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Human Assets Index Computing retrospective series from 1970 to 2008

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1. Introduction

The United Nations Committee for Development Policy (CDP) defines the Least Developed Countries (LDCs) as countries suffering from structural handicaps to economic development such as low income, low levels of human resources or capital, and high levels of structural economic vulnerability (UN 2008). The identification of LDCs is carried out according to predetermined thresholds on the three following criteria:

(a) Gross National Income per capita (GNI per capita)

(b) Human Assets Index (HAI)

(c) Economic Vulnerability Index (EVI)

Here we are interested in the level of human capital. The latter was initially measured by literacy rates, which was insufficient since it didn't take into account health levels. Then it was replaced from 1991 to 2002 by the Augmented Physical Quality of Life Index (APQLI). Since 2003, it was replaced by the Human Assets Index (HAI), which is more complete (for a historical review, cf. Guillaumont 2009, *Caught in a trap*, chap. 5).

.../...

LA FERDI EST UNE FONDATION RECONNUE D'UTILITÉ PUBLIQUE.
ELLE MET EN ŒUVRE AVEC L'IDDRI L'INITIATIVE POUR LE DÉVELOPPEMENT ET LA GOUVERNANCE MONDIALE (IDGM).
ELLE COORDONNE LE LABEX IDGM+ QUI L'ASSOCIE AU CERDI ET À L'IDDRI. CETTE PUBLICATION A BÉNÉFICIÉ D'UNE AIDE DE L'ÉTAT FRANCAIS
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1 Introduction

The United Nations Committee for Development Policy (CDP) defines the Least Developed Countries (LDCs) as countries suffering from structural handicaps to economic development such as low income, low levels of human resources or capital, and high levels of structural economic vulnerability (UN 2008). The identification of LDCs is carried out according to predetermined thresholds on the three following criteria:

(a) Gross National Income per capita (GNI per capita)
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Here we are interested in the level of human capital. The latter was initially measured by literacy rates, which was insufficient since it didn't take into account health levels. Then it was replaced from 1991 to 2002 by the Augmented Physical Quality of Life Index (APQLI). Since 2003, it was replaced by the Human Assets Index (HAI), which is more complete (for a historical review, cf. Guillaumont 2009, *Caught in a trap*, chap. 5).

The HAI refers to factors that improve the productivity of people, namely education and health. Indeed, education and health increase productivity: a well-educated worker can better understand work instructions; besides, with a poor health, even the most educated workers are unable to reach their maximum potential productivity. Thus, while taking into account the components of well-being, HAI is concerned with capacity or with "capability" (Sen 1997).

So far, three triennial reviews of HAI data have been completed and made available by the CDP and the DESA: reviews 2003, 2006 and 2009. These are cross-sectional data over the recent period. The 2006 and 2009 reviews provide HAI values for 130 developing countries, including all LDCs. However these data do not allow for comparisons over time. Even if the 2006 review applies the same method as that of the 2009 review, time comparisons are relatively limited, since the 2009 review is rather an update of the 2006 data. To overcome that and to get the possibility to observe the evolution of human disabilities in developing countries (LDCs and non LDCs) over time, we propose here to set up annual HAI series over the 1970-2008 period. The definition of the index remains identical over time, making time comparisons possible.

This work raises several challenges. The main one is that the statistics on the HAI components are not always available. This is especially true for old data and/or for data from developing countries that do not have adequate national statistical institutes. The challenge is then to fill with consistency the lack of statistics. This leads us to set up two different sets of HAI series. One is built on the basis of official but incomplete statistics. This dataset is called "HAI FOS", for "From Official Sources". The other one fills in the gaps and extends the dataset with the help of econometric estimates. We call it "HAI WFG", for "With Filled Gaps".

This document presents the methods used to build these databases. Section 2 recalls the HAI definition and its calculation, according to the *Handbook on the Least Developed Country Category* (UN 2008). Section 3 presents for each indicator the methods used to obtain complete retrospective series from 1970 to 2008. Section 4 presents the results of HAI and its components, and provides a descriptive analysis of the evolution of this indicator in the LDCs and in the rest of the world. Finally Section 5 concludes.

2 HAI definition and calculation

The HAI provides information on the level of human capital development. It is a combination of four indicators related both to the level of health and nutrition and to the level of education. It consists in two indicators for health and nutrition:

- Index of child mortality rate (CS)
- Index of prevalence of undernourishment in the population (CI)

And two for education:

- Index of adult literacy rate (LR)
- Index of gross enrolment in secondary education (SE)

The HAI is calculated as the simple average of the component indices: the original component data are transformed into indices between 0 and 100, applying min-max procedures (as described below) based on the minimum and maximum values of a basket of reference countries. However, normalization based on min and max values raises the question of possible distortions in the case of extended tails of distributions. To overcome this and prevent the presence of outliers, lower and upper bounds are determined to replace the minimum and maximum observed values: this procedure allows for better comparisons.

2.1 The choice of components

Undernourishment compromises health status and educational achievement, and thereby has an important negative impact on productivity. Similarly, the under-five mortality rate reflects the social, economic and environmental conditions in which children, and by extension the overall population, live. It also approximates the health status of the population as a whole: for low-income countries, life expectancy of the population tends to be strongly correlated with rates of child mortality[1].

A low level of education is also a major obstacle to development as it implies an overall shortage of skills for the organization and functioning of the economy, and reflects a low capacity to absorb technological advances. Achievements in education are measured by the adult literacy rate and the gross secondary enrolment ratio. Adult literacy indicates the available basis for enlarging the trained and skilled human resources needed for development. The gross secondary enrolment ratio complements this information by providing indication of the share of population with a certain level of skills. This indicator is preferred to the average years of schooling of the active population since its reliability is limited, or to the primary enrolment ratio since it is already reflected by the literacy rate (UN 2008).

2.2 The normalization of components

The original data of these four variables are converted into index numbers, using the min-max procedure, and rescaled to remove significant outliers as described below. The resulting indices are bounded between 0 and 100 and can be interpreted positively (*i.e.: the closer the indices to 100, the better the health or education assets*).

Min-max procedures

For child mortality rates (U5MR) and for undernourishment prevalence, we proceed as follows:

$$CS\ or\ CI = \begin{cases} \frac{(Max-x)}{(Max-\min)}.100\ if\ min < x < Max \\ 100\ if\ x < min \\ 0\ if\ x > Max \end{cases}$$

with x= U5MR or undernourishment prevalence value (respectively)

[1] The CDP recognizes that the child mortality rate gives an incomplete picture of the health of the entire population. For instance, to better reflect the impact of HIV/AIDS, which has expanded rapidly in low-income countries and has a negative impact on human resources, the CDP would have preferred an indicator such as life expectancy, as an alternative to the child mortality rate. However, studies tend to show that child mortality is a good global health indicator since it depends on access to drugs and health services, access to water and sanitation of quality, mothers' health, and exposition of mothers and children to illness, etc. Besides, even if it is focused on the youngest part of the population, child mortality is much more reliable than life expectancy at birth. Indeed, data on adult mortality in developing countries often remain unknown. Estimates of life expectancy at birth are then often realized with the help of modelisations based on data relative to other populations, and are finally not as reliable as are child mortality rates.

And for literacy and secondary gross enrolment rates:

$$LR\ or\ SE = \begin{cases} \frac{(x-min)}{(Max-\min)}.100\ if\ min < x < Max \\ 0\ if\ x < min \\ 100\ if\ x > Max \end{cases}$$

with x= literacy or secondary gross enrolment rates (respectively).

Lower and upper bounds

Rather than using the minimum and maximum values of the series, in order to prevent the presence of outliers, predetermined upper and lower bounds are used, and are reported in the following table.

Table 2.1 Bounds used for the calculations of the component indices

	Lower bound	**Upper bound**
	min	*Max*
U5M	10	240
% undernourishment	2.5	65
Literacy rate	15	100*
Sec. gross enr. rate	5.7	100

Source: United Nations 2008, Guillaumont 2010. Note: * upper bound set at 99.8 by United Nations 2008.

These bounds have been recently set by the United Nations (2008), from a reference basket of 130 developing countries (incl. all LDCs), for the 2006 HAI review. The first extreme value for which the distance to the nearby observation is lower than or equal to the standard deviation of the series is used as a bound.

2.3 HAI computation

The HAI is the arithmetic average of the four indices described above:

$$HAI = \frac{CS + CI + LR + SE}{4}$$

3 Computing the retrospective HAI

Calculating the HAI retrospectively requires the availability of historical data on the four variables composing the HAI, i.e. on the child mortality rate, the prevalence of undernourishment, the literacy rate and the gross enrolment ratio in secondary education. In this section, we report the availability of these data and the methods adopted to generate the missing values.

Two HAI databases are proposed: the *From Official Sources – FOS HAI* database, and the *With Filled Gaps – WFG HAI* database. In the latter, missing data are replaced by data generated from regressions using per capita income, time trend and/or fixed effects country or region; it provides a general overview of the HAI in the developing world over time, but is not recommended for econometric analysis, or only very cautiously.

3.1 Under-five mortality rate

Definition

The under-five mortality rate refers to the probability of dying before 5 years, per 1,000 newborns.

Data availability

The *World Population Prospects*, UNDP, i.e. the data source used for the official HAI reviews, does not provide information on child mortality before 1995. Then, other data sources are considered for the collection of retrospective data on under-five mortality rates:

- The five-year data of Ahmad, Inoue and Lopez (2000) cover almost all countries of the world in 1955-1999.
- UNICEF Child info (2010) data are the result of the work of the Inter-agency Group for Child Mortality Estimation[2] (IGME), and are available for a large number of countries from 1960 to 2008:

Year	1960	1970	1980	1990	1995	2000	2005	2008
Nb countries	99	135	175	192	194	194	194	194

Method

The most accurate, complete and actualized data are those of the IGME, provided by UNICEF Child info. Missing values are measured by linear interpolation. When interpolation is not possible, the five-year data of Ahmad, Inoue and Lopez (2000) are used since they are consistent with the UNICEF Child Info data.

The resulting series contains data for 150 developing countries, incl. all countries of the HAI 2009 review. Only some countries present some gaps:

- Antigua and Barbuda, 1970 to 1994
- Federate States of Micronesia, 1970 to 1989
- Grenada, 1970 to 1989
- Palau, de 1970 à 1979
- Saint Kitts and Nevis, 1970 to 1979
- St Vincent and the Grenadines, 1970 to 1979
- Saint Lucia, 1970 to 1979
- Timor-Leste, 1970 to 1989
- Tuvalu, 1970 to 1979
- West Bank and Gaza, 1970 to 1979

For the HAI WFG, the following methods of estimation are applied in order to fill in these gaps.

Method no. 1

The method of imputation for missing values is to substitute generated data of under-five mortality rates from econometric fixed-effect estimator (*Within*). Among other things, this method allows taking into account characteristics that are specific to the country. We apply the following model on the whole sample:

(3.1.1) $\log(U5M_{it}) = \propto_1 + \beta_1 . \log(GNIpc_{it}) + \gamma_{1t} . t + \mu_{1i} + \varepsilon_{1it}$

Où : $\propto_1$ constant

β_1 Coefficient of GNI per capita

γ_{1t}Coefficient of time dummy t

μ_{1i} Fixed effects of country i

ε_{1it} Error term

Then, missing values are substituted by predicted values in the following manner:

(3.1.2) $\widehat{U5M}_{it} = \exp(\propto_1 + \beta_1 . \log(GNIpc_{it}) + \gamma_{1t} . t + \mu_{1i})$

Results of model (3.1.1) are available in Table D.1 (Appendix D). The explanatory power of regression 3.1.1 is 77%, which is relatively high and allows the imputation for missing values.

[2] This brings together: UNICEF, WHO, The World Bank and United Nations Population Division.

Method no. 9

Method no. 1 cannot be applied for countries with no information on GNI per capita. This is the case for the Timor-Leste between 1970 and 1989. Since this country is a sovereign state[3] only since 2002, and as U5MR data do not present any similarity between Timor-Leste and its neighbor Indonesia, we do not generate data for Timor-Leste for 1970-89.

3.2 Prevalence of undernourishment

Definition

The prevalence of undernourishment is the proportion of the total population in a condition of undernourishment. Undernourishment refers to the condition of people whose dietary energy consumption is continuously below a minimum dietary energy requirement for maintaining a healthy life and carrying out a light physical activity (source: FAO Statistics Division – metadata).

Data availability

Availability of data on prevalence of undernourishment provided by the FAO Statistics Division (2010) is as follows:

Period	90-92	95-97	00-02	04-06
Nb countries	109	110	102	98

There is no information on the prevalence of undernourishment before 1990. However, we can assess it by using information on the mean levels of daily dietary energy consumption (available yearly from 1961 to 2005, FAO Food Balance Sheets, 2010) and, when possible, on income distribution (like the Gini coefficient, available every 3 years in 1981-2005, PovcalNet dataset, World Bank, 2009). For 2007 and 2008, since there is no information on the dietary intake, we there extrapolate series with some other controls.

Method

The FOS HAI database is set up with primary FAO data as well as values assessed with methods 1 to 4. The WFG HAI dataset substitutes values that have been generated with methods 5 to 8.

Method no. 1

The first method uses information on the average daily level of kilocalories consumption per capita and on income distribution (approximated by the Gini coefficient). The following model is estimated using the *Within* estimator:

(3.2.1) $U_{it} = \alpha_1 + \beta_1.\overline{kcal}_{it} + \gamma_1.Gini_{it} + \mu_{1i} + \varepsilon_{1it}$

with U_{it} prevalence of undernourishment in country i over year t

$\overline{kcal}_{it}$ mean level of energy supply, in kilocalories per capita and per day, in country i during year t

$Gini_{it}$ Gini coefficient

μ_{1i} country fixed-effects

ε_{1it} error term

Then, coefficients $\alpha_1, \beta_1, \gamma_1$ and μ_{1i} are taken out and used to generate values with method no. 1:

(3.2.2) $\widehat{U}_{1it} = \alpha_1 + \beta_1.\overline{kcal}_{it} + \gamma_1.Gini_{it} + \mu_{1i}$

[3] Timor-Leste was colonized by Portugal until 1975, then it was occupied by Indonesia.

Method no. 2

The second method is similar to method no.1 but is applied when data on Gini coefficient are missing: the following model is estimated with the *Within* estimator:

(3.2.3) $U_{it} = \alpha_2 + \beta_2 . \overline{kcal}_{it} + \mu_{2i} + \varepsilon_{2it}$

With U_{it} prevalence of undernourishment in country i over year t

$\overline{kcal}_{it}$ mean level of energy supply, in kilocalories per capita and per day, in country i during year t

$Gini_{it}$ Gini coefficient

μ_{2i} country fixed-effects

ε_{2it} error term

Coefficients α_2, β_2 and μ_{2i} are taken out and used to calculate missing values with method no.2:

(3.2.4) $\widehat{U}_{2it} = \alpha_2 + \beta_2 . \overline{kcal}_{it} + \mu_{2i}$

Method no. 3

Methods no. 3 and no. 4 estimate values occurring in the ending parts of time series by using the lagged prevalence of undernourishment. Method no. 3 applies the following model:

(3.2.5) $U_{it} = \alpha_3 + \beta_3 . U_{i,t-1} + \gamma_3 . GNIpc_{it} + \delta_3 . Gini_{it} + \mu_{3i} + \varepsilon_{3it}$

With U_{it} prevalence of undernourishment in country i over year t

$GNIpc_{it}$ GNI per capita

$Gini_{it}$ Gini coefficient

μ_{3i} country-fixed effects

ε_{3it} error term

Coefficients $\alpha_3, \beta_3, \gamma_3, \delta_3$ and μ_{3i} are taken out and used to calculate missing values with method no.3:

(3.2.6) $\widehat{U}_{3it} = \alpha_3 + \beta_3 . U_{i,t-1} + \gamma_3 . GNIpc_{it} + \delta_3 . Gini_{it} + \mu_{3i}$

Method no. 4

Method no. 4 is used for the same purpose, but for countries with no information on the Gini coefficient; it applies the following model:

(3.2.7) $U_{it} = \alpha_4 + \beta_4 . U_{i,t-1} + \gamma_4 . GNIpc_{it} + \mu_{4i} + \varepsilon_{4it}$

With U_{it} prevalence of undernourishment in country i over year t

$GNIpc_{it}$ GNI per capita

$Gini_{it}$ Gini coefficient

μ_{4i} country-fixed effects

ε_{4it} error term

Coefficients $\alpha_4, \beta_4, \gamma_4$ and μ_{4i} are taken out and used to calculate missing values with method no.4:

(3.2.8) $\widehat{U}_{4it} = \alpha_4 + \beta_4 . U_{i,t-1} + \gamma_4 . GNIpc_{it} + \mu_{4i}$

Results of the estimations of models (3.2.1), (3.2.3), (3.2.5) and (3.2.7) are presented in Table D.2 (appendix D). The FOS HAI database is constituted of data sources as well as estimates resulting from methods no.1, 2, 3 and 4. The methods which are following (no. 5 to no.9) concern only the WFG HAI database.

Method no. 5

For missing values, we first apply the method also used for the under-five mortality rate estimates, i. e. we estimate the prevalence of undernourishment with econometric regressions, taking into account income level and inequalities, time and country effects. The following model is estimated with the *Within* estimator:

(3.2.9) $U_{it} = \propto_5 + \beta_5 . \ln(GNIpc_{it}) + \gamma_5 . \ln(Gini_{it}) + \delta_{5t} . t_t + \mu_{5i} + \varepsilon_{5it}$

Coefficients $\alpha_5, \beta_5, \gamma_5, \delta_5$ and μ_{5i} are taken out and used to calculate missing values with method no.5:

(3.2.10) $\widehat{U}_{it} = \propto_5 + \beta_5 . \ln(GNIpc_{it}) + \gamma_5 . \ln(Gini_{it}) + \delta_{5t} . t_t + \mu_{5i}$

This method concerns Bosnia and Herzegovina, Croatia, the FYROM and Malaysia in 1970-89, since they do not provide information on energy supply for this period.

Method no. 6

Method no.6 applies almost the same model to countries that do not have any information on the prevalence of undernourishment neither on the energy supply on the whole period 1970-2008. For them, the *Within* estimator cannot be used, and we cannot get country-fixed effects. Then, we rather exploit region fixed-effects, and we assess the following model with the OLS estimator:

(3.2.11) $U_{it} = \propto_6 + \beta_6 . \ln(GNIpc_{it}) + \gamma_6 . \ln(Gini_{it}) + \delta_{6t} . t_t + \mu_{6i} . region_i + \varepsilon_{6it}$

Coefficients $\alpha_6, \beta_6, \gamma_6, \delta_6$ and μ_{6i} are taken out and used to calculate missing values with method no.6:

(3.2.12) $\widehat{U}_{it} = \propto_6 + \beta_6 . \ln(GNIpc_{it}) + \gamma_6 . \ln(Gini_{it}) + \delta_{6t} . t_t + \mu_{6i} . region_i$

This method concerns Bhutan and Papua New Guinea for the whole period 1970-2008.

Method no. 7

For missing values for which there is no observation on the Gini coefficient, we apply correlates of methods no.5 and no.6, but without the Gini coefficient. Method no.7 proposes to estimate the following model with the *Within* estimator:

(3.2.13) $U_{it} = \propto_7 + \beta_7 . \ln(GNIpc_{it}) + \delta_{7t} . t_t + \mu_{7i} + \varepsilon_{7it}$

Then the prevalence of undernourishment is assessed:

(3.2.14) $\widehat{U}_{it} = \propto_7 + \beta_7 . \ln(GNIpc_{it}) + \delta_{7t} . t_t + \mu_i$

This method concerns Montenegro, Serbia and West Bank and Gaza in 1970-89.

Method no. 8

Finally, as for method no.6, method no.8 concerns countries that do not have any information on the prevalence of undernourishment neither on the energy supply on the whole period 1970-2008; furthermore, it concerns countries that do not have information on income inequalities. For them, the following model is applied with the OLS estimator:

(3.2.15) $U_{it} = \propto_8 + \beta_8 . \ln(GNIpc_{it}) + \delta_{8t} . t_t + \mu_{8i} . region_i + \varepsilon_{8it}$

Then the prevalence of undernourishment is assessed:

(3.2.16) $\widehat{U}_{it} = \propto_8 + \beta_8 . \ln(GNIpc_{it}) + \delta_{8t} . t_t + \mu_{8i} . region_i$

This method concerns Afghanistan, Federal States of Micronesia, Equatorial Guinea, Iraq, Marshall Islands, Oman, Palau, Somalia, Tonga, and Tuvalu, over the whole period 1970-2008.

