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HUMAN DEVELOPMENT IN CRISIS: INSIGHTS FROM THE LITERATURE, EMERGING ACCOUNTS FROM THE FIELD, AND THE CORRELATES OF GROWTH ACCELERATIONS AND DECELERATIONS

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Table of Contents

	<u>Page</u>
Executive Summary	i
Resumen Ejecutivo	ii
Résumé Analytique.....	iii
Introduction.....	1
1. A Brief Review of the Poverty and Crisis Literature.....	2
1.1. Poverty and human development outcomes	3
1.2. Aggregate economic shocks and human development outcomes.....	3
2. A Framework for Thinking about Crisis Transmission	7
2.1. Transmission from the world economy to the domestic economy	8
2.2. Transmission from the domestic economy to the household.....	9
2.3. Transmission from the household economy to children	10
2.4. Inter-generational and long-term poverty impact	13
3. Emerging Evidence: Reports from the Field and Poor People’s Accounts of the Crisis.....	13
3.1. Economic impact	14
3.2. Social and human development impact	17
3.3. Further aftershocks on the horizon	19
4. The Historical Relationship between Human Development Indicators and Episodes of Growth Accelerations and Decelerations.....	20
4.1. Examining the basic correlations	21
4.2. Insights from regression analysis.....	24
Conclusion	26
References.....	27

Executive Summary

Is a dramatic slowdown in global economic growth going to erase much of the progress in the last decade in terms of human development in the developing world? How might the crisis affect progress towards achieving the Millennium Development Goals? To address these questions, this paper contributes in three ways. First, it briefly reviews the empirical literature and outlines the possible transmission of the crisis from the broader global economy to the national economy, and eventually to households, children and women. Second, it summarizes some of the emerging accounts from the field based on reports and interviews of poor people, suggesting that households—and in particular children and women—face severe strain as the crisis has begun to unfold. A third contribution is an empirical analysis of the historical relationship between episodes of growth accelerations and decelerations with country level aggregate indicators of human development (e.g. life expectancy, infant and under-5 mortality and school enrollment), using data covering the period between 1980 and 2006. This paper argues that if the current economic crisis deteriorates into a severe growth deceleration episode, and if its adverse effects are not counteracted by an adequate policy response, the accumulated evidence suggests that the crisis could begin to erode human development gains and that the achievement of the MDGs by 2015 is likely to be undermined.

Resumen Ejecutivo

¿Eliminará la dramática desaceleración del crecimiento económico mundial muchos de los avances logrados en la última década en términos de desarrollo humano en el mundo en desarrollo? ¿Cómo podría afectar la crisis a los progresos hacia el logro de los Objetivos de Desarrollo del Milenio? Para abordar estas cuestiones, este trabajo contribuye de tres maneras. En primer lugar, en él se examinan brevemente las publicaciones empíricas y se esboza la posibilidad de que se produzca una transmisión de la crisis desde la economía mundial en general a las economías nacionales, y finalmente a los hogares, los niños y las mujeres. En segundo lugar, se resumen algunos de los nuevos aportes procedentes del terreno sobre la base de informes y entrevistas a las personas pobres, que sugieren que los hogares –y en particular los niños y las mujeres– se enfrentan a graves dificultades a medida que la crisis comienza a extenderse. Una tercera contribución es un análisis empírico de la relación histórica entre los episodios de aceleración y desaceleración del crecimiento y los indicadores agregados del desarrollo humano a nivel de país (por ejemplo, la esperanza de vida, la mortalidad de los lactantes y los menores de 5 años y la matriculación escolar), utilizando datos que abarcan el período comprendido entre 1980 y 2006. Este documento sostiene que si la actual crisis económica se deteriora para convertirse en un grave episodio de desaceleración del crecimiento, y si sus efectos adversos no se contrarrestan por medio de una respuesta política adecuada, las pruebas acumuladas sugieren que la crisis podría comenzar a erosionar los logros del desarrollo humano y a socavar probablemente el logro de los ODM para el año 2015.

Résumé Analytique

Le dramatique ralentissement de l'économie mondiale va-t-il réduire à néant une bonne partie des avancées obtenues lors de la dernière décennie en ce qui concerne le développement humain dans le monde en développement ? Comment la crise risque-t-elle d'affecter les progrès effectués au niveau des Objectifs du Millénaire pour le développement ? Afin d'aborder ces questions, cette étude utilise trois approches. Tout d'abord, elle examine rapidement la documentation empirique existante et explique dans ses grandes lignes la possibilité d'un déplacement de la crise économique mondiale aux économies nationales et enfin aux ménages, aux enfants et aux femmes. Puis elle résume certains des récits en provenance du terrain, à partir de comptes rendus et d'entretiens avec des pauvres, qui incitent à penser que les ménages – les enfants et les femmes en particulier – sont gravement touchés par les rigueurs de la crise en train de se propager. Enfin, elle effectue une analyse empirique du rapport historique entre les périodes d'accélération et de décélération de la croissance pour une agrégation d'indicateurs du développement au niveau du pays (notamment, l'espérance de vie, la mortalité chez les nourrissons et les enfants de moins de 5 ans, et le taux de scolarisation), en ayant recours à des données portant sur la période 1980-2006. Cette étude indique que si la crise économique actuelle débouche sur une période de grave décélération de la croissance, et si on ne lutte pas contre ses effets néfastes par une politique appropriée, cette crise pourrait remettre en cause les améliorations obtenues dans le développement humain et la réalisation des OMD d'ici 2015 serait probablement compromise, à en croire l'expérience acquise.

Introduction

The presently unfolding global economic slowdown follows closely on the heels of recent food and fuel price shocks and instability in the international financial markets—taken together, this is the general crisis that now threatens human and economic development in many countries.¹ Up to \$50 trillion in financial assets—the equivalent of a full year of global output—has already been lost according to a study by the Asian Development Bank (Loser, 2009:7). The IMF reported that global growth plummeted from 5.2 percent in 2007 to 3.2 percent in 2008. Global output is expected to contract by 1.3 percent in 2009 (IMF 2009:10).

In its *Global Monitoring Report 2009* the World Bank reported that as many as 55 to 90 million more people could be pushed into extreme poverty (under \$1.25 a day) as a result of the presently unfolding global economic crisis, *in addition* to the estimated 160 to 200 million people already pushed into extreme poverty and destitution due to rising food prices between 2005 and 2008 (World Bank, 2009:14). All these forecasts suggest that the collapse in growth around the world will increase poverty rates in developing countries as well as add to the ranks of unemployed (and working poor). But how will the global economic slowdown affect other human development indicators related to health and education?

From both a human rights-based as well as an economic perspective, it is equally critical to begin to examine and respond to the potential human development implications of the crisis. Poor and low-income families—notably children and women—are likely to face severe risks as a result of the crisis. Is a dramatic slowdown in global economic growth going to erase much of the progress in the last decade in terms of human development in the developing world? How might the crisis affect progress towards achieving the Millennium Development Goals (MDGs)?

The transmission channels that mediate between a growth slowdown and its impact on different facets of human development, including health and education outcomes, are probably not as direct and straightforward as those that relate to the effects of the economic crisis on poverty and employment. The impact of the crisis on human development depend on a variety of factors including initial conditions (notably pre-existing vulnerability of poor populations), the linkages of the national economy to the global economy (and the community to the national economy), as well as an array of responses across the public and private sectors, including coping strategies by individual households and family members (notably women and children). Insights could be gleaned from a growing literature that has already begun to establish evidence of strong associations between economic shocks and dramatic changes in health and education outcomes. Nevertheless, the mechanisms that underlie these effects are still beginning to be understood.

The purpose of this paper is not so much to examine the long-term secular relationship between growth and human development indicators, but rather to examine the potential effects on human development of fluctuations in growth around the trend. To help shed light on this, the contributions of this paper are threefold. First, it briefly reviews the relevant literature and

¹ For the purpose of this paper, the term “global economic crisis” is taken to reflect the accumulated interactions of food and fuel price volatility, financial market volatility and the slowdown in the real economy.

outlines the possible transmission of the crisis from the broader global economy to the national economy, and eventually to households and children. Second, it reviews the emerging accounts from the field based on interviews and surveys of poor people, confirming that crisis impact transmission to poor and low income households has already begun to unfold. Finally, in order to complement these emerging micro-level accounts, this paper also empirically examines the historical relationship between episodes of growth accelerations and decelerations with country level aggregate indicators of human development (e.g. life expectancy, infant and under-5 mortality and school enrollment).

Emerging accounts by poor people begin to confirm what the empirical literature suggests based on past crises. The ripple effects of the presently unfolding economic crisis are already putting a tremendous strain on many poor and low income households. Signs of more severe coping strategies are already beginning to be observed, such as eating less (and less nutritious) meals, turning to begging and illicit activities, including those that result in the exploitation of children, and finally, evidence of starvation and death in some parts of the developing world. Other severe consequences for children and women also suggest their high vulnerability to exploitation and abuse.

