OVERVIEW: ECONOMIC CRISES AND HUMAN DEVELOPMENT*

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Resumen: Examinamos el efecto de choques económicos pasados sobre indicadores de desarrollo humano a fin de comprender mejor el impacto potencial de la crisis económica mundial actual. La literatura sobre el impacto de fluctuaciones económicas de corto plazo propone ciertos hechos estilizados. Primero, los indicadores de educación y salud generalmente mejoran durante las crisis en países ricos mientras que se deterioran en países pobres, sugiriendo una asimetría en la magnitud del impacto entre ambos. Segundo, las expansiones económicas tienen efectos menos significativos que las contracciones: la recuperación en desarrollo humano (de ocurrir) es menos rápida y pronunciada que el deterioro durante el descenso económico.

Abstract: In order to better understand the potential impact of the current global economic crisis on human development, we explore how human development indicators have been affected in past economic shocks. The literature on the human development impacts of short-term economic fluctuations suggest some stylized facts. First, there exists an asymmetry between rich and poor countries in terms of the magnitude of impacts of economic crises: Health and education outcomes in rich countries often improve during economic crises, while they deteriorate in poor countries. Second, economic expansions have less significant effects than economic contractions: the recovery in human development indicators is not as rapid and steep (if it occurs at all) as the deterioration that occurred during the economic downturn.

Clasificación JEL/JEL Classification: O11.O15, O47

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1. Introduction

What is the likely impact of the current economic crisis on human development? Given that the impact is at present difficult to track in real time, we refer to the literature to explore how human development indicators (income, health and malnutrition, educational enrollment and attainment) have been affected in past economic shocks. Since the human development impacts of economic crises are highly policy-relevant, and directly linked to the welfare of many generations, the literature on this issue is abundant, although the selection of data and approaches vary across empirical studies.

The relationship between human development indicators such as poverty rates, health, and education indicators and both the long-term trends and short-term fluctuations in economic growth have been analyzed in the literature. There is ample evidence that long-run GDP per capita growth has a strong positive correlation with human development indicators. However, the direction of causality is still debated: economic growth is often regarded as the foundation for improved human development. Furthermore, a certain level of human development may be required for higher growth in the future (see Lustig, Arias and Rigolini, 2002, for a review).

Here we focus instead on the effects of medium- or short-term growth fluctuations on human development outcomes (considering the changes in these indicators compared to their long-term trend). The literature on the human development impacts of economic fluctuations suggest some stylized facts. First, there exists an asymmetry between rich and poor countries in terms of the magnitude of impacts of economic crises: Health and education outcomes in rich countries are often improved during economic crises, while they deteriorate in poor countries. Second, economic expansions have less significant effects than economic contractions: the recovery in human development indicators is not as rapid and steep (if it occurs at all) as the deterioration that occurrs during an economic downturn.

2. Economic Crises and Poverty

Economic crises often increase transitory income poverty (and may also have a permanent effect on poverty if the crises deplete the assets and hurt the human capital of affected people, especially the poor). World Bank (2008a) estimates that a one percent decline in developing country growth rates traps an additional 20 million people into

poverty. However, this is an average effect: the poverty elasticity of income varies across countries and time periods, depending, amongst other factors, on the distribution of income, social policies, and the sector/geographic incidence of changes in income. Therefore, it is useful to consider cases of past effects of economic crises on poverty rates.

In the cases reviewed by Lustig (2000) and Skoufias (2003) summarized in table 1, the poverty rate increased during economic crises, in several cases quite sharply in a short period of time. For instance, in Argentina, the poverty headcount rate increased about 10 percentage points in each of the three crises listed in the table, in the most two recent crises this increase took place within a period of just two years. During the Asian financial crisis of 1997-1998, the poverty rate almost tripled in two years in the Rep. of Korea and increased by almost ten percentage points, also within two years, in Indonesia.

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	25.7 (1982)	32.7 (1983)
Venezuela	41.4 (1993)	53.6 (1994)

Table 1
(*continued*)

Country	*Before crisis* %	*Year of crisis* %
Indonesia	11.3 (1996)	18.9 (1998)
Rep. of Korea	2.6 (1997)	7.3 (1998)
Malaysia	8.2 (1997)	10.4 (1998)
Thailand	9.8 (1997)	12.9 (1998)

Sources: Lustig (2000: 4) and Skoufias (2003: 1088).

Lustig and Walton (1999) identify three main channels through which negative aggregate economic shocks transmit in the short-run to families and individuals, potentially aggravating poverty, reducing consumption and depleting savings. The first channel corresponds to reduced labor demand, which can result both in a drop in real wages and/or loss of employment. The second relates to changes in prices. Inflation erodes purchasing power with potentially dramatic consequences at the lower end of the income distribution scale, as does, more generally, price volatility. However, changes in prices affect households differently. For example, the impact of changes in food prices depends on whether households are net food consumers or producers, as well as on the direction of the change in prices. The third channel relates to reductions in public spending, which contributes to further reductions in labor demand as well as to a reduction in the provision of public services.

