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Central Africa**

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Including children in the policy responses to the global economic recession in West and Central Africa

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Summary: This study simulates the impacts of the global economic crisis and alternative policy responses on child poverty and hunger in Western and Central Africa over the period 2009-2011. It is based on country studies for Burkina Faso, Cameroon, and Ghana, which broadly represent the diversity of economic conditions in Western and Central Africa countries. In order to capture the complex macro-economic effects of the crisis and the various policy responses – on trade, investment, remittances, aid flows, goods and factor markets – and to then trace their consequences in terms of child poverty and hunger (caloric poverty) – a combination of macro- and micro-analysis is adopted. The simulations suggest that the global economic recession slows economic growth in Western and Central Africa countries. As a consequence, children in households with few economic opportunities are at a higher risk of falling into (monetary) poverty and suffering from hunger. Considerable variation within and between countries is noted, with Ghana being the country where children are predicted to suffer most. Among the policy responses examined to counteract the negative effects of the crisis on child well-being, a targeted cash transfer to predicted poor children is by far the most effective.

Keywords: global economic crisis, child poverty, hunger, West and Central Africa, Burkina Faso, Cameroon, Ghana, social protection, cash transfers

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1. Introduction

While developing countries' relatively weak integration into the international financial system has sheltered them from the effects of contagion from the global financial crisis, the ensuing economic crisis has affected them directly through international trade, investment, foreign aid, remittances and other channels. The macroeconomic impacts and the distributive effects of the global crisis in developing countries largely depend on the initial conditions in each country and the policies put into place to respond to the crisis.

The global financial and economic crisis threatens recent growth and poverty reduction achievements in many developing countries. African growth will substantially decline according to IMF forecasts (IMF 2009b). Poverty is expected to increase as a result of the slowdown in growth as well as the increase in inequality (World Bank, 2008), as the poor often suffer disproportionately from crisis.

Past crises have led to immediate increases in poverty ranging from 1 percentage point in Brazil in 1989 to 12.2 points in Venezuela in 1994 (Lustig 2000). Lustig also finds that, in the years following this crisis, poverty rates continued to rise, albeit less quickly. Mendoza (2009), in his review of the effects of aggregate economic shocks on children, cites that the infant mortality rate increased by 2.5 percentage points following the economic crisis in Peru in the late 1980s, 1.4 points in Indonesia as a result of the Asian economic crisis in 1998, and by 7.0 per cent in Mexico following the 1995 crisis. Christian (2010) reviews numerous cases of increased child mortality and malnutrition resulting from different economic crises in selected developing countries. Other studies reported by Mendoza (2009) and covering Brazil, Tanzania and Guatemala show how economic shocks led to higher unemployment rates amongst the parents and, as a consequence, to a higher probability of children dropping out of school and engaging in work activities. There are also likely to be long-term consequences of crises on children through diminished education, health,¹ hunger and poor nutrition, notably to the disadvantage of girls.²

To understand the nature and the extent of the effects of the economic crisis in developing countries, and to develop appropriate policy responses, requires a rigorous analysis of the transmission mechanisms at both the macro and micro levels. As it is not possible to wait for data to become available to guide the rapid implementation of policies to protect children, we develop a macro-micro model to predict the impacts of the crisis on children in West and Central Africa (WCA) under various scenarios.

The analysis is limited to three countries in WCA representing some of the diversity of economic characteristics of countries in the region: Burkina Faso, a landlocked country with little integration into the world economy, mainly through exports of agricultural raw materials such as cotton; Cameroon, a moderately integrated country mainly exporting natural resources such as oil and timber; and Ghana, well integrated into the global economy

¹ See, for example, Attanasio and Szekely (2004) for the case of Mexico during the 1990s.

² As discussed, for example, in Dercon and Krishnan (2000) for the case of individual shocks in Ethiopia in 1994 and 1995.

and exporting both agricultural goods (cocoa) and natural resources (gold and timber) with significant inflows of foreign investments over the last decade.

The rest of the paper is organized into four sections. A general overview of the expected impacts of the crisis on developing countries, particularly in WCA, and the main channels of transmission is provided in section 2. The following section summarizes the methodological approach used to predict the specific impacts in the three countries. The crisis and policy response simulation scenarios and results are presented and discussed in Section 4. The main findings of the study are briefly summarized and recommendations made in the conclusion.

2. Macroeconomic impacts of the global economic crisis in WCA: An overview

Growing economic interdependence has considerably increased vulnerability to global economic crisis in both developed and developing countries. Analysts are unanimous about the global nature of the crisis and reject any “decoupling” of growth in developing countries.

a. Transmission channels

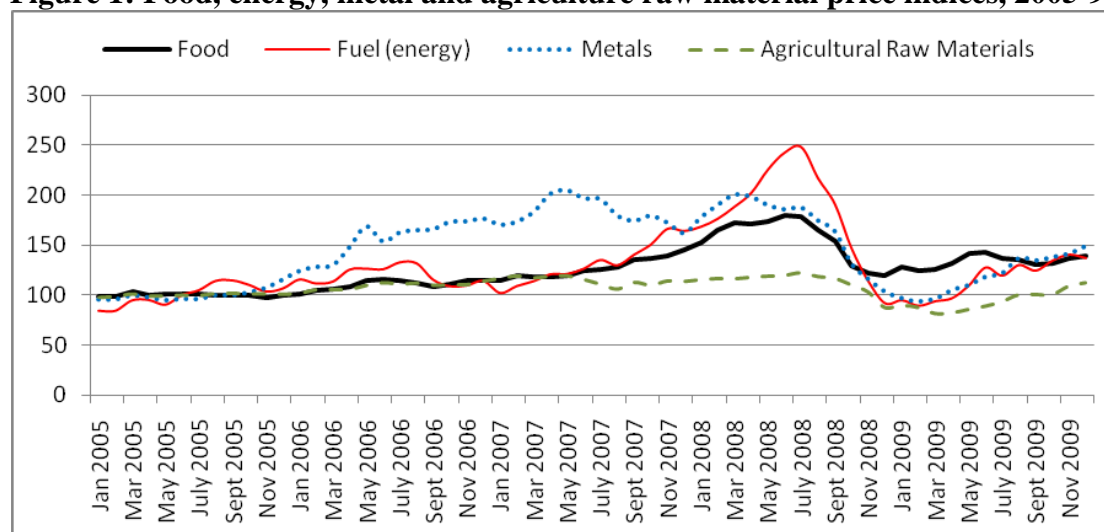
The initial spread of the crisis to industrialized and emerging countries was mostly through the financial sector as a result of their strong integration into the international financial system. In contrast, it is the ensuing global economic crisis that is most affecting developing countries through the principal channels linking them to the global economy: trade, remittances, foreign investment and international aid.

- **Trade**

External trade in goods and services is an important component of developing economies, particularly those in sub-Saharan Africa (SSA). The three countries covered in this study, like SSA as a whole, have a trade surplus in primary sector products, which include agriculture and natural resources. They are net importers of both food and non food products, as well as services.

Commodity prices reached record levels in 2008 (Figure 1). Since the third quarter of 2008, the global economic recession has been accompanied by a substantial decline in commodity prices. Over the first quarter of 2009, the average product price index was at the same level as the second quarter of 2005, four years earlier. Between July and December 2008, the global price index of energy recorded the most extreme fall, -63 percent, followed by food and metal prices, respectively, by -45 and -33 percent over the same period. The fall in the global price indices for agriculture raw materials was less extreme with -28 percent between July and December 2008. Commodity prices have recorded strong gains over recent months. Energy and metal prices indices have rebounded respectively by 50 and 44 percent between December 2008 and 2009; agriculture raw materials and food prices have as well posted respectively 28 and 17 percent increase over the same period.

