UNESCAP WORKING PAPER

FILLING GAPS IN THE HUMAN DEVELOPMENT INDEX: FINDINGS FOR ASIA AND THE PACIFIC

David A. Hastings

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Filling Gaps in the Human Development Index: Findings from Asia and the Pacific

David A. Hastings

UNESCAP Working Paper
Macroeconomic Policy and Development Division

Filling Gaps in the Human Development Index: Findings for Asia and the Pacific

Prepared by David A. Hastings[*]

Authorized for distribution by Aynul Hasan

February 2009

Abstract

This paper reports on the geographic extension of the Human Development Index from 177 (a several-year plateau in the United Nations Development Programme's HDI) to over 230 economies, including all members and associate members of ESCAP. This increase in geographic coverage makes the HDI more useful for assessing the situations of all economies – including small economies traditionally omitted by UNDP's Human Development Reports. The components of the HDI are assessed to see which economies in the region display relatively strong performance, or may exhibit weaknesses, in those components. Middle-HDI economies in the region are found to generally lag their peers in GDP per capita, exceed many of their peers in literacy, and slightly lag many of their peers in life expectancy. High-HDI economies in the region tend to parallel their global peers with HDI normally being pulled up by income and literacy, and pulled down by life expectancy. Some lesser-developed economies slightly lead their developmental peers in life expectancy, while a few lag their peers in literacy and/or income. A plot of the Connection Index vs. Basic HDI indicates that Asian-Pacific developing economies tend to lag their global developmental peers in individual connectivity. Suggestions on using the HDI to support strategizing development policies and programmes are offered. The paper also offers thoughts on possible intellectual extensions, in the direction of a Human Security Index, which the author recently described elsewhere.

---

[*] Information and Communication Technology and Disaster Risk Reduction Division, United Nations ESCAP, United Nations Building, Rajadamnern Nok Avenue, Bangkok 10200, Thailand.

CONTENTS

TABLES PRESENTED AS APPENDICES

1.   Introduction

The first Human Development Report (UNDP, 1990-2007) and Human Development Index (HDI, ibid), revolutionized discussions on human development when they first appeared in 1990. Prior to that time, human development was routinely characterized by income, such as by Gross Domestic Product per capita. The architects of the HDR postulated that human development was a more sophisticated concept than naked cash movements run through an accounting system. They wanted discussion, and policy focus by developers, to advance.

The architects of the HDR recognized that one could create an index derived from numerous indicators that were compiled only in a few countries to an acceptable level of consistency, or attempt to craft something with wide geographic coverage. To approach the former, they attempted to add benefits from knowledge (measured using as a proxy the literacy rate – later extended by including school life expectancy, and later total school enrollment), a long and healthy life (measured using as a proxy the average life expectancy at birth), and a decent standard of living (measured using as a proxy the Gross Domestic Product per capita at purchasing power parity) as an indicator of development. To approach the latter, they tried to find indices that were collected for a relatively large number of countries. Thus the compromise on (1) nominal literacy rather than a more sophisticated indicator of education, (2) modelled life expectancy at birth rather than a more sophisticated indicator of healthiness of the population, and (3) GDP per capita, rather than some better indicator of money-in-the-pocket of a typical resident, after paying for basic necessities like basic food, clothing, shelter, education and medical care.

The HDI quickly pointed to countries that delivered comparably well on basic education and health care, even as they might deliver comparably less well on GDP per capita. Numerous analyses have been stimulated by the HDI, as can be seen by searching for such analyses on the Web.

The annual release of the global HDR cues various press releases, news reports[1] and analyses, in developing and developed countries alike. At a minimum, then, it continues to focus attention on socioeconomic development, in a manner that covers more countries than The Economist magazine's Quality of Life index, or many other formulations which mostly followed on the heels of the HDR. The HDI has attracted many assessments, and some criticism. On the one hand, it is criticized for using indicators (literacy, life expectancy, and PPP-adjusted GDP per capita) that are statistically highly correlated with each other, and with their derivative HDI (Cahill 2005). Some such analysts argue that the HDI is little better than GDP per capita by itself. Later in this article, we shall revisit that issue.