An empirical analysis of a few human development indicators—life expectancy, infant and under-5 mortality, school enrollment and literacy—during growth acceleration and deceleration periods also suggests that the crisis, if protracted and unmitigated, will make achieving the MDGs much more difficult for many countries. Life expectancy and infant and under-5 mortality are likely to deteriorate during a growth deceleration. The empirical results are more ambiguous for child education outcomes, which is consistent with the findings in the empirical literature that the effect of crises on education outcomes could be mixed, and depends on the country's level of development.²

In what follows, section 1 briefly reviews the poverty and crisis literature in order to shed light on the relationships across economic growth, income and human development. Building on this, section 2 presents a framework for examining the transmission of the crisis from the global economy to the national economy, and ultimately to households and children. The following sections then attempt to support the analysis in the preceding sections by examining the emerging evidence. Section 3 focuses on poor people's accounts of the impact of the economic crisis and section 4 analyzes the historical empirical relationship between human development indicators and episodes of growth acceleration and deceleration. A final section concludes with the main findings from the paper.

1. A Brief Review of the Poverty and Crisis Literature

A selective review of the poverty and crisis literature could shed light on how economic conditions, income and human development are linked. The key point here is that both structural and shock-related factors play a role in explaining poverty and human development outcomes.

² For example, see Ferreira and Schady (2008).

While this paper does not aim at a full coverage of this extensive landscape, the goal here is to set the stage for clarifying some of these complex linkages.³

1.1. Poverty and human development outcomes

Myriad factors help to explain the multi-dimensional nature of poverty, and no attempt is made here to touch on all these aspects. Suffice to say here that not all of these factors are shock- or crisis-related, though the latter are a large part of the story for many communities in the developing world. Poverty itself is intimately linked to the very conditions of human deprivation that erode human development and conspire to make people vulnerable.

Some insights might come from the work of Banerjee and Duflo (2007), who explore the relationship between income and health at the very bottom of the income distribution. Drawing on data from Indonesia, Vietnam, and India, they find that the extreme poor (those living daily on less than one US dollar a day at PPP) and the poor (living on less than two PPP dollars a day) have higher mortality rates than those living at higher levels of income (between 6 and 10 PPP dollars a day in the case of Indonesia and Vietnam; more than two PPP dollars a day in India). These differentials hold across age groups and for both rural and urban populations, even though the size of the differentials varies—in particular, the size is larger for the older segments of the poor population.

Still, as Banerjee and Duflo are careful to point out, these associations do not establish a causal relationship between poverty and death rates. It might be the case that less healthy people become poor, and are therefore more likely to die. But as they themselves claim, their analysis is strongly suggestive that the causality runs from poverty to death, or as they put it, that poverty kills. The channels are myriad and highly context-specific, relating to aspects such as behavior (i.e. perhaps due to lack of information on health-improving choices), poor access to adequate nutrition or healthcare (i.e. due to lack of income or inadequate public goods provision), or environmental factors (i.e. if the poor live where there are higher health hazards, such as those linked to disease, climate-shocks, natural disasters, pollution and other risks to life and health.⁴

The strong association between poverty and death rates does seem to provide some information into what we can expect as a result of the economic crisis. If the association holds more broadly and persists in the next few years, then the expected increase in poverty rates as a result of the economic crisis could translate into a higher number of deaths—than with the lower poverty rates in the absence of the crisis—pushing both life expectancy down and children’s mortality rates up.

1.2. Aggregate economic shocks and human development outcomes

The recent literature helps clarify that income contractions do not lead unambiguously to erosion in human development. There are numerous studies of industrial countries’ experiences, but

³ For a broader review of the literature, see for example Conceição and others (2009), Mendoza (forthcoming) and World Bank (2008a).

⁴ For an extended discussion, the interested reader may wish to refer to Collier (2007) and Sen (1999), among other contributors to this vast literature.

those focused on the impact of the economic cycle on health and education outcomes in the United States might prove illustrative. For instance, a study by Claudia Goldin (2001) shows that enrolment and graduation rates both increased sharply in the United States during the economic contraction in the 1930s referred to as the Great Depression, and several authors have shown that, more recently, college enrollment rates systematically increase in the country during recessions.

In the same way that recessions in the US appear to be good for education, they also appear to be good for health, as Christopher Rhum (2000) has put it. Good times, on the other hand, tend to be less good for health. This may be due to reductions in behavioral changes that have health harming outcomes (smoking and drinking) and increases in health-improving activities, such as exercise (Rhum, 2005; 2007). Dehejia and Lleras-Muney (2004) also find that infant mortality improves (that is, infant mortality rates go down) in the US during recessions, which can be explained in part by an increase in the time that mothers spend engaging in exercise and prenatal care.⁵

The evidence for developing countries is far less conclusive. In a recent paper, Ferreira and Schady (2008) summarize a large set of developing country studies related to the health and education impact in the aftermath of negative aggregate economic shocks. The paper is particularly useful because it provides an interpretative conceptual framework to look at the results for both developed and developing countries, supported by simple models of both educational choice and a “production function” of health outcomes.

Based on the studies reviewed, aggregate economic shocks tend to have positive education and health outcomes in industrial countries and negative outcomes in the poorest countries. Middle-income countries show ambivalent impact, except for health outcomes, for which they are also overwhelmingly negative. The ambiguity of the impact of education outcomes in middle income countries can be explained because there may be both an income and substitution effect interacting simultaneously. Ferreira and Schady (2008:2) note that: “declines in average wages tend to lower the child wage rate and thus the opportunity cost of schooling (leading to a ‘pro-schooling’ substitution effect), while declines in overall income levels raise the marginal utility of whatever the child can contribute to the family’s budget today (an ‘antischooling’ income effect).” The balance of these two effects determines if children remain in school or drop-out. In Ferreira and Schady’s interpretation, the difference between outcomes for developing and industrial countries can be accounted for in terms of differences in the instruments (public and private) available to households to smooth the impact of the downturn (including the availability in industrial countries of more complete credit markets). And even as communities in developing countries may have recourse to informal, family- and community-based coping and risk management mechanisms, these have been shown to be inadequate and ineffective against covariate risks that create contemporaneous community-wide losses.⁶ And this is precisely the reality of the present crisis for many countries.

⁵ Nevertheless, there is also a possible selection effect in terms of the socioeconomic characteristics of those that chose to become mothers.

⁶ For a discussion of the links between risk management and poverty, see for example Dercon (2005).

Cross-country empirical studies also provide evidence that economic crises could lead to higher infant mortality. For instance, using a comprehensive dataset covering 136 countries across 10 quinquennia (1960-2005), Cornia, Rosignoli and Tiberti (2008) examine the possible factors behind the infant mortality rate and the under-5 mortality rate. They find evidence that a 1 percent increase in GDP per capita is associated with a decline in the infant and under-5 mortality rates, respectively, by about 14 points and 22 points. Their empirical analysis also suggests that a reduction in average female illiteracy by 10 percentage points is linked to a reduction in the infant and under-5 mortality rates, respectively, by about 5 and 8 points (ibid:23-24).

Furthermore, Baird, Friedman, and Schady (2007) consider the effect of economic fluctuations on infant mortality drawing on a dataset that covers 1.7 million births in 59 developing countries. They find that: “on average, a one-unit decrease in log GDP is associated with an increase in mortality of between 18 and 44 infants per 1,000 children born.” They also find that the impact of fluctuations is highly asymmetric depending on whether it is a contraction or expansion. Contractions have a much higher negative impact on infant mortality rates than the positive impact of expansions. Further, the impact is asymmetric between males and females. The difference between the negative impact during contractions and positive impact during expansions is much higher for girls than it is for boys.

In addition, Arbache and Page (2007) bring further evidence on the relationship between economic fluctuations and human development indicators. Their work is based on the literature that identifies episodes of growth acceleration and growth deceleration (see Hausmann, Pritchett, and Rodrik, 2005; Hausmann, Rodriguez and Wagner, 2006; Imam and Salinas, 2008). Arbache and Page (2007) identify periods when economic growth is either above or below the trend for some time in Africa and find that growth decelerations are correlated with the worsening of human development indicators and that growth accelerations with improvements, but also that the effect is asymmetric: the negative impact during bad times is worse than the positive impact during good times. This might suggest that bad times affect more people—that is, they are more “inclusive” in their adverse implications. Good times, on the other hand, may not necessarily “trickle down” to more people, notably poor families, providing less material benefit to the lives of the majority.

Simplifying, the main findings can be summarized as follows (1). Growth collapses affect industrial and developing countries differently. In industrial countries, they are associated with improvements in health and education outcomes, while in developing countries they often lead to setbacks. Nevertheless, middle income countries also typically face setbacks in health, but for education the impact is less clear-cut. The literature also suggests that while rapid growth spells have little or a small impact in improving health and education in industrial countries, the effect in developing countries is not homogeneous. Further, when good times are related to improvements in developing countries, the rate of improvement is much smaller than the corresponding rate of deterioration during bad times.

