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Using simple cross-country comparisons to guide measurement

Poverty in the CFA franc zone

by Quentin Wodon

There are often debates in developing countries about the extent of poverty. Parts of the discussion are related to the scope of the definition of poverty to be used, with disagreements as to whether poverty should be measured in a traditional way on the basis of the consumption level of households, or in a broader way in order to take other types of deprivation into account as well.

But even when there is broad agreement to focus on a somewhat narrow definition of poverty in terms of consumption levels (at least for monitoring and evaluation purposes), different persons or groups often have different expectations as to how widespread poverty is in their country. Because where the poverty line or threshold is set is somewhat normative and thereby open to debate, and because poverty estimates are highly sensitive to the choice of the poverty line (even if poverty comparisons over time or across groups may not be), it is often difficult for agencies such as National Statistical Offices or government units in charge of Poverty Reduction Strategies in any given country to adopt a critical perspective on their own poverty estimates. This is especially the case when past estimates of poverty have already been published five or ten years ago, which results in added pressure to keep each set of new estimates comparable to past ones, even though these past poverty measures may appear to have been over- or under-estimated.

In order to inform discussions on the extent of poverty in a country, it is therefore useful to compare the country's poverty measures to estimates obtained in other countries with similar levels of development within the same region of the world. Beyond gains from the point of view of cross-country comparisons that such an approach provides, there are also potential gains from such comparisons in terms of realigning a country's poverty estimates and better informing policy choices within the country. For example, when some countries adopt very high poverty lines, it is often difficult to see any impact of public programs or interventions on the share of the population in poverty (the most widely used measure of poverty in policy debates despite its weaknesses). This is simply because most households tend to have consumption levels so far below the poverty

Box 1: Estimating poverty lines in the CFA franc zone: the Cost of Basic Needs method

As indicated in table 1, most countries in the CFA franc zone have adopted the cost of basic needs method (CBN) for estimating poverty. Under this method, an absolute poverty line is defined as the value of consumption needed to satisfy minimum subsistence needs. Difficulties arise in specifying these needs as well as the most appropriate way of attaining them. For food consumption, nutritional requirements can be used as a guide, as is the case with the other methods for measuring poverty. In practice, this is often restricted to calorie (and possibly protein) requirements, but even then there is a question of which food basket to choose in order to meet the requirements. Specifying minimum requirements for nonfood consumption is more difficult, and various methods have been proposed for dealing with non-food basic needs. Another issue relates to the adjustments that must be made for differences in the cost of food and non-food items between regions, and possibly over time, either when the survey has been carried over a substantial period of time such as one year, or when one is using several surveys for poverty monitoring.

The first step in using the CBN method consists in the definition of a bundle of food items meeting a given nutritional requirement (say, 2400 kcal per person and per day). Many food bundles can provide this requirement. The bundle used in any given country is typically based on the observed consumption of food in that country, but what is often done is to use the same food bundle for poverty comparisons over time or across space, while letting the prices of the various items in the bundle vary. It could be argued that using a common food bundle for a whole country is inadequate because consumption patterns of households may vary across areas (e.g. households in coastal areas may eat more fish). Households in different regions might also substitute some goods for others if prices vary by area. Other difficulties such as seasonality in food prices, potential omitted variables or selectivity bias in the choice of food items consumed, or errors of measurement in the database for the imputation of food produced and consumed at home, may lead to bias in the estimates of food prices. In the case of CFA franc countries, these considerations are considered not to be too problematic, but in other countries, adjustments could be needed to allow the food bundle to vary between areas, while at the same time attempting to reduce the bias that may arise from the fact that when the basket does vary, this may itself be a consequence of the levels of poverty or well-being of households..

The second step in using the CBN method consists in estimating the cost of the food bundle. To do so prices by geographical area are computed for each component of the food bundle. There are different methods to compute these prices, but often median prices by area are used when data is available on the prices paid by households (the prices of the various food items in the food bundle are normally obtained by dividing the reported food expenditure by the quantity consumed). More complex methods consist in using regressions to estimate the differences between regions in the prices paid by households for their food after controlling for a range of household characteristics. In some cases, prices are not obtained from household level data, but from a community module with price information, or from data used to construct Consumer Price Indices. Having estimated the cost of each food item j in each region or area k, and denoting these prices by P_{jk}, food poverty lines can be computed for each region or area k as $Z_{kf} = Ó_j P_{jk} F_j$, where F_j is the per capita quantity of food item j in the basic food bundle necessary to meet household nutritional needs.