Table D.3 (in appendix D) present the results of estimates of models (3.2.9), (3.2.11), (3.2.13) and (3.2.15) that respectively rely to methods no. 5, 6, 7, and 8.

Method no. 9

Method no.9 is with no imputation, leaving missing values. In the case of the prevalence of undernourishment, it concerns ex-USSR countries in 1970-89, since we do not have information on their energy supply in kilocalories, neither on their income level. Consequently, we have missing values in 1970-89 for Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Lithuania, Latvia, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

3.3 Literacy rate

Definition

The literacy rate is the percentage of population of a given age range who can both read and write with understanding a short simple statement on their everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations (Source: UNESCO Institute for Statistics glossary).

Data availability

The UNESCO Institute for Statistics regularly collects data on literacy and actualizes the related statistics and estimates twice a year, in April and in September. Statistics are available for almost all countries. The most recent and actualized data are provided by the Data Centre (online on their website); historical data are available in the Archives (also online).

Data Centre data

In the Data Centre database, 149 countries do have at least one observation on the period 1975-2007.

Archives data

The "Literacy Statistical Archives" category of the UNESCO Institute for Statistics provides on its website a collection of historical data on literacy. Two datasets are of interest:

- A dataset of data on literacy rate for the period 2000-2004, estimated in April 2006;
- A dataset of data on literacy rate for many countries and for years 1970, 1980, 1990, 1995, 2000, 2005, 2010, 2015; estimated in 2002 and actualized in 2005.

Method

Data Centre data are used as primary source and Archives data are used as secondary (for those estimated in 2006) and as tertiary (for those actualized in 2005). First, interpolation between values is done with primary data. For data that remains missing, the secondary data and then the tertiary data are used to do the interpolation[4].

These data constitute the FOS HAI dataset. The following methods allow estimating missing values and concern only the WFG HAI dataset.

Method no. 1

For values missing in the ending parts of series, after 2004, we first apply econometric estimates taking into account income level, time and country fixed effects, as well as the lagged value of literacy. The *Within* estimator is applied to the following model:

(3.3.1) $Lit_{it} = \propto_1 + \beta_1 . \ln(GNIpc_{it}) + \gamma_1 . Lit_{i,t-1} + \delta_{1t} . t_t + \mu_{1i} + \varepsilon_{1it}$

Imputed value for missing literacy rate is then the predicted value (first for 2005, then for 2006, etc.):

(3.3.2) $\widehat{Lit}_{it} = \propto_1 + \beta_1 . \ln(GNIpc_{it}) + \gamma_1 . Lit_{i,t-1} + \delta_{1t} . t_t + \mu_{1i}$

Method no. 2

Method no. 2 generates values missing before 2004. It applies the same method as the no.1, but without the lagged value of literacy:

(3.3.3) $Lit_{it} = \propto_2 + \beta_2 . \ln(GNIpc_{it}) + \delta_{2t} . t_t + \mu_{2i} + \varepsilon_{2it}$

Literacy rate assessment is then calculated:

(3.3.4) $\widehat{Lit}_{it} = \propto_2 + \beta_2 . \ln(GNIpc_{it}) + \delta_{2t} . t_t + \mu_{2i}$

Method no. 3

Method no. 3 concerns series that have only one observation of literacy over 1970-2008, so that we cannot get country fixed-effects estimates using a *Within* estimator. We then add region fixed effects to model (3.3.1) and estimate it with the *OLS* estimator:

(3.3.5) $Lit_{it} = \propto_3 + \beta_3 . \ln(GNIpc_{it}) + \delta_{3t} . t_t + \mu_{3i} . region_i + \varepsilon_{3it}$

Literacy rate is then computed as:

(3.3.6) $\widehat{Lit}_{it} = \propto_3 + \beta_3 . \ln(GNIpc_{it}) + \delta_{3t} . t_t + \mu_{3i} . region_i$

This method concerns Bhutan, Tonga and Sao Tome and Principe.

[4] Estimated values of 2010, which are approximate and provided by the tertiary data source, are not taken into account and then are not used for interpolation, when they are not consistent with the trend observed in the 2000s with data provided by the Data Centre.

■ Method no. 4

Imputed values for missing data in the beginning part of the Bhutan time series are generated by using the relative deviation with Nepal series. Indeed, Bhutan and Nepal are neighbor countries and all their series do look alike. We first calculate a ratio between Bhutan literacy and Nepal literacy in 2005 (year for which Bhutan has information on its literacy rate):

(3.3.7) $Ratio = {Lit_{Bhutan,2005}}/{Lit_{Nepal,2005}}$

We then apply this ratio for Bhutan missing values in 1970-2004:

(3.3.8) $Lit_{Bhutan,t} = ratio.Lit_{Nepal,t}$

■ Method no. 5

For countries that do not have any information on literacy over 1970-2008, we assess it by estimating the following model with the *OLS* estimator:

(3.3.9) $Lit_{it} = \propto_5 + \delta_{5t}.t_t + \mu_{5i}.region_i + \varepsilon_{5it}$

Literacy rate is then generated by:

(3.3.10) $\widehat{Lit}_{it} = \propto_5 + \delta_{5t}.t_t + \mu_{5i}.region_i$

This method concerns Dominica, Federate States of Micronesia, Georgia, Grenada, Kiribati, Saint Kitts and Nevis, Marshall islands, Solomon islands, Somalia, Timor Leste, Tuvalu, and Saint Vincent and the Grenadines.

Table D.4 (in appendix D) presents the results of estimates of models (3.3.1), (3.3.3), (3.3.5) and (3.3.9) that respectively rely to methods no. 1, 2, 3, and 5.

■ Method no. 9

Method no. 9 concerns missing values that cannot be replaced by generated values:

- Azerbaijan, Georgia, Kyrgyzstan, Turkmenistan, and Timor-Leste in 1970-89; they remain missing since they do not have information on GNI per capita;
- The beginning of series of Antigua and Barbuda (before 2004) and of Palau (before 1980) as well as the entire series of North Korea.

3.4 Secondary enrolment rate

Definition

Gross secondary enrolment rate is the total number of pupils enrolled in secondary level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the secondary level of education in a given school year.

A high secondary enrolment rate generally indicates a high degree of participation, whether the pupils belong to the official age group or not. A rate value approaching or exceeding 100% indicates that a country is, in principle, able to accommodate all of its school-age population, but it does not indicate the proportion already enrolled. The achievement of a rate of 100% is therefore a necessary but not sufficient condition for enrolling all eligible children in school. This is one of the limitations of this indicator: the gross enrolment rate can exceed 100% due to the inclusion of over-aged and under-aged pupils because of early or late entrants, and grade repetition. In this case, a rigorous interpretation of the enrolment rate needs additional information to assess the extent of repetition, late entrants, etc. (Source: UNESCO Institute for Statistics glossary).

Data availability

The UNESCO Statistics Institute regularly collects data to estimate secondary enrolment gross rates, by country and by year. Most recent data are provided by the Data Centre. More historical data are available online in the category *Key statistical tables on education.*

Data Centre data

Frequency of data on secondary enrolment rate, gross and net, provided by the Data Centre:

Period	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Nb countries, gross	159	167	168	175	176	175	172	154	160	75
Nb countries, net	103	118	114	124	120	120	126	108	115	49

Before 1999: no observation

Key statistical tables on education

Table 22 provides historical data on secondary education for many countries, every five years over 1970-2005.

Method

Data Centre data are utilized as a primary source, and historical data as a secondary source. First, primary data are interpolated in order to fill in the gaps between two values; when it is not possible, secondary data are used for the interpolation.

The FOS HAI dataset is constituted of these data. The following methods concern only the WFG HAI dataset computation.

Method no. 1

For values missing in the ending parts of time series, imputation for the missing values is based on estimating the following model, which includes income level, lagged value of secondary enrolment, and time and region fixed effects. The OLS estimator is used:

(3.4.1) $SEG_{it} = \propto_1 + \beta_1 . \ln(GNI_{it}) + \gamma_1 . SEG_{i,t-1} + \delta_{1t} . t_t + \mu_{1i} . region_i + \varepsilon_{1it}$

The secondary enrolment gross ratio is then generated, chronologically and year after year:

(3.4.2) $\widehat{SEG}_{it} = \propto_1 + \beta_1 . \ln(GNI_{it}) + \gamma_1 . SEG_{i,t-1} + \delta_{1t} . t_t + \mu_{1i} . region_i$

Method no. 2

For values missing in the beginning parts of time series, we generate values for the missing values by first estimating the following model, which includes income level, future value of secondary enrolment, and time and region fixed effects. The OLS estimator is used:

(3.4.3) $SEG_{it} = \propto_2 + \beta_2 . \ln(GNI_{it}) + \gamma_2 . SEG_{i,t+1} + \delta_{2t} . t_t + \mu_{2i} . region_i + \varepsilon_{2it}$

The secondary enrolment gross ratio is then generated, ante-chronologically and year after year:

(3.4.4) $\widehat{SEG}_{it} = \propto_2 + \beta_2 . \ln(GNI_{it}) + \gamma_2 . SEG_{i,t+1} + \delta_{2t} . t_t + \mu_{2i} . region_i$

Method no. 3

The beginning part of the Eritrea time series is assessed by using the relative deviation from Ethiopia series. Indeed, Eritrea and Ethiopia constituted a single country for years; and all their series do look alike. We first calculate an average ratio between Eritrea secondary enrolment and Ethiopia secondary enrolment over 1995-2008 (years for which Eritrea has information on its secondary enrolment rate):

(3.4.5) $Ratio = \frac{1}{14} \sum_{t=1995}^{t=2008} \frac{SEG_{Erytrea,t}}{SEG_{Ethiopia,t}}$

We then apply this ratio on Eritrea to generate values over 1970-1994:

(3.4.6) $SEG_{Eritrea,t} = ratio . SEG_{Ethiopia,t}$

Table D.5 (in appendix D) presents the results for estimates of models (3.4.1) and (3.4.3), i.e. for methods no. 1 and 2.

Method no. 9

Method no. 9 concerns missing values that cannot be generated:

- Azerbaijan, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Lithuania, Latvia, Moldova and Uzbekistan from 1970 to 1979;
- Armenia, Tajikistan, Timor-Leste from 1970 to 1989;
- Montenegro, North Korea, Turkmenistan.

4 Results: the HAI retrospective data

After having applied all methods described in section 3, two HAI datasets are now available: an incomplete dataset, called "From Official Sources HAI – FOS HAI"; and a more complete dataset, called "With Filled Gaps HAI – WFG HAI". Since the WFG HAI series are completed with generated values from econometric estimates using as explanatory variables the GNI per capita, the Gini coefficient, time effects and country or region effects, we advise to use them for econometric analyses only very cautiously. For that purpose, it should be better to utilize FOS HAI series, which cannot generate the same endogeneity bias.

4.1 An enlarged panel of countries and a new time horizon…

It is now possible to make HAI comparisons across a larger number of countries than ever before. We now have HAI data for 147 countries (see the list of countries Table C.1, appendix C), i.e. overall 15 additional countries compared to the UN CDP "HAI 2009 review". Specifically, there are 27 new countries, and 12 removed countries, the latter including 11 high income countries and the Democratic People's Republic of Korea (cf. Table 4.1).

The 147 countries include all 49 Least Developed Countries. The distribution across regions is as following: 22 countries from East Asia and Pacific (EAP), 24 countries from Europe and Central Asia (ECA), 32 countries from Latin America and Caribbean (LAC), 14 countries from the Middle East and North Africa (MENA), 8 countries from South Asia (SA) and 47 countries from Sub-Saharan Africa (SSA).

Finally, both FOS and WFG HAI datasets cover 1970-2008. This time extension is the main contribution of this work since the HAI data provided by the UN CDP are not panelized over time. These new databases now allow realizing time comparisons that have been until now very limited.

Table 4.1 Added and removed countries in the HAI retrospective database, compared to the HAI 2009 review

Added countries	LICs	Kyrgyzstan, Moldova, Tajikistan, Uzbekistan
	LMICs	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Fed. St. Micronesia, FYRO Macedonia, Georgia, Kazakhstan, Marshall Isl., Romania, Serbia, Ukraine, West Bank and Gaza
	UMICs	Croatia, Estonia, Hungary, Latvia, Lithuania, Palau, Poland, Russia
Removed countries	LICs	Democratic People's Republic of Korea
	HICs	Bahamas, Bahrain, Brunei Darussalam, Cyprus, Israel, Republic of Korea, Malta, Qatar, Saudi Arabia, Singapore, United Arab Emirates

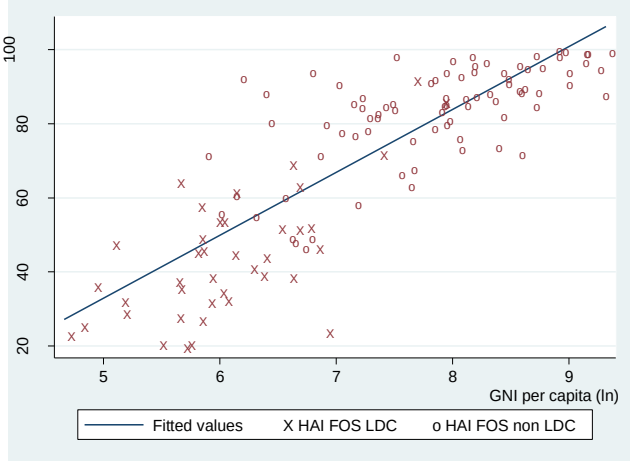
4.2 … allow a more complete cross-country analysis…

A low level of human capital is a key handicap to development. The HAI measures this level through an arithmetic average of four indices: the child mortality rate index (CS), the prevalence of undernourishment index (CI), the literacy rate index (LR), and the secondary enrolment gross rate index (SE). The four indices composing the HAI and the HAI itself are bounded between 0 and 100: 0 reflects the lowest level and 100 the highest reachable level. The mean level of HAI across the 147 countries over 2000-2008 is 72 (Table 4.2)

Generally, low income countries are less endowed with human capital

Table 4.2 indicates that low income countries have lower HAI levels (about 50) than upper-middle income countries (about 92) on average over 2000-08. Indeed, as suggests as well by the Figure 4.1, human capital level increases with income level. This trend can be observed with all indices composing the HAI (Table 4.2).

Figure 4.1. HAI level expressed as a function of the GNI per capita level (in ln) according to the LDC category membership, 2000-2008



Source: FOS HAI dataset

Least Developed Countries suffer much more

HAI is significantly lower in LDCs[5]. Indeed, the average of HAI in LDCs equals 48 in 2000s; it reaches 67 in low income but non least developed countries (Table 4.2). Kernel curves (Figure 4.2) also indicate such a difference: the diverse peaks reveal the division in human capital between LDCs and other low income countries and middle income countries. The same assessment appears for previous periods (Table 4.3), though a divergence of HAI levels seems to occur among LDCs whereas non LDCs converge towards better levels (Figure 4.3). Besides, when HAI level is represented as a function of GNI per capita, one can observe that most of LDCs dots are below the linear regression. This means that for a given income, LDCs produce lower levels of HAI than non LDCs.

This gap in human assets between LDCs and other countries is also perceivable for each HAI component (Table 4.2). In 2000s, child mortality rate amounted 128 in LDCs against 38 in other developing countries and 84 in other low income countries. The prevalence of undernourishment reaches 29% in LDCs and 10% in other developing countries and 21% in other low income countries. Divergences are also observed in education variables: 61% of literate people on average in LDCs versus 89% in other developing countries and 79% in other low income countries; the secondary enrolment rate goes from 33% on average in LDCs to 78% in other developing countries[6].

Least Developed countries are logically at the bottom of the HAI ranking: 84% of the 30% lowest HAI level countries are LDCs (Table 4.4).

Differences across regions

Sub-Saharan African is unsurprisingly the region with the weakest HAI levels. Composed with a number of least developed countries, SSA has an average HAI score of only 48 in the 2000s. South Asia countries HAI score is higher (59 on average), mainly thanks to better health and nutrition (Table 4.2). Both regions are behind North Africa and Middle East (79), East Asia and Pacific (80), Latin America and Caribbean (86) and Europe and Central Asia (94). Same patterns are observed for previous periods (Table 4.3).

[5] LDCs here correspond to countries classified as LDCs in 2010 by United Nations (cf. list Table C.2, Appendix C).
[6] In each case, differences are statistically significant (with a 1% confidence interval).

Table 4.2 Average of HAI and its components, 2000-08, by country groups

	HAI	U5MR	CS	PREV	CI	LIT	LR	SE Gross	SE
All (147)	72	67	75	16	78	80	76	63	61
Developing countries (144)	72	68	75	16	78	79	76	62	60
LICs (58)	50	120	52	28	59	63	56	37	33
LMICs (53)	83	40	87	10	87	89	87	74	73
UMICs (33)	92	21	95	6	94	93	92	87	87
Have been LICs (73)	56	106	58	25	65	69	63	44	41
LDCs (49)	48	128	49	29	58	61	54	33	29
Non LDCs (98)	85	38	88	10	87	89	87	78	76
Non LDCs but Dev. C. (96)	84	38	88	10	87	89	87	77	76
Non LDCs but LICs (58)	67	84	68	21	71	79	75	55	52
Non LDCs but been LICs (73)	75	63	77	16	78	85	82	66	64
East Asia and Pacific (22)	80	45	85	13	83	90	88	67	65
Europe and Central Asia (24)	94	25	93	6	94	98	98	90	89
Latin America & Caribbean (32)	86	28	92	12	85	91	89	80	79
MENA (14)	79	39	88	9	89	76	72	70	68
South Asia (8)	59	91	66	20	71	60	53	50	47
SSA (47)	48	132	47	28	60	62	56	35	31
SIDS	82	43	85	13	83	89	87	75	74
Non SIDS	69	74	72	17	76	77	73	59	57
Non SIDS but Dev. C.	69	74	72	17	76	77	73	59	57
Non SIDS but LICs	49	122	51	28	59	62	55	37	33
Non SIDS but been LICs	56	108	58	25	64	68	62	44	40
Non SIDS but LDCs	43	139	44	31	55	56	48	29	24
SIDS but Non LDCs	89	27	93	10	88	93	92	85	84

Notes: Number of countries between brackets. These averages are calculated from WFG HAI series.

Table 4.3 Average of HAI, by country groups and by five-year period, 1970-2008

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08
All	44	49	54	58	63	66	71	74
Developing countries				56	63	66	71	73
LICs				35	39	44	49	50
LMICs				66	75	80	84	80
UMICs				80	85	88	91	93
Have been LICs	28	32	35	39	46	49	54	59
LDCs	23	26	30	33	36	40	46	50
Non LDCs	56	62	68	72	77	80	84	86
Non LDCs but Dev. C.				70	76	80	84	86
Non LDCs but LICs				55	59	64	67	67
Non LDCs but been LICs	44	49	54	58	66	69	74	77
East Asia and Pacific	54	59	65	69	70	75	79	82
Europe and Central Asia	83	86	88	90	90	90	93	95
Latin America & Caribbean	59	65	70	73	76	80	85	88
MENA	38	47	56	63	68	73	78	81
South Asia	29	32	36	41	47	52	57	62
SSA	26	29	33	36	39	41	46	51
SIDS	57	62	67	71	74	77	81	84
Non SIDS	40	45	50	54	60	63	68	71
Non SIDS but Dev. C.				53	60	63	68	71
Non SIDS but LICs				33	38	44	49	49
Non SIDS have been LICs	27	30	34	38	45	48	54	58
Non SIDS but LDCs	19	22	26	29	31	35	41	46
SIDS but Non LDCs	64	69	75	79	82	84	89	90

Source: WFG HAI database

Figure 4.2 HAI Kernel density, comparison between LDCs, LICs non LDCs and MICs non LDCs, 2000s

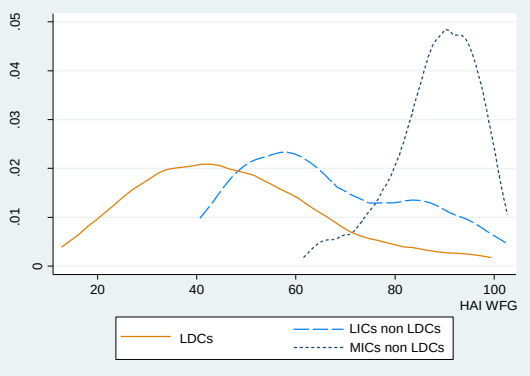
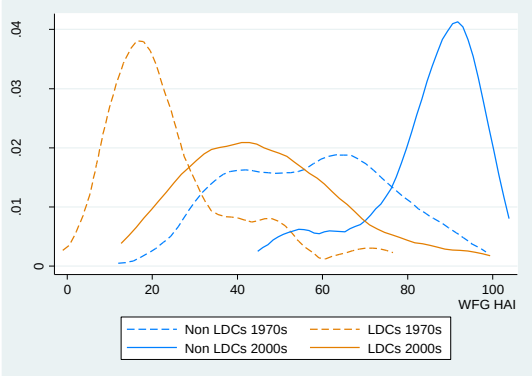


Figure 4.3 Evolution of the HAI Kernel density, froms 1970s to 2000s, comparison between LDCs and developing countries non LDCs



Source: WFG HAI database.

