Monitoring Poverty Over Time: Some Lessons from Côte d'Ivoire

Monitoring how a country's poverty profile changes over time is important for understanding whether a country's development program is pro-poor. Good data from regular household surveys are essential to the task. Côte d'Ivoire is fortunate to have a number of household surveys that should in principle allow one to monitor changes in poverty over time, including household surveys conducted in 1993 and 1995. Despite the fact that the survey questionnaire used the same format, however, a number of issues arose in trying to compare the poverty indicators from the two surveys. This note explores some of the factors that need to be taken into account in designing surveys and in comparing poverty indicators over time for effective poverty monitoring.

Poverty appears to have increased between 1993 and 1995 (Table 1), although the data and methodologies used to derive the expenditure estimates from the 1993 and 1995 survey data are subject to some limitations that reduce the reliability of the comparisons. This is little doubt that poverty increased substantially in Abidjan between 1992 and 1995. However, there is strong reason to suspect that the drop in food expenditures among export farmers in the West Forest region is exaggerated, leading to an overestimation of the incidence of poverty in 1995. As for the Savannah, there remain questions about whether housing expenditures are overestimated in 1995, contributing to an underestimation of poverty in 1995. Poverty in the other regions rose or fell by several percentage points, depending on the methodology used to construct the expenditure aggregate. Since real GDP per capita growth was negative between 1993 and 1995, there is little reason to think that poverty fell overall in the country between 1993 and 1995. (Following the devaluation of the CFA franc in January 1994, real GDP per capita growth began to show strong signs of recovery in 1995.) However, the comparison of the poverty estimates is not as robust as one would like due to the limitations in the expenditure estimates that result partly from the survey design.

Table 1
Côte d'Ivoire: Headcount Index of Poverty by Region
(Poverty Line = 75000 CFAF per year in 1985 CFAF)

<table>
<thead>
<tr>
<th>Region</th>
<th>1993</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abidjan</td>
<td>0.05</td>
<td>0.20</td>
</tr>
<tr>
<td>Other Cities</td>
<td>0.31</td>
<td>0.29</td>
</tr>
<tr>
<td>East Forest</td>
<td>0.39</td>
<td>0.41</td>
</tr>
<tr>
<td>West Forest</td>
<td>0.38</td>
<td>0.50</td>
</tr>
<tr>
<td>Savannah</td>
<td>0.49</td>
<td>0.49</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>0.32</td>
<td>0.37</td>
</tr>
</tbody>
</table>
Problems of comparability—
which can arise from changes in
the sampling design, the content
of the survey questionnaire, or
methods used to generate the esti-
mates of household expenditure,
among other things—are not
unique to Côte d'Ivoire. The issues
raised in this note are intended to
inform those designing surveys
and analyzing data about some of
the problems that can arise in gen-
erating poverty data that can be
compared reliably over time.

Two household priority sur-
veys were carried out in Côte
d'Ivoire by the National Statistical
Institute (INS). The 1993 survey
is based on a sample of 9,600
households, while the 1995 sur-
vey was based only on 1000
households. The small sample
size of the 1995 survey—while
less costly—reduces the statisti-
cal reliability of the comparison
with the 1993 data. There is also
some reason to think that the
large increase in poverty among
West Forest export crop farmers
between 1993 and 1995 reflects
data problems. One reason for
this suspicion is that food shares
decreased dramatically (holding
income constant) between 1993
and 1995. There is no reason to
expect a large fall in food shares
(holding income constant) only
for this segment of the popula-
tion, unless there were a major
change in relative food prices
unique to that group of house-
holds. Other information on
cocoa and coffee production does
not give any reason to think that
there would have been a large
increase in poverty in this region
of the country. Thus, there are
serious reservations about the
accuracy of the survey for this
important group of households.

The 1993 survey also has short-
comings. Due to a lack of funds,
the survey was interrupted in
1992, and when it resumed, many
of the households that had been
originally part of the sample were
not able to relocate. Thus, the
more stable households are over-
represented in the 1993 sample,
while the least stable—and per-
haps the poorest—are under-rep-
resented. A second problem is that
the consumption of home produc-
tion data were incorrectly tran-
scribed onto the computer data
file, showing that households only
consumed home-produced items
only one month of the year. This
error was discovered only after
considerable time had passed.
Instead of re-entering the data,
approximate corrections were
made to the 1993 data to achieve
a more reasonable distribution
of months of consumption (these
corrections do not appear to be
the explanation for the drop in
food shares in West Forest).

In addition to these shortcom-
ings of survey techniques and
data processing, the most seri-
sous problems encountered in
comparing the data from the two
surveys arose from four main
sources: the estimation of imput-
ed housing expenditure, the
effects of seasonality on house-
hold expenditure patterns, the
method used to estimate pur-
chased food expenditure, and the
deficiencies of the consumer
price index.

| Table 2 |
|---|---|
| Headcount Index of Poverty Using Different Estimates of Housing Expenditure |
| (poverty line = 75,000 CFAF in 1985 CFAF) |

