5.7	8.1	25.7	37.1	49.6	75.1
Rural	2005	Line		—	—	—	—	—	—
		Rate (HHs)	—	—	—	—	—	—	—
		Rate (people)		—	—	—	—	—	—
All	2005	Line		738	812	1,258	1,524	1,851	2,956
		Rate (HHs)	1,589	2.6	3.9	13.7	21.6	30.6	56.2
		Rate (people)		5.7	8.1	25.7	37.1	49.6	75.1

Source and definitions: See Table 1 and text.

Table 2 (Port-Gentil): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
					National lines		
				Food	100%	150%	200%
Urban	2005	Line		1,231	1,939	2,908	3,877
		Rate (HHs)	1,117	8.8	30.8	54.5	69.3
		Rate (people)		15.1	43.6	69.4	82.3
Rural	2005	Line		—	—	—	—
		Rate (HHs)	—	—	—	—	—
		Rate (people)		—	—	—	—
All	2005	Line		1,231	1,939	2,908	3,877
		Rate (HHs)	1,117	8.8	30.8	54.5	69.3
		Rate (people)		15.1	43.6	69.4	82.3

Source and definitions: See Table 1 and text.

Table 2 (Port-Gentil): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		920	1,473	1,841	3,682	993	1,619
		Rate (HHs)	1,117	3.0	16.4	27.6	67.1	4.0	20.8
		Rate (people)		6.3	26.3	40.4	80.3	7.5	32.2
Rural	2005	Line		—	—	—	—	—	—
		Rate (HHs)	—	—	—	—	—	—	—
		Rate (people)		—	—	—	—	—	—
All	2005	Line		920	1,473	1,841	3,682	993	1,619
		Rate (HHs)	1,117	3.0	16.4	27.6	67.1	4.0	20.8
		Rate (people)		6.3	26.3	40.4	80.3	7.5	32.2

Source and definitions: See Table 1 and text.

Table 2 (Port-Gentil): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		1,217	1,338	2,074	2,511	3,050	4,871
		Rate (HHs)	1,117	0.3	0.3	1.6	3.0	6.7	26.3
		Rate (people)		0.9	0.9	3.7	6.3	11.8	38.9
Rural	2005	Line		—	—	—	—	—	—
		Rate (HHs)	—	—	—	—	—	—	—
		Rate (people)		—	—	—	—	—	—
All	2005	Line		1,217	1,338	2,074	2,511	3,050	4,871
		Rate (HHs)	1,117	0.3	0.3	1.6	3.0	6.7	26.3
		Rate (people)		0.9	0.9	3.7	6.3	11.8	38.9

Source and definitions: See Table 1 and text.

Table 2 (Nord): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	100%	150%	200%
Urban	2005	Line		707	1,063	1,595	2,126
		Rate (HHs)	654	12.1	27.6	50.6	62.7
		Rate (people)		20.9	43.5	71.3	81.5
Rural	2005	Line		701	1,024	1,536	2,048
		Rate (HHs)	612	17.3	34.8	56.5	70.7
		Rate (people)		29.5	51.5	75.2	85.8
All	2005	Line		704	1,044	1,566	2,088
		Rate (HHs)	1,266	14.7	31.3	53.5	66.8
		Rate (people)		25.0	47.4	73.2	83.6

Source and definitions: See Table 1 and text.

Table 2 (Nord): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		505	808	1,010	2,020	545	889
		Rate (HHs)	654	3.8	16.2	25.3	60.7	5.5	20.4
		Rate (people)		6.6	26.1	40.2	80.2	10.1	32.9
Rural	2005	Line		487	778	973	1,946	525	856
		Rate (HHs)	612	5.7	21.3	32.0	67.9	7.1	26.8
		Rate (people)		11.0	34.7	48.1	83.7	13.8	41.8
All	2005	Line		496	794	992	1,984	535	873
		Rate (HHs)	1,266	4.7	18.8	28.7	64.3	6.3	23.6
		Rate (people)		8.8	30.3	44.0	81.9	11.9	37.2

Source and definitions: See Table 1 and text.

Table 2 (Nord): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		668	734	1,138	1,378	1,674	2,673
		Rate (HHs)	654	16.2	20.5	43.4	52.7	61.0	81.3
		Rate (people)		26.1	33.0	62.7	73.4	80.3	93.1
Rural	2005	Line		643	707	1,096	1,327	1,612	2,575
		Rate (HHs)	612	25.0	30.3	51.9	62.2	71.8	89.9
		Rate (people)		39.5	45.8	70.7	79.6	86.7	96.3
All	2005	Line		656	721	1,118	1,353	1,644	2,625
		Rate (HHs)	1,266	20.6	25.4	47.7	57.5	66.4	85.6
		Rate (people)		32.6	39.2	66.5	76.4	83.4	94.6

Source and definitions: See Table 1 and text.

Table 2 (Sud): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	100%	150%	200%
Urban	2005	Line		683	974	1,461	1,948
		Rate (HHs)	671	15.7	33.4	54.8	68.7
		Rate (people)		25.5	46.8	70.1	82.4
Rural	2005	Line		669	1,026	1,539	2,052
		Rate (HHs)	464	25.2	51.1	74.6	87.6
		Rate (people)		37.6	66.4	87.2	94.6
All	2005	Line		678	993	1,489	1,985
		Rate (HHs)	1,135	19.5	40.5	62.7	76.2
		Rate (people)		29.9	53.9	76.2	86.8

Source and definitions: See Table 1 and text.

Table 2 (Sud): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		463	740	925	1,850	499	814
		Rate (HHs)	671	4.4	19.1	31.3	66.5	6.8	23.5
		Rate (people)		7.9	29.8	44.7	80.6	11.7	35.7
Rural	2005	Line		488	781	976	1,952	526	858
		Rate (HHs)	464	12.4	35.3	48.4	85.5	14.3	41.8
		Rate (people)		20.2	49.6	64.0	93.7	23.6	56.4
All	2005	Line		472	755	943	1,886	509	830
		Rate (HHs)	1,135	7.6	25.5	38.1	74.1	9.8	30.8
		Rate (people)		12.3	36.9	51.6	85.3	16.0	43.1

Source and definitions: See Table 1 and text.

Table 2 (Sud): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		612	672	1,042	1,262	1,533	2,448
		Rate (HHs)	671	28.8	33.4	57.2	66.3	75.0	89.1
		Rate (people)		41.6	46.8	72.1	80.5	87.9	96.3
Rural	2005	Line		645	709	1,099	1,331	1,617	2,582
		Rate (HHs)	464	40.8	46.0	70.9	79.1	89.0	95.8
		Rate (people)		55.7	61.3	84.0	90.1	95.4	98.9
All	2005	Line		624	685	1,062	1,287	1,563	2,496
		Rate (HHs)	1,135	33.6	38.5	62.7	71.4	80.6	91.8
		Rate (people)		46.7	52.0	76.4	83.9	90.6	97.2

Source and definitions: See Table 1 and text.

Table 2 (Est): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
				National lines			
				Food	100%	150%	200%
Urban	2005	Line		665	968	1,453	1,937
		Rate (HHs)	1,068	7.0	19.2	39.3	55.2
		Rate (people)		12.7	30.9	56.3	72.4
Rural	2005	Line		750	1,110	1,665	2,221
		Rate (HHs)	431	17.0	37.5	59.7	73.2
		Rate (people)		28.6	53.9	76.4	87.1
All	2005	Line		688	1,008	1,511	2,015
		Rate (HHs)	1,499	10.1	24.9	45.6	60.8
		Rate (people)		17.1	37.3	61.8	76.4

Source and definitions: See Table 1 and text.

Table 2 (Est): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		458	732	915	1,830	493	805
		Rate (HHs)	1,068	1.8	9.0	16.8	52.2	2.4	12.3
		Rate (people)		4.0	16.9	27.7	69.5	5.1	21.0
Rural	2005	Line		527	842	1,053	2,106	568	926
		Rate (HHs)	431	6.9	21.8	34.6	71.8	7.6	27.2
		Rate (people)		12.1	35.0	50.7	86.1	14.4	42.1
All	2005	Line		477	763	953	1,906	514	839
		Rate (HHs)	1,499	3.3	13.0	22.3	58.3	4.0	16.9
		Rate (people)		6.2	21.9	34.0	74.1	7.7	26.8

Source and definitions: See Table 1 and text.

Table 2 (Est): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		605	665	1,031	1,248	1,516	2,422
		Rate (HHs)	1,068	16.3	20.1	42.9	52.5	61.6	80.3
		Rate (people)		27.0	32.5	60.0	69.8	78.1	91.1
Rural	2005	Line		696	765	1,186	1,437	1,745	2,787
		Rate (HHs)	431	18.0	22.4	46.0	57.1	68.5	83.1
		Rate (people)		29.7	36.1	64.9	74.8	84.0	93.1
All	2005	Line		630	693	1,074	1,300	1,579	2,522
		Rate (HHs)	1,499	16.8	20.8	43.8	53.9	63.7	81.2
		Rate (people)		27.7	33.5	61.3	71.2	79.7	91.6

Source and definitions: See Table 1 and text.

Table 2 (Ouest): National poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)			
					National lines		
				Food	100%	150%	200%
Urban	2005	Line		833	1,230	1,845	2,460
		Rate (HHs)	699	5.7	17.7	36.8	52.1
		Rate (people)		12.0	29.4	53.6	70.1
Rural	2005	Line		821	1,071	1,606	2,142
		Rate (HHs)	608	6.8	12.6	32.0	44.5
		Rate (people)		14.2	22.7	49.0	62.2
All	2005	Line		827	1,158	1,736	2,315
		Rate (HHs)	1,307	6.2	15.4	34.6	48.6
		Rate (people)		13.0	26.4	51.5	66.5

Source and definitions: See Table 1 and text.

Table 2 (Ouest): International 2005 and 2011 PPP poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Intl. 2005 PPP lines				Intl. 2011 PPP lines	
				$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Urban	2005	Line		583	932	1,166	2,331	628	1,025
		Rate (HHs)	699	1.2	7.9	15.7	49.5	1.9	11.2
		Rate (people)		3.3	15.0	26.9	67.1	5.1	20.4
Rural	2005	Line		507	811	1,014	2,028	547	892
		Rate (HHs)	608	1.5	6.6	11.8	42.8	2.0	8.6
		Rate (people)		3.2	13.6	21.0	60.9	4.3	17.0
All	2005	Line		548	877	1,097	2,193	591	965
		Rate (HHs)	1,307	1.4	7.3	13.9	46.4	2.0	10.0
		Rate (people)		3.2	14.3	24.2	64.3	4.7	18.8

Source and definitions: See Table 1 and text.

Table 2 (Ouest): Relative and percentile-based poverty lines and poverty rates for households and people by urban/rural/all in 2005

Region	Year	Line/rate	n	Poverty lines and poverty rates (%)					
				Poorest half of people below 100% Natl. line	Percentile-based lines				
					20th	40th	50th	60th	80th
Urban	2005	Line		771	847	1,313	1,590	1,931	3,084
		Rate (HHs)	699	2.9	4.6	16.4	24.2	34.1	61.1
		Rate (people)		7.2	10.5	27.8	36.9	50.4	77.8
Rural	2005	Line		670	737	1,142	1,383	1,680	2,683
		Rate (HHs)	608	6.6	8.4	22.6	34.7	42.3	66.2
		Rate (people)		13.9	16.8	37.4	52.2	60.1	81.6
All	2005	Line		725	797	1,235	1,496	1,817	2,902
		Rate (HHs)	1,307	4.6	6.4	19.2	29.0	37.8	63.5
		Rate (people)		10.3	13.3	32.2	43.8	54.8	79.5

Source and definitions: See Table 1 and text.