Table 4.4 Rank of countries by HAI level in 2000s

HAI rank	LDCs	SIDS	Country	2000s HAI	Region	Class	HAI rank	LDCs	SIDS	Country	2000s HAI	Region	Class
1	*		Chad	20	SSA	LIC	43	*		Bhutan	56	SA	LIC
2	*		Niger	22	SSA	LIC	44	*		Nepal	59	SA	LIC
3	*		Afghanistan	22	SA	LIC	45	*		Equatorial	59	SSA	LMIC
4	*		Sierra Leone	22	SSA	LIC	46			Congo	59	SSA	LIC
5	*		Burundi	23	SSA	LIC	47			India	61	SA	LIC
6	*		Dem. Rep. Congo	26	SSA	LIC	48	*		Laos	62	EAP	LIC
7	*		Angola	28	SSA	LMIC	49			Ghana	62	SSA	LIC
8	*		Mozambique	29	SSA	LIC	50	*		Lesotho	64	SSA	LIC
9	*		Centr. Afr. Rep.	29	SSA	LIC	51			Swaziland	64	SSA	LMIC
10	*		Ethiopia	30	SSA	LIC	52	*		Myanmar	65	EAP	LIC
11	*		Somalia	31	SSA	LIC	53	*	**	Timor-Leste	65	EAP	LIC
12	*		Burkina Faso	33	SSA	LIC	54			Iraq	67	MEN	LMIC
13	*	**	Guinea-Bissau	33	SSA	LIC	55			Morocco	68	MEN	LMIC
14	*		Mali	33	SSA	LIC	56			Guatemala	69	LAC	LMIC
15	*		Eritrea	37	SSA	LIC	57	*	**	Sao Tome & Pr.	70	SSA	LIC
16	*		Liberia	37	SSA	LIC	58			Nicaragua	72	LAC	LIC
17	*		Guinea	37	SSA	LIC	59	*	**	Solomon Islands	73	EAP	LIC
18	*		Rwanda	39	SSA	LIC	60	*	**	Vanuatu	73	EAP	LMIC
19	*		Senegal	40	SSA	LIC	61			Tajikistan	73	ECA	LIC
20	*		Zambia	40	SSA	LIC	62			Namibia	74	SSA	LMIC
21	*	**	Haiti	41	LAC	LIC	63			Gabon	75	SSA	UMI
22	*		Rep. Tanzania	43	SSA	LIC	64			Botswana	75	SSA	UMI
23	*		Benin	43	SSA	LIC	65		**	Dominican	77	LAC	LMIC
24	*	**	Comoros	45	SSA	LIC	66		**	Cape Verde	77	SSA	LMIC
25	*		Gambia	46	SSA	LIC	67			Bolivia	78	LAC	LMIC
26	*		Madagascar	46	SSA	LIC	68			Indonesia	78	EAP	LMIC
27	*		Togo	47	SSA	LIC	69			Honduras	79	LAC	LMIC
28	*		Djibouti	47	MEN	LMIC	70			Ecuador	79	LAC	LMIC
29	*		Malawi	48	SSA	LIC	71			El Salvador	80	LAC	LMIC
30			Pakistan	49	SA	LIC	72			Mongolia	81	EAP	LIC
31			Nigeria	50	SSA	LIC	73			Panama	82	LAC	UMI
32			Cote d'Ivoire	50	SSA	LIC	74			Algeria	82	MEN	LMIC
33	*		Uganda	50	SSA	LIC	75			Syria	83	MEN	LMIC
34			Cameroon	50	SSA	LIC	76			Egypt	83	MEN	LMIC
35	*		Mauritania	52	SSA	LIC	77			Paraguay	83	LAC	LMIC
36	*		Sudan	52	SSA	LIC	78			Viet Nam	84	EAP	LIC
37	*		Yemen	53	MEN	LIC	79			Thailand	85	EAP	LMIC
38		**	Papua N. Guinea	53	EAP	LIC	80			China	85	EAP	LMIC
39	*		Bangladesh	54	SA	LIC	81			Philippines	85	EAP	LMIC
40	*		Cambodia	55	EAP	LIC	82			Iran	85	MEN	LMIC
41			Kenya	56	SSA	LIC	83			Armenia	85	ECA	LMIC
42			Zimbabwe	56	SSA	LIC	84		**	Suriname	86	LAC	LMIC

Table 4 .4 Rank of countries by HAI level in 2000s (continuation)

HAI rank	LDCs	SIDS	Country	2000s HAI	Region	Class	HAI rank	LDCs	SIDS	Country	2000s HAI	Region	Class
85			Venezuela	86	LAC	UMI	117			Albania	92	ECA	LMI
86			Sri Lanka	86	SA	LMI	118		**	St Kitts & Nevis	93	LAC	UMI
87			Tunisia	86	MEN	LMI	119		**	Fiji	93	EAP	LMI
88			Georgia	87	ECA	LMI	120			Brazil	93	LAC	UMI
89	*	**	Maldives	87	SA	LMI	121		**	St Vincent & Gr	93	LAC	UMI
90			South Africa	87	SSA	UMI	122			Libya	94	MEN	UMI
91			Azerbaijan	87	ECA	LMI	123			Moldova	94	ECA	LIC
92			Occ. Palestin.Ter	88	MEN	LMI	124			FYROM	94	ECA	LMI
93			Peru	88	LAC	LMI	125			Romania	94	ECA	LMI
94			Colombia	88	LAC	LMI	126			Kazakhstan	95	ECA	LMI
95		**	Belize	88	LAC	UMI	127			Argentina	95	LAC	UMI
96		**	Trinidad & Tob	89	LAC	UMI	128		**	Seychelles	95	SSA	UMI
97		**	Jamaica	89	LAC	LMI	129			Bosnia & Herz	95	ECA	LMI
98			Turkey	89	ECA	UMI	130			Russia	96	ECA	UMI
99			Malaysia	89	EAP	UMI	131			Chile	96	LAC	UMI
100			Uzbekistan	89	ECA	LIC	132		**	Tonga	96	EAP	LMI
101	*	**	Kiribati	89	EAP	LMI	133			Serbia	96	ECA	LMI
102		**	Marshall Islands	90	EAP	LMI	134			Croatia	97	ECA	UMI
103		**	Mauritius	90	SSA	UMI	135		**	Cuba	97	LAC	LMI
104		**	Antigua & Barb	90	LAC	HIC	136			Belarus	97	ECA	LMI
105		**	Micronesia	90	EAP	LMI	137			Ukraine	98	ECA	LMI
106			Lebanon	90	MEN	UMI	138			Uruguay	98	LAC	UMI
107			Oman	90	MEN	UMI	139		**	Dominica	98	LAC	UMI
108		**	Grenada	90	LAC	UMI	140			Bulgaria	99	ECA	LMI
109	*	**	Tuvalu	91	EAP		141			Latvia	99	ECA	UMI
110		**	Guyana	91	LAC	LMI	142		**	Palau	99	EAP	UMI
111			Mexico	91	LAC	UMI	143			Hungary	99	ECA	UMI
112			Jordan	92	MEN	LMI	144			Estonia	99	ECA	UMI
113		**	St Lucia	92	LAC	UMI	145		**	Barbados	99	LAC	HIC
114	*		Samoa	92	EAP	LMI	146			Poland	100	ECA	UMI
115			Costa Rica	92	LAC	UMI	147			Lithuania	100	ECA	UMI
116			Kyrgyzstan	92	ECA	LIC							

Source: WFG HAI database

4.3 … and a more consistent analysis of the evolution over time

Globally, human capital level has progressed since 1970s

We find an improvement of the HAI over all countries from 1970 with 44 to 2008 with 74 (Figure 4.4). This increase can be observed in all regions and income groups, as well as for all the indices composing the HAI (Table 4.5).

Figure 4.4 Evolution of the HAI and its components

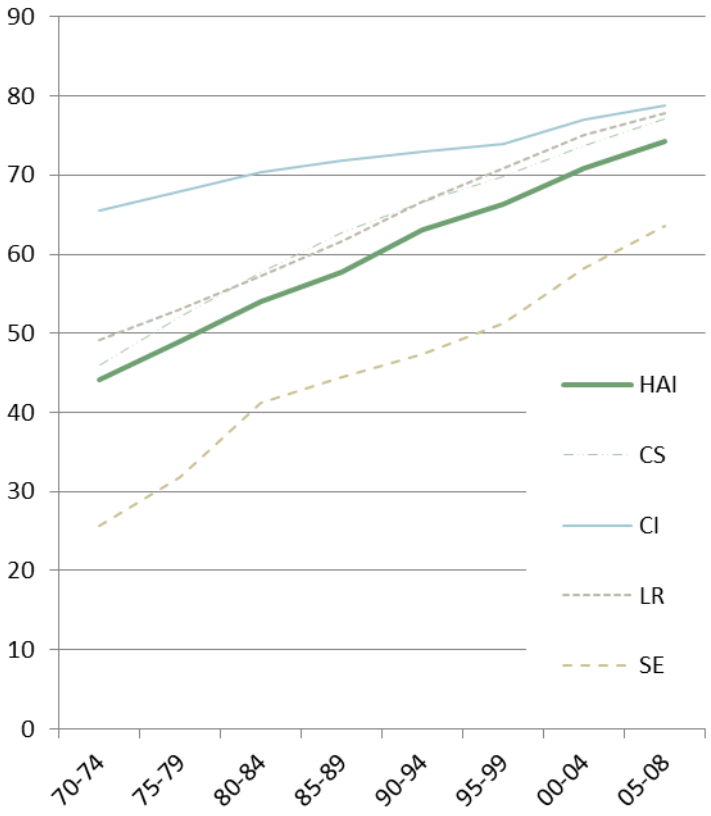


Figure 4.5
Composition of the HAI, 1970-74

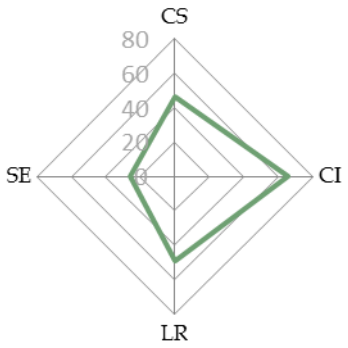
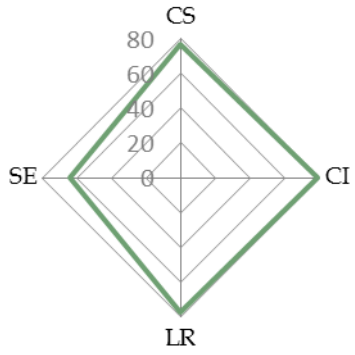


Figure 4.6
Composition of the HAI, 2005-08



Source: WFG HAI database

In 2005-08, the contribution of each component to the HAI seems to be balanced, contrasting with before: in 1970-74, the prevalence of undernourishment index (CI) contributed much more to a high HAI level than the other indices (CS, LR, and especially SE). These latter components have relatively progressed better than CI since the 1970s (cf. Figures 4.5 and 4.6).

Generally, all HAI components have been improved from 1970-74 to 2005-08 (Table 4.5 and Figure 4.4): child mortality rate was reduced to half, with 141 in 1970-74 and 63 in 2005-08; the literacy rate was increased from 56% of literate in 1970-74 and 81% in 2005-08; finally, the secondary enrolment rate has progressed by +36% points, from 30% in 1970-74 to 66% in 2005-04. The prevalence of undernourishment was also reduced, even in a lesser extent, from 24% in 1970-74 to 16% in 2005-08[7].

[7] For further details on HAI and its components statistics by country group and period, please refer to the Appendix E, Tables E.6, E.7, E.8 and E.9.

Table 4.5 Absolute difference between 2005-09 and 1970-74 values, Country-groups averages

	HAI	U5M	CS	PREV	CI	LIT	LR	SE Gross	SE
All	27.8	-78.6	31.3	-7.6	12.0	23.9	27.7	34.0	35.7
Developing countries	27.7	-79.4	31.5	-7.3	11.6	24.1	27.8	33.8	35.4
LICs	25.0	-96.0	34.0	-3.4	5.8	28.5	32.1	24.4	25.0
LMICs	31.9	-85.2	36.4	-11.0	17.4	24.9	29.3	37.9	40.0
UMICs	25.6	-50.5	21.7	-7.4	11.5	17.6	20.7	40.2	42.6
Have been LICs	26.8	-88.8	33.0	-6.2	10.2	26.8	30.5	27.7	28.7
LDCs	26.6	-107.4	38.2	-5.9	9.7	28.7	32.4	25.9	26.6
Non LDCs	28.5	-64.9	28.0	-8.5	13.3	21.4	25.2	38.5	40.8
Non LDCs but Dev. C.	28.6	-65.3	28.2	-8.7	13.6	21.9	25.7	38.2	40.5
Non LDCs but LICs	24.5	-54.4	23.0	-3.8	6.1	25.3	29.8	26.3	27.9
Non LDCs but have been LICs	27.9	-61.9	26.7	-8.2	13.0	22.7	26.7	31.7	33.6
East Asia and Pacific	27.4	-74.1	31.8	-9.6	15.2	20.8	24.5	33.4	35.4
Europe and Central Asia	13.2	-33.8	14.4	-3.3	4.7	7.9	9.2	17.4	18.5
Latin America and Caribbean	28.6	-70.8	30.7	-8.6	13.7	18.7	22.0	45.3	48.0
MENA	43.7	-127.6	54.0	-14.5	22.7	40.8	48.0	47.6	50.1
South Asia	32.9	-121.5	48.1	-10.0	16.1	25.7	29.2	36.9	38.2
SSA	25.3	-88.8	31.1	-4.4	7.3	30.9	35.1	26.7	27.5
SIDS	26.7	-59.5	25.0	-8.7	13.8	22.8	26.8	38.9	41.1
Non SIDS	28.1	-83.8	33.0	-7.2	11.4	24.2	27.9	32.5	34.0
Non SIDS but Dev. C.	27.8	-83.6	32.9	-6.9	11.0	24.1	27.8	32.2	33.8
Non SIDS but LICs	25.1	-98.7	34.7	-3.5	6.0	28.7	32.2	23.3	23.8
Non SIDS but have been LICs	26.8	-90.0	33.2	-6.1	9.9	27.3	31.1	26.3	27.2
Non SIDS but LDCs	26.2	-112.5	39.1	-5.4	9.0	29.3	32.8	23.4	23.7
SIDS but Non LDCs	25.8	-49.4	21.4	-9.2	14.5	21.4	25.2	39.5	41.9

Source: WFG HAI database.

An obvious progress in LDCs

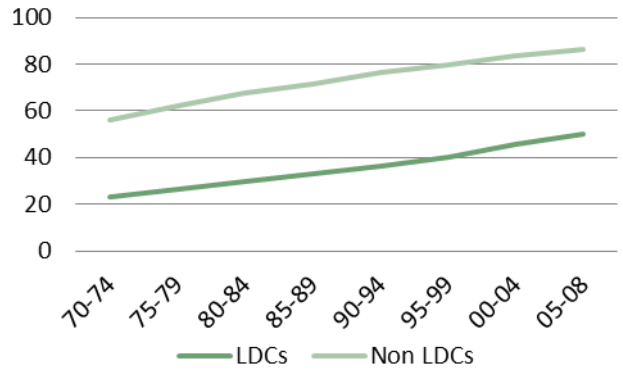
Despite limited resources and extremely low initial level of HAI, the LDCs have progressed rapidly from 1970-74 to 2005-08. Indeed, HAI progressively increased from 23 to 50 on average (cf. Figure 4.7). All HAI components have been improved: child mortality decreased by 108 per thousand live births (from 228 to 120); literacy rate increased by 30 percentage points (33% to 63%); secondary enrolment rate increased by 26 percentage points (11% to 37%). Only undernourishment showed a small improvement, with a decrease of 6 percentage point only (cf. Table 4.5).

But not necessary a convergence towards other countries levels

Do these gains allow a reduction of human capital gaps between LDCs and other countries? We could expect a convergence in human capital level like for income per capita level in the standard neoclassical growth model[8]. All the more, HAI levels are naturally bounded, so that all countries might more or less rapidly converge to upper bounds. This point however represents a methodological problem: convergence might be measured either by the reduction of the absolute difference in HAI over time, or by a relative difference, or by a relative difference of the distance to the upper bound[9]. For a discussion on the methodology, please refer to *Caught in a Trap*, chapter 5, BOX 5.3: *How to measure change and convergence in human capital indicators* (Guillaumont 2009).

[8] In these models, income growth is more rapid for low initial income countries (because of decreasing returns of capital).
[9] The distance between HAI and the upper bound (100) can be considered as a human handicap index.

Figure 4.7 Evolution of HAI over time: LDCs vs non LDCs



Source: WFG HAI database

Using the absolute differences in HAI, we do not observe convergence between low-income countries and higher income countries, neither between least developed countries and non least developed countries: the absolute differences in HAI between sub-periods are almost identical (+30 pts) according to the income group or to the LDC category membership[10] (cf. Table 4.5 and Table E.3 in the Appendix E). On the contrary, regarding the relative differences in HAI, we notice a certain convergence (Tables E.1 and E.4 in Appendix E): relative progresses in HAI for LDCs are more important than for all LICs[11]. On the other hand, using the relative difference of the distances to the upper bound (cf. Table E.2), data show divergence[12].

That said, it seems that, for a same initial level, LDCs converge less rapidly than other countries. Figure 4 suggests that, for LDCs, the absolute difference of HAI between 1970-74 and 2005-08 is the same whatever the initial level is. The same conclusions emerge when using logistical forms of HAI (Fig. 4.9).

Figure 4.8 Absolute difference of HAI between 1970-74 and 2005-08, as a linear function of the HAI of 1970-74, LDCs versus non LDCs

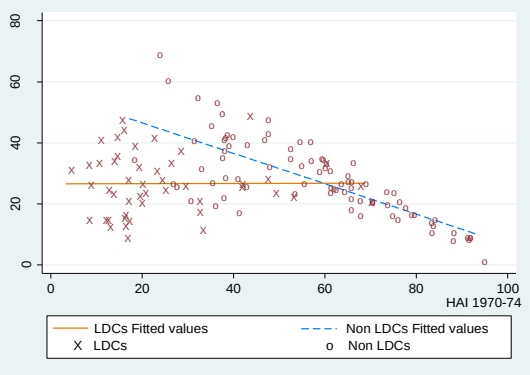
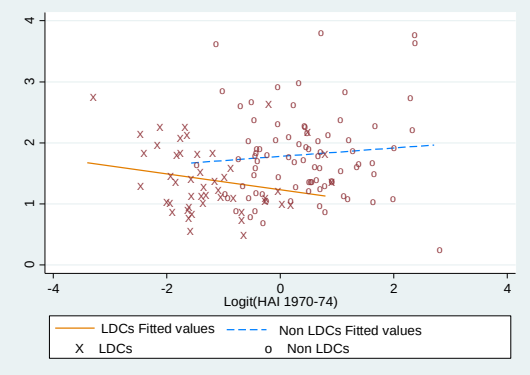


Figure 4.9 Absolute difference of the Logit of HAI between 1970-74 and 2005-08, as a linear function of the Logit of HAI of 1970-74, LDCs versus non LDCs



Source: WFG HAI dataset

[10] Difference not statistically different even when considering LDCs versus low-income countries non LDCs.
[11] The difference is statistically significant. This convergence was expected since LDCs initial levels are lower and that there is no absolute divergence.
[12] The difference is statistically significant. This "divergence" was also expected since LDCs initial distances to HAI are more important and that there is no absolute convergence.