Figure 1: Food, energy, metal and agriculture raw material price indices, 2005-9



Source: International Monetary Fund. Description: Price Index, 2005=100; Food includes Cereal, Vegetable Oils, Meat, Seafood, Sugar, Bananas, and Oranges; Fuel (energy) includes Crude oil (petroleum), Natural Gas, and Coal; Metals includes Copper, Aluminum, Iron Ore, Tin, Nickel, Zinc, Lead, and Uranium; Agricultural Raw Materials includes Timber, Cotton, Wool, Rubber, and Hides

Burkina Faso's exports are increasingly dominated by products that are dependent on global demand conditions, in particular cotton fibre and livestock products. From its peak in March 2008, the price of cotton fell 56 per cent by March 2009, although they subsequently rebounded by 49 per cent by the end of 2009. Livestock products witnessed a moderate decline of 17 per cent from August 2008 to August 2009, and have stagnated since then.

Cameroon's main exports are oil and petroleum products, followed by timber and, to a lesser extent, rubber, cotton, and aluminium. In the second half of 2008, the price of oil and oil products fell 63 percent after reaching an all time record in July 2008. Total export revenues were forecast to fall by 1,017 billion CFA francs, representing 9.9 per cent of GDP, between 2008 and 2009, with 40 per cent imputed to the fall in oil export revenues (IMF 2009d).

Ghana depends primarily on natural resources: gold, cocoa, and timber for its foreign exchange. It is expected to be less severely affected by the crisis than many other countries largely due to favourable terms of trade developments associated with continuing strong export prices for gold and cocoa and a less severe decline for timber, as well as lower prices for fuel, food, and machinery, which are its main imports.

- **Remittances**

According to the World Bank (2008) and Willem te Velde (2008), the financial and economic crisis will reduce remittances, with lower numbers of migrants and smaller amounts transferred per migrant. Migrants are a vulnerable group in their host countries, particularly new arrivals, who have the most difficulty in finding or maintaining employment during an economic crisis (ILO 2009).

The rate of growth in remittances already fell from 16 per cent in 2007 to 7 per cent in 2008 at the global level (Ratha, Mohapatra and Silwal 2009), and are expected to be further constrained by the crisis in developed countries. Although remittances are not necessarily a

major transmission channel of the crisis – representing less than 1 per cent of the 2008 GDP in the three studied countries³ – their decline could be one of the factors that will prolong it according to Griffith-Jones and Ocampo (2009).

The Government of Burkina Faso forecasts a decline of 2.2 per cent in remittances in 2009, with direct impacts on household consumption and savings. Remittances in Cameroon are also expected to fall by 0.1 per cent of GDP, which corresponds to nearly 5.3 billion CFA francs according to an IMF report (2009d). In Ghana, according to Bank of Ghana data, net inward private transfers fell from 507.63 million US\$ in the first quarter of 2008 to 397.08 million US\$ in the first quarter of 2009.

- **Foreign investment**

The economic crisis is expected to reduce the volume and cost of capital inflows for developing countries. While developing countries remain weakly integrated into international capital markets, compared to developed and emerging economies, the crisis could compromise the momentum achieved by a number of growing African countries in terms of mobilizing foreign capital (Griffith-Jones and Ocampo 2009).

Foreign Direct Investment (FDI) in Burkina Faso is expected to decline due to uncertainty and falling rates of return. In particular, FDI targeting mining, road construction and manufacturing industries are at risk. Important road and infrastructure projects are already on hold or lagging, likely because of the crisis. According to government projections, FDI was 36.5 billion CFA francs in 2008, more than three times lower than in 2007, and appears to be continuing to deteriorate with the contracting global economy.

Several large investment projects have been postponed in Cameroon because of the tighter international financial conditions, particularly in the sectors of energy, aluminium and mining, as reported by the IMF (2009d). According to the latter, foreign capital inflows are expected to fall by 86 billions of CFA francs, representing 0.8 per cent of GDP.

Data compiled by the Ghana Investment Promotion Council shows that FDI in the first quarter of 2009 was only one-third of the level of a year earlier. In the area of portfolio investments, Ghana benefited in 2007 and early 2008 from foreign investments in the domestic treasury bill market. As risk aversion increased following the global financial crisis, these investments were partly liquidated in late-2008 and early-2009. Ghana issued a debut Eurobond in late 2007 and was considering further market placements in late 2008. These were cancelled when Ghana's market access was effectively closed as a result of the global crisis. The country experienced inward capital investments associated with divestitures in both 2007 and 2008, but future prospects are currently on hold.

- **Foreign aid**

³ Burkina Faso 0.6 per cent; Cameroon 0.7 per cent; and Ghana 0.8 percent (World Development Indicators database, April 2009).

Foreign aid commitments made at the Summits of Gleneagles (2005) and Monterrey (2002) were already not being respected, but the flow of official development assistance may be further adversely affected by issues of indebtedness and fiscal instability in industrialized countries (Willem te Velde 2008). However, the World Bank (2008) suggests that international aid would be the least volatile component and that debt servicing costs are the main difficulty that developing countries face.

b. Macroeconomic impacts

For developing countries, the global crisis is very likely to compromise recent growth and poverty reduction achievements, exacerbating the impacts of the energy and food crises that immediately preceded it. While increasing integration of these economies into the global economy had been a source of significant economic growth in the previous years, this exposure has also made their economies more vulnerable to global crises (World Bank 2008). It is also expected that developing economies, particularly those in sub-Saharan Africa, will be less able to adjust to the crisis than industrialized economies because of their weaker macroeconomic, fiscal and financial contexts. Initial evidence already points to substantial impacts on our focus countries.

- **Burkina Faso**

Burkina Faso's per capita GDP is estimated at 480 US\$ in 2008.⁴ The average growth rate of GDP was 5.3 per cent in real terms between 2005 and 2008 and is expected to fall to 3.5 per cent in 2009, according to IMF projections (IMF 2009b). The economic slowdown in 2009 is largely due to difficulties faced in agriculture, in particular the cotton sector, as a result of the fall in producer prices and access to trade credit.

- **Cameroon**

With an average economic growth rate of about 4 per cent annually over the past half-decade and an income per capita of 1,150 US\$ in 2008, Cameroon's GDP growth rate is expected to fall to 1.6 per cent in 2009 according to IMF (2009a) forecasts, mainly as a result of falling export revenue. The net increase in the external current account deficit is estimated at 7.6 per cent of GDP, bringing foreign currency reserves from 6.2 to 4.5 months of imports between 2008 and 2009 (IMF 2009a). The fiscal surplus of 2 per cent of GDP in 2008 is projected to transform into a 1 per cent deficit in 2009.

- **Ghana**

With a per capita income of 670 US\$ in 2008, Ghana is also experiencing the impact of the global crisis. Although the country's exports are expected to be less severely affected given strong export prices for gold and cocoa, remittances and FDI are falling. The IMF's regional economic outlook in October 2009 forecasted a 4.5 per cent GDP growth rate in Ghana, representing a reduction of 2.8 percentage points compared to the 2008 performance. In terms of the balance of payments, lower remittances and a decline in capital inflows contributed to a sharp decline in foreign reserves in late 2008 and the first half of 2009.

⁴ Gross National Income per capita, Atlas method (World Development Indicators database, April 2009)

3. Methodological framework

The crisis affects the demand for and prices of commodities traded by these countries, foreign aid, FDI and remittances. These changes have large and complex impacts on product markets, factor markets, government finances and international at the macro level. In order to then track the varying impacts of these changes on individual households and, in particular, their children, macro level analysis needs to be complemented by a micro investigation. A brief presentation of the methodology follows⁵.