Figure 1. Impact on Health and Education Outcomes in Developing and Industrial Countries Depending on Growth Performance

Industrial Countries	+	0 or +
	--	?
Developing Countries		
	Bad	Good
	Growth Performance	

Note: Authors' elaboration.

The literature also emphasizes a number of important considerations that could help inform and motivate policy. First, income contractions and income expansions clearly differ in their nature. The underlying drivers and nature of these income fluctuations can have independent effects on human development indicators. For example, a growth collapse that coincides with a conflict or a natural disaster surely has independent effects on health outcomes. On this point, however, Baird, Friedman, and Schady (2007) find that controlling for possible confounding factors (weather shocks, conflict, female education, and the quality of institutions) does not affect their findings in terms of the impact of income fluctuations on infant mortality. In terms of income expansions, their nature also matters, namely in terms of how broad-based the distribution of benefits is, and the intensity of poverty reduction. And, finally, there is also the possibility of endogeneity, or reverse causality, given that what happens to human development indicators can also be a determinant of the rate of growth.

In addition, even as the literature provides examples of adverse impacts on human development during past crisis episodes, studies also suggest that these effects are far from being inevitable. Indeed the empirical evidence suggests that poor and low income people often suffer severely during the crises because of factors such as market failures (e.g. lack of access to credit and insurance markets to help smooth consumption) as well as inadequate policy responses. Public policy matters and can influence outcomes.

Consider, for example, the impact of economic crisis in Peru (during 1988-1990) and in Indonesia (1997-1998). Government spending on health dropped in both cases, but in Indonesia, foreign assistance compensated at least part of this, so that the aggregate level of health spending per capita in the country dropped by much less than otherwise.⁷ In comparison, public health

⁷ The share of health spending paid by foreign assistance accounted for less than 10 percent in the mid 1990s but rose to 24 percent during 1998-2000 (Lieberman, Juwono and Marzoeki, 2001). Donor-assisted health spending per

expenditures in Peru fell by more than 58 percent, and there is no evidence showing that other sources such as foreign assistance compensated for the shortfall (Paxson and Schady, 2005). Both countries suffered adverse impacts on child health, but in Indonesia the impact was minor, while in Peru it was much larger. Other factors in addition to financing could also come into play; but public policies to help blunt the impact of an economic shock will likely play a key role, notably where risks of market failure are high while risks of government failure are low.

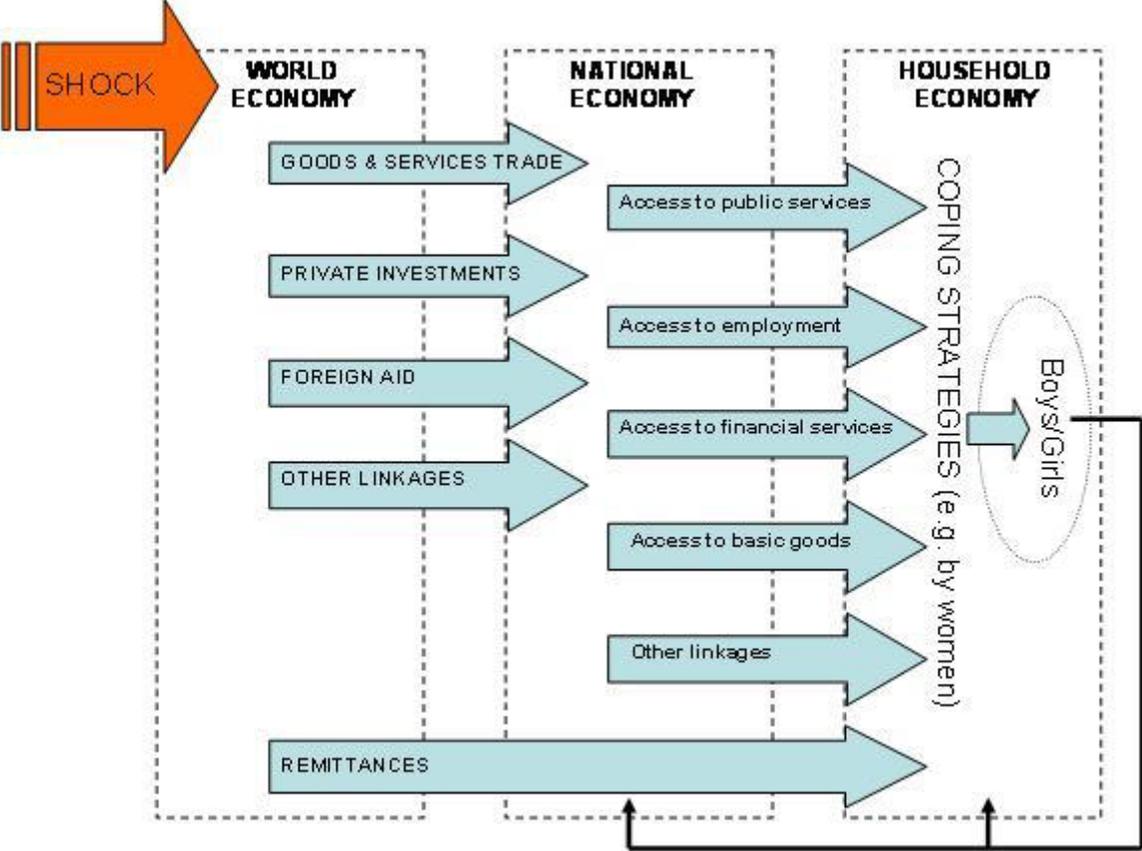
2. A Framework for Thinking about Crisis Transmission

Even as the global economic crisis is still unfolding, one can begin to trace its effects through a few main transmission channels. These include those that link: the domestic economy to the world economy; the household to the domestic economy; and children to the household economy. In addition to this, a fourth link establishes a possible feedback effect resulting from underinvestment in children which creates consequences for both the household and the country itself.

Figure 2 provides a visual schematic of the main sets of linkages which could serve to “transmit” the crisis impact. The way to think about the arrows is that each signifies access to resources which could be used for development finance. The crisis could affect a country and eventually its households and children by weakening these resource flows. In turn, fewer resources for development by itself, or by leading to harmful household coping strategies, could harm the household and notably its children not just in the immediate, but also in the much longer term. This will also impair human and economic development for the country itself. This note elaborates on this basic macro-micro framework for explaining the crisis transmission to children. The following sections describe each of the linkages.

capita increased four times in real term between 1995 and 2000. During the crisis period, foreign donors’ assistance on health spending increased by 278 percent in real term (from 207.5 billion rupiah during 1997-1998 to 577.9 billion rupiah during 1998-1999) while Indonesian domestic financial sources spent on public health dropped by 21 percent in real term (from 2533.7 billion rupiah during 1997-1998 to 2014.4 billion rupiah during 1998-1999).

Figure 2. A Schematic Representation of Some of the Macro-Micro Transmission Channels of an Aggregate Shock



Source: Mendoza (forthcoming).

2.1. Transmission from the world economy to the domestic economy

It is possible to distinguish two main aspects of the present crisis: a) a financial aspect which implies effects through financial contagion and other linkages in the financial sector; and b) a broader economic aspect which implies effects triggered by the global economic slowdown.

- Financial crisis contagion.** Financial instability in mature market economies could be transmitted to developing countries’ financial systems, triggered by (among other factors) the global deleveraging, “flight to safety” of foreign investments, tighter global liquidity and higher investor risk aversion. Essentially, many emerging market economies—countries that are more integrated into the global financial and economic system—face a “sudden stop” in capital inflows precipitating sharp capital account reversals, significant currency depreciation, and a marked increase in emerging market risk spreads. In turn, these have knock-on effects on a number of areas—weaker currencies imply higher debt servicing on foreign currency denominated debt and lower capital inflows and tighter

liquidity imply slower economic activity—all of this in turn has adverse implications on government tax revenues and employment.⁸

- **Global economic slowdown.** While it might be possible for many developing countries to avoid the effects of financial contagion, most if not all developing countries will be affected by the imminent global economic slowdown. This slowdown in global economic growth will manifest itself in a number of ways in each country, and in particular in the form of significantly weaker aggregate demand.

Depending on the financial and economic conditions of the developing country, as well as the capacity of the government to implement countercyclical policy, any shock which affects trade and tourism revenues, remittances, private capital and investment flows among other forms of financing could in turn adversely affect the domestic economy, and eventually (in the case of remittances perhaps more directly) household budgets. Even countries that are less integrated to the global economy, such as many least developed countries, could nevertheless be affected through a potential decline (and/or increased volatility) in aid or remittance flows (see Mendoza, forthcoming).

