

Impacts of the Economic Crisis on Human Development and the MDGs in Africa

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Abstract

The economic crisis has had significant short term effects in most countries around the world, including those in sub-Saharan Africa. Many of the economies are now expected to begin recovering, although the recovery is anticipated to be protracted, uneven across indicators and countries; and may be fragile. Despite the recovery, will the crisis have long term consequences for human development and MDG achievements in Africa? If so, what are the mechanisms through which such impacts could take place, and what is the role for policy?

This paper seeks to address these questions by examining the evidence from similar episodes in the past, and by using a simple framework to assess the long term impact on human development including trends towards the MDGs. Using growth projections to 2014 for the countries in the region, and a range of observed trends, it models possible impacts on the MDGs, and demonstrates how the crisis could lead to real slow-downs or reversals in the rate of progress. Based on these results the paper suggests that a series of active policy interventions are needed both to accelerate progress towards the MDGs and to build resilience for the future.

Disclaimer: Opinions in this paper are those of the authors and not of UNDP.

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1. Introduction

Improving people's capabilities and expanding the choices available to them enhance human development. Several indicators are used to assess improvements in human development at both household and aggregate levels. The Human Development Index, for example, includes measures of income, health and education. These indicators are often used more broadly to gauge the well-being of people, and are part of the basis for the MDGs (Millennium Development Goals), which define a set of targets, to be achieved by 2015, for reductions in poverty and hunger; and improvements in health, education, gender equality and environmental sustainability².

The economic crisis that has affected virtually all countries across the world is being reflected in sharp slowdowns in economic growth and increases in unemployment rates. Economies are expected to recover from the crisis over time: however, can we expect such a shock to have long term consequences for human development, including for MDG achievements in Africa? If so, what are the mechanisms by which such impacts could take place, and what is the role for policy? This paper seeks to address these questions. The next section surveys, briefly, both the possible mechanisms and the empirical evidence for such impacts. The third section presents some empirical evidence from selected countries on how the current crisis is impacting African countries. The fourth section examines the likely consequences for the MDGs in the years remaining to 2015; the fifth section suggests policy interventions and priorities and the final section concludes.

2. Impacts on Human Development: Channels and Evidence

a) Transmission channels from shocks to human development outcomes

Income, health and education are especially important for human development. Long-run secular relationships are observed (in both cross country and within country datasets) between aggregate income measures, such as GDP per capita; and aggregate indicators of human development such as poverty rates, mortality and school enrolment. It is not always easy to identify the direction of causality in such long term relationships: improvements in GDP per capita could lead to better health outcomes;

² The Millennium Development Goals provide measurable and time-bound targets spread across eight areas including poverty and hunger eradication; achievement of universal primary education; promotion of gender equality and empowerment of women; reduction of child mortality; improvement of maternal health; combating HIV/AIDS, malaria and other diseases; environmental sustainability; and the development of a global partnership for development.

however, better health could itself improve the productivity of the workforce and be an important contributor to GDP per capita³.

In the case of sudden shocks, however, the direction of causality may be less in doubt. The current crisis, for example, translates into reduced real household income through several channels - job losses, depressed wages, lowered remittances and falling profits for the self-employed. As economies recover, many of these indicators are expected to turn around, at least at the aggregate level. It is not immediately clear that a transitory shock of this nature could lead to long term losses for human development. For example, the permanent income hypothesis, would argue against such an effect on the basis of households maintaining their consumption of goods and services, including those that contribute to human development, through such periods.

However, the poor in developing countries often have limited access to credit, insurance and other income smoothing mechanisms; and if the quality or availability of services such as (publicly provided) health care or education are affected during the period of the shock, there may be good reason for even transitory changes in income to be accompanied by changes in consumption. Even if such changes are reversed in the future, there are several channels through which human development indicators might show longer term losses⁴.

For example, a loss of household income may, through a change in the diet towards less nutritious food, cause permanent erosion in the cognitive ability of a child; predispose an individual to a debilitating illness; or result in an early death. Households may, after an initial period of being able to maintain consumption by drawing upon their reserves, be compelled to defer seeking health care; or re-assess their decisions to invest in education, again with potentially long term consequences. Income losses may be distributed non-uniformly across households – families depending mostly on remittances from the West or on earnings from adversely affected sectors could be worse affected than others. Countries where the impact has been felt in a capital intensive sector such as mining could see a smaller effect in terms of labor income losses compared to countries where the impact has been primarily on a labor

³ For example, while Pritchett and Summers (1996) argue for causality from GDP growth to health outcomes (see next subsection); Cutler, Deaton and Lleras-Muney (2006) and Case and Deaton (2008) downplay the causal effect running from income to reductions in mortality. A similar debate holds in education, as, for example, in Hanushek and Woessman (2007).

⁴ In terms of human capital, such long term losses might be seen either as a permanent depreciation of the existing capital stock that subsequent investments cannot make up (e.g. through an illness that goes untreated); or a permanently lost opportunity at investment (e.g. in the case of child the is deprived of essential nutrients at a critical stage of development). The consequences are then of two kinds: a long term drop in the *current* level of human capital, and a long term drop in the *potential* maximum level for the future.

intensive sector. Income losses could also affect intra-household consumption allocations in different ways, accentuating long held patterns of inequality by geography, ethnicity, gender or age.

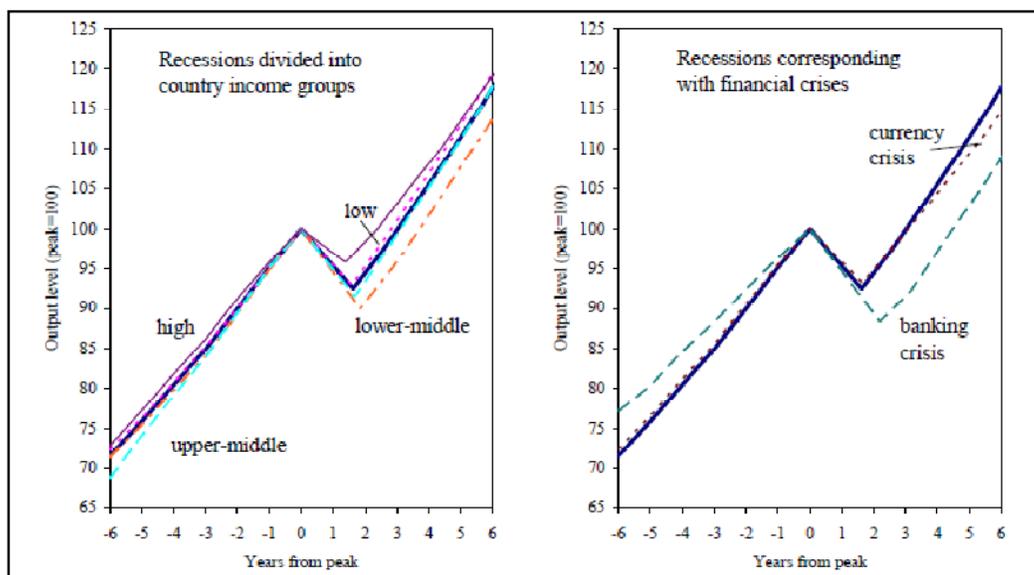
These impacts can be prevented if households can continue to meet critical consumption and investment needs for human development, whether from additional labor income⁵, income from asset sales, credit, remittances, cash or in-kind transfers and access to key services. Unfortunately, increased demand on safety nets and public services coincides with falling revenues and difficult financing conditions during a crisis. In the current situation, it is anticipated that falling public revenues and possible reductions in ODA, along with reduced prospects for raising finances through borrowings will constrict the fiscal space needed to maintain spending on health, education and social protection⁶.

Therefore these resources may not be available at all to households; or may only be available for limited periods: hence both the depth and the duration of the income shock would appear to be important determinants of individual as well as aggregate human development impacts. In addition, coping with crises deplete reserves, which exacerbate vulnerability to other, possibly idiosyncratic shocks – therefore the frequency with which shocks occur can also be an important determinant of human development outcomes. The losses in the physical capital of households, and the deterioration in human capital can have long term impacts on the future income of individuals and households, as well as limiting the growth and development potential of developing countries.

A closely related strand of the macroeconomics literature relates to the debate around whether ‘one-off’ shocks to the economy lead to long-term dents in the GDP growth path, or whether recoveries are offsetting, with GDP reverting to its long-term trend (Nelson and Plosser (1982), Perron (1989), Banerjee, Lumsdaine, and Stock (1992), Ben-David, Lumsdaine and Papell (2003), Lucas (2003), Barro (2009). Cerra and Saxena (2007), analyzing data on the evolution of GDP of a large panel of 190 countries over 40 years find that, on average, GDP does not return to the pre-recession path (Figure 1).

⁵ Some of these may involve difficult trade-offs between the short-term and the long-term: people may work longer hours, or engage in riskier occupations, with a negative impact on health; caregivers (usually a female family member) may need to return prematurely to the labor force, thereby harming the health of the young and the aged at home. These short term measures may themselves further imperil the longer term human development goals.

⁶ World Bank (2009c) projected that more than half the low-income countries could experience a fall in government revenue as a percentage of GDP in 2009,

Figure 1: Average Evolution of Gross Domestic Product Before and After Recessions

Source: Cerra and Saxena (2007: p. 26)

High income countries do a little better than developing countries, which appear to suffer from larger permanent losses (left panel of Figure 1). Recessions that coincide with financial crises are particularly severe in terms of long term losses, especially in the case of banking crises (right panel). This evidence on the long-term impact of banking crisis is broadly consistent with more recent studies, such as Cecchetti, Kohler and Upper (2009), even though that paper notes a wide heterogeneity in long term impact across countries and episodes. Furceri and Mourougane (2009) consider the impact of financial crises in OECD countries from 1960 to 2007, and find that they reduce potential output permanently by about 2.4% on average, and by as much as 4% in the most severe cases. Further, Haugh, Ollivaud and Turner (2009) find that in OECD countries, the rate of potential output growth was also reduced after major banking crises.

In a more recent paper, Cerra, Panizza, and Saxena (2009) revisit the issue, adding a more detailed breakdown of the patterns across regions and levels of income, as well as looking for characteristics and policies that may influence the nature of recoveries. The paper confirms that there are typically permanent output losses, and that recoveries are not, on average, more rapid than pre-recession growth rates. They also find evidence that fiscal and monetary policies are effective in speeding the pace of recovery and that ODA is particularly effective in sub-Saharan Africa.

These transmission channels are complex, and interlinked in various ways (Lustig and Walton (1999) have a comprehensive treatment). Many of the impacts may take time to unfold, and empirical

evidence that would help to quantify the effects and direct policy is usually not available 'in real time'. Whether such impacts are observed on the ground then become facts that are to be determined empirically, and there is a significant body of literature that attempts to answer this question over previous episodes of transitory economic downturns. It is therefore important to review what the existing literature says on these impacts; and to draw lessons for the current situation to the extent possible.

b) The evidence for impacts on human development from previous episodes

What is the evidence for impacts on human development from similar episodes in the past? By now there is a large body of the literature that captures the experience from at least some of the many episodes in both developed and developing countries in the post-War period. The following account draws extensively from the reviews of this literature presented in Conceição, Kim, and Zhang (2009) and Conceição, Kim, Mendoza and Zhang (2009).

Consider, first, the evidence for impacts on household incomes and poverty rates. Drawing on several studies (Lustig, Fishlow and Bourguignon (2000), Skoufias (2003), McKenzie (2003), Martin (2000), Attanasio and Szekely (1998), Funkhouser (1999), Glewwe and Hall (1994)), the evidence reviewed suggests that increases in poverty rates often accompany economic crises. The impact is transmitted both through a reduction in income/labor demand, as well as through price effects (Thomas, Beegle and Frankenberg (2003), (2004), Levinsohn, Berry and Friedman (1999)). Table 1, based on Lustig, Fishlow and Bourguignon (2000) and Skoufias (2003), indicates the order of magnitude of some of these impacts.