2.   Increasing Geographic Inclusiveness of the HDI

The first Human Development Report computed HDI for 130 economies, an impressive number for the time. By the 1994 report, coverage had expanded to 173 economies, which by 2007 had increased merely by four to 177. Dozens of economies have no UNDP Human Development Index: from Afghanistan (population about 31 million), Taiwan, China (~22 million), Iraq (~22 million), the Democratic Peoples

---

[1] Some news reports have arguably misused the data to claim that country "A" had slipped in its efforts, where other countries may merely have been more successful and overtaken country "A", or that newly added countries with higher HDIs had pushed country "A" to a lower global ranking number (despite, possibly, a good increase in HDI for country "A").

Republic of Korea (~23 million), Somalia (~9 million), Puerto Rico (~4 million) and Liberia (~3 million), to Niue (~1-2 thousand). This quandary, in the context of the greatly increased current development of indicators, and inclusion of more countries in such indicator reporting, motivates an attempt to extend the geographic inclusiveness of the HDI. The author has been investigating how to do this for awhile.

Perhaps the longest tenure for such compilation efforts, at least among those with widespread public access, is the database compiled for several decades by the USA Central Intelligence Agency. In current form, The World Factbook[2] includes data for over 230 economies, the most complete coverage of the sources used here.[3] Partly because of such coverage, but also because of frequent reassessments and updates to indicators[4] and the unrestricted nature of unclassified data from USA government agencies, the CIA data are the most widely used in Web and print media. The CIA states that it welcomes public input on its indicators.

Other data for income include products of the International Monetary Fund (IMF), World Bank, various regional development banks such as the Asian Development Bank, and several UN bodies beyond the UNDP. For life expectancy, the World Health Organization (WHO) and the Population and Statistics Divisions of the United Nations are respected sources, while for literacy the United Nations Educational, Scientific and Cultural Organization (UNESCO) is often cited. The World Development Indicators of the World Bank, are also frequently accessed and cited.

All the data used here are compiled by thoughtfully designed efforts, with varying amounts of internal or external peer review and harmonization with other sources. Many such compilations rely on apparently definitive sources for much of their data. However, for the user, it is difficult to ascertain whether any particular official or scholarly sources are more trustworthy than others. One must assume possible conflicts (unwitting or other) in editorial agendas of almost any developers/compilers. Single-nation compilations such as the CIA World Factbook must always have their multicultural appropriateness intellectually vetted by external reviewers before they are used prematurely. However, some international sources may merely accept figures reported by national statistical offices, being constrained not to rigorously peer review such inputs. In addition, they may have internally well-known but externally unpublished agendas, or methodologies, which should be (but may not be) made public. They thus face the risk that advocatorial positions by varying special interests may degrade dependent global data compilations. Indeed, an inspection of the data used here suggests that each source can occasionally produce an anomalous estimate for income, life expectancy, or literacy. This study could not predict which organization might report an anomalous value, or under what circumstances. However, juxtaposing data from several eminent compilers gives the analyst an appreciation of the importance of doing such as part of the quality control effort.

Accepting the imperfection of the source data,[5] this study demonstrates that more geographic completeness is possible, and likely more useful than restricting coverage because one group does not publish a HDI value for an economy (while other potentially useful groups make available the component indicators for that economy).

---

[2] Available in annual print editions, and on a frequently updated Website at http://www.cia.gov/factbook
[3] Indeed, the author has been performing global quantitative analyses since the 1980s using published editions of the World Factbook, before also including HDR data when they became available.
[4] The Web version of the World Factbook may be updated every few weeks as needed, whereas the data used for the HDI lag the publication date generally by about two years.
[5] Indeed, the *only guarantee* of such data compilations is that they are imperfect despite their best intentions. That also goes, probably, for this prototype.