2.2. Transmission from the domestic economy to the household

The impact of the global economic crisis could be transmitted from the domestic economy to households in at least several key ways:

- **Access to employment.** The economic slowdown could halt job creation and/or create widespread retrenchment, both of which could trigger a severe drop in many families' incomes, and push them into poverty. According to one forecast by the International Labor Organization, as direct result of the crisis, the global unemployment rate could increase from 5.7 percent in 2007 and 6.0 percent in 2008 to as much as 7.1 percent in 2009. When compared to 2007, there could be over 50 million more people unemployed globally in 2009 (ILO, 2009:17). The ranks of the “working poor”—people working and living on less than \$2 a day—could also swell by well over 200 million (ibid:18).
- **Access to public services.** At the same time that budgets are likely to be tighter, there is also an increased need for public spending and interventions to help mitigate the impact of the slowdown. The public sector, through the slowing effects on the domestic economy, will face diminished tax and other revenues, as well as more limited ability to mobilize resources (including by borrowing both domestically and internationally). Increased risk aversion is likely to make debt much more expensive, internationally. If raised domestically, then this could crowd out private investments and exacerbate the slow down. This all comes at a time when fiscal space is likely to have already been dramatically diminished from having to respond to the earlier food and fuel price shocks.

⁸ The likely candidates for this kind of crisis transmission include emerging market economies whose financial systems have become very open to international financial flows and whose macroeconomic fundamentals are less robust. Emerging European economies, including [Hungary](#), [Ukraine](#), [Iceland](#), [Belarus](#), and [Latvia](#) are among the countries that have already turned to the IMF for emergency lending, and their recent experience tends to fit the description of this type of crisis contagion. See <http://www.imf.org/external/pubs/ft/survey/so/2009/INT011409A.htm>.

- **Access to financial services.** Access to credit, savings and insurance allow some households to be able to weather the impact of a shock to their household income. However, during a crisis, it is likely that tighter liquidity conditions will make it less likely to gain access to credit, even for exceptionally credit worthy households, let alone poor households with little or no assets to declare as collateral. Microfinance institutions are also likely to face more challenges accessing resources from both the banking system and other (notably philanthropic and donor) sources. In turn, this could translate into even less access to financial services by low income families.
- **Access to other goods and services.** Financial and economic crises could be accompanied by inflation and high prices of goods and services, or drastic policy reforms such as the removal of subsidies and other price support mechanisms that have become less sustainable due to the crisis. Access to goods and services, including basic necessities such as food, shelter and clothing, are likely to be more difficult due to high prices of food and other goods and services (including fee-based public services) while at the same time household income declines. Combined, these suggest that households' purchasing power is likely to be much weaker.

2.3. Transmission from the household economy to children

A severe drop in household income and/or a disruption in access to other resources (such as public services) will force households to try to cope in various ways. Households typically turn to both informal and formal mechanisms for managing risks, including those related to the present economic crisis (see table 1). Households with more access to resources, both public (e.g. social assistance, pensions, workfare, subsidies, cash transfers, etc.) and private (e.g. savings, insurance, assets, access to loans, etc.) will be better able to cope by drawing on available resources first, before beginning to take more drastic steps. Nevertheless, it should be noted that even those with some buffer may face increasing strain, particularly when there is very little time to recover from the different ripple effects of an economic crisis. For example, households that have sold assets or gone into debt as a result of the food and fuel price shocks in 2008 may have thinner buffers from household income shocks resulting from the economic slowdown (e.g. job losses, decline in remittances, or shrinking public services).

Table 1. Mechanisms for Managing Risks

Strategies for	Arrangements using			
	Informal Mechanisms		Formal Mechanisms	
	Individual and household-based	Group-based	Market based	Publicly provided
Reducing risk	Preventive health practices	Collective action for infrastructure, dikes, terraces		Sound macroeconomic policy
	Migration	Common property resource management		Policies related to environment, education and training, public health, labor markets
	More secure income sources			Infrastructure (dams, roads, etc.)
Mitigating risk				
Diversification	Crop and plot diversification	Occupational associations	Savings accounts in financial institutions	Agricultural extension
	Income source diversification	Rotating savings and credit associations	Microfinance	Liberalized trade
	Investment in physical and human capital			Protection of property rights
Insurance	Marriage and extended family	Investment in social capital (networks, associations, rituals, reciprocal gift giving)	Old age annuities	Pension systems
	Sharecropper tenancy		Accident, disability and other insurance	Mandated insurance for unemployment, illness, disability and other risks
	Buffer stocks			
Coping with shocks	Sale of assets	Transfers from networks of mutual support	Sale of financial assets	Social assistance
	Loans of moneylenders		Loans from financial institutions	Workfare (guaranteed work schemes)
	Child labor			Subsidies
	Reduced food consumption (quantity and quality)			Social funds
	Seasonal or temporary migration			Cash transfers

Source: Skoufias (2003:1090).

Furthermore, for a variety of reasons, the poor are often the least equipped to weather the impact of aggregate shocks on their income—they have far fewer assets which they could sell or use as a buffer, limited or no access to formal credit and insurance markets (e.g. most of the formal mechanisms identified in table 1) to help smooth income shocks over time, and often lack the education and marketable skills which are necessary for successful migration to other areas with economic opportunities (Agénor, 2004). Existing social protection systems offered by the public sector (or by private and other sources) also do not cover the bulk of the poor, and often only provide very limited support given the scale of the challenge at hand (see Mendoza, forthcoming). And when they turn to informal risk-coping arrangements and strategies, most of these work well on idiosyncratic risks (e.g. self-insurance or informal community risk-sharing) but are limited in their effectiveness against covariate risks that create contemporaneous community-wide losses, such as those that result from a financial and economic crises.

Due to a combination of lower household income and lower access to public services, poor households and their children are typically adversely affected during crises, as reflected in asset depletion and higher debt; increased child labor and school dropouts; and higher incidences of malnutrition and infant mortality.

- **Asset depletion and catastrophic spending.** Where the consumption of the good or service is necessary—such as healthcare—households may be faced with catastrophic spending burdens that drive them deep into debt and destitution. Households facing income shocks could try to borrow money resulting in severe household debt problems. For example, a study of household debt holding after the 1998 floods in Bangladesh found evidence that more than 60 percent of poor and flood-exposed households borrowed money after the flood. Subsequently, their debt rose by an average of 1.5 months of typical consumption. Furthermore, 15 months after the flood, household debt still averaged 146 percent of one month’s average consumption for two-thirds of flood exposed households in the bottom 40 percent of the expenditure distribution (del Ninno and Dorosh, 2003:1235).
- **School dropouts and child labor.** In many cases, the poor are forced to turn to coping strategies which might help to meet immediate needs, but will eventually harm both the family and its children in the longer run. A key example is for children to drop out of school (thus saving on household expenditures) and go to work (thus augmenting household income). For instance, using data on over 100,000 children aged 10–16 in Brazil, Duryea, Lam and Levinson (2007) examine the impact of household economic shocks on the schooling and employment transitions of young people. They find evidence that an unemployment shock (to the parents) significantly increases the probability that a child enters the labor force, drops out of school, and fails to advance in school. Studies in other countries such as in Tanzania (Beegle and others, 2008) and in Guatemala (Rosati and others, 2003) reflect many of the same findings.
- **Child malnutrition and infant mortality.** Lower household incomes (i.e. resulting from loss of jobs, asset depletion, tighter credit conditions, etc.) combined with more limited access to public services due to tightening government budgets and social spending (discussed in the previous section) will also exacerbate existing deprivations faced by

families and their children. Eating less (or less nutritious food), lower access to healthcare and other services, and altogether lower investments and spending on water, sanitation and other types of services that are critical for human development are among some of the factors that could contribute to higher infant and child mortality and more prevalent child malnutrition. During past crisis episodes, infant mortality tends to increase dramatically.

2.4. Inter-generational and long-term poverty impact

Underinvestment in the protection of vulnerable families and children could have dramatic immediate consequences, including on their health and nutrition. In addition, these could also have profound long-term consequences, particularly on children in the household, by causing a temporary shock like the present crisis to generate permanent harm. When children grow up lacking education and suffering from the effects of poor nutrition, there are adverse physical, cognitive and psychosocial consequences on their development. This is how poverty in one generation is transmitted to the next.

Underinvestment in children today lead ultimately to a reduction in their capabilities in the future—their capacity to generate income for their own (and for their eventual families and children) will be curtailed. For instance, the estimated rate of return to one additional year of schooling is about 10 per cent on average—and this figure increases when one focuses on poorer countries such as those in Africa (Psacharopoulos and Patrinos, 2004:115). This considers earnings which accrue to the individual, and does not yet consider the social benefits of a better educated population. In addition, underinvestment in children could also adversely affect a country's long-run human and economic development prospects. For example, interventions to improve child nutrition outcomes could result in productivity gains reaching up to 10 percent of lifetime earnings re-gained for the individual, and for some countries, up to 2-3 percent of long-run GDP growth re-claimed (World Bank, 2006:2).⁹

To conclude, the preceding discussion provides a possible framework to think through how the crisis will affect developing countries, poor families, and eventually, children and women. To the extent that the crisis unfolds and possibly becomes more severe, its impact will be transmitted through some of the channels illustrated here, suggesting that children and women are at high risk, and that consequently the MDGs could be undermined.