Household incomes are a significant channel through which nutrition, health and educational impacts take place. A number of studies, both quantitative and qualitative, provide some insight into the possible health and education consequences of crises and, more broadly, sharp slowdowns or recessions. Ferreira and Schady (2009) develop a simple framework to analyze the effects of aggregate income shocks on child schooling and health. They show that the expected effects are theoretically ambiguous because of a tension between income and substitution effects. In the empirical literature, they find that for all but very rich countries, child health outcomes are procyclical: infant mortality rises during recessions. When it comes to education, however, the picture is more nuanced.

Table 1- Economic Crises and Poverty Headcount Ratios in Selected Countries

Country	Before crisis	Year of crisis
Argentina	10.1 (1980)	20.6 (1985)
Argentina	25.2 (1987)	34.6 (1989)
Argentina	16.8 (1993)	24.8 (1995)
Brazil	27.9 (1989)	28.9 (1990)
Costa Rica	29.6 (1981)	32.3 (1982)
Venezuela	25.7 (1982)	32.7 (1983)
Venezuela	40.0 (1988)	44.4 (1989)
Venezuela	41.4 (1993)	53.6 (1994)
Indonesia	11.3 (1996)	18.9 (1998)
Korea	2.6 (1997)	7.3 (1998)
Malaysia	8.2 (1997)	10.4 (1998)
Thailand	9.8 (1997)	12.9 (1998)

Note: The year of crisis is in parenthesis.

Sources: Lustig, Fishlow and Bourguignon (2000, p.4), Skoufias (2003, p.1088).

Baird, Friedman and Schady (2007) use a large dataset of 59 developing countries, covering over 1.5 million births, between 1975 and 2004. They find that the elasticity of infant mortality with respect to per capita GDP lies between -0.31 and -0.79 – even after accounting for factors such as the characteristics of women giving birth, weather shocks, conflict and the quality of institutions. The inclusion of a lag and a lead GDP terms also does not affect the estimates of elasticities. They also find striking differences in the effects of income shocks by gender. Downturns are associated with almost five times higher changes in female infant mortality than changes in male infant mortality. Friedman and Schady (2009) assess the likely impact of the current financial crisis on infant mortality in Sub-Saharan Africa. They use all available Demographic and Health Surveys for the region and find an elasticity of mortality with respect to per capita GDP between -.32 and -.58.

Paxson and Schady (2005) study the impact on infant mortality of the crisis in Peru in the late 1980s. They find an increase of about 2.5 percentage points in the infant mortality rate for children born during the crisis. The evidence shows that there was a collapse in both public and private spending on healthcare. Public health expenditures fell by 58 percent between 1985 and 1990, declining from 4.3 percent of the budget to 3 percent.

Several studies have confirmed that the correlation between income growth and child mortality, (excluding possibly the most developed countries) is negative. Most of these estimate long-term elasticities, rather than elasticities during shocks. For example, Pritchett and Summers (1996), estimates the elasticity of infant mortality and under five mortality with respect to per capita GDP, and find these to be between $-.2$ and $-.4$ ⁷. They also estimate the elasticity of life expectancy and find it to lie between $.015$ and $.024$.

Cutler et al (2002) study the impact of economic crises on health in Mexico. They find that economic crises are associated with higher mortality among vulnerable populations – children and the elderly. They estimate mortality rate increases of 6 to 9 percent during the 1982-84 crisis and of 5 to 7 percent during 1995-96. The increase in mortality rates during the 1995-1996 economic crisis can also be attributed to both reduced household income and reduced public spending on health care. Public health spending in Mexico dropped from 3.8 percent of GDP in 1994 to 3.4 percent of GDP. At the same time, there were important changes in per capita spending on the uninsured population through the Programa de Apoyo a los Servicios de Salud para Población Abierta (PASSPA). Between 1994 and 1995, when public health spending declined in all regions, the sharpest fall was in the PASSPA states (25 percent).

The two studies for the Latin American region have documented significant cuts in public health expenditures during crises. From the economic crisis in Indonesian in 1997, there is evidence of a fall in the quality of healthcare, especially in government provided healthcare. Frankenberg et al (1999) find that stock outages of antibiotics and supplies such as bandages increased significantly in government health centers or *puksemas*. There were significant decreases in the number of public and private facilities offering Vitamin A. Additionally, both public and private providers raised the prices they charge for services. In terms of usage of health services, the proportion of adults visiting a public provider

⁷ Several studies have looked at the relationship between child mortality and growth in per capita GDP in specific regions and countries. Using data from 25 Asian countries, ADB (2008) estimates growth elasticities of infant mortality and under five mortality of about $-.4$. Bhalotra (2007) uses data on infant mortality for about 150000 children born in 1970-1997 in India and finds a rural infant mortality elasticity of -0.46 .

dropped from 7.4% in 1997 to 5.6% in 1998 – a statistically significant drop. However, the proportion of adults visiting private facilities and traditional practitioners did not change significantly.

Turning to education, the Indonesian Family Life Survey (IFLS) data shows significant declines in enrolment of 13-19 year olds after the 1997 financial crisis (Table 2). Table 3 shows that the fall in enrolment was much sharper for the lowest and the second quartile. The same data source indicates that while aggregate changes to enrolment and dropout rates among children ages 7-12 have been relatively small, fairly sharp changes have occurred among the poorest income quartile. This group has seen an enrolment decline of five percent and an increase in dropout rate from 1.3 to 6.2 percent.

Table 2: Changes in Enrolment and Dropout Rates among Indonesian Children ages 13-19, 1997-1998

Enrolment Rates			
	Percentage Enroled		Percentage Change
	1997	1998	
Male	61.5	56.9	-7
Female	59.4	55.9	-6

Dropout Rates			
	Dropout Rate		Percentage Change
	1997	1998	
Male	12.1	17.7	46
Female	12.3	16.2	32

Source: Social Consequences of the Financial Crisis in Asia, ADB Economic Staff Paper No. 60, November 1999

Table 3: Percentage change in enrolment and drop-out rates by expenditure per capita quartiles (1997 levels)

Quartile	Percentage Enroled		Percent Change in Enrolment	Dropout Rates		Percentage Change in Dropout Rates
	1997	1998		1997	1998	
I (lowest)	51.5	45.9	-11	14.2	25.5	80
II	64.0	56.7	-11	13.1	17.6	34
III	62.1	59.6	-4	13.2	15.5	17
IV	66.9	64.5	-4	7.3	9.5	30

Source: Social Consequences of the Financial Crisis in Asia, ADB Economic Staff Paper No. 60, November 1999

Friedman and Schady (2009) note that education outcomes are procyclical in poorer countries, in Africa and low-income Asia, but in middle income countries, the outcome was counter-cyclical, leading to some ambiguity in *ex-ante* predictions. In Costa Rica, school enrollment rates dropped approximately 6 percent between 1981 and 1982 during the economic crisis, with larger drops in rural areas. However, children who were exposed to the Peruvian economic crisis of the late 1980s had completed more years of schooling for their age than comparable children who were not. In Mexico, gross primary enrollment increased by 0.44 percent in 1994, but fell by 0.09 percent in 1995 according to World Bank (2001).

Economic crises affect girls and boys differently. In low-income countries both girls and boys may drop out of school during an economic crisis, but when pre-existing female schooling is low, girls are especially vulnerable to dropping out (World Bank 2009d). Similar evidence has been found in Madagascar (Gubert and Robilliard 2007) and Brazil (Duryea, Lam and Levison 2007) as well. The probability of a 16-year-old Brazilian girl dropping out of school and entering the employment is as much as 50 percent higher compared to when there is no negative income shock.

Conceição and Kim (2009) find that health-related human development indicators improve during rapid growth spells and deteriorate during economic recessions, compared to the underlying trend. The relationship between education indicators and economic growth accelerations or decelerations is ambiguous. Least Developed Countries (LDCs) are found especially heavily penalized when they fall into growth deceleration episodes. Their infant mortality and under-5 mortality rates are significantly higher during economic bad times. But these mortality rates are little changed (relative to the underlying trend) during episodes of growth accelerations. This suggests asymmetric effects of economic fluctuations on human development outcomes – the negative impact during bad times is worse than the positive impact in good times – a finding which is consistent with the literature.

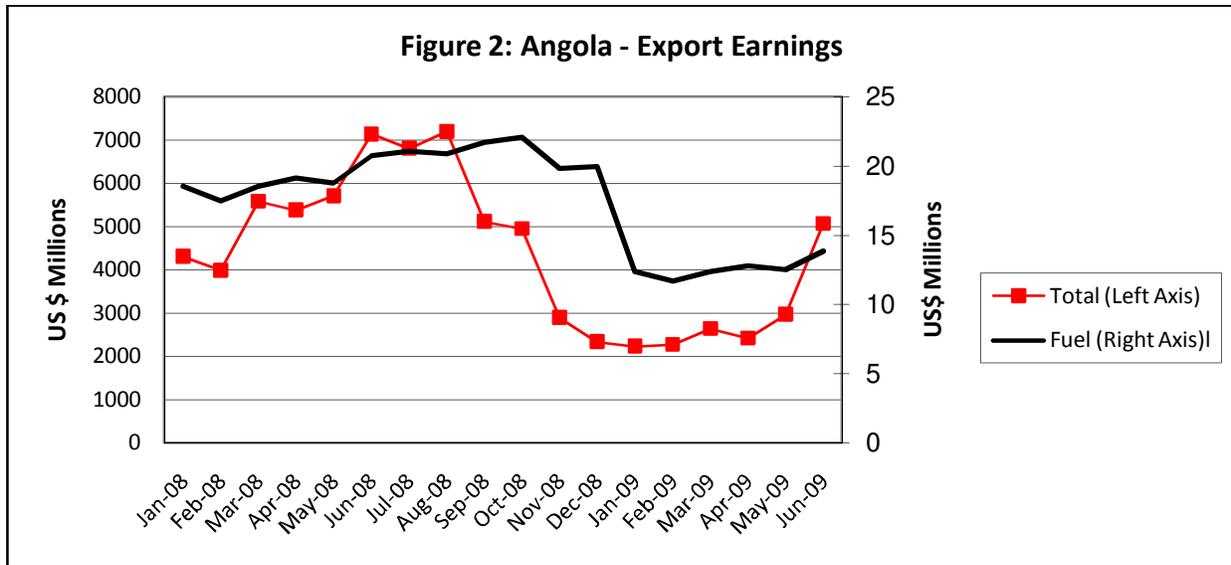
3. What can we now say about the potential HD impacts of the crisis in Africa?

The previous section summarized the evidence for economic shocks leading to human development impacts, potentially of long duration. In this section we examine, first, the evolution of the crisis in Africa to date and second, its potential impacts on human development.