- **Macro analysis**

The macroeconomic assessment of the global economic crisis and policy responses on developing economies uses a Computable General Equilibrium (CGE) approach. The model captures impacts on production, consumption, factor markets and prices in an economy in which agents maximize profits and welfare and markets clear through price adjustments. The model is adapted to capture a number of structural features of the studied economies, such as the initial production structure, market segmentation and price rigidities.

- **Micro analysis**

The crisis and policy responses have quite complex distributional effects. These can be felt by households and individuals in terms of changes in commodity and factor prices, employment opportunities and earnings, private and public income transfers, and the provision of public services, which are all transmitted from the macro analysis. We adopt a “top-down”⁶ approach to establish this link over a simulation period of three years: 2009-2011. The extent to which these macro impacts affect child poverty and hunger depends primarily on the characteristics of their households, in particular their factor endowments (income sources), consumption patterns, and savings behaviour.

- **Poverty and hunger analysis**

Given our preoccupation with the impacts of the global recession on children, we include detailed information on all individuals in the micro model. We do not attempt to model intra-household allocation decisions and instead simply assume that consumption is shared equitably (proportionally to caloric needs) among members of each household. As a consequence, adults and children are considered to be poor/hungry if they belong to a household that is poor or calorie-insufficient, i.e. a household for which per-adult equivalent consumption expenditure is less than the poverty line or the per adult equivalent daily calorie consumption is below 2450 kcal.⁷ As national poverty lines⁸ differ across the three countries, any attempt at ranking the countries according to child monetary poverty rates is misleading, although hunger rates are strictly comparable. Households are assumed to adapt their consumption patterns according to a Cobb-Douglas (constant value share) process. Changing

⁵ The methodology is described in detail in Bibi, Cockburn, Fofana and Tiberti (2010a).

⁶ See Robillard, Bourguignon, and Robinson (2008).

⁷ For Burkina Faso a caloric poverty line of 2283 kcal used as the food component in the monetary poverty line is based on this minimum caloric requirement (INSD 2009).

⁸ National poverty lines are 82,672 FCFA for Burkina Faso, 269,443 FCFA for Cameroon and 3,708,900 old Cedis (37.089 in new *Cedis*) for Ghana in terms of their respective survey years.

quantities of consumption are mapped into nutritional tables to calculate caloric intake, which is contrasted with caloric requirements to analyse hunger.

- **Data**

We use the most recent SAMs available for Burkina Faso, Cameroon and Ghana, which date to 2004, 2003 and 2005, respectively. The SAMs are updated to year 2008 using recent macroeconomic data and a cross-entropy method to rebalance the SAMs (Fofana, Cockburn and Lemelin 2005). The SAMs are also adjusted to incorporate other characteristics required in analysing the distributive impact of the global economic crisis on households and children.

With regard to the micro analysis, we used the latest available nationally representative household surveys. These are the 2003 “Enquête sur les conditions de vie des ménages” in Burkina Faso, the 2007 “Troisième Enquête Camerounaise auprès des Ménages” in Cameroon and the 2005/6 “Ghana Living Standard Survey” in Ghana. We thus made the hypothesis – strong but necessary in the absence of reliable data – that both the distribution and the level of consumption and revenues did not change between the year of the survey and the base year of our analysis: 2008.

4. Simulation scenarios and results

The impact of the global economic crisis is captured through the four main channels – external trade, private remittances, foreign investment, and international aid – that link these three WCA economies to the global economy. Their recent trends are highlighted and hypotheses are developed concerning the impacts of the economic crisis on those channels over the 2008-2011 period studied. Government expenditures are assumed to remain constant and the increase in government deficit, induced by the fall in domestic tax revenue and foreign aid inflows, is assumed to be financed through increased domestic borrowing.

a. Baseline and Crisis Simulation Scenarios

The July 2009 IMF report predicts stabilization by early 2010 and recovery beginning in the second half of 2011. On this basis, we adopt the following scenario to simulate the global crisis: deterioration in 2008/09, stabilization in 2009/10, and beginning of recovery in 2010/11.

In our simulation scenario, the deterioration period in 2008/09 is characterized by a contraction in all four channels⁹. Changes in world import prices are observed in IMF databases. Hypotheses are made on the changes in other linking variables based on official reports¹⁰. During the stabilization in 2009/10, all four channels are assumed to be unchanged with the exception of import prices, which are expected to increase, as is currently being observed. The world economy is assumed to begin recovering in 2010/11. This translates into

⁹ The scenarios are described in detail in Bibi, Cockburn, Fofana and Tiberti (2010a)

¹⁰ The IMF (for export prices and volumes), the World Bank (for international remittances), the European Community (for international aid), and UNCTAD (for foreign investments).

an increase in commodity prices, export demand, foreign investment, international and private remittances, resuming their trend growth rates observed during the pre-crisis period.¹¹

Results drawn from the simulated crisis scenario are compared to a simulated scenario without crisis, called the baseline or “Business as Usual” (BaU) scenario. This BaU scenario assumes that all four channels follow their respective pre-crisis historical trends throughout the simulation period. Table 1 summarizes for the scenario hypotheses for the three countries studied.

Table 1: Channels of impact (variations in percent)

	Burkina Faso			Cameroon			Ghana		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Baseline scenario									
World price of imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Export volume	4.0	3.6	3.3	5.0	4.6	4.7	12.3	12.0	11.4
Foreign investments	10.5	9.6	8.9	0.0	0.0	0.0	11.0	9.9	9.0
Foreign aid	7.4	6.9	6.5	0.0	0.0	0.0	2.7	2.7	2.6
Private remittances	7.5	7.0	6.5	0.0	0.0	0.0	7.0	6.4	5.8
Crisis scenario									
World price of imports	-18.1	4.9	4.9	-9.4	1.3	0.0	-19.2	10.1	10.2
Export volume	-6.5	0.0	3.3	0.2	3.6	3.2	5.0	0.0	11.4
Foreign investments	-42.0	0.0	8.9	-35.0*	-15.0*	5.0*	-42.0	0.0	9.0
Foreign aid	-12.7	0.0	6.5	-5.0	-9.0	-6.0	-14.0	0.0	2.6
Private remittances	-11.6	0.0	6.5	-12.5	-20.0	20.0	-11.6	0.0	5.8

Source: authors' calculation.

Note: * Foreign reserves

b. Macroeconomic impacts of the global economic crisis

The results of the crisis simulation indicate a slowing of growth, relative to the BaU (no crisis) scenario, in Burkina Faso, Cameroon and Ghana between 2009 and 2011, as depicted in table 2. GDP growth rates fall between 1.1 and 2.3 percentage points in these countries in 2009. The economic slowdown is most pronounced in Cameroon and Ghana. These countries were predicted to grow respectively by 4 and 7 per cent in the BaU, whereas with the crisis they are expected to grow at rates closer to 2 and 5 per cent, respectively. In contrast, Burkina Faso is least affected, losing only 1 percentage point or less of growth in each year. While growth rates begin to recover in Cameroon in 2010, although still below their BaU levels, this is not the case in Burkina Faso and Ghana until 2011. For the latter, the second year of the crisis appears to be even more damaging for the economy with a growth rate of only 3.8 per cent. A 2010 rebound in import prices, as currently observed – while exports, FDI, foreign aid and remittances stagnate – exacerbates the adverse effects of the crisis in Ghana given its high rate of imports.

¹¹ The crisis period started in 2006 with energy crisis, which was followed by the food crisis and then the global financial and economic crisis.