Table 3: Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
2,155	How many members does the household have? (Nine or more; Eight; Seven; Six; Five; Four; Three; Two; One)
1,894	How many household members are 18-years-old or younger? (Six or more; Five; Four; Three; Two; One; None)
1,814	How many household members are 16-years-old or younger? (Five or more; Four; Three; Two; One; None)
1,812	How many household members are 17-years-old or younger? (Five or more; Four; Three; Two; One; None)
1,754	How many household members are 15-years-old or younger? (Five or more; Four; Three; Two; One; None)
1,716	How many household members are 14-years-old or younger? (Five or more; Four; Three; Two; One; None)
1,609	How many household members are 13-years-old or younger? (Four or more; Three; Two; One; None)
1,563	How many household members are 12-years-old or younger? (Four or more; Three; Two; One; None)
1,533	How many household members are 11-years-old or younger? (Four or more; Three; Two; One; None)
1,417	Do all household members ages 6 to 18 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 18; Yes, at least one goes to private or religious)
1,381	Do all household members ages 6 to 17 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 17; Yes, at least one goes to private or religious)
1,361	Do all household members ages 6 to 16 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 16; Yes, at least one goes to private or religious)
1,333	Do all household members ages 6 to 18 currently go to school? (No; Yes; No members ages 6 to 18)
1,289	Do all household members ages 6 to 17 currently go to school? (No; Yes; No members ages 6 to 17)
1,275	Do all household members ages 6 to 16 currently go to school? (No; Yes; No members ages 6 to 16)
1,247	Do all household members ages 6 to 14 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 14; Yes, at least one goes to private or religious)
1,244	Do all household members ages 6 to 15 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 15; Yes, at least one goes to private or religious)

Table 3 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
1,184	How many household members are 6-years-old or younger? (Two or more; One; None)
1,175	Do all household members ages 6 to 13 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 13; Yes, at least one goes to private or religious)
1,168	What is the highest grade or level that the (eldest) female head/spouse has completed? (None, pre-school, CP1, CP2, CE1, CE2, CM1; CM2, or sixth; Fifth, or fourth; No female head/spouse; Third, second, or first; High-school diploma; First year of post-secondary or higher)
1,149	Do all household members ages 6 to 15 currently go to school? (No; Yes; No members ages 6 to 15)
1,144	Do all household members ages 6 to 14 currently go to school? (No; Yes; No members ages 6 to 14)
1,111	Do all household members ages 6 to 12 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 12; Yes, at least one goes to private or religious)
1,082	Do all household members ages 6 to 13 currently go to school? (No; Yes; No members ages 6 to 13)
1,077	Do all household members ages 6 to 11 currently go to a public, private, or religious school? (No; Yes, all go to public; No members ages 6 to 11; Yes, at least one goes to private or religious)
1,018	Do all household members ages 6 to 12 currently go to school? (No; Yes; No members ages 6 to 12)
983	Do all household members ages 6 to 11 currently go to school? (No; Yes; No members ages 6 to 11)
817	If the (eldest) female head/spouse is Gabonese, what is her ethnicity? (Tsongo-Okandé; Pygmée; Kota-Kélé; Ndzébi-Duma; Other ethnicities from Gabon; Sira-Punu; Mbédé-Téké; Fang; Myéné; Is not Gabonese; No female head/spouse)
811	What is the main activity in the (eldest) female head/spouse's main place of work? (Agriculture, hunting, or gathering, or mining/quarrying; Does not work; Services, retail and wholesale trade, fishing or animal husbandry, forestry, manufacturing, contruction, or transportation; Education and health care; No female head/spouse)
770	What is the household's main source of drinking water? (Unprotected well; Surface water; Village borehole; Public standpipe; Protected well, or other; Faucet of another household; Faucet outside the residence; Faucet inside the residence)

Table 3 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
750	What is the main material of the floor of the residence? (Dirt, wood, or other; Cement; Parquet, or tile/marble)
730	What is the (eldest) female head/spouse's status in her main occupation? (Manual laborer; Self-employed, worker in a family business, or apprentice; Does not work; Employee or wage worker; Management, or business owner with employee(s); No female head/spouse)
674	How is the (eldest) female head/spouse paid in her main occupation? (Not paid, in kind, by the day or hour, by the job, or commission; Profits from self-employment; Does not work; Fixed salary; No female head/spouse)
645	What is the roof of the residence made of? (Thatch, corrugated metal sheets without beams, or other; Corrugated metal sheets with beams, concrete, tile, or slate)
634	Can the (eldest) female head/spouse read and write? (No; Yes; No female head/spouse)
625	What is the (eldest) female head/spouse's marital status? (Divorced/separated, or widow; Monogamously married; Polygamously married; Cohabiting; Single, never-married; No female head/spouse)
610	If the male head/spouse is Gabonese, what is his ethnicity? (Tsongo-Okandé; Pygmée; Kota-Kélé; Ndzébi-Duma; Sira-Punu; Mbédé-Téké; Other ethnicities from Gabon; No male head/spouse; Fang; Myéné; Is not Gabonese)
607	What toilet arrangement does the household use? (None; Hole; Unimproved latrine, or other; Improved latrine; Flush toilet)
570	What are the walls of the residence made of? (Packed earth, mud bricks, traditional materials, or salvaged materials; Wood, or other; Both wood and cinder blocks, or only cinder blocks)
559	Did the (eldest) female head/spouse work in the past seven days for at least one hour (including in her own fields)? (Yes; No; No female head/spouse)
539	What is the main cooking fuel used by the household? (Firewood, or wood scraps; LPG, kerosene/fuel oil, charcoal, electricity, ou other)

Table 3 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
407	What is the main source of lighting used by the household? (Kerosene lamp, gas lamp, or home-made lamp; Electricity from a neighbor, generator, solar panel, other source of electricity, or other; Metered electricity)
397	What is your tenancy status in your residence? (Owned without title, or other; Owned with title; Occupied without paying rent; Renter)
380	What is the male head/spouse's marital status? (Cohabiting, or widower; Monogamously married; Polygamously married; No male head/spouse; Single, never-married, or divorced/separated)
362	Does the household have a washer/dryer, air conditioner, water heater, automobile, camera, or micro-computer? (No; Yes)
353	What is the main activity in the male head/spouse's main place of work? (Agriculture, hunting, or gathering, or forestry; Does not work; No male head/spouse; Manufacturing; Construction; Transportation; Services, or education and health care; Fishing or animal husbandry, or mining/quarrying; Retail and wholesale trade)
351	In their main place of work, how many household members has as their main activity agriculture/hunting/gathering, fishing or animal husbandry, forestry, or mining/quarrying? (None; One; Two or more)
347	How many cell phones does the household have? (None; One; Two or more)
343	How many distinct rooms does the residence have? (One; Two; Three or four; Five; Six or more)
330	Does the household have a TV/VCR/DVD player? (No; Yes)
296	What is the highest grade or level that the male head/spouse has completed? (No male head/spouse; None, pre-school, or CP1; CP2, CE1, CE2, CM1, or CM2; Sixth, of fifth; Fourth, third, second, or first; High-school diploma, or first year of post-secondary; Second year of post-secondary or higher)
250	Does the household have a rug/carpet? (No; Yes)

Table 3 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
218	What is the male head/spouse's status in his main occupation? (Does not work; Employee or wage worker; No male head/spouse; Self-employed; Manual laborer, apprentice, or worker in a family business; Management, or business owner with employee(s))
217	What type of residence does the household live in? (Detached house,or compound; House with several buildings, or duplex; One-room studio, apartment in an apartment building, or other)
204	Does the household have a refrigerator/freezer? (No; Yes)
191	In their main occupation, how many household member's status are self-employed without employees? (None; One; Two or more)
188	In their main occupation, how many household members are paid by the job, by the day or hour, on commission, in kind, or are not paid at all? (Two or more; One; None)
188	Does the household have a radio/car radio/radio-cassette/CD player? (No; Yes)
182	Does the household have a gas or electric stove? (No; Yes)
141	What is the area of land that the household has in thousands of m^2? (None; 1 or 2; 3, 4, or 5; 6 to 29; 30 to 99; 100 or more)
139	How is the male head/spouse paid in his main occupation? (Does not work, in kind, or not paid; No male head/spouse; By the day or hour, by the job, or commission; Fixed salary; Profits from self-employment)
129	How many household members worked in the past seven days for at least one hour (including in their own fields)? (None; One; Two or more)
128	How many tables does the household have? (None; One; Two)
93	In their main occupation, how many household members receive a income from the profits of self-employment? (None; One; Two)
92	In their main place of work, how many household members has as their main activity retail or wholesale trade, services, education, or health care? (None; One or more)

Table 3 (cont.): Poverty indicators

Uncertainty coefficient	Indicator (Responses ordered starting with those linked with higher poverty likelihoods)
86	In their main occupation, is the male head/spouse or the (eldest) female head/spouse self-employed in something other than agriculture/hunting/gathering? (No; Yes)
79	Did the male head/spouse work in the past seven days for at least one hour (including in his own fields)? (No; No male head/spouse; Yes)
74	Does any household member have a wardrobe or dresser? (No; Yes)
71	Do any household members currently go to a private or religious school? (No; Yes)
29	In their main occupation, how many household member's status is manual laborer, apprentive, or worker in a family business? (None; One or more)
27	In their main occupation, how many household members receive a fixed salary? (None; One; Two or more)
22	Can the male head/spouse read and write? (No; No male head/spouse; Yes)
20	In their main occupation, how many household members' status are management, employees or wage workers, or business owners with employees? (None; One; Two)
19	How many armchairs/easy chairs does the household have? (None; One or more)
6	How many chairs does the household have? (None; One or more)
0	How many beds does the household have? (None; One or more)

Source: 2005 EGEP with 150% of the national poverty line

Tables for
100% of the National Poverty Line

(and Tables Pertaining
to All Poverty Lines)

Table 4 (100% of the national line)): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	93.6
10–14	88.9
15–19	82.6
20–24	77.0
25–29	65.4
30–34	53.8
35–39	41.6
40–44	34.9
45–49	15.7
50–54	8.1
55–59	5.8
60–64	3.4
65–69	1.5
70–74	0.5
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 5 (100% of the national line): Derivation of estimated poverty likelihoods associated with scores

Score	Households in range and < poverty line		All households in range		Poverty likelihood (%)
0–4	15	÷	15	=	100.0
5–9	144	÷	153	=	93.6
10–14	855	÷	962	=	88.9
15–19	1,496	÷	1,811	=	82.6
20–24	2,376	÷	3,083	=	77.0
25–29	3,054	÷	4,672	=	65.4
30–34	2,932	÷	5,452	=	53.8
35–39	2,867	÷	6,896	=	41.6
40–44	2,886	÷	8,281	=	34.9
45–49	1,706	÷	10,876	=	15.7
50–54	876	÷	10,784	=	8.1
55–59	566	÷	9,806	=	5.8
60–64	336	÷	9,921	=	3.4
65–69	143	÷	9,218	=	1.5
70–74	36	÷	7,306	=	0.5
75–79	0	÷	5,419	=	0.0
80–84	0	÷	3,151	=	0.0
85–89	0	÷	1,154	=	0.0
90–94	0	÷	855	=	0.0
95–100	0	÷	184	=	0.0

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

Table 6 (100% of the national line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	–6.4	3.2	3.2	3.2
10–14	+2.3	4.7	5.5	7.8
15–19	+0.5	4.7	5.7	7.5
20–24	+8.3	4.0	4.8	6.3
25–29	+17.5	3.7	4.3	5.6
30–34	–0.3	3.4	3.9	5.2
35–39	+9.2	2.7	3.3	4.3
40–44	+17.4	1.7	2.1	2.6
45–49	–4.6	3.2	3.4	3.7
50–54	+0.4	1.1	1.3	1.7
55–59	+1.5	0.8	1.0	1.2
60–64	+1.9	0.5	0.6	0.8
65–69	–1.0	0.9	1.0	1.2
70–74	+0.3	0.1	0.1	0.2
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (100% of the national line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.6	53.4	69.0	88.4
4	+1.9	28.5	36.4	48.4
8	+2.4	19.9	24.6	34.7
16	+2.7	14.1	17.2	22.5
32	+2.6	9.7	11.6	14.3
64	+2.5	6.8	8.2	10.7
128	+2.5	4.8	5.8	7.9
256	+2.5	3.5	4.0	5.2
512	+2.5	2.4	2.9	3.8
1,024	+2.5	1.6	2.0	2.9
2,048	+2.5	1.2	1.5	2.1
4,096	+2.5	0.9	1.1	1.3
8,192	+2.5	0.6	0.7	1.0
16,384	+2.5	0.4	0.5	0.7

Table 8 (National lines): Errors (average differences between estimated and observed poverty rates) across bootstrap samples of households at a point in time, precision, and the α factor for precision, scorecard applied to the validation sample

	Poverty lines			
		National lines		
	Food	**100%**	**150%**	**200%**
Error (estimate minus observed value)	+0.9	+2.5	+2.8	+1.1
Precision of difference	0.2	0.4	0.6	0.6
Alpha factor for precision	0.72	0.85	0.93	0.90

Results pertain to the 2005 scorecard applied to the validation sample.