Child mortality and literacy rate are the components that contribute the most to convergence in HAI levels

Child mortality and literacy rates have experienced a better improvement in LDCs than in non LDCs (cf. Tables 4.5, E.6, E.8 and Figure 4.10). Indeed, child mortality rate in LDCs was 228 on average in 1970-74 and decreased to 120 on average in 2005-08 (-118 points). In non LDCs it decreased from 99 in 1970-74 to 34 in 2005-08 (-65 points). This convergence is visible in Figure 4.10, but figures allow noticing it more obviously, particularly with the absolute and relative differences (Tables 4.5 and E.1)[13,14].

Literacy rate increased by 30% points on average in LDCs between 1970-74 and 2005-08. Developing countries non LDCs experienced a lower improvement, with an increase of 22 % points.

Whereas the secondary enrolment rate seems to contribute much more to divergence

On the contrary, the secondary enrolment gross rate improved less rapidly in LDCs than in non LDCs: in LDCs it increased from 11% to 37% on average between 1970-74 and 2005-08 (+26 % points); in non LDCs it increased from 40% to 80% (+40% points). This divergence is perceptible on Figure 4.11, and when looking at absolute differences (Table 4.5) and relative differences to the distance to the upper bound (Table E.2). However, we rather observe convergence when looking at the relative differences (Table E.1)[15].

Finally, we do not notify significant difference between LDCs and other countries regarding the prevalence of undernourishment, that rises from 34% to 28% on average between 1970-74 and 2005-08 in LDCs (-6 % points); and from 19% to 10% in non LDCs (-9 points).

Figure 4.10 Evolution of under-five mortality rate according to the membership to LDCs

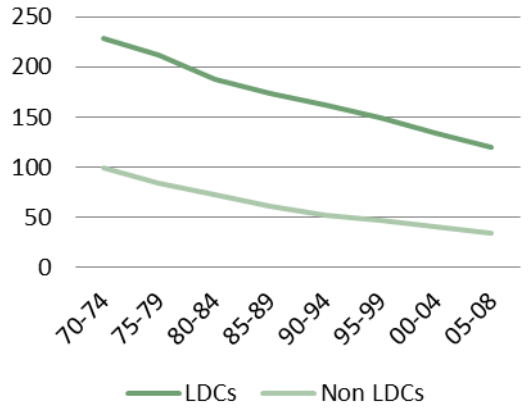
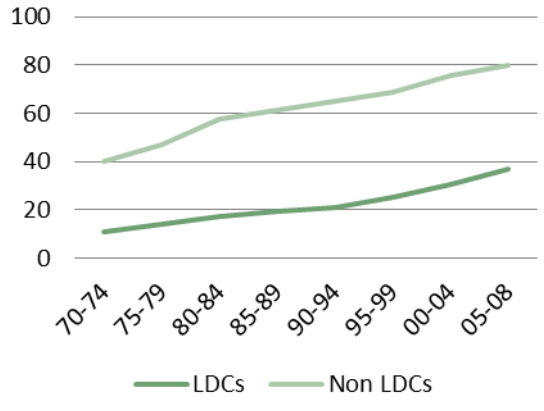


Figure 4.11 Evolution of the secondary enrolment gross rate, according to the membership to LDCs



Source: WFG HAI database

Different trends are perceptible also across the different regions of the world

The weakest improvements in absolute difference concern Europe and Central Asia. This is mainly the result of ex-USSR countries HAI evolution, such as Tajikistan, Armenia, Georgia, Azerbaijan and Uzbekistan that stagnate, and even Tajikistan that decreases. These countries are among those that observed the most important decline in their HAI ranking[16]. Other countries experienced important

[13] The differences are statistically significant.

[14] This is not the case when looking at the relative differences of the distance to the upper bound.

[15] The differences are statistically significant.

[16] This might be due to the decline in the prevalence of undernourishment in USSR countries. It is to be noted that for ex-USSR countries and over 1970-1989, the prevalence of undernourishment is compiled from the average kilocalories levels of USSR ; consequently, the prevalence of undernourishment might be overestimated in some of these countries for this period, and then the difference between 1970-74 and 2005-08 might be underestimated.

declines such as North Korea, Nauru, Mongolia, Panama, and Micronesia. For these countries, the HAI level stagnated or hardly reduced, whereas the general trend was increasing.

The highest increase in absolute is realized by Middle East and North Africa countries. They experienced great improvements in all components, education, health and nutrition. The countries which progress the better in the ranking between the 1970s and the 2000s are Algeria (+39 ranks), Iran (+30 ranks), Tunisia (+37 ranks), Turkey (+33 ranks), Oman (+73 ranks) and Libya (+50 ranks).

Table 4.6 HAI levels, by country groups and by ten-year period

HAI WFG	1970s	1980s	1990s	2000s
All	46.6	55.8	64.7	72.4
Developing countries		54.5	64.6	71.9
LICs		33.5	41.0	50.1
LMICs		64.4	78.6	83.3
UMICs		78.6	86.1	92.0
Have been LICs	29.8	37.1	47.6	56.5
LDCs	24.8	31.6	38.1	47.7
Non LDCs	59.2	69.6	78.1	84.7
Non LDCs but Dev. C.		68.2	78.1	84.5
Non LDCs but LICs		53.4	59.7	66.7
Non LDCs but have been LICs	46.9	55.9	67.7	75.2
East Asia and Pacific	56.6	67.1	72.6	80.5
Europe and Central Asia	84.4	88.9	90.0	93.6
Latin America and Caribbean	61.7	71.5	78.2	86.3
MENA	42.3	59.5	70.5	79.2
South Asia	30.2	38.5	49.1	59.2
SSA	27.5	34.5	39.9	48.4
SIDS	59.3	69.1	75.3	82.4
Non SIDS	42.8	51.8	61.7	69.4
Non SIDS but Dev. C.		51.3	61.7	69.4
Non SIDS but LICs		31.4	40.4	49.5
Non SIDS but have been LICs	28.5	35.9	46.8	55.7
Non SIDS but LDCs	20.7	27.3	32.9	42.8
SIDS but Non LDCs	66.6	76.7	83.1	89.3

Source: WFG HAI database.

5 Conclusion

This working paper presents the methods applied for the computation of retrospective panel HAI datasets that cover a large time period and a number of countries unseen until now: 147 countries between 1970 and 2008. These datasets are available on the FERDI website (www.ferdi.fr) and/or on request. For a rapid lookup, HAI and its components data are provided for each country and for each ten-year period in the Appendix F.

HAI is a human capital index used for the identification of least developed countries; it corresponds to the average of four indexes dealing with child mortality, prevalence of undernourishment, literacy and secondary enrolment.

Using existing retrospective data on these four components as well as estimating prevalence of undernourishment with average daily energy supply in kilocalories per capita, allowed us to build the "From Official Sources HAI dataset" (FOS HAI). These data contain information on 123 countries over 1970-2008, and can be used for advanced statistical analyses. However, this dataset is not complete neither balanced. Among other things, older values are frequently missing. This led us to estimate these missing values and to build a second dataset, called "With Filled Gaps HAI" (WFG HAI), with an almost balanced panel for 147 countries over 1970-2008. Before using these series for a statistical analyses purpose, it is important to understand the way they have been computed. This paper explains this in its section 3.

We find that least developed countries suffer much more from a lack of human assets over 1970-2008. In spite of great improvements over the whole period, the HAI levels did not converge towards those of non LDCs. Indeed, HAI improved over all region and income groups, and neither convergence nor divergence can be observed.

Acknowledgements

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Bibliographic references

Ahmad, O. B., A. D. Lopez et M. Inoue. 2000. The decline in child mortality: a reappraisal. *Bulletin of the World Health Organization,* 78(10), 1175-1191.

Guillaumont, P. 2010. Caught in a trap, Identifying the Least Developed Countries. Economica. October 2009

Nations Unies. 2008. Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures. Committee for Development Policy and Department of Economic and Social Affairs. November 2008.

Sen, A. 1997. Editorial: Human capital and human capabilities. *World Development*, 25(12), 1959-1961.

Appendix A: Glossary

Acronym	Signification
CDP	United Nations Committee for Development Policy
CI	Correct nutrition index
CS	Child survival index
DESA	United Nations Department of Economic and Social Affairs
EAP	East Asia and Pacific
ECA	Europe and Central Asia
FE	Fixed effects estimator
EVI	Economic Vulnerability Index
FAO	Food and Agricultural Organisation
FOS	From Official Sources
GNI	Gross National Income
HAI	Human Assets Index
HICs	High Income Countries
HDI	Human Development Index
IGME	Inter-agency Group for Child Mortality Estimation
LAC	Latin America and Caribbean
LDCs	Least Developed Countries
LICs	Low Income Countries
LMICs	Lower Middle Income Countries
LR	Literacy rate index
OLS	Ordinary Least Squares estimator
MENA	Middle-East and North Africa
U5MR	Under-five mortality rate
UNDP	United Nations Development Programme
SA	South Asia
SE	Secondary enrolment index
SSA	Sub Saharan Africa
UMICs	Upper Middle Income Countries
WFG	With Filled Gaps

Appendix B: Data sources

Variable	Source
Under-five mortality rate	Primary source: IGME, 2010. *Inter-agency Group for Child Mortality Estimation* database. Available in panel every five or ten years at http://www.childinfo.org/mortality_ufmrcountrydata.php (also available yearly, country after country at http://www.childmortality.org/). Note: Downloaded in March 2010. Secondary source: Ahmad, O. B., A. D. Lopez and M. Inoue, 2000. The decline in child mortality: a reappraisal. *Bulletin of the World Health Organization*, 78(10), 1175-1191.
Prevalence of undernourishment	FAO, 2010. FAOSTAT database, at http://faostat.fao.org/default.aspx. FAO Statistics Division. Note: Downloaded in March 2010.
Average food supply in kilocalories per capita and per day	FAO, 2010. FAOSTAT database, at http://faostat.fao.org/default.aspx. FAO Statistics Division. Notes: Downloaded in March 2010. For Russia and ex-Yugoslavia countries, missing values prior to 1990, were respectively replaced by USSR values and by Yugoslavia values.
Literacy rate	Primary source: UNESCO Data Centre, 2010. At http://stats.uis.unesco.org Note: Downloaded in March 2010. Secondary source: UNESCO, Literacy rates, youth (15-24) and adult (15+), by country and gender for 2000-2004 estimates (April 2006 assessment). At http://www.uis.unesco.org/ev.php?ID=6561_201&ID2=DO_TOPIC Note: Downloaded in March 2010. Tertiary source: UNESCO, Estimated illiteracy rate and illiterate population aged 15 years and older, by country, 1970-2015 (December 2002 assessment, June 2005 update). At http://www.uis.unesco.org/ev.php?ID=5035_201&ID2=DO_TOPIC *This table provides estimates for the following years: 1970, 1980, 1990, 1995, 2000, 2005, 2010, 2015.* Note: Downloaded in March 2010.
Secondary enrolment rate, gross	Primary source: UNESCO Data Centre, 2010. At http://stats.uis.unesco.org Note: Downloaded in March 2010. Secondary source: UNESCO, Key statistical tables on education, Table 22 - Time Series. At http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx *This table on historical data on secondary education provides for many countries annual estimates every 5 years during 1970-2005.* Note: Downloaded in March 2010.
GNI per capita	UN STAT, 2009. National Accounts Main Aggregates Database. The Economic Statistics Branch of the United Nations Statistics Division. At http://unstats.un.org/unsd/snaama/resQuery.asp Notes: Downloaded in June 2010. For Russia and ex-Yugoslavia countries, missing values prior to 1990, were respectively replaced by USSR values and by Yugoslavia values.
Gini coefficient	World Bank, 2009. PovcalNet database. At http://iresearch.worldbank.org/PovcalNet/povcalSvy.html Base document: Chen, S. and M. Ravallion, 2008. The developing world is poorer than we thought, but no less successful in the fight against poverty. *World Bank Policy Research Paper Series* #4703, The World Bank. Notes: Downloaded in 2009. Data on the Gini coefficient are available in 1981-2005. Since the Gini coefficient does not vary much, missing values in 1970-79 are replaced by the 1981 value. As well, missing values of 2006-08 are replaced by the 2005 value.
Income class	World Bank, 2010. World Bank Analytical Classifications database. At http://data.worldbank.org/about/country-classifications/a-short-history
Region	World Bank, 2010. World Bank list of economies database. At http://siteresources.worldbank.org/DATASTATISTICS/Resources/CLASS.XLS
LDC membership	United nations, 2010. List of Least Developed Countries database. At http://www.unohrlls.org/en/ldc/related/62/
SIDS membership	United nations, 2010. List of Small Island Developing States database. At http://www.un.org/special-rep/ohrlls/sid/list.htm

Appendix C: Composition of country groups

Table C.1 List of 150 countries, by region

East Asia and Pacific - EAP

Cambodia	Malaysia	Papua New Guinea	Tonga
China	Marshall Islands	Philippines	Tuvalu
Fiji	Micronesia	Samoa	Vanuatu
Indonesia	Mongolia	Solomon Islands	Viet Nam
Kiribati	Myanmar	Thailand	North Korea*
Laos	Palau	Timor-Leste	

Europe and Central Asia - ECA

Albania	Estonia	Moldova	Turkey
Armenia	Georgia	Poland	Ukraine
Azerbaijan	Hungary	Romania	Uzbekistan
Belarus	Kazakhstan	Russia	Montenegro*
Bosnia & Herzegovina	Kyrgyzstan	Serbia	Turkmenistan*
Bulgaria	Latvia	Tajikistan	
Croatia	Lithuania	FYROM	

Latin America and Caribbean - LAC

Antigua and Barbuda	Costa Rica	Guyana	Peru
Argentina	Cuba	Haiti	St Kitts and Nevis
Barbados	Dominica	Honduras	St Lucia
Belize	Dominican Republic	Jamaica	St Vincent & Gren.
Bolivia	Ecuador	Mexico	Suriname
Brazil	El Salvador	Nicaragua	Trinidad and Tobago
Chile	Grenada	Panama	Uruguay
Colombia	Guatemala	Paraguay	Venezuela

Middle East and North Africa - MENA

Algeria	Iraq	Morocco	Tunisia
Djibouti	Jordan	Occ. Palestinian Ter.	Yemen
Egypt	Lebanon	Oman	
Iran	Libya	Syria	

South Asia - SA

Afghanistan	Bhutan	Maldives	Pakistan
Bangladesh	India	Nepal	Sri Lanka

Note: because of a lack of initial data, countries marked with * do not provide figures on HAI but provide information on some HAI components.

Table C.1 (continuation)

Sub-Saharan Africa - SSA

Angola	Cote d'Ivoire	Madagascar	Seychelles
Benin	Equatorial Guinea	Malawi	Sierra Leone
Botswana	Eritrea	Mali	Somalia
Burkina Faso	Ethiopia	Mauritania	South Africa
Burundi	Gabon	Mauritius	Sudan
Cameroon	Gambia	Mozambique	Swaziland
Cape Verde	Ghana	Namibia	Tanzania
Central African Rep.	Guinea	Niger	Togo
Chad	Guinea-Bissau	Nigeria	Uganda
Comoros	Kenya	Rwanda	Zambia
Congo	Lesotho	Sao Tome and Principe	Zimbabwe
Congo, Dem. Rep.	Liberia	Senegal	

Note: because of a lack of initial data, countries marked with * do not provide figures on HAI but provide information on some HAI components.

Table C.2 List of Least Developed Countries

Afghanistan	Equatorial Guinea	Malawi	Sierra Leone
Angola	Eritrea	Maldives	Solomon Islands
Bangladesh	Ethiopia	Mali	Somalia
Benin	Gambia	Mauritania	Sudan
Bhutan	Guinea	Mozambique	Tanzania
Burkina Faso	Guinea-Bissau	Myanmar	Timor-Leste
Burundi	Haiti	Nepal	Togo
Cambodia	Kiribati	Niger	Tuvalu
Central African Rep.	Laos	Rwanda	Uganda
Chad	Lesotho	Samoa	Vanuatu
Comoros	Liberia	Sao Tome and Principe	Yemen
Congo, Dem. Rep.	Madagascar	Senegal	Zambia
Djibouti			

Table C.3 List of Small Island Developing States

Antigua and Barbuda	Grenada	Micronesia	Suriname
Barbados	Guinea-Bissau	Palau	Timor-Leste
Belize	Guyana	Papua New Guinea	Tonga
Cape Verde	Haiti	St Kitts and Nevis	Trinidad and Tobago
Comoros	Jamaica	St Lucia	Tuvalu
Cuba	Kiribati	St Vincent and Gren.	Vanuatu
Dominica	Maldives	Sao Tome and Principe	
Dominican Rep.	Marshall Islands	Seychelles	
Fiji	Mauritius	Solomon Islands	

Appendix D: Econometric estimates

Table D.1 Econometric estimation of under-five mortality rate

	coefficient		*robust S.E.*
GNI per capita (ln)	-0.213	***	*0.034*
Year dummy 1971	-0.009	***	*0.003*
Year dummy 1972	-0.012	*	*0.007*
Year dummy 1973	0.003		*0.013*
Year dummy 1974	0.020		*0.020*
Year dummy 1975	-0.014		*0.023*
Year dummy 1976	-0.033		*0.025*
Year dummy 1977	-0.043		*0.028*
Year dummy 1978	-0.051		*0.032*
Year dummy 1979	-0.057		*0.037*
Year dummy 1980	-0.095	**	*0.041*
Year dummy 1981	-0.118	***	*0.041*
Year dummy 1982	-0.149	***	*0.041*
Year dummy 1983	-0.181	***	*0.040*
Year dummy 1984	-0.214	***	*0.039*
Year dummy 1985	-0.256	***	*0.040*
Year dummy 1986	-0.271	***	*0.042*
Year dummy 1987	-0.298	***	*0.044*
Year dummy 1988	-0.317	***	*0.046*
Year dummy 1989	-0.350	***	*0.048*
Year dummy 1990	-0.372	***	*0.052*
Year dummy 1991	-0.398	***	*0.052*
Year dummy 1992	-0.423	***	*0.052*
Year dummy 1993	-0.449	***	*0.052*
Year dummy 1994	-0.477	***	*0.052*
Year dummy 1995	-0.485	***	*0.054*
Year dummy 1996	-0.501	***	*0.056*
Year dummy 1997	-0.521	***	*0.057*
Year dummy 1998	-0.557	***	*0.057*
Year dummy 1999	-0.589	***	*0.057*
Year dummy 2000	-0.622	***	*0.057*
Year dummy 2001	-0.654	***	*0.058*
Year dummy 2002	-0.680	***	*0.060*
Year dummy 2003	-0.693	***	*0.063*
Year dummy 2004	-0.702	***	*0.067*
Year dummy 2005	-0.716	***	*0.071*
Year dummy 2006	-0.725	***	*0.074*
Year dummy 2007	-0.729	***	*0.079*
Year dummy 2008	-0.735	***	*0.084*
Constant	6.048	***	*0.191*
Nb observations	5405		
Nb countries	150		
Estimator	FE		
R^2 within	77		
R^2 between	69		
R^2 overall	53		

Notes: Dep. variable: Under-five mortality rate (ln). Significant at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Table D.2 Econometric estimates of prevalence of undernourishment, with daily energy supply per capita

	(1)			(2)		
	Coef.		*robust S.E.*	Coef.		*robust S.E.*
Kcal. mean (ln)	-62.20	***	*6.30*	-61.14	***	*5.51*
Gini coef. (ln)	0.53		*2.21*			*42.91*
Constant	504.26	***	*49.05*	494.82	***	
Nb observations	1710			2148		
Nb countries	109			137		
Estimator	FE			FE		
R^2 within	57			58		
R^2 between	90			89		
R^2 overall	87			87		

Notes: Dep. variable: Prevalence of undernourishment. Sig. at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Table D.2 (continuation)

	(3)			(4)		
	Coef.		*robust S.E.*	Coef.		*robust S.E.*
Lagged prevalence of undernourishment	0.92	***	*0.01*	0.92	***	*0.01*
GNI per capita (ln)	-0.35	***	*0.09*	-0.32	***	*0.08*
Gini coef. (ln)	0.12		*0.49*			
Constant	3.91	***	*0.92*	3.61	***	*0.65*
Nb observations	3581			4510		
Nb countries	110			138		
Estimator	FE			FE		
R^2 within	87			87		
R^2 between	100			100		
R^2 overall	98			98		