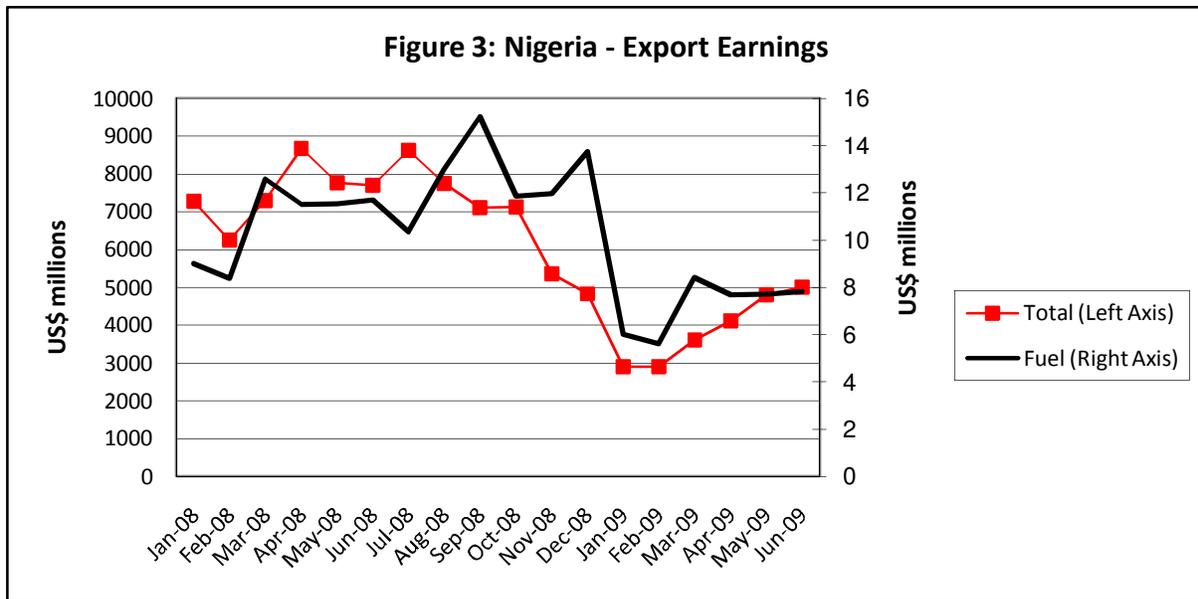
a) The current face of the crisis in Africa and prospects for recovery

Assessments of the expected impact of the crisis have been changing over time. For example, the IMF's projections of sub-Saharan real GDP growth rates for 2009 have changed from 6.3% in October 2008, to 1.7% in April 2009 and 1.3% in October 2009, reflecting both a better understanding of *which* channels have been important in transmitting the impacts, and also developments *along* each channel. At the country level, the changing situation makes it necessary to update assessments of the likely impacts on human development as well as to target interventions better through an improved understanding of *which* groups may be among the worst affected within each country. The rest of this section is meant to illustrate some of the channels through which the crisis continues to impact countries, without aiming to provide a comprehensive survey.

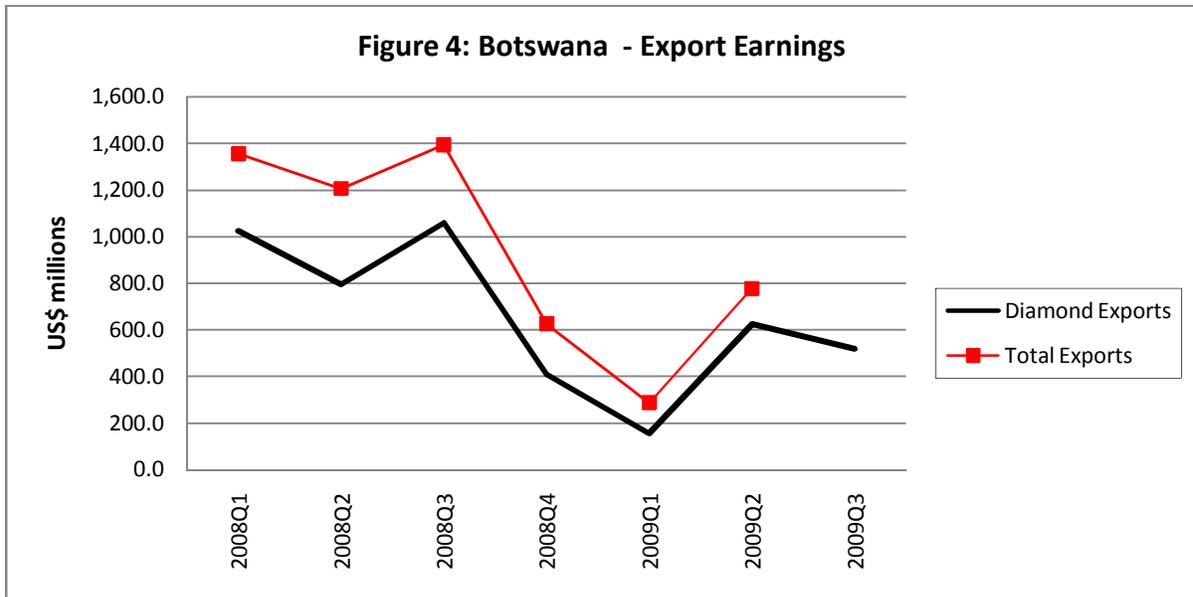
The relative importance of each channel - financial systems, investment flows, export revenues, remittances, tourism revenues and ODA - through which the crisis is having an effect varies by country. However, the most significant of these has been the fall in export revenues, whether these be for oil exporters such as Angola and Nigeria; exporters of other minerals such as Botswana and Zambia; or more diversified exporters such as Ethiopia. Figures 2 and 3 illustrate the situation for Angola and Nigeria; Figures 4 and 5 for Botswana and Zambia and Figure 6 for Ethiopia. In all five, export revenues (and volumes) fell sharply following the onset of the crisis (although in Zambia and Ethiopia, these declines appear to have accentuated or continued trends that began earlier), but have then turned around, although still considerably lower than late 2008 levels. Ethiopia is an exception to the last, as exports briefly reached their 2008 peak before declining in the most recent months. Households whose livelihoods derive from these sectors are the most directly affected, although the slowing down of economic activity in general affects others as well - either directly, or through enforced changes in Government spending plans.



Source: Authors' elaboration based on IMF Direction of Trade Statistics, accessed on Nov 2nd 2009.

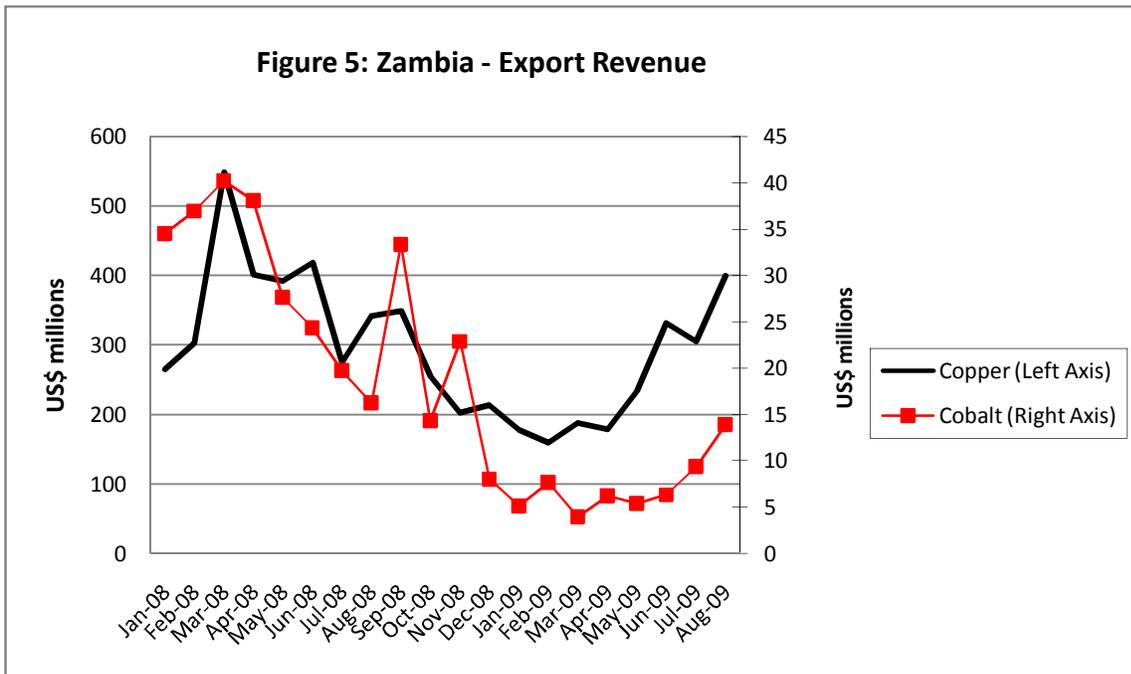


Source: Authors' elaboration based on IMF Direction of Trade Statistics, accessed on Nov 2nd 2009.

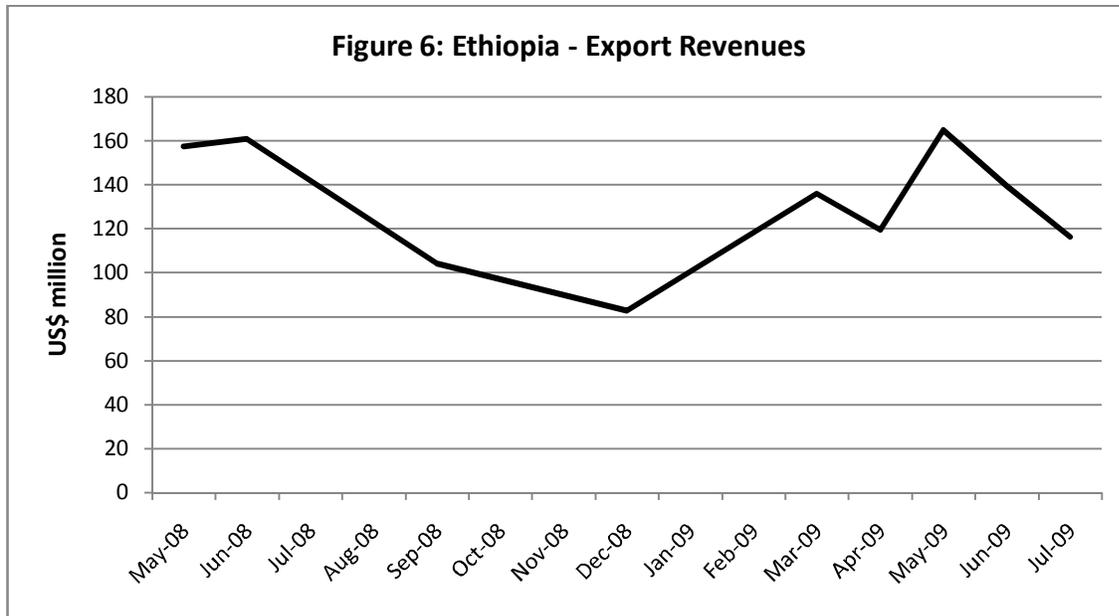


Source: Authors' elaboration based on Bank of Botswana Financial Statistics August 2009.

Note: Total Exports data is not available for the 3rd quarter of 2009.

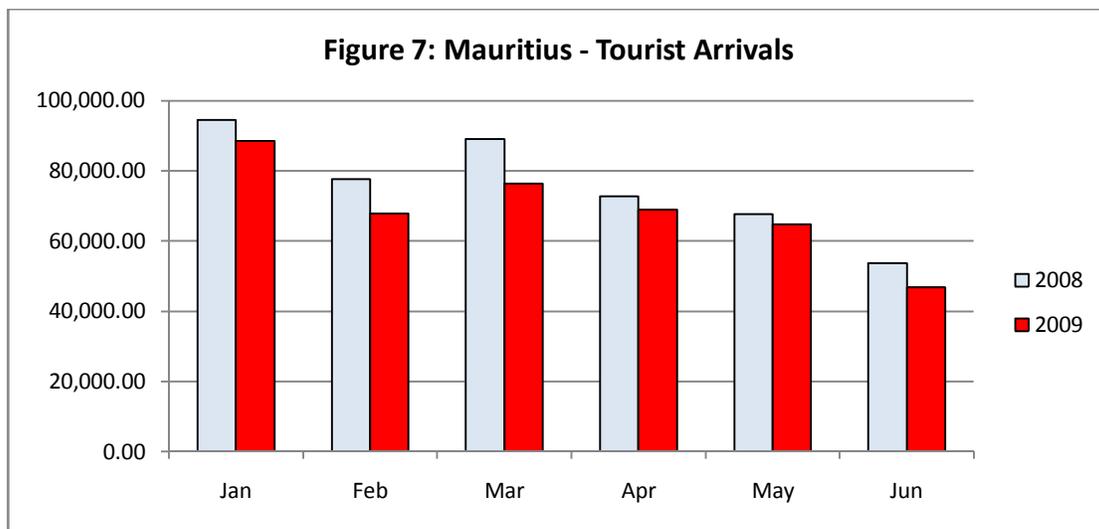


Source: Authors' elaboration based on Bank of Zambia Fortnight Economic Statistics, September 2009.