Differences between estimates and observed values are displayed in units of percentage points.

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

Differences 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 poverty lines): Errors (average differences between estimated and observed poverty rates) for bootstrap samples of households at a point in time, precision, and the α factor for precision, scorecard applied to the validation sample

	Poverty lines					
	Intl. 2005 PPP lines				Intl. 2011 PPP lines	
	$1.25	**$2.00**	**$2.50**	**$5.00**	**$1.90**	**$3.10**
Error (estimate minus observed value)	+0.5	+1.1	+2.1	+2.2	+0.6	+1.7
Precision of difference	0.2	0.3	0.4	0.6	0.2	0.4
Alpha factor for precision	0.83	0.75	0.83	0.87	0.82	0.81

Results pertain to the 2005 scorecard applied to the validation sample.

Differences between estimates and observed values are displayed in units of percentage points.

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

Differences 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 (Relative and percentile-based poverty lines): Errors (average differences between estimated and observed poverty rates) for bootsteap samples of households at a point in time, precision, and the α factor for precision, scorecard applied to the validation sample

	Poverty lines					
	Poorest half of people below 100% Natl. line	Percentile-based lines				
		20th	40th	50th	60th	80th
Error (estimate minus observed value)	+1.7	+2.5	+3.6	+2.1	+2.9	+2.5
Precision of difference	0.3	0.3	0.5	0.5	0.6	0.6
Alpha factor for precision	0.70	0.72	0.86	0.90	0.88	0.92

Results pertain to the 2005 scorecard applied to the validation sample.

Differences between estimates and observed values are displayed in units of percentage points.

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

Differences 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 (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 10 (100% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	20.0	0.0	80.0	80.0	–99.9
<=9	0.2	19.8	0.0	80.0	80.2	–98.3
<=14	1.0	19.0	0.1	79.9	80.9	–89.4
<=19	2.5	17.5	0.5	79.6	82.1	–72.8
<=24	4.8	15.2	1.2	78.8	83.6	–45.8
<=29	7.5	12.4	3.2	76.9	84.4	–8.8
<=34	10.6	9.4	5.6	74.4	85.0	+33.7
<=39	13.1	6.8	9.9	70.1	83.3	+50.4
<=44	15.3	4.7	16.1	64.0	79.2	+19.6
<=49	17.7	2.3	24.5	55.5	73.2	–22.9
<=54	18.9	1.1	34.1	45.9	64.8	–70.8
<=59	19.5	0.5	43.3	36.7	56.2	–116.8
<=64	19.7	0.3	53.0	27.0	46.7	–165.4
<=69	19.9	0.0	62.0	18.0	38.0	–210.4
<=74	20.0	0.0	69.3	10.8	30.7	–246.8
<=79	20.0	0.0	74.7	5.3	25.3	–273.9
<=84	20.0	0.0	77.8	2.2	22.2	–289.7
<=89	20.0	0.0	79.0	1.0	21.0	–295.5
<=94	20.0	0.0	79.8	0.2	20.2	–299.8
<=100	20.0	0.0	80.0	0.0	20.0	–300.7

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (100% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	100.0	0.8	Only poor targeted
<=14	1.1	87.6	5.0	7.1:1
<=19	2.9	84.5	12.4	5.5:1
<=24	6.0	79.7	24.0	3.9:1
<=29	10.7	70.4	37.7	2.4:1
<=34	16.1	65.4	52.9	1.9:1
<=39	23.0	57.0	65.8	1.3:1
<=44	31.3	48.7	76.4	1.0:1
<=49	42.2	41.9	88.4	0.7:1
<=54	53.0	35.6	94.4	0.6:1
<=59	62.8	31.0	97.6	0.5:1
<=64	72.7	27.1	98.7	0.4:1
<=69	81.9	24.3	99.8	0.3:1
<=74	89.2	22.4	100.0	0.3:1
<=79	94.7	21.1	100.0	0.3:1
<=84	97.8	20.4	100.0	0.3:1
<=89	99.0	20.2	100.0	0.3:1
<=94	99.8	20.0	100.0	0.3:1
<=100	100.0	20.0	100.0	0.2:1

Tables for the Food Poverty Line

Table 4 (Food line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	78.0
10–14	64.1
15–19	59.1
20–24	49.1
25–29	33.4
30–34	18.0
35–39	11.7
40–44	6.3
45–49	2.1
50–54	1.1
55–59	0.8
60–64	0.2
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (Food line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	–0.7	13.6	16.2	20.0
10–14	–6.0	6.4	7.7	9.8
15–19	–4.8	6.2	7.2	9.3
20–24	+7.3	3.8	4.4	5.6
25–29	+18.7	1.9	2.4	3.1
30–34	+1.1	2.2	2.8	3.6
35–39	+6.4	1.0	1.1	1.4
40–44	+2.1	0.8	1.0	1.2
45–49	–3.2	2.2	2.3	2.4
50–54	+0.1	0.3	0.4	0.5
55–59	+0.1	0.4	0.4	0.6
60–64	+0.2	0.0	0.0	0.0
65–69	–1.2	0.9	0.9	1.0
70–74	0.0	0.0	0.0	0.0
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Food line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.8	50.0	60.9	78.5
4	+0.4	16.4	22.3	36.8
8	+0.9	11.9	15.5	22.7
16	+0.8	8.5	10.3	14.9
32	+0.8	5.9	7.3	10.3
64	+0.9	4.0	4.7	6.4
128	+0.9	2.9	3.3	4.4
256	+0.9	1.9	2.3	3.1
512	+0.9	1.4	1.6	2.2
1,024	+0.9	1.0	1.2	1.5
2,048	+0.9	0.7	0.8	1.1
4,096	+0.9	0.5	0.6	0.8
8,192	+0.9	0.4	0.4	0.5
16,384	+0.9	0.2	0.3	0.4

Table 10 (Food line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	7.5	0.0	92.5	92.5	–99.6
<=9	0.1	7.4	0.0	92.4	92.6	–96.0
<=14	0.8	6.8	0.4	92.1	92.9	–74.8
<=19	1.8	5.7	1.1	91.3	93.1	–37.0
<=24	3.2	4.3	2.8	89.7	92.9	+22.9
<=29	4.3	3.2	6.3	86.1	90.5	+15.6
<=34	5.4	2.1	10.7	81.7	87.1	–42.9
<=39	6.0	1.5	17.0	75.5	81.5	–126.1
<=44	6.6	0.9	24.7	67.8	74.4	–228.5
<=49	7.2	0.3	35.0	57.5	64.6	–365.7
<=54	7.3	0.2	45.6	46.8	54.2	–507.0
<=59	7.4	0.1	55.4	37.1	44.5	–636.4
<=64	7.4	0.1	65.3	27.2	34.6	–768.3
<=69	7.5	0.0	74.4	18.1	25.6	–889.7
<=74	7.5	0.0	81.7	10.8	18.3	–986.8
<=79	7.5	0.0	87.1	5.3	12.9	–1,058.9
<=84	7.5	0.0	90.3	2.2	9.7	–1,100.8
<=89	7.5	0.0	91.4	1.0	8.6	–1,116.2
<=94	7.5	0.0	92.3	0.2	7.7	–1,127.5
<=100	7.5	0.0	92.5	0.0	7.5	–1,130.0

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Food line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.2	Only poor targeted
<=9	0.2	79.9	1.8	4.0:1
<=14	1.1	68.0	10.2	2.1:1
<=19	2.9	61.1	23.9	1.6:1
<=24	6.0	53.4	42.8	1.1:1
<=29	10.7	40.6	57.8	0.7:1
<=34	16.1	33.5	71.9	0.5:1
<=39	23.0	26.2	80.4	0.4:1
<=44	31.3	21.2	88.1	0.3:1
<=49	42.2	17.0	95.6	0.2:1
<=54	53.0	13.9	97.7	0.2:1
<=59	62.8	11.8	98.8	0.1:1
<=64	72.7	10.2	98.8	0.1:1
<=69	81.9	9.2	100.0	0.1:1
<=74	89.2	8.4	100.0	0.1:1
<=79	94.7	7.9	100.0	0.1:1
<=84	97.8	7.7	100.0	0.1:1
<=89	99.0	7.6	100.0	0.1:1
<=94	99.8	7.5	100.0	0.1:1
<=100	100.0	7.5	100.0	0.1:1

Tables for
150% of the National Poverty Line

Table 4 (150% of the national line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	98.9
15–19	96.7
20–24	93.4
25–29	90.2
30–34	87.8
35–39	78.4
40–44	68.7
45–49	50.8
50–54	34.4
55–59	25.6
60–64	12.0
65–69	5.1
70–74	2.2
75–79	0.3
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (150% of the national line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+5.8	3.6	4.4	5.3
15–19	+9.5	4.5	5.5	7.6
20–24	+6.6	3.5	4.1	5.3
25–29	+7.6	3.4	4.2	5.5
30–34	+9.1	3.0	3.6	4.7
35–39	+7.8	3.0	3.5	4.5
40–44	+13.6	2.7	3.2	4.0
45–49	–7.1	4.7	4.9	5.4
50–54	+6.5	2.0	2.4	3.2
55–59	+1.3	2.1	2.4	3.2
60–64	+3.4	1.2	1.4	1.8
65–69	–0.6	1.0	1.2	1.6
70–74	+1.5	0.2	0.3	0.4
75–79	+0.2	0.1	0.2	0.2
80–84	–3.1	2.3	2.5	2.8
85–89	–0.1	0.2	0.2	0.3
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (150% of the national line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–0.4	71.5	71.5	94.1
4	+2.2	33.4	39.4	56.7
8	+3.3	22.9	27.7	38.8
16	+2.9	17.1	20.7	27.6
32	+2.6	12.6	15.1	19.3
64	+2.8	8.8	10.6	14.2
128	+2.7	6.6	7.7	10.2
256	+2.7	4.6	5.4	6.7
512	+2.8	3.1	3.7	4.6
1,024	+2.8	2.3	2.7	3.5
2,048	+2.8	1.5	1.9	2.6
4,096	+2.8	1.1	1.3	1.7
8,192	+2.8	0.8	0.9	1.2
16,384	+2.8	0.6	0.7	0.9

Table 10 (150% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	39.1	0.0	60.9	60.9	–99.9
<=9	0.2	39.0	0.0	60.9	61.0	–99.1
<=14	1.1	38.1	0.1	60.8	61.9	–94.4
<=19	2.7	36.4	0.2	60.7	63.4	–85.5
<=24	5.6	33.6	0.5	60.4	66.0	–70.4
<=29	9.7	29.4	1.0	59.9	69.6	–47.9
<=34	14.2	24.9	1.9	58.9	73.1	–22.4
<=39	19.3	19.8	3.7	57.1	76.4	+8.2
<=44	24.4	14.8	7.0	53.9	78.3	+42.3
<=49	30.6	8.5	11.6	49.3	79.9	+70.4
<=54	34.4	4.8	18.6	42.3	76.6	+52.5
<=59	37.0	2.2	25.8	35.0	72.0	+34.0
<=64	38.2	1.0	34.5	26.3	64.5	+11.7
<=69	38.9	0.3	43.1	17.8	56.7	–10.0
<=74	39.0	0.1	50.2	10.6	49.7	–28.3
<=79	39.0	0.1	55.6	5.2	44.3	–42.1
<=84	39.1	0.0	58.7	2.2	41.3	–49.9
<=89	39.1	0.0	59.8	1.0	40.2	–52.8
<=94	39.1	0.0	60.7	0.2	39.3	–55.0
<=100	39.1	0.0	60.9	0.0	39.1	–55.5