Table 2: Annual real GDP growth rates (per cent)

Period	Burkina Faso			Cameroon			Ghana		
	BaU	Crisis	<i>Variation*</i>	BaU	Crisis	<i>Variation*</i>	BaU	Crisis	<i>Variation*</i>
2009	5.3	4.1	<i>-1.1</i>	4.2	1.9	<i>-2.3</i>	7.3	5.1	<i>-2.3</i>
2010	5.0	4.0	<i>-1.0</i>	4.2	3.1	<i>-1.1</i>	7.3	3.8	<i>-3.5</i>
2011	4.9	4.4	<i>-0.4</i>	4.4	3.4	<i>-1.0</i>	7.4	6.5	<i>-1.0</i>

Source: authors' calculation

Note : * Percentage points (rounding).

While Cameroon benefits from the availability of reserves accumulated during the previous periods, it is harder hit by the significant fall in the prices of energy products. If Ghana's favourable terms of trade developments, associated with continuing strong export prices for its two main exports (gold and cocoa), and greater exposure to external trade works in its favour, the importance of foreign investment in the country renders it particularly vulnerable to the credit crunch during the crisis.

c. Child welfare impacts of the global economic crisis

▪ **Monetary poverty**

Burkina Faso has a child monetary poverty rate in the base year equal to 32.7 per cent, Cameroon 50.2 per cent and Ghana 33.7 per cent¹². The different extent to which the three countries are predicted to be affected by the economic crisis mirrors the socio-economic structural differences between them. First, while Cameroon and Burkina show an inverse-U profile of child monetary poverty over the period 2009-2011, with a peak in 2010, in Ghana child monetary poverty shows a continuously increasing trend. Indeed, Ghana is the country where children are predicted to suffer most from the global crisis (both in absolute and relative terms), with monetary poverty increasing by more than 6 percentage points in 2010 and 2011 relative to the base year. Compared to the "business as usual" scenario, where monetary poverty was predicted to fall in Ghana by more than 4 percentage points by 2011, the potential impact of the crisis is even greater.

Table 6 disaggregates the contribution to the poverty variations resulting from the crisis of the different price and income channels affecting real expenditure: consumer prices, net income from agriculture, non-agricultural self-employment income, wages (by sector) and other income such as international remittances and dividends. In Ghana, the deterioration is

¹² It is noteworthy that, when a relative poverty line (equal to 50 per cent of the median value of consumption) is used, child monetary poverty rates are 13.9 per cent in Burkina Faso, 30.6 per cent in Ghana, and 20.8 per cent in Cameroon. If an absolute international (extreme) poverty line equal to 1.25 US\$ 2005 PPP is used, child monetary poverty rates are 46.8 per cent in Burkina Faso, 12.2 per cent in Ghana and 16.0 per cent in Cameroon. When an absolute poverty line equal to 2 US\$ 2005 PPP is used, child monetary poverty rates are 72.3 per cent in Burkina Faso, 31.6 per cent in Ghana and 40.8 per cent in Cameroon. Although the two international absolute poverty lines proposed by the World Bank are widely debated, it clearly emerges that Burkina Faso has adopted a national absolute poverty line that is far below both and which thus needs to be revised, whereas Ghana has adopted an (upper bound) absolute poverty line very close to 2 US\$ 2005 PPP, which also happens to be close to the relative poverty line above of 50 per cent of median consumption value, and Cameroon's poverty line is closer to the 1.25 US\$ standard.

driven primarily by a reduction in consumer purchasing power as consumer prices increase substantially given its strong import dependency. Ghanaian households also experience a large drop in non-agricultural income. Increases in agricultural incomes offset the increase in child monetary poverty somewhat.zzz

In contrast, child poverty in Burkina Faso is mainly affected by the fall in incomes in the agriculture sector, where losses from sales are more than double the losses in terms of own-production. Self-employment in the non-agriculture sector do not contribute to changes in child poverty, as only around 1 per cent of households get income from this sector.

In Cameroon the impacts are more diffuse. Changes in consumer prices and the reduction in income from self-employment in the non-agriculture sector are the major contributors in the increase of child poverty. As for the “consumer prices” component, non-food items (not shown) are the main channel through which children are affected by the crisis. The fall in wages affect child poverty relatively more in Cameroon, representing roughly a sixth of total child monetary poverty increase.

Table 6: Simulated impacts of crisis on child monetary poverty by channel

	<u>Burkina Faso</u>			<u>Cameroon</u>			<u>Ghana</u>		
	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
base year (absolute rate)	32.7			50.2			33.7		
with crisis (% change to the base year)	3.79	4.67	4.36	1.85	2.04	2.01	1.52	6.10	6.65
<i>contribution to child poverty changes after crisis by different channels (% change to the base year)</i>									
Consumer prices:	0.28	0.65	1.12	0.67	0.62	0.59	2.12	4.44	5.04
Agriculture sector:	2.85	3.23	2.33	0.37	0.39	0.44	-1.77	-1.64	-2.37
sales	1.77	2.02	1.55	0.16	0.19	0.23	-1.22	-1.06	-1.67
own-production	0.76	0.93	0.54	0.15	0.17	0.17	-0.85	-0.84	-1.12
cost of inputs	-0.09	-0.13	-0.13	0.00	0.00	-0.01	0.00	-0.06	-0.11
Non-agriculture sector (self-employment):	0.00	0.00	0.01	0.53	0.56	0.64	1.11	2.99	3.63
Wages:	0.02	0.02	0.01	0.30	0.29	0.30	-0.08	0.08	0.07
formal	0.00	0.01	0.01	0.01	0.01	0.23	0.00	0.00	0.01
informal	0.02	0.01	0.00	0.29	0.28	0.28	-0.08	0.08	0.05
Other income:	0.54	0.74	0.77	0.02	0.09	0.03	0.20	0.21	0.19

Source: authors' calculation

Note: as changes in poverty status linked to the different channels do not necessarily affect all individuals, the sum of the changes in each component does not exactly equal the total change.

Finally, the wage sector, which is not a major source of income in the region, contributes only slightly to the deterioration in monetary poverty, especially in Burkina Faso. It is noteworthy that changes in the informal wage sector affected children relatively more than the formal sector, with the exception of Cameroon for 2011. Remittances do not seem to play a crucial role in the predicted increase in child monetary poverty, as relatively few households rely upon international remittances. Only in Burkina Faso, where 6 per cent of individuals live in households receiving remittances (of which more than a quarter are poor), this channel plays much of a role, accounting for roughly one-sixth of the total change in child monetary poverty (in 2011). In Cameroon and Ghana, again 6-7 per cent of people live

in households who receive international remittances, but the vast majority (90 per cent) is non-poor so that the impact on child poverty is small.

Differences do also emerge in the regional and urban/rural impacts within the three countries. In Ghana, urban areas are more affected than rural areas by the economic crisis. In fact, not only absolute increases are greater in urban areas but the absolute contribution to national headcount poverty rate rises more than in rural areas. This is due to the rise in agricultural incomes in rural areas, which partly offset the fall in other incomes and the rise in consumer prices. In Cameroon, absolute changes in child urban poverty rates over the simulated crisis period are around 1 percentage point larger than in rural areas, but high population in rural areas make its absolute contribution to national poverty stronger. In Burkina Faso the crisis mainly affects children living in rural areas. For example, more than 90 per cent of the change in national child monetary poverty can be traced to rural areas, both because changes here are larger and because around 85 per cent of the child population live in rural areas.