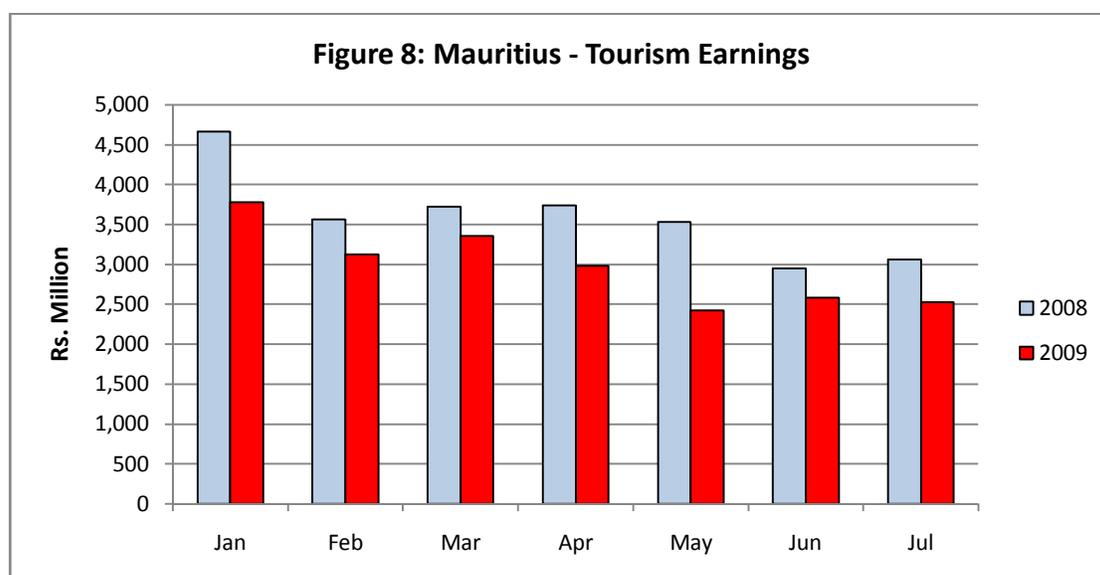


Source: Authors' elaboration based on National Bank of Ethiopia, Monthly Macroeconomic Statistics, July 2009

Other channels of transmission such as tourism revenues have also been important, especially in countries such as Seychelles and Mauritius, where tourism represents, respectively, about 25% and 15% of GDP. Figures 7 and 8 show that, for Mauritius, there have been persistent drops in both tourist arrivals and earnings in 2009, relative to the same months in 2008.



Source: Authors' elaboration based on Bank of Mauritius, Monthly Statistical Bulletin, August 2009.

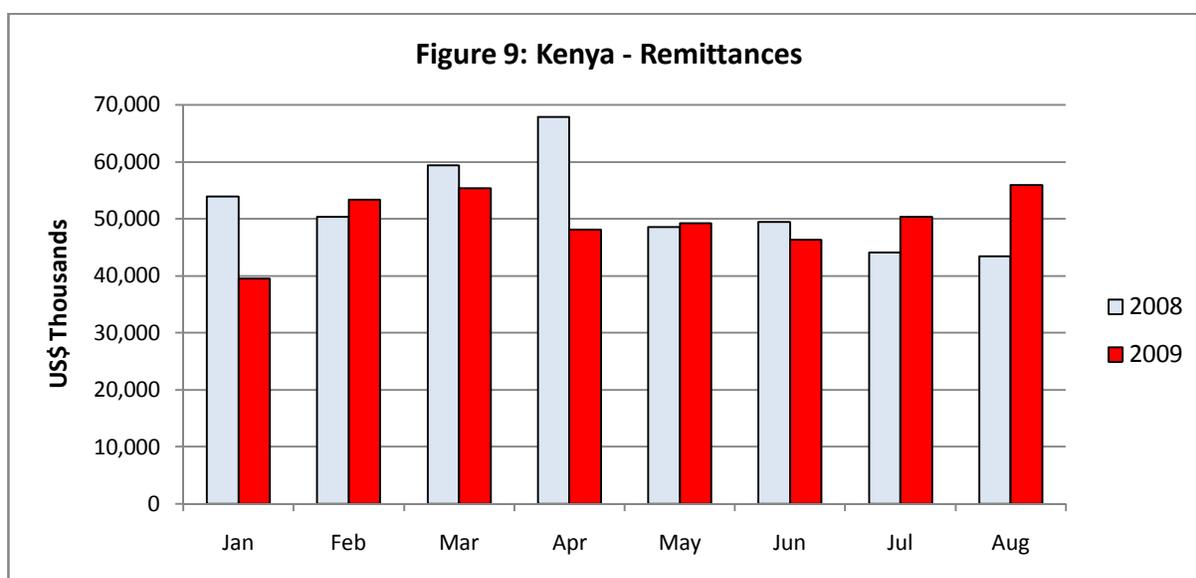


Source: Authors' elaboration based on Bank of Mauritius, Monthly Statistical Bulletin, August 2009.

The evidence with regard to remittances is more ambiguous: while they account for a significant share of GDP in several African countries⁸, at least in some they would appear to not doing as badly as may have been anticipated in the early months of the crisis. Figure 9 for Kenya shows that although some months in 2009 saw declines over the corresponding months in 2008, in several others the trend was reversed or remained static.

These trends on remittances and tourism earnings are consistent with what is observed in many parts of Asia, where economic activity in the host/originating countries is a major determinant, at least over this time-frame. For example, remittances to Bangladesh (UNDP, August 2009) originating in the Gulf have grown on a m-o-m basis relative to 2008; while those from the US have fallen.

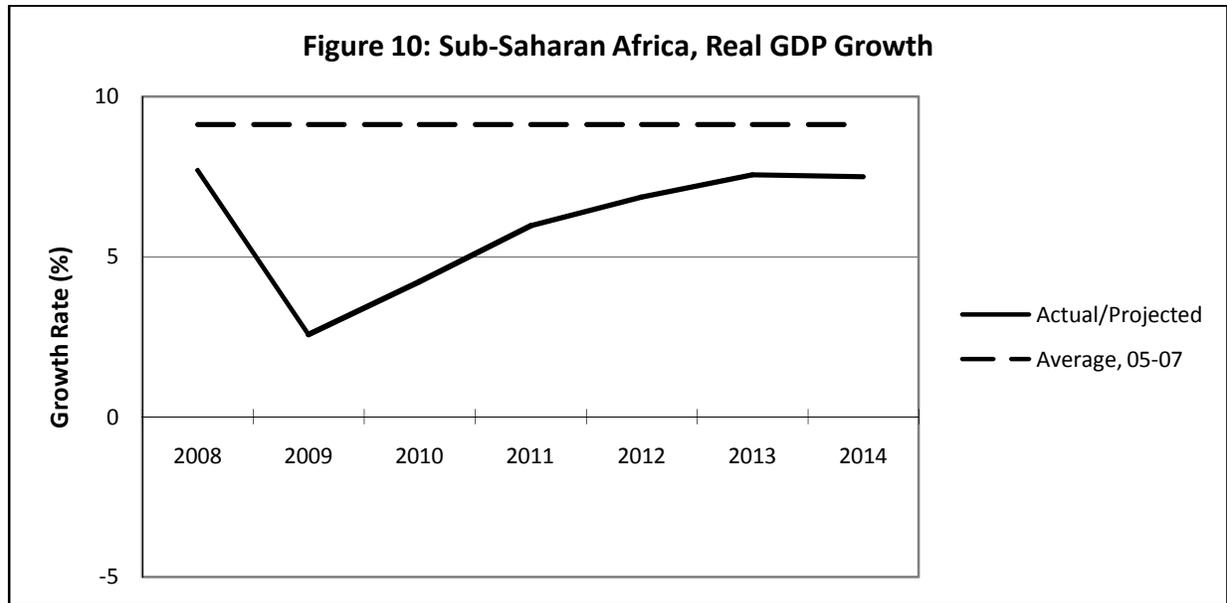
⁸ According to the World Bank (2009), remittances as a share of GDP were at least 5% of the GDP in the following countries (% share of GDP): Cape Verde (9.7), Egypt (5.9), Guinea Bissau (8.1), Kenya (6.6), Lesotho (27.7), Liberia (8.8), Mali (5.0), Morocco (9.0), Nigeria (5.6), Senegal (10.7), Sierra Leone (8.9), Togo (9.2), Zambia (5.9).



Source: Authors' elaboration based on Central Bank of Kenya, *Remittances from the Diaspora*, August 2009.

The trends in these channels provide some evidence to support growth projections (IMF 2009) for the region, which show a bottoming out in 2009, followed by a rising trend although it does not return to the 2005-07 average by 2014 (Figure 10). While it would appear that the worst, at least in terms of some indicators, is now over, it is pertinent to draw attention to four points. First, at the country level, there are considerable differences, especially in terms of per capita real GDP, which is a more natural metric for assessing impacts on human development. This is developed further below.

Second, as a major source of the impact was through commodity exports, improved prospects in these markets are crucial to these predictions of recovery. However, the fiscal stimulus packages of several countries have contributed to these improvements, and it is not clear how much more can be expected from this source of aggregate demand, given that several countries may be reaching their political and fiscal limits. A precipitous wind down of these packages could imperil the recovery, especially if private demand does not grow sufficiently.

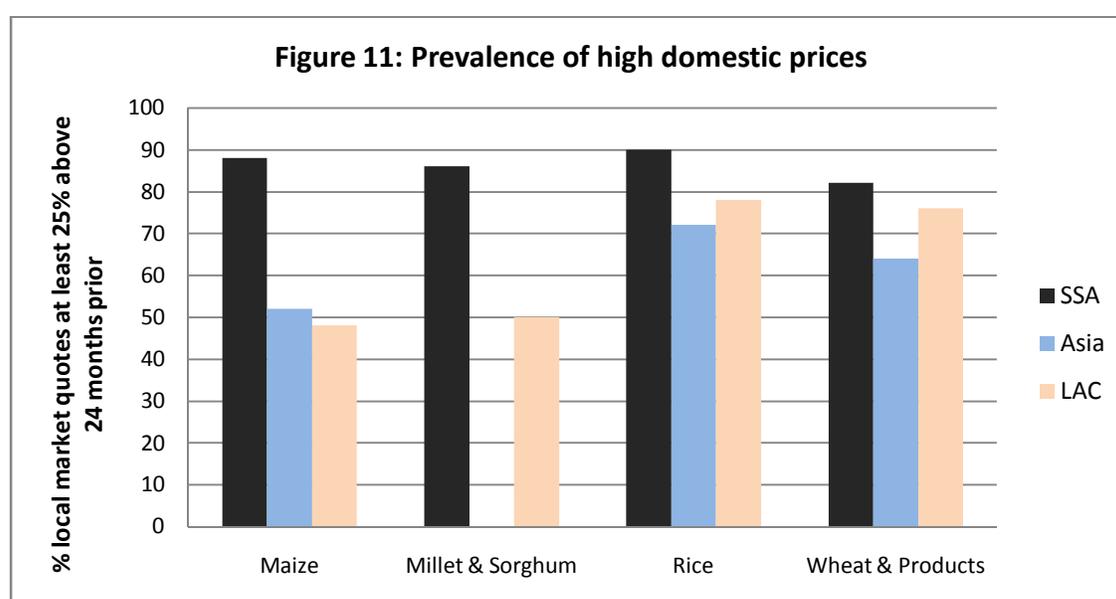


Source: Authors' elaboration based on IMF, World Economic Outlook Database, April 2009

Third, private demand itself, especially from the US may take considerable time to recover. The historical evidence for recovery from post-war banking crises (Reinhart and Rogoff (2009)) shows that, on average, although GDP turns around in about two years, other indicators move much more slowly and make complete recovery a far more protracted affair. For example, on average, unemployment rates increase by 7% and take 4.8 years to turn around; real housing and equity prices fall by 35% and 55% and exhibit downturns lasting six and 3.5 years respectively. If we assume that the current crisis in the US is not less adverse than the representative crisis studied in this paper – and by all accounts it is worse – than it might be reasonable to expect a similar pattern of recovery in the US this time around as well. If so, the longer time path of recovery in unemployment and asset prices indicates a similar profile in the recovery of private demand in the US. This will add to the already sluggish recovery being expected for most of Europe (IMF (2009b)), to keep demand for African exports low – these two markets together accounted for over 50% of African exports over the 2004-08 period (IMF (2009b)) indicating that an export led recovery may be slower than expected. A similar point could be made about countries where tourist traffic from the OECD countries is a significant contributor to the GDP. Taken together, there are good reasons to expect the recovery to be protracted and, potentially, fragile ; and therefore the threats to human development to remain.