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (150% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.4	Only poor targeted
<=14	1.1	94.6	2.7	17.6:1
<=19	2.9	93.3	7.0	13.9:1
<=24	6.0	92.4	14.2	12.1:1
<=29	10.7	90.8	24.8	9.9:1
<=34	16.1	88.0	36.3	7.3:1
<=39	23.0	83.8	49.3	5.2:1
<=44	31.3	77.8	62.2	3.5:1
<=49	42.2	72.6	78.2	2.6:1
<=54	53.0	64.9	87.9	1.8:1
<=59	62.8	58.9	94.4	1.4:1
<=64	72.7	52.5	97.5	1.1:1
<=69	81.9	47.5	99.3	0.9:1
<=74	89.2	43.7	99.7	0.8:1
<=79	94.7	41.2	99.7	0.7:1
<=84	97.8	40.0	100.0	0.7:1
<=89	99.0	39.6	100.0	0.7:1
<=94	99.8	39.2	100.0	0.6:1
<=100	100.0	39.1	100.0	0.6:1

Tables for
200% of the National Poverty Line

Table 4 (200% of the national line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	98.9
15–19	97.9
20–24	95.9
25–29	94.9
30–34	94.9
35–39	92.5
40–44	86.9
45–49	73.0
50–54	64.8
55–59	44.1
60–64	31.3
65–69	18.9
70–74	8.4
75–79	2.3
80–84	0.9
85–89	0.4
90–94	0.0
95–100	0.0

Table 6 (200% of the national line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+4.5	3.3	3.9	5.0
15–19	–0.9	1.0	1.2	1.5
20–24	+4.2	3.1	3.7	5.1
25–29	–1.4	1.3	1.4	1.9
30–34	+1.1	1.4	1.6	2.1
35–39	+7.8	2.3	2.7	3.9
40–44	+4.7	2.2	2.6	3.3
45–49	–9.8	5.7	5.8	6.1
50–54	+7.8	2.2	2.8	3.8
55–59	0.0	2.5	2.9	3.6
60–64	+3.2	2.0	2.4	3.2
65–69	–1.9	2.1	2.6	3.5
70–74	+3.8	0.9	1.1	1.7
75–79	+0.4	0.7	0.8	1.1
80–84	–3.0	2.2	2.4	2.8
85–89	+0.2	0.2	0.2	0.3
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (200% of the national line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.8	68.8	77.8	92.1
4	+0.8	33.8	42.1	56.2
8	+1.8	25.6	30.3	39.4
16	+1.5	17.3	21.8	30.0
32	+1.0	12.3	15.8	20.5
64	+1.2	9.6	11.3	14.7
128	+1.1	6.5	7.9	10.7
256	+1.0	4.7	5.6	7.1
512	+1.0	3.1	3.7	4.9
1,024	+1.0	2.3	2.8	3.8
2,048	+1.1	1.6	2.0	2.7
4,096	+1.1	1.2	1.3	1.9
8,192	+1.1	0.8	1.0	1.3
16,384	+1.1	0.6	0.7	0.9

Table 10 (200% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	54.1	0.0	45.9	45.9	–99.9
<=9	0.2	54.0	0.0	45.9	46.0	–99.4
<=14	1.1	53.1	0.0	45.8	46.9	–95.9
<=19	2.9	51.3	0.1	45.8	48.7	–89.3
<=24	5.8	48.3	0.2	45.7	51.5	–78.1
<=29	10.3	43.8	0.4	45.5	55.8	–61.2
<=34	15.4	38.8	0.8	45.1	60.4	–41.8
<=39	21.3	32.8	1.7	44.1	65.5	–18.1
<=44	28.2	25.9	3.1	42.7	71.0	+10.0
<=49	36.9	17.2	5.3	40.6	77.5	+46.1
<=54	43.4	10.7	9.5	36.3	79.8	+78.1
<=59	48.1	6.0	14.7	31.2	79.3	+72.8
<=64	51.3	2.9	21.4	24.4	75.7	+60.4
<=69	53.3	0.9	28.7	17.2	70.4	+47.0
<=74	53.8	0.3	35.4	10.4	64.2	+34.6
<=79	54.0	0.2	40.7	5.2	59.2	+24.9
<=84	54.1	0.0	43.7	2.2	56.3	+19.3
<=89	54.1	0.0	44.8	1.0	55.2	+17.2
<=94	54.1	0.0	45.7	0.2	54.3	+15.6
<=100	54.1	0.0	45.9	0.0	54.1	+15.3

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (200% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.3	Only poor targeted
<=14	1.1	96.1	2.0	24.4:1
<=19	2.9	97.6	5.3	40.0:1
<=24	6.0	96.9	10.8	30.8:1
<=29	10.7	96.4	19.1	27.0:1
<=34	16.1	95.1	28.4	19.4:1
<=39	23.0	92.5	39.4	12.3:1
<=44	31.3	90.1	52.1	9.1:1
<=49	42.2	87.5	68.2	7.0:1
<=54	53.0	82.0	80.2	4.6:1
<=59	62.8	76.6	88.8	3.3:1
<=64	72.7	70.5	94.7	2.4:1
<=69	81.9	65.0	98.4	1.9:1
<=74	89.2	60.3	99.4	1.5:1
<=79	94.7	57.0	99.7	1.3:1
<=84	97.8	55.3	100.0	1.2:1
<=89	99.0	54.7	100.0	1.2:1
<=94	99.8	54.2	100.0	1.2:1
<=100	100.0	54.1	100.0	1.2:1

Tables for
the $1.25/day 2005 PPP Poverty Line

Table 4 ($1.25/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	49.1
10–14	34.0
15–19	30.1
20–24	18.5
25–29	14.6
30–34	6.0
35–39	2.6
40–44	1.3
45–49	0.6
50–54	0.3
55–59	0.3
60–64	0.1
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($1.25/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	+100.0	0.0	0.0	0.0
5–9	–11.0	16.9	20.1	25.4
10–14	–8.1	8.2	9.7	12.6
15–19	–6.7	7.1	8.1	11.3
20–24	+7.9	2.1	2.4	3.1
25–29	+11.1	0.9	1.0	1.4
30–34	+1.7	1.1	1.4	1.8
35–39	+1.4	0.5	0.6	0.8
40–44	+0.4	0.3	0.4	0.5
45–49	0.0	0.3	0.3	0.5
50–54	+0.3	0.0	0.0	0.0
55–59	+0.3	0.0	0.0	0.0
60–64	+0.1	0.0	0.0	0.0
65–69	–1.0	0.8	0.9	0.9
70–74	0.0	0.0	0.0	0.0
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($1.25/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	+0.2	7.3	42.2	64.0
4	+0.5	8.6	12.9	27.9
8	+0.5	6.1	10.1	18.3
16	+0.3	5.8	7.7	11.6
32	+0.5	3.8	4.8	7.0
64	+0.5	2.6	3.2	4.3
128	+0.5	1.8	2.2	3.0
256	+0.6	1.3	1.5	2.0
512	+0.5	0.9	1.1	1.4
1,024	+0.5	0.7	0.8	1.0
2,048	+0.5	0.5	0.6	0.8
4,096	+0.5	0.3	0.4	0.5
8,192	+0.5	0.2	0.3	0.3
16,384	+0.5	0.2	0.2	0.3

Table 10 ($1.25/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	2.4	0.0	97.6	97.6	–99.4
<=9	0.1	2.3	0.1	97.6	97.6	–89.1
<=14	0.4	2.0	0.7	96.9	97.3	–35.2
<=19	0.9	1.5	2.0	95.6	96.5	+13.7
<=24	1.3	1.0	4.7	92.9	94.3	–99.1
<=29	1.6	0.7	9.1	88.6	90.2	–283.9
<=34	1.9	0.4	14.2	83.4	85.3	–502.8
<=39	2.1	0.3	21.0	76.6	78.7	–789.4
<=44	2.2	0.2	29.1	68.5	70.7	–1,133.8
<=49	2.3	0.1	39.9	57.7	60.0	–1,591.0
<=54	2.3	0.1	50.7	46.9	49.2	–2,048.0
<=59	2.3	0.1	60.5	37.1	39.4	–2,463.5
<=64	2.3	0.1	70.4	27.2	29.5	–2,883.8
<=69	2.4	0.0	79.6	18.1	20.4	–3,271.5
<=74	2.4	0.0	86.9	10.8	13.1	–3,581.1
<=79	2.4	0.0	92.3	5.3	7.7	–3,810.7
<=84	2.4	0.0	95.4	2.2	4.6	–3,944.2
<=89	2.4	0.0	96.6	1.0	3.4	–3,993.1
<=94	2.4	0.0	97.5	0.2	2.5	–4,029.3
<=100	2.4	0.0	97.6	0.0	2.4	–4,037.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($1.25/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	0.0	0.0	0.0:1
<=9	0.2	52.7	3.8	1.1:1
<=14	1.1	35.4	17.0	0.5:1
<=19	2.9	30.7	38.3	0.4:1
<=24	6.0	22.0	56.2	0.3:1
<=29	10.7	15.3	69.3	0.2:1
<=34	16.1	11.9	81.4	0.1:1
<=39	23.0	8.9	87.0	0.1:1
<=44	31.3	7.0	93.5	0.1:1
<=49	42.2	5.4	97.1	0.1:1
<=54	53.0	4.3	97.1	0.0:1
<=59	62.8	3.6	97.1	0.0:1
<=64	72.7	3.2	97.1	0.0:1
<=69	81.9	2.9	100.0	0.0:1
<=74	89.2	2.6	100.0	0.0:1
<=79	94.7	2.5	100.0	0.0:1
<=84	97.8	2.4	100.0	0.0:1
<=89	99.0	2.4	100.0	0.0:1
<=94	99.8	2.4	100.0	0.0:1
<=100	100.0	2.4	100.0	0.0:1

Tables for
the $2.00/day 2005 PPP Poverty Line

Table 4 ($2.00/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	86.9
10–14	73.3
15–19	63.8
20–24	57.1
25–29	41.0
30–34	26.5
35–39	19.7
40–44	13.3
45–49	5.1
50–54	2.0
55–59	1.3
60–64	0.2
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($2.00/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	+8.2	13.6	16.2	20.0
10–14	–0.1	6.1	7.8	9.9
15–19	–9.2	7.1	7.5	8.4
20–24	+7.3	4.0	4.8	6.2
25–29	+14.4	2.8	3.4	4.2
30–34	–4.0	3.5	3.8	5.0
35–39	+10.4	1.3	1.5	2.1
40–44	+5.1	1.2	1.4	1.9
45–49	–2.4	1.8	1.9	2.1
50–54	+0.4	0.4	0.5	0.7
55–59	+0.3	0.4	0.5	0.6
60–64	+0.2	0.0	0.0	0.0
65–69	–1.2	0.9	0.9	1.0
70–74	–0.1	0.1	0.1	0.1
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($2.00/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.9	50.0	63.8	80.1
4	+0.6	20.6	26.4	38.0
8	+0.9	14.1	18.4	27.8
16	+1.0	9.4	11.8	15.2
32	+1.0	7.0	8.5	11.3
64	+1.1	4.7	5.6	7.6
128	+1.1	3.4	4.0	5.5
256	+1.1	2.4	2.8	4.1
512	+1.1	1.7	2.1	2.6
1,024	+1.1	1.2	1.4	1.9
2,048	+1.1	0.9	1.0	1.2
4,096	+1.1	0.6	0.7	1.0
8,192	+1.2	0.4	0.5	0.7
16,384	+1.1	0.3	0.4	0.5