There is very strong evidence that these three channels, individually or in combination, are pervasive during aggregate economic shocks. For example, in Costa Rica's 1981-1983 economic crisis, with GDP contracting by 14 percent between 1981 and 1982, real wages fell by approximately 50 percent between 1981 and 1983 (Funkhouser, 1999). During the Mexican 1995-1996 crisis, the negative economic shock was accompanied by a very significant fall in real wages. Real hourly peso wages fell by 12.6 percent in 1995 and by a further 9.9 percent in 1996, before showing their first increase in 1998 (McKenzie, 2003). Unemployment rose sharply and there was a shift of the labor

force into the "informal" sector (Martin, 2000). Savings declined significantly in Mexico from 1994 to 1996 (Attanasio and Székely, 1998).

Wages and household consumption were severely affected by Peru's economic crisis in 1988-1990. GDP per capita fell by 10.5 percent, 13.4 percent and 6.9 percent each year from 1988 to 1990. Inflation reached almost 7,500 percent in 1990. The fall in output and rise in prices resulted in an 80 percent drop in real wages between 1987 and 1990 in Lima (Saavedra, 1998). The negative labor income shock would not necessarily have led to a decrease in consumption if households had had access to credit to smooth their expenditure. But household survey data show that per capita consumption plummeted almost 50 percent between 1985 and 1990 in Lima, suggesting that poor households did not have access to credit to cope with the shock (Glewwe and Hall, 1994).

Fallon and Lucas (2002) examined seven countries that suffered economic crises during the 1990s (Indonesia, 1998; Republic of Korea, 1998; Malaysia, 1998; Thailand, 1997; Argentina, 1995; Mexico, 1995; Turkey, 1994) and found that the main effect of the crisis on labor demand was a drop in real wages, rather than a reduction in employment. Even though unemployment also increased, these countries did not experience a significant decrease in employment, except in Korea. However, the composition of employment did change. For example, employment fell in construction but expanded in agriculture. There is mixed evidence on employment in nontradable sectors. The authors also find a switch from protected jobs (wage employment) to unprotected jobs (self employment) during the crises in Indonesia and Mexico.

Additional details related to the 1997-1998 Indonesian crisis suggest the potentially harmful effects of price changes combined with reduced labor demand. Indonesia suffered an 80 percent hike in the consumer price index and a 120 percent rate of inflation in the price of rice in 1998. Real wages fell by 40 percent in the formal sector and by 15-20 percent in the rural informal sector. The average household consumption fell by 23 percent from 1997 to 1998, and real per capita spending on non-foods declined by around 40 percent between 1997 and 1998 (Thomas, Beegle and Frankenberg, 2003, 2004). Very poor urban dwellers were the most affected by the crisis because of changes in the relative price of basic foodstuffs (Levinsohn, Berry and Friedman, 1999). The labor force participation rate was lower in 1999 than in 1997 despite an increase in women's employment (Cameron, 2000).

In spite of the wide range of estimates of the impact of the crisis on poverty in Indonesia, all studies point to an increase in the poverty

rate after the crisis. Lanjouw *et al.* (2001) estimate that the poverty rate increased by 11 percent from October 1997 to October 1998. Skoufias and Suryahadi (2000) find the poverty rate doubled from 12.4 percent in 1997 to 24.5 percent in 1998. Frankenberg, Thomas and Beegle (1999) estimate that the proportion of households below the poverty line rose by 25 percent from 1997 to 1999. They suggest that the rise in poverty could be around 80 percent if the estimate were adjusted for inflation.[1]

While the effects of economic crises on the distribution of income vary, there are cases in which not only poverty but also inequality increases. A reason for increased inequality is that less skilled and poorer workers are often more likely to be laid off at the beginning of an economic downturn. Lack of education and transferrable skills implies that the group is likely to be the last to get employed after the economy bounces back. Therefore, less skilled and poorer workers tend to be unemployed for the longest duration during economic crises (Jeanneney and Kpodar, 2008). Since labor income is the most important (and, for many, the only) income source for poorer workers, a prolonged crisis often leads to increases in inequality. Inequality in Latin American countries clearly increased during the 1980s economic crises (Fallon and Lucas, 2002).

Aggregate shocks can have long term impacts, not only transitory effects on income. Based on a review of existing literature, Mendoza (2009) concluded that when income shocks affect capabilities, they lead not only to persistent poverty, but can actually result in the intergenerational transmission of poverty. The effects of economic shocks on capabilities linked to health, nutrition, and education - to be reviewed next - may be particularly harmful.

3. Economic Crises, Health and Nutrition

There are several channels through which an economic shock, propagated through the mechanisms outlined above, may negatively affect

[1] One reason for the debate on the poverty impact in Indonesia relates to the use of different poverty lines. The Government of Indonesia maintains a set of poverty lines (one urban and one rural) for each province. Independently, the World Bank maintains another set of poverty lines for Indonesia. Researchers mentioned above also set their own poverty lines. The reason is that in times of high inflation and large changes across sector and region, it is difficult to generate accurate poverty lines that reflect welfare changes at the household level.

health and nutrition outcomes in developing countries. The most direct channel works through the impact of reduced real income, which reduces the ability of households to pay for maintaining or improving health. When households are unable to buffer consumption from sharp income declines, private spending on food, medicine and health care drops. For example, the deterioration in the nutritional status of pregnant women and insufficient prenatal care could lead to a higher infant mortality rate (Baird, Friedman and Schady, 2007; Ferreira and Schady, 2008; Paxon and Schady, 2005). The impact of the retreat in private spending can be aggravated by public spending cuts that lower the provision of publicly available health services (Ferreira and Schady 2008, Paxon and Schady 2005). In addition, strategies followed by families to cope with lower real income may also aggravate health outcomes (Cutler *et al.*, 2002). For example, some people may be forced to work longer hours or elder workers to delay retirement, which could have a negative impact on health. Or a caregiver (usually a female family member) may need to go back to the labor force, harming the health of the young and the aged at home. There is evidence suggesting that women enter the workforce in Mexico during times of economic stress to diversify household earnings and to protect against income losses (Parrado and Zenteno, 2001).