Finally, one distinguishing characteristic in the African context is the continuing high price for food staples in domestic markets. International cereal prices have fallen sharply from their peaks of last year:

maize is down by 47%; millets and sorghum by the same amount; rice by 39% and wheat by 53% (FAO, July 2009). Relative to the last 24 months (with respect to July 2009), maize is now at about the same price; millets and sorghum are 10% lower; rice is 75% higher and wheat is 9% lower. However, this has not translated into domestic prices, especially in sub-Saharan Africa. Figure 11 shows, by region, the percentage of most recent local market price quotes that were higher by 25% or more than the prevailing price 24 months prior to the reference date (July 2009). Domestic prices for cereals in all regions appear to be sticky downwards, relative to the international price: however, the situation is worst in sub-Saharan Africa. These high prices continue to exacerbate the threat to poor households in Africa, especially in the context of the lowered earnings brought about by the economic crisis.



Source: Authors' elaboration based on FAO (2009).

b) Potential impacts on human development and the MDGs

As the previous sections have made clear, there is considerable agreement on the nature of the possible impacts of the crisis on human development, and the channels through which they can take place. What is less clear, however, is what the magnitude of such an impact could be. Clearly, an occasional, relatively short and mild shock might lead to no discernible change in human development as households are able to weather it by drawing upon their own reserves or the support provided by governments. On the other hand, a deep shock, or one from which recovery is slow could lead to

observable impacts, which might get more pronounced over time. The size of the impact and the rapidity of its onset are expected to vary across human development indicators, as well as countries.

For a given human development indicator, h_{ic} where i represents the specific attribute being measured (e.g. infant mortality) and c is a country index, it is expected that there will be an associated elasticity function that can be empirically determined through equation (1) below,

$$\varepsilon_{ic} = \frac{\Delta h_{ic}/h_{ic}}{\Delta y_c/y_c}$$

where y_c represents real GDP/capita. In general, the value of this elasticity will vary over time, whether it is determined over the short term or the long term and several other factors. If signs are chosen so that h_{ic} is positive, with decreases denoting improvements, then the earlier discussion suggests that the elasticity is negative, with values for several common indicators such as infant mortality, under five mortality and malnourishment lying between 0.2 and 0.8. Such a relationship allows one to translate, in principle, growth projections into expected changes in human development as in Friedman and Schady (2009): however, limitations inherent in the methodology require that such projections be interpreted cautiously.

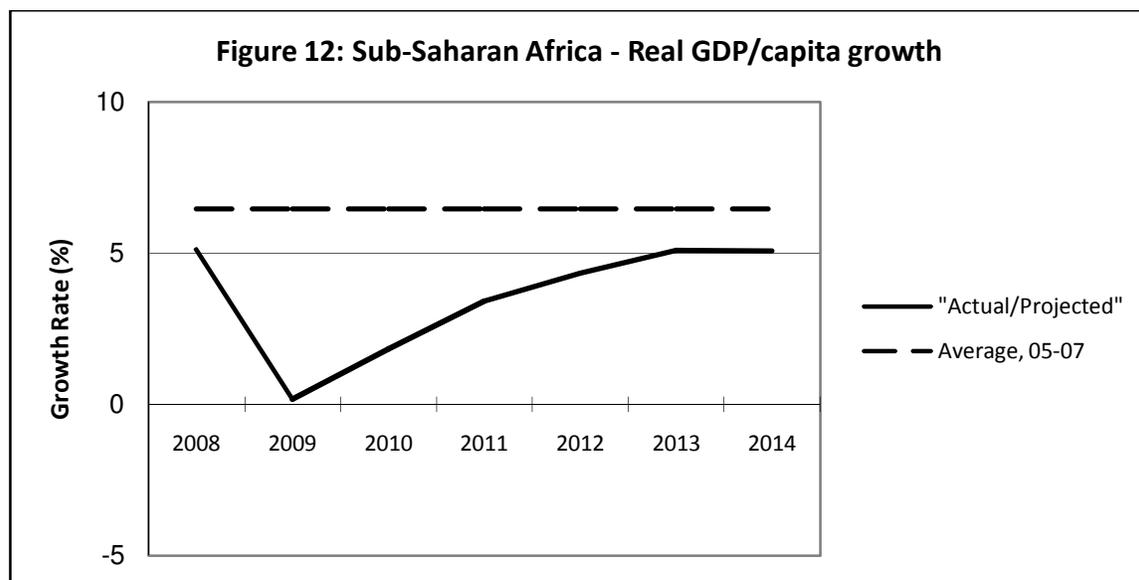
While undertaking such an exercise, it is important to keep in mind the specifics of the study that led to the elasticity estimate, as well as the characteristics of the particular human development variable under analysis. For example, most of the studies that estimate these elasticities use data over twenty to thirty year periods from a cross-section of countries⁹. This approach does not identify recent changes in the elasticity, and may mask country specific variations, both of which are important in making forward looking assessments of the impact.

Other factors, such as the data frequency may also be relevant. For instance, one of the specifications in Pritchett and Summers (1996) uses five year log differences for the child mortality elasticity. For economic shocks that last a year or two, elasticity from an appropriately modeled year-on-year differences approach is probably more desirable. In the case of child mortality, five-year (or longer term) estimates are likely to overestimate shorter term elasticities – this would be especially true in developing countries that may be making significant investments in improving child mortality outcomes.

⁹ For example, Pritchett and Summers (1996) use data from the UN publication Child Mortality Since the 1960s (1992). Baird, Friedman and Schady (2007) cover the period from 1975 to 2004 for 59 developing countries.

One would need to keep such perspectives in mind while using empirically determined elasticity values for projecting forwards.

Figure 12 shows, for sub-Saharan Africa, the expected trends in real GDP per capita growth to 2014. For reference, the average rate of real GDP per capita growth over the last three pre-crisis years (2005-07) is also included. It is important to note that, overall, the real GDP per capita growth rates for the region remain positive over this period, although not at the average level attained earlier. Therefore, equation (1) would suggest that human development indicators at this level of aggregation would continue to improve – *but at a slower rate than if the average of the pre-crisis years had prevailed.*



Source: Authors' elaboration based on Real GDP data from WEO database; Population data from UN World Population Prospects, 2008 Revision

To further develop this intuition, and without loss of generality, we restrict the human development indicator h_{ic} to be one of the MDG targets, and normalize it to have the value 1 in 1990, with a specified target value in 2015. In what follows, we refer to this as the normalized MDG indicator. In the case of the poverty headcount rate, this target value is 0.50; for primary education it is 0; for the under five mortality rate it is 0.33 and so on. We examine three cases – one where there has been rapid progress towards the target (reaching a value of 0.33 in 2015), a second where the progress has been moderate (reaching a value of 0.6 in 2015), and a third where progress has been slow (reaching a value of 0.9 in

2015). Most of the MDG indicators in most of the African countries would be close to one of these three categories¹⁰.

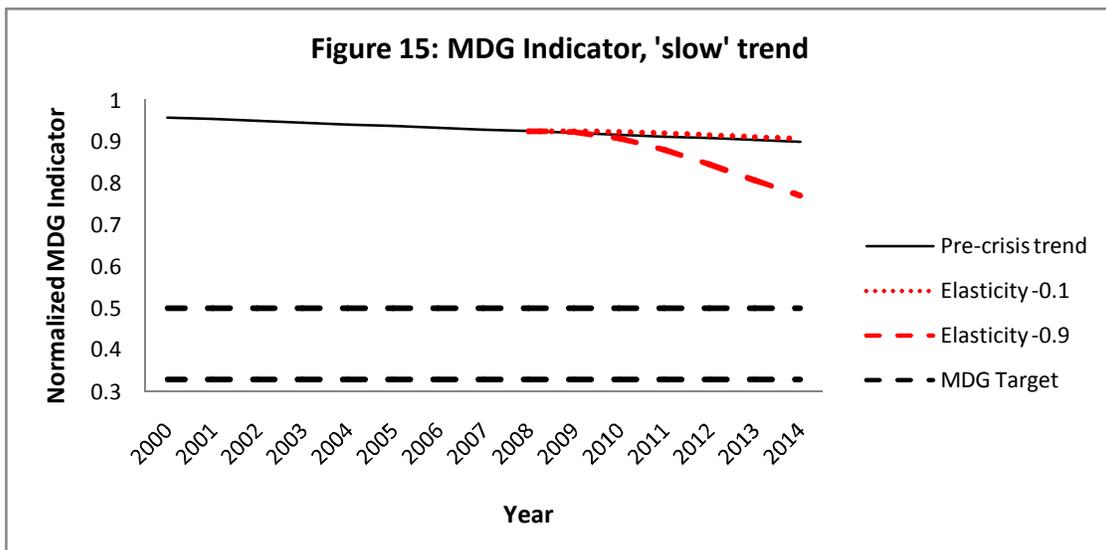
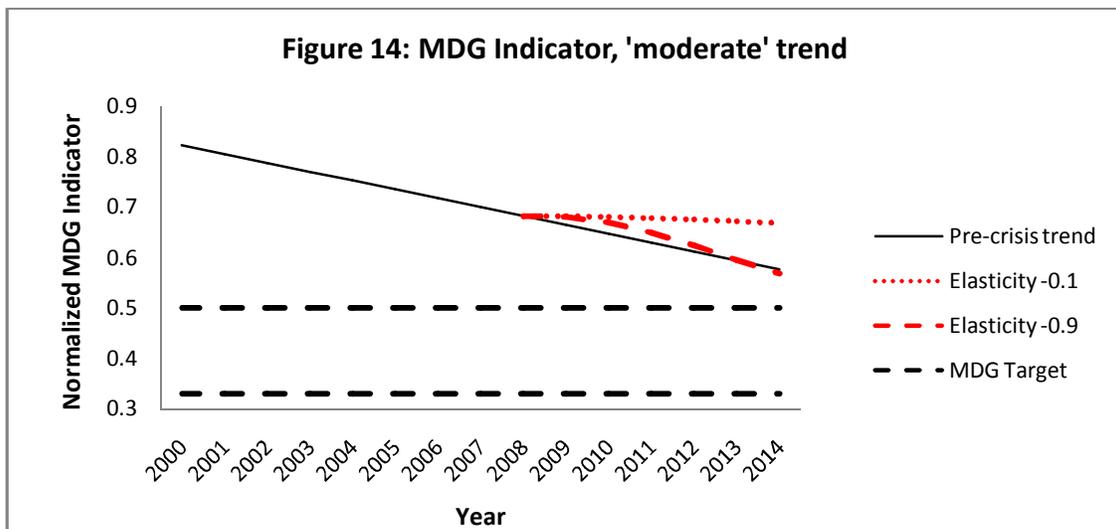
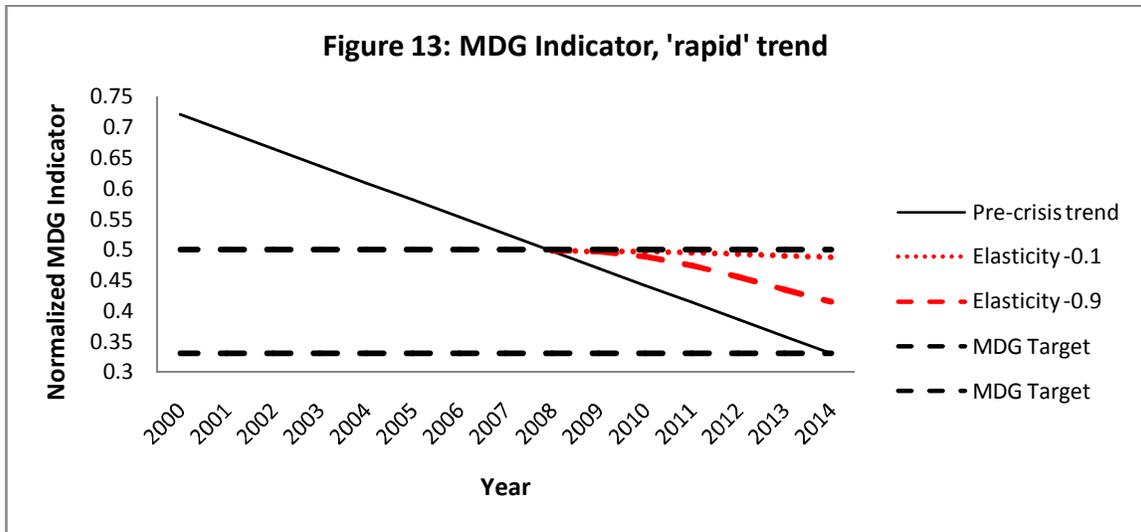
We then examine how each of these trend lines change as a result of the economic crisis by using elasticity values of -0.1 and -0.9 along with equation (1) to translate the IMF growth projections (IMF (2009)) into a range of impacts on the MDGs. The most appropriate elasticity value to use would be the short run value, estimated separately for each MDG indicator. This would naturally vary across countries and regions: however, the literature suggests that most cases of interest would lie within this range. The growth projections themselves extend up until 2014 which, for our purposes, is sufficiently close to 2015.