Table 10 ($2.00/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	10.6	0.0	89.4	89.4	–99.7
<=9	0.1	10.5	0.0	89.3	89.5	–97.2
<=14	0.8	9.8	0.3	89.1	89.9	–81.7
<=19	2.0	8.7	1.0	88.4	90.4	–53.8
<=24	3.7	7.0	2.4	87.0	90.7	–8.8
<=29	5.3	5.3	5.4	84.0	89.4	+49.6
<=34	7.1	3.5	9.1	80.3	87.4	+14.8
<=39	8.2	2.5	14.9	74.5	82.6	–40.2
<=44	9.1	1.5	22.2	67.2	76.3	–109.2
<=49	10.1	0.6	32.1	57.2	67.3	–202.6
<=54	10.4	0.3	42.6	46.8	57.1	–301.1
<=59	10.5	0.1	52.3	37.1	47.6	–392.1
<=64	10.5	0.1	62.2	27.2	37.7	–485.5
<=69	10.6	0.0	71.3	18.0	28.6	–571.4
<=74	10.6	0.0	78.6	10.8	21.4	–640.0
<=79	10.6	0.0	84.0	5.3	16.0	–691.0
<=84	10.6	0.0	87.2	2.2	12.8	–720.6
<=89	10.6	0.0	88.3	1.0	11.7	–731.5
<=94	10.6	0.0	89.2	0.2	10.8	–739.5
<=100	10.6	0.0	89.4	0.0	10.6	–741.3

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($2.00/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	79.9	1.3	4.0:1
<=14	1.1	71.6	7.6	2.5:1
<=19	2.9	66.9	18.5	2.0:1
<=24	6.0	60.8	34.5	1.6:1
<=29	10.7	50.0	50.3	1.0:1
<=34	16.1	44.0	66.8	0.8:1
<=39	23.0	35.4	76.7	0.5:1
<=44	31.3	29.1	85.7	0.4:1
<=49	42.2	23.8	94.7	0.3:1
<=54	53.0	19.6	97.6	0.2:1
<=59	62.8	16.7	98.9	0.2:1
<=64	72.7	14.4	98.9	0.2:1
<=69	81.9	12.9	99.8	0.1:1
<=74	89.2	11.9	100.0	0.1:1
<=79	94.7	11.2	100.0	0.1:1
<=84	97.8	10.9	100.0	0.1:1
<=89	99.0	10.7	100.0	0.1:1
<=94	99.8	10.6	100.0	0.1:1
<=100	100.0	10.6	100.0	0.1:1

Tables for
the $2.50/day 2005 PPP Poverty Line

Table 4 ($2.50/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	93.6
10–14	88.9
15–19	80.7
20–24	75.6
25–29	61.4
30–34	49.3
35–39	38.0
40–44	28.1
45–49	13.6
50–54	6.2
55–59	3.3
60–64	1.0
65–69	0.4
70–74	0.2
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($2.50/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	–6.4	3.2	3.2	3.2
10–14	+2.3	4.7	5.5	7.8
15–19	+0.6	4.9	6.0	7.9
20–24	+8.5	4.0	4.9	6.1
25–29	+19.4	3.4	4.3	5.8
30–34	–2.4	3.4	3.9	5.1
35–39	+13.9	2.3	2.7	3.6
40–44	+12.3	1.7	2.0	2.5
45–49	–3.6	2.6	2.8	3.0
50–54	+0.8	0.8	1.0	1.3
55–59	–0.5	0.8	0.9	1.2
60–64	+0.4	0.2	0.3	0.4
65–69	–2.1	1.4	1.5	1.7
70–74	0.0	0.1	0.1	0.2
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($2.50/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.6	60.6	73.9	88.7
4	+1.9	27.2	34.5	47.5
8	+2.2	18.5	23.3	34.2
16	+2.3	13.0	16.0	20.5
32	+2.3	9.2	11.0	14.4
64	+2.1	6.3	7.5	9.9
128	+2.2	4.6	5.4	6.9
256	+2.1	3.3	3.7	4.9
512	+2.1	2.3	2.6	3.5
1,024	+2.1	1.6	1.9	2.4
2,048	+2.1	1.2	1.4	1.9
4,096	+2.1	0.9	1.0	1.3
8,192	+2.1	0.6	0.7	0.9
16,384	+2.1	0.4	0.5	0.6

Table 10 ($2.50/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	18.0	0.0	82.0	82.0	–99.8
<=9	0.2	17.9	0.0	82.0	82.1	–98.1
<=14	1.0	17.0	0.1	81.8	82.8	–88.2
<=19	2.4	15.6	0.5	81.5	83.9	–70.3
<=24	4.7	13.4	1.4	80.6	85.3	–40.7
<=29	7.1	10.9	3.6	78.4	85.6	–1.0
<=34	10.0	8.1	6.2	75.8	85.7	+44.9
<=39	12.2	5.8	10.8	71.2	83.4	+40.1
<=44	14.1	3.9	17.2	64.8	78.9	+4.5
<=49	16.2	1.9	26.0	55.9	72.1	–44.5
<=54	17.1	0.9	35.8	46.1	63.3	–98.9
<=59	17.7	0.4	45.1	36.8	54.5	–150.5
<=64	17.8	0.2	54.9	27.0	44.8	–204.9
<=69	18.0	0.0	63.9	18.0	36.0	–254.9
<=74	18.0	0.0	71.2	10.8	28.8	–295.2
<=79	18.0	0.0	76.6	5.3	23.4	–325.3
<=84	18.0	0.0	79.8	2.2	20.2	–342.8
<=89	18.0	0.0	80.9	1.0	19.1	–349.2
<=94	18.0	0.0	81.8	0.2	18.2	–353.9
<=100	18.0	0.0	82.0	0.0	18.0	–354.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($2.50/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	100.0	0.9	Only poor targeted
<=14	1.1	87.6	5.5	7.1:1
<=19	2.9	82.2	13.4	4.6:1
<=24	6.0	77.4	25.9	3.4:1
<=29	10.7	66.7	39.6	2.0:1
<=34	16.1	61.6	55.2	1.6:1
<=39	23.0	53.1	68.0	1.1:1
<=44	31.3	45.1	78.4	0.8:1
<=49	42.2	38.3	89.7	0.6:1
<=54	53.0	32.4	95.2	0.5:1
<=59	62.8	28.1	98.0	0.4:1
<=64	72.7	24.4	98.6	0.3:1
<=69	81.9	21.9	99.8	0.3:1
<=74	89.2	20.2	100.0	0.3:1
<=79	94.7	19.0	100.0	0.2:1
<=84	97.8	18.4	100.0	0.2:1
<=89	99.0	18.2	100.0	0.2:1
<=94	99.8	18.1	100.0	0.2:1
<=100	100.0	18.0	100.0	0.2:1

Tables for
the $5.00/day 2005 PPP Poverty Line

Table 4 ($5.00/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	98.9
15–19	97.9
20–24	95.8
25–29	94.7
30–34	94.7
35–39	91.6
40–44	84.6
45–49	68.9
50–54	60.0
55–59	41.1
60–64	27.6
65–69	13.4
70–74	7.2
75–79	2.3
80–84	0.6
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($5.00/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+4.5	3.3	3.9	5.0
15–19	+10.1	4.5	5.5	7.5
20–24	+4.1	3.1	3.7	5.1
25–29	–1.7	1.4	1.5	1.9
30–34	+6.8	2.3	2.7	3.8
35–39	+7.2	2.3	2.7	3.9
40–44	+3.8	2.2	2.7	3.4
45–49	–12.1	6.9	7.0	7.3
50–54	+10.1	2.4	2.8	3.7
55–59	+0.6	2.4	2.8	3.6
60–64	+5.0	1.8	2.2	3.0
65–69	+1.5	1.5	1.9	2.6
70–74	+5.2	0.4	0.5	0.7
75–79	+1.8	0.2	0.3	0.3
80–84	–3.1	2.3	2.5	2.8
85–89	–0.1	0.2	0.2	0.3
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($5.00/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–0.8	63.9	78.5	93.8
4	+2.1	32.0	40.5	52.2
8	+3.2	24.2	28.4	38.2
16	+2.6	17.0	20.6	29.3
32	+2.1	12.5	15.4	19.6
64	+2.2	9.2	11.0	14.5
128	+2.1	6.7	7.9	10.1
256	+2.2	4.4	5.3	6.8
512	+2.2	2.9	3.4	4.4
1,024	+2.1	2.2	2.7	3.6
2,048	+2.2	1.6	1.9	2.7
4,096	+2.2	1.1	1.3	1.7
8,192	+2.2	0.8	1.0	1.3
16,384	+2.2	0.6	0.7	0.9

Table 10 ($5.00/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	51.0	0.0	49.0	49.0	–99.9
<=9	0.2	50.8	0.0	49.0	49.2	–99.3
<=14	1.1	49.9	0.0	49.0	50.0	–95.7
<=19	2.8	48.2	0.2	48.8	51.6	–88.8
<=24	5.8	45.2	0.3	48.7	54.5	–76.9
<=29	10.2	40.8	0.5	48.5	58.8	–59.0
<=34	15.1	35.9	1.0	48.0	63.1	–38.7
<=39	21.0	30.0	2.0	47.0	68.0	–13.6
<=44	27.8	23.2	3.6	45.4	73.2	+15.9
<=49	36.2	14.8	6.0	43.0	79.2	+53.7
<=54	42.0	9.0	11.0	38.0	80.0	+78.4
<=59	46.3	4.7	16.5	32.5	78.8	+67.6
<=64	49.0	2.0	23.7	25.3	74.2	+53.4
<=69	50.4	0.6	31.5	17.5	67.9	+38.2
<=74	50.8	0.2	38.5	10.5	61.3	+24.6
<=79	50.9	0.1	43.8	5.2	56.1	+14.1
<=84	51.0	0.0	46.8	2.2	53.2	+8.2
<=89	51.0	0.0	48.0	1.0	52.0	+5.9
<=94	51.0	0.0	48.8	0.2	51.2	+4.3
<=100	51.0	0.0	49.0	0.0	51.0	+3.9

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($5.00/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.3	Only poor targeted
<=14	1.1	96.1	2.1	24.4:1
<=19	2.9	94.8	5.5	18.2:1
<=24	6.0	95.5	11.3	21.2:1
<=29	10.7	95.7	20.1	22.1:1
<=34	16.1	93.6	29.6	14.6:1
<=39	23.0	91.3	41.2	10.4:1
<=44	31.3	88.6	54.4	7.8:1
<=49	42.2	85.7	70.9	6.0:1
<=54	53.0	79.3	82.3	3.8:1
<=59	62.8	73.7	90.7	2.8:1
<=64	72.7	67.3	96.0	2.1:1
<=69	81.9	61.5	98.8	1.6:1
<=74	89.2	56.9	99.6	1.3:1
<=79	94.7	53.7	99.7	1.2:1
<=84	97.8	52.1	100.0	1.1:1
<=89	99.0	51.5	100.0	1.1:1
<=94	99.8	51.1	100.0	1.0:1
<=100	100.0	51.0	100.0	1.0:1