In Ghana the regions with the highest absolute contribution to the increase in child poverty are those where child poverty rates are amongst the lowest in the country (Greater Accra, Ashanti and Eastern region). This result roughly conform to the absolute changes in the headcount poverty rate, with the only exception of the Volta region where children would experience a strong increase in poverty by up to 11 points in 2011. In Cameroon, regional contributions are more homogenous with the poorest region (Extreme-Nord) and the richest region (Ouest) making the largest contributions, although it is in Adamaoua and Centre regions where child poverty rate would face the largest absolute increases. In Burkina Faso, the rural region of Centre Nord/Plateau Central, as well as the regions of Sahel and Sud-Ouest, are by far the most affected regions, whereas the Centre region (including the capital city of Ouagadougou) is where changes in absolute terms and in the contribution to child poverty are the lowest.

▪ **Hunger**

Hunger rates among children in the base year are 64.9 per cent in Burkina Faso, 58.5 per cent in Ghana and 35.8 per cent in Cameroon. The lower rates in Cameroon might be at least partly due to the better quality of data used to calculate hunger rates. However, the simulated changes still give some rough basis for discussion. In terms of BaU hunger rates, figures for Cameroon are broadly in line with those for monetary poverty rates. On the other hand, Burkina Faso and, to a greater extent, Ghana show a trend in hunger rates to some extent different from that discussed above for monetary poverty. Two explanations can be offered. First, the initial share of children who are calorically poor is around twice the share that is monetarily poor. Second, food prices increase faster than non-food prices in our BaU simulations, based on preceding trends. These results suggest to policy makers that improvements in monetary poverty do not necessarily imply a reduction in hunger, implying that policy responses targeting specific welfare dimensions should be considered.

As shown by Figure 19, only Ghana is predicted to experience a serious deterioration in terms of children suffering hunger due to the crisis, a situation that worsens continuously over the period 2009-2011 such that hunger rates are a full 7 percentage points higher in 2011 in

comparison to the base-year (2008). It is noteworthy that in Ghana hunger rates increase much more than monetary poverty rates, while the opposite is true for the other two countries. This is due to the fact that in Ghana food prices are predicted to increase much more than non-food prices whereas, in both Burkina and Cameroon, food prices decrease in comparison with non-food prices. In Cameroon, this difference between food/non-food price changes is such that hunger rates under the crisis are even slightly lower than those observed in the base-year.

d. Policy responses to the global economic crisis

According to the World Bank review of past crises, social spending is generally pro-cyclical in developing countries, increasing in periods of growth and falling during periods of recession. The challenge for developing countries is therefore to formulate and implement temporary universal protection measures which would only be used by citizens who have fallen on hard times, and should cancel them when the economy improves and offers better opportunities (World Bank 2008).

The study quantifies the impact of two stimulus programmes aiming to protect children from the negative effects of the global economic crisis:

- **Consumption oriented fiscal stimulus:** Consumption tax cuts (VAT or tariff) on food products.
- **Targeted cash transfers** to poor children/households who are identified using a proxy-means test approach.¹³ The effectiveness of a universal cash transfer is also discussed.

The total amount transferred under each programme is arbitrary, fixed at 1 per cent of the national GDP in 2008. This amount is entirely financed from external sources (international aid) by assumption. The proposed stimulus packages have few macroeconomic effects, consequently our analysis in the next section focuses solely on the effects on child welfare.

A main goal of this analysis is to guide policy makers towards the adoption of effective policy responses that counteract the negative effects of the global economic crisis on child poverty. The characteristics of the interventions we propose are discussed below. A targeted cash transfer has significant and specific implications on the methodology also for the micro model: it is in fact on the micro side that we can identify poor children, predict their poverty status and target them for cash or in-kind transfers.

A major challenge in applying a targeted cash transfer policy in the real world is to correctly identify the poor. Due to the lack of reliable information on the income levels of the households, the government is required to predict their poverty status using a limited number of individual, household and geographic characteristics, which are easily observable by the government and not subject to manipulation by the individual. To do that we estimate the relationship between these characteristics and expenditures (per adult equivalent) observed in

¹³ See tables 7, 8 and 9 in Annex I for the results of the "proxy-means" regression to identify poor individuals in the three countries.

the household surveys. After the relationship is estimated, it is then possible to predict the individual expenditures and the individual poverty status of all individuals in our household survey in order to simulate the actual implementation of the policy. By comparing the predicted and actual (according to the household survey expenditure data) poverty status of the survey households, we are able to evaluate likely targeting errors: namely under-coverage (poor individuals excluded from the social safety programme because predicted as non-poor) and leakage (non-poor individuals benefiting from transfers because erroneously identified as poor). The administrative costs faced by the governments to put in place the policies proposed here are not taken into account and we thus only include the total amount of cash transfers allocated or the cost of the subsidies provided.

The total amount transferred to predicted poor children is equal to 1 per cent of GDP in terms of the year of the household survey used for the micro-econometric analysis. We made the hypothesis that all the transfers received by children living in the same household are pooled and shared equitably among all the household members. As we cannot know what allocation rule is in force within each household, we adopted a relatively neutral approach.

As already mentioned above, the administrative costs of the policies simulated in this study are not taken into account.

Regarding the other possible policies mentioned above, we also simulated the effects of pro-cyclical policies (results are not shown here for lack of space) and, as expected, they largely contributed to a further worsening of child welfare in all three countries. In addition, the micro data available are not suitable to simulate the impacts of a reduction in the cost of access to health and educational services, which would also have gone beyond the scope of the current study.

Public transfer programmes are potentially a good way to protect poor households from the negative effects of the global economic crisis by increasing the amount granted to individuals and their households and by fulfilling the eligibility criteria suggested by the World Bank (2008). As such, countries with programmes already in place before the crisis was triggered could increase them with the goal of protecting their vulnerable populations from the damaging effects of the crisis.¹⁴ In countries where social safety net programmes are already in place before the crisis, it is much easier to intervene. However, only a relatively small number of developing countries have already developed social safety nets (Lustig 2008): 19 (out of 49) low-income and 49 (out of 95) middle-income countries have no safety net programmes at all.

e. Child welfare impacts of different policy responses

▪ **Monetary poverty**

Among the policy responses proposed to counteract the negative effects of the crisis on child welfare, a targeted cash transfer (following a proxy-means test approach) to predicted poor children is by far the most effective programme, particularly in Burkina Faso and Cameroon

¹⁴ For example, “Food-for-Education Program” in Bangladesh and “Oportunidades” in Mexico.

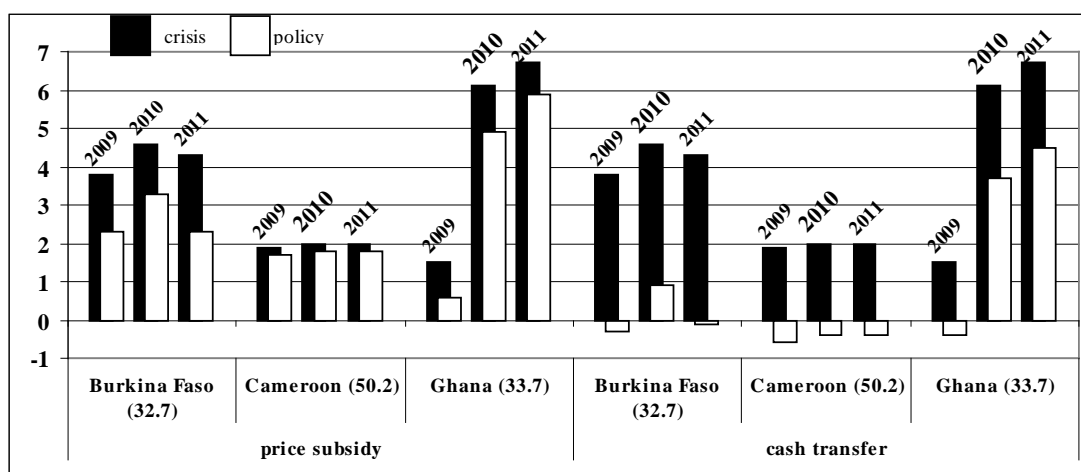
(Figure 18). With the same overall budget, which we assume to be equal to one per cent of base year GDP (financed by foreign aid), food subsidies have smaller effects, as they do not specifically target the poor or children. Indeed, a large share of food consumed by poor people is own-produced. A similar result was also found for Mali for a subsidy for selected food items: rice, vegetable oil and milk (Bibi et al., 2009).