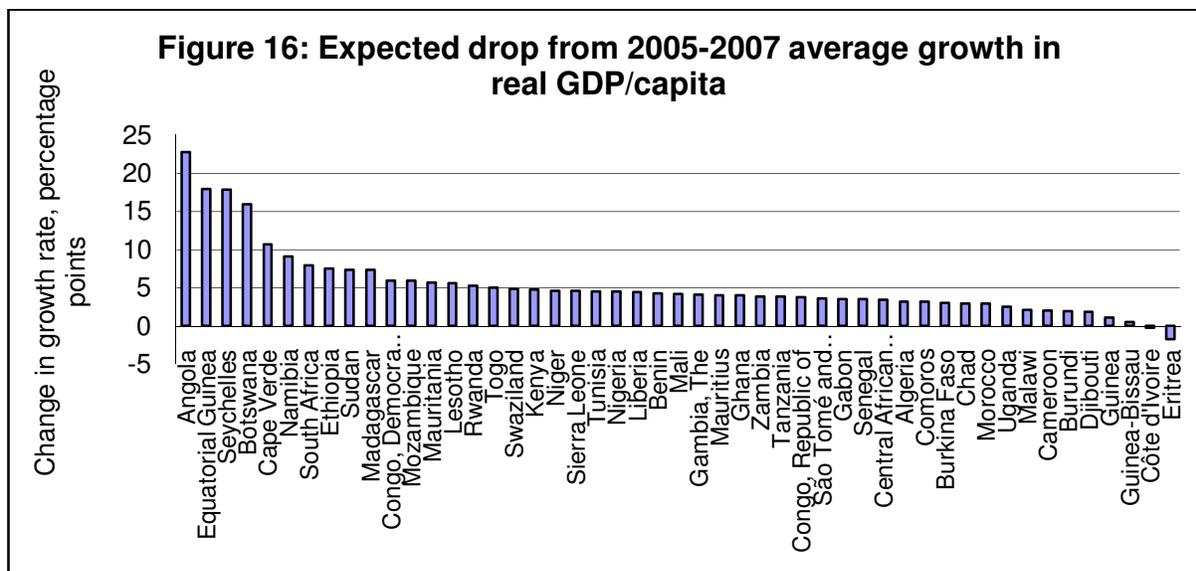
Figures 13 to 15 present the results for sub-Saharan Africa. The red lines show the extent of the impact. In all three scenarios, the MDG performance suffers a short term shock, with improvement in the medium term as economic growth recovers. MDG performance returns to trend (or even goes better) if the historical trend has been relatively gradual, and the elasticity sufficiently large¹¹. In other cases, there is a long term departure from the trend toward the MDGs. Arguably, in most countries both the trend and the elasticity are moderate, suggesting that Figure 14 may be quite representative, and that the crisis will have had a discernible negative impact on the MDGs within the 2015 timeline.

Within this overall picture, however, individual countries vary considerably along the two dimensions of expected depth and duration, primary determinants of the impact of the crisis on human development. For our purposes, we define expected depth by the location of the trough in real GDP per capita growth rate, relative to the three-year average of the pre-crisis years (2005-07); and expected duration as the time taken to return to this pre-crisis average level from the trough. Figure 16 represents how countries are grouped in terms of the depth, and Figure 17 presents summary statistics about the duration.

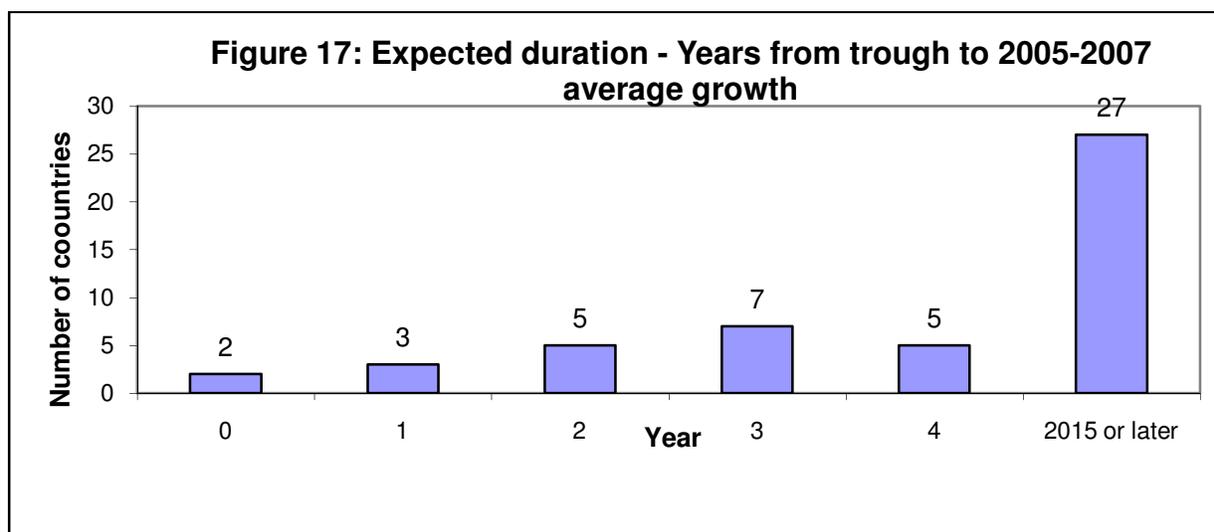
¹⁰ In any given country the historical trend captures the effect of many simultaneous changes that contribute to MDG achievement, not all of which may be correlated with economic growth.

¹¹ The result in Figure 15, where a slow trend is accelerated during the crisis is apparently counterintuitive, but easily explained. In such a case, the responsiveness of the MDG indicator to growth is most likely low, so that a high elasticity value overstates the true dependence and suggests an acceleration that may not actually happen.





Source: Authors' elaboration based on IMF, WEO database, April 2009.



Note: Of the 27 countries that do not recover by 2014, 13 had a trough in 2009, 13 had a trough in 2010 and 1 in 2011. Source: Authors' elaboration based on IMF, WEO database, April 2009.

Table 4 groups countries into four categories based on these two measures. Countries in the lower left corner are those for which the expected depth is relatively small (less than four percentage points), and recovery is relatively quick (expected duration 3 years or less). In the lower right box are countries where the expected depth is relatively small (less than four percentage points), but expected recovery time is longer (more than 3 years). Countries in the upper right box are the worst affected, with both the expected depth and expected duration being high; and those in the upper left have relatively higher expected depth combined with a relatively quick recovery. Within each box, the countries are arranged by increasing order of the expected depth. It is also important to note that while most countries are

expected to reach the trough in 2009, there are eighteen for whom this occurs in 2010, and two in 2011. In addition, 26 countries do not recover their pre-crisis levels by 2014, which is the last year for which forecasts are available.

Table 4: Expected depth and duration of crisis in selected African economies

	Time to recovery: 3 years or less	Time to recovery: > 3 years OR Will not recover by 2014
Size of impact: 4 percentage points or greater		Angola
	Botswana	Equatorial Guinea
	Mauritania	Seychelles
	Niger	Cape Verde*
	Nigeria*	Namibia
	Liberia	South Africa
	Benin*	Ethiopia*
		Sudan
		Madagascar
		Congo, Democratic Republic of
		Mozambique*
		Lesotho
		Rwanda*
		Togo*
		Swaziland
		Kenya
		Sierra Leone
		Tunisia*
	Mali*	
	Gambia, The*	
	Mauritius*	
	Ghana*	
Size of impact: less than 4 percentage points	Burkina Faso	Zambia*
	Morocco*	Tanzania
	Uganda*	Congo, Republic of**
	Malawi**	São Tomé and Príncipe
	Cameroon*	Gabon
	Burundi*	Senegal*
	Djibouti*	Central African Republic
	Guinea	Algeria
	Guinea-Bissau	Comoros
	Côte d'Ivoire*	Chad*
	Eritrea	

Notes: Trough in 2009 unless mentioned otherwise; * indicates trough in 2010; ** indicates trough in 2011. Source: Authors' elaboration based on IMF, WEO database, April 2009.

We now conduct the analysis for the normalized MDG indicator for two representative countries: one from the worst affected (Seychelles, from the upper right) and one from the least affected (Malawi,