The increase in poverty during economic shocks may result in a direct and irreversible loss of life. Banerjee and Duflo (2007) find a strong positive association between poverty and mortality rates. While they do not establish unequivocally a causal relationship from poverty to higher death rates - it might be the case that less healthy people become poor, and are therefore more likely to die - they assert that their analysis is strongly suggestive that the causality runs from poverty to death, or as they put it, that poverty kills. Drawing on data from Indonesia, Vietnam, and India, they find that the extreme poor (those living on less than PPP$1 a day) and the poor (those living on less than PPP$2 a day) have higher mortality rates than those living at higher levels of income (between PPP$6 and PPP$10 a day in the case of Indonesia and Vietnam; more than PPP$2 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.

Table 2 reproduces some of the results for Vietnam and Indonesia. It compares the death rates (within 5 years) of the poor and the non-poor for different age groups. The death rate of poor children under 5 years of age is higher than that of non-poor children

in the same age group in both Vietnam and Indonesia. The smallest gap in death rates between the poor and non-poor occurs for the age group between 5 and 15 years old. In Vietnam, the elderly poor have a death rate that is more than 3 percentage points, or about 30 percent, higher than the elderly non-poor. In the case of Indonesia, the differentials are much larger across all age groups, but in relative terms, poor children appear particularly vulnerable. If we interpret the ratio of death rates of the poor and non-poor as the difference in the likelihood of dying, poor children under 5 in Indonesia are almost four times more likely to die than non-poor children. If this association holds more broadly and is persistent over time, then an increase in poverty rates as a result of economic crisis will 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 child mortality rates up.

Table 2
Death Rates by Age for Poor and Non-Poor
(within five years from 1993)

	Death rates within 5 years		*Poor vs. Non poor*	
	Less than $ 2 (1) %	*Between* $6- $10 (2) %	(1) - (2) %	(1)/(2)
Vietnam				
Older than 50	13.1	9.8	3.3	1.3
Older than 45	11.2	8.0	3.2	1.4
Between 15 and 45	1.0	0.0	1.0	–
Between 5 and 15	0.6	0.0	0.6	–
Less than 5	1.2	0.0	1.2	–
Indonesia				
Older than 50	15.8	7.3	8.5	2.2
Older than 45	14.1	6.9	7.2	2.0
Between 15 and 45	3.7	1.0	2.7	3.7
Between 5 and 15	3.0	1.1	1.9	2.7
Less than 5	3.8	1.0	2.8	3.8

Source: Own elaboration based on data from Banerjee and Duflo (2007).

In a review of studies related to the effects of economic shocks on health, Ferreira and Schady (2008) conclude that economic crises tend to have negative effects on health and nutrition outcomes for children in poor countries but typically have positive effects for children in rich countries (see table 3). The evidence for middle income countries is mixed. For some middle-income countries like Mexico, Peru and Russia, negative economic shocks affected child health and nutrition negatively. But for others such as Colombia, the impact was positive.

The literature suggests that recessions in the United States appear to be good for health, while economic good times tend to be less good for health (Edwards, 2009, is a recent re-statement of this finding). This may be due to behavioral changes that have health improving outcomes: less smoking and drinking, less traffic accidents, and more exercise (Ruhm, 2000, 2003, 2005, 2007). Dehejia and Lleras-Muney (2004) also find that infant mortality improves in the United States during recessions, which can be explained in part by an increase in the time that mothers spent engaging in exercise and prenatal care (there is also a possible selection effect in terms of the socioeconomic characteristics of those who chose to become mothers). There is also evidence, however, that difficult economic conditions may have long-term adverse health effects even in developed countries (van den Berg, Lindeboom and Portrait, 2006 and Case, Fertig and Paxson, 2005), and that even industrial countries may exhibit deteriorating health outcomes when faced with large negative shocks (see the discussion on the transition economies below).

Table 3
Effect of a Negative Aggregate Economic Shock on Child Health and Nutrition Outcomes

Rich countries	*Positive impact* - United States
Middle-income countries	*Ambiguous impact* *Example of a positive impact* - Columbia *Examples of a negative impact* - Peru - Mexico - Russia

Table 3
(*continued*)

Poor countries	*Negative impact*
	- Nicaragua
	- India
	- Cote d'Ivoire
	- Zimbabwe
	- Ethiopia
	- Tanzania
	- Cameroon

Ferreira and Schady (2008) interpret these results with a theory that describes both the income and the substitution effects on health outcomes associated with a negative economic shock, and how the level of income may determine the net health impact of an economic shock. Economic shocks reduce the consumption of health services, which corresponds to a negative income effect, but there may be positive income effects, as well, if there is a reduction in the consumption of goods that are harmful to people's health such as cigarettes and alcohol. In poor countries, or for families with low income, the negative income effect is likely to overwhelm any potential positive income effect. The marginal effect on health of a dollar lost for the poor may affect spending on essential goods like more nutritious food or basic health services, while the loss for the rich will not affect this baseline spending, only perhaps less essential and potentially health harmful goods. Substitution effects may also explain how in rich countries economic recessions improve health, with more time dedicated to activities that improve people's health such as exercise, or more adult time dedicated to child-health improving activities.