Notes: Dep. variable: Prevalence of undernourishment. Sig. at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Table D.3 Econometric estimates of the prevalence of undernourishment without energy supply

	(5)		(6)		(7)		(8)	
	Coef.	*robust*	Coef.	*robust*	Coef.	*robust*	Coef.	*robust*
GNI per capita (ln)	-4.06 ***	*0.94*	-9.39 ***	*0.24*	-3.84 ***	*0.76*	-9.00 ***	*0.20*
Gini coef. (ln)	2.93	*3.92*	7.85 ***	*0.95*				
Year dummy 1971	0.06	*0.20*	0.36	*1.38*	-0.10	*0.19*	0.25	*1.23*
Year dummy 1972	0.94 ***	*0.32*	1.73	*1.41*	0.77 **	*0.30*	1.66	*1.24*
Year dummy 1973	1.25 ***	*0.42*	2.93 **	*1.39*	1.09 ***	*0.41*	2.89 **	*1.22*
Year dummy 1974	1.47 **	*0.58*	4.10 ***	*1.44*	1.44 ***	*0.54*	4.20 ***	*1.26*
Year dummy 1975	1.83 **	*0.71*	4.99 ***	*1.44*	1.77 ***	*0.63*	4.97 ***	*1.26*
Year dummy 1976	1.50 *	*0.76*	4.93 ***	*1.47*	1.32 **	*0.65*	4.66 ***	*1.27*
Year dummy 1977	1.72 *	*0.87*	5.64 ***	*1.44*	1.32 *	*0.75*	5.13 ***	*1.27*
Year dummy 1978	1.57	*1.00*	6.05 ***	*1.46*	1.06	*0.86*	5.44 ***	*1.29*
Year dummy 1979	1.66	*1.05*	6.74 ***	*1.43*	1.07	*0.91*	6.07 ***	*1.26*
Year dummy 1980	2.06 *	*1.21*	7.85 ***	*1.45*	1.26	*1.02*	6.92 ***	*1.27*
Year dummy 1981	1.54	*1.24*	7.33 ***	*1.48*	0.79	*1.04*	6.49 ***	*1.29*
Year dummy 1982	1.68	*1.18*	7.33 ***	*1.50*	1.04	*1.01*	6.63 ***	*1.31*
Year dummy 1983	1.61	*1.22*	7.14 ***	*1.50*	1.00	*1.04*	6.50 ***	*1.31*
Year dummy 1984	1.37	*1.22*	6.71 ***	*1.54*	0.67	*1.04*	6.04 ***	*1.33*
Year dummy 1985	0.78	*1.17*	5.97 ***	*1.53*	0.15	*1.01*	5.39 ***	*1.33*
Year dummy 1986	0.74	*1.25*	6.21 ***	*1.55*	0.11	*1.07*	5.66 ***	*1.34*
Year dummy 1987	0.85	*1.29*	6.30 ***	*1.55*	0.17	*1.11*	5.78 ***	*1.35*
Year dummy 1988	0.87	*1.36*	6.67 ***	*1.53*	0.20	*1.17*	6.21 ***	*1.33*
Year dummy 1989	1.01	*1.38*	6.73 ***	*1.57*	0.33	*1.19*	6.33 ***	*1.35*
Year dummy 1990	1.64	*1.51*	7.90 ***	*1.63*	0.84	*1.30*	7.72 ***	*1.42*
Year dummy 1991	1.55	*1.50*	7.68 ***	*1.63*	0.79	*1.29*	7.59 ***	*1.42*
Year dummy 1992	1.43	*1.47*	7.40 ***	*1.59*	0.71	*1.27*	7.42 ***	*1.38*
Year dummy 1993	1.20	*1.48*	7.10 ***	*1.53*	0.58	*1.29*	7.24 ***	*1.33*
Year dummy 1994	0.87	*1.48*	6.55 ***	*1.49*	0.41	*1.31*	6.98 ***	*1.32*
Year dummy 1995	1.04	*1.62*	7.19 ***	*1.49*	0.59	*1.42*	7.56 ***	*1.32*
Year dummy 1996	1.24	*1.65*	7.66 ***	*1.49*	0.79	*1.44*	8.01 ***	*1.32*
Year dummy 1997	1.36	*1.68*	7.94 ***	*1.50*	0.91	*1.47*	8.30 ***	*1.33*
Year dummy 1998	0.67	*1.68*	7.11 ***	*1.48*	0.23	*1.46*	7.47 ***	*1.32*
Year dummy 1999	-0.02	*1.68*	6.32 ***	*1.45*	-0.40	*1.47*	6.76 ***	*1.31*
Year dummy 2000	-0.64	*1.71*	5.66 ***	*1.46*	-0.99	*1.50*	6.15 ***	*1.32*
Year dummy 2001	-0.63	*1.72*	5.69 ***	*1.46*	-0.97	*1.50*	6.19 ***	*1.32*
Year dummy 2002	-0.50	*1.74*	6.00 ***	*1.46*	-0.86	*1.52*	6.45 ***	*1.32*
Year dummy 2003	-0.80	*1.84*	6.34 ***	*1.43*	-1.20	*1.59*	6.69 ***	*1.30*
Year dummy 2004	-1.02	*1.98*	6.89 ***	*1.43*	-1.49	*1.69*	7.09 ***	*1.29*
Year dummy 2005	-0.48	*2.08*	8.13 ***	*1.45*	-1.03	*1.77*	8.16 ***	*1.31*
Year dummy 2006	0.03	*2.19*	9.33 ***	*1.47*	-0.57	*1.85*	9.24 ***	*1.32*
Year dummy 2007			10.64 ***	*1.48*	-0.18	*1.94*	10.42 ***	*1.32*
Year dummy 2008			11.89 ***	*1.49*	0.16	*2.04*	11.53 ***	*1.33*
Region dummy 2			-3.52 ***	*0.67*			-3.87 ***	*0.52*
Region dummy 3			2.13 ***	*0.64*			5.84 ***	*0.49*
Region dummy 4			0.61	*0.92*			1.24 *	*0.71*
Region dummy 5			1.27 **	*0.58*			1.62 ***	*0.46*
Region dummy 6			4.87 ***	*0.55*			8.55 ***	*0.42*
Constant	49.81 ***	*6.61*	81.44 ***	*1.96*	45.37 ***	*4.18*	69.67 ***	*1.34*
Nb observations	3690		3910		4922		4922	
Nb countries	110				138			
Estimator	FE		OLS		FE		OLS	
R^2 within	20				24			
R^2 between	61				55			
R^2 overall	50		56		44		55	

Notes: Dep. variable: Prevalence of undernourishment. Sig. at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Table D.4 Econometric estimates of literacy rate

	(1)			(2)			(3)			(5)		
	coef.		*robust SE*	coef.		*robust SE*	coef.		*robust SE*	coef.		*robust SE*
Lagged Literacy rate	0.99	***	*0.00*				0.99	***	*0.00*			
GNI per capita (ln)	-0.06	*	*0.04*	-2.36	**	*0.99*	0.04	***	*0.01*	9.13	***	*0.26*
Year dummy 1971	-			0.89	***	*0.08*	-			0.14		*2.35*
Year dummy 1972	0.02	***	*0.00*	1.85	***	*0.18*	0.00		*0.06*	-0.01		*2.34*
Year dummy 1973	0.04	***	*0.01*	3.01	***	*0.36*	0.01		*0.06*	-0.90		*2.33*
Year dummy 1974	0.06	***	*0.02*	4.20	***	*0.55*	0.01		*0.06*	-1.93		*2.32*
Year dummy 1975	0.08	***	*0.03*	5.16	***	*0.65*	0.01		*0.06*	-2.05		*2.35*
Year dummy 1976	0.09	***	*0.03*	6.10	***	*0.72*	0.02		*0.06*	-1.43		*2.36*
Year dummy 1977	0.11	***	*0.04*	7.06	***	*0.82*	0.03		*0.06*	-1.59		*2.34*
Year dummy 1978	0.15	***	*0.05*	8.08	***	*0.94*	0.05		*0.06*	-1.85		*2.34*
Year dummy 1979	0.17	***	*0.05*	9.15	***	*1.07*	0.06		*0.06*	-2.71		*2.34*
Year dummy 1980	0.20	***	*0.06*	10.22	***	*1.20*	0.07		*0.06*	-3.05		*2.34*
Year dummy 1981	0.20	***	*0.06*	10.90	***	*1.23*	0.06		*0.07*	-2.27		*2.32*
Year dummy 1982	0.21	***	*0.06*	11.59	***	*1.23*	0.08		*0.07*	-1.23		*2.30*
Year dummy 1983	0.23	***	*0.07*	12.30	***	*1.23*	0.09		*0.07*	-0.27		*2.28*
Year dummy 1984	0.23	***	*0.07*	12.98	***	*1.23*	0.10		*0.07*	0.81		*2.27*
Year dummy 1985	0.23	***	*0.07*	13.66	***	*1.24*	0.10		*0.07*	1.86		*2.27*
Year dummy 1986	0.23	***	*0.07*	14.54	***	*1.31*	0.09		*0.07*	2.02		*2.27*
Year dummy 1987	0.25	***	*0.07*	15.33	***	*1.35*	0.11	*	*0.07*	2.80		*2.26*
Year dummy 1988	0.27	***	*0.08*	16.23	***	*1.43*	0.12	*	*0.07*	2.93		*2.25*
Year dummy 1989	0.27	***	*0.08*	16.98	***	*1.46*	0.12	*	*0.07*	3.66		*2.26*
Year dummy 1990	0.29	***	*0.08*	18.42	***	*1.60*	0.11		*0.07*	4.24	*	*2.19*
Year dummy 1991	0.22	**	*0.09*	18.96	***	*1.59*	0.04		*0.09*	5.11	**	*2.19*
Year dummy 1992	0.23	**	*0.09*	19.57	***	*1.60*	0.04		*0.09*	5.73	***	*2.18*
Year dummy 1993	0.22	**	*0.09*	20.18	***	*1.61*	0.03		*0.09*	6.27	***	*2.16*
Year dummy 1994	0.26	***	*0.10*	20.77	***	*1.60*	0.08		*0.09*	7.11	***	*2.15*
Year dummy 1995	0.39	***	*0.12*	21.76	***	*1.67*	0.19	***	*0.07*	7.08	***	*2.16*
Year dummy 1996	0.42	***	*0.13*	22.62	***	*1.70*	0.22	***	*0.08*	7.43	***	*2.16*
Year dummy 1997	0.42	***	*0.13*	23.43	***	*1.73*	0.21	***	*0.07*	8.10	***	*2.14*
Year dummy 1998	0.43	***	*0.13*	24.10	***	*1.71*	0.22	***	*0.07*	9.11	***	*2.15*
Year dummy 1999	0.49	***	*0.15*	24.90	***	*1.71*	0.28	***	*0.08*	10.17	***	*2.13*
Year dummy 2000	0.51	***	*0.15*	25.72	***	*1.72*	0.30	***	*0.08*	10.72	***	*2.10*
Year dummy 2001	0.32	***	*0.11*	26.29	***	*1.73*	0.07		*0.06*	11.25	***	*2.10*
Year dummy 2002	0.32	**	*0.13*	26.93	***	*1.77*	0.08		*0.07*	11.46	***	*2.10*
Year dummy 2003	0.33	**	*0.14*	27.74	***	*1.85*	0.07		*0.07*	10.99	***	*2.11*
Year dummy 2004	0.33	**	*0.14*	28.59	***	*1.95*	0.05		*0.07*	10.23	***	*2.12*
Year dummy 2005	0.42	***	*0.15*	29.54	***	*2.05*	0.15	**	*0.07*	10.01	***	*2.14*
Year dummy 2006	0.32	**	*0.16*	30.34	***	*2.16*	0.04		*0.09*	9.53	***	*2.15*
Year dummy 2007	0.36	**	*0.15*	31.19	***	*2.30*	0.07		*0.07*	8.65	***	*2.18*
Year dummy 2008	0.27	**	*0.16*	32.20	***	*2.50*	-0.03		*0.12*	7.26	***	*2.27*
Region dummy 2										3.58	***	*0.81*
Region dummy 3										-6.69	***	*0.81*
Region dummy 4										-30.59	***	*0.90*
Region dummy 5										-23.14	***	*1.56*
Region dummy 6										-27.95	***	*0.78*
Constant	1.80	***	*0.30*	65.50	***	*5.57*	1.12	***	*0.07*	17.95	***	*2.25*
Nb observations	4372.00			4497			4372			4497		
Nb countries	133.00			136								
Estimator	FE			FE			OLS			OLS		
R^2 within	100			73								
R^2 between	100			1								
R^2 overall	100			4			100			66		

Notes: Dep. variable: Literacy rate. Sig. at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Table D.5 Econometric estimates of secondary enrolment ratio

	(1)			(2)		
	coef.		*robust SE*	coef.		*robust SE*
GNI per capita (ln)	0.41	***	*0.04*	-0.23	***	*0.04*
Lagged secondary enrolment rate, gross	0.99	***	*0.00*			
Next secondary enrolment rate, gross				1.00	***	*0.00*
Year dummy 1971	-			0.02		*0.17*
Year dummy 1972	-0.03		*0.18*	0.04		*0.17*
Year dummy 1973	-0.09		*0.18*	0.09		*0.17*
Year dummy 1974	-0.15		*0.18*	0.13		*0.17*
Year dummy 1975	-0.17		*0.18*	0.07		*0.18*
Year dummy 1976	-0.09		*0.18*	0.08		*0.18*
Year dummy 1977	-0.10		*0.18*	0.10		*0.18*
Year dummy 1978	-0.13		*0.18*	0.13		*0.18*
Year dummy 1979	-0.17		*0.18*	0.16		*0.18*
Year dummy 1980	-0.21		*0.18*	0.67	***	*0.17*
Year dummy 1981	-0.67	***	*0.17*	0.67	***	*0.17*
Year dummy 1982	-0.65	***	*0.17*	0.67	***	*0.17*
Year dummy 1983	-0.63	***	*0.17*	0.66	***	*0.17*
Year dummy 1984	-0.62	***	*0.17*	0.66	***	*0.17*
Year dummy 1985	-0.60	***	*0.17*	0.86	***	*0.19*
Year dummy 1986	-0.82	***	*0.19*	0.88	***	*0.19*
Year dummy 1987	-0.82	***	*0.20*	0.88	***	*0.19*
Year dummy 1988	-0.84	***	*0.20*	0.90	***	*0.19*
Year dummy 1989	-0.84	***	*0.20*	0.90	***	*0.19*
Year dummy 1990	-0.90	***	*0.19*	0.93	***	*0.20*
Year dummy 1991	-0.83	***	*0.20*	0.93	***	*0.20*
Year dummy 1992	-0.83	***	*0.20*	0.93	***	*0.20*
Year dummy 1993	-0.82	***	*0.20*	0.93	***	*0.20*
Year dummy 1994	-0.80	***	*0.20*	0.92	***	*0.20*
Year dummy 1995	-0.83	***	*0.20*	0.15		*0.20*
Year dummy 1996	-0.04		*0.20*	0.16		*0.20*
Year dummy 1997	-0.04		*0.20*	0.17		*0.20*
Year dummy 1998	-0.01		*0.21*	0.28		*0.25*
Year dummy 1999	-0.11		*0.25*	-0.06		*0.23*
Year dummy 2000	0.25		*0.24*	0.00		*0.24*
Year dummy 2001	0.21		*0.24*	-0.07		*0.22*
Year dummy 2002	0.30		*0.22*	-0.22		*0.29*
Year dummy 2003	0.44		*0.29*	0.55	*	*0.31*
Year dummy 2004	-0.34		*0.31*	0.59	**	*0.25*
Year dummy 2005	-0.38		*0.26*	0.65	**	*0.27*
Year dummy 2006	-0.46	*	*0.27*	0.17		*0.32*
Year dummy 2007	-0.01		*0.31*	0.10		*0.42*
Year dummy 2008	0.05		*0.42*	-		
Region dummy 2	-0.74	***	*0.16*	1.02	***	*0.16*
Region dummy 3	0.07		*0.13*	-0.13		*0.13*
Region dummy 4	0.13		*0.13*	-0.26	*	*0.13*
Region dummy 5	0.10		*0.15*	-0.26	*	*0.15*
Region dummy 6	-0.35	***	*0.10*	0.04		*0.11*
Constant	-0.71	***	*0.25*	0.19		*0.25*
Nb observations	4619			4608		
Nb countries						
Estimator	OLS			OLS		
R^2	100			100		

Notes: Dep. variable: Secondary enrolment ratio, gross. Sig. at * 10%, ** 5%, *** 1%. Estimates realized with STATA 11.

Appendix E: Complementary tables for the descriptive analysis

Table E.1 Relative difference between 2005-08 and 1970-74 values, Average by country-group (%)

	HAI	U5M	CS	PREV	CI	LIT	LR	SE Gross	SE
All	104	-59	447	-37	22	79	765	275	1950
Developing countries	105	-59	457	-36	22	80	799	284	2048
LICs	165	-44	1457	-12	15	142	2428	390	6285
LMICs	89	-64	133	-47	32	60	140	296	422
UMICs	44	-70	53	-54	15	28	37	131	189
Have been LICs	145	-47	915	-22	23	116	1602	407	4171
LDCs	172	-48	1652	-20	26	139	2394	488	6085
Non LDCs	65	-64	110	-47	20	48	89	155	315
Non LDCs but Dev. C.	64	-64	97	-47	21	47	84	160	327
Non LDCs but LICs	82	-41	94	-13	10	81	197	249	1294
Non LDCs but have been LICs	79	-49	116	-33	23	60	121	181	609
East Asia and Pacific	58	-65	75	-44	26	35	47	181	4727
Europe and Central Asia	19	-57	28	-48	5	11	13	44	54
Latin America and Caribbean	63	-72	110	-46	20	31	46	165	285
MENA	162	-78	358	-69	43	135	451	205	652
South Asia	154	-63	740	-30	32	135	681	874	331
SSA	145	-42	1378	-16	19	134	2256	372	3270
SIDS	65	-63	65	-46	20	46	1053	317	659
Non SIDS	116	-58	570	-34	23	87	681	261	2400
Non SIDS but Dev. C.	114	-57	569	-33	22	87	699	265	2452
Non SIDS but LICs	170	-44	1693	-11	18	149	1930	387	7141
Non SIDS but have been LICs	149	-47	1028	-20	24	121	1261	341	4501
Non SIDS but LDCs	186	-46	2251	-16	28	154	2091	415	7335
SIDS but Non LDCs	45	-67	34	-51	21	34	45	125	185

Notes: Income class and LDCs groups used are those applicable in 2005-09. Source: WFG HAI dataset.

Table E.2 Relative difference of the distance to upper bound between 2005-08 and 1970-74 values, Average by country-group (%)

	HAI	U5M	CS	PREV	CI	LIT	LR	SE Gross	SE
All	-57	10	-66	10	-48	-62	-62	95	96
Developing countries	-56	10	-65	10	-46	-62	-61	105	105
LICs	-33	13	-42	5	-13	-46	-45	-27	-26
LMICs	-63	10	-70	15	-55	-68	-68	358	358
UMICs	-77	6	-86	9	-82	-74	-74	-72	-72
Have been LICs	-40	12	-48	9	-25	-52	-52	-34	-34
LDCs	-37	14	-46	9	-23	-48	-47	-31	-30
Non LDCs	-68	8	-75	11	-63	-69	-69	165	165
Non LDCs but Dev. C.	-68	8	-74	11	-62	-70	-70	181	181
Non LDCs but LICs	-39	6	-44	5	-14	-58	-58	-32	-32
Non LDCs but have been LICs	-53	7	-55	12	-38	-65	-65	-47	-47
East Asia and Pacific	-63	9	-73	13	-53	-70	-70	892	892
Europe and Central Asia	-74	4	-74	4	-100	-71	-71	-49	-49
Latin America and Caribbean	-73	8	-83	11	-61	-71	-71	-75	-75
MENA	-72	16	-84	20	-78	-67	-67	-66	-66
South Asia	-48	16	-64	15	-33	-46	-45	-45	-45
SSA	-37	12	-41	7	-20	-50	-49	-32	-32
SIDS	-68	7	-73	11	-58	-75	-75	554	554
Non SIDS	-54	10	-64	10	-45	-58	-58	-47	-47
Non SIDS but Dev. C.	-53	10	-63	10	-43	-59	-58	-46	-46
Non SIDS but LICs	-32	13	-42	6	-12	-45	-44	-26	-25
Non SIDS but have been LICs	-39	12	-48	9	-23	-52	-51	-32	-32
Non SIDS but LDCs	-33	15	-43	9	-18	-44	-42	-26	-25
SIDS but Non LDCs	-74	5	-79	12	-65	-80	-80	790	790

Notes: Income class and LDCs groups used are those applicable in 2005-09. Upper bound is considered as the "best outcome": this bound corresponds to 1 for HAI, CS, CI, LR, and SE, to 10 for under five mortality (U5M), to 2.5 for the prevalence of undernourishment (PREV), and to 100 for literacy rate (LIT) and secondary gross enrollment rate (SE gross). Source: WFG HAI dataset.