Tables for
the $1.90/day 2011 PPP Poverty Line

Table 4 ($1.90/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	67.9
10–14	41.5
15–19	35.7
20–24	25.9
25–29	16.6
30–34	8.3
35–39	3.2
40–44	1.7
45–49	0.7
50–54	0.4
55–59	0.4
60–64	0.1
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($1.90/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	–3.8	15.7	17.7	22.9
10–14	–7.0	7.9	9.1	12.3
15–19	–2.4	7.0	8.1	11.1
20–24	+12.9	2.2	2.6	3.4
25–29	+11.2	1.2	1.5	2.0
30–34	+1.2	1.5	1.9	2.5
35–39	+1.6	0.5	0.6	0.8
40–44	+0.4	0.4	0.5	0.6
45–49	–1.0	0.8	0.8	1.0
50–54	+0.4	0.0	0.0	0.0
55–59	+0.4	0.0	0.0	0.0
60–64	+0.1	0.0	0.0	0.0
65–69	–1.0	0.8	0.9	0.9
70–74	0.0	0.0	0.0	0.0
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($1.90/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	+0.2	8.3	50.0	69.1
4	+0.5	10.7	16.9	29.5
8	+0.6	7.6	11.3	18.5
16	+0.4	6.4	8.2	11.4
32	+0.6	4.3	5.1	7.3
64	+0.6	3.0	3.5	4.9
128	+0.6	2.1	2.5	3.4
256	+0.6	1.5	1.8	2.3
512	+0.6	1.0	1.2	1.5
1,024	+0.6	0.7	0.9	1.1
2,048	+0.6	0.5	0.6	0.8
4,096	+0.6	0.4	0.4	0.6
8,192	+0.6	0.3	0.3	0.4
16,384	+0.6	0.2	0.2	0.3

Table 10 ($1.90/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	3.1	0.0	96.9	96.9	–99.0
<=9	0.1	3.0	0.0	96.8	97.0	–90.7
<=14	0.5	2.6	0.6	96.3	96.8	–47.0
<=19	1.1	2.0	1.9	95.0	96.1	+28.7
<=24	1.6	1.5	4.4	92.4	94.0	–42.7
<=29	2.0	1.1	8.7	88.2	90.2	–179.0
<=34	2.4	0.7	13.7	83.2	85.6	–340.1
<=39	2.6	0.5	20.4	76.5	79.1	–555.5
<=44	2.8	0.3	28.5	68.4	71.2	–814.3
<=49	3.0	0.1	39.2	57.7	60.8	–1,156.9
<=54	3.0	0.1	49.9	46.9	50.0	–1,503.1
<=59	3.0	0.1	59.7	37.1	40.2	–1,817.9
<=64	3.0	0.1	69.7	27.2	30.3	–2,136.4
<=69	3.1	0.0	78.8	18.1	21.2	–2,430.1
<=74	3.1	0.0	86.1	10.8	13.9	–2,664.7
<=79	3.1	0.0	91.5	5.3	8.5	–2,838.6
<=84	3.1	0.0	94.7	2.2	5.3	–2,939.8
<=89	3.1	0.0	95.8	1.0	4.2	–2,976.8
<=94	3.1	0.0	96.7	0.2	3.3	–3,004.3
<=100	3.1	0.0	96.9	0.0	3.1	–3,010.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($1.90/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.5	Only poor targeted
<=9	0.2	71.9	3.9	2.6:1
<=14	1.1	46.0	16.7	0.9:1
<=19	2.9	36.4	34.3	0.6:1
<=24	6.0	26.2	50.7	0.4:1
<=29	10.7	18.7	64.3	0.2:1
<=34	16.1	15.1	78.3	0.2:1
<=39	23.0	11.4	84.3	0.1:1
<=44	31.3	9.1	91.3	0.1:1
<=49	42.2	7.2	97.8	0.1:1
<=54	53.0	5.7	97.8	0.1:1
<=59	62.8	4.9	97.8	0.1:1
<=64	72.7	4.2	97.8	0.0:1
<=69	81.9	3.8	100.0	0.0:1
<=74	89.2	3.5	100.0	0.0:1
<=79	94.7	3.3	100.0	0.0:1
<=84	97.8	3.2	100.0	0.0:1
<=89	99.0	3.1	100.0	0.0:1
<=94	99.8	3.1	100.0	0.0:1
<=100	100.0	3.1	100.0	0.0:1

Tables for
the $3.10/day 2011 PPP Poverty Line

Table 4 ($3.10/day 200 PPP line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	86.9
10–14	78.0
15–19	72.5
20–24	67.5
25–29	51.1
30–34	36.8
35–39	26.4
40–44	19.6
45–49	8.4
50–54	3.3
55–59	2.2
60–64	0.5
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 ($3.10/day 200 PPP line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	–13.1	6.6	6.6	6.6
10–14	–2.5	5.5	6.7	8.7
15–19	–3.0	5.1	6.0	8.1
20–24	+8.7	3.9	4.8	6.2
25–29	+20.8	3.0	3.5	4.7
30–34	+1.6	3.1	3.8	5.2
35–39	+8.6	1.9	2.3	3.0
40–44	+8.8	1.3	1.5	2.1
45–49	–3.6	2.6	2.7	3.0
50–54	+0.3	0.6	0.8	1.0
55–59	+0.6	0.5	0.6	0.7
60–64	+0.3	0.1	0.1	0.1
65–69	–1.2	0.9	0.9	1.0
70–74	–0.1	0.1	0.1	0.1
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 ($3.10/day 200 PPP line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.1	55.2	65.8	84.6
4	+1.5	23.5	30.1	42.5
8	+1.7	16.6	19.9	27.7
16	+1.8	11.1	13.2	18.7
32	+1.8	7.9	9.5	13.0
64	+1.7	5.6	6.7	8.4
128	+1.7	3.8	4.8	6.2
256	+1.7	2.9	3.5	4.6
512	+1.7	2.0	2.4	3.1
1,024	+1.8	1.4	1.7	2.1
2,048	+1.8	1.0	1.2	1.6
4,096	+1.7	0.7	0.8	1.1
8,192	+1.8	0.5	0.6	0.8
16,384	+1.7	0.4	0.4	0.5

Table 10 ($3.10/day 200 PPP line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	13.5	0.0	86.5	86.5	–99.8
<=9	0.2	13.3	0.0	86.5	86.7	–97.5
<=14	0.9	12.6	0.2	86.3	87.2	–84.8
<=19	2.2	11.3	0.8	85.8	87.9	–62.0
<=24	4.1	9.3	1.9	84.6	88.8	–24.6
<=29	6.1	7.4	4.6	81.9	88.1	+24.7
<=34	8.2	5.3	7.9	78.6	86.8	+41.3
<=39	9.9	3.6	13.2	73.4	83.2	+2.4
<=44	11.2	2.3	20.1	66.4	77.6	–49.1
<=49	12.6	0.9	29.6	56.9	69.5	–119.5
<=54	13.1	0.4	39.9	46.6	59.7	–195.8
<=59	13.3	0.2	49.5	37.0	50.4	–266.8
<=64	13.4	0.1	59.3	27.2	40.5	–340.1
<=69	13.5	0.0	68.5	18.0	31.5	–407.7
<=74	13.5	0.0	75.8	10.8	24.2	–461.7
<=79	13.5	0.0	81.2	5.3	18.8	–501.9
<=84	13.5	0.0	84.3	2.2	15.7	–525.3
<=89	13.5	0.0	85.5	1.0	14.5	–533.8
<=94	13.5	0.0	86.3	0.2	13.7	–540.2
<=100	13.5	0.0	86.5	0.0	13.5	–541.5

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 ($3.10/day 200 PPP line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	100.0	1.2	Only poor targeted
<=14	1.1	81.4	6.8	4.4:1
<=19	2.9	74.1	16.2	2.9:1
<=24	6.0	68.8	30.7	2.2:1
<=29	10.7	57.2	45.4	1.3:1
<=34	16.1	51.0	61.0	1.0:1
<=39	23.0	42.9	73.3	0.8:1
<=44	31.3	35.8	83.2	0.6:1
<=49	42.2	29.9	93.5	0.4:1
<=54	53.0	24.7	97.1	0.3:1
<=59	62.8	21.2	98.8	0.3:1
<=64	72.7	18.4	99.1	0.2:1
<=69	81.9	16.4	99.8	0.2:1
<=74	89.2	15.1	100.0	0.2:1
<=79	94.7	14.2	100.0	0.2:1
<=84	97.8	13.8	100.0	0.2:1
<=89	99.0	13.6	100.0	0.2:1
<=94	99.8	13.5	100.0	0.2:1
<=100	100.0	13.5	100.0	0.2:1

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

Table 4 (Line marking the poorest half of people below 100% of the national line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	93.6
10–14	77.0
15–19	66.2
20–24	59.3
25–29	42.5
30–34	24.4
35–39	16.2
40–44	6.5
45–49	3.4
50–54	1.5
55–59	1.1
60–64	0.0
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (Line marking the poorest half of people below 100% of the national line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	+4.3	10.7	11.7	14.7
10–14	+0.6	6.0	6.8	9.2
15–19	+2.3	6.4	7.4	9.4
20–24	+6.8	4.0	4.9	6.3
25–29	+23.4	2.3	2.6	3.3
30–34	+6.5	2.2	2.7	3.4
35–39	+9.0	1.1	1.3	1.6
40–44	+1.6	0.8	1.0	1.3
45–49	–2.4	1.7	1.8	2.0
50–54	+0.2	0.4	0.4	0.6
55–59	–0.1	0.4	0.5	0.6
60–64	0.0	0.0	0.0	0.1
65–69	–1.0	0.8	0.9	0.9
70–74	0.0	0.0	0.0	0.0
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Line marking the poorest half of people below 100% of the national line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–0.9	41.0	63.1	81.9
4	+1.3	17.2	23.4	35.9
8	+1.9	12.6	15.9	24.3
16	+1.6	8.7	11.0	15.5
32	+1.7	6.2	7.4	10.7
64	+1.7	4.1	5.0	6.6
128	+1.7	2.9	3.5	4.6
256	+1.7	2.0	2.4	3.2
512	+1.7	1.5	1.8	2.4
1,024	+1.7	1.1	1.3	1.7
2,048	+1.7	0.8	0.9	1.2
4,096	+1.7	0.5	0.6	0.8
8,192	+1.7	0.4	0.5	0.6
16,384	+1.7	0.3	0.3	0.4

Table 10 (Line marking the poorest half of people below 100% of the national line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	9.3	0.0	90.7	90.7	–99.7
<=9	0.2	9.1	0.0	90.7	90.8	–96.6
<=14	0.9	8.4	0.3	90.4	91.3	–78.6
<=19	2.0	7.3	1.0	89.7	91.7	–47.3
<=24	3.8	5.5	2.2	88.4	92.2	+5.5
<=29	5.2	4.0	5.5	85.2	90.5	+41.4
<=34	6.5	2.8	9.6	81.1	87.6	–3.3
<=39	7.5	1.8	15.5	75.1	82.6	–67.3
<=44	8.2	1.1	23.1	67.6	75.8	–148.6
<=49	8.8	0.5	33.3	57.3	66.2	–258.9
<=54	9.1	0.2	43.9	46.8	55.8	–372.5
<=59	9.2	0.1	53.6	37.1	46.3	–476.5
<=64	9.2	0.1	63.5	27.2	36.4	–583.1
<=69	9.3	0.0	72.6	18.1	27.3	–681.6
<=74	9.3	0.0	79.9	10.8	20.1	–760.1
<=79	9.3	0.0	85.3	5.3	14.6	–818.5
<=84	9.3	0.0	88.5	2.2	11.5	–852.4
<=89	9.3	0.0	89.7	1.0	10.3	–864.8
<=94	9.3	0.0	90.5	0.2	9.5	–874.0
<=100	9.3	0.0	90.7	0.0	9.3	–876.0

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Line marking the poorest half of people below 100% of the national line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.2	Only poor targeted
<=9	0.2	90.0	1.6	9.0:1
<=14	1.1	75.8	9.2	3.1:1
<=19	2.9	66.7	21.1	2.0:1
<=24	6.0	62.7	40.7	1.7:1
<=29	10.7	49.0	56.5	1.0:1
<=34	16.1	40.4	70.3	0.7:1
<=39	23.0	32.5	80.5	0.5:1
<=44	31.3	26.2	88.3	0.4:1
<=49	42.2	20.9	95.1	0.3:1
<=54	53.0	17.1	97.5	0.2:1
<=59	62.8	14.7	99.0	0.2:1
<=64	72.7	12.7	99.2	0.1:1
<=69	81.9	11.3	99.9	0.1:1
<=74	89.2	10.4	100.0	0.1:1
<=79	94.7	9.8	100.0	0.1:1
<=84	97.8	9.5	100.0	0.1:1
<=89	99.0	9.4	100.0	0.1:1
<=94	99.8	9.3	100.0	0.1:1
<=100	100.0	9.3	100.0	0.1:1