Baird, Friedman and Schady (2007) investigate the relationship between short-term fluctuations in aggregate income and infant mortality using a large dataset of 59 developing countries, which covers over 1.7 million births. The authors find that there is a large negative relationship between per capita GDP and infant mortality -on average, a decrease of one point in log per capita GDP is associated with an increase in mortality of between 18 and 44 infants per 1 000 births. They also find that the impact of economic fluctuations on infant mortality is highly asymmetric depending on whether the economic fluctuation is a contraction or an expansion. The negative impact

of contractions on infant mortality rates tends to be bigger than the positive impact of expansions.

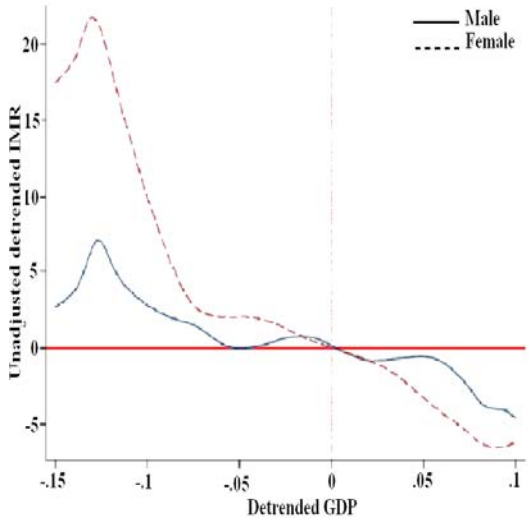
The effect of economic crises on health is also asymmetric in terms of gender effects. When an economic crisis hits, mothers forego meals more often than fathers, and in many countries boys get preference over girls in terms of eating regular meals and receiving medical treatment (Baird, Friedman and Schady, 2007). As illustrated in figure 1, Baird, Friedman and Schady (2007) show that the impact of economic fluctuations on infant mortality is asymmetric between male infants and female infants. The difference between the negative impact of economic contractions and the positive impact of economic expansions on infant mortality is much greater for girls than it is for boys. While boys and girls benefit equally from positive income shocks, girls suffer much more than boys from negative income shocks. Quantitatively, negative shocks to GDP per capita of about 6 percent on average increase average infant mortality by 7.4 deaths for 1 000 births for girls and 1.5 deaths for 1 000 births for boys (Baird, Friedman and Schady, 2007: 25-26). Schultz (1997) points out that an increase in child mortality will probably place additional burdens on women because of their roles as child bearers and care givers. For example, mothers will be disproportionately exposed to pregnancy-related health risks if parents choose to have additional births to cope with the increase in child mortality rates. Bhalotra (2009) also finds that rural infant mortality in India is countercyclical, the elasticity being about -0.33 during 1970-1997. Disaggregation reveals that it is only girls that are at risk; boys are protected from income shocks.

Cutler *et al.* (2002) find that during the Mexican 1995-1996 economic crisis, the mortality rate increased by 5 to 7 percent compared to the years prior to the crisis. This translates into about 20 000 additional deaths among the elderly and 7 000 additional deaths among children. For children aged 0 to 4, the mortality rate was approximately 7 percent above the expected level (the child mortality rate increased by 9.2 percent during 1982-1984 and by 10.3 percent during 1985-1989). World Bank (2001) reports that during the Mexican economic crisis, among children under age 1, the mortality rate from anemia increased from 6.3 deaths per 100 000 births in 1993 to 7.9 in 1995. Among children ages 1-4, the mortality rate from anemia rose from 1.7 per 100,000 births to 2.2 during the crisis period.

Cutler *et al.* (2002) attribute the increase in Mexican mortality rates during the 1995-1996 economic crisis to reduced income and cuts in public spending on health care. They find that as the economic crisis hit Mexico, the unemployment rate among adult males went

up from 3.6 percent in 1994 to 6.1 percent in 1995. Out-of-pocket health expenditures declined during the crisis from 3.9 percent of GDP in 1994 to 3.1 percent of GDP in 1995, and the declines are most significant for families with elderly members. Public health spending in Mexico rose steadily from a low 2.7 percent in 1987 to 3.8 percent of GDP in 1994. But between 1994 and 1996, public health spending dropped to 3.4 percent of GDP, and per capita public health spending fell by 15 percent. At the same time, there were important changes in per capita spending on the uninsured population through the PASSPA (*Programa de Apoyo a los Servicios de Salud para Población Abierta*) program.[2] Between 1994 and 1995, when public health spending declined in all regions, the sharpest fall was in the PASSPA states, 25 percent.

Figure 1
Relationship between Infant Mortality Rate and Detrended GDP



Note: Estimated with locally weighted least squares. GDP is measured in year 2000 international (PPP). Source: Baird, Friedman and Schady (2007).