For a study of the connectivity situation in the Pacific (Hastings 2008a), I wanted to include socio-economic analysis of the potential for benefit from improved connectivity. HDI values are offered in recent HDRs for Australia, Fiji, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, and Vanuatu. On the other hand, the HDR omits American Samoa, Cook Islands, French Polynesia, Guam, Hawaii (USA), Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, Niue, Norfolk Island, Northern Mariana Islands, Palau, Tokelau, Tonga, Tuvalu, and Wallis and Futuna. As my efforts to extend the HDI include estimated HDI for such economies, I incorporated those prototype values into the study. An earlier assessment of Asia-Pacific connectivity (Hastings 2006) filled gaps in coverage in recent HDRs for Afghanistan; the Democratic Peoples Republic of Korea; Hong Kong, China; Macau, China; and Taiwan Province of China, to most of the Pacific economies just mentioned. Table A1[6] below presents a list of prototype HDI values, extended to 234 economies worldwide, including two composites (the World and the European Union[7]). Economies in the ESCAP Region, as well as ESCAP Members and Associate Members, have their names listed in bold type. Economies listed outside the ESCAP region are shown to facilitate global context.

Table A1 is the result of decades of developing, compiling, and editing various types of indicators on regional and global bases. In this case, data from such sources as the United Nations Development Programme (HDR data), United Nations Educational, Scientific and Cultural Organization, United Nations Statistics Division, World Health Organization, International Monetary Fund, World Bank, and the CIA World Factbook have been used as inputs to a compositing process for Gross Domestic Product Per Capita at purchasing power parity, literacy rate, and life expectancy at birth. In all, at least four scholarly sources for each of these three indicators were found and averaged – after an extensive editing process that is the subject of another manuscript (as it is too long to be included here).

Table A1 notes by bold characters for the rankings (column 1 in table A1a) which economies are included here beyond those given an HDI in UNDP (2007). Of the 56 economies (including the regional economy of the European Community), 41 are islands (mostly small islands, but Greenland is also one of these 41 additions), 18 economies in the ESCAP region (including four non-members of ESCAP from the region) which also includes 16 small islands in the Pacific. Several of these 56 added economies are least-developed and/or landlocked, such as Afghanistan. Despite the smallness of some of these economies, the richness of their physical, biological and intellectual "gene pools" may extend far beyond their numbers of human inhabitants, and merits their inclusion on the global list, if possible. Thus such prototype indicators permit cautiously more robust assessments of various socio-economic situations. Some examples are given below.

Consistency Issues

It should not be surprising that numerous discrepancies were found in the source data. In general, such discrepancies are small,[8] particularly for larger economies that

---

[6] Table A1 appears as an appendix at the end of this article.

[7] Unlike HDI values for other economies, which are composites of data from multiple sources, those for the World and the European Union only use values reported in the CIA World Factbok. They thus involve less ability to cross-check parameter values and may therefore be less reliable – but may still be useful for prototype assessments.

[8] One may compare GDP per capita values, for example, in Wikipedia at
http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(PPP)_per_capita

receive more attention in data compilations and academic research. Generally, it is the smaller economies, often omitted from the HDR, that sometimes have larger discrepancies. However, even for these, the clustering of values makes them amenable to averaging (e.g. taking the mean of the sample values). A few cases require additional work to resolve apparent large disagreements in reported values.

In one notable example, for some years the diverse sources had reported literacy rates for the Seychelles in the high 50s or the low 90s. These two clusters were difficult to rectify, as data sources tended not to clarify their types or intensities of data quality control.[9] However, further research uncovered reports of a major adult literacy campaign in the country that delivered impressive results. Thus the latter number (currently 92) is the post-project improved value.

