

HIPCS, DEVELOPMENT ASSISTANCE AND CHILDREN: CHILD SURVIVAL IMPERATIVES IN AID PROGRAMMES

WORKING PAPER



DIVISION OF
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AID PROGRAMMES**

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JUNE 2006

HIPCs, Development Assistance and Children: Child Survival Imperatives in Aid Programmes

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Executive Summary

This paper studies Under Five Mortality Rate (U5MR) trends and their determinants in highly indebted poor countries (HIPC). We first determine how successful these countries have been in improving child survival in recent years. Thereafter, we analyze how the international community can revisit its aid structure (in this case the HIPC initiative) to enable the poor countries reduce child mortality. Our analysis offers the option of setting three types of requirements which can be attached to aid delivery. The first is simply the country's performance in child survival as one of the requirements to receive aid. The second category of requirements may include certain social expenditures such as health and education which positively impact on child survival. The third set of requirements may include the coverage of some key basic social services that are known to improve child survival, such as neonatal care and vaccination.

The first part of the paper investigates trends of child survival in 38 countries which are at different stages of the Highly Indebted Poor Countries (HIPC) initiative. This Initiative involves debt relief for poor countries, conditional on their implementation of certain governance and macroeconomic reforms. The initiative was intended to fight poverty and promote sustained development. We argue that in order to capture poverty trends effectively, we need to go beyond an income poverty measure to a more comprehensive indicator that captures poverty in its many dimensions. We show that a more comprehensive measure of poverty in this context could be the Under Five Mortality Rate (U5MR). We study changes in U5MR trends across a sample of countries to evaluate if HIPC assistance and related conditionalities have made any significant difference to child survival.

The HIPC Initiative started in 1996 and was revised in 1999 for greater effectiveness. Therefore, in this paper, the trends in U5MR have been examined during three distinct periods, namely pre-HIPC period (1990-96), HIPC period (1996-2000), and enhanced HIPC period (2000-2003). Our sample comprises countries that had reached completion point (13) and decision point (14), and those which had not qualified for assistance as of June 2004.

We estimate the mean rates of reduction in U5MR for each group of countries and for each of the three periods. We also examine the statistical significance of mean differences among groups of countries over different time periods. The results show that the performance of Completion Point countries, in respect of U5MR, has not been significantly different from the other groups of countries. This is despite the fact that the Completion Point countries implemented the required governance and macroeconomic policy for the longest period, and despite the fact that they received the highest amount of assistance in the programme. Looking at poverty from a child's perspective, a restructuring of the HIPC programme is necessary now that the international community has decided to write off debts of HIPC countries thereby freeing up much greater amounts of additional resources for development and poverty reduction.

The second part of the paper is more concerned with studying the determinants of U5MR. Understanding these determinants is crucial for analyzing the effectiveness of current aid conditionalities and proposing alternative policy recommendations. We study whether the current conditionalities have been effective in U5MR reduction. We do not question whether there should be conditionalities in aid delivery and debt relief, but rather ask if the prior

conditions have been successful in improving child survival and, if not, what changes need to be done in this context.

The first set of variables we have looked at in connection with child survival includes income and social expenditures on health and education. It is recognized that child poverty is best addressed by improvement in both income with which private services are bought, as well as improved access to basic social services (UNICEF 1998). Unfortunately, disaggregated global expenditure data on access to basic social services is scanty. We have, therefore, used aggregate health and education financing data in this part of the analysis.

To supplement our findings from the analysis of public finance data, we have analyzed causal connections between child survival and coverage of different programmes and services which are known to bear positive correlation with child survival. Since public expenditures on interventions against these child diseases are not easily obtainable, we have used the available coverage data in analysis hoping that conditions for aid delivery could include milestones of such coverage as well.

Our results show that besides countries' performance on growth of income as an aid delivery condition, three additional policy requirements could also be considered in order to promote child survival. These are milestones of U5MR, key public expenditures and coverage of services identified as having positive impact on child survival. These "positive aid requirements" can create much needed additional emphasis on child survival in the use of national and aid resources.

Resumen Ejecutivo

Este documento estudia las tendencias en la tasa de mortalidad de menores de cinco años (TMM5) y sus factores condicionantes en países pobres muy endeudados. En primer lugar, hemos establecido el grado en que estos países han avanzado en la mejora de la supervivencia infantil durante los últimos años. Posteriormente, hemos analizado la forma en que la comunidad internacional puede volver a examinar la estructura de su asistencia (en este caso, la Iniciativa para los países pobres muy endeudados) a fin de lograr que los países pobres reduzcan la mortalidad en la infancia. Nuestro análisis ofrece la posibilidad de establecer tres tipos de requisitos, que pueden condicionarse a la prestación de asistencia. El primero se refiere simplemente al rendimiento del país en materia de supervivencia infantil, uno de los requisitos para recibir asistencia. La segunda categoría de requisitos podría incluir el desembolso de determinados gastos sociales, como la salud y la educación, que tienen repercusiones positivas en la supervivencia infantil. El tercer conjunto de requisitos podría incluir la cobertura de algunos servicios sociales básicos fundamentales que se sabe que mejoran la supervivencia infantil, como la atención neonatal y la vacunación.

La primera parte del documento investiga las tendencias en la supervivencia infantil en 38 países que se encuentran en diferentes etapas de la Iniciativa para los países pobres muy endeudados. Esta Iniciativa ofrece a los países pobres el alivio de la deuda con la condición de que apliquen determinadas reformas macroeconómicas y de gestión pública. La Iniciativa se concibió para luchar contra la pobreza y promover el desarrollo sostenible. Nosotros defendemos que, a fin de registrar con eficacia las tendencias de la pobreza, no sólo tenemos que medir la pobreza de ingreso, sino también utilizar un indicador más amplio que registre la pobreza en sus numerosas dimensiones. Por ello consideramos que una medida más amplia de la pobreza en este contexto podría ser la tasa de mortalidad de menores de cinco años (TMM5). Estudiamos los cambios en las tendencias de la TMM5 en una muestra de países para evaluar si la asistencia a los países pobres muy endeudados, y las condiciones relacionadas con esta asistencia, han logrado algún cambio considerable en la supervivencia infantil.

La Iniciativa para los países pobres muy endeudados comenzó en 1996 y se revisó en 1999 con el fin de dotarle de una mayor eficacia. Por tanto, en este documento se examinan las tendencias en la TMM5 durante tres períodos distintos, es decir, en el periodo anterior a la iniciativa (1990-96), en el período de la iniciativa (1996-2000), y en el periodo de mejora de la iniciativa (2000-2003). Nuestra muestra comprende países que han alcanzado el punto de terminación (13) y el punto de decisión (14), y aquellos que hasta junio de 2004 no habían reunido los requisitos para recibir asistencia.

Hemos calculado las tasas promedio de reducción de la TMM5 para cada grupo de países y para cada uno de los tres períodos. También hemos examinado la importancia estadística de las diferencias promedio entre los grupos de países durante los diferentes períodos de tiempo. Los resultados indican que el rendimiento en la TMM5 de los países que se encuentran en el punto de terminación no ha sido considerablemente diferente del de los otros grupos de países. Esto a pesar de que los países en el punto de terminación aplicaron durante el mayor período de tiempo la política de gestión pública y macroeconómica que se les exigía, y a pesar de que recibieron la mayor cantidad de asistencia prevista del programa. Si se considera la pobreza desde una perspectiva de la infancia, es necesario reestructurar el programa para estos países ahora que la

comunidad internacional ha decidido cancelar la deuda de los países pobres muy endeudados, y liberar por tanto una mayor cantidad de recursos adicionales para el desarrollo y la reducción de la pobreza.

La segunda parte del documento se refiere más al estudio de los factores condicionantes de la TMM5. Comprender estos factores condicionantes es fundamental para analizar la eficacia de las condiciones actuales de la asistencia y proponer recomendaciones alternativas de política. Hemos estudiado si las condiciones actuales han sido eficaces en la reducción de la TMM5. No cuestionamos si debe haber condiciones en la prestación de asistencia y el alivio de la deuda, sino que nos preguntamos si las condiciones anteriores han tenido éxito para mejorar la supervivencia infantil y, si no es así, cuáles son los cambios necesarios que hay que hacer en este contexto.

El primer conjunto de variables que hemos examinado en relación con la supervivencia infantil incluye los ingresos y los gastos sociales en salud y educación. Se reconoce que la mejor manera de abordar la pobreza infantil es mejorar los ingresos con los que se adquieren servicios privados, así como el acceso a los servicios sociales básicos (UNICEF 1998). Desafortunadamente, los datos mundiales desagregados sobre gastos en el acceso a los servicios sociales básicos son escasos. Por tanto, para esta parte del análisis hemos utilizado datos agregados de financiación de la salud y la educación.

Para complementar nuestras conclusiones en el análisis de los datos de la financiación pública, hemos examinado también las conexiones causales entre la supervivencia infantil y la cobertura de diferentes programas y servicios que se sabe que presentan una correlación positiva con la supervivencia infantil. Debido a que las cifras del gasto público en intervenciones contra estas enfermedades infantiles no se obtienen con facilidad, hemos utilizado en el análisis los datos disponibles de cobertura, con la esperanza de que las condiciones para la prestación de asistencia puedan incluir también los hitos en esta cobertura.