[2] The PASSPA program was sponsored by World Bank to offer basic health services to the uninsured and rural populations in the poorest states of Mexico. The program is implemented by the Mexican Secretariat of Health.

Paxson and Schady (2005) find that during the Peruvian 1988-1990 economic crisis there was a sharp increase in the infant mortality rate from 50 per 1 000 births in 1988 to 75 around 1990 which corresponds to more than 17 000 "excess" infant mortality incidents among children born in 1990. This infant mortality increase began in the second half of 1989 and peaked for children born in the first half of 1990. Children born during this period were more likely to die in the first month of life and also more likely to die in the first 6 and 12 months of life. For example, among children born in the first half of 1990 who survived at least 1 month, 20 per 1 000 died between ages 1 and 6 months compared to 8 per 1 000 for those born in the first half of 1988. Similarly, the mortality rate of those surviving to 6 months but died before 12 months also went up from 14 per 1 000 to 25 per 1 000 from 1988 to 1990.

Paxson and Schady (2005) suggest that a collapse in public health spending probably contributed to the large increase in infant mortality in Peru. Between 1985 and 1990, public health expenditure in Peru dropped by 58 percent, declining from 4.3 percent to 3 percent of the Peruvian government's budget. The number of prenatal visits fell steadily from 1987 through 1991 and recovered only afterwards. Based on the authors' estimates, women who gave birth in 1991 (many of whom would have been pregnant in 1990) had 0.28 fewer prenatal visits than those in 1987; women who gave birth in 1992 (many of whom would have been pregnant in 1991) had 0.38 fewer visits than those in 1996. This shows that there were significant declines in health care utilization during the crisis years. These declines occurred either because of reductions in public health spending or drops in household incomes. The authors find that households in Peru were able to sustain their consumption of food items but had to cut their non-food item spending such as medications and health care after the crisis hit.

In Indonesia, the impact of the 1997-1998 financial crisis on health and nutrition outcomes is not consensual. Some suggest that there was an increase in infant mortality rates. Rukumnuaykit (2003) finds that infant mortality spiked up from about 30 per 1 000 births in 1996 to 48 in 1998. Simms and Rowson (2003) find that the infant mortality rate increased in 22 of Indonesia's 26 provinces between 1996 and 1999. But there is no evidence showing that child nutrition levels or health status significantly worsened during the crisis (Frankenberg, Thomas and Beegle, 1999).

There is some evidence of poorer nutrition among Indonesian adults, especially among the poorest. Frankenberg, Thomas and Bee-

gle (1999) report that the Body Mass Index (BMI) of adults aged 18 and older declined significantly during the crisis years, for both males and females and at all ages but the decline was most pronounced among older adults. There was a significant increase in the proportion of adults with a BMI below 18 (the cut-off below which respondents are considered to be unhealthy and both morbidity and mortality rates tend to increase). In 1997, 13.6 percent of panel respondents were in this category. By 1998, 15.4 percent of respondents have fallen below the cut-off. The decline in BMI is likely caused by two factors, increased energy output (possibly due to working harder) and reduced energy intake (possibly due to eating less).

The proportion of household income spent on health decreased significantly in Indonesia while health costs rose by at least as much as consumer price inflation. There was a sharp decline in the use of public healthcare. The percentage of children under five visiting community primary health care centers (*posyandu*) fell from 46.7 percent to 27.7 percent, accompanied by a fall in the number of children receiving vitamin A supplements. Waiting time in health care centers increased and drugs became less available (Frankenberg, Thomas and Beegle, 1999).

Still, in contrast with the experience of other countries that suffered economic crises, Indonesia did not experience as sharp a decline in child health and nutrition outcomes during the economic crisis. The possible explanation is that Indonesia was able to protect its expenditures on public health from dropping significantly with the help of donor assistance. In comparison, public health expenditures in Peru, as discussed earlier, fell by more than 58 percent during its crisis, and there is no evidence showing that other sources such as foreign assistance compensated for such a decrease.

According to Lieberman, Juwono and Marzoeki (2001), Indonesia relied heavily on foreign donors to make up its domestic shortfalls in public health spending during the crisis years. The donor share of Indonesian public health spending accounted for less than 10 percent in the mid 1990s but rose to 24 percent during 1998-2000. Donor-assisted health spending per capita increased four times in real terms between 1995 and 2000. During the crisis period, foreign donors' assistance on health spending increased by 278 percent in real terms (from 207.5 billion rupiah during 1997-1998 to 577.9 billion rupiah during 1998-1999) while real Indonesian domestic financial sources spent on public health dropped by 21 percent (from 2 533.7 billion rupiah during 1997-1998 to 2 014.4 billion rupiah during 1998-1999). Such a shortfall in public health expenditure (and also the decrease

in household health expenditure as previously indicated) was largely compensated by the sharp increase in donor assistance to the health sector. The net result was a 5 percent decline in overall government health expenditure during 1998-1999. In the next fiscal year (1999-2000), donor-assisted health spending continued to increase by another 17 percent. It is reported that most of foreign assistance to the health sector went to government hospitals. Thus, during the crisis period, real spending per capita on public hospitals actually went up by 13 percent, while real spending per capita on primary care dropped by more than 10 percent.