Table E.3 Absolute difference in HAI, by period and country-group

Absolute difference in HAI values (WFG)	Between 1970s & 1980s	Between 1980s & 1990s	Between 1990s & 2000s	Between 1970s & 2000s	Between 70-74 & 05-09
All	9	7	8	24	28
Developing countries	9	7	8	24	28
LICs	7	5	9	22	25
LMICs	11	8	7	26	32
UMICs	10	7	6	24	26
Have been LICs	7	6	9	23	27
LDCs	7	6	10	23	27
Non LDCs	10	7	7	24	28
Non LDCs but Dev. C.	10	7	7	24	29
Non LDCs but LICs	8	5	7	22	24
Non LDCs but have been LICs	9	6	8	23	28
East Asia and Pacific	9	6	8	24	27
Europe and Central Asia	5	3	4	11	13
Latin America and Caribbean	10	7	8	24	29
MENA	17	11	9	37	44
South Asia	8	11	10	29	33
SSA	7	5	8	21	25
SIDS	9	7	7	23	27
Non SIDS	9	6	8	24	28
Non SIDS but Dev. C.	9	6	8	24	28
Non SIDS but LICs	7	5	9	22	25
Non SIDS but have been LICs	7	6	9	23	27
Non SIDS but LDCs	7	6	10	22	26
SIDS but Non LDCs	10	6	6	22	26

Source: WFG HAI dataset

Table E.4 Relative difference in HAI, by period and country-group (%)

Relative difference between HAI values (WFG)	Between 1970s & 1980s	Between 1980s & 1990s	Between 1990s & 2000s	Between 1970s & 2000s	Between 70-74 & 05-09
All	27	16	18	81	104
Developing countries	27	16	18	82	105
LICs	35	22	29	123	165
LMICs	24	13	12	60	89
UMICs	19	10	7	42	44
Have been LICs	32	21	27	114	145
LDCs	37	24	34	134	172
Non LDCs	21	11	9	50	65
Non LDCs but Dev. C.	21	11	9	51	64
Non LDCs but LICs	24	12	14	64	82
Non LDCs but have been LICs	24	12	12	61	79
East Asia and Pacific	19	10	12	49	58
Europe and Central Asia	6	4	4	16	19
Latin America and Caribbean	19	11	12	50	63
MENA	52	20	14	115	162
South Asia	35	31	23	128	154
SSA	31	20	31	112	145
SIDS	19	12	11	51	65
Non SIDS	29	17	19	90	116
Non SIDS but Dev. C.	29	17	19	90	114
Non SIDS but LICs	35	22	31	126	170
Non SIDS but have been LICs	33	21	28	117	149
Non SIDS but LDCs	39	24	38	146	186
SIDS but Non LDCs	16	9	8	37	45

Source: WFG HAI dataset

Table E.5 Relative difference in the HAI distance to the upper bound, by period and country-group (%)

Relative difference of distance of HAi to the upper bound (WFG)	Between 1970s & 1980s	Between 1980s & 1990s	Between 1990s & 2000s	Between 1970s & 2000s	Between 70-74 & 05-09
All	-21	-19	-30	-52	-57
Developing countries	-21	-19	-29	-51	-56
LICs	-10	-8	-16	-30	-33
LMICs	-26	-23	-33	-62	-63
UMICs	-32	-32	-46	-72	-77
Have been LICs	-12	-10	-20	-35	-40
LDCs	-10	-10	-18	-32	-37
Non LDCs	-27	-24	-36	-63	-68
Non LDCs but Dev. C.	-27	-24	-36	-62	-68
Non LDCs but LICs	-14	-7	-20	-36	-39
Non LDCs but have been LICs	-18	-13	-27	-47	-53
East Asia and Pacific	-24	-23	-32	-58	-63
Europe and Central Asia	-30	-22	-41	-69	-74
Latin America and Caribbean	-28	-24	-42	-67	-73
MENA	-31	-30	-34	-66	-72
South Asia	-13	-19	-23	-44	-48
SSA	-11	-10	-16	-31	-37
SIDS	-27	-25	-36	-63	-68
Non SIDS	-19	-17	-28	-48	-54
Non SIDS but Dev. C.	-19	-17	-28	-48	-53
Non SIDS but LICs	-10	-8	-16	-30	-32
Non SIDS but have been LICs	-12	-10	-20	-34	-39
Non SIDS but LDCs	-9	-8	-16	-29	-33
SIDS but Non LDCs	-32	-27	-41	-70	-74

Source: WFG HAI dataset

Table E.6 Child mortality rate and its index (CS), by 5-year period and country-group

U5M	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09
All	141	125	110	97	88	80	71	63
Developing countries				105	88	80	71	64
LICs				168	152	138	124	120
LMICs				72	56	44	39	46
UMICs				44	32	27	20	19
Have been LICs	189	173	158	146	135	125	111	100
LDCs	228	212	187	173	161	149	133	120
Non LDCs	99	83	73	61	52	46	40	34
Non LDCs but Dev. C.				64	52	46	40	36
Non LDCs but LICs				106	90	87	82	83
Non LDCs but have been LICs	121	106	103	92	83	76	67	59
East Asia and Pacific	114	107	80	69	64	55	48	42
Europe and Central Asia	55	49	55	48	41	35	27	21
Latin America and Caribbean	96	81	67	54	44	37	30	25
MENA	163	128	97	76	59	50	41	35
South Asia	206	184	168	148	129	112	96	84
SSA	214	194	177	165	157	150	138	125
SIDS	98	85	74	62	58	51	45	41
Non SIDS	152	136	119	107	96	88	78	69
Non SIDS but Dev. C.				116	96	88	78	70
Non SIDS but LICs				175	155	138	126	123
Non SIDS but have been LICs	191	176	161	148	137	127	113	101
Non SIDS but LDCs	244	227	201	187	175	162	146	132
SIDS but Non LDCs	74	62	52	43	36	31	28	25
CS	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	46	52	58	63	67	70	74	77
Developing countries				60	67	70	74	76
LICs				33	39	45	51	52
LMICs				73	80	85	88	84
UMICs				85	91	93	95	96
Have been LICs	28	33	37	42	46	51	56	61
LDCs	14	19	26	31	35	40	47	52
Non LDCs	61	68	73	78	82	84	87	89
Non LDCs but Dev. C.				77	82	84	87	89
Non LDCs but LICs				58	65	66	69	68
Non LDCs but have been LICs	52	58	60	64	68	71	75	79
East Asia and Pacific	55	62	70	74	77	80	84	86
Europe and Central Asia	80	83	81	84	87	89	92	95
Latin America and Caribbean	63	69	75	81	85	88	91	93
MENA	35	49	62	71	79	83	86	89
South Asia	21	27	33	41	49	56	63	69
SSA	19	24	30	34	37	40	44	50
SIDS	62	68	73	77	79	82	85	87
Non SIDS	41	48	53	59	63	66	71	74
Non SIDS but Dev. C.				55	63	66	71	74
Non SIDS but LICs				30	38	45	50	51
Non SIDS but have been LICs	27	32	36	41	46	50	55	60
Non SIDS but LDCs	8	13	20	25	30	35	41	47
SIDS but Non LDCs	72	77	82	86	89	91	92	93

Source: WFG HAI dataset

Table E.7 Prevalence of undernourishment and its index CI, by 5-year period and country-group

Prevalence of under nourishment	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	24	23	21	20	19	19	17	16
Developing countries				20	19	19	17	16
LICs				31	32	32	29	29
LMICs				16	14	11	9	13
UMICs				7	6	7	7	5
Have been LICs	32	32	31	30	29	28	25	24
LDCs	34	34	33	32	33	32	29	28
Non LDCs	19	16	14	13	13	12	11	10
Non LDCs but Dev. C.				14	13	12	11	10
Non LDCs but LICs				23	24	23	21	19
Non LDCs but have been LICs	25	24	23	23	22	20	17	15
East Asia and Pacific	23	21	19	18	18	16	14	13
Europe and Central Asia	5	3	3	3	8	7	7	5
Latin America and Caribbean	20	18	16	15	15	14	12	11
MENA	23	18	13	12	10	10	9	9
South Asia	30	30	28	25	25	24	21	20
SSA	31	31	31	31	31	31	29	27
SIDS	21	20	17	15	14	14	13	13
Non SIDS	25	24	22	22	21	20	18	17
Non SIDS but Dev. C.				21	21	20	18	17
Non SIDS but LICs				31	32	31	29	29
Non SIDS but have been LICs	32	32	31	31	30	29	26	24
Non SIDS but LDCs	35	36	35	35	36	35	32	30
SIDS but Non LDCs	19	17	14	12	11	11	10	9
CI	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	66	68	70	72	73	74	77	79
Developing countries				72	73	74	77	78
LICs				54	53	54	59	58
LMICs				78	81	86	89	84
UMICs				93	94	92	93	96
Have been LICs	53	54	55	56	57	59	63	66
LDCs	50	50	51	52	52	52	57	60
Non LDCs	74	78	81	83	83	85	87	88
Non LDCs but Dev. C.				82	83	85	87	88
Non LDCs but LICs				67	66	68	70	73
Non LDCs but have been LICs	63	65	67	68	68	72	76	79
East Asia and Pacific	68	70	74	75	76	79	82	83
Europe and Central Asia	95	98	99	99	90	91	93	95
Latin America and Caribbean	72	75	79	80	80	82	85	86
MENA	67	76	82	85	87	87	89	90
South Asia	56	56	60	64	65	66	71	72
SSA	54	54	54	55	55	54	58	61
SIDS	70	73	77	80	81	81	83	84
Non SIDS	64	66	68	69	71	72	75	77
Non SIDS but Dev. C.				70	71	72	75	77
Non SIDS but LICs				54	53	54	59	58
Non SIDS but have been LICs	53	53	54	55	56	58	63	66
Non SIDS but LDCs	48	47	48	49	47	47	54	57
SIDS but Non LDCs	74	77	82	85	87	86	88	89

Source: WFG HAI dataset

Table E.8 Literacy rate and its index (LR), by 5-year period and country-group

Literacy rate	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	56	60	64	67	72	75	79	81
Developing countries				64	71	75	79	80
LICs				47	52	59	63	61
LMICs				73	82	86	89	87
UMICs				80	87	90	93	95
Have been LICs	42	45	49	53	59	63	67	71
LDCs	33	37	41	45	50	55	59	63
Non LDCs	68	72	75	79	82	85	88	90
Non LDCs but Dev. C.				75	82	85	88	90
Non LDCs but LICs				65	69	79	80	79
Non LDCs but have been LICs	62	65	69	72	77	80	84	86
East Asia and Pacific	69	73	77	80	84	87	89	91
Europe and Central Asia	90	92	93	94	94	96	98	98
Latin America and Caribbean	72	75	78	82	85	88	90	91
MENA	37	43	50	56	62	68	74	78
South Asia	36	38	42	46	50	55	59	62
SSA	34	38	42	47	51	56	61	64
SIDS	66	70	73	78	81	85	88	90
Non SIDS	54	57	61	64	69	73	76	79
Non SIDS but Dev. C.				61	69	73	76	78
Non SIDS but LICs				44	50	59	62	60
Non SIDS but have been LICs	40	44	48	52	58	62	66	69
Non SIDS but LDCs	29	32	36	41	45	49	54	58
SIDS but Non LDCs	72	75	79	83	86	89	93	94
LR	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	49	53	57	62	67	71	75	78
Developing countries				58	66	71	75	77
LICs				38	43	51	56	55
LMICs				68	79	83	86	84
UMICs				77	84	88	92	94
Have been LICs	32	36	40	45	52	57	62	65
LDCs	23	27	31	36	41	47	52	56
Non LDCs	63	67	71	75	79	83	86	88
Non LDCs but Dev. C.				71	79	83	86	88
Non LDCs but LICs				59	64	75	77	75
Non LDCs but have been LICs	55	59	63	67	73	77	81	84
East Asia and Pacific	64	68	73	77	81	84	87	89
Europe and Central Asia	89	90	92	93	93	96	98	98
Latin America and Caribbean	68	71	75	79	82	86	88	90
MENA	26	33	41	48	56	63	69	74
South Asia	26	28	32	37	41	47	52	55
SSA	23	28	32	38	43	48	54	58
SIDS	61	64	69	74	78	82	86	88
Non SIDS	46	50	54	58	64	68	72	75
Non SIDS but Dev. C.				54	64	68	72	74
Non SIDS but LICs				34	41	51	55	53
Non SIDS but have been LICs	31	35	39	43	50	55	61	64
Non SIDS but LDCs	18	21	26	30	35	41	46	50
SIDS but Non LDCs	67	71	75	80	84	87	91	93

Source: WFG HAI dataset

Table E.9 Secondary enrolment gross rate and its index (SE), by 5-year period and country-group

Secondary enrolment rate	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09
All	30	35	44	48	50	54	61	66
Developing countries				42	50	54	60	64
LICs				21	25	31	36	37
LMICs				49	63	66	75	72
UMICs				69	72	80	86	89
Have been LICs	16	20	29	32	34	36	42	48
LDCs	11	14	17	19	21	25	31	37
Non LDCs	40	47	58	62	65	69	76	80
Non LDCs but Dev. C.				55	65	69	76	79
Non LDCs but LICs				41	46	53	56	56
Non LDCs but have been LICs	31	38	54	57	59	59	64	69
East Asia and Pacific	37	44	49	50	52	57	65	70
Europe and Central Asia	73	78	89	90	89	86	89	91
Latin America and Caribbean	38	46	53	57	61	67	78	83
MENA	26	35	43	49	55	61	67	74
South Asia	17	19	23	27	35	40	47	53
SSA	12	16	20	23	24	28	33	39
SIDS	39	46	52	57	60	65	73	78
Non SIDS	27	32	42	45	48	51	57	62
Non SIDS but Dev. C.				38	48	51	57	62
Non SIDS but LICs				20	24	31	36	37
Non SIDS but have been LICs	16	20	30	32	35	36	41	47
Non SIDS but LDCs	9	12	15	16	17	21	26	32
SIDS but Non LDCs	47	55	61	65	70	74	83	87
SE	**1970-74**	**1975-79**	**1980-84**	**1985-89**	**1990-94**	**1995-99**	**2000-04**	**2005-09**
All	26	32	41	44	47	51	58	64
Developing countries				38	47	51	58	62
LICs				16	21	27	32	33
LMICs				46	61	64	73	70
UMICs				67	70	78	85	88
Have been LICs	11	15	25	28	31	32	38	45
LDCs	6	9	13	15	16	21	26	33
Non LDCs	36	44	55	59	63	67	74	79
Non LDCs but Dev. C.				52	63	67	74	78
Non LDCs but LICs				38	42	51	53	53
Non LDCs but have been LICs	27	34	52	54	57	56	62	67
East Asia and Pacific	34	40	46	47	49	55	63	68
Europe and Central Asia	71	77	89	90	88	85	88	90
Latin America and Caribbean	34	43	50	55	59	65	77	82
MENA	22	31	40	46	52	58	65	72
South Asia	12	15	18	23	31	37	43	51
SSA	7	11	15	18	20	23	29	35
SIDS	36	43	50	54	57	62	71	76
Non SIDS	23	28	39	42	44	48	54	60
Non SIDS but Dev. C.				35	44	48	54	59
Non SIDS but LICs				15	19	27	32	33
Non SIDS but have been LICs	11	15	26	28	31	33	38	44
Non SIDS but LDCs	4	7	10	11	12	16	21	28
SIDS but Non LDCs	44	52	59	63	68	73	82	86

Source: WFG HAI dataset

Appendix F: Overview of data

Table F.1 WFG HAI detailed per country & index

	HAI	CS	CI	LR	SE
Afghanistan					
1970s	16.2	0.0	59.0	0.4	5.3
1980s	18.7	0.0	60.1	6.7	8.1
1990s	19.1	0.0	52.6	12.3	11.4
2000s	21.7	0.0	56.2	15.9	14.8
Albania					
1970s	85.1	65.3	92.0	100.0	83.3
1980s	87.8	78.8	97.0	87.8	87.6
1990s	86.2	88.9	100.0	80.5	75.2
2000s	92.4	96.2	100.0	98.3	75.1
Algeria					
1970s	31.2	30.6	64.6	16.4	13.4
1980s	56.8	60.7	89.1	35.8	41.5
1990s	73.1	80.5	97.7	52.6	61.4
2000s	82.5	84.9	98.5	67.0	79.4
Angola					
1970s	16.0	0.0	23.7	36.1	4.4
1980s	16.0	0.0	11.7	45.7	6.7
1990s	17.4	0.0	7.5	55.8	6.4
2000s	27.5	4.6	28.4	61.7	15.4
Antigua and Barbuda					
1970s		80.0	38.7		53.1
1980s		89.0	58.5		67.3
1990s		94.1	68.3		80.3
2000s	89.7	97.5	59.0	99.6	97.5
Argentina					
1970s	80.0	79.5	99.8	92.2	48.6
1980s	86.4	88.2	99.4	93.9	64.1
1990s	90.8	93.5	100.0	95.9	73.9
2000s	95.0	96.5	100.0	96.9	86.7
Armenia					
1970s		92.8		92.4	
1980s		75.9		96.8	
1990s	79.8	83.5	42.6	98.9	94.2
2000s	85.4	91.7	63.4	99.3	87.1
Azerbaijan					
1970s		82.4			
1980s		59.6			94.2
1990s	75.7	65.3	62.1	93.2	82.2
2000s	87.2	82.0	81.8	99.1	85.8

	HAI	CS	CI	LR	SE
Bangladesh					
1970s	18.2	6.3	41.0	13.5	12.1
1980s	25.5	25.2	43.9	19.3	13.7
1990s	37.7	50.5	44.5	29.0	27.0
2000s	54.2	73.2	61.0	41.2	41.4
Barbados					
1970s	91.9	89.1	99.8	98.0	80.5
1980s	95.2	94.1	99.9	98.9	88.0
1990s	95.7	97.2	98.2	99.4	88.1
2000s	99.4	98.8	100.0	99.7	99.2
Belarus					
1970s		97.0		98.3	92.4
1980s		93.4		97.9	97.7
1990s	96.5	95.1	100.0	98.6	92.4
2000s	97.5	97.8	100.0	99.6	92.5
Belize					
1970s	70.8	66.9	89.6	69.4	57.3
1980s	75.8	79.4	95.3	66.8	61.5
1990s	81.4	89.2	98.5	71.6	66.4
2000s	88.0	94.3	100.0	86.3	71.5
Benin					
1970s	13.9	3.3	49.8	0.3	2.3
1980s	21.2	17.7	50.6	7.1	9.6
1990s	30.0	32.6	61.8	16.8	8.7
2000s	42.9	46.9	71.7	25.8	27.2
Bhutan					
1970s	15.0	2.3	54.3	3.2	0.3
1980s	25.0	26.1	57.2	11.2	5.6
1990s	39.0	48.7	62.7	26.7	18.1
2000s	56.5	63.8	74.6	42.6	44.9
Bolivia					
1970s	41.3	13.5	66.0	55.1	30.5
1980s	53.2	39.8	66.3	67.2	39.5
1990s	65.9	57.7	69.4	78.6	57.9
2000s	78.2	74.1	69.3	86.6	82.6
Bosnia and Herzegovina					
1970s	84.3	87.0	98.7	70.3	81.2
1980s	89.0	92.0	100.0	79.0	85.0
1990s	92.6	95.3	100.0	91.3	83.7
2000s	95.1	97.3	100.0	96.1	87.1