3. Emerging Evidence: Reports from the Field and Poor People's Accounts of the Crisis

The empirical literature and the framework discussed in the previous sections appear to be supported by the emerging evidence from the field, drawing on preliminary reports and country

⁹ For a review of the literature on intergenerational transmission of poverty, including evidence on the links between parental socioeconomic status and child health and between child health and adult income, see Currie (2009) and Harper, Marcus and Moore (2003).

case studies (e.g. those by the Institute of Development Studies, Overseas Development Institute, World Food Programme and other agencies and think tanks) and people's accounts of the crisis as well as recent policy moves reported in various outlets. While by no means nationally representative nor scientifically conclusive—notably on attributing all these observations to the economic crisis which is one but certainly not the only factor—these accounts nevertheless serve as critical alert signals that point to the vulnerability of many poor and low income people to the emerging consequences of the crisis.

The basic story is borne out: first, many low-income communities have already been severely affected by rising food and fuel prices in 2008; second, despite the subsequent decline in international food and fuel prices, many people in the developing world are facing “sticky” food prices and the impact of the economic slowdown, as transmitted through their linkages to the international financial system and trade in goods and services. In turn, this creates ripple effects throughout the domestic economy which reaches into both the formal and informal sectors, as well as both the urban and rural economies depending on their interconnections. Poor and low income households are clearly struggling as a result of the economic crisis which now combines the accumulated repercussions of the food and fuel price shocks, the financial crisis and the global economic slowdown.¹⁰ These alert us to the high and possibly growing risks faced by poor families, children and women as the crisis unfolds. Clearly, this should also alarm policymakers to the risk of erosion in MDG gains, as well as delay in its achievement, if the crisis and its impact on human development are unabated.

3.1. Economic impact

- Employment and income. Due to the collapse in commodity prices as well as weaker global aggregate demand, developing countries' export sectors are expected to be severely affected. In Sri Lanka, for example, its tea exports have taken a hit due to the sharp slowdown in demand from its major export market, Russia. Over 60 percent of tea in Sri Lanka is produced by small holder farmers, suggesting that a large impact will be on the countries' poor.¹¹ In Zambia, the country's copper mining industry shed an estimated 6,000 employees since November 2008. Focus groups composed of cash crop farmers in rural Ghana describe being a situation whereby they are squeezed by lower prices of some cash crops, while farm input costs remain high. For some cash crops like shea nuts, the impact is disproportionately going to fall on women workers for whom this is an important additional income source during the lean season.¹² The Mine Workers Union of Zambia estimated that 10,000 out of a total of 23,000 registered miners would

¹⁰ Unless otherwise stated, the figures noted in this section refer to reports and surveys published during the first quarter of 2009. Most are drawn from a survey- and interview-based study by Hossain (2009) as well as various news reports from different parts of the world. Hossain's study draws on people's accounts in ten communities across five developing countries (i.e. Bangladesh, Indonesia, Jamaica, Kenya and Zambia). The results are clearly not generalizable and should be subject to verification as more information and data becomes available.

¹¹ IRIN Humanitarian News and Analysis, “Sri Lanka: Global crisis likely to hit poor hard,” December 8, 2009.

¹² See Brinkman and others (2009:15 and 25). Adverse implications on countries' export sectors have also been found in a 10-country case study by the Overseas Development Institute (see Te Velde, 2009).

be retrenched by end March 2009.¹³ Reports of job losses among migrant export workers are also increasing. For instance, in the peri-urban community of Gandasari in Jakarta an estimated 10 percent of permanent workers and 40 percent of contract workers had already lost their jobs. Unofficial reports suggest that over 200,000 Indonesian nationals previously working in Malaysia returned home in 2008 as a result of the recession, with most of them women and from the country's rural areas.¹⁴ In China, well over 20 million domestic migrant workers are reported to have been retrenched in early 2009, while in Ghana, the Ministry of Finance estimated that remittances were down by over \$50 million in January 2009 compared to its level the year before and attributed this to job losses among migrants.¹⁵ A quick assessment of Vietnam's migrant workers' situation based on focus group discussions and interviews suggests that labor migrants in the informal sector have not been spared by the crisis and that younger and more recent migrants are typically more affected by the recent economic retrenchment in major labor importing countries.¹⁶ All of these developments will clearly have a severe impact on migrants' home communities, which not only suffer declining remittances but also need to absorb returning migrants in the local economy.¹⁷

- Food and commodity prices. International food grain and fuel prices have declined from their peak levels in mid-2008; however international prices of food grains are still high compared to their average levels historically—by the end of the first quarter of 2009, rice, maize, soybean and wheat prices are anywhere from 30-50 percent above their respective 10-year averages. The volatility of commodity prices is also contributing to the broader economic uncertainty, delaying consumption and investment decisions. In addition, domestic food and fuel prices have remained “sticky” in many parts of the developing world (see Conceição and Mendoza, 2009 and Chai, 2009). People interviewed in Indonesia and Zambia, for example, observed that food prices rose with rising fuel prices, but remained high even as fuel prices abated. People interviewed in Zambia, expressed the opinion that the government had not done enough to help mitigate food and fuel prices, even as mealie meal and fuel prices had dropped sharply in January 2009. Frequent episodes of food insecurity have likely contributed to deep-seated suspicion of hoarding as a principal reason for food price spikes in places like Bangladesh. People interviewed there reported that hoarding by traders and government failure to adequately regulate the food market are among the factors behind high local food prices.¹⁸ In

¹³ Hossain (2009:31).

¹⁴ IRIN Humanitarian News and Analysis, “Indonesia: Tough times for returning labor migrants,” Mar 14, 2009.

¹⁵ IRIN Humanitarian News and Analysis, “Ghana: People have a message for G20,” April 2, 2009.

¹⁶ Longer term migrants tend to have more savings and options for consumption smoothing, while more recent migrants do not necessarily have these, and they also tend to shoulder large debt burdens associated with being a new migrant. This study also revealed that the children of migrants have begun to suffer from the aftershocks, through the delay in payments of school fees, school dropouts and lesser health care visits. For further details on the study and the data collection methodology, see UNICEF, Vietnam Ministry of Culture, Sports and Tourism and Vietnam Institute of Sociology (2009).

¹⁷ Hossain (2009:9).

¹⁸ Hossain (2009:22).

addition to this, in countries like Zambia and Malawi, depleted food stocks will need time to recover, and in the interim, hoarding by traders will remain a problem.¹⁹

- **Asset sales.** Interviews revealed that growing asset sales were driven by factors such as a) the existence of a market for the asset (rural Kenya); b) perceptions of the potential seriousness of the situation and the possibility for coping without selling limited assets (rural Zambia); c) pressure of accumulated debt (rural and urban Bangladesh); and d) opportunities for investment in migration or new economic activities with the proceeds of asset sales (urban and rural Bangladesh; rural Indonesia); and the e) the extent of the asset endowment to begin with.²⁰ People in Nairobi were reported to be disposing of small household items, while some people living with HIV/AIDS were reportedly selling donations of food. Reports from people in a rural Kenyan community showed that they did not turn to asset sales due to the low returns from the distressed sale of assets such as animals which were already emaciated due to a drought.²¹
- **Debt.** Interviews in Bangladesh showed signs of strain by micro-credit borrowers meet loan repayments and reports of default rates appeared to be emerging – a finding supported by recent evidence about how microfinance is faring during the crisis (Littlefield and Kneiding, 2009). In some countries, the microfinance sector is large and plays a key role in the local economy, so rising default and difficulties in repayment could be signals of potentially serious problems. At least one NGO located in Dhaka already reported that the failure rate to make weekly repayments had risen to 20 percent, compared to 5 percent before the crisis. Informal credit associations – arisan in Indonesia or ‘throwing partners’ in Jamaica – had also started to face strain, delaying payouts or even disbanding the credit association altogether.²²
- **Income diversification.** Reports indicate that women and even children are increasingly turning to work and other income-earning opportunities to help augment household income. Rural Muslim women in Bangladesh, for example, have turned to the new 100 Days Employment Guarantee scheme.²³ New forms of retail—often largely in the informal sector—have also emerged. In Dhaka, for example, the gathering and sale of rejected vegetables has given rise to a secondary market for broken or partly spoilt vegetables. After the floods of 2007, migrants from flood-hit areas started to collect these vegetables—reports in the first quarter of 2009 note that some 60 to 70 people, including children, adults and unmarried girls, have begun to gather vegetables for resale (and some are also stolen). High food prices have resulted in a new group of lower-middle class customers who now demand these cheap alternatives to standard vegetables.²⁴

¹⁹ IRIN Humanitarian News and Analysis, “Malawi/Zambia: Food crisis looming in early 2009,” December 23, 2009.