Revisiting a relatively recent and familiar episode, the aftermath of the collapse of the Soviet Union and the transition process undertaken by many countries in Eastern Europe and Central Asia, also helps to reveal that collapses in economic growth often go along with a deterioration of living standards, increased mortality rates, and the consequent reduction in life expectancy (Sachs, 1996).

Figure 2 shows the paths of income per capita and life expectancy at birth (for males) for nine transition economies. The general pattern is clear: the growth collapse that started in 1989-1999 was accompanied by sharp drops in life expectancy for all six countries except for Poland.

It is striking to observe that when economic growth resumed in the mid 1990s, the decreasing trend in life expectancy reversed, in some countries quite abruptly, but it is also important to note that (of the countries considered and excluding Poland) only the Kyrgyz Republic and Latvia recovered to the levels of life expectancy of 1989. This is suggestive of the asymmetric pattern that, as will be elaborated below, appears to characterize the relationship between economic fluctuations and changes in human development indicators: income contractions have a stronger negative effect than the positive effect (if any, see Russia since 1998) of income expansions.

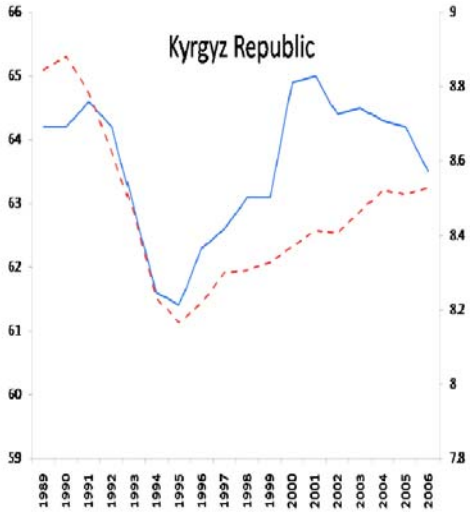
The case of the Russian Federation is particularly informative. From 1989 to 1994 life expectancy at birth for males dropped by more than seven years, from 64 to 57 years - a rate of yearly collapse of more than one year of life expectancy. Then it rebounded strongly, increasing by four years to 61 in 1998. Latvia exhibits the same pattern, but while the increase in life expectancy persisted onwards in this country, there was another collapse in life expectancy in the Russian Federation after 1998, from which the country has yet to recover.

The 1998 collapse in life expectancy in the Russian Federation coincided with another economic crisis. As the income line shows,

growth was picking up in 1997, but unlike the other countries in which economic growth persisted, in Russia income collapsed again during the 1998 financial and economic crisis that affected the country. Epidemiological studies suggest that the causes and the nature of the increase in mortality rates during 1989-1994 and during 1998-2001 are similar, and they correlate strongly with social and economic factors (Men, *et al.*, 2003).

The increase in mortality rates that went along with the two growth collapses in Russia cannot be attributed exclusively to the concomitant impoverishment of parts of the population. The largest contribution to increased mortality rates comes from middle-aged adults (35-69 years). Mortality increases relate to violent deaths (suicide, traffic accidents, homicides), and alcohol poisoning. All of these causes of death, with the possible exception of cardio vascular disease, are related to increases in alcohol consumption (Mesle, 2002). Evidence does suggest that increased alcohol consumption was triggered in part by socioeconomic stress in difficult economic conditions, and also that stress had an independent effect on the increase in mortality rates (Walberg *et al.*, 1998).

Figure 2
Life Expectancy and Income in Transition Countries
1989-2006



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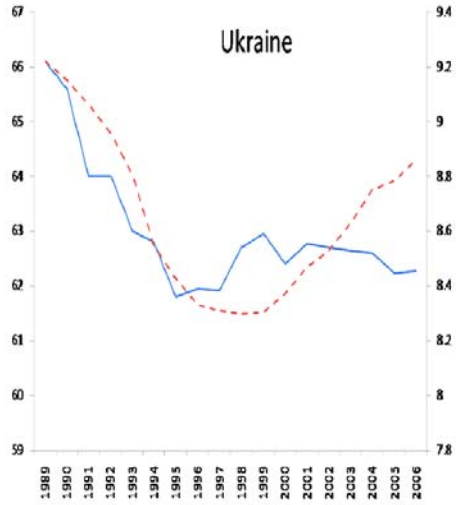


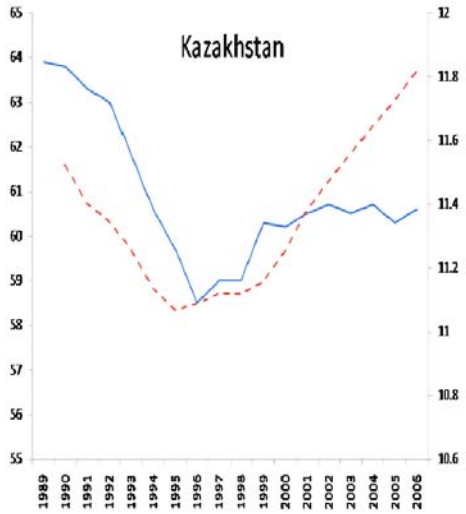


Figure 2
(*continued*)