Once the food component of the poverty lines has been estimated, the third step consists in the estimation of a reasonable allowance for non food consumption. Various methods can be used (Ravallion 1994). The standard approach is to estimate the amount of non-food expenditures of households (in geographical area k) whose *total* consumption is equal to the regional food poverty line Z_{kf}. These non-food expenditures are likely to be allocated to necessities since the households considered for the estimation are giving up food expenditures which are considered as necessary in order to buy non-food items. An alternative is to estimate the share of non-food expenditures for households whose *food* expenditure is equal to the food poverty line. For both approaches, various techniques (both parametric and non-parametric) can be used to estimate the non-food components of the regional poverty lines. If one denoted the allowance for non-food consumption by Z_{kn} (k is the region or area, and n stands for non-food), the overall poverty line in region k which includes provisions for both food and non-food basic needs is defined as $Z_k = Z_{kf} + Z_{kn}$.

Source: Adapted from Coudouel et al. (2002).

line that very few households are lifted above that line through the government's interventions. Another disadvantage of having very high poverty lines is that when a large majority of the population in a country is considered as poor, most programs or types of public spending will appear to have a high share of their expenditure benefiting the poor, which may then make it more difficult to really target public spending to the most disadvantaged who need help the most. If it can be shown that a country's poverty lines or poverty measures are too high versus estimates in other nearby countries with similar levels of development, then it may be easier to argue that the poverty line in the country should be reduced, or that other assumptions used in measuring poverty should be revised in order to yield more realistic poverty measures.

This approach has been used recently in West and Central Africa by World Bank staff when discussing estimates of poverty in various countries of the CFA franc zone. There are fourteen countries in the zone: Benin, Burkina Faso, Cameroun, Central African Republic, Chad, Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea-Bissau, Mali, Niger, Senegal, and Togo. For thirteen out of the fourteen countries (the exception being Equatorial Guinea, a country for which no recent household survey with consumption data is available), the World Bank has recently completed poverty assessments that include poverty measures. These poverty measures are not strictly speaking comparable between countries due to differences in methodologies

used for measuring poverty. But at the same time, they can be used to set expectations as to the order of magnitude of poverty estimates that one might expect in any of the thirteen countries. The objective of this note is to present the estimates of poverty obtained in the CFA franc countries, and show how comparisons of poverty levels between countries were used to argue for changing the methodologies used for measuring poverty in a few countries.

Estimates for poverty in the CFA franc zone

Three elements are needed to measure poverty in a country: an indicator of well-being or welfare, such as the household's consumption per capita or per equivalent adult; a threshold, or poverty line, to which each household's welfare can be compared; and a poverty measure that aggregates the information on poverty obtained for each household into meaningful statistics for a country as a whole. Different poverty estimates can result depending on the indicator, threshold, or poverty measure used. Standard measures used to monitor global poverty trends, such as the share of the population living on less than $1 or $2 a day, are typically not used for country-specific work. It is indeed often better for country work to adapt the methodology used for estimating poverty to country specifics, be it to country characteristics or data quality. Still, this does not mean that cross-country comparisons are not useful for country-level work. As argued above, such comparisons can be used to suggest revisions in poverty estimates, as in the CFA franc zone.

Table 1 and figure 1 give poverty estimates from the poverty assessments recently completed for the countries of the CFA franc zone at the World Bank. Poverty comparisons between the countries are facilitated by the countries' shared currency (which is pegged to the Euro), similar inflation rates, and free trade between member countries. Each country has a slightly different methodology for estimating poverty. Most countries use a poverty line based on the cost of basic needs method (see the Box), although the countries differ in whether they use consumption per capita or per equivalent adult and in the level of the caloric requirement norm used to determine what amount of food households should be able to purchase. In two countries, a relative poverty line was chosen to measure poverty – this was done in Benin and Côte d'Ivoire (where the relative poverty line originally adopted to estimate poverty was subsequently regularly adjusted for inflation). In one country (Guinea-Bissau), the poverty line was set by the authorities to match the international benchmark of US$1 per day per person used for monitoring the Millennium Development Goals. Apart from differences in the methodologies used to define the poverty lines, the poverty measures are based on surveys which also differ somewhat between countries, with some surveys tracking the consumption levels of households better than others.