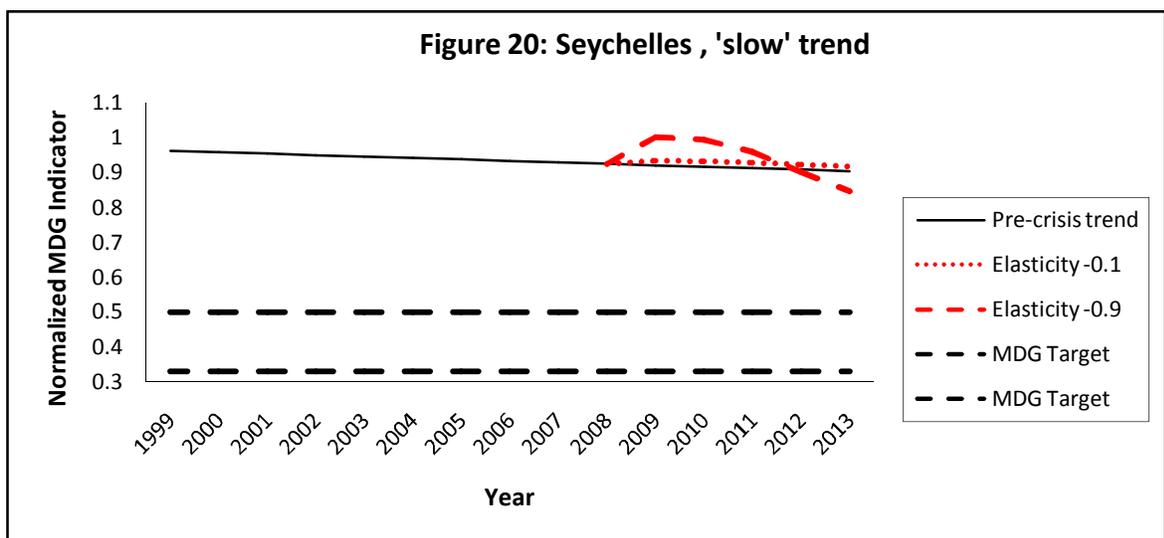
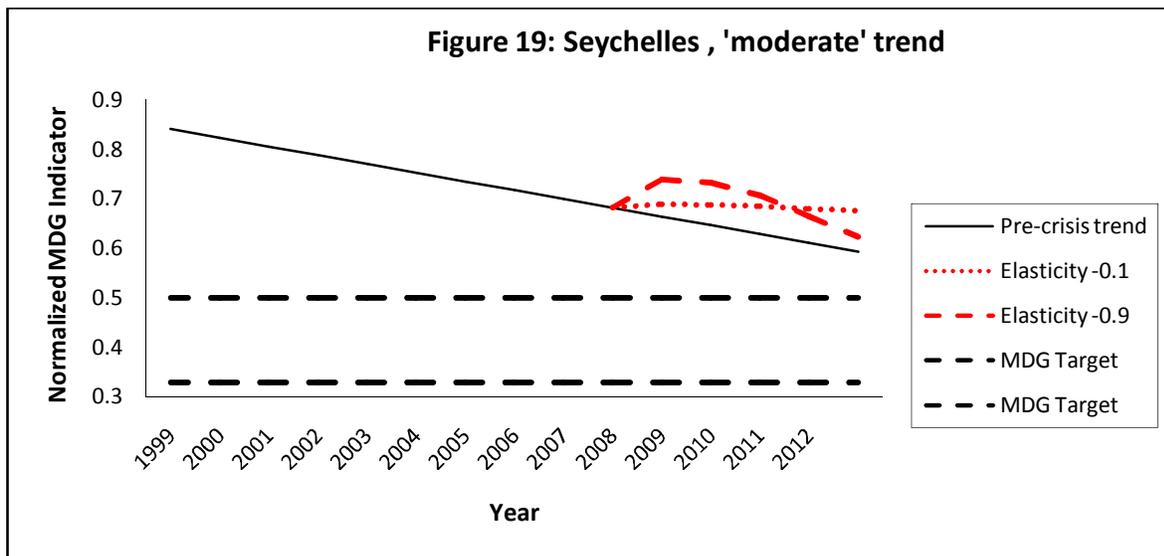
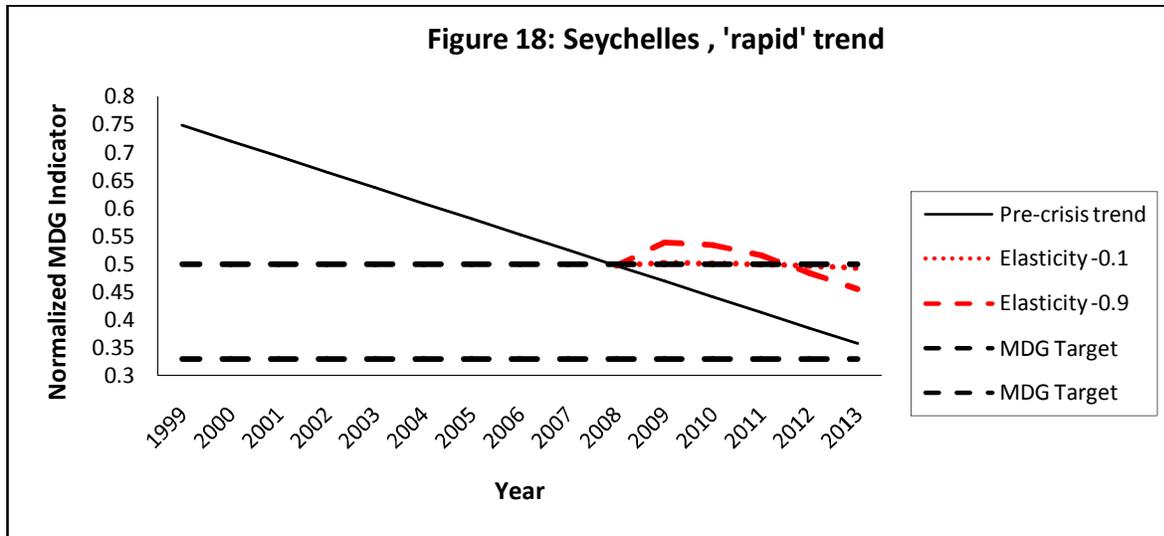
from the lower left) groups. Table 5 and Figures 18 to 23 present the results. Table 5 shows that Seychelles, which is expected to be one of the worst hit countries, does noticeably worse than average in comparison to Malawi over all of the elasticity and trend ranges. The distinction between the two is especially marked in the more likely 'moderate' scenario, where Seychelles is projected to attain a score of 0.672 (0.586) on the normalized MDG indicator, as compared to Malawi which scores 0.483 (0.381) for an elasticity value of -0.1 (-0.9). In fact, as Figures 18 to 20 show, MDG achievements in Seychelles could actually be reversed under certain circumstances. This is distinct from most other scenarios where the impact is seen in a slowdown of the trend rather than an actual reversal, and is driven by the projected contraction of the economy.

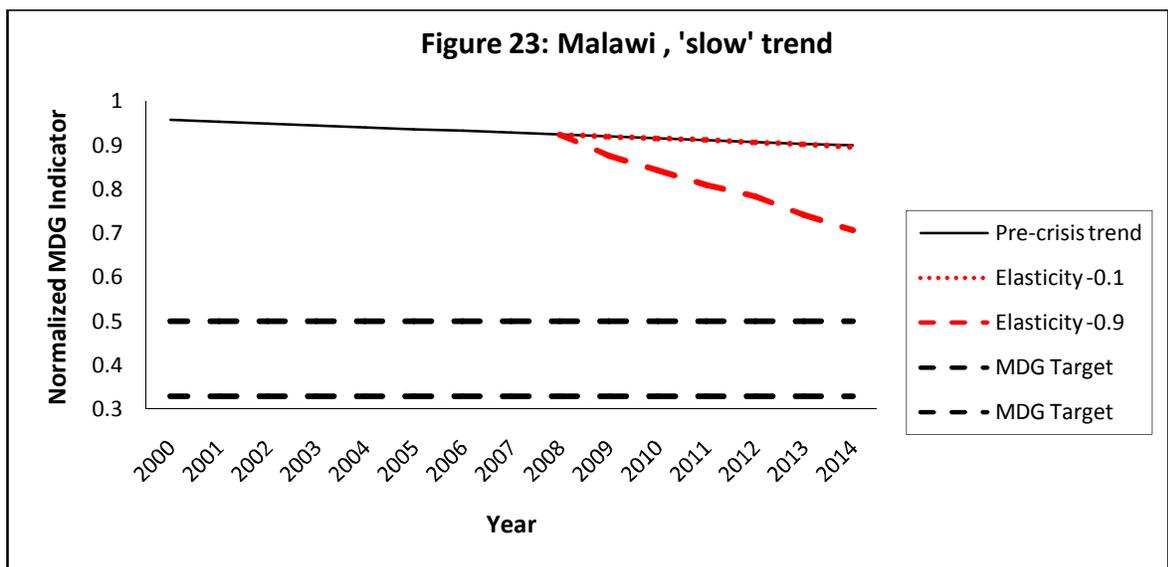
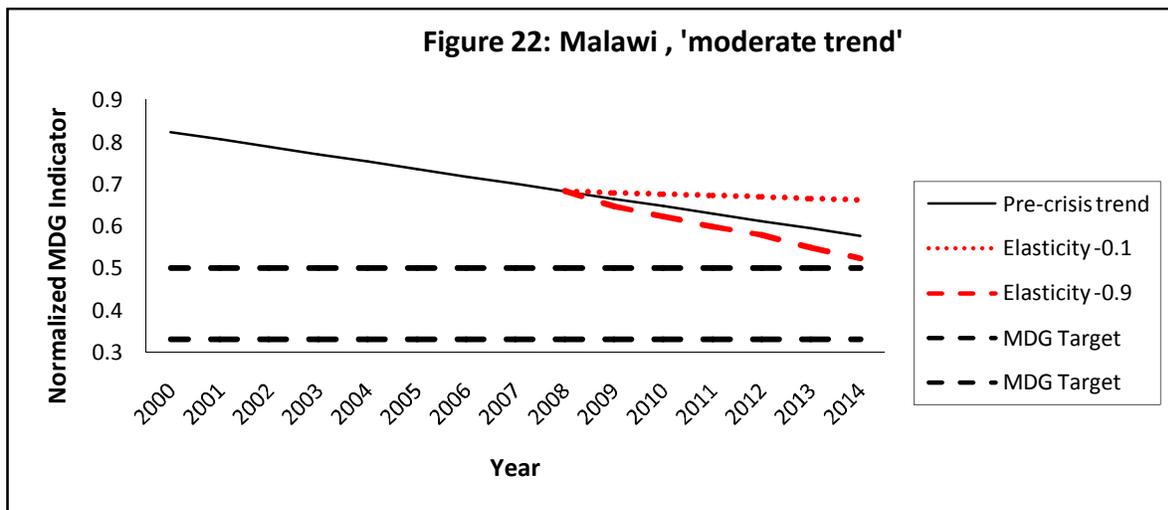
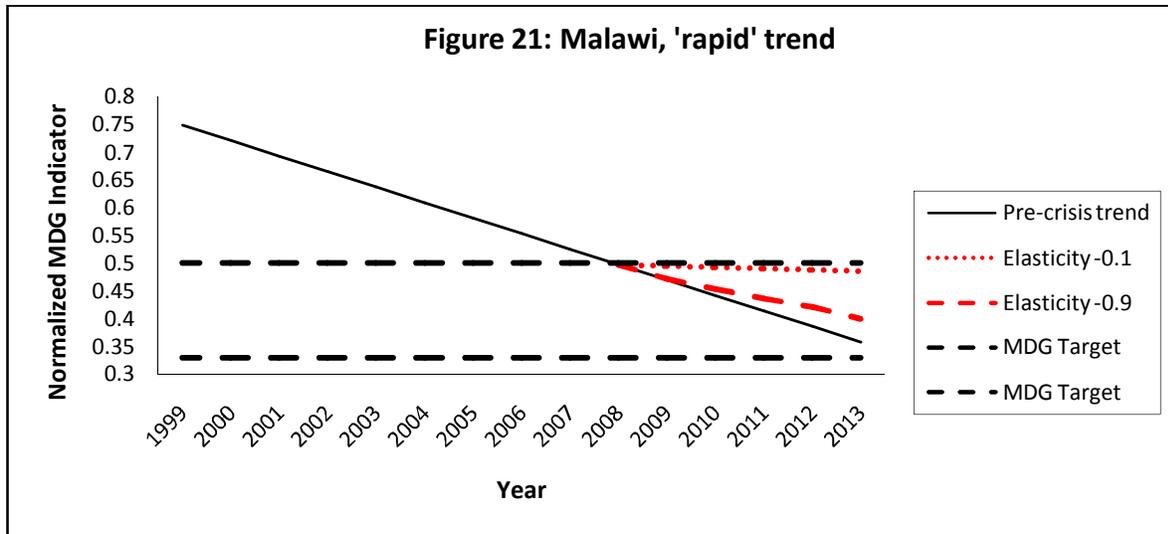
Table 5: Normalized MDG Indicator in 2014: Rapid, Moderate and Slow Trend

	Rapid		Moderate		Slow	
	Elasticity	Elasticity	Elasticity	Elasticity	Elasticity	Elasticity
	-0.1	-0.9	-0.1	-0.9	-0.1	-0.9
Sub-Sahara Africa	0.488	0.414	0.669	0.568	0.907	0.770
Seychelles	0.490	0.427	0.672	0.586	0.910	0.795
Malawi	0.483	0.381	0.483	0.381	0.898	0.708

Finally, we group the sub-Saharan Africa countries into two, based upon what is suggested in Figure 17: those that recover by 2014, and those that do not¹². For these two groups, we compare the 'rapid', 'moderate' and 'slow' trend rates against each other, for elasticity values of -0.1 and -0.9. Table 6 presents the median values of the projected generalized MDG indicator for the two groups of countries, which largely confirms the intuition conveyed through Figures 13 through 15: the economic crisis can be expected to have a significant negative impact on the rate of progress towards the MDGs, for both rapid and moderate trends. On average, deviations from MDG trend are greater when the pre-existing trend is greater; at the same time, a larger (absolute) value of the elasticity brings the post-crisis prediction for

¹² This is used in preference to the categories suggested by the two columns in Table 4, as it allows for a more balanced distribution of countries across the two groups.