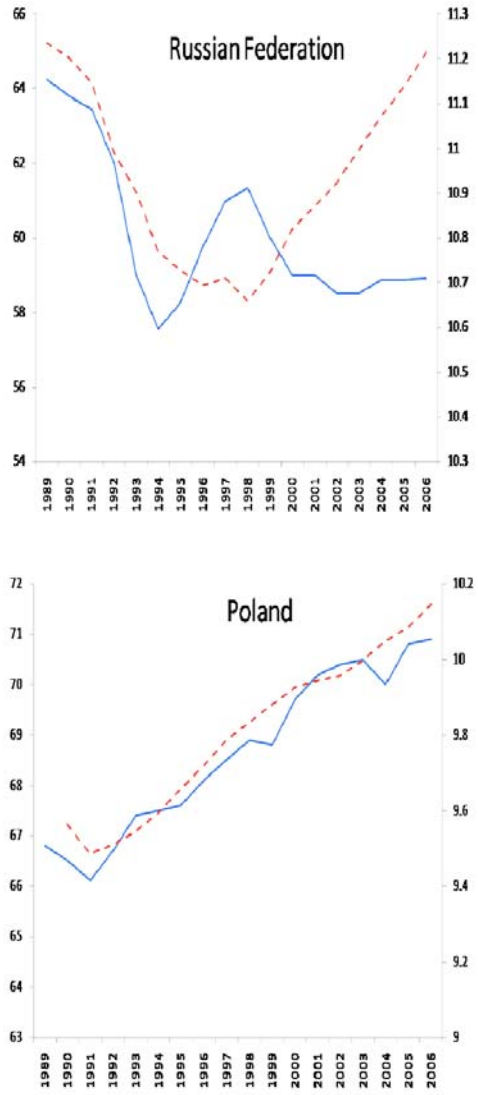
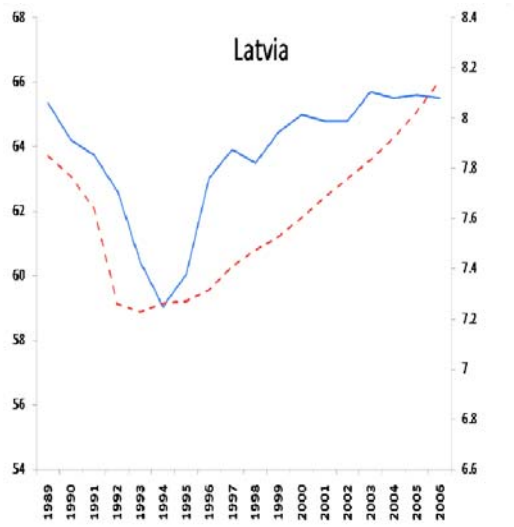


Figure 2
(*continued*)



Source: Own elaboration based on data from World Bank (2008b). Note: Solid line represents life expectancy at birth for males in years (left hand scale); dashed line represents the logarithm of GDP per capita in constant local currency units (right hand scale). Countries are ordered by increasing income per capita in 1990 (in constant 2000 US dollars) from left to right, top to bottom.

4. Economic Crises and Education

The transmission channels from economic shocks to education outcomes are similar to those that relate to health outcomes, with the combined effects of reduced private and public spending on education, adding to the effects of coping strategies such as taking children out of school and putting them to work, may result in reduced school enrollment and completion rates. But as with health, the impact of economic shocks depends on the level of income, the depth of public education cuts, and the ability of households to smooth income shocks.

In a review of the effects of economic shocks on education, Ferreira and Schady (2008) show that school enrollment rates tends to decline in low-income countries but increase in high-income countries,

while the impact of economic crisis on school enrollment or attainment rates in middle-income countries is ambiguous (see table 4). However, the empirical evidence is, on the whole, much less robust than it is for health outcomes.

Table 4
Effect of a Negative Aggregate Economic Shock on Child Education Outcomes

Rich countries	*Positive impact* - United States
Middle-income countries	*Ambiguous impact* *Examples of a positive impact* - Mexico - Brazil - Peru - Nicaragua *Example of a negative impact* - Costa Rica
Poor countries	*Negative impact* - Indonesia - Cote d'Ivoire - Malawi - (Nicaragua)

Note: Parentheses indicate the reverse effect, for countries that deviate from the theoretical predictions. Source: Ferreira and Schady (2008): 50.

Ferreira and Schady (2008) interpret these empirical findings using a framework that, as in the case of health, suggests that the effects of economic shocks on education depend on income and substitution effects. Declining wages or lack of employment opportunities may make child labor relatively less attractive, which may increase parents' incentive to send their children to school. On the other hand, lower parental income increases the marginal value of additional income that children can bring home if they work. The net outcome of these effects will vary across economic agents, depending on the household's preference and surrounding factors (Ravallion, 2008). For instance, a negative economic shock may induce changes in behavior that may lead to improvements in education in rich countries, because

households in rich countries have more access to credit to absorb the income shock (small income effect), but the decreased child wage may lead to incentive to keep children at school (large substation effect), as happened in United States during the Great Depression (Goldin, 2001).

The negative aggregate income shock is likely to have a negative impact on education in poor countries and for poor households for several reasons (Ferreira and Schady, 2008). First, if the initial level of income is low, the marginal utility from consumption is high. Poor households will have more incentive to send children to earn additional income to compensate the loss of income incurred by the aggregate shock. Second, when households do not have access to credit to smooth consumption during the economic downturn, the income effect is likely to dominate the substitution effect. Third, if the crisis is severe and long, poor households tend to deplete their resources to smooth their expenditure. These factors would lead one to expect pro-cyclical schooling outcomes (less education during recession).