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Botswana					
1970s	40.0	54.7	55.6	42.2	7.4
1980s	54.0	75.4	62.4	54.8	23.2
1990s	66.4	77.3	67.7	67.4	53.3
2000s	74.9	82.7	62.1	77.9	77.1
Brazil					
1970s	57.3	54.5	74.7	66.1	34.0
1980s	68.5	71.9	81.3	73.2	47.6
1990s	80.2	84.5	88.2	80.2	67.8
2000s	92.8	92.3	92.7	86.4	100.0
Bulgaria					
1970s	90.6	91.8	100.0	92.1	78.4
1980s	92.6	95.1	100.0	94.4	81.0
1990s	94.3	96.4	100.0	96.6	84.2
2000s	98.6	98.3	100.0	97.9	98.0
Burkina Faso					
1970s	11.8	0.0	47.0	0.0	0.0
1980s	17.0	8.6	59.4	0.0	0.0
1990s	26.1	18.3	83.4	0.2	2.4
2000s	32.9	26.8	87.0	9.9	8.0
Burundi					
1970s	13.5	12.2	34.4	7.5	0.0
1980s	16.6	21.7	26.9	17.6	0.0
1990s	20.9	24.2	20.3	37.9	1.0
2000s	23.2	29.3	4.0	52.1	7.3
Cambodia					
1970s	22.4	0.0	42.6	43.5	3.7
1980s	37.2	44.9	38.2	51.5	14.3
1990s	43.4	54.0	42.6	59.4	17.8
2000s	54.8	61.7	62.6	68.6	26.2
Cameroon					
1970s	28.7	20.0	61.8	26.9	5.9
1980s	36.5	34.3	54.4	41.5	15.7
1990s	41.1	39.7	49.9	54.1	20.7
2000s	50.3	43.7	64.6	67.7	25.2
Cape Verde					
1970s	37.8	49.1	60.2	34.3	7.5
1980s	51.7	68.6	82.9	48.4	6.9
1990s	63.5	81.5	82.1	62.0	28.4
2000s	77.2	89.2	78.9	74.8	65.9

	HAI	CS	CI	LR	SE
Central African Republic					
1970s	17.4	10.7	53.5	3.8	1.6
1980s	21.5	24.3	36.7	17.0	8.1
1990s	22.6	26.3	26.9	31.4	6.0
2000s	29.5	27.2	36.5	45.1	9.2
Chad					
1970s	5.5	0.0	22.0	0.0	0.0
1980s	5.7	10.5	11.9	0.0	0.3
1990s	10.1	16.4	18.7	2.9	2.4
2000s	20.2	14.1	40.3	16.2	10.2
Chile					
1970s	74.4	77.1	92.5	87.0	40.9
1980s	83.2	91.0	90.0	90.5	61.5
1990s	90.2	97.0	97.2	93.6	72.8
2000s	95.7	99.9	100.0	95.4	87.6
China					
1970s	49.3	64.8	47.1	50.1	35.0
1980s	61.5	81.2	68.5	64.1	32.3
1990s	73.9	85.4	83.2	80.8	46.1
2000s	84.7	92.3	88.3	90.8	67.4
Colombia					
1970s	59.7	69.3	66.1	74.7	28.5
1980s	69.2	85.1	75.2	76.5	40.2
1990s	79.1	90.8	84.0	83.9	57.8
2000s	87.9	94.4	88.2	91.2	78.0
Comoros					
1970s	25.2	26.1	29.9	39.8	4.9
1980s	32.5	41.3	25.3	44.3	19.3
1990s	39.0	51.7	31.2	56.6	16.6
2000s	45.4	56.8	20.1	67.4	37.3
Congo, Dem. Rep.					
1970s	17.5	6.5	37.4	16.8	9.5
1980s	25.7	15.9	35.6	33.6	17.6
1990s	28.6	17.8	28.7	50.4	17.4
2000s	25.9	17.8	0.0	64.0	21.9
Congo, Rep.					
1970s	39.7	50.0	44.5	31.1	33.1
1980s	54.4	59.1	49.9	52.6	56.0
1990s	51.9	56.8	39.8	68.8	42.2
2000s	59.5	51.5	67.2	81.6	37.6

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Costa Rica					
1970s	71.4	78.1	85.5	87.8	34.0
1980s	78.8	91.9	93.3	91.2	38.8
1990s	84.2	96.7	100.0	93.1	46.9
2000s	92.0	99.1	100.0	94.7	74.2
Cote d'ivoire					
1970s	29.9	14.8	87.4	10.9	6.7
1980s	38.8	33.4	88.3	19.5	13.9
1990s	40.4	40.8	79.2	24.9	16.8
2000s	49.8	49.8	81.1	44.1	24.3
Croatia					
1970s	88.3	94.1	91.7	91.1	76.3
1980s	91.4	95.9	95.6	94.1	80.0
1990s	94.2	99.6	100.0	96.7	80.5
2000s	97.0	100.0	100.0	98.2	89.7
Cuba					
1970s	78.3	90.3	91.0	91.6	40.2
1980s	93.9	96.1	99.6	97.8	82.3
1990s	92.2	99.3	89.3	98.9	81.3
2000s	97.0	100.0	100.0	99.8	88.2
Djibouti					
1970s	11.9	8.3	14.7	23.3	1.1
1980s	26.3	46.3	17.6	36.6	4.6
1990s	32.8	54.3	19.5	50.9	6.6
2000s	47.4	60.7	49.6	63.6	15.8
Dominica					
1970s	67.9	84.4	68.4	60.5	58.4
1980s	82.1	97.5	85.9	73.7	71.1
1990s	92.2	96.9	100.0	89.9	82.2
2000s	98.4	98.5	100.0	96.2	98.9
Dominican Republic					
1970s	49.7	55.9	56.3	64.2	22.4
1980s	63.0	69.5	65.6	71.1	45.9
1990s	68.6	83.1	63.8	78.8	48.6
2000s	77.2	88.7	69.3	85.5	65.2
Ecuador					
1970s	58.2	52.8	73.8	73.9	32.2
1980s	71.0	71.3	77.6	82.3	52.7
1990s	73.9	85.3	72.0	87.5	50.7
2000s	79.4	91.6	79.5	85.4	61.0

	HAI	CS	CI	LR	SE
Egypt					
1970s	36.0	13.5	72.4	25.0	33.2
1980s	56.6	44.7	92.8	33.9	55.1
1990s	73.3	74.4	100.0	46.2	72.5
2000s	83.2	89.5	100.0	61.2	81.9
El Salvador					
1970s	46.2	41.7	68.0	54.4	20.7
1980s	60.0	63.3	82.5	63.1	31.0
1990s	71.0	82.7	88.0	71.5	41.7
2000s	80.4	93.4	89.0	78.5	60.6
Equatorial Guinea					
1970s	23.1	0.4	40.2	43.7	7.9
1980s	31.3	8.5	49.1	59.8	7.8
1990s	44.8	24.3	55.8	75.8	23.4
2000s	58.7	35.7	85.5	86.4	26.9
Eritrea					
1970s	8.8	11.3	2.2	20.3	1.3
1980s	18.5	30.5	5.5	29.0	9.1
1990s	25.6	52.0	0.5	37.6	12.0
2000s	36.6	72.7	0.0	50.0	23.8
Estonia					
1970s		96.3		99.7	
1980s		95.3		99.7	100.0
1990s	98.9	97.6	100.0	99.7	98.5
2000s	99.2	99.9	100.0	99.7	97.1
Ethiopia					
1970s	3.9	7.5	6.4	1.2	0.3
1980s	9.2	12.1	12.0	7.6	5.2
1990s	12.4	25.0	3.0	15.0	6.5
2000s	30.2	48.8	29.6	23.5	19.1
Fiji					
1970s	66.2	79.3	80.1	73.3	32.2
1980s	75.9	90.5	87.3	82.5	43.1
1990s	85.4	95.8	94.6	89.0	62.2
2000s	92.8	96.5	100.0	93.0	81.6
Gabon					
1970s	42.0	13.5	84.6	49.4	20.6
1980s	60.6	58.4	93.9	57.6	32.8
1990s	67.8	65.4	98.5	67.5	39.7
2000s	74.6	68.5	100.0	76.3	53.7

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Gambia					
1970s	12.3	1.0	43.7	0.1	4.6
1980s	23.9	23.2	55.3	6.5	10.4
1990s	34.7	40.6	61.8	18.2	18.3
2000s	45.6	52.9	57.5	31.0	41.1
Georgia					
1970s		88.9			
1980s		79.6			99.8
1990s	76.6	86.5	51.4	86.8	81.7
2000s	86.8	90.2	79.9	95.5	81.5
Ghana					
1970s	35.9	32.2	56.0	22.1	33.5
1980s	39.6	45.4	45.4	33.2	34.5
1990s	49.8	55.4	67.5	44.3	31.8
2000s	62.2	63.9	88.3	55.2	41.4
Grenada					
1970s	64.1	77.2	64.9	58.8	55.4
1980s	76.7	86.7	66.9	72.6	80.8
1990s	88.9	91.5	77.6	88.8	97.7
2000s	90.4	96.9	66.9	97.9	100.0
Guatemala					
1970s	38.9	39.1	69.2	39.6	7.6
1980s	49.6	57.7	76.7	49.0	14.9
1990s	59.3	77.4	78.7	58.0	23.1
2000s	68.8	86.6	78.0	65.6	45.1
Guinea					
1970s	18.9	0.0	68.2	0.0	7.4
1980s	19.9	0.2	69.8	1.8	7.9
1990s	25.9	12.5	74.6	9.9	6.5
2000s	37.2	32.5	77.2	17.1	22.2
Guinea-Bissau					
1970s	14.2	0.0	54.4	1.9	0.3
1980s	20.0	0.9	64.3	12.4	2.3
1990s	25.1	3.4	65.8	24.4	6.9
2000s	33.0	14.5	55.9	35.8	25.9
Guyana					
1970s	75.1	61.3	78.9	91.2	69.0
1980s	78.1	61.5	81.7	95.0	74.2
1990s	81.5	69.4	83.7	97.4	75.6
2000s	91.2	75.5	95.1	98.6	95.5

	HAI	CS	CI	LR	SE
Haiti					
1970s	11.4	12.3	16.4	13.9	2.9
1980s	19.6	27.2	13.2	25.7	12.4
1990s	27.6	44.5	7.2	35.9	22.6
2000s	40.6	65.4	14.5	45.5	37.0
Honduras					
1970s	41.3	43.5	62.3	46.9	12.6
1980s	56.0	69.4	66.7	58.1	29.9
1990s	65.8	83.9	77.0	69.2	33.2
2000s	78.6	89.0	84.2	78.3	63.1
Hungary					
1970s	91.1	89.9	99.3	98.2	77.1
1980s	94.2	95.0	100.0	98.7	83.1
1990s	97.2	98.4	100.0	98.7	91.7
2000s	99.0	100.0	100.0	98.7	97.3
India					
1970s	33.7	28.3	56.5	25.0	25.1
1980s	43.3	44.6	62.3	33.4	32.9
1990s	53.3	58.4	69.3	44.4	41.1
2000s	61.2	69.2	69.6	56.9	49.0
Indonesia					
1970s	42.2	39.4	58.9	54.3	16.2
1980s	59.0	57.9	75.3	69.1	33.6
1990s	70.0	73.7	78.7	81.6	46.1
2000s	78.3	83.4	78.1	88.6	63.2
Iran					
1970s	41.3	34.1	73.8	25.5	31.7
1980s	58.7	59.7	91.2	41.9	42.0
1990s	77.1	77.6	100.0	64.9	65.7
2000s	85.4	87.1	100.0	76.4	77.9
Iraq					
1970s	44.5	58.6	70.4	22.5	26.5
1980s	59.4	74.6	77.2	40.9	44.9
1990s	60.2	82.8	62.6	59.3	36.1
2000s	66.7	84.4	71.0	71.0	40.4
Jamaica					
1970s	71.9	81.0	89.7	64.7	52.1
1980s	76.7	87.1	88.3	69.6	61.7
1990s	80.8	90.1	90.6	74.5	68.0
2000s	88.7	90.7	96.1	80.9	87.2

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Jordan					
1970s	64.3	66.1	81.0	54.1	55.9
1980s	81.0	82.3	96.1	67.2	78.3
1990s	87.2	89.4	97.7	78.5	83.2
2000s	91.7	94.3	98.5	88.6	85.5
Kazakhstan					
1970s		77.8		95.5	
1980s		75.2		96.6	98.2
1990s	93.2	80.5	99.2	98.4	94.7
2000s	94.5	88.3	96.6	99.5	93.7
Kenya					
1970s	39.4	45.4	68.5	36.0	7.9
1980s	47.3	56.8	62.2	48.9	21.1
1990s	51.9	53.0	54.1	61.8	38.5
2000s	56.2	48.9	56.1	76.7	43.2
Kiribati					
1970s	71.7	44.2	96.7	73.1	72.9
1980s	77.0	59.0	91.6	72.9	84.5
1990s	85.2	71.0	94.1	84.3	91.6
2000s	89.3	80.3	96.1	91.4	89.2
Korea, Dem. Rep.					
1970s		79.2	56.8		
1980s		83.3	55.2		
1990s		80.4	60.3		
2000s		80.4	51.6		
Kyrgyz Rep.					
1970s		65.9			
1980s		63.6			100.0
1990s	85.5	76.7	82.4	91.3	91.5
2000s	92.3	85.0	100.0	98.9	85.4
Lao PDR					
1970s	29.0	17.1	62.3	33.6	3.0
1980s	37.2	28.7	59.8	43.7	16.6
1990s	47.4	51.4	62.4	53.5	22.4
2000s	62.0	72.5	71.8	65.9	38.0
Latvia					
1970s		95.7		99.7	
1980s		95.8		99.4	99.7
1990s	96.8	96.7	100.0	99.5	90.8
2000s	98.6	99.1	100.0	99.7	95.7

	HAI	CS	CI	LR	SE
Lebanon					
1970s	66.2	82.0	76.7	60.6	45.5
1980s	75.2	85.5	90.0	69.0	56.3
1990s	82.9	89.4	100.0	77.3	64.7
2000s	90.0	96.3	100.0	85.2	78.6
Lesotho					
1970s	44.0	39.4	69.3	60.9	6.3
1980s	53.3	54.0	75.8	67.7	15.9
1990s	60.0	59.3	81.8	74.6	24.4
2000s	64.0	62.2	80.8	81.3	31.7
Liberia					
1970s	20.4	0.0	63.0	9.2	9.5
1980s	25.8	3.4	65.1	20.5	14.3
1990s	30.0	18.3	46.7	31.3	23.7
2000s	36.8	35.2	40.1	43.8	28.2
Libya					
1970s	55.5	58.3	90.8	33.3	39.5
1980s	77.5	81.6	100.0	53.9	74.5
1990s	89.1	90.8	100.0	71.7	94.1
2000s	94.0	95.6	100.0	82.0	98.4
Lithuania					
1970s		96.5		98.0	
1980s		96.0		98.1	99.6
1990s	96.6	98.0	100.0	98.8	89.7
2000s	99.8	99.9	100.0	99.6	99.6
Macedonia, FYR					
1970s	79.7	77.0	97.6	70.6	73.6
1980s	84.6	81.7	99.9	79.4	77.3
1990s	90.3	92.3	100.0	91.3	77.4
2000s	94.2	97.8	100.0	95.8	83.4
Madagascar					
1970s	33.3	24.3	66.3	33.3	9.1
1980s	39.3	29.1	59.9	45.9	22.1
1990s	39.0	38.3	48.0	58.6	11.2
2000s	46.2	52.8	46.9	67.4	17.8
Malawi					
1970s	23.3	0.0	63.1	30.3	0.0
1980s	22.6	1.0	51.2	37.9	0.3
1990s	30.4	16.8	41.8	51.9	11.3
2000s	48.4	47.4	57.5	63.8	24.7

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Malaysia					
1970s	67.4	85.8	87.9	56.7	39.2
1980s	76.8	93.4	94.2	70.6	49.1
1990s	84.4	98.3	100.0	82.5	56.7
2000s	89.1	100.0	100.0	88.8	67.8
Maldives					
1970s	44.7	38.7	58.2	82.1	0.0
1980s	55.9	42.5	81.2	89.6	10.3
1990s	74.5	67.0	89.8	95.6	45.7
2000s	87.1	86.7	92.4	96.2	72.9
Mali					
1970s	15.8	0.0	61.8	0.0	1.6
1980s	17.7	0.0	68.1	0.0	2.8
1990s	23.3	3.1	81.1	3.0	5.9
2000s	33.4	15.1	86.7	11.7	20.2
Marshall Islands					
1970s	65.0	62.7	81.7	72.7	42.9
1980s	74.9	74.0	87.9	82.9	54.9
1990s	84.5	85.7	92.7	95.4	64.3
2000s	89.5	88.1	94.6	99.9	75.5
Mauritania					
1970s	25.2	20.8	61.4	18.2	0.4
1980s	39.4	42.5	79.8	27.8	7.6
1990s	47.0	49.5	90.1	37.3	11.1
2000s	51.9	52.3	91.9	45.7	17.5
Mauritius					
1970s	63.9	76.0	80.9	64.6	34.3
1980s	74.5	90.1	88.9	72.2	46.8
1990s	77.5	95.0	93.9	60.8	60.3
2000s	89.6	96.9	95.3	83.6	82.8
Mexico					
1970s	62.1	63.8	84.7	73.8	26.3
1980s	76.8	78.1	97.8	82.4	48.8
1990s	82.8	88.2	98.2	86.9	57.8
2000s	91.4	95.1	100.0	89.8	80.6
Micronesia, Fed. States.					
1970s	76.5	56.5	78.9	70.6	100.0
1980s	83.9	70.6	84.6	80.4	100.0
1990s	90.1	81.4	90.0	93.4	95.8
2000s	90.0	85.7	90.8	98.1	85.4

	HAI	CS	CI	LR	SE
Moldova					
1970s		84.3		90.9	
1980s		84.7		94.2	81.7
1990s	91.9	90.9	100.0	96.9	79.7
2000s	94.1	95.4	100.0	98.7	82.5
Mongolia					
1970s	68.4	44.1	62.9	94.8	71.9
1980s	76.1	54.8	65.0	95.8	88.6
1990s	70.2	68.3	48.8	96.8	67.1
2000s	80.7	82.0	60.4	97.1	83.5
Montenegro					
1970s		83.5	96.4	70.2	
1980s		90.9	99.7	79.0	
1990s		97.7	100.0	89.7	
2000s		99.4	100.0	95.8	
Morocco					
1970s	33.3	32.6	80.0	10.3	10.5
1980s	47.6	52.9	89.8	20.8	26.8
1990s	58.7	73.0	96.0	32.1	33.9
2000s	67.8	84.9	98.5	43.9	44.0
Mozambique					
1970s	8.2	0.0	25.1	7.4	0.2
1980s	10.0	0.0	20.5	17.9	1.6
1990s	13.2	8.0	17.9	25.8	1.1
2000s	29.4	36.5	41.4	33.0	6.8
Myanmar					
1970s	42.9	35.8	51.0	68.0	16.9
1980s	51.0	48.8	61.3	76.0	17.9
1990s	52.1	54.8	44.5	83.8	25.2
2000s	64.7	59.9	71.0	86.9	41.1
Namibia					
1970s	53.7	62.1	68.0	54.2	30.7
1980s	58.5	68.7	66.7	64.7	33.8
1990s	64.1	72.8	58.9	75.4	49.4
2000s	74.0	77.9	72.4	84.0	61.5
Nepal					
1970s	16.6	10.1	45.1	3.6	7.7
1980s	30.0	30.7	57.0	11.8	20.6
1990s	45.3	53.0	68.3	27.6	32.1
2000s	58.6	75.1	76.5	43.8	39.0

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Nicaragua					
1970s	39.9	43.7	45.4	50.2	20.0
1980s	50.2	64.0	48.9	58.7	29.1
1990s	55.6	79.9	34.4	67.1	41.1
2000s	72.1	89.5	66.3	72.1	60.5
Niger					
1970s	11.7	0.0	46.8	0.0	0.0
1980s	12.4	0.0	49.4	0.0	0.0
1990s	10.9	0.2	42.6	0.0	0.8
2000s	21.7	19.2	56.6	7.8	3.1
Nigeria					
1970s	18.8	0.6	56.8	14.9	2.8
1980s	30.5	4.8	61.1	34.7	21.2
1990s	41.3	6.3	84.8	51.8	22.2
2000s	49.8	18.9	89.8	63.5	27.0
Oman					
1970s	31.2	24.3	86.1	14.2	0.1
1980s	58.0	78.2	100.0	36.6	17.3
1990s	77.8	94.3	100.0	59.0	57.8
2000s	90.1	98.2	100.0	77.9	84.3
Pakistan					
1970s	30.4	31.2	69.7	9.3	11.7
1980s	34.9	42.1	66.4	16.8	14.4
1990s	43.2	51.7	72.2	28.5	20.4
2000s	48.8	61.5	68.6	40.4	24.7
Palau					
1970s		89.7	99.2		49.6
1980s	86.7	92.6	96.8	92.7	64.5
1990s	92.6	96.7	100.0	97.6	75.9
2000s	98.7	97.7	100.0	100.0	97.1
Panama					
1970s	69.4	78.4	70.3	80.3	48.8
1980s	76.3	87.0	74.0	86.3	57.9
1990s	79.2	92.0	73.4	88.5	62.9
2000s	82.2	93.7	75.7	91.5	68.1
Papua New Guinea					
1970s	36.9	45.2	66.3	32.3	4.0
1980s	43.1	59.5	68.5	39.2	5.3
1990s	48.5	68.0	70.9	46.0	9.0
2000s	53.4	72.6	66.3	50.7	23.9