The effectiveness of these two policies differs across the countries. A price subsidy, while still much less effective than a cash transfer, has significant and positive effects in Burkina Faso, reducing monetary poverty by 2 percentage points by 2011 after the crisis, while in Ghana the effectiveness falls to up 1.2 points in 2010 and in Cameroon its impact is nil.

Large differences also emerge in terms of the impacts of the cash transfer policy.¹⁵ In Burkina Faso a targeted cash transfer fully offsets the negative effect of the crisis (with only a minor exception in 2010). Similar results are found for Cameroon where, in all the 3 years simulated, child poverty rates are lower than those simulated in the baseline scenario, although the impacts of the crisis are predicted to be lower than in Burkina Faso. In Ghana, due to the strong predicted effects of the economic crisis on child poverty, a cash transfer policy is not enough to fully offset, although poverty is still reduced by more than 2 points in each year.

The weaker performance in Ghana is also due to the fact that the amount of the cash transfer only represents around 5 per cent of both the poverty line and the consumption of predicted poor children, while for Burkina Faso it is around 10 and 9 per cent respectively and in Cameroon it is around 7 per cent of both. The cash transfer in Burkina Faso also shows a higher impact because a much larger number of children, each receiving the cash transfer, live in poorer households compared to Cameroon and Ghana, so that the total amount received by poorer households tends to be higher.

Figure 18: Effects of policy responses on child monetary poverty: food subsidy and targeted cash transfer (as difference - in percentage points - with the base year rates)



Source: authors' calculation

¹⁵ The individual transfer in Burkina Faso is 8628 FCFA, in Cameroon 20479 FCFA and in Ghana 19.8 new Ghana Cedis. In each case, the amount is calculated by dividing the total budget (equal to 1 per cent of base-year GDP) by the number of children predicted to be poor in the country as a whole.

Note: Numbers in brackets refer to the base-year values

A final factor in determining the effectiveness of these two policy responses is the targeting performance of the cash transfer programme (table 7). Here, we found that Cameroon has the lowest rate of undercoverage (10.7 per cent nationwide), i.e. of poor children erroneously excluded from the programme by the proxy means test, and also the lowest rate of leakage. As the amount of transfer per child is equal to the total budget (1 per cent base-year GDP) divided by the number of predicted poor children, leakage to non-poor children reduces the amount received by poor children, whereas undercoverage excludes them completely. There is a trade-off between minimization of undercoverage (exclusion) and leakage (inclusion) errors.

Table 7: Performance of proxy-means test in predicting poor children (national, urban and rural)

Actual status	Predicted status					
	national		urban		rural	
	non-poor	poor	non-poor	poor	non-poor	poor
Burkina Faso						
non-poor	58.4	41.6	75.3	24.7	54.5	45.5
poor	24.0	76.0	20.2	79.8	24.2	75.8
Cameroon						
non-poor	63.3	36.7	73.8	26.2	51.4	48.6
poor	10.7	89.3	21.4	78.6	9.7	90.3
Ghana						
non-poor	62.9	37.1	60.9	39.1	64.2	35.8
poor	19.6	80.4	19.6	80.4	19.6	80.4

Source: authors' calculation

Note: the model correctly predicts the real status of children when the actual and predicted statuses are the same ("non-poor/non-poor"; "poor/poor"). On the contrary, it fails when the statuses do not coincide, resulting in either leakage (actual status is "non-poor" and predicted status is "poor") or undercoverage (actual status is "poor" and predicted status is "non-poor")

Targeted cash transfers require time and institutional capacity to implement. Universal targeting is relatively easier to carry out and, at least in a first phase, may represent a more cost-effective alternative, particularly where some wealthier households self-exclude themselves by deeming the amount of the transfer too small to collect. Table 8 reports child monetary poverty rates when a universal transfer (with the same total budget as the targeted transfer discussed above: 1 per cent of GDP) is provided, but only to children younger than 6. We assume that this transfer is pooled with other household income and shared equitably among household members, as is the case for the targeted transfer as well. As the total population of children aged 0 to 5 is smaller than the population of children aged 0 to 14 that are predicted to be poor (and thus targeted), the annual amount – in the survey's year terms – transferred to each individual child would thus be larger: FCFA 11200 in Burkina Faso, FCFA 29300 in Cameroon and 30.6 new *Cedis* in Ghana. When the whole child population is analyzed, providing a universal cash transfer to all children aged 0 to 5 years old is very effective in reducing poverty rates after the crisis and gives results that are very close (and only slightly higher) to the scenario where we simulated a targeted cash transfer collected by all children predicted as poor. This good performance is due to the combination of a higher

individual transfer and of the elimination of the undercoverage errors from the targeting approach.

Specifically, under the universal approach, poverty rates are only 0.3-0.5 percentage points higher than under a targeted transfer in Burkina Faso, 0.2-0.5 points higher in Cameroon and 0 to +0.1 in Ghana. Moreover, if we consider only children aged 0 to 5 years old, then the universal approach is predicted to produce better performances in terms of monetary poverty than the targeted approach: in particular, in Ghana poverty rates are up to 1 percentage point lower when a universal approach is followed.

The cash transfer programme could also be integrated with a school feeding programme, starting with the most deprived districts in the country. In the case of Cameroon, a school feeding programme of this sort was estimated to cost the Government 0.19 per cent of GDP and lead to a decrease in both national monetary poverty and hunger rates for children by 0.6 and 2.6 percentage points, respectively (see Bibi et al. 2010b). As mentioned above, a school feeding programme in Burkina Faso would have a smaller impact, as school participation there is still very low.

Table 8: Child monetary poverty rates under targeted and universal transfer (per cent), by different age groups

	0-14 years old			0-5 years old		
	crisis	TT 0-14	UT 0-5	crisis	TT 0-14	UT 0-5
Burkina Faso	<i>base-year poverty rate: 32.7%</i>			<i>base-year poverty rate: 29.8%</i>		
2009	36.5	32.4	32.9	33.8	29.6	29.2
2010	37.3	33.6	33.9	34.6	30.7	30.3
2011	37.0	32.6	33.0	34.3	29.7	29.3
Cameroon	<i>base-year poverty rate: 50.2%</i>			<i>base-year poverty rate: 47.4%</i>		
2009	52.1	49.6	50.1	49.4	46.9	46.5
2010	52.2	49.8	50.2	49.5	47.0	46.6
2011	52.2	49.8	50.0	49.5	47.1	46.5
Ghana	<i>base-year poverty rate: 33.7%</i>			<i>base-year poverty rate: 31.3%</i>		
2009	35.2	33.3	33.4	32.6	30.7	30.0
2010	39.8	37.4	37.4	37.4	34.9	33.9
2011	40.4	38.2	38.2	37.7	35.7	34.9