In another example, various sources have reported literacy for Angola at 42 per cent (CIA World Factbook relatively recent editions) or ~66 per cent (UNESCO Statistics Division, UNDP HDR recent editions). Being so accessible, the CIA World Factbook figure has been widely used – even to the point of being offered in a country report to a UNESCO meeting. However, the most recent World Factbook has changed to 67.4 per cent.

Two other examples from the Pacific that remain problematic are:

1. *Literacy for Wallis and Futuna.* The CIA World Factbook presents this as 50 per cent, and cites the date of the source estimate as 1969. Because many analysts echo World Factbook figures, that number appears widely in print, and on the Web. However, Gordon (2005) reports literacy at 95 per cent, though Leclerk (2007)[10] notes that the challenge in producing textbooks in local languages (in which schooling is done) presents a obstacle to education in Wallis and Futuna and societies like it, with languages spoken by few people.

2. *Income for Tokelau.* The CIA World Factbook presents this as US$1000, and cites the date of the source estimate as 1993. Writings note the predominance of barter, supplemented by financial assistance from New Zealand and others, in the economy of Tokelau. Such assistance, from New Zealand and others, has increased markedly in the past few years to NZ$13.7 million in the 2007/08 fiscal year, and $17.125 million in FY 2008/09 (see footnote 5). In addition, a trust fund is being created for Tokelau. That trust fund is anticipated to contain about NZ$33 million[11, 12] by 2009. How much should the markedly increased financial assistance and the trust fund be factored into a GDP-per-capita-at-purchasing-power-parity figure for Tokelau, to update the 1993 estimate reported in the CIA World Factbook? For purposes of argument, this paper incorporates a potential "Trust Fund yield" of about 5 per cent as a supplement to Tokelau's GDP per capita figure – leaving all other expenditure to costs of building infrastructure (which may increase paid employment, thus probably also resulting in more money in the pockets of some Tokelauans).

---

[9] For context, see Row and others, (1995) and Hastings and Dunbar (1998, 1999) for attempts at thorough data documentation in another field.

[10] "Comme dans les autres DOM-TOM, la question des manuels scolaires cause également des problémes d'intégration socioculturelle. Le territoire de Wallis-et-Futuna vit une situation de dépendance quasi exclusive de la France, non seulement pour ce qui concerne son système éducatif, mais aussi pour son approvisionnement en manuels et autres documents pédagogiques. . . . Cette situation a favorisé un fort taux d'analphabétisme et d'illettrisme, ce qu'ln peut considérer comme une honte pour un territoire français.

[11] http://www.fmat.govt.nz/Countries/Pacific/Tokelau.php accessed on 2 Sept. 2008.

[12] Winston Peters, 2008. Launch of New Zealand's Pacific Development Strategy. http://www.beehive.govt.nz/release/launch+new+zealand039s+pacific+development+strategy. Notes that FY 2008/09 contributions to Niue/Tokelau Trustfunds are anticipated at $10 million total.

3. *Figures for Norfolk Island.* Several reports infer, for lack of more reliable data, that literacy is roughly on par with Australia, that life expectancy at birth is slightly less (due to relatively modest medical facilities on the island). Another study estimated the GDP per capita to be about 2/3 of 170 per cent of mainland Australia's – so this report approximates that figure to be US$40,000 at purchasing power parity.

There are several examples of:

1. *large discrepancies between various sources.* Examples of this phenomenon include literacy for Kyrgyzstan, where the United Nations Statistics Division until recently reported 51 per cent where the CIA World Factbook, World Bank, HDR and UNESCO report ~98 per cent; Timor-Leste, where the CIA World Factbook reports ~66 per cent where the United Nations Statistics Division, World Health Organization and HDR report ~55 per cent, and income for Tonga, Kiribati, Timor-Leste, Bhutan, and Maldives where the CIA World Factbook, World Bank World Development Indicators, International Monetary Fund or HDR figures show significant discrepancies. For all of these parameters, however, African and/or West Asian economies rank #1 and #2 globally for discrepancies in reported figures. An assessment of discrepancies in reported figures, and the impact of such discrepancies on possible errors in HDI computations is in preparation.