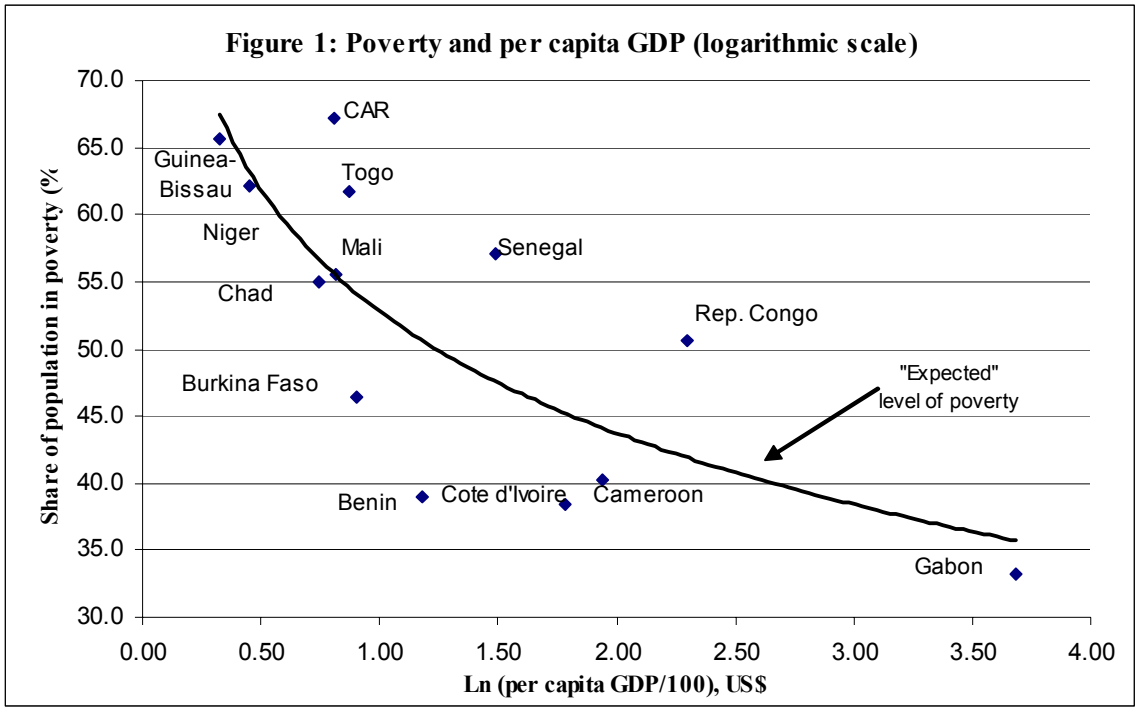
Cross-country comparisons in poverty estimates

Despite differences between countries in methodologies for estimating poverty, an inverse relationship clearly exists between the (natural) logarithm of GDP per capita and the share of the population living in poverty, as shown in

Table 1: Poverty in the CFA Franc zone: Estimates by country

Country	Household survey year	GDP per capita ($)	Natural log of GDP per capita divided by 100	Method for measuring poverty	Share of population in poverty (%)	Gini index
Benin	2003	325	1.18	Relative	39.0	0.36
Burkina Faso	2003	247	0.90	CBN	46.4	0.46
Cameroun	2001	695	1.94	CBN	40.2	0.41
Central African Republic	2003	225	0.81	CBN	67.2	0.44
Chad	2003	211	0.75	CBN	55.0	0.37
Congo, Rep.	2005	994	2.30	CBN	50.7	0.46
Côte d'Ivoire	2002	592	1.78	Relative	38.4	0.50
Gabon	2005	3,991	3.69	CBN	33.2	0.44
Guinea-Bissau	2002	138	0.33	$1 a day	65.7	0.36
Mali	2001	226	0.82	CBN	55.6	0.38
Niger	2005	158	0.45	CBN	62.1	0.47
Senegal	2001	442	1.49	CBN	57.1	0.34
Togo	2006	238	0.87	CBN	61.7	0.32

Source: Author. Note: CBN stands for Cost of Basic Needs.



Source: Author

Figure 1. In the Figure, GDP per capita has been expressed in constant U.S. dollars for simplicity, despite the fact that the CFA franc appreciated against the dollar in recent years. The curve was fitted through the scatter in order to maximize the explanatory power of a univariate regression using a logarithmic specification. Therefore, the curve gives a very rough idea of the poverty level "expected" for a given level of GDP per capita[1]. Quite a few countries appear to have levels of poverty in line with what is expected according to the very simple and rough method used to set expectations in Figure 1. For example, the poorest countries in terms of per capita GDP (Guinea-Bissau and Niger) have very high levels of poverty while at the other extreme, richer countries such as Cote d'Ivoire, Cameroon, and Gabon, have lower levels of poverty.