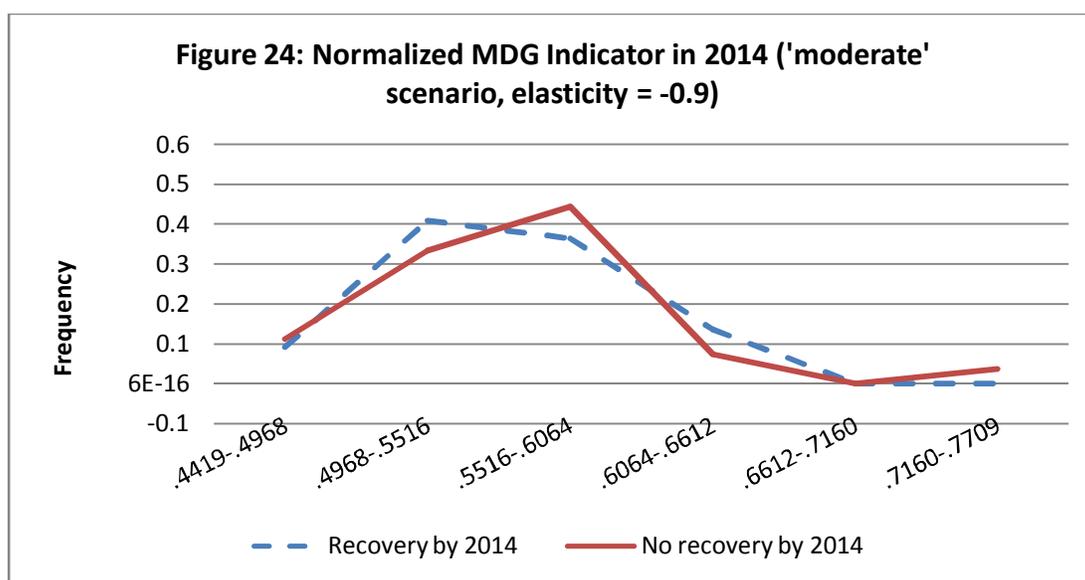


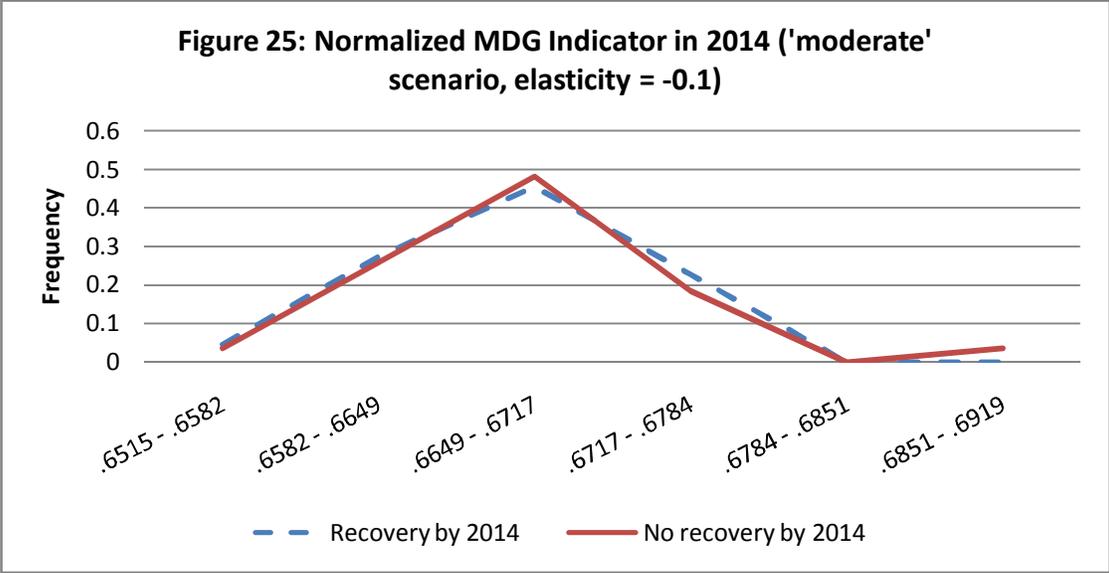
2014 closer to the pre-crisis prediction. Although the differences in the median value across the two groups are small, countries that recover by 2014 tend to do better than countries that do not.

Table 6: Normalized MDG Indicator in 2014: Rapid, Moderate and Slow Trend

	Rapid		Moderate		Slow	
	Elasticity	Elasticity	Elasticity	Elasticity	Elasticity	Elasticity
	-0.1	-0.9	-0.1	-0.9	-0.1	-0.9
Sub-Sahara Africa	0.488	0.414	0.669	0.568	0.907	0.770
Recovery by 2014	0.486	0.405	0.667	0.555	0.904	0.752
No recovery by 2014	0.487	0.409	0.668	0.56	0.905	0.76

The last point becomes clearer when one considers the distribution of the normalized MDG indicator in the different scenarios. Figures 24 and 25 show the frequency distributions of the outcomes for the normalized MDG indicator; under the 'moderate' scenario across the two groups of countries (the figures are similar in the other scenarios). At low values of the elasticity, the distributions overlap. However, as the value of the elasticity rises, the probability of having a poorer MDG outcome is higher for countries that belong to the group that does not recover by 2014. In other words, while a high value of the elasticity implies a sharper negative impact on the MDG indicator during the down turn, this also accentuates differences between the countries linked to the duration of the recovery.





In conclusion, it is important to emphasize that this is an extremely simplified model of human development achievement. For example, if the normalized MDG indicator is taken to be child mortality, the real GDP per capita is a summary statistic that may adequately proxy for some of its determinants, but misses others such as the income distribution, the quality of public health systems, strength of food and nutrition safety nets and child rearing practices. In fact the historical trend line in these figures captures the impact of changes in all determinants, some of which may themselves affect the value of the elasticity in the post crisis period. For example, if a sharply declining trend is indicative of substantial improvements in the reach and quality of public health systems, the true elasticity may actually be lower than that computed using data from an earlier period.

That said, it appears that the economic crisis will deal significant blows to the progress towards several MDGs in many African countries. These impacts can be long term in many countries – even though the economic shock itself may reverse over a short duration, the impact on human development continues to be felt for longer. Even when indicators return to pre-crisis trends, the lives lost in the interim, the quality of human capital eroded, or age sensitive opportunities for human development missed represent permanent losses for households and individuals. Moreover, the effect could be worse in especially vulnerable population groups; or in countries and sectors where ODA is important, if ODA trends are interrupted. Finally, the analysis indicates that policy could play a significant role: elasticities based on historical trends need not be the relevant ones for determining the response of human

development indicators to economic shocks, if policy moves proactively to slow plunges during economic slowdowns and accelerate progress during economic upturns.

4. Policy recommendations

1. *Focus attention on identified sectors to accelerate progress towards the MDGs.* As our analysis shows, a slowing down of the rate of progress towards the MDGs is a likely outcome in many countries, with an actual reversal possible in some. Moreover, such expectations depend crucially on the projected recovery path which itself is uncertain and subject to change. Countries that were on-track to meeting one or more of the MDGs might find that they will no longer do so; while others that were already off-track might see their prospects recede further, even if achievements made so far are not actually reversed. Even prior to the crisis, it was anticipated that increasing marginal costs in some countries for some of the MDGs might require increases levels of per-capita expenditure, or more efficient spending to maintain progress. The crisis reinforces this scenario by emphasizing that such actions are required more broadly, across more countries, and more MDGs if targets are to be met. In particular, maintaining expenditure levels alone (adjusted for efficiency) may not be sufficient to achieve this: instead, the focus may need to be on maintaining trends in expenditure (adjusted for efficiency) in identified sectors.
2. *Institute well-designed social protection.* Individual and community coping mechanisms are often the only way in which households may be able to withstand the adverse impacts of an economic shock. As was explained earlier, such mechanisms, while working in the short term, might expose households to longer term human development losses. Also, they are most likely to be inadequate when shocks happen in quick succession, or are correlated within and across communities. In such situations, well designed social protection systems and safety nets are critical. The present situation is an opportunity to introduce and develop such systems, which would typically entail a combination of cash and in-kind transfers, along with access to services for the most vulnerable, designed so as to address concerns related to appropriate targeting as well as long term sustainability¹³.

¹³ Countries that have existing CCT (Conditional Cash Transfer) programs might do better than others at buffering the nutritional levels of children, or maintaining school enrolment. This may help a country weather the crisis,

3. *Maintain continuity and quality of services in health and education.* Although health and education sectors often fall victim to expenditure reduction plans, these cuts rarely reduce the number of persons employed. Instead, they tend to fall on consumable supplies, training and other items designed to maintain or enhance service quality. Allowing service quality to erode might have the undesirable side effect of increasing further the adverse impact of the crisis. The situation is well illustrated in the context of AIDS and ongoing antiretroviral programs, where the questions of user fees, quality of health care and continuity of healthcare gain special significance. Reduction in government expenditures on AIDS or failure by the international community to honor commitments to sustain and scale-up access to antiretroviral treatment will lead to preventable deaths and disease. Moreover, even temporary interruptions in antiretroviral treatment access can have long-term effects which are costly to reverse. Stopping treatment makes people off treatment far more infectious. Interruption of treatment for pregnant women leads to more babies being infected. Disorganized stopping and restarting of treatment also make development of drug resistance and treatment failure more likely, possibly requiring premature use of more costly second-line regimen drugs over the long term. Finally, such interruptions result in more people with HIV-related illnesses which burdens and crowds the public health system, at a time when budgets are being squeezed, with consequences for the population at large.
4. *Introduce – and maintain – effective monitoring mechanisms* both to improve real-time data quality, as well as to set in place a baseline that will generate data for ongoing analysis and predictions. While the current predictions are for a gradual recovery in most countries, there are strong arguments to expect such a recovery to be slow and, perhaps, subject to reversals. As we show, the duration of the recovery¹⁴ can be an important factor for the impacts on human development, and it is important to maintain monitoring of key indicators, such as nutritional status, health and incomes in as close to real time as possible.

provided there is significant overlap between the population covered by the CCTs and those most affected by the crisis. However, experience shows that considerable efforts are needed to set such programs up: political commitment, effective targeting, tracking of outcomes and long term fiscal sustainability. While a crisis provides opportunity and focus, the longer term implications and requirements must also be kept in mind if such programs are to be designed and introduced during this period.

¹⁴ The methods used in this paper are being expanded and applied by the authors to develop a more comprehensive assessment of the vulnerability of countries to human development impacts.

5. *Maintain a longer term perspective.* The economic crisis is bracketed between the food and fuel crisis, as well as the consequences of climate change that are beginning to become apparent. The food crisis exposed fundamental, structural deficiencies in food production and distribution systems that had been occasioned by many years of neglect: climate change too requires solutions that need to go beyond temporary patches and contribute towards sustainable, longer term human development achievement.

4. Conclusion

This paper has examined the channels through which the economic crisis could have an impact on human development in sub-Saharan Africa, and also the historical evidence for the size of these impacts. Using growth projections to 2014 for the countries in the region, and a range of observed trends, it has modeled possible impacts on the MDGs, and demonstrated how the crisis could lead to real slow-downs in the rate of progress. Based on these results the paper suggests that a series of active policy interventions are needed both to accelerate progress towards the MDGs and to build resilience for the future. These include accelerating trends (rather than maintaining levels) in effective expenditure on the MDGs, maintaining both the quality and quantity of services in education, improving the quality and reach of real time monitoring and assessment mechanisms and addressing systemic flaws related to food security and climate change.

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