²⁰ Hossain (2009:50).

²¹ Hossain (2009:50).

²² Hossain (2009:37-39).

²³ Hossain (2009:34).

²⁴ Hossain (2009:34).

- Women responding to the crisis. As also reflected in past crises, women have been reported to adapt to the presently unfolding crisis by seeking new opportunities to augment household incomes, and some attribute this to the greater personal pressure they might face to ensure that their children do not suffer from hunger, or their greater willingness to undertake low-return, and what some communities perceive as shameful work as compared to men.²⁵ Women interviewed in Nairobi reported that whereas they focused on domestic work and childcare in 2007, in 2008 and 2009, they had to leave home and explore work washing clothes or cleaning compounds, or selling charcoal, vegetables and foodstuffs by the road side. Women have also resorted to so-called “petty entrepreneurship”—income earning opportunities that generate very small returns²⁶—such as by operating food kiosks and running their businesses until late at night, as well as engaging in new activities include boiling or roasting maize by the road side, opening small salons, and offering cleaning services.²⁷

3.2. Social and human development impact

- **Food acquisition and intake.** Reports suggest that an increasing number of people spent more of their income on food, and have begun to purchase lower cost items, while reducing the quality and diversity of food. Some have turned to more extreme coping strategies such as gathering wild foods, or eating less and going hungry (e.g. communities interviewed in Kenya and Zambia). Women seemed to bear the brunt in many households by eating least and last, though in some contexts, fathers and mothers were sharing the sacrifice to provide more food for their children. In extreme cases, such as in Nairobi and one rural Kenyan community, there were reports of deaths due to starvation.²⁸ Food retailers are also adjusting to changing demand for food due to the crisis. In rural Banjar, Indonesia, for example, one mobile vegetable sellers have begun to replace relatively more expensive food such as chicken and large fish with cheaper items sold in smaller size/units.²⁹ Garments workers in Dhaka told interviewers that they only ate potatoes, and even relatively more affluent households cut down on meals at the height of the crisis.³⁰
- **Schooling.** Parents interviewed reported difficulties maintaining spending on their children’s education, even as reports of absenteeism, school dropouts and child labor appeared to be on the rise in most communities interviewed. Children were in some cases being moved to cheaper institutions (including madrassahs in Dhaka) church schools or other institutions providing food or other material support.³¹ There have been reports that mothers in Kenya were bringing younger children (including those as young as 18 months) to avail of free school lunches, implying that already thin resources were

²⁵ Hossain (2009:10).

²⁶ For a discussion, see Banerjee and Duflo (2007).

²⁷ Hossain (2009:35).

²⁸ Hossain (2009:12).

²⁹ Hossain (2009:35).

³⁰ Hossain (2009:48).

³¹ Hossain (2009:13, 57).

being stretched even more.³² Reports coming from Zambia, Bangladesh and Kenya, revealed that hunger was deterring children from attending school, from traveling long distances to school, and has begun to undermine learning. Even in places where children are able to avail of free lunches, such as in Jamaica, interviews revealed that stigma is attached to this. Poor children interviewed mentioned that they were embarrassed when they were marked out as ‘needy’ because the free lunches they received were often marked differently from the lunches given to paying children.³³ In addition, experts interviewed in Pakistan observed that child labor is on the rise in that country since the food crisis hit in 2008. An unofficial guesstimate put the number of children at work in that country at about 40 million—almost half its total number of children.³⁴

- **Health.** Interviews also revealed that families faced severe challenges to meet healthcare costs. Furthermore, households in Bangladesh and Jamaica reported that, in order to access public health facilities that were supposed to be free, they had to face long waiting times (which implied high opportunity costs of time spent there), as well as additional (and sometimes unofficial) charges such as for tests and services not available at public clinics. Private healthcare alternatives were reported to be too costly, and under these conditions, self-diagnosis and folk remedies were reported.³⁵ Even in Indonesia, where health-seeking behavior did not seem to be greatly affected because Puskesmas (community health centers) have been providing free medical treatment under regional government policies set three years ago, the decline in the rubber price has made healthcare less affordable: one midwife interviewed noted that even as fees have been reduced from Rp30,000 to Rp25,000, she now sees only five patients per day, instead of 15 patients per day prior to the crisis.³⁶
- **Intra-household effects.** Interviews revealed that women, children and the elderly were in some cases disadvantaged in the distribution of household resources. Women in some communities in Bangladesh were reported to be eating least and last in many households, and there were instances of them not receiving healthcare while male household members were able to do so. Interviews revealed that this was often justified by the argument that men were bread-winners and thus needed to be fed or receive medical treatment as a priority. However, there were also cases wherein women were the main earners, and here men were still given priority. Researchers concluded that this partly reflects gendered cultural practices, but also the real insecurities and likelihood of deeper impoverishment faced by women and in particular widows.³⁷
- **Crime and Exploitation.** Children, girls and young women are often extremely vulnerable to exploitation under conditions of extreme economic need. In the Philippines, for example, law enforcement agencies, labor leaders and social workers have voiced

³² Hossain (2009:14).

³³ Hossain (2009:57).

³⁴ IRIN Humanitarian News and Analysis, “Pakistan: Poverty forcing families to put children at work,” December 28, 2009.

³⁵ Hossain (2009:52).

³⁶ Hossain (2009:53).

³⁷ Hossain (2009:69).

concern that rising unemployment—including many lay-offs in the export sectors wherein women account for an estimated 80 percent of the workforce—would give rise to more pressure to search for jobs, and human traffickers taking advantage of this.³⁸ In addition, girls and young women in some communities in Kenya and Zambia, for example, have been reported to turn to sex work out of severe need.³⁹ Teachers interviewed in Nairobi reported that increasing cases of schoolgirl pregnancies are the result of exchanging sex for food.⁴⁰ Smuggling (in particular of fertilizer in rural Bangladesh), theft of items of recycling (Nairobi and Dhaka), drugs trade (Bangladesh, Kenya and Zambia), brewing and sale of illicit alcohol (Kenya), mugging (Kenya) and sex work (Kenya and Zambia) are among the examples of crime and extra-legal activities that have been reported in the survey- and interview-based study of the possible impact of the economic crisis by Hossain (2009).

- **Social fragmentation.** Severe economic conditions place many families, and especially the poor, under extreme stress, reflected in various fractures in families and communities. For instance, there have been reports of abandonment of the elderly, children and families (by the household head). In at least one rural Kenyan community, interviews have revealed that many men leave—searching for work in the city—and fail to return to their wives and families.⁴¹ Animosity and social fissures have also been observed in areas such as in Nairobi where faith-based charities have provided support to poor people, but only in a selective way to people belonging to the same faith.⁴²

3.3. Further aftershocks on the horizon

Part of the over-all impact of the crisis is probably yet to come. The transmission may take slightly longer (as compared to more immediate impact on exports and remittances for example), but some of the effects could be especially harmful to poorer people. For instance, as tax revenues plummet (due to slowing economic activity) budget cuts may be on the horizon for many countries. Tanzania, for example, has already announced a 25 percent cut of its annual HIV-Aids budget. Similarly, large private firms in South Africa, notably those in the mining sector, are also likely to scale down their HIV-Aids prevention programs.⁴³ In addition, industrial countries are also beginning to introduce cuts in their migrant worker intake, including Spain and Italy, which have been hit hard by the present crisis. This could create further knock-on effects on developing countries' remittances.⁴⁴ Rising trade protectionism and possible cuts in foreign aid are also going to create further ripple effects that will likely spill into 2010 and beyond. At this stage, the uncertain environment is probably harmful in and of itself.

³⁸ IRIN Humanitarian News and Analysis, "Philippines: Concerns grow over human trafficking as financial crisis deepens," April 13, 2009.

³⁹ Hossain (2009:73).

⁴⁰ Hossain (2009:74).

⁴¹ Hossain (2009:71).

⁴² Hossain (2009:72-73).

⁴³ Palitza (2009).

⁴⁴ IRIN Humanitarian News and Analysis, "Global: Labor migration cuts will hurt developing countries, says World Bank," May 13, 2009.

4. The Historical Relationship between Human Development Indicators and Episodes of Growth Accelerations and Decelerations

It would be useful to complement the emerging micro-level accounts from the field with a macro-level analysis of historical trends. Building on recent similar analysis by Arbache and Page (2007), Conceição and Kim (2009) explore the associations between episodes of growth accelerations and decelerations, on the one hand, and levels of human development indicators based on basic correlations and regression analysis. This section provides a brief description of the main findings.

Poor populations typically suffer from many types of deprivation in addition to low income—including poor health, limited education, fewer opportunities for political and civic engagement, and lack of access to goods and services (Sen, 1999). The same holds across countries (see, for example, the discussion and references in Lambert, Ravallion and van de Walle, 2007). Obviously, this does not automatically imply a positive correlation between growth rates and changes in human development indicators and much less so causality from income growth to health or to education outcomes (see, for example, UNDP various years, especially 1996).