Nuestros resultados indican que, además del rendimiento de los países en materia de crecimiento de los ingresos como condición para la prestación de asistencia, también podrían tomarse en consideración tres requisitos adicionales de política para promover la supervivencia infantil. Se trata de los hitos en la TMM5, los gastos públicos fundamentales y la cobertura de servicios, que se considera que tienen repercusiones positivas sobre la supervivencia infantil. Estos “requisitos positivos de asistencia” pueden llevar a que, cuando se utilicen los recursos nacionales y de asistencia, se haga un mayor hincapié en la supervivencia infantil.

Résumé analytique

Le présent document étudie l'évolution de la mortalité des enfants de moins de cinq ans et les facteurs qui la détermine dans les pays pauvres très endettés (PPTE). Les auteurs commencent par déterminer le degré auquel ces pays ont réussi à améliorer la survie des enfants au cours des années récentes. Ils analysent ensuite la manière dont la communauté internationale peut réviser la structure de son aide (dans ce cas celle qui concerne l'Initiative en faveur des pays pauvres très endettés) dans le but de permettre aux pays pauvres de réduire la mortalité infantile.

L'analyse présentée propose de définir trois types de conditions qui peuvent être attachées à la fourniture de l'aide. Le premier type concerne tout simplement les résultats du pays dans le domaine de la survie de l'enfant. La deuxième catégorie de conditions peut inclure le financement de certains besoins sociaux, comme la santé et l'éducation, dont la satisfaction a un effet positif sur la survie des enfants. La troisième peut comprendre la couverture offerte dans le domaine de certains services sociaux de base, comme les soins néonataux et les vaccinations, qui garantissent une amélioration de la survie de l'enfant.

La première partie est constituée par une enquête sur les tendances dans le domaine de la survie de l'enfant dans 38 pays engagés à diverses étapes de l'Initiative en faveur des PPTE. Cette initiative est un programme de réduction de la dette des pays pauvres conditionné à l'application de certaines réformes dans les domaines administratif et micro-économique ; elle est destinée à combattre la pauvreté tout en favorisant un développement durable. Les auteurs défendent l'idée que pour déterminer de manière efficace l'évolution de la pauvreté, il est nécessaire d'aller au-delà d'une simple mesure de la pauvreté en termes de revenu et de définir un indicateur qui prenne en compte de manière plus complète les dimensions multiples de ce phénomène. Ils montrent que dans ce contexte une meilleure mesure de la pauvreté pourrait être le taux de mortalité des enfants de moins de cinq ans. Les auteurs étudient l'évolution des tendances de cette mortalité dans un échantillon de pays afin d'évaluer si l'aide aux PPTE et les conditions qui y sont liées ont eu un effet mesurable sur la survie des enfants.

L'Initiative en faveur des pays pauvres très endettés a démarré en 1996 et le programme a été révisé en 1999 afin d'améliorer son efficacité. L'évolution du taux de mortalité des enfants de moins de cinq ans a donc été examinée sur trois périodes distinctes : période précédant le lancement de l'initiative (1990-1996), période d'application de l'initiative (1996-2000), période d'application de la version améliorée de l'initiative (2000-2003). L'échantillon comprend des pays ayant atteint le point d'achèvement (13) et le point de décision (14), ainsi que ceux qui ne s'étaient pas qualifiés au titre du programme en juin 2004.

Le document donne une estimation des taux moyens de réduction de la mortalité des enfants de moins de cinq ans pour chaque groupe de pays et pour chacune des trois périodes. Il examine également la signification statistique des variations moyennes entre groupes de pays au cours des différentes périodes. Ces analyses montrent qu'en ce qui concerne le taux de mortalité des enfants de moins de cinq ans, les résultats des pays ayant atteint le point d'achèvement ne sont pas sensiblement différents de ceux des pays des autres groupes ; ceci en dépit du fait que les pays ayant atteint le point d'achèvement ont appliqué les réformes administratives et macro-économiques requises sur la période la plus longue et reçu le montant d'aide le plus important du

programme. Maintenant que la communauté internationale a décidé d'effacer les dettes des PPTE, libérant ainsi des ressources supplémentaires beaucoup plus considérables à consacrer à la réduction de la pauvreté et au développement, la pauvreté considérée du point de vue de l'enfance demande une restructuration de l'initiative en faveur des PPTE.

La deuxième partie du document examine de plus près les facteurs qui déterminent la mortalité des enfants de moins de cinq ans. Comprendre ces facteurs est crucial pour analyser l'efficacité des conditions actuellement liées à l'aide et avancer des recommandations pour une politique alternative. Les auteurs évaluent l'efficacité des conditions posées du point de vue de la réduction du taux de mortalité des enfants de moins de cinq ans. Ils ne remettent pas en question la nécessité de lier la fourniture d'aide et la réduction de la dette à certaines conditions, mais se demandent plutôt si les conditions posées jusqu'ici ont été efficaces en terme d'amélioration de la survie de l'enfant, et dans le cas où la réponse serait négative, quels changements s'avèreraient nécessaires dans ce contexte.

Le premier groupe de variables examiné en rapport avec la survie de l'enfant comprend les revenus et les dépenses sociales pour la santé et l'éducation. On reconnaît généralement que le problème de la pauvreté des enfants doit être traité à la fois par l'amélioration des revenus qui permettent de se procurer des services privés et celle de l'accès à des services sociaux de base (UNICEF, 1998). Malheureusement, les chiffres concernant les dépenses consacrées à l'accès aux services sociaux de base dans le monde sont rares, étant généralement confondus dans de grands agrégats ; les auteurs ont donc utilisé pour cette partie de leur analyse les agrégats concernant les dépenses de santé et d'éducation.

Les auteurs ont complété les résultats de l'analyse des chiffres des dépenses de financement public par celle des relations causales entre la survie de l'enfant et la couverture assurée pour différents programmes et services dont la corrélation positive avec la survie de l'enfant a été établie. Étant donné que des chiffres sur les dépenses publiques consacrées à la lutte contre les maladies infantiles sont difficiles à obtenir, les auteurs ont utilisé les données disponibles concernant la couverture offerte pour ces services, dans l'espoir que des seuils critiques sur la progression de la couverture pourraient être utilisés comme critères conditionnant la fourniture de l'aide.

Les résultats obtenus démontrent qu'à côté des progrès dans la croissance des revenus, l'aide pourrait aussi être conditionnée par trois exigences supplémentaires qui auraient pour effet d'améliorer la survie de l'enfant : atteindre différents seuils critiques dans la réduction de la mortalité des enfants de moins de cinq ans, dans le montant de dépenses publiques clés et dans la couverture assurée pour divers services, trois facteurs dont les effets positifs sur la survie de l'enfant ont été identifiés. Lier ces « conditions positives » à l'aide fournie peut contribuer à accentuer l'importance de la survie de l'enfant dans les priorités définies pour la répartition des ressources nationales comme de l'aide extérieure.

HIPCS, DEVELOPMENT ASSISTANCE AND CHILDREN: CHILD SURVIVAL IMPERATIVES IN AID PROGRAMMES

1. Trends of U5MR in countries at different stages of HIPC Programme 1

Introduction

In July 2005, at their summit at Gleneagles in Scotland, the group of industrialized countries (G8) endorsed the debt cancellation arrangements arrived at by their finance ministers in June 2005. The agreement called for cancellation of 100 per cent of the debt owed by some poor countries to the World Bank, the IMF, and the African Development Bank. This debt cancellation will benefit 18 countries immediately, and could benefit as many as 38 countries in coming years. This is a significant step towards removing debt as an obstacle to development and poverty reduction in highly indebted poor countries, although seeing a marked global effect on poverty will require widening the list of eligible countries. Oxfam has calculated that over 60 countries would need 100 multilateral debt cancellations if they are to reach the MDGs by 2015, which would involve debt cancellation costs of about \$10 billion, compared to \$1.5 billion determined for 18 currently eligible countries².

Arguably, the underlying purpose of the HIPC Initiative is to promote poverty reduction and sustainable development. In this paper, we evaluate the poverty reduction impact of the Initiative. According to a joint publication by the World Bank and the IMF, “the HIPC Initiative has always emphasized the need to link debt reduction with effective long-term policies for economic and social development and poverty alleviation”³. The emphasis on poverty reduction has been even more stressed since 1999 as “the Enhanced HIPC Initiative seeks to strengthen the link between HIPC assistance and poverty reduction”⁴. In order to address poverty reduction objectives “as the HIPC Initiative evolved, the debt relief was linked to the preparation of Poverty Reduction Strategy Papers (PRSPs)...that set out a country’s macro-economic and fiscal priorities to foster pro-poor growth, governance and sectoral programs, and ongoing and proposed poverty reduction policies.”⁵

The HIPC Initiative was envisioned as “an important step forward in placing debt relief within an overall framework of poverty reduction”⁶. It is, therefore, expected that debt cancellation, which is now being promoted, will free up sufficient amounts of resources within poor countries

1 We are grateful to Eldiberto Loaiza, for providing the detailed explanation of the procedure used by UNICEF for constructing U5MR annual data used in the paper.