But there are also a few countries that seem to have levels of poverty that diverge from what one might have expected according to Figure 1. Divergence from the fitted curve may stem not only from issues of data quality or from different assumptions used for measuring poverty, but also from different levels of inequality between countries (typically, a more unequal distribution of consumption will be associated with a higher level of poverty). Divergence from the fitted curve will also depend on how the curve is fitted, with alternative ways of fitting the curve leading to different levels of divergence for each country. Still, for most countries that are located "far" from the curve, there are simple data or methodological reasons that help explain why the countries are located far from the curve.

In the case of Benin and Côte d'Ivoire, the comparatively low measures of poverty obtained are essentially due to the fact that both countries have used a somewhat low relative poverty line, as opposed to an absolute poverty line based on the Cost of Basic Needs method. In the case of Burkina Faso, the low level of poverty is also related to a poverty line that is rather low, but not because it is defined in relative terms. Rather, the poverty line is low in part because its food basket consists of comparatively fewer commodities than in other countries, with the cheapest (and most commonly used) food items included in the basket. On the other side of the fitted curve, the Central African Republic shows higher levels of poverty than expected, with the divergence due to the fact that food consumption is poorly measured in the survey used for estimating poverty. In the case of the Republic of Congo, the higher than expected level of pov-

1 I use the term "very rough" because different techniques could be used to fit a curve between the points in the Figure, with a different "expected" level of poverty given the level of GDP per capita resulting from each different way of fitting the curve. In addition, the "expected" level of poverty represented by the fitted curve depends on the nornmalization used on the horizontal axis of the graphs.

erty is also due in large part to an underestimation in the survey of food consumption due to an inability to properly take into account the information given by households regarding the frequency of their food purchases. In the case of Senegal, the high levels of poverty are related in part to comparatively higher allocations for non-food basic needs in the poverty line. New poverty estimates obtained with a 2006 household survey suggest a substantial drop in the incidence of poverty between 2001 and 2006 which brings for that year Senegal much closer to the fitted curve in Figure 1.

Togo also appears to have higher levels of poverty than one might have expected. But in this case, the above Figure was actually used to help revise the country's estimate downward. Preliminary estimates for Togo presented at a February 2007 workshop in Lomé were much higher than those reported in Table 1, suggesting that Togo had by far the highest poverty incidence in the CFA franc zone—a surprising finding given the country's GDP per capita in comparison to that of a number of its neighbors. The data in the table led to fruitful discussions and ultimately to a downward revision of Togo's poverty estimates. Similarly, previous estimates suggested that Mali had a much higher poverty rate than shown in the Table and Figure. The cross-country comparison from Figure 1 helped in presenting the alternative poverty estimates proposed for Mali in table 1 at a September 2007 workshop in Bamako.

Conclusion

Simple comparisons of poverty levels between countries can, and have actually been used to suggest changes in methodologies for measuring poverty at the country level in the CFA franc zone. Indeed, given the different assumptions that countries use to estimate poverty and these assumption's strengths and weaknesses, it is often useful to use simple cross-country comparisons to help inform the methodological choices made for poverty measurement in any given country. Obviously, caution should be exercised in using cross-country poverty comparisons to argue for a change in a country's methodology for measuring poverty. What might be considered as an appropriate "expected" level of poverty depends on the statistical procedure used to determine this expectation, and many alternative procedures could be used for this purpose.

In discussions with staff from national Statistical Institutes and government units in charge of Poverty Reduction Strategies in West and Central African countries, the material in this note was not used to suggest precise expected levels of poverty that should guide the methodological choices made at the country level for measuring poverty. Instead, the cross-country comparisons presented here were only used at a much broader level to argue that for a few countries that had very high estimated levels of poverty in comparisons to other countries with similar levels of GDP per capita (and also similar levels of inequality), one might consider revising these estimates in order to obtain something closer to the order of magnitude expected. The objective here is not to obtain some kind of coherence at the sub-regional level, even though this may be useful for informing the work of organizations such as the West African Economic and Monetary Union or the Economic and Monetary Community of Central Africa, to which the CFA franc countries belong. Instead, as argued earlier, the main rationale for suggesting revisions regarding the extent of poverty in a country is that more realistic poverty estimates have substantial advantages for better being able to assess the impact of public policies on poverty or for conducting benefit incidence analysis on who benefits from public spending. When poverty estimates are "too high" so that almost everybody is considered poor in a country, it becomes more difficult to argue for better targeting of at least some of the resources available to governments in order to better reach comparatively poorer households who need these resources the most.

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