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1993</td>
<td>1995</td>
</tr>
<tr>
<td>Abidjan</td>
<td>.05</td>
<td>.18</td>
</tr>
<tr>
<td>Other Cities</td>
<td>.31</td>
<td>.29</td>
</tr>
<tr>
<td>East Forest</td>
<td>.37</td>
<td>.40</td>
</tr>
<tr>
<td>West Forest</td>
<td>.36</td>
<td>.46</td>
</tr>
<tr>
<td>Savannah</td>
<td>.49</td>
<td>.42</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>.31</td>
<td>.34</td>
</tr>
</tbody>
</table>
Table 3
Headcount Index of Poverty Corrected for Seasonal Variation
(poverty line = 75,000 CFAF in 1985 CFAF)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1993</td>
<td>1995</td>
</tr>
<tr>
<td>Abidjan</td>
<td>.05</td>
<td>.20</td>
</tr>
<tr>
<td>Other Cities</td>
<td>.31</td>
<td>.29</td>
</tr>
<tr>
<td>East Forest</td>
<td>.39</td>
<td>.41</td>
</tr>
<tr>
<td>West Forest</td>
<td>.38</td>
<td>.50</td>
</tr>
<tr>
<td>Savannah</td>
<td>.49</td>
<td>.49</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>.32</td>
<td>.37</td>
</tr>
</tbody>
</table>

Seasonality. The second issue arises from the fact that the 1993 and 1995 surveys were carried out at different times of the year over a limited number of months. Given that common sense and experience from other household surveys show that there is some seasonality in household expenditure patterns, particularly in rural areas, it is important to determine what effect seasonality has on the survey results. Fortunately, the household surveys conducted in the 1980s were carried out over an entire year and could be used to derive seasonal correction factors for the 1993 and 1995 data. The corrections had some effect on the regional estimates, though due to offsetting changes, there was little impact on the national poverty estimate (Table 3). The potential impact of seasonal fluctuations needs to be considered in survey design because seasonal variations in expenditures are quite considerable in some countries and not all countries will have the data to adjust for the biases imparted by conducting surveys over only part of a year.

Estimating purchased-food expenditures. The third issue is the methodology used to estimate food expenditures. Household priority surveys typically ask households to recall how much they spend on individual food items over the past week and the past month, and then ask households how many months they purchased the commodity in the past year. The responses are multiplied to obtain an annual estimate. The problem is that this procedure underestimates the expenditure of households that did not purchase the commodity in the past month, but do purchase it at other times of the year, which is especially likely to be the case in rural areas. To correct for this problem, analysts often multiply the monthly purchase by 12 months instead of by the declared number of months of purchase. While this distorts individual household estimates, it is thought to yield a more accurate estimate of mean expenditure. The accuracy of this procedure depends, however, on the household interviews being spread out over the course of a year so that seasonal variation is taken into account. Given the more limited time frame of the household priority surveys the appropriateness of this method is, however, less clear-cut. Table 4 shows the results of the two methods of estimation. The 12 month-estimate yields lower estimates of poverty than the declared month, particularly in 1995. The two methods yield different estimates not only of the level of poverty in a given year, but even more importantly, in the change in poverty over time. Poverty in the Savannah falls by 10 percentage points using the 12 month-estimate, but remains unchanged using the declared months estimate. Moreover, correcting the estimates using the seasonal correction parameters described above does not eliminate the difference in the change in poverty between 1993 and 1995 produced by the two estimates. Unfortunately, comparability over time is not guaranteed by simply using the same method to estimate food expenditures each year, since the two methods produce different results regarding the magnitude of the change in poverty between 1993 and 1995. One needs, therefore, to design surveys in a way that yields reliable estimates of the basic expenditure aggregates that are comparable from year to year.

Price deflators. A fourth problem poverty analysts often face is the inadequacy of the CPI index. In Côte d'Ivoire, price indices for the rural regions do not exist.
Table 4
Comparison of the Headcount Index of Poverty Based on Different Estimates of Purchased Food Expenditure for 1993 and 1995

<table>
<thead>
<tr>
<th>Headcount Index of Poverty</th>
<th>12 months x monthly value purchased food expenditure estimate</th>
<th>Declared months x monthly value purchased food expenditure estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1993</td>
<td>1995</td>
</tr>
<tr>
<td>Abidjan</td>
<td>.04</td>
<td>.19</td>
</tr>
<tr>
<td>Other Cities</td>
<td>.31</td>
<td>.26</td>
</tr>
<tr>
<td>East Forest</td>
<td>.38</td>
<td>.36</td>
</tr>
<tr>
<td>West Forest</td>
<td>.37</td>
<td>.48</td>
</tr>
<tr>
<td>Savannah</td>
<td>.49</td>
<td>.39</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>.32</td>
<td>.33</td>
</tr>
</tbody>
</table>

Fortunately it was possible to construct regional deflators from the Internal Comparison of Prices survey carried out in 1985, but these deflators have some limitations. A further problem is that the household expenditure survey on which the current consumer price index for Abidjan is based dates from the 1970s. The consumption basket has changed over the past 20 years, and changes in the weights will change the price index. Poverty-related work needs to pay more attention to the development of appropriate consumer price index series. This means ensuring that there are timely household budget surveys appropriate for the construction of region-specific CPI indices—which are not necessarily the same as surveys designed to monitor poverty—and regular collection of region-specific price data. Developing information on region-specific price deflators is especially important when there are large shifts in relative prices and large increases in the level of prices.

This article was prepared by Christine Jones and Xiao Ye. For more information related to this article, please refer to: Jones, Christine and Xiao Ye. 1996. The Impact of the 1994 Devaluation on Poverty in Côte d'Ivoire. The World Bank, Washington, D.C. Or please write to or call Christine Jones, Rm. H12-085, World Bank, Washington, D.C. 20433, tel.: (202) 4537468. On the Internet, please contact pmohan@worldbank.org

Findings

Findings would also be of interest to:

Name ________________________________

Institution ________________________________

Address ________________________________

Letters, comments, and requests for publications that are not available at the World Bank Bookstore, should be addressed to:

Editor, Findings
Office of the Director
Knowledge Networks, Information and Technology Center
Africa Region, World Bank
1818 H St., N.W., Room J3-165
Washington, D.C. 20433.
E-mail: pmohan@worldbank.org.