2 OXFAM Briefing Note; 29 July 2005; Gleneagles: What really happened at the G8 summit?

3 <http://www.worldbank.org/hipc/hipc-review/hipc-review-and-outlook.pdf>

4 IMF and International Development Association: <http://www.worldbank.org/hipc/hipc-review/tracking.pdf>

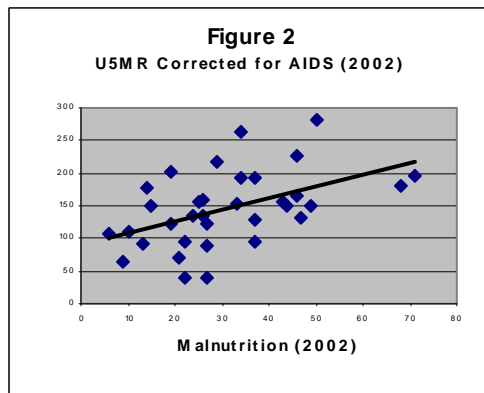
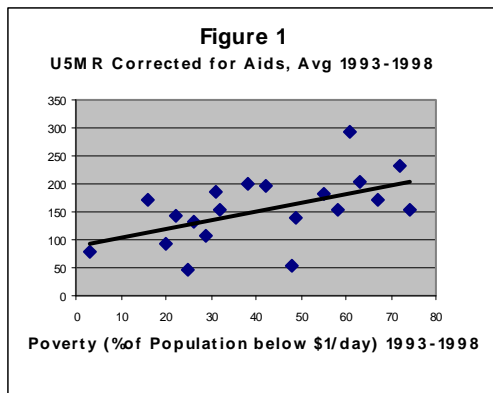
5 World Bank: http://www.worldbank.org/hipc/hipc-review/Fact_Sheet_mar03_.pdf

6 The World Bank: <http://www.worldbank.org/hipc/about/hipcbr/hipcbr.htm>

and that these resources can be utilized for poverty reduction. However, increased resources may not automatically translate into benefits for the poor. This is acknowledged in an IMF document⁷ which states: “While country by country data demonstrate that these countries are seeing clear gains, it has taken time and effort to ensure that money is redirected to aid the poor in ways that most reduce poverty”. Our task in this paper is to investigate the issue more closely and see whether the poverty reduction objective of the HIPC Initiative has actually yielded results in the HIPC countries.

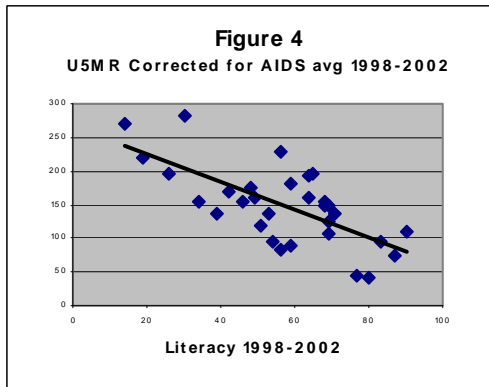
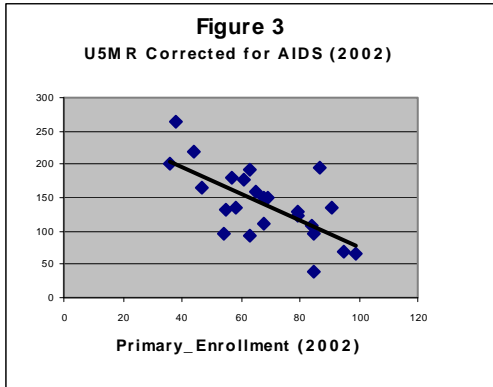
Poverty is measured in a variety of ways. Some authors have used income measures of poverty such as GDP per capita. However, income measures have vastly been criticized on the ground that they poorly represent the well being of individuals. Therefore, alternative measures of poverty are sometimes suggested, including the percentage of the population earning \$1/day or less, percentage of population with malnutrition, adult literacy ratio, primary enrollment ratio and some measure of child mortality. In what follows, we show that all these measures are closely related to U5MR, which has been argued to be a very good indicator of poverty.

Figure 1 shows a positive correlation between U5MR and poverty (as measured by percentage of the population earning \$1/day or less) for the world’s poorest countries over 1993-1998.⁸ Similar relationships are seen to exist between U5MR and other indicators such as malnutrition (Figure 2), Primary Enrolment (Figure 3), and adult literacy (Figure 4). It is obvious from these figures that the poverty variables discussed above are well-proxied by U5MR.

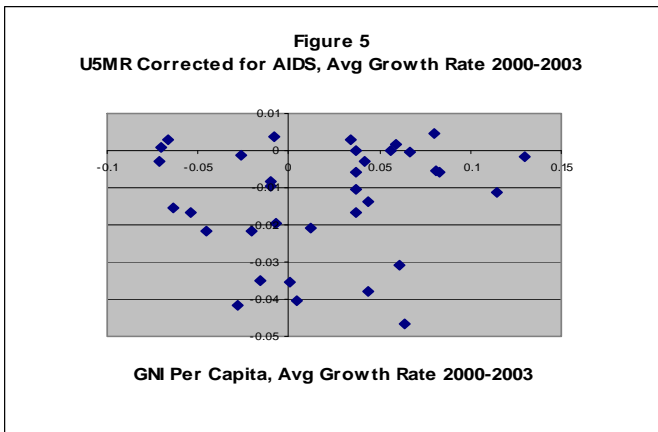


⁷ The IMF website: <http://www.imf.org/external/np/exr/facts/hipc.htm>

⁸ 1993-1998 is the most recent period for which we have data on poverty for a lot of poor countries. However, we still do not have data for several of these countries. Countries for which we have data and are included in the figure are as follows: Bangladesh, Bolivia, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Rep., Cote d'Ivoire, Ethiopia, Ghana, Guyana, Honduras, Kenya, Laos, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nepal, Nicaragua, Niger, Pakistan, Senegal, Sri Lanka, Viet Nam, Yemen, Zambia, and Zimbabwe. Poverty is measured as the percentage of population with below \$1/day of income. For most of these countries, there is only one observation of poverty over 1993-1998, which has been used. For rare cases with more than one observation, the maximum value has been used.



One may argue that increase in resources can improve economic growth, which through increases in family income will ultimately improve child survival. This may also be the implicit assumption in the way HIPC assistance and conditionalities are determined. However, the evidence does not support such connection between growth and U5MR for the group of poor countries. Figure 5 depicts the (negative) growth rate of U5MR against the growth rate of per capita output of the world's 38 poorest countries. The list of these countries is presented in Table 1, Section III. This figure shows that no relationship is easily discernible between a country's per capita output growth and U5MR reduction. Hence, for measuring the impact of HIPC assistance on poverty, U5MR seems to be a more appropriate indicator.



The rest of part 1 is organized as follows. In the next section, we present a brief history of the HIPC Initiative. Section 1.3 presents the analysis of the trends of the U5MR for poor countries at different stages of the HIPC program.

1.1. Evolution of the HIPC Initiative

Over the last three decades the external debt of low and middle-income countries has evolved with consequent effects on economic growth and social development.

Between 1970 and 1999, the external debt burden of Africa increased significantly, from about \$11 billion to over \$120 billion. In the 1970s, Africa's external debt averaged about \$39 billion. This increased to over \$317 billion in the late 1990s. Total debt service over the same period

increased from \$3.5 billion to \$26 billion. This subsequently led to an increasing level of arrears in the low-income countries, suggesting their inability to service debt obligations on time. By 1999 accumulated arrears on principal repayments had exceeded \$41 billion, with countries in Sub-Saharan Africa owing most of this amount.

A major influencing factor in the debt crisis was the two oil price shocks of 1973-1974 and 1979-1980. Increased oil prices had an adverse effect on the trade balance of oil-importing countries which led to fiscal crises. The situation was exacerbated by the global recession in the early 1980s, and the depressed demand for developing countries' exports. Consequently, most of these countries resorted to external borrowing to finance fiscal and external imbalances. In general, the debt crisis of low income countries could be attributed to several factors such as exogenous shocks including the oil price shocks, lack of appropriate macroeconomic and structural policy response to shocks, imprudent debt management, terms of lending and refinancing by creditors, use of loans on projects of doubtful viability which undermined capacity to repay, and political factors such as wars occurring in borrowing countries (Daseking and Powell 1999; Brooks, et al 1998).

The debt overhang of low-income countries inhibited private investment and savings. It also had a profound effect on public investment in physical and social infrastructure. Furthermore, it slowed economic growth and social development and exacerbated poverty, thus underlying the need for a mechanism to get low-income countries out of the debt crisis and to lay the foundation for sustainable development and poverty reduction.