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

Table 4 (First-quintile (20th-percentile) line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	93.6
10–14	78.3
15–19	70.8
20–24	68.1
25–29	51.1
30–34	32.6
35–39	21.9
40–44	13.3
45–49	5.5
50–54	2.4
55–59	1.6
60–64	0.1
65–69	0.0
70–74	0.0
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (First-quintile (20th-percentile) line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	+4.3	10.7	11.7	14.7
10–14	–4.8	5.3	6.2	9.2
15–19	+1.8	5.8	6.9	8.8
20–24	+10.7	4.2	5.0	6.5
25–29	+21.5	2.9	3.6	5.0
30–34	+8.1	2.5	3.0	3.9
35–39	+12.9	1.3	1.5	1.9
40–44	+6.0	1.0	1.2	1.6
45–49	–1.2	1.2	1.3	1.6
50–54	+0.3	0.5	0.6	0.7
55–59	+0.3	0.4	0.5	0.7
60–64	0.0	0.1	0.1	0.1
65–69	–1.0	0.8	0.8	0.9
70–74	0.0	0.0	0.0	0.0
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (First-quintile (20th-percentile) line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.0	50.0	68.9	84.2
4	+2.0	20.2	27.0	38.7
8	+2.7	13.9	17.5	24.4
16	+2.5	9.7	12.5	16.4
32	+2.6	6.8	8.3	11.0
64	+2.5	4.6	5.6	7.3
128	+2.5	3.1	3.9	5.3
256	+2.5	2.3	2.7	4.1
512	+2.5	1.7	2.0	2.6
1,024	+2.5	1.2	1.4	1.7
2,048	+2.5	0.9	1.0	1.3
4,096	+2.5	0.6	0.7	0.9
8,192	+2.5	0.4	0.5	0.7
16,384	+2.5	0.3	0.4	0.5

Table 10 (First-quintile (20th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	11.4	0.0	88.6	88.6	–99.7
<=9	0.2	11.2	0.0	88.6	88.7	–97.2
<=14	0.9	10.5	0.2	88.4	89.3	–81.9
<=19	2.2	9.2	0.8	87.8	90.0	–55.2
<=24	4.1	7.3	1.9	86.7	90.9	–10.8
<=29	6.1	5.3	4.6	84.0	90.0	+47.0
<=34	7.8	3.6	8.3	80.3	88.1	+26.8
<=39	8.9	2.4	14.1	74.5	83.5	–23.7
<=44	10.0	1.4	21.4	67.2	77.2	–87.4
<=49	10.8	0.6	31.4	57.2	67.9	–175.9
<=54	11.1	0.3	41.9	46.7	57.9	–267.3
<=59	11.3	0.1	51.5	37.1	48.4	–351.8
<=64	11.3	0.1	61.4	27.2	38.5	–438.6
<=69	11.4	0.0	70.5	18.1	29.4	–518.9
<=74	11.4	0.0	77.8	10.8	22.2	–582.9
<=79	11.4	0.0	83.3	5.3	16.7	–630.5
<=84	11.4	0.0	86.4	2.2	13.6	–658.1
<=89	11.4	0.0	87.6	1.0	12.4	–668.3
<=94	11.4	0.0	88.4	0.2	11.6	–675.8
<=100	11.4	0.0	88.6	0.0	11.4	–677.4

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (First-quintile (20th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	90.0	1.3	9.0:1
<=14	1.1	82.3	8.2	4.7:1
<=19	2.9	73.6	19.0	2.8:1
<=24	6.0	68.8	36.4	2.2:1
<=29	10.7	56.7	53.2	1.3:1
<=34	16.1	48.4	68.5	0.9:1
<=39	23.0	38.8	78.5	0.6:1
<=44	31.3	31.8	87.4	0.5:1
<=49	42.2	25.5	94.4	0.3:1
<=54	53.0	21.0	97.6	0.3:1
<=59	62.8	18.0	99.1	0.2:1
<=64	72.7	15.6	99.3	0.2:1
<=69	81.9	13.9	99.9	0.2:1
<=74	89.2	12.8	100.0	0.1:1
<=79	94.7	12.0	100.0	0.1:1
<=84	97.8	11.7	100.0	0.1:1
<=89	99.0	11.5	100.0	0.1:1
<=94	99.8	11.4	100.0	0.1:1
<=100	100.0	11.4	100.0	0.1:1

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

Table 4 (Second-quintile (40th-percentile) line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	97.6
15–19	92.5
20–24	87.0
25–29	84.6
30–34	64.8
35–39	51.9
40–44	41.5
45–49	23.5
50–54	14.5
55–59	10.8
60–64	5.1
65–69	2.6
70–74	0.5
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (Second-quintile (40th-percentile) line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+4.6	3.6	4.4	5.3
15–19	+8.0	4.6	5.5	7.7
20–24	+7.4	3.8	4.6	6.3
25–29	+25.1	3.8	4.6	6.3
30–34	–4.8	4.0	4.3	5.1
35–39	+14.3	2.9	3.4	4.2
40–44	+11.8	2.2	2.6	3.4
45–49	–1.1	1.8	2.2	2.8
50–54	+2.8	1.3	1.6	2.0
55–59	+3.4	1.1	1.3	1.6
60–64	+1.9	0.8	1.0	1.4
65–69	+0.1	0.8	0.9	1.2
70–74	+0.2	0.2	0.2	0.2
75–79	0.0	0.0	0.0	0.0
80–84	0.0	0.0	0.0	0.0
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Second-quintile (40th-percentile) line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.9	59.0	68.7	89.5
4	+2.1	30.8	39.8	54.4
8	+3.4	21.2	26.3	39.4
16	+3.5	15.0	18.7	24.6
32	+3.6	11.0	13.0	15.9
64	+3.6	7.7	9.2	12.1
128	+3.5	5.5	6.6	9.1
256	+3.5	3.9	4.6	6.3
512	+3.6	2.8	3.3	4.2
1,024	+3.6	1.8	2.3	2.9
2,048	+3.6	1.3	1.6	2.0
4,096	+3.6	1.0	1.1	1.5
8,192	+3.6	0.7	0.8	1.0
16,384	+3.6	0.5	0.6	0.7

Table 10 (Second-quintile (40th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	25.5	0.0	74.5	74.5	–99.9
<=9	0.2	25.3	0.0	74.5	74.7	–98.7
<=14	1.1	24.4	0.1	74.4	75.5	–91.4
<=19	2.6	22.9	0.3	74.2	76.8	–78.1
<=24	5.3	20.2	0.7	73.8	79.0	–55.7
<=29	8.7	16.8	2.0	72.5	81.2	–23.9
<=34	12.6	12.9	3.5	71.0	83.6	+12.9
<=39	16.0	9.5	7.1	67.4	83.4	+52.9
<=44	19.2	6.3	12.1	62.4	81.6	+52.4
<=49	22.1	3.4	20.1	54.4	76.5	+21.2
<=54	23.9	1.6	29.1	45.4	69.3	–14.2
<=59	24.9	0.6	37.9	36.6	61.5	–48.6
<=64	25.2	0.3	47.5	27.0	52.3	–86.1
<=69	25.4	0.1	56.5	18.0	43.5	–121.5
<=74	25.5	0.0	63.7	10.8	36.3	–150.0
<=79	25.5	0.0	69.2	5.3	30.8	–171.2
<=84	25.5	0.0	72.3	2.2	27.7	–183.6
<=89	25.5	0.0	73.5	1.0	26.5	–188.1
<=94	25.5	0.0	74.3	0.2	25.7	–191.4
<=100	25.5	0.0	74.5	0.0	25.5	–192.2

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Second-quintile (40th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.1	Only poor targeted
<=9	0.2	100.0	0.7	Only poor targeted
<=14	1.1	94.1	4.2	16.0:1
<=19	2.9	89.6	10.3	8.6:1
<=24	6.0	87.6	20.7	7.1:1
<=29	10.7	81.5	34.2	4.4:1
<=34	16.1	78.2	49.5	3.6:1
<=39	23.0	69.2	62.6	2.2:1
<=44	31.3	61.3	75.2	1.6:1
<=49	42.2	52.4	86.7	1.1:1
<=54	53.0	45.0	93.6	0.8:1
<=59	62.8	39.6	97.6	0.7:1
<=64	72.7	34.7	99.0	0.5:1
<=69	81.9	31.1	99.8	0.5:1
<=74	89.2	28.6	100.0	0.4:1
<=79	94.7	26.9	100.0	0.4:1
<=84	97.8	26.1	100.0	0.4:1
<=89	99.0	25.8	100.0	0.3:1
<=94	99.8	25.5	100.0	0.3:1
<=100	100.0	25.5	100.0	0.3:1

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

Table 4 (Median (50th-percentile) line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	98.9
15–19	94.7
20–24	90.5
25–29	90.5
30–34	83.1
35–39	68.7
40–44	56.5
45–49	39.6
50–54	22.9
55–59	17.8
60–64	9.4
65–69	4.3
70–74	1.1
75–79	0.0
80–84	0.0
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (Median (50^{th}-percentile) line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of $n = 16{,}384$, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	**Diff.**	**90-percent**	**95-percent**	**99-percent**
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+6.0	3.6	4.4	5.3
15–19	+8.2	4.6	5.4	7.7
20–24	+4.3	3.4	4.2	5.8
25–29	+11.4	3.5	4.2	5.2
30–34	+8.0	3.1	3.8	5.0
35–39	+10.2	3.0	3.6	4.8
40–44	+3.9	2.6	3.1	4.1
45–49	–5.0	3.6	3.8	4.2
50–54	+1.2	1.8	2.1	2.6
55–59	+1.1	1.7	2.1	2.7
60–64	+3.9	1.0	1.2	1.6
65–69	+0.8	0.8	1.0	1.3
70–74	+0.8	0.2	0.2	0.3
75–79	–0.1	0.1	0.2	0.2
80–84	–3.2	2.3	2.5	2.8
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Median (50th-percentile) line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–2.9	66.8	75.4	93.1
4	+1.0	33.9	41.2	58.6
8	+2.3	22.8	27.4	39.6
16	+2.2	16.2	20.1	28.5
32	+2.1	12.2	14.5	18.4
64	+2.2	8.5	9.7	13.3
128	+2.0	6.1	7.6	9.7
256	+2.0	4.4	5.2	6.9
512	+2.1	3.0	3.6	4.9
1,024	+2.1	2.2	2.5	3.2
2,048	+2.1	1.5	1.8	2.3
4,096	+2.2	1.1	1.3	1.6
8,192	+2.1	0.7	0.9	1.2
16,384	+2.1	0.5	0.7	0.9

Table 10 (Median (50th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	34.1	0.0	65.8	65.8	–99.9
<=9	0.2	34.0	0.0	65.8	66.0	–99.0
<=14	1.1	33.1	0.1	65.7	66.8	–93.6
<=19	2.7	31.4	0.2	65.6	68.3	–83.5
<=24	5.5	28.7	0.5	65.3	70.8	–66.3
<=29	9.5	24.6	1.2	64.6	74.1	–40.8
<=34	13.8	20.4	2.3	63.4	77.3	–12.3
<=39	18.2	16.0	4.9	60.9	79.1	+20.7
<=44	23.0	11.2	8.4	57.4	80.4	+58.9
<=49	27.9	6.2	14.2	51.6	79.5	+58.4
<=54	30.9	3.2	22.0	43.8	74.7	+35.6
<=59	32.9	1.3	29.9	35.9	68.8	+12.6
<=64	33.6	0.5	39.0	26.7	60.4	–14.3
<=69	34.0	0.2	47.9	17.9	51.9	–40.2
<=74	34.1	0.1	55.1	10.7	44.7	–61.4
<=79	34.1	0.1	60.5	5.3	39.3	–77.2
<=84	34.2	0.0	63.6	2.2	36.4	–86.1
<=89	34.2	0.0	64.7	1.0	35.2	–89.5
<=94	34.2	0.0	65.6	0.2	34.3	–92.0
<=100	34.2	0.0	65.8	0.0	34.2	–92.6

