Simulation of the effects of the economic crisis and response policies on children in West and Central Africa: the case of Burkina Faso

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Introduction

The world financial and economic crisis, which grew out of the 2007 mortgage crisis in the United States, could compromise recent growth and poverty reduction efforts that have been undertaken by many developing countries. This all comes just after these economies were hit by the energy and food crises.

Burkina Faso was particularly hard hit by the consequences of the global economic crisis due to its’ direct links with the global economy. Most of the negative effects were first transmitted to households and were then passed on to children. Given their generally higher vulnerability, children are at risk of suffering more, and for longer, from the impacts of the crisis. It is necessary and urgent to understand and anticipate the likely impacts of the crisis on children in Burkina Faso, then to propose options for social protection to counteract these impacts.

This document summarizes the conclusions of a research project that was supported by UNICEF and jointly carried out by local and international researchers from the Poverty and Economic Policy Research Network (PEP) and the UNICEF Innocenti Research Centre. A micro-macro economic approach was developed and implemented in order to evaluate the likely effects of the world economic crisis on children in West and Central Africa and to propose concrete response policies to decision makers. The macroeconomic analysis is based on a calculable general equilibrium (CGE) model that is used to simulate the impacts of various channels which transmit the economic crisis to the Burkinabe economy. The result of these simulations are then fed into a microeconometric analysis which integrates individual and household microeconomic behaviour to evaluate the impacts of the crisis on the welfare of children (aged 0-14) in terms of monetary poverty, caloric poverty, education, child labour and access to health services over 2009-2011. The conclusions of the simulations, which are illustrated in the following sections of this brief, are derived from Balma et al. (2010).

1 A child is defined as poor in monetary terms if they belong to a household whose consumption per adult equivalent, deflated by the appropriate temporal and spatial price indices, is under the official monetary poverty line;
Expected macroeconomic effects of the crisis

Among the channels which transmit the world economic crisis to the Burkinabe economy, international trade is the most important (given the country’s trade openness rate of 34 percent of GDP). This channel also affects the country’s trade balance and the real exchange rate. This channel is followed in importance by foreign capital transfers, which amount to 10 percent of GDP. Finally, development aid and private international transfers, respectively representing 3.7 and 2.3 percent of GDP in 2008, are not sufficiently large to generate a significant impact on the Burkinabe economy.

Regardless of whether or not the impacts of the crisis are felt in every economic sector, those which are directly linked to international markets, i.e. the export-oriented sectors, are particularly threatened by forecasts of reduced global demand. In effect, over the past few years, exports from Burkina Faso have been dominated by products which are heavily dependent on demand conditions, such as a cotton fibre and livestock products.

The simulated economic crisis leads to a decline in GDP growth of about 1 percentage point in 2009 and 2010 (table 1) with respect to the no-crisis scenario (the reference scenario). The decline in economic growth in 2011, however, is only half of this level. Given their weight in GDP, the slowdown in growth is primarily brought about by lower final private consumption and investments, whereas the impacts of the crisis in terms of trade appear to benefit net exports.

### Table 1: Relative variation of components of GDP, crisis vs. reference scenario

<table>
<thead>
<tr>
<th></th>
<th>GDP</th>
<th>Final private consumption</th>
<th>Investment</th>
<th>Exports</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>-1.1</td>
<td>-5.1</td>
<td>-2.7</td>
<td>-10.1</td>
<td>-20.4</td>
</tr>
<tr>
<td>2010</td>
<td>-1.1</td>
<td>-7.7</td>
<td>-7.7</td>
<td>-13.2</td>
<td>-32.3</td>
</tr>
<tr>
<td>2011</td>
<td>-0.5</td>
<td>-8.6</td>
<td>-9.8</td>
<td>-13.2</td>
<td>-35.5</td>
</tr>
</tbody>
</table>

Note: the variations are expressed as the percentage point difference between the simulated growth rates resulting from the crisis scenario and the no-crisis (or reference) scenario.