Traditionally, debt relief for low-income developing countries has been provided by the Paris club through write offs, increasing concessionality, and the rescheduling of principal and interest payments. Despite these efforts, however, the debt crisis of low-income countries continued to be a threat to development. In 1996, a new international mechanism, called the Highly Indebted Poor Countries Initiative (HIPC), was introduced to address the debt problem of low-income countries. The Initiative defined a country's debt situation as being sustainable as long as selected debt ratios were below certain thresholds. These thresholds were defined as follows:

Ratio of net present value (NPV) of a country's external public debt and publicly guaranteed debt to exports of goods and services to be within 200 to 250 per cent.

Debt service on public and publicly guaranteed external debt to exports ratio must be within a range of 20 to 25 per cent.

The original HIPC initiative, however, proved insufficient for a long lasting exit from the debt crisis. It was criticized for its limited country coverage, limited debt relief and slow delivery. Accordingly, the Enhanced HIPC Initiative was launched in 1999. The main objective was to strengthen the link between debt relief and policies tailored to a country's circumstances, such that poverty can be reduced in a more effective manner through the delivery of "deeper, broader and faster" debt relief. The Enhanced Initiative lowered the initial threshold of ratio of NPV of debt to exports and the revenue to GDP ratios. Due to these changes, seven additional countries became eligible for HIPC debt relief. This initiative included conditionalities for debt relief which were in the spirit of conditionalities attached to most other international aid programmes. We refer the reader to section 2.2 of this paper for a review of HIPC conditionalities.

Serious shortcomings have been pointed out about the (Enhanced) HIPC initiative, some of which include insufficiency of relief and lack of linkage between debt relief and poverty reduction, which among other things, would require increased financing of the Millennium Development Goals (MDGs). Some authors have taken the discussion to a more extreme level arguing that the HIPC Initiative was designed by lenders only as an attempt to encourage poor countries to repay their debt and with no intention of solving the problems of the poor countries.

As the analysis presented here would show, the debt assistance received in recent years does not seem to have made a significant difference in the trends of poverty reduction as seen from the child’s lens, namely the trends in child survival. This raises doubts about the potential effectiveness of the further debt cancellations, which are now being proposed, in serving the best interest of the children and in reducing poverty.

1.2. Impact of the HIPC Initiative on Child Mortality

We analyze changes in the U5MR for 38 HIPC countries grouped in three categories, as shown in Table 1a.

Table 1a

List of Countries

Completion Point	Decision Point	Other HIPCs
Benin	Cameroon	Burundi
Bolivia	Chad	Central African Republic
Burkina Faso	Congo Dem. Rep.	Comoros
Ethiopia	Gambia The	Congo Rep.
Guyana	Ghana	Cote d'Ivoire
Mali	Guinea	Lao PDR
Mauritania	Guinea-Bissau	Liberia
Mozambique	Honduras	Myanmar
Nicaragua	Madagascar	Somalia
Niger	Malawi	Sudan
Senegal	Rwanda	Togo
Tanzania	Sao Tome and Principe	
Uganda	Sierra Leone	
	Zambia	

Source: IMF (2004)

The first group consists of countries that have reached their completion points (as of end-June 2004) under the HIPC program and can thus be considered “good performers” under HIPC. This group is known as Completion Point countries. The second group is the set of countries that have reached their decision points but have not made sufficient progress in becoming eligible to reach their completion points. These countries are “medium performers” under HIPC and are called Decision Point countries. The third group consists of “poor performers” under HIPC. These

countries are eligible for HIPC assistance – some of them even poorer than good and medium performers - but have not yet reached their decision points and have thus failed to qualify for any assistance so far. This group is called Other HIPCs in this paper. Table 1b offers the U5MR data (Source: UNICEF 2006) for all countries of our sample for years 1990, 1996, 2000, and 2003.

Table 1b

U5MR Data

U5MR, Corrected for AIDS				
Country	1990	1996	2000	2003
<u>Completion Point</u>				
Benin	184.99024	167.0025	155.2274	148.9033
Bolivia	120	88.6	75	66
Burkina Faso	209.25824	202.5924	202.1317	201.9072
Ethiopia	203.37536	184.0957	169.5194	161.6995
Guyana	89.64864	76.55392	67.59744	63.4368
Mali	249.752096	228.4047	220.3595	216.6211
Mauritania	161.845792	136.6817	117.8874	105.7488
Mozambique	241.93168	195.6058	153.8338	122.52
Nicaragua	68	50.2	43	38
Niger	319.955104	289.3148	268.3545	260.0831
Senegal	147.955104	141.5363	137.2959	134.9602
Tanzania	161.65312	150.9069	149.3411	150.6938
Uganda	152.701472	125.5663	122.9502	122.5491
<u>Decision Point</u>				
Cameroon	138.734528	153.8735	156.1502	154.7994
Chad	202.949248	197.9836	195.5572	192.4438
Congo Dem.Rep. (Zaire)	199.532448	196.458	196.8445	196.8484
Gambia	153.945344	134.7784	126.6102	120.318
Ghana	124.908256	106.2003	95.88128	90.38742
Guinea	239.86336	200.1507	171.1936	153.8707
Guinea-Bissau	252.86336	229.7507	211.1936	197.8707
Honduras	59	46.17828	41.03824	39.03824
Madagascar	167.982432	151.9755	135.9947	123.8294
Malawi	239.699968	189.9567	158.9054	148.8293

Rwanda	164.522464	196.8161	193.2732	193.8666
Sao Tome & Principe	118	118	118	118
Sierra Leone	302	289.0195	282.8475	281.2633
Zambia	168.656928	150.6606	148.2226	148.9487
<u>Other HIPC</u>				
Burundi	187.321856	181.2999	179.8828	181.4834
Central African Rep.	179.471008	172.1783	159.4962	154.8992
Comoros	120	96.4	82	73
Congo, Rep.	105.609952	93.9007	94.91574	96.22358
Cote d'Ivoire	156.642784	172.1559	175.4545	177.4693
Laos	163	128.2	105	91
Liberia	234.7072	230.0614	228.695	226.6064
Myanmar (Burma)	130	115.5485	109.7423	106.5169
Somalia	224.962912	224.4632	223.6531	223.331
Sudan	119.660352	98.65242	90.01965	87.06202
Togo	151.94144	143.9624	137.6744	134.2533

To analyze the trends of child mortality, we compute average annualized growth rates of Under-five mortality for each country in the three groups (good, medium and poor performers), across three time periods (1990-96, 1996-2000, 2000-03). For this purpose we take UNICEF data on U5MR from the State of the World's Children (UNICEF, 2006), and correct it for the effects of AIDS on child mortality (See the Appendix for references). We calculate the annual change in Under-five mortality between any two consecutive time periods, using the following formula:

$$dU5MR_{t_1, t_2} = [(U5MR_{t_2} - U5MR_{t_1}) / U5MR_{t_1}] / (t_2 - t_1)$$

Where, $dU5MR_{t_1, t_2}$ denotes the annualized change in U5MR between any two time periods, t_1 and t_2 .

The three time intervals, namely 1990 –1996 (period 1), 1996-2000 (period 2) and 2000-2003 (period 3), were chosen to reflect the period before the original HIPC (1990-1996), the period of the original HIPC (1996-2000) and that of the Enhanced HIPC (2000-2003). Required annual estimates were constructed from the available data using the same procedure that UNICEF employs to calculate U5MR (see explanation in Appendix).⁹ Table 3 presents the group averages of annual rate of reduction in U5MR for three periods and the corresponding standard deviations.

⁹ We are grateful to Eldiberto Loaiza for providing us with detailed explanation on how to construct the annual data.

Table 2

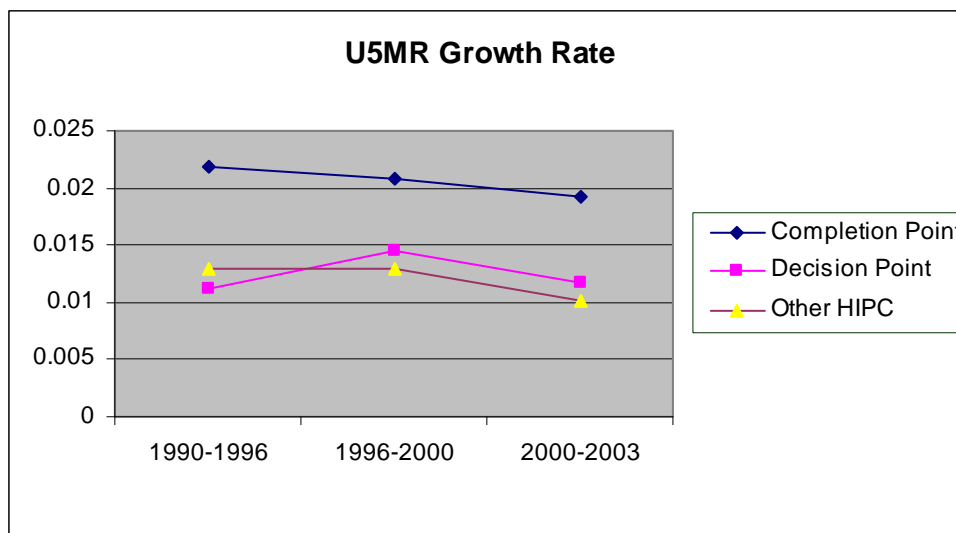
Group Averages (Mean Annual Proportional changes in U5MR) and Standard Deviation

	# of Countries	1990-1996		1996-2000		2000-2003	
		Mean	SD	Mean	SD	Mean	SD
Completion Point	13	0.021912	0.012571	0.02088	0.01627	0.019265	0.02058
Decision Point	14	0.011137	0.019341	0.01454	0.01468	0.011787	0.01214
Other HIPC	11	0.01297	0.015702	0.01302	0.01646	0.010164	0.01615

Figure 6 presents a graphical account of Table 3.