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Median (50th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.5	Only poor targeted
<=14	1.1	94.1	3.1	16.0:1
<=19	2.9	92.2	7.9	11.9:1
<=24	6.0	91.3	16.1	10.5:1
<=29	10.7	89.0	27.9	8.1:1
<=34	16.1	85.5	40.4	5.9:1
<=39	23.0	78.9	53.2	3.7:1
<=44	31.3	73.3	67.2	2.8:1
<=49	42.2	66.2	81.8	2.0:1
<=54	53.0	58.4	90.5	1.4:1
<=59	62.8	52.4	96.2	1.1:1
<=64	72.7	46.2	98.4	0.9:1
<=69	81.9	41.5	99.5	0.7:1
<=74	89.2	38.2	99.7	0.6:1
<=79	94.7	36.0	99.7	0.6:1
<=84	97.8	34.9	100.0	0.5:1
<=89	99.0	34.5	100.0	0.5:1
<=94	99.8	34.2	100.0	0.5:1
<=100	100.0	34.2	100.0	0.5:1

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

Table 4 (Third-quintile (60th-percentile) line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	98.9
15–19	97.9
20–24	95.3
25–29	93.7
30–34	90.7
35–39	83.6
40–44	73.5
45–49	53.1
50–54	41.4
55–59	31.0
60–64	15.2
65–69	9.0
70–74	3.0
75–79	0.6
80–84	0.3
85–89	0.0
90–94	0.0
95–100	0.0

Table 6 (Third-quintile (60th-percentile) line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+4.6	3.3	4.0	4.9
15–19	+10.8	4.5	5.5	7.5
20–24	+5.4	3.3	4.0	5.2
25–29	+10.2	3.4	4.0	5.5
30–34	+4.1	2.4	2.8	3.8
35–39	+9.5	2.9	3.5	4.5
40–44	+8.6	2.5	3.0	4.0
45–49	–10.2	6.2	6.4	6.9
50–54	+7.5	2.2	2.6	3.5
55–59	+1.1	2.2	2.6	3.4
60–64	+5.4	1.2	1.4	2.0
65–69	+3.3	1.0	1.1	1.6
70–74	+2.0	0.3	0.4	0.5
75–79	+0.3	0.2	0.2	0.3
80–84	–3.2	2.3	2.5	2.8
85–89	0.0	0.0	0.0	0.0
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Third-quintile (60th-percentile) line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–1.0	61.1	71.3	92.4
4	+2.2	33.2	40.5	55.6
8	+3.1	23.8	29.0	38.5
16	+2.8	17.2	20.9	28.2
32	+2.8	12.7	15.2	20.1
64	+3.0	9.1	11.1	14.9
128	+2.9	6.7	7.9	10.3
256	+2.8	4.4	5.2	7.2
512	+2.9	3.1	3.6	4.9
1,024	+2.9	2.2	2.7	3.9
2,048	+2.9	1.6	1.9	2.6
4,096	+2.9	1.1	1.4	1.7
8,192	+2.9	0.8	1.0	1.3
16,384	+2.9	0.6	0.7	0.9

Table 10 (Third-quintile (60th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	42.3	0.0	57.7	57.7	–99.9
<=9	0.2	42.2	0.0	57.7	57.8	–99.2
<=14	1.1	41.3	0.1	57.6	58.7	–94.8
<=19	2.8	39.6	0.2	57.5	60.2	–86.6
<=24	5.7	36.7	0.4	57.3	62.9	–72.4
<=29	9.9	32.5	0.8	56.8	66.7	–51.4
<=34	14.6	27.7	1.5	56.1	70.8	–27.3
<=39	20.0	22.3	3.0	54.6	74.7	+1.7
<=44	25.7	16.6	5.6	52.1	77.8	+34.7
<=49	32.5	9.9	9.7	47.9	80.4	+76.3
<=54	36.7	5.7	16.3	41.3	78.0	+61.5
<=59	40.0	2.4	22.8	34.8	74.8	+46.1
<=64	41.3	1.0	31.4	26.3	67.6	+25.9
<=69	42.0	0.3	39.9	17.7	59.7	+5.7
<=74	42.2	0.1	47.0	10.6	52.8	–11.1
<=79	42.2	0.1	52.4	5.2	47.5	–23.8
<=84	42.3	0.0	55.5	2.2	44.5	–31.0
<=89	42.3	0.0	56.6	1.0	43.4	–33.7
<=94	42.3	0.0	57.5	0.2	42.5	–35.7
<=100	42.3	0.0	57.7	0.0	42.3	–36.1

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Third-quintile (60th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.4	Only poor targeted
<=14	1.1	95.6	2.6	21.5:1
<=19	2.9	93.6	6.5	14.7:1
<=24	6.0	93.9	13.4	15.4:1
<=29	10.7	92.4	23.3	12.2:1
<=34	16.1	90.6	34.6	9.7:1
<=39	23.0	87.0	47.3	6.7:1
<=44	31.3	82.2	60.8	4.6:1
<=49	42.2	77.0	76.7	3.3:1
<=54	53.0	69.2	86.6	2.2:1
<=59	62.8	63.7	94.4	1.8:1
<=64	72.7	56.8	97.6	1.3:1
<=69	81.9	51.3	99.2	1.1:1
<=74	89.2	47.3	99.7	0.9:1
<=79	94.7	44.6	99.7	0.8:1
<=84	97.8	43.3	100.0	0.8:1
<=89	99.0	42.8	100.0	0.7:1
<=94	99.8	42.4	100.0	0.7:1
<=100	100.0	42.3	100.0	0.7:1

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

Table 4 (Fourth-quintile (80th-percentile) line): Scores and their associated estimates of poverty likelihoods

If a household's score is . . .	. . . then the likelihood (%) of being below the poverty line is:
0–4	100.0
5–9	100.0
10–14	100.0
15–19	100.0
20–24	99.4
25–29	98.9
30–34	98.4
35–39	96.2
40–44	93.3
45–49	85.2
50–54	77.1
55–59	66.0
60–64	54.8
65–69	36.2
70–74	19.8
75–79	11.7
80–84	3.4
85–89	0.8
90–94	0.0
95–100	0.0

Table 6 (Fourth-quintile (80th-percentile) line): Average errors (differences between estimated and observed poverty likelihoods) for households by score range, with confidence intervals, from 1,000 bootstraps of n = 16,384, scorecard applied to the validation sample

	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
Score	Diff.	90-percent	95-percent	99-percent
0–4	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.0	0.0
10–14	+1.1	1.2	1.3	1.7
15–19	0.0	0.0	0.0	0.0
20–24	+0.8	0.8	1.0	1.2
25–29	+2.2	1.2	1.4	1.8
30–34	+0.3	0.7	0.8	1.0
35–39	+7.7	2.1	2.7	3.5
40–44	+3.5	1.8	2.1	2.8
45–49	–4.9	3.0	3.1	3.3
50–54	+1.5	2.1	2.6	3.3
55–59	+0.6	2.4	2.9	3.5
60–64	+5.1	2.5	2.9	3.7
65–69	+7.5	2.3	2.8	4.0
70–74	+4.5	1.8	2.2	2.9
75–79	+4.1	1.4	1.7	2.3
80–84	–4.6	3.4	3.6	3.9
85–89	+0.6	0.3	0.3	0.3
90–94	0.0	0.0	0.0	0.0
95–100	0.0	0.0	0.0	0.0

Table 7 (Fourth-quintile (80th-percentile) line): Errors (average differences between estimated and observed poverty rates) for samples of households at a point in time by sample size, with confidence intervals, for 1,000 bootstraps of various sample sizes, scorecard applied to the validation sample

Sample Size	Difference between estimate and observed value			
		Confidence interval (±percentage points)		
n	Diff.	90-percent	95-percent	99-percent
1	–0.7	64.9	82.7	92.3
4	+1.0	32.8	41.8	55.6
8	+2.4	26.4	31.8	41.7
16	+2.6	18.6	23.1	29.4
32	+2.4	12.8	14.7	20.3
64	+2.5	9.1	10.8	14.4
128	+2.6	6.3	7.6	10.1
256	+2.5	4.3	5.4	7.1
512	+2.5	3.2	3.8	5.3
1,024	+2.4	2.4	2.8	3.7
2,048	+2.5	1.7	2.0	2.7
4,096	+2.5	1.2	1.3	1.9
8,192	+2.5	0.8	1.0	1.3
16,384	+2.5	0.6	0.7	0.9

Table 10 (Fourth-quintile (80th-percentile) line): Percentages of households by cut-off score and targeting classification, along with the hit rate and BPAC, scorecard applied to the 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
<=4	0.0	64.2	0.0	35.8	35.8	–100.0
<=9	0.2	64.0	0.0	35.8	35.9	–99.5
<=14	1.1	63.1	0.0	35.7	36.9	–96.5
<=19	2.9	61.3	0.0	35.7	38.7	–90.9
<=24	6.0	58.2	0.1	35.7	41.7	–81.3
<=29	10.5	53.7	0.2	35.5	46.0	–67.0
<=34	15.8	48.4	0.4	35.4	51.2	–50.2
<=39	22.1	42.1	1.0	34.8	56.9	–29.7
<=44	29.6	34.6	1.8	34.0	63.5	–5.1
<=49	39.0	25.1	3.1	32.7	71.7	+26.5
<=54	47.3	16.9	5.7	30.1	77.3	+56.1
<=59	53.8	10.3	8.9	26.9	80.7	+81.6
<=64	59.1	5.1	13.6	22.2	81.2	+78.8
<=69	61.9	2.3	20.0	15.8	77.6	+68.8
<=74	63.4	0.8	25.8	9.9	73.3	+59.8
<=79	63.9	0.3	30.7	5.1	68.9	+52.2
<=84	64.2	0.0	33.6	2.2	66.4	+47.7
<=89	64.2	0.0	34.7	1.0	65.2	+45.9
<=94	64.2	0.0	35.6	0.2	64.4	+44.6
<=100	64.2	0.0	35.8	0.0	64.2	+44.3

Inclusion, undercoverage, leakage, and exclusion normalized to sum to 100.

Table 11 (Fourth-quintile (80th-percentile) line): Share of all households who are targeted (that is, score at or below a cut-off), the share of targeted households who are poor, the share of poor households who are targeted, and the number of poor households who are successfully targeted (inclusion) per non-poor household mistakenly targeted (leakage), scorecard applied to the 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
<=4	0.0	100.0	0.0	Only poor targeted
<=9	0.2	100.0	0.3	Only poor targeted
<=14	1.1	98.7	1.7	76.9:1
<=19	2.9	99.5	4.6	201.8:1
<=24	6.0	98.9	9.3	91.0:1
<=29	10.7	97.9	16.3	46.1:1
<=34	16.1	97.8	24.6	43.6:1
<=39	23.0	95.8	34.4	22.9:1
<=44	31.3	94.3	46.0	16.7:1
<=49	42.2	92.5	60.8	12.4:1
<=54	53.0	89.2	73.6	8.2:1
<=59	62.8	85.8	83.9	6.0:1
<=64	72.7	81.2	92.0	4.3:1
<=69	81.9	75.5	96.4	3.1:1
<=74	89.2	71.0	98.7	2.4:1
<=79	94.7	67.5	99.5	2.1:1
<=84	97.8	65.6	100.0	1.9:1
<=89	99.0	64.9	100.0	1.8:1
<=94	99.8	64.3	100.0	1.8:1
<=100	100.0	64.2	100.0	1.8:1