Source: authors' calculation

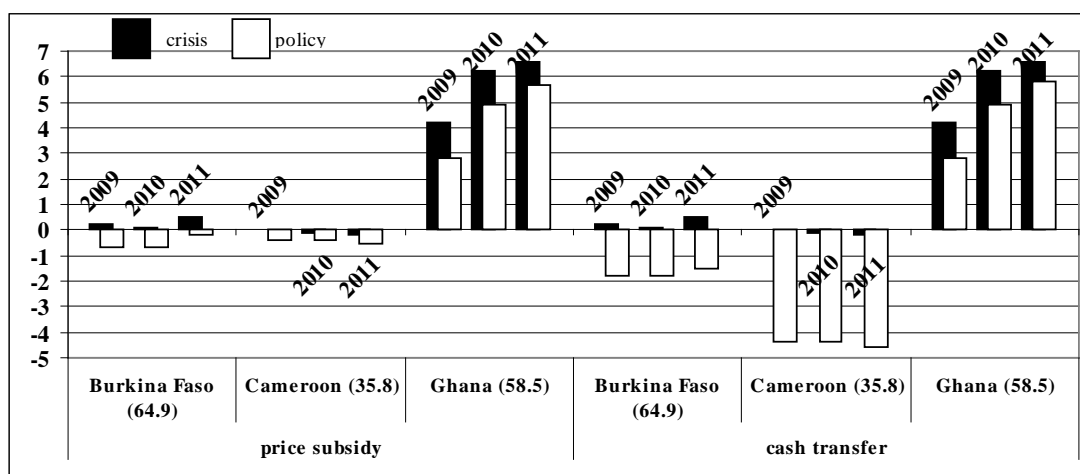
Note: "TT 0-14" is for targeted cash transfer to all predicted poor children aged 0 to 14 years old;

"UT 0-5" is for universal transfer for all children aged 0 to 5 years old.

▪ **Hunger**

The cash transfer is also very effective in reducing hunger rates, especially in Cameroon and in Burkina Faso, while in Ghana there are no substantial differences between food price subsidies and targeted cash transfer (figure 19). In Cameroon, targeting cash transfers to poor children reduces hunger by more than 4 percentage points, while in Ghana and Burkina Faso the effects are more modest but still substantial.

Figure 19: Effects of policy responses on child hunger: consumer price subsidy and targeted cash transfer (as difference - in percentage points - with the base year rates)



Source: authors' calculation

Note: Numbers in brackets refer to the base-year values

5. Conclusion

The 2008/9 global financial and economic crisis, which exacerbates the impacts of the energy and food crises that immediately preceded it, has spread to the developing countries endangering recent gains in terms of economic growth and poverty reduction. The effects of the crisis are likely to vary substantially between countries and between individuals within the same country. Children are among the most vulnerable population, particularly in a period of crisis. Especially in least developed countries, where social safety net programmes are missing or poorly performing and public fiscal space is extremely limited, households with few economic opportunities are at a higher risk of falling into (monetary) poverty, suffering from hunger, removing children from school and into work, and losing access to health services.

This study simulates the impacts of the global economic crisis and alternative policy responses on different dimensions of child welfare in Western and Central Africa (WCA) over the period 2009-2011. It is based on country studies for Burkina Faso, Cameroon, and Ghana, which broadly represent the diversity of economic conditions in WCA countries. In order to capture the complex macro-economic effects of the crisis and the various policy responses – on trade, investment, remittances, aid flows, goods and factor markets – and to then trace their consequences in terms of child welfare – monetary poverty and hunger (caloric poverty) – a combination of macro- and micro-analysis was adopted.

Reductions in GDP growth rates are mainly attributable to a fall in investment and, to a much greater extent, final consumption. Benefits from falling import prices only partially offset the negative effects of reduced export prices and volumes, foreign direct investment, remittances and foreign aid. Different patterns emerge across the countries under analysis. While Cameroon's growth rate is predicted to begin to recover its pre-crisis rate already in 2010, according to our simulations we need to wait until 2011 to see economic growth start recovering in Ghana and Burkina Faso.

Ghana is the country where children are predicted to suffer most from the global crisis, with monetary poverty rates increasing by more than 6 percentage points. This decline is even more dramatic when compared to a reduction of more than 4 percentage points simulated in the absence of the crisis, such that the total effect is an increase of more than 10 percentage points by 2011 relative to the no-crisis scenario. Impacts in Burkina Faso and Cameroon are more modest at roughly 4 and 2 percentage points, respectively. In Ghana, this deterioration is driven primarily by a reduction in consumer purchasing power and by a large drop in income in the non-agriculture sector. In contrast, child welfare in Burkina Faso is mainly affected by the fall in incomes in the agriculture sector while, in Cameroon, the impacts are more diffuse. In general, the effects on the wage sectors as well as on remittances generate only relatively modest adverse impacts on child poverty. In terms of absolute changes in child monetary poverty, in Burkina Faso children in rural areas are more affected than those living in urban areas, while in Cameroon and especially Ghana, monetary poverty for children living in urban areas is predicted to increase more. In all countries large interregional variations emerge.

Children in Ghana are also the most severely affected in terms of hunger, with increases of almost 7 percentage points, compared to negligible effects in Burkina Faso and Cameroon. This is primarily due to the greater monetary poverty impacts already noted and the fact that food prices are predicted to increase much more than non-food prices in Ghana.

Among the policy responses examined to counteract the negative effects of the crisis on children, a targeted cash transfer (following a proxy-means test approach) to predicted poor children is by far the most effective programme, particularly in Burkina Faso and Cameroon. With the same overall budget, which we assume to be financed by foreign aid and to be equal to 1 per cent of GDP, food subsidies have on average smaller effects, as they do not specifically target the poor or children. Broadly, the latter policy has a significant impact in Burkina Faso (only in terms of reducing the monetary poverty effect, by 2 percentage points) and, to a larger extent, in Ghana where it reduces child monetary poverty by up to more 2 points and hunger rates by more than 1 point.

The cash transfer is most effective in Burkina Faso where, as in Cameroon, it is able to fully offset the negative effects of the crisis on child monetary poverty. This policy is also very effective in reducing hunger among children in Burkina Faso and, particularly, Cameroon. Indeed, this policy is even able to reduce hunger by 3-4 percentage points in these countries relative to our predictions in the absence of the crisis. As we put no limits on the number of beneficiary children living in the same (poor) household, it follows that a cash transfer targeted to children is a progressive policy response, as households with more children, which are usually poorer, benefit proportionately more.

We should highlight that designing and implementing a cash transfer programme requires time and cannot represent an immediate response to the crisis. Only Ghana may be in a position to rapidly implement a cash transfer programme to respond to the crisis, as it may expand the existing Livelihood Empowerment Against Poverty (LEAP) programme. Other interventions (or mix of policies) might be more cost-effective in the short run. A combination of a universal or regionally targeted (starting with those regions where child

poverty is more widespread) cash transfer programme for children aged 0 to 5 years old together with a school-feeding programme in poorer regions might represent an effective way to intervene quickly to improve child well-being. As discussed here, given the same amount of budget, a cash transfer provided universally to all children aged 0 to 5 is estimated to lead to child monetary poverty rates that are substantially similar to the case in which a cash transfer is targeted to all children (0 to 14 years old) predicted as poor, by relatively improving the situation of younger children. A universal approach such as that just mentioned would in fact have the advantage of eliminating undercoverage error of the targeting approach and the provide a higher individual transfer for younger children.

In general, a note of caution regarding these results is in order, given that cash transfers and other demand-side policies will be most effective in the presence of complementary improvements from the supply side.