Figure 6

Growth Rates of U5MR (Corrected for Aids)



A casual inspection of Table 3 and Figure 6 suggests that for Completion Point countries, the reduction in U5MR slowed down considerably as they moved from the first period to the second and third periods. The U5MR reduction rate steadily declined from 2.19 percent per year in 1990-96 to 1.93 in 2000-2003. Bearing in mind that these countries have received HIPC assistance for the longest time and have also been under monitoring for HIPC conditionalities, one would expect an improvement in their child survival performance. However, their performance continued to decline steadily as during pre-HIPC years.

The decision point countries seem to have done a bit worse. The momentum in child survival was improving in these countries until 2000, but as they entered the last HIPC period their trends in child survival momentum began to get worse. This declining performance coincided with their likely better performing on HIPC conditionalities and receipts of HIPC assistance. The other countries, which were not awarded HIPC assistance and also did not fulfill the required

governance and macroeconomic conditionalities, seem to have performed quite similar to the Decision Point countries.

To better understand the differences in the trends of these three groups, we carried out a test of significance in mean differences. The results are presented in table 5.

Table 3

Mean Differences of Proportional Changes in U5MR among Different Groups

(T-statistics in parentheses)

	Pre-HIPC 1990-1996	HIPC 1996-2000	Enhanced-HIPC 2000-2003
Completion Point <i>13 Countries</i>			
&	-0.010775	-0.0063416	-0.0074781
Decision Point <i>14 Countries</i>	(-1.7281)	(-1.0607)	(-1.139)
Completion Point <i>13 Countries</i>			
&	-0.0089419	-0.0078615	-0.0091009
Other HIPC <i>11 Countries</i>	(-1.5208)	(-1.1721)	(-1.2131)
Decision Point <i>14 Countries</i>	0.0018331	-0.00152	-0.0016227
&	(0.2615)	(-0.2403)	(-0.2773)
Other HIPC <i>11 Countries</i>			

The above results show that, on average, the performance of different groups did not differ significantly. This can be said with much higher confidence for the Enhanced HIPC period (2000-03) than for the Pre-HIPC period (1990-96).

Broadly speaking, during 2000-03, the Completion and the Decision Point countries performed quite similarly to one another, and to the other poor and heavily indebted countries. In other words, no group's average performance is statistically different from the average performance of any other group. Since the countries in the last group were not allowed any HIPC assistance and did not fulfill the required governance and macroeconomic conditionalities, one may say that neither HIPC conditionalities nor HIPC's assistance made any difference to child mortality trends in these countries.

We also did similar tests using the repeated measures for analysis of variance (ANOVA) method for changes in proportions. The same results were found, i.e., no significant difference in child survival performance among different groups of HIPC's.

2. U5MR Improving Policies in Debt Relief Programmes

Introduction

We studied the trends of U5MR in different HIPC countries in part 1. Our results suggested that among HIPC countries, performance in reduction of U5MR, which is a widely acceptable measure of poverty, is not differentiated by the degree of macroeconomic reforms and debt relief. Bearing in mind that one of the main objectives of the HIPC initiative was poverty reduction, our results do not show that this initiative has had a significant impact on this important goal. In this part of the paper, we study the determinants of U5MR and based on these determinants, we propose certain policies that can be included in aid programmes, such as the HIPC initiative, in order to enhance countries' performance on child survival.

Conditions which are generally attached by international organizations to debt relief (and aid in general) may not always be beneficial to promoting poverty reduction. Such conditionalities may take public resources away from social services which are critically required by the poor. Macroeconomic conditions, such as reducing government expenditures, often reduce coverage of basic social services. However, it is necessary to ensure that money contributed by donor countries delivers the intended results. In this background, we pose the following question: what are the policy and institutional requirements that can be attached to aid in order to encourage promotion of economic wellbeing as seen from the perspective of children?

To begin our search for such requirements, we refer to a recent policy statement from the UK treasury¹⁰ :

“... from now on, we will not make our aid conditional on specific policy decisions by partner governments ... that includes policy decisions on sensitive economic policy choices like privatization or trade liberalization. This doesn't mean that there are no strings at all to our aid. We believe that effective development partnerships are based on a shared commitment to three objectives – poverty reduction and reaching the Millennium Development Goals (MDGs); respecting human rights and other international obligations, and strengthening financial management and accountability in order to avoid corruption and make sure that British taxpayers are getting value for money. Aid will only be withdrawn if there is a breach of one of these principles...”

The above statement shows that policy makers in donor countries have also started looking for more effective conditionalities to replace the ones currently in practice. In order to lay the groundwork for proposing appropriate conditionalities, we first investigate the causality between selected public expenditures and changes in child survival. This will allow us to identify factors

¹⁰http://www.hm-treasury.gov.uk/documents/international_issues/international_development/development_makepovertyhistory.cfm

that have significant impact on child survival with the objective of proposing ‘positive performance conditions’ to be supported through aid and national programmes.

It is recognized that child poverty is best addressed by increasing access to basic social services (UNICEF 1998). We have looked in this connection at public finance variables of health and education expenditure. Unfortunately, disaggregated global expenditure data on access to basic social services is scanty. We have therefore used aggregate health and education financing data for this part of the analysis. To support the findings from this analysis, we have also analyzed causal connections between child survival and coverage of different programmes and service delivery which are known to bear positive correlation with child survival. Since public expenditures on interventions against child diseases are not easily obtainable, we have used the coverage data in analysis hoping that conditions for aid delivery could include milestones of such coverage as well.

We have performed our analysis in two steps. In the first step, we have assessed the role of public finance in provision of social services and thus in influencing child survival goals. We have estimated how taxes and aid influence allocations for health and education and how, in turn, these work to improve child survival.

It can be argued that all types of expenditure on health do not have a direct bearing on child survival. For instance, spending on maternal and child health may have a greater impact than tertiary health expenditure. The Lancet (2004) finds that interventions in the neonatal period could prevent up to 33% of these deaths (3.2 million children). It also argues that effective and integrated case management of childhood infections (diarrhea and dysentery, pneumonia, malaria, and neonatal sepsis) could save 31% of total deaths every year. Yet, the paucity of expenditure data has compelled us to examine these factors as part of coverage analysis, and not within the public finance module of this exercise.

Another gap in our study is that in some countries social expenditures are not fully reflected in the central government budget, since some of these services are provided by local governments. Yet, due to data unavailability, the analysis has been carried out with the total health expenditure of central government, based on the underlying assumption that the ratio of primary health and education expenditure in the total health and education expenditure of the central government, remains stable over the sample time period and within each country. This assumption may allow us to find out whether the total allocation for education and health has some influences U5MR and if so whether such expenditures deserve to be monitored as positive conditionality in aid or debt relief delivery

In summary, in this part of the paper we have attempted to link child survival to public finance variables on the one hand and coverage of key services on the other, with the objective that this information would help donors identify conditions for allocation of aid in general and debt relief in particular so that national allocation for public services, expand in a manner most conducive for child survival.

One strand of literature relevant to our work, tests the hypothesis that aid can improve the welfare of the poor. Gomanee K., S. Girma and O. Morrissey (2003a and 2003b) find support for the hypothesis that ‘pro-poor’ public expenditure for a panel of poor countries is associated with

increased levels of welfare. They find evidence that aid is associated with improved values of such indicators as sanitation, education and health. The second part of our paper is associated to these studies and finds similar results but is different from them in the following ways: different set of countries, different time interval and most notably a different welfare measure as we use U5MR but the other studies use poverty and infant mortality.

Another strand of literature related to our work in this part of the paper, is that of aid effectiveness. McGillivray M. (2005) reviews this literature. A large number of studies find that effectiveness of aid depends upon the policy environment of the countries but an even larger number of studies find the opposite result, i.e. they find that aid is effective irrespective of the policy environment. Our understanding is that the results of these studies are very dependent on the set of countries and time periods under study. Another problem is that there is no universally agreed proxy for policy environment. In relation to this literature, we include a policy variable as an explanatory variable for U5MR.

This part of the paper is organized as follows. Section 2.2 reviews aid conditionalities normally imposed in external budget support programmes, including in the HIPC initiative. This analysis is carried out with a view to selecting key factors generally monitored by donors. In section 2.3 we study programme and service delivery coverage that are known to influence U5MR positively. The results of this part are presented in section 2.4.