2. *difficulties in producing good indicators for some economies.* Examples of this phenomenon include literacy for Wallis and Futuna and income for Tokelau as noted above, challenges in estimating any of the indicators for the Pitcairn Islands, income for Equatorial Guinea (where large increases in oil revenues have arguably not yet reached most of the people), Cuba (where the UNDP uses other Caribbean economies as calibration – clearly an imperfect approach), Liechtenstein (where the CIA World Factbook uses 1999 estimates even though the government of Liechtenstein reports income figures on its Website and Wikipedia[13] cites a more recent computation done for 2004 by the World Bank, and http://data.un.org sites a figure of $82826.3 as GDP per capita estimated for 2006). Table 1 provides prototype data for these, and other challenging economies – guided by the diversity of sources available to researchers.[14]

Note that, despite the greater geographic inclusiveness of table A1 compared to its equivalent in recent HDRs, there remain opportunities for geographically strengthening the HDI. Firstly, some very small economies, such as the Pitcairn Islands, are still omitted from this list for lack of input data. Secondly, most national economies are sufficiently diverse to deserve subnational parsing of HDI. Parsing between economic engines and socio-economic backwaters of economies would be useful, at a minimum. The growing series of national Human Development Reports partly tackles such issues, as many such reports contain some socio-economic indicators for provinces/states/regions within national economies. Such subnational data, however, are often presented with different agendas than the national figures used here. Thus, subnational HDI values for large provinces/states/regions may not be globally comparable between countries – without some additional work.

---

[13] http://en.wikipedia.org/wiki/Liechtenstein
[14] As those economies are outside Asia and the Pacific, reporting on how those problems were approached to make Table A1 is left for a separate report.

3.   Findings on Asia and the Pacific: Some Examples

Initial discussion on the Basic HDI values themselves

Firstly, how does this prototype Basic HDI compare with UNDP's version, where the latter provides a value which can be compared with this version, shown in table A1.

Comparison between this prototype Basic HDI and the HDI produced by UNDP for the HDR is somewhat akin to comparing the HDR across years.   As noted in several HDRs, comparing data from the 1990 HDR with those of the 2007 HDR is problematic, as methods of computing the HDI, and input data values (even those for specific years) change over time, as recomputations take place.   In the HDR, and in organizations that compile data used in the HDIs, recomputations of values are regularly ongoing. Each global HDR has a table showing retrospectively computed HDRs for covered economies; typically back to 1975 – to show temporal patterns. Those tables are accompanied with caveats – advising scholars to compare values (between different HDR volumes) with extreme caution because of (a) changes in methodology of computing (e.g. adding school life expectancy, then school enrollment to literacy as part of the education component), (b) rescaling of computations (evolving modifications to target literacy, life expectancy, and income figures as the HDI is empirical and is observing moving targets), and (3) recomputations of actual values for literacy, life expectancy, and income as source data are recompiled, re-edited, etc.

It must also be remembered that this prototype Basic HDI sticks with literacy as the sole indicator of knowledge, as was done in the UNDP HDR at the time of the latter's introduction. This is done because (a) the indicators tried by UNDP's HDR team, notably school life expectancy and school enrollment, do not facilitate geographic expansion of the coverage of the HDI, which is the main purpose of this particular approach; but also because (b) school life expectancy and school enrollment are not considered by me to be proxy data for *delivery of knowledge*. Simplistic and problematic as basic literacy data are, they are widespread proxy data for knowledge. This effort considers that the next step up in describing knowledge should also relate to delivery of knowledge. I have been doing some work on this – beyond the scope of this report. In a separate study (Hastings 2008b), I have reported initial findings on adding sophistication to each indicator in the HDI (income, knowledge, and health) – however, at the cost of lesser geographic completeness due to lesser current coverage of the more sophisticated indicators.