	HAI	CS	CI	LR	SE
Paraguay					
1970s	61.3	74.4	80.6	75.6	14.6
1980s	67.1	81.8	82.7	78.6	25.2
1990s	74.6	87.7	83.2	88.9	38.5
2000s	83.2	90.9	85.5	92.2	64.1
Peru					
1970s	54.3	38.7	64.9	71.5	42.1
1980s	66.8	59.1	67.4	80.5	60.3
1990s	75.3	77.6	68.2	84.7	70.9
2000s	87.9	90.3	83.8	86.3	91.4
Philippines					
1970s	63.7	67.4	56.2	79.4	51.6
1980s	72.8	73.3	67.0	85.8	65.1
1990s	80.5	83.5	73.4	91.9	73.0
2000s	84.9	89.5	78.9	91.8	79.3
Poland					
1970s	91.6	91.3	100.0	98.2	76.9
1980s	94.2	95.3	99.9	98.7	83.0
1990s	97.7	98.2	100.0	98.9	93.8
2000s	99.7	100.0	100.0	99.1	99.5
Romania					
1970s	88.8	85.1	98.3	93.0	78.9
1980s	93.6	89.7	96.4	94.8	93.6
1990s	93.1	92.3	100.0	96.3	83.6
2000s	94.4	96.4	100.0	97.0	84.3
Russia					
1970s	94.4	88.3	100.0	97.8	91.5
1980s	96.2	91.2	100.0	97.7	96.0
1990s	94.6	92.9	98.2	98.4	88.9
2000s	95.7	96.3	100.0	99.3	87.1
Rwanda					
1970s	21.1	13.8	48.8	22.0	0.0
1980s	26.6	21.0	45.5	38.9	0.8
1990s	24.4	16.6	24.2	53.6	3.4
2000s	39.0	40.3	40.6	64.7	10.4
Samoa					
1970s	70.6	50.7	84.2	96.0	51.7
1980s	83.2	77.6	93.6	97.0	64.6
1990s	83.4	86.0	89.9	97.8	59.9
2000s	91.9	91.3	100.0	98.3	78.0

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Sao Tome and Principe					
1970s	49.1	59.1	71.3	52.2	13.8
1980s	55.0	60.0	72.3	57.3	30.6
1990s	62.9	60.8	81.1	73.3	36.3
2000s	69.6	61.6	93.9	84.0	39.1
Senegal					
1970s	16.4	2.0	55.9	3.2	4.4
1980s	25.3	24.7	58.3	11.2	6.9
1990s	31.9	41.3	55.4	20.7	10.0
2000s	39.8	52.5	59.6	30.2	16.7
Serbia					
1970s	84.1	83.5	95.5	70.1	87.4
1980s	90.1	90.9	99.4	78.9	91.3
1990s	93.8	95.3	100.0	88.5	91.3
2000s	95.9	99.7	100.0	95.8	88.3
Seychelles					
1970s	78.6	84.7	79.4	71.6	78.8
1980s	87.4	95.0	83.4	78.9	92.3
1990s	92.9	97.8	88.3	85.9	99.7
2000s	95.0	98.6	90.8	90.7	100.0
Sierra Leone					
1970s	10.9	0.0	37.8	0.2	5.5
1980s	13.1	0.0	34.3	6.2	11.9
1990s	16.5	0.0	32.6	16.6	16.7
2000s	21.7	8.5	27.3	24.8	26.3
Solomon Islands					
1970s	54.0	69.8	77.6	63.7	5.0
1980s	61.6	84.2	78.2	72.3	11.7
1990s	65.3	87.9	75.7	84.1	13.6
2000s	72.5	88.6	87.6	88.0	25.9
Somalia					
1970s	15.2	0.0	41.1	19.8	0.0
1980s	17.3	5.9	37.3	22.5	3.7
1990s	24.5	17.4	40.2	33.6	6.8
2000s	30.6	17.4	46.7	42.5	15.7
South Africa					
1970s	62.0	56.1	99.8	67.8	24.2
1980s	73.3	70.9	99.9	74.2	48.3
1990s	83.8	78.3	100.0	78.9	78.0
2000s	87.1	73.8	100.0	84.1	90.5

	HAI	CS	CI	LR	SE
Sri Lanka					
1970s	66.8	75.3	64.5	80.1	47.3
1980s	74.7	87.7	67.1	85.2	58.8
1990s	80.3	93.3	64.3	87.5	76.1
2000s	85.9	96.6	71.2	89.4	86.4
St Kitts and Nevis					
1970s	67.0	77.5	70.3	62.8	57.2
1980s	79.2	86.3	82.4	77.4	70.7
1990s	88.2	93.7	81.6	94.9	82.6
2000s	92.8	96.5	80.3	100.0	94.3
St Lucia					
1970s	59.8	83.9	62.9	61.4	30.9
1980s	70.3	91.5	78.4	76.6	34.7
1990s	84.5	95.5	89.8	91.4	61.3
2000s	91.7	97.9	91.4	98.3	79.3
St Vincent and the Grenadines					
1970s	57.6	78.4	72.9	56.3	22.9
1980s	69.5	85.5	78.8	70.7	42.8
1990s	78.4	94.2	73.0	86.9	59.4
2000s	93.4	96.7	90.6	95.7	90.5
Sudan					
1970s	30.7	36.9	61.4	17.9	6.4
1980s	37.7	47.1	59.2	32.1	12.5
1990s	44.1	52.3	61.4	46.2	16.3
2000s	52.5	55.7	70.8	57.3	26.1
Suriname					
1970s	63.5	75.6	75.7	62.3	40.2
1980s	71.2	80.0	83.8	70.8	50.4
1990s	77.2	84.2	89.3	81.3	54.0
2000s	85.5	90.2	92.3	88.1	71.4
Swaziland					
1970s	45.6	38.8	77.6	45.6	20.5
1980s	57.6	59.0	80.1	59.1	32.3
1990s	62.8	62.4	77.6	70.3	40.8
2000s	64.4	60.0	76.1	78.8	42.8
Syrian Arab Rep.					
1970s	55.8	59.3	87.5	37.7	38.9
1980s	70.1	79.4	99.0	53.2	48.9
1990s	75.1	91.5	100.0	68.4	40.6
2000s	82.9	96.1	100.0	78.7	56.7

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Tajikistan					
1970s		61.3		91.0	
1980s		51.1		95.3	
1990s	69.8	56.1	40.0	98.3	84.7
2000s	73.5	70.2	44.7	99.5	79.5
Tanzania					
1970s	23.9	18.4	46.0	31.2	0.0
1980s	34.1	32.3	57.9	46.5	0.0
1990s	35.6	36.3	48.3	57.5	0.1
2000s	42.7	51.5	47.7	65.8	5.8
Thailand					
1970s	56.6	69.2	59.0	80.8	17.4
1980s	64.9	83.7	63.2	87.1	25.7
1990s	73.7	93.0	65.4	89.8	46.5
2000s	84.6	97.0	75.0	92.5	73.7
Timor-Leste					
1970s			54.1		
1980s			71.8		
1990s	54.3	35.9	79.7	71.9	29.9
2000s	64.9	56.4	72.7	84.7	46.0
Togo					
1970s	20.0	17.5	39.2	13.8	9.5
1980s	28.0	32.9	35.1	26.0	17.9
1990s	34.4	43.7	37.4	38.2	18.4
2000s	46.7	56.7	42.2	52.4	35.3
Tonga					
1970s	79.1	88.4	68.3	90.3	69.3
1980s	90.2	92.7	79.8	99.2	89.1
1990s	95.3	95.0	87.8	98.8	99.7
2000s	95.9	95.7	88.8	99.0	100.0
Trinidad and Tobago					
1970s	76.3	83.4	86.4	91.5	43.9
1980s	88.1	87.9	96.0	95.1	73.5
1990s	87.2	89.6	84.8	97.0	77.4
2000s	88.6	89.3	87.7	98.2	79.2
Tunisia					
1970s	39.8	40.3	78.7	22.5	17.6
1980s	58.5	70.9	92.8	39.6	30.6
1990s	74.5	87.9	100.0	55.2	54.8
2000s	86.4	94.0	100.0	69.5	82.1

	HAI	CS	CI	LR	SE
Turkey					
1970s	49.8	29.7	91.5	54.0	24.2
1980s	64.3	55.2	97.6	68.9	35.8
1990s	77.8	76.3	100.0	78.6	56.2
2000s	89.0	90.7	100.0	85.0	80.2
Turkmenistan					
1970s		60.2			
1980s		54.8			
1990s		66.3	89.9	95.1	
2000s		78.8	93.9	99.2	
Tuvalu					
1970s	62.0	59.7	67.4	62.1	58.7
1980s	73.3	78.0	73.9	72.4	68.7
1990s	82.8	83.6	83.2	88.3	76.1
2000s	90.9	87.4	89.8	97.4	89.1
Uganda					
1970s	32.0	21.4	76.3	30.1	0.0
1980s	34.2	24.2	68.1	41.2	3.4
1990s	39.5	28.5	70.9	52.9	5.7
2000s	49.9	40.8	79.3	65.0	14.6
Ukraine					
1970s		90.9		98.6	39.0
1980s		93.8		98.9	94.6
1990s	97.1	95.4	100.0	99.2	93.9
2000s	98.1	96.8	100.0	99.5	96.1
Uruguay					
1970s	83.4	83.7	99.3	92.8	57.8
1980s	86.9	89.8	94.3	94.4	68.9
1990s	93.2	95.1	98.5	96.0	83.4
2000s	98.2	97.5	100.0	97.2	98.1
Uzbekistan					
1970s		70.4		96.2	
1980s		64.0		96.2	100.0
1990s	89.5	74.5	94.1	96.3	93.1
2000s	89.2	82.8	80.7	97.6	95.7
Vanuatu					
1970s	48.3	60.4	87.5	41.8	3.4
1980s	57.5	79.2	91.5	50.0	9.3
1990s	65.1	92.2	88.3	60.2	19.7
2000s	72.7	91.0	93.2	70.9	35.8

Table F.1 Continuation

	HAI	CS	CI	LR	SE
Venezuela					
1970s	69.7	80.3	84.2	76.2	38.0
1980s	77.9	87.1	91.8	84.3	48.2
1990s	79.7	92.3	84.3	89.5	52.6
2000s	85.7	95.4	84.4	93.0	69.8
Vietnam					
1970s	60.4	74.1	53.9	80.5	33.3
1980s	64.8	78.1	59.1	83.4	38.7
1990s	70.0	84.9	66.6	87.1	41.4
2000s	83.6	95.2	80.7	90.6	68.0
West Bank and Gaza					
1970s	65.1	74.1	76.9	64.9	44.5
1980s	74.0	81.8	82.2	73.3	58.6
1990s	83.0	89.9	89.9	81.8	70.2
2000s	87.8	92.1	79.3	90.5	89.1
Yemen					
1970s	16.7	3.7	45.2	5.0	12.9
1980s	33.0	34.3	55.3	17.9	24.5
1990s	42.3	53.2	55.2	28.8	32.0
2000s	52.9	68.2	54.3	45.7	43.2
Zambia					
1970s	33.6	28.6	53.4	43.0	9.3
1980s	35.2	31.0	43.5	53.2	13.0
1990s	36.2	28.1	38.4	60.6	17.8
2000s	40.3	35.0	32.3	64.4	29.6
Zimbabwe					
1970s	41.5	53.8	50.7	59.0	2.6
1980s	52.5	62.8	43.8	75.2	28.4
1990s	55.5	65.4	34.7	82.0	39.7
2000s	56.3	61.2	39.0	87.8	37.4

Source : Base HAI WFG.

Table F.2 WFG HAI by country and ten-year period

	1970s	1980s	1990s	2000s		1970s	1980s	1990s	2000s
Afghanistan	16.2	18.7	19.1	21.7	Dominica	67.9	82.1	92.2	98.4
Albania	85.1	87.8	86.2	92.4	Dominican Republic	49.7	63.0	68.6	77.2
Algeria	31.2	56.8	73.1	82.5	Ecuador	58.2	71.0	73.9	79.4
Angola	16.0	16.0	17.4	27.5	Egypt	36.0	56.6	73.3	83.2
Antigua and Barbuda				89.7	El Salvador	46.2	60.0	71.0	80.4
Argentina	80.0	86.4	90.8	95.0	Equatorial Guinea	23.1	31.3	44.8	58.7
Armenia			79.8	85.4	Eritrea	8.8	18.5	25.6	36.6
Azerbaijan			75.7	87.2	Estonia			98.9	99.2
Bangladesh	18.2	25.5	37.7	54.2	Ethiopia	3.9	9.2	12.4	30.2
Barbados	91.9	95.2	95.7	99.4	Fiji	66.2	75.9	85.4	92.8
Belarus			96.5	97.5	FYROM	79.7	84.6	90.3	94.2
Belize	70.8	75.8	81.4	88.0	Gabon	42.0	60.6	67.8	74.6
Benin	13.9	21.2	30.0	42.9	Gambia	12.3	23.9	34.7	45.6
Bhutan	15.0	25.0	39.0	56.5	Georgia			76.6	86.8
Bolivia	41.3	53.2	65.9	78.2	Ghana	35.9	39.6	49.8	62.2
Bosnia & Herzegovina	84.3	89.0	92.6	95.1	Grenada	64.1	76.7	88.9	90.4
Botswana	40.0	54.0	66.4	74.9	Guatemala	38.9	49.6	59.3	68.8
Brazil	57.3	68.5	80.2	92.8	Guinea	18.9	19.9	25.9	37.2
Bulgaria	90.6	92.6	94.3	98.6	Guinea-Bissau	14.2	20.0	25.1	33.0
Burkina Faso	11.8	17.0	26.1	32.9	Guyana	75.1	78.1	81.5	91.2
Burundi	13.5	16.6	20.9	23.2	Haiti	11.4	19.6	27.6	40.6
Cambodia	22.4	37.2	43.4	54.8	Honduras	41.3	56.0	65.8	78.6
Cameroon	28.7	36.5	41.1	50.3	Hungary	91.1	94.2	97.2	99.0
Cape Verde	37.8	51.7	63.5	77.2	India	33.7	43.3	53.3	61.2
Central African Rep.	17.4	21.5	22.6	29.5	Indonesia	42.2	59.0	70.0	78.3
Chad	5.5	5.7	10.1	20.2	Iran	41.3	58.7	77.1	85.4
Chile	74.4	83.2	90.2	95.7	Iraq	44.5	59.4	60.2	66.7
China	49.3	61.5	73.9	84.7	Jamaica	71.9	76.7	80.8	88.7
Colombia	59.7	69.2	79.1	87.9	Jordan	64.3	81.0	87.2	91.7
Comoros	25.2	32.5	39.0	45.4	Kazakhstan			93.2	94.5
Congo	39.7	54.4	51.9	59.5	Kenya	39.4	47.3	51.9	56.2
Congo, Dem. Rep.	17.5	25.7	28.6	25.9	Kiribati	71.7	77.0	85.2	89.3
Costa Rica	71.4	78.8	84.2	92.0	Kyrgyzstan			85.5	92.3
Cote d'Ivoire	29.9	38.8	40.4	49.8	Laos	29.0	37.2	47.4	62.0
Croatia	88.3	91.4	94.2	97.0	Latvia			96.8	98.6
Cuba	78.3	93.9	92.2	97.0	Lebanon	66.2	75.2	82.9	90.0
Djibouti	11.9	26.3	32.8	47.4	Lesotho	44.0	53.3	60.0	64.0

Table F.2 Continuation

	1970s	1980s	1990s	2000s		1970s	1980s	1990s	2000s
Liberia	20.4	25.8	30.0	36.8	Sao Tome & Principe	49.1	55.0	62.9	69.6
Libya	55.5	77.5	89.1	94.0	Senegal	16.4	25.3	31.9	39.8
Lithuania			96.6	99.8	Serbia	84.1	90.1	93.8	95.9
Madagascar	33.3	39.3	39.0	46.2	Seychelles	78.6	87.4	92.9	95.0
Malawi	23.3	22.6	30.4	48.4	Sierra Leone	10.9	13.1	16.5	21.7
Malaysia	67.4	76.8	84.4	89.1	Solomon Islands	54.0	61.6	65.3	72.5
Maldives	44.7	55.9	74.5	87.1	Somalia	15.2	17.3	24.5	30.6
Mali	15.8	17.7	23.3	33.4	South Africa	62.0	73.3	83.8	87.1
Marshall Islands	65.0	74.9	84.5	89.5	Sri Lanka	66.8	74.7	80.3	85.9
Mauritania	25.2	39.4	47.0	51.9	St Kitts and Nevis	67.0	79.2	88.2	92.8
Mauritius	63.9	74.5	77.5	89.6	St Lucia	59.8	70.3	84.5	91.7
Mexico	62.1	76.8	82.8	91.4	St Vincent and Gren.	57.6	69.5	78.4	93.4
Micronesia	76.5	83.9	90.1	90.0	Sudan	30.7	37.7	44.1	52.5
Moldova			91.9	94.1	Suriname	63.5	71.2	77.2	85.5
Mongolia	68.4	76.1	70.2	80.7	Swaziland	45.6	57.6	62.8	64.4
Morocco	33.3	47.6	58.7	67.8	Syria	55.8	70.1	75.1	82.9
Mozambique	8.2	10.0	13.2	29.4	Tajikistan			69.8	73.5
Myanmar	42.9	51.0	52.1	64.7	Tanzania	23.9	34.1	35.6	42.7
Namibia	53.7	58.5	64.1	74.0	Thailand	56.6	64.9	73.7	84.6
Nepal	16.6	30.0	45.3	58.6	Timor-Leste			54.3	64.9
Nicaragua	39.9	50.2	55.6	72.1	Togo	20.0	28.0	34.4	46.7
Niger	11.7	12.4	10.9	21.7	Tonga	79.1	90.2	95.3	95.9
Nigeria	18.8	30.5	41.3	49.8	Trinidad and Tobago	76.3	88.1	87.2	88.6
Occ. Palestinian Ter.	65.1	74.0	83.0	87.8	Tunisia	39.8	58.5	74.5	86.4
Oman	31.2	58.0	77.8	90.1	Turkey	49.8	64.3	77.8	89.0
Pakistan	30.4	34.9	43.2	48.8	Tuvalu	62.0	73.3	82.8	90.9
Palau		86.7	92.6	98.7	Uganda	32.0	34.2	39.5	49.9
Panama	69.4	76.3	79.2	82.2	Ukraine			97.1	98.1
Papua New Guinea	36.9	43.1	48.5	53.4	Uruguay	83.4	86.9	93.2	98.2
Paraguay	61.3	67.1	74.6	83.2	Uzbekistan			89.5	89.2
Peru	54.3	66.8	75.3	87.9	Vanuatu	48.3	57.5	65.1	72.7
Philippines	63.7	72.8	80.5	84.9	Venezuela	69.7	77.9	79.7	85.7
Poland	91.6	94.2	97.7	99.7	Viet Nam	60.4	64.8	70.0	83.6
Romania	88.8	93.6	93.1	94.4	Yemen	16.7	33.0	42.3	52.9
Russia	94.4	96.2	94.6	95.7	Zambia	33.6	35.2	36.2	40.3
Rwanda	21.1	26.6	24.4	39.0	Zimbabwe	41.5	52.5	55.5	56.3
Samoa	70.6	83.2	83.4	91.9					

Source : WFG HAI dataset.

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Créée en 2003, la **Fondation pour les études et recherches sur le développement international** vise à favoriser la compréhension du développement économique international et des politiques qui l'influencent.

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