To elaborate, when it comes to health, one strand of literature suggests that higher income is an important determinant of improved health outcomes (Pritchett and Summers, 1996). However, Cutler, Deaton, and Lleras-Muney (2006) and Case and Deaton (2008) downplay the causal effect running from income to reductions in mortality (see also Deaton, 2003). To take just one of the arguments, Deaton (2007) reports that decadal growth rates between 1960 and 2000 are negatively correlated with changes in infant and child mortality for both China and India. In the case of China, almost all of the country's reduction in infant mortality in the second half of the 20th century occurred before 1980. During the period of rapid growth that started in the early 1980s there was relatively little progress in child health in China.

This type of result can be seen as suggestive that the causality may run in the other direction, from improved health to higher growth as argued, for instance, by Jeffrey Sachs' chaired Commission on Macroeconomics and Health (2001). However, Acemoglu and Johnson (2007) find that improvements in life expectancy have little direct effect on rates of economic growth.

Another possibility is that “something else” that is correlated with both income and health improvements is driving enhanced health outcomes. Cutler, Deaton, and Lleras-Muney (2006) hypothesize that much of the improvements in health over the long run are related to technological improvements and to higher levels of education, both of which are correlated with income. New and enhanced health knowledge, as well as more advanced medical technologies, had a critical role in driving health improvements in recent decades (see also Soares, 2007). Similarly, better education has enabled access to and use of information that is health enhancing. For example, Cutler, Deaton, and Lleras-Muney (2006) note that those better educated were on average quicker to learn and change behavior related to the negative health effects of tobacco than the less educated.

Thus, while there is a correlation between levels of income and health outcomes, this does not translate into a simple correlation between growth and improved health, and the same holds, essentially, for education (for a discussion along similar lines for education see Hanushek and Woessman, 2007). Despite the lack of an adequate explanation of the nature of the relationship between growth and human development outcomes, this does not imply that we do not know anything that can be used to anticipate the impact of the economic crisis on health and education. We can still exploit the observed relationship to anticipate the impact of the economic crisis on health and education.

4.1. Examining the basic correlations

Growth refers to annual changes in real GDP per capita in 2005 PPP from 1980 to 2009. Data on annual growth rates from 1980 to 2006 are obtained from World Bank (2008b) and we use IMF's growth projection for 2007-2009 (IMF 2009). Since we use four year moving averages to identify growth acceleration and deceleration episodes, the sample time period is from 1983 to 2006. Thus we have a panel data for 200 countries for 24 years, which is unbalanced due to unavailability of human development indicators for a few years. Data on human development indicators are taken from World Bank (2008b), unless noted otherwise.

The definition of growth acceleration and deceleration follows Arbache and Page (2007). In particular:

- A growth acceleration is a period that satisfies the following four conditions:
 - Condition 1 – The forward four-year moving average growth minus the backward four-year moving average growth > 0 for a given year; i.e., the forward moving average window (t, t+1, t+2, t+3) must be higher than the backward window (t-1, t-2, t-3) and above 0;
 - Condition 2 – The forward four-year moving average growth exceeds the country's average growth, meaning that the pace of growth during acceleration is higher than the country's trend;
 - Condition 3 – The forward four-year moving average GDP per capita exceeds the backward four-year moving average;
 - Condition 4 – A growth acceleration episode requires at least three years in a row satisfying conditions 1-3. An episode includes the three subsequent years after the last year that satisfies conditions 1-3.
- A growth deceleration is a period that satisfies the following four conditions:
 - Condition 1 – The forward four-year moving average growth minus the backward four-year moving average growth < 0 for a given year;
 - Condition 2 – The forward four-year moving average growth is below the country's average growth;
 - Condition 3 – The forward four-year moving average GDP per capita is below the backward four-year moving average;

- Condition 4 – A growth deceleration episode requires at least three years in a row satisfying conditions 1-3. An episode includes the three subsequent years after the last year that satisfies conditions 1-3.
- If neither of two sets of conditions applies, a period is considered as a “neutral” period.

Condition 1 identifies a kink in growth trend. If the forward average growth is higher than the backward average growth, the year is considered to be in an acceleration phase. If the sign of the difference in averages changes from positive to negative, or vice versa, it suggests a shift in growth trend. Condition 2 eliminates the long term growth trend component, especially in countries with very low or very high growth rates for a number of years. Condition 3 considers the level of GDP, not the annual growth rates, to separate the growth acceleration episode from a part of recovery from a recession. Condition 4 ensures the episode is not a temporary phenomenon for a couple years, but a significant deviation from the underlying trend.

Using the identification of growth acceleration and deceleration, table 2 provides information that allows for the comparison of the average levels of several human development indicators during economically good times and bad times. We look at six human development indicators, three on health and three on education: life expectancy, infant mortality rate, under 5 mortality rate, literacy rate, primary school enrollment rate, and secondary school enrollment rate. Columns 2 and 3 show the sample means of these six human development indicators during episodes of growth accelerations (During A) and episodes classified “otherwise” including both deceleration and neutral (Otherwise A). To compare whether the improvements in human development indicators during economic good times compared to other episodes are statistically significant, we also conduct a t-test on the difference between the mean of each human development indicator during episodes of growth accelerations and the mean during episodes “otherwise”.

Table 2. Difference between Sample Means, Global Average, 1983-2006

	<i>Growth Acceleration</i>		<i>Growth Deceleration</i>	
	During A	Otherwise A	During D	Otherwise D
All countries				
Life expectancy (years)	69.4** (0.26)	63.5 (0.2)	62.3** (.54)	65.3 (.17)
Infant mortality (per 1,000 live birth)	27.5** (1.12)	51.9 (1.12)	55.6** (3.1)	43.9 (.92)
Under 5 mortality (per 1,000)	43.6** (2.13)	83.9 (2.05)	94.6** (5.84)	70.8 (1.7)
Literacy (% of adult)	78.4 (1.81)	74.6 (2.12)	66.7** (4.6)	77.9 (1.4)
Primary school enrollment (net, %)	100** (0.57)	98.2 (.79)	96.3* (2.3)	99.9 (.48)
Secondary school enrollment (net, %)	71.8 (1.08)	69.6 (1.3)	52.4** (3.04)	72.2 (.86)

Note: Data are obtained from World Bank (2008b); Standard error in parentheses; each indicator is a population weighted sample mean; * denotes the difference between the sample mean of “during” and “otherwise” is significantly different from zero at 5 percent; ** significant at 1 percent; Number of countries varies across indicators: 200 for life expectancy, 191 for mortality rates, 138 for literacy, and 188 for school enrollment rates.

From table 2, we see that the average levels of all six human development indicators are better during episodes of growth accelerations (During A) than those during episodes otherwise (Otherwise A) but are worse during episodes of growth decelerations (During D) than those during episodes otherwise (Otherwise D). It suggests that not only the long term growth, but also the shorter term deviations, growth acceleration and deceleration, is associated with changes in human development outcomes.

The t-test results (reported as * and **) in column 2 (During A) conclude that the differences between the average levels of human development indicators during economic good times and the average levels of human development indicators during episodes “otherwise” are positive and statistically significant for all human development indicators except for literacy rate and secondary school enrollment rate. The t-test results in column 4 (During D), on the contrary, show that the average levels of all human development indicators are statistically significantly worse during episodes of growth decelerations than during episodes “otherwise”.

The relationship between growth episodes and human development outcomes is not the same for all countries. In developing countries, the results show that five out of six human development indicators in developing countries are statistically better during growth accelerations, but only two of them are statistically worse during decelerations. For developed countries, three health related indicators improve (statistically significant) during growth accelerations, but deteriorate little (statistically insignificant) during growth decelerations. The three education indicators do not show any statistically significant difference during episodes of growth accelerations or decelerations.

These results have to be interpreted carefully, because simple correlates may not reflect the true relationship. The evolution of the frequency of episodes of both growth accelerations and decelerations in the period under analysis is such that accelerations have become more frequent (from .22 in 1980s to .49 in the 2000s by country-year frequency), while decelerations are less frequent (from .19 in the 1980s to .04 in the 2000s). And the human development indicators improved worldwide in the long run. As a result, it is possible that larger number of acceleration episodes could coincide with improved human development, even though there might be no relationship between them. Thus, the comparison of means might just be capturing this effect, rather than a distinct difference across accelerations and decelerations in terms of average levels of human development indicators.

Therefore, the analysis is complemented with a panel regression that simultaneously controls for both country-specific effects (the country-specific evolution of health and education indicators) and the time-trend effect (the long-term trend that underlies the evolution of each of these indicators). The coefficient estimates captures the “correlation” of the human development indicators level that are not specific to the time trend or each country’s characteristics. Obviously, these results do not allow for drawing any causal inferences, but the coefficient estimates shed light on how much on average past episodes of good and bad times correlated with differences in the levels of human development indicators relative to the trend, that is, accounting for (unspecified) time-specific effects.