Back to the comparisons. If there were significant fundamental differences between this prototype Basic HDI and the index published annually for almost two decades by UNDP the reader should wonder why such might be the case. Fortunately, such differences are relatively small, and can be explained by studying the individual components over time for countries that have the largest differences between this Basic HDI and UNDP's version.   The Basic HDI values presented here, which incorporate data and estimates through 2008, should be expected to increase somewhat from HDI values of the latest available UNDP HDR, from 2007 (which used data only as recent as 2005). Indeed, the mean difference is +.037, the median +.035 between the two indices, where a UNDP HDI exists. The economies with the greatest positive difference between this Basic HDI and values in the 2007 HDR tend to be either (a) economies with markedly increased incomes due to increased oil or other export revenues, or (b) front line states in the battle with HIV/AIDS which have recently achieved progress in lowering death rates due to markedly increased access to

8

improved medications (Joel Jere, ESCAP, 2008, verbal communication).

The 2007 HDR capped GDP per capita at $40,000. That is, any economy with GDP per capita, at purchasing power parity, greater than $40,000 had that additional amount ignored in the computation of the HDI. This researcher asks why should that be so? Should life expectancy greater than 80 years be capped? What about literacy below 30 per cent? In 2007, (using HDR figures for 2005) three economies received lowered HDI values in this manner. However, in the current compilation 14 economies have crossed that $40,000 barrier. Table A1a shows Basic HDI values and rankings without the $40,000 cap, thus indicating the full performance of that economy (so far as GDP per capita at PPP can show). Table A1b shows Basic HDI values and rankings with the $40,000 income cap imposed. Note that, in the rankings of table A1b, Japan ranks third, and Australia ranks 7th, among world economies in HDI. Mean and median differences between Basic HDIs with capped incomes and HDI values of the 2007 UNDP are +.036 and +.034 respectively, a negligible .001 smaller than when the income cap is removed for table A1a.

Discussion on Income

Figure 1 plots income (scaled as shown in column 3 in table A1) vs. HDI. Economies of Asia-Pacific are shown in triangles, with other global economies listed in Table A1 shown as "hollow" circles. The trend line is only for non-Asian-Pacific economies, for comparison. It is interesting to note that, for relatively low Basic HDI values, Asian-Pacific economies tend to slightly lead their global peers. For moderate values of Basic HDI (e.g. in the range of .650-.800+), regional economies lag the trend line – but several of their global peers (that are not oil exporters) also lag the trend line. High Basic HDI economies, in the region and outside, have similar values on figure 1.
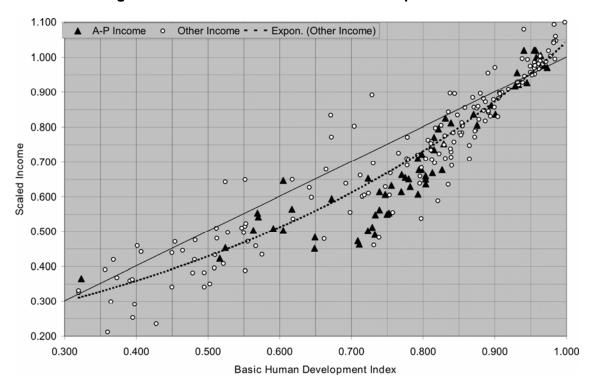
Figure 1. Income[15] vs. Basic Human Development Index

---

[15] Scaled income is shown in column 3, while basic HDI is column 8, of Table A1. "A-P" denotes an Asian-Pacific economy; "other" denotes an economy elsewhere in the world.

Generally, economies above .900 HDI tend to have incomes proportionate to, or higher than, their HDI values – as shown in figure 1 (e.g. situated above the straight, solid, diagonal line). Below about .900 HDI, most economies that are not oil exporters have incomes that are lower than proportionate[16] for their respective HDI (e.g. below the diagonal line).