2.1. Aid Conditionalities

We summarize below in three parts some key conditionalities generally attached to HIPC countries seeking multilateral (external) assistance (IMF 2002, 2003a, 2003b, 2004a, and 2004b). These are: macroeconomic performance, policy and institutional environment, and social development and poverty reduction. While conditionalities for macroeconomic performance and policy and institutional reforms are often well indicated and monitored, the social spending and poverty intervention conditionalities are usually less precise. In what follows, we describe from the three conditionality areas:

Macroeconomic Performance

Under external assistance delivered as budget support, countries are generally required to maintain macroeconomic stability. The performance indicators in this regard include fiscal consolidation, interest rates, economic diversification¹¹, balance of payments, exchange rate, inflation rate and investment (IMF 2003). These variables are determinants of economic growth and employment. Macroeconomic stability is thus a pre-requirement of growth, which in turn can improve employment and family income. For the limited purpose of this analysis we assess the efficacy of per capita income as a condition of aid delivery.

Policy and institutional environment

Macroeconomic conditionalities have been designed to ensure that aid is directed towards achieving its planned objectives. Apart from these, it is also important that institutions in both economic management and governance be conducive to promote saving and investment and

¹¹ See the Completion Point Document for Benin.

create and protect incentives for growth. Therefore, policy and institutional environment conditionalities are also generally included in aid packages. An index which measures such conditionalities is the Country Policy and Institutional Assessment index (CPIA), produced by the World Bank. CPIA assesses the quality of a country's policy and institutional framework. It is a summary of 20 ratings with equal weights. These ratings are on economic management, structural policies, policies for social inclusion/equity, and public sector management and institutions (see the Appendix for detailed ratings).

Based on their value of CPIA, countries are classified into six performance groups with scores from 1 (weakest) to 6 (best). The higher the CPIA, the worse is the policy of the country. Table 4 shows the ratings for all of the countries in our sample.

Table 4

CPIA Ratings

Country	CPIA
Benin, Ghana, Madagascar, Mauritania, Tanzania, Uganda	1
Burkina Faso, Guyana, Honduras, Malawi, Mali, Mozambique, Nicaragua, Rwanda, Senegal	2
Bolivia, Cameroon, Ethiopia, Gambia, Zambia	3
Burundi, Chad, Congo Dem.Rep. (Zaire), Congo, Rep., Cote d'Ivoire, Guinea, Laos, Niger, Sao Tome & Principe, Sierra Leone	4
Central African Rep., Comoros, Guinea-Bissau, Sudan, Togo	5
Liberia, Myanmar (Burma), Somalia	n/a

Social spending and poverty reduction interventions

Social development and poverty reduction goals are often mentioned in budget support programmes as economic goals to be pursued by aid recipients, but these are rarely stated as specific and monitored conditions in aid programmes. No milestone for such spending is set a priori.¹² The budget size is generally set indirectly as a macroeconomic condition, but proportions of the budget for social spending are seldom made as specific and monitored conditions in multilateral assistance.

Gupta et al (2003a) find a strong relationship between public spending and the health status of the poor in low-income countries. They also find that increased public spending alone is not sufficient to meet international commitments for improvements in child survival. They conclude: "...Additional complementary policies are needed to achieve the international development

¹² Conditionalities on macroeconomic performance and structural reform have been designed precisely and monitored carefully by the IMF, prior to granting aid.

goals. For example, resources need to be allocated toward health interventions designed to respond primarily to the health needs of the poor. Governments also need to make sure that health interventions reach their intended beneficiaries...” Their results suggest a few areas where progress is needed: primary school enrollment, economic growth and HIV prevalence.

Gupta et al (2003a) and many other studies (referenced therein) make it clear that additional public resources are needed for the purpose improving child survival. What funds should these resources get financed with? A major part of public resources comes from tax revenues. Aid is also another major part of budgetary resources of governments in poor countries. Accordingly, we study the effects of an increase in tax revenues and external aid on child survival.¹³

2.2. The Model

Data and Hypotheses

Our data set is an annual panel, comprising Under Five Mortality Rate (U5MR) corrected for Aids, real GDP per capita, social expenditures (the summation of public health and education expenditures), tax revenues, aid and Country Policy and Institutional Assessment (CPIA) for years 1998-2002. U5MR data is from UNICEF, CPIA data is from the World Bank and the rest of the data is from the World Development Indicators of the World Bank. Summary statistics of data are presented in table 5.

Table 5

Summary Statistics of Data

Variable	# of Observations	Mean	Std. Dev.	Min	Max
U5MR_Aids (deaths in 1000)	190	150.4076	56.74937	39.71524	285.5368
Real_GDP (per capita)	141	386.5816	229.8491	85	972
Social Expenditures (% of GDP)	121	5.527232	2.547123	0.772231	12.73106
CPIA	175	2.971429	1.345185	1	5
Aid (% of GDP)	190	44.97683	40.84264	1.560591	253.3422
Tax Revenues (% of GDP)	46	10.63909	4.729552	2.33288	18.43214

Table 6, shows the correlation between each pair of our variables.

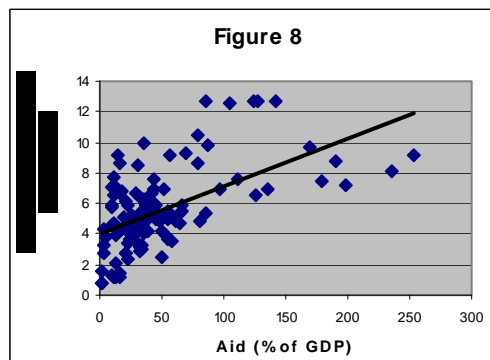
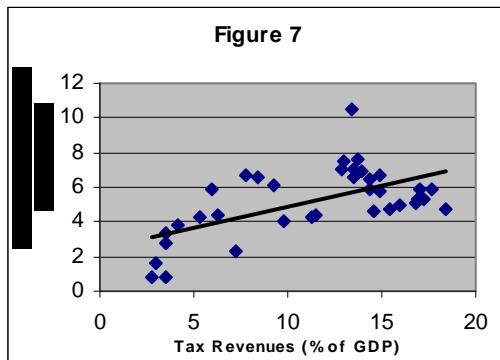
¹³ We have not differentiated debt relief and other external assistance in this part of our analysis due to fungibility of money. It would be difficult to separate the effect of debt relief from that of other components of aid.

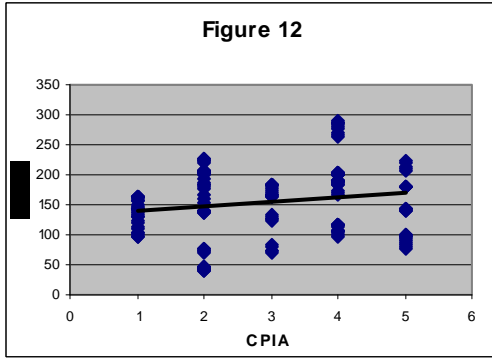
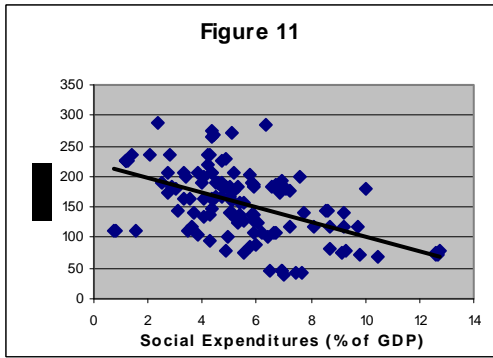
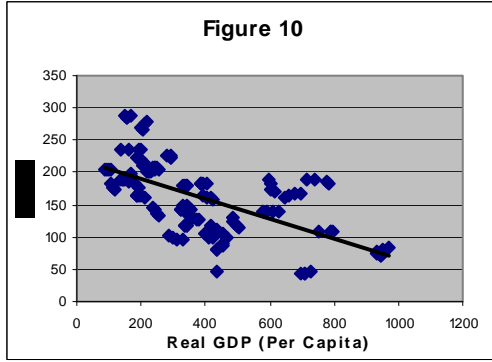
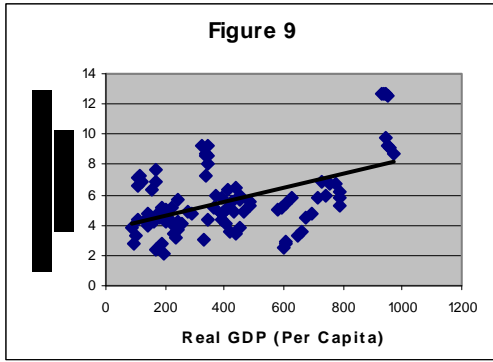
Table 6

Pair-Wise Correlation Table

	U5MR_Aids	Real_GDP	Social Expenditures	CPIA	Aid	Tax Revenues
U5MR_Aids (deaths in 1000)	1					
Real_GDP (per capita)	-0.4943	1				
Social Expenditures (% of GDP)	-0.5752	0.5661	1			
CPIA	0.4438	0.0535	-0.0109	1		
Aid (% of GDP)	-0.5561	0.3921	0.318	-0.3924	1	
Tax Revenues (% of GDP)	-0.2313	0.3795	0.4927	-0.3384	0.5345	1

Figures 7 to 12 depict the relationships of various dependent and independent variables of our study. A visual inspection of these figures suggests that independent variables individually have some limited explanatory power of the dependent variables. Roughly speaking, higher tax revenue, aid and GDP are associated with higher social expenditures. Likewise, higher GDP, social expenditures and aid are associated with lower U5MR. The association of U5MR and CPIA, however, is less clear.