4.2. Insights from regression analysis

To find the historical relationship between human development indicators and growth, the coefficients of the following regression are estimated using the panel data from 1983 to 2006:

$$(1) \text{ HD}_{i,t} = B_0 + B_1 \text{ACC}_{i,t} + B_2 \text{DEC}_{i,t} + B_3 \text{TIME}_t + e_{i,t}$$

$$\text{for } i = 1, \dots, N; t = 1, \dots, T$$

$\text{HD}_{i,t}$ is the level of a human development indicator for country i at time t ; $\text{ACC}_{i,t}$ is a dummy variable for episodes of growth accelerations; $\text{DEC}_{i,t}$ is a dummy variable for episodes of growth decelerations; TIME_t is a cubic time trend (B_3 is a vector of coefficients and TIME_t is a vector with a linear, quadratic and cubic time variable; the product of the two vectors refers to the internal product). Since many of the human development indicators are serially correlated, the best possible specification would be to take the first or second difference of the dependent variable. But this method is not feasible because the data is sporadic. As is well recognized in the literature in this area, human development indicators are not available for every year even for high income countries. As an alternative, we use a time trend as a regressor. Since a time trend would not necessarily make the dependent variable stationary in our specification, the error term might be serially correlated within group. We tested the existence of correlation with the robust covariation matrix estimation, and found little changes in our estimates. In addition, problems of omitted variables bias also need to be considered; and the approach taken here is to use a parsimonious model to provide a first analysis of the basic associations between the human development indicators examined and the acceleration and deceleration variables. A fuller elaboration on the limitations and caveats of the approach is provided in Conceição and Kim (2009). For the year of acceleration ($\text{ACC}=1$), the fitted value of HD has two constants (B_0+B_1) and the time trend. For the year of deceleration ($\text{DEC}=1$), the fitted value has two constants (B_0+B_2) and the time trend. For the neutral year, the fitted value has a constant (B_0) and time trend. Therefore, the coefficient estimates from ACC and DEC can be interpreted as the average difference of human development indicators from the underlying trend in the neutral period.

This is a purely illustrative exercise, and no attempt is made in terms of inferring the causal impact of growth episodes on human development indicators. Rather, the estimates of the coefficients are interpreted as indicating the average past relationship between a human development indicator and episodes of growth acceleration and deceleration. These estimates are then used to simulate forward indicator rates up to 2009, based on different growth scenarios, assuming that the average relationship between the indicator and growth episodes will exhibit until 2009 the same average relationship with growth episodes that it did in the past.

The OLS estimates of the coefficients are presented in table 3. As would be expected, the use of a pooled panel estimator leaves much variation unexplained, but the coefficients on accelerations and decelerations do capture the mean relationship between good and bad times and human development indicators.

Overall, health related indicators show a statistically significant relationship with episodes of growth accelerations and decelerations. Compared to its underlying time trend, life expectancy is

about 1.7 years higher during episodes of growth accelerations and 4.7 years lower during episodes of growth decelerations; infant mortality is reduced by 8.2 per 1000 births during episodes of growth accelerations and increases by 19.2 per 1000 births during episodes of growth decelerations; under-5 mortality is 12 per 1000 births lower during economic good times but 36 per 1000 births higher during economic bad times. These coefficients estimates are all statistically significant.

Table 3. Pooled OLS Regression of Human Development Indicators, 1983-2006

	Life expectancy	Infant mortality	Under-5-mortality	Primary school enrollment	Secondary school enrollment	Literacy
All countries						
ACC	1.653 (3.88)**	-8.193 (3.74)**	-12.077 (2.94)**	1.984 (2.01)*	-1.680 (0.99)	1.133 (0.38)
DEC	-4.679 (7.73)**	19.239 (5.84)**	36.916 (5.99)**	-0.450 (0.23)	-16.549 (4.90)**	-10.529 (2.29)*
Constant	65.538 (248.16)**	41.438 (29.00)**	65.901 (25.00)**	102.689 (2.61)**	156.399 (2.52)*	84.646 (4.65)**
Observations	4394	2870	2466	1465	1418	250
R-squared	0.14	0.13	0.13	0.02	0.04	0.03
Number of country	200	199	199	188	188	138

Note: Absolute value of t statistics in parentheses; * significant at 5 percent; ** significant at 1 percent; Literacy is not analyzed for developing countries and LDCs because the number of observations is small; Coefficients estimates for cubic time trend are available from the authors.

On the other hand, the relationship between education outcomes and episodes of growth accelerations or decelerations is not clear. During episodes of growth accelerations, only the primary school enrollment is found to be statistically improved, that is, 1.9 percentage points higher than the underlying time trend. In case of the secondary school enrollment and literacy, the coefficient estimates for ACC are not statistically significant. During episodes of growth decelerations, the literacy rate and the second school enrollment rate are statistically worsened by -10.5 and -16.5 percentage points, respectively. But there is no statistically significant deterioration in the primary school enrollment rate when economic growth decelerates.

To check the robustness of our panel regression results, we run fixed effect regressions with country-specific time trends. The fixed effect regressions yield results in table 4, similar to the result from our pooled regressions. Compared to the pooled regressions with a common time trend, fixed effects regressions with a country-specific time trend will control for the cross-country variation in economic fluctuations and human development outcomes. The increased R-squared suggests that the within-group variation is well explained with country-specific time trend. Health related indicators (life expectancy, infant mortality rate, and under-5 mortality rate) are significantly related with episodes of growth accelerations and decelerations, while education related indicators (literacy, enrollment rates) are not. The results are consistent with what we find in the pooled panel regressions.

Table 4. Fixed Effect Regression of Human Development Indicators, 1983-2006

	Life expectancy	Infant mortality	Under-5-mortality	Primary school enrollment	Secondary school enrollment	Literacy
ACC	2.84 7.77)**	-14.72 (-7.62)**	-25.26 (-6.67)**	-0.15 (-.38)	-0.55 (-4.56)	1.36 (.78)
DEC	-1.86 (-4.07)**	11.88 (4.75)**	24.01 (5.06)**	2.93 (2.31)*	2.36 (1.77)	-17.37 (-5.91)*
Constant	64.37 (348.69)**	45.62 (43.3)**	72.45 (36.58)**	111.83 (22.77)**	60.52 (14.24)**	79.71 (24.77)
Observations	4394	2870	2466	1465	1418	250
R-squared	0.67	0.68	0.68	0.98	0.99	0.86
Number of countries	200	199	199	188	188	138

Note: Absolute value of t statistics in parentheses; * significant at 5 percent; ** significant at 1 percent.

In sum, the evidence from historical relationship between human development indicators and growth performance using country level data suggests that the current economic slowdown, if protracted and unmitigated, is likely to affect the human development. The evidence suggests that the health condition of children would be especially harmed by the crisis. Results from the analysis also imply that the achievement of MDGs will be challenged by the current crisis.

Conclusion

The main findings of this paper are consistent for all three levels of analyses, from the literature, accounts from the field and an aggregate and historical analysis. Literature on the past economic crises suggests that negative growth shocks affect industrial and poor countries differently. In industrial countries, negative economic shocks are associated with improvements in health and educational outcomes while in developing countries they lead to setbacks (although the impact is ambiguous for middle-income developing countries). Clearly, a variety of factors, notably those that surround the challenges of poverty and underdevelopment itself, are likely behind these distinct outcomes.

Emerging accounts from the field also suggest that households are already facing severe strain as the crisis has begun to unfold, and little time has passed to recover from the difficulties in 2008 due to the food and fuel price shocks. There is evidence in some communities of severe coping strategies—implying that less severe ones may have already been exhausted—including incidences of eating less (and less nutritious) meals, turning to begging and illicit activities, including those that result in the exploitation of children, and finally, evidence of starvation and death in some parts of the developing world. Exploitation and abuse examples, particularly of children and women, can also be found in different parts of the world, with strong implied connections to the severe economic difficulties ushered in by the crisis.

Results from aggregate analysis using country level data show that growth accelerations, depending of course on the inclusiveness of their benefits, could be a boon to human development. However, growth decelerations are generally associated with an erosion of human development. Life expectancy and infant and under-5 mortality are likely to deteriorate during a growth deceleration. The empirical results are more ambiguous for child education outcomes, which is consistent with the findings in the empirical literature that the effect of crises on education outcomes could be mixed, and generally depends on the country's level of development among other factors that mediate the nature and extent of crisis impact.

If the current economic crisis deteriorates into a severe growth deceleration episode, and if its adverse effects are not countervailed by an adequate policy response, the accumulated evidence suggests that the crisis could begin to erode human development gains, and that the achievement of the MDGs by 2015 is likely to be undermined.

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