References

- Antwi-Asare, T., J. Cockburn, E. F. A. Cooke, I. Fofana, L. Tiberti, D. K. Twerefou with E. N. Abosi, S. K. K. Akoena and Z. Issahaku (2010) “Simulating the impact of the global economic crisis and policy responses on children in Ghana”, *mimeo*, Report prepared for UNICEF for the project on “Simulating the Impact of the Global Economic Crisis on Children in West and Central Africa”, Université Laval, Quebec.
- Arrow, K.J. and G. Debreu (1954) “Existence of an Equilibrium for a Competitive Economy”, *Econometrica*, 22: 265-290.
- Attanasio, O. and M. Szekely (2004) “Wage shocks and consumption variability in Mexico during the 1990s”, *Journal of Development Economics*, 73: 1-25.
- Balma, L., J. Cockburn, I. Fofana, S. Kaboré and L. Tiberti (2010) “Analyse d’impact des effets de la crise économique et des politiques de réponse sur les enfants en Afrique de l’Ouest et du Centre: le cas du Burkina Faso”, *mimeo*, Report prepared for UNICEF for the project on “Simulating the Impact of the Global Economic Crisis on Children in West and Central Africa”, Université Laval, Quebec.
- Barikmo, I., F. Ouattara and A. Oshaug (2004) *Table de Composition d’aliments du Mali*, Forskningsserie (Research series) No. 9. Høgskolen i Akershus, Akershus University College, Akershus.
- Bibi, S., J. Cockburn, M. Coulibaly and L. Tiberti (2009) “The impact of the increase in food prices on child poverty and the policy responses in Mali”, *Innocenti Working Paper*, no. 2009-02. UNICEF Innocenti Research Centre, Florence.
- Bibi, S., J. Cockburn, I. Fofana and L. Tiberti (2010a) “A Methodology for Simulating the Impact of Economic Crisis and Policy Responses on Children in West and Central Africa”, *mimeo*, Report prepared for UNICEF for the project on “Simulating the Impact of the Global Economic Crisis on Children in West and Central Africa”, Université Laval, Quebec.
- Bibi, S., J. Cockburn, C.A. Emini, I. Fofana, P. Ningaye and L. Tiberti (2010b) “Incidences de la crise économique mondiale et des politiques de réponse subséquentes sur la pauvreté des enfants au Cameroun”, *mimeo*, Report prepared for UNICEF for the project on “Simulating the Impact of the Global Economic Crisis on Children in West and Central Africa”, Université Laval, Quebec.

- Brinkman, H.J., S. de Pee, I. Sanogo, L. Subran and M. W. Bloem (2010) “High Food Prices and the Global Financial Crisis have reduced access to Nutrition Food and worsened Nutritional Status and Health”, *Journal of Nutrition*, 140(1): 153S-161S.
- Christian, P. (2010) “Impact of the Economic Crisis and Increase in Food Prices on Child Mortality: Exploring Nutritional Pathways”, *Journal of Nutrition*, 140(1): 177S-181S.
- Dercon, S. and P. Krishnan (2000) “In Sickness and in Health: Risk Sharing within Households in Rural Ethiopia”, *Journal of Political Economy* 108(4): 688-727.
- Essama-Nssah, B., D. Go, M. Kearney, V. Korman, S. Robinson, K. Thierfelder (2007) “Economywide and Distributional Impacts of an Oil Price Shock on the South African Economy”, *Policy Research Working Paper* 4354, The World Bank, Washington DC.
- European Report on Development (2009) “Overcoming Fragility in Africa” *European Report on Development*, Robert Schuman Centre for Advanced Studies, European University Institute, Fiesole.
- Eyeson, K.K. and E.K. Ankrah (1975) *Composition of Foods Commonly Used in Ghana*, Food Research Institute (CSIR), and UNDP and FAO, Accra.
- Ghana Statistical Service (2007) *Pattern and Trends of Poverty in Ghana 1991-2006*, Ghana Statistical Service, Accra.
- Griffith-Jones, S. and J.A. Ocampo (2009) “The Financial Crisis and its Impact on Developing Countries”, *Working Paper* number 53, International Centre for Inclusive Growth, Brasilia.
- Institut National de la Statistique et de la Démographie, Burkina Faso (INSD) (2009) *Recueil des concepts, définitions, indicateurs et méthodologies utilisés dans le Système statistique national*, Institut National de la Statistique et de la Démographie, Ouagadougou.
- International Labour Organisation (2009) *The Financial and Economic Crisis: A Decent Work Response*, The International Institute for Labour Studies, Geneva.
- International Monetary Fund (2009a) *World Economic Outlook*, October 2009, World Economic and Financial Survey, International Monetary Fund, Washington D.C.
- International Monetary Fund (2009b) *Regional Economic Outlook: Sub-Saharan Africa*, October, World Economic and Financial Survey, International Monetary Fund, Washington D.C.
- International Monetary Fund (2009c) *World Economic Outlook*, July 2009, World Economic and Financial Survey, International Monetary Fund, Washington D.C.
- International Monetary Fund (2009d) *Country Report* No 09/318, International Monetary Fund, Washington D.C.
- Kakwani, N., F. Soares and H. H. Son (2006) “Cash transfers for school-age children in African countries: simulation of impacts on poverty and school attendance”, *Development Policy Review*, 24(5): 553-569.
- Lustig, N. (2008) “Thought for Food: The Challenge of Coping with Soaring Food Prices”, *Center for Global Development Working Paper* 155. Washington, D.C.
- Lustig, N. (2000) “Crises and the Poor: Socially Responsible Macroeconomics”, *Economia*, 1(1): 1-19.
- McKenzie, L. (1954) “On Equilibrium in Graham's Model of World Trade and Other Competitive Systems”, *Econometrica*, Vol. 22 (April 1954): 147-161.
- McKenzie, L. (1959) “On the Existence of a General Equilibrium in a Competitive Market” *Econometrica*, 27: 54-71.

- McKenzie, L. (1981) "The Classical Theorem on Existence of Competitive Equilibrium", *Econometrica*, 49 (4): 819-841.
- Mendoza, R. (2009) "Aggregate shock, poor households and children: transmission channels and policy responses", *Social Policy Working Paper*, UNICEF New York.
- Ratha, D., S. Mohapatra and A. Silwal (2009) "Outlook for Remittance Flows 2009-2011: Remittances expected to fall by 7-10 per cent in 2009". *Migration and Development Brief 10*. Migration and Remittances Team. Development Prospects Group, World Bank, Washington, D.C.
- Robilliard, A.S., F. Bourguignon and S. Robinson (2008) "Examining the Social Impact of the Indonesian Financial Crisis Using a Macro-Micro Model", in Bourguignon, F., M. Bussolo L.A. Pereira da Silva (eds.) *The Impact of Macroeconomic Policies on Poverty and Income Distribution: Macro-Micro Evaluation Techniques and Tools*, Palgrave Macmillan.
- Skoufias, E. (2003) "Economic Crises and Natural Disasters: Coping Strategies and Policy Implications", *World Development* 31(7): 1087-1102.
- United Nations Conference on Trade and Development (2009) *Assessing the Impact of the Current Financial and Economic Crisis on Global FDI Flows*, Division on Investment and Enterprise (DIAE), United Nations Conference on Trade and Development, Geneva.
- van der Mensbrugge, D. (1998) *A (Preliminary) Analysis of the Kyoto Protocol: Using the OECD GREEN Model*, OECD Development Centre, Paris.
- Willem te Velde, D. (2008) "The global financial crisis and developing countries - Which countries are at risk and what can be done?", *Background Notes*, Overseas Development Institute, London.
- World Bank (2008) "Lessons from World Bank Research on Financial Crises", *Development Research Group, Policy Research Working Paper 4779*, World Bank, Washington, D.C.