The simulated deterioration of the budget balance confirms the negative performance of the above macroeconomic indicators. The economic crisis considerably reduces the Burkinabe government’s revenues: this is a result of reduced public development aide and smaller tax receipts from international trade and, to a lesser extent, direct taxes on households.

Finally, the effects of the crisis are transmitted to households and their children via price changes for goods and production factors, as well as the level of employment and wages in the various categories of labour. The crisis can also be expected to have non negligible distributive effects on households according to the structure of their income and consumption profile.

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*caloric poverty* is defined by comparing individual caloric consumption (per adult equivalent) to the minimum daily caloric need of 2283 kcal for a male adult; *education* is defined as participation in schooling, while *child labour* is defined as participation in an economic activity; *access to health services* is determined on the basis of consulting medical services.
Potential effects of the crisis on children

The initial status of monetary poverty among children (aged 0-14) before the crisis (in 2003, which is the most recent year that household survey data is available for) is an incidence of 32.7% for Burkina Faso as a whole, with 36.1% in rural areas and 12.3% in urban areas. It should be noted that there are important regional disparities in the incidence of child monetary poverty ranging from 19.7% in the Centre to 45.6% in the Nord region.

According to the simulations, the above-mentioned potential effects of the world economic crisis lead to an increase in the incidence of monetary poverty among children aged 0 to 14 over the 2009-2011 period for Burkina Faso as a whole. Monetary poverty reaches its peak – an increase of 4.7 percentage points with respect to the initial situation – in 2010, amounting to approximately 259,000 additional children living in poverty (figure 1). Children living in rural areas are the most affected, with a 5.1 percentage point increase. The effects of the crisis vary across the country: the Sud-Ouest, Sahel and Centre Nord/Plateau Central regions are the most affected, with increases in the rate of child poverty of up to 7.6 percentage points, while the Centre and Est regions see no more than a 2.5 percentage point increase in the monetary poverty rate.

Figure 1: Change in the number of children (aged 0-14) in monetary poverty (in thousands) compared to the year before the crisis

Note: the estimated number of children who were poor in the year before the crisis (2008) is 2.034 million. The presented changes thus account for the population growth rate among children aged 0-14, which is presumed constant between 2004 and 2008 and is equal to 3.6%.

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As indicated in note 2, in order to estimate the incidence of monetary poverty as well as to simulate the impacts of the crisis, the official poverty line was used. However, this poverty line does not satisfy the minimum needs of individuals in Burkina Faso and falls well under the absolute international poverty line established by the World Bank of $1.15 PPA.
Generally speaking, these results reflect lower income in rural areas, where the decline in sales is nearly twice the value of autoconsumption. The transmission channel leads to a loss in purchasing power, followed by an increase in consumption prices and a reduction in private transfers. The change in income for the self-employed in the non-agricultural sector, which only includes 1% of households, does not contribute to changes in child poverty.

However, caloric poverty is not substantially affected by the crisis, and increases by no more than 0.5 percentage points (from a starting point of 35.8%) in 2011. In absolute terms, this amounts to 29 000 additional children living in caloric poverty (figure 2). This result can be explained by the expected reduction in relative prices for food goods which almost entirely compensates for the decline in income. In effect, food goods are less affected by depreciation of the real exchange rate than non-food goods, which are heavily traded on international markets.

**Figure 2: Change in the number of children (aged 0-14) in caloric poverty (in thousands) compared to the year before the crisis**

![Figure 2](image)

Note: the estimated number of poor children in caloric terms in the year before the crisis (2008) is 4.038 million. The presented changes thus account for the population growth rate among children aged 0-14, which is presumed constant between 2004 and 2008 and is equal to 3.6%.