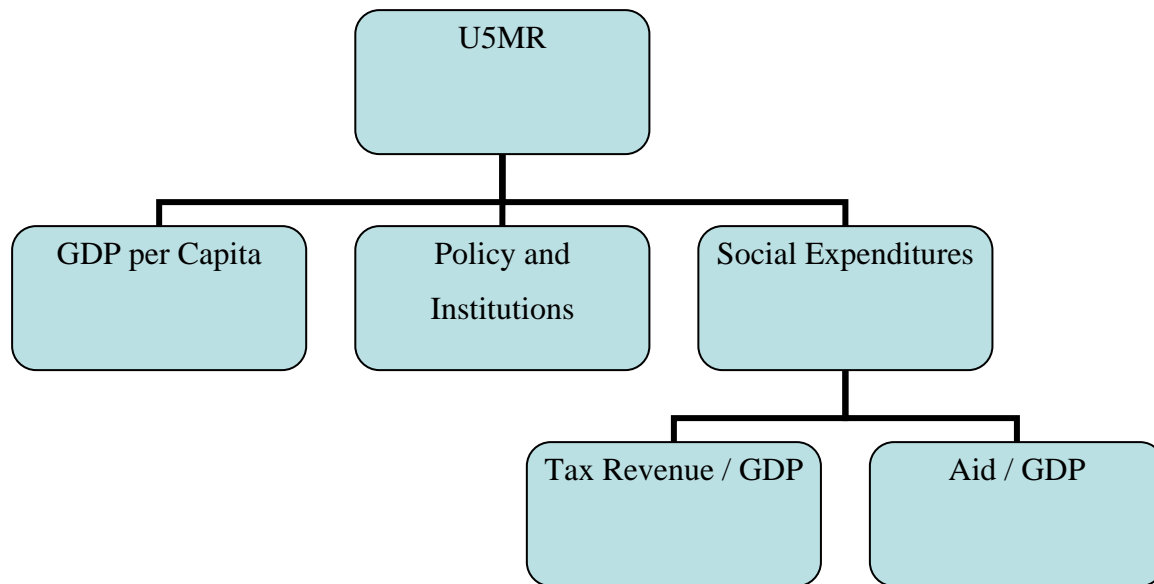


2.3. Model Structure

Based on the above association and findings from the literature on child mortality, we postulate that child mortality is helped by the income of the family, as well as a host of services provided by the state such as health and education. The following figure demonstrates our empirical methodology.

Figure 13

Schematic View of the Model



We summarize our empirical model in the following two equations:

$$(1) S_{it} = \alpha_0 + \alpha_1 A_{it} + \alpha_2 T_{it} + u_{it}$$

$$(2) U5MR_{it+1} = \beta_0 + \beta_1 Y_{it} + \beta_2 S_{it} + \beta_3 CIA_{it} + \varepsilon_{it}$$

Where,

S is an indicator of social expenditures (public health expenditure per capita + public education expenditure per capita)

A is aid per capita

T is the government tax revenue as a percentage of GDP

U5MR is the Under 5 Mortality Rate corrected for Aids

Y is income (GDP per capita), and

CPIA is Country Policy and Institutional Assessment.

Equation (1) investigates the relationship of social expenditures on health and education for HIPC countries with aid and tax revenue. This formulation examines how countries' own revenue and aid received impact on their ability to spend in health and education. The underlying assumption is that social spending has a strong bearing on child survival in countries, and that it is useful to identify effective avenues for financing such spending.

Equation (2) summarizes two avenues for improving child survival. Clearly, family income plays an important role in the care and protection of children. The other avenue comprises the

provision of basic social services by the state. Both these efforts, families' and state's, combine to help children do better in early life.

Even though income and social expenditures are the main determinants of U5MR, the effectiveness of these two variables depends upon the policy and institutional environment of the economy. Better policy and institutions may reduce the unit cost of improving child survival in both private and public expenditures. For this reason, CPIA is also included in equation (2).

Estimation Results

The estimations results are reported in tables 7 and 8. All the variables are reported in logs.

Table 7

Determinants of Social Expenditures

Dependent Variable: Social Expenditures (% of GDP)

Variable	Coef.	Std. Err.	T	P> t
Aid (% of GDP)	0.1565292	0.073238	2.14	0.04
Tax Revenues (% of GDP)	0.4620802	0.101815	4.54	0

All variables are in logs.

Number of obs = 36
 F(2, 34) = 346.99
 Prob > F = 0.0000
 R-squared = 0.9533
 Adj R-squared = 0.9505
 Root MSE = .36241

Table 7 shows that social expenditures are very well explained by aid and tax revenues¹⁴. It suggests a thumb rule for resource allocations in these countries: a 1% increase in aid led to a 0.16% increase in health and education spending. However, a 1% increase in tax revenue, instead, led to a 0.46% increase in such spending.

¹⁴ This equation was also estimated with a constant but the constant was not statistically significant.

Table 8**Determinants of U5MR**

Dependent Variable: U5MR (deaths in 1000, corrected for Aids)

Variable	Coef.	Std. Err.	T	P> t
Real_GDP (per capita)	-0.2791906	0.045242	-6.17	0
Social Expenditures (% of GDP)	-0.3988962	0.080579	-4.95	0
CPIA	0.0743292	0.055146	1.35	0.181
Constant	7.171869	0.263404	27.23	0

All variables are in logs.

```

Number of obs =      90
F(  3,    86) =    33.00
Prob > F      =    0.0000
R-squared     =    0.5351
Adj R-squared =    0.5189
Root MSE     =    .2625

```

The estimates of U5MR are reported in Table 8. The coefficients of income and social expenditures are significant, but that of CPIA is not. The insignificance of CPIA coefficient does not come as a surprise to us, because by structure, it is only partially related to factors that affect U5MR. We use CPIA only because we do not know of any better policy variables. (We also tried Corruption Perceptions Index next and found similar results). Table 8 suggests that a 100% increase in income and social expenditures, cause a 28% and 40% reduction in U5MR, respectively. This clearly demonstrates the role for both economic growth and public services in improving child survival. Clearly, growth and resultant family income helps in improving child care and protection.

Our finding of the elasticity of U5MR with respect to social expenditures (40%) is very close to what Gupta, Verhoeven, and Tiongson (2003) find (32%) for 1990s.

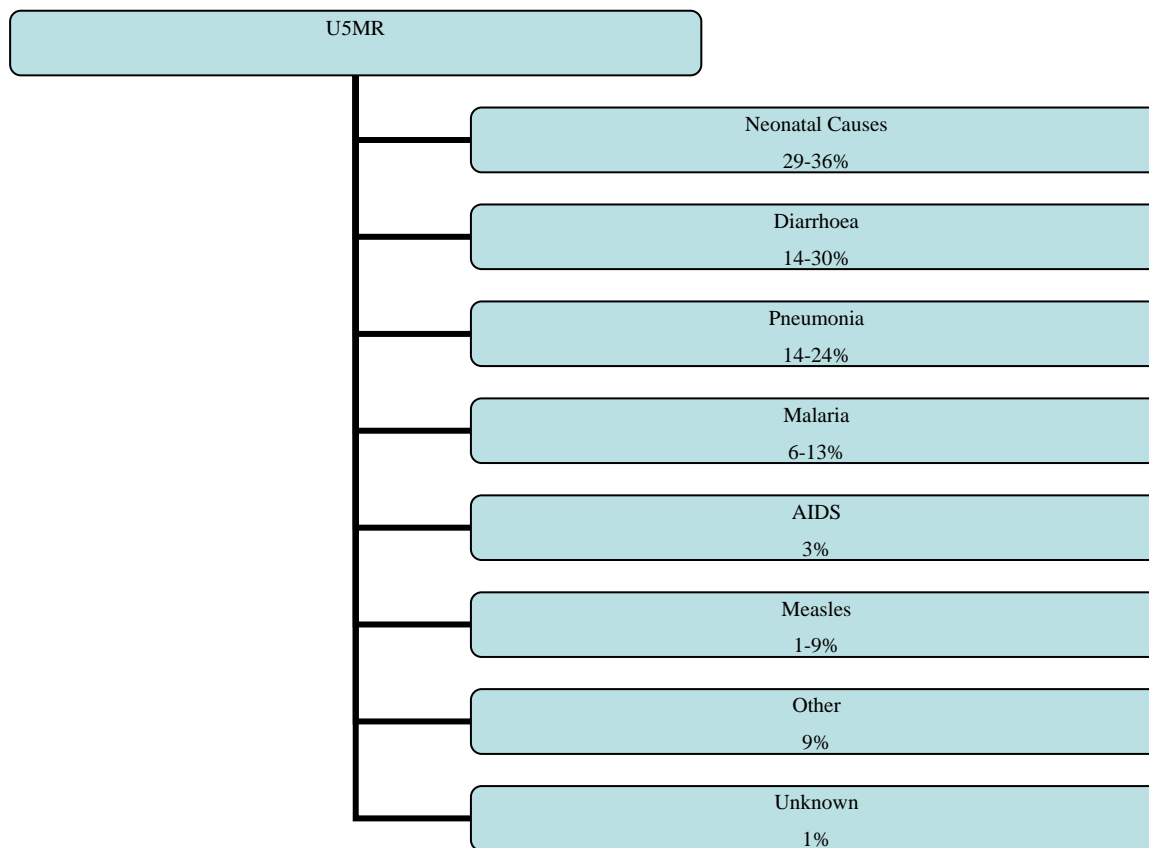
2.4. Coverage analysis

In the section we found that social expenditures are important determinants of U5MR. However, as we discussed earlier in the paper, we do not have all necessary disaggregated global data on such expenditures. Therefore, in this section we look at the coverage in the areas that can affect child survival. The objective of this part is to determine which variables in the programmes can help explain variations in U5MR, and should therefore be monitored along with other key variables identified in the preceding parts of the paper.