In particular, the Asian-Pacific economies listed in table 2 have significantly lower income components than their Basic HDI levels. Those with the highest shortfall (those that are first on the list) have the most serious challenges – if they indeed place any emphasis on a balance between economy, health, and education.

Table 2. Asian-Pacific economies with lagging incomes

Economy (lag amount)	*Strength*	*Economy* (lag amount)	*Strength(s)*
Tuvalu (.248)[a]	Literacy[b]	Kiribati (.125)	Literacy
Democratic People's Republic of Korea (.242)	Literacy	Micronesia, Federated States of (.123)	Literacy
Tajikistan (.237)	Literacy	China (.119)	Literacy
Kyrgyzstan (.222)	Literacy	Fiji (.119)	Literacy
Uzbekistan (.219)	Literacy	Niue (.116)	Literacy
Tokelau (.201)	Literacy	Turkmenistan (.105)	Literacy
Viet Nam (.199)	Literacy	Cambodia (.102)	Literacy
Myanmar (.197)	Literacy	Nepal (.094)	Literacy
Wallis and Futuna (.186)	Literacy	Azerbaijan (.083)	Literacy
Mongolia (.185)	Literacy	Lao People's Democratic Republic (.082)	Literacy
Marshall Islands (.176)	Literacy	Thailand (.079)	Literacy
Georgia (.167)	Literacy	Vanuatu (.078)	Literacy
Solomon Islands (.163)	Literacy	Cook Islands (.076)	Literacy
Philippines (.154)	Literacy	Palau (.075)	Literacy
Armenia (.153)	Literacy	Bangladesh (.069)	Life Expectancy
Sri Lanka (.152)	Literacy	Northern Mariana Islands (.069)	Literacy
American Samoa (.149)	Literacy	Nauru (.068)	Literacy
Tonga (.144)	Literacy	Guam (.067)	Literacy
Samoa (.143)	Literacy	Papua New Guinea (.060)	Literacy
Indonesia (.140)	Literacy	India (.053)	Literacy
Maldives (.128)	Literacy		

Notes:
[a.] The "lag amount", e.g. The numbers in parentheses in Table 2, signifies the amount that incomes are disproportionately low compared with Basic HDI = [(HDI) – Inc(scaled)] = {column 8 – column 3} in table A1. "Strength(s)" list components that are correspondingly higher than an economy's HDI.
[b.] An income that is proportionate for HDI would have the same scaled value on both axes in figure 1.

---

[16] An income that is proportionate for HDI would have the same scaled value on both axes in figure 1.

When one component of the HDI significantly lags the HDI itself, this indicates that one or both of the other components are disproportionately high compared to the HDI. In all cases in table 2 but Bangladesh (which also has relatively low literacy rates, but relatively high life expectancy compared to literacy, income and composite HDI), literacy rates are relatively high. This does not indicate that economies can sacrifice investment in education in order to re-prioritize in favour of strengthening an economy. Indeed, literacy is a relatively basic, and sometimes misleading, proxy indicator for knowledge. However, the economies listed in table 2 that wish to strengthen the economic aspects of the HDI equation, may wish to set policies to pursue such (sustainable) economic growth – perhaps taking advantage of proportionately high literacy (or life expectancy in the case of Bangladesh).