The principal effect of the world crisis is a reduction in school participation, with an increase in child labour. This result can be explained by the fall in real household income. It should be noted, however, that the decline in the school participation rate, as well as the increase in their participation in the labour market, is less than one percentage point with respect to the base year. In the 7-10 age group, for example, these changes correspond with about 12 000 children leaving school and 18 000 becoming active in the labour market (figure 3). Even if we acknowledge the substantial efforts by the government to support child education in recent years, it remains the case that more than half of children aged 7-14 do not go to school, and a similar percentage are employed in economic activities.
Figure 3: Change in the number of children (aged 7-10) going to school (in thousands) compared to the year before the crisis

Note: the estimated number of children (aged 7-10) going to school in the year before the crisis is 671 208. The presented changes thus account for the population growth rate among children aged 0-14, which is presumed constant between 2004 and 2008 and is equal to 3.6%.

Finally, the simulations forecast a decline in the overall rate at which sick children use some form of medical service of about 1 percentage point (or 4000 additional sick children who do not benefit from a health consultation) and substitution towards traditional healers to the detriment of modern health services.

Options for policy responses to the crisis

Among the various proposed response policies, the most effective at combating the negative effects of the crisis, or at restoring the trends that were observed in the absence of the crisis, is monetary transfers to households with poor children aged 0-14. With a total budget of 1% of 2008 GDP, the annual transfer amounts to 8628 CFA per child. This response policy restores the pre-crisis trends for monetary poverty, is associated with a decline in caloric poverty and results in the best attenuation of the negative effects of the crisis on education, child labour and sick children’s access to modern health services. More specifically, this policy response option would reduce monetary poverty among children by 4 percentage points with respect to the predicted incidence of poverty in the scenario where the crisis does occur and there is no intervention. This decline involves bringing as many as 256 000 children out of monetary poverty relative to the case with no intervention. This reduction would be such that poverty would be less than the initial level (at least in 2009 and 2011) and would allow as many as 16 000 children to exit poverty with respect to the base year (figure 1).
Even better results would be achieved in terms of caloric poverty where, thanks to this policy, as many as 101,000 children would be lifted out of a state of caloric insufficiency with respect to the pre-crisis situation (figure 2) amounting to about 120,000 fewer children in caloric poverty relative to the scenario with the crisis and no intervention. In order to imitate a process which would identify poor children to implement a monetary transfer policy, a model was established to estimate household consumption using a limited range of variables which are easy to observe and difficult to falsify.

The option of a universal transfer targeting families with children aged 0-5 with the same total budget has similar results, but allocates a greater annual individual transfer than the targeted programme (11,200 per child compared to 8,628 CFA). This policy would be logistically and administratively easier to put into place in the present institutional context of the country given that Burkina Faso does not presently have any transfer policy at the national level.

With the same budget of 1% of GDP, a food subsidy policy appears to be much less effective at improving the situation of children who are affected by the crisis. This result can be explained by this policy’s weak ability to target children and the poor in particular. Given that the subsidized goods are more heavily consumed by the non-poor, it is this last group that benefits most from this policy. A variant of this approach analyzed in the present study is a subsidy which solely targets cereals prices, the main source of calories, particularly among the poor. With a budget of 0.2% of GDP, the policy is found to be much more cost effective than the food subsidy in terms of reducing caloric poverty.

Finally, a regional monetary transfer policy targeting the Centre and Boucle du Mouhoun regions, which were hit by the September 2009 floods, was simulated. Two scenarios are considered, depending on whether this intervention is financed by external aide, as the preceding policies were, or by a tax on modern manufacturing imports. With a budget equal to 0.4% of 2008 GDP, a monetary transfer (of 15,900 CFA per child, per year) to poor children in these regions brings about a sizeable reduction in monetary and caloric poverty, regardless of the financing mechanism. For example, this policy would lead to poverty reductions reaching as high as 6.5 percentage points in the Boucle du Mouhoun region with respect to the pre-crisis situation.

Conceiving and implementing a monetary transfer policy requires institutional time and capacity. In anticipation of future crises, and to bring about sustained support for children, it is urgently needed to put into place a social protection programme for children. The various policy simulations show the important role that either a targeted or non-targeted monetary transfer could play in such a programme.