Figure 8 shows the interventions and their effectiveness in U5MRas identified in the literature (The Lancet 2004).

Figure 14

Coverage and U5MR



For the group of countries we are studying, these determinants are highly correlated, as shown in Table 9 below, which reports the simple pair-wise correlation of our coverage data series.

Table 9

Correlation Table for Coverage

	U5MR_Aids	Measles	DP3	Clean Water	Sanitation	ORT	Skilled Delivery
U5MR_Aids (deaths in 1000)	1						
Measles (% covered)	-0.4963	1					
DP3 (% covered)	-0.4494	0.9212	1				
Clean Water (% covered)	-0.2981	0.4802	0.5221	1			
Sanitation (% covered)	-0.3902	0.5611	0.5667	0.7143	1		
ORT (% covered)	-0.0687	-0.1382	-0.2223	-0.2128	-0.0582	1	
Skilled Delivery (% covered)	-0.5362	0.2106	0.2448	0.5159	0.484	0.113	1
Low Birth Weight (% covered)	-0.0254	-0.2356	-0.2994	0.0818	0.091	0.002	0.4529

For a detailed econometric analysis of how these factors influence U5MR, we have selected only two types of variables, namely the percentage of deliveries by skilled health personnel to proxy for neonatal care, and measles vaccination to proxy for immunization coverage. Our regression model is as follows:

$$U5MR_{it} = \alpha_0 + \alpha_1 Measles_Vac_{it} + \alpha_2 Skilled_Birth_{it} + u_{it}$$

Where

U5MR is the Under 5 Mortality Rate, corrected for Aids,

Measles_Vac is the percentage of children vaccinated against measles, and

Skilled_Birth is the percentage of births delivered by skilled personnel.

Table 10 shows the regression results:

Table 10

Coverage Regression

Dependent Variable: U5MR (deaths in 1000, corrected for Aids)

Variable	Coef.	Std. Err.	t	P> t
Measles (% covered)	-0.4169368	0.176358	-2.36	0.026
Skilled Delivery (% covered)	-0.1750882	0.089258	-1.96	0.061
Constant	7.40919	0.688182	10.77	0

All variables are in logs.

```

Number of obs =      29

F(  2,   26) =      6.92

Prob > F      =  0.0039

R-squared     =  0.3473

Adj R-squared =  0.2970

Root MSE     =  .24329

```

This table suggests that a 1% increase in measles vaccination reduces U5MR by 0.41%. It also shows that a 1% increase in skilled birth attendance, reduce U5MR by 0.17%.

Overall, this table shows that U5MR is very sensitive to coverage of basic indicators. This can form a basis for proposing “positive conditionalities” which can make aid conditional on increasing such coverage areas as vaccination and skilled birth attendance.

3. Conclusion

In this paper, we selected U5MR as an indicator of poverty from a child's perspective. We argued that U5MR captures poverty in a larger dimension than just income poverty. The trends in U5MR in a sample of 38 highly indebted poor countries showed that the momentum of U5MR reduction declined after 2000 for all groups of countries, irrespective of whether they had received HIPC assistance or not. This result held despite the fact that the U5MR data was net of mortality due to AIDS.

Further, our results showed that the performance of Completion Point countries has been statistically indifferent from that of Decision Point and Other HIPC countries. This would imply the lack of a significant linkage between HIPC assistance and conditionalities on the one hand and key results for poor children on the other.

Next, we investigated causal connections between the actual and potential programme conditionalities and variations in U5MR. Our results suggested that social expenditures, along with income, were significant determinants of U5MR and deserve to be monitored as conditions of aid delivery. Higher social expenditures, in turn, showed significant correlation with tax revenues and aid, underlying the critical role that domestic and external efforts can play in addressing child poverty.

Due to aggregative expenditure data, the impact of expenditures on specific interventions that are known to impact directly on child survival was not determined. To supplement this exercise, therefore, we studied coverage variables concerned with specific interventions, which are expected to explain variations in U5MR. We found that neonatal care (as proxied by the percentage of births by skilled personnel) and vaccination (as proxied by the percentage of vaccinated for measles) explain U5MR well.

Based on these results, we argued that in order for any aid programme (such as the HIPC initiative) to become effective in addressing child poverty, changes in programme conditions and assistance patterns are required. In particular the results suggested including under aid conditionalities, performance on national income, as well as progress towards U5MR reduction, social spending, tax efforts, and greater orientation in aid towards social spending in specific programmes. This is particularly important in the context of the proposal to write off debts of poor countries, as this is likely to transfer significantly greater resources to these countries.

We believe that a lot of subsequent work is needed to be done on this subject in order to better understand causal factors in child survival. However, our main finding which asks for introducing positive social conditionalities in aid programmes, for better outcome in poverty reduction and child survival seems well established, even with the data available.

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5. Appendices

5.1. Appendix A

Data Set used in the study

U5MR data used in the study is the reported data for 1990, 1995, 2000 and 2003 in the State of the World's Children 2006 (UNICEF 2006). The U5MR data for 1996 (the year in which HIPC programme was started) was obtained using the reported data for 1995 and 2000, from the procedure used by UNICEF to construct U5MR data for missing years. Further explanation on the procedure is provided in Appendix B. The source for all other data is the world development indicators (World Bank 2004).

Correcting U5MR for AIDS

Since some of these countries have AIDS prevalence which has contributed additionally to the under-five mortality. The estimates of U5MR used for analysis in the paper were recalculated taking out the under five deaths due to AIDS. This was done by taking the country-specific models of AIDS that include an estimate of HIV prevalence among pregnant women for countries where adult prevalence is above one percent (UNAIDS 2005, Strover 2004, Walker et al 2004).

5.2. Appendix B

Extrapolation of Data for Under-Five Mortality (U5MR)

Suppose there is data available for U5MR for the two periods t_1 and t_5 but there is no data available for the intervening periods (t_2 to t_4).

Let $dU5MR_{t_1, t_2}$ denote the annualized change in Under-five mortality between any two time periods t_1 and t_2 .

Let T be the number of years between time periods t_1 and t_2 such that $T = t_2 - t_1$

Let $U5MR_t$ denote the value of Under-five mortality in each year t . The annual growth rate of U5MR between t_1 and t_5 can be given as

$$dU5MR_{\text{annual}} = [(U5MR_{t_2} - U5MR_{t_1}) / U5MR_{t_1}] / T$$

Having obtained the annual growth rate ($dU5MR_{\text{annual}}$), the missing values of U5MR for time t_2 , t_3 t_4 can be obtained using the following formula:

$$U5MR_{t_i} = U5MR_{t_1} (1 + dU5MR_{\text{annual}})^{t_i - t_1} \text{ where } t_i \text{ denotes } t_2, t_3, t_4.$$

Using the above expression for the specific time periods, we obtain the following:

$$\text{For time } t_2, U5MR_{t_2} = U5MR_{t_1} (1 + dU5MR_{\text{annual}})$$

$$\text{For time } t_3, U5MR_{t_3} = U5MR_{t_1} (1 + dU5MR_{\text{annual}})^2$$

$$\text{For time } t_4, U5MR_{t_4} = U5MR_{t_1} (1 + dU5MR_{\text{annual}})^3$$

5.3. Appendix C

CPIA

The full list of CPIA ratings is as follows:

- A. Economic Management
 - 1. Management of inflation and macroeconomic imbalances
 - 2. Fiscal policy
 - 3. Management of public debt
 - 4. Management and sustainability of the development program

- B. Structural Policies
 - 5. Trade policy and foreign exchange regime
 - 6. Financial stability
 - 7. Financial sector depth, efficiency and resource mobilization
 - 8. Competitive environment for the private sector
 - 9. Goods and factors markets
 - 10. Policies and institutions for environmental sustainability

- C. Policies for Social Inclusion/Equity
 - 11. Gender
 - 12. Equity of public resource use
 - 13. Building human resources
 - 14. Social protection and labor
 - 15. Monitoring and analysis of poverty outcomes and impacts.

- D. Public Sector management and Institutions
 - 16. Property rights and rule based governance
 - 17. Quality of budgetary and financial management
 - 18. Efficiency of revenue mobilization
 - 19. Quality of public administration
 - 20. Transparency, accountability and corruption in the public sector.

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