Empirical evidence is consistent with the theoretical predication for the pro-cyclical schooling in low-income countries and for the poorest populations. Frankenberg, Thomas and Beegle (1999) find significant declines in enrollment of young children among the poorest of Indonesians after the 1997 financial crisis. The percentage of 7-12 year olds who were not enrolled doubled from 6 percent in 1997 to 12 percent in 1998. The percentage of 13-19 year olds who were not enrolled increased as well, especially in urban areas from 33 percent in 1997 to 38 percent in 1998. By 1998, children from the poorest households were about five times more likely to be out of school than their counterparts at the top of the expenditure distribution.

Children from poorer households are also more likely to drop out of school during the crisis years. World Bank (2001) reports that the drop-out rate for Indonesian children in the poorest fourth of the population rose from 1.3 percent in 1997 to 7.5 percent in 1998 for those ages 7-12 and from 14.2 percent to 25.5 percent for those ages 13-19. The share of children in the poorest fourth of the population not enrolled in school rose from 4.9 percent in 1997 to 10.7 percent in 1998 for those ages 7-12 and from 42.5 percent to 58.4 percent for those ages 13-19.

The worsening education outcomes for the poorest Indonesians during the 1997-1998 economic crisis could be attributed to fewer financial resources made available for education. Indonesians reduced their expenditure on non-food items to cope with the financial crisis. Thomas, Beegle and Frankenberg (2004) find that both real educa-

tion expenditures and the share of the household budget spent on schooling declined between 1997 and 1998 in Indonesia. Education expenditure per age-eligible child (5-20 years old) declined by 2 700 rupiah in the urban areas and by 1 500 rupiah in the rural areas. Average education spending on an enrolled child fell by over 3 000 rupiah in urban areas and over 2000 rupiah in rural areas. The share of the household budget allocated to education dropped by over 10 percent in urban areas and nearly 30 percent in rural areas. The authors find that the reduction in education spending is concentrated among the poorest populations.When faced with a negative income shock, poor households in both urban and rural areas tend to invest less in schooling, especially for their younger children (10-14-year-olds), although poor households with older children (15-19 years old) tend to protect education spending..

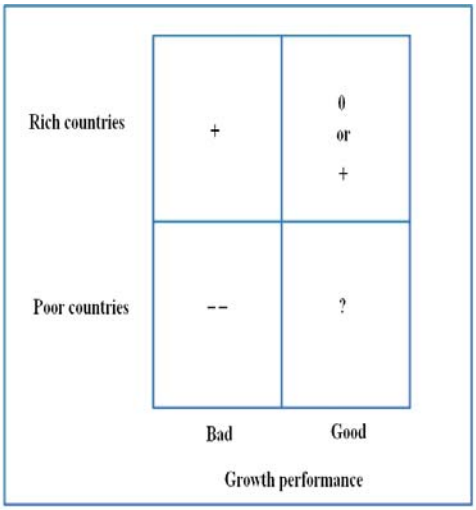
There is evidence that the impact of economic crises on educational outcomes is gender-specific as well. In low-income countries both girls and boys may drop out of school during an economic crisis. But according to World Bank (2009), in poor countries with pre-existing low female schooling, girls are especially vulnerable to being pulled out of school. Gubert and Robilliard (2007) find that in Madagascar, where school enrolment rates for girls are low, girls are more likely to drop out of school than boys when families are hit by a negative household income shock. Duryea, Lam and Levison (2007) find that in Brazil girls are more likely to be pulled out of school when there is a negative income shock. They estimate the probability of a 16-year-old 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. In middle-income countries, the effect is ambiguous. In Costa Rica, school enrollment rates dropped approximately 6 percent between 1981 and 1982 during the economic crisis, with larger drops in rural areas. The drop in schooling was associated with an increase in the fraction of children working during the same period. 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 exposed (Ferreira and Schady 2008). 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).

5. Conclusion

The main findings are summarized in figure 3. Negative growth shocks affect rich and poor countries differently. In rich countries,

negative economic shocks are associated with improvements in health and educational outcomes while in poor countries they lead to setbacks (the impact is ambiguous for middle-income countries). Human development indicators either deteriorate or improve at a slower pace during an economic crisis in poor developing countries. Conceição and Kim (2009) find similar results from the data for 200 countries between 1983 and 2006.

Figure 3
Impact on Health and Education Outcomes in Poor and Rich Countries Depending on Growth Performance



Note: Illustrative.

If the pattern found in our empirical analysis persists, given that all countries are likely to face recessions at the same time during this global economic downturn, not only will developing countries face setbacks in human development outcomes, but the long-running trend of convergence in many human development indicators across countries may slow down or even reverse.

There is no simple way to describe the human development impacts of the current economic crisis. However, the literature on past economic crises and our empirical findings suggest that the current economic crisis poses grave risks to human development outcomes, but that it might also open a unique window of opportunity to introduce welfare improving policies. If policy measures to mitigate the

shock are well targeted towards the poor, they are likely to minimize the negative impact on human development outcomes, and contribute to both the recovery and longer term growth.

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