Discussion on Literacy

Figure 2 is a plot of literacy (scaled as shown in column 5 table A1) vs. HDI. Economies of Asia-Pacific and ESCAP members are shown in triangles, with other global economies listed in table A1 shown as circles. The trend line is only for non-Asian-Pacific economies, for comparison. Unlike with income, literacy values tend to be proportionately high (e.g. above the straight, solid, diagonal line), for an economy's respective HDI. It is interesting to note that, for relatively low to moderate Basic HDI values (below about .700 HDI), Asian-Pacific economies tend to lag their global peers. Above about .700 HDI, Asian-Pacific literacy values tend to be very high.
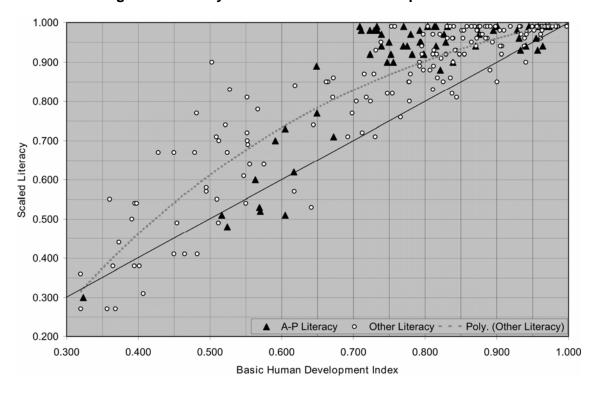
Figure 2. Literacy[17] vs. Basic Human Development Index

As basic literacy, scaled as per the Human Development Index, is in so much better shape than income or life expectancy, we need to drill deeper when compiling lagging

---

[17] Scaled income is shown in column 3, and basic HDI is column 8, of Table A1.

economies in this arena for table 3.

Only Bhutan has a literacy rate more than 0.050 scaled points (column 5 in table A1) lower than HDI (Column 8 in Table A1). Bhutan's literacy is 0.095 scaled points below HDI. Other economies in the region with relatively weaker showings in literacy (compared to respective HDI) include some possible surprises. That several south Asian economies have lagged, particularly with female literacy, has been reported many times, by various sources. Table 3 suggests that the problem persists, even if the literature reports that several states may have narrowed gender literacy gaps, and made progress in overall combating of illiteracy. Bangladesh, for example, has been working hard at education reform.

Table 3. Asian-Pacific economies with lagging literacy indices

Economy (lag amount)	strengths	Economy (lag amount)	strengths
Bhutan (.095)[a]	Income, Life Expectancy	Singapore (.025)	Income
Pakistan (.047)	Life Expectancy	Afghanistan (.023)	Income
Bangladesh (.047)	Life Expectancy	Nepal (.006)	Life Expectancy
Timor-Leste (.042)	Life Expectancy	Brunei Darussalam(.003)	Income
Hong Kong, China (.025)	Income	Macau, China (.003)	Income

Notes:
[a.] The "lag amount" (e.g. figure in parenthesis, the amount by which literacy is disproportionately low compared to Basic HDI) is computed as the difference of Column 8 – Column 5 in Table A1.

The presence of Hong Kong (China) and Singapore (and Brunei Darussalam and Macau, China) may surprise some readers, but scaled literacy values lag income and life expectancy values (perhaps, in both cases, partly reflecting history over the past few decades, but also perhaps consistent with relatively somewhat low education expenditures compared with some peers with similar GDPs per capita). These four economies can be seen below the diagonal parity line on the top right hand corner of figure 3. Indeed, HDR and CIA World Factbook figures for educational expenditure per capita (as a portion of GDP) are relatively low for many of the countries in table 3, compared with their peers. If any of these economies wish to strengthen education results, they can be comfortable in the relatively stronger indicators (as scaled for the HDI) shown in their respective "strengths" column in table 3.

Actually, there are few relative laggards in literacy (as scaled or the HDI) globally as well as in the region. Over forty regional economies have proportionately higher literacy values for their respective HDI value, indicated by most triangles being situated above the straight, solid, diagonal line in figure 3. This is admirable. However, when linked to the observation that forty economies lag in income, it might be worth looking at education beyond basic literacy to more support for creative initiative and reasoned discourse in educational systems. Are educational systems delivering the knowledge needed to develop good lives? Is the additional indicator of school enrollment (used in the HDR and the UNDP HDI) a good indicator of results, or merely an indicator of process (being in school) without directly or indirectly measuring results of school attendance. Such discussion is beyond the scope of this study. However, related work by the author to intellectually extend the HDI toward human security may give an opportunity to discuss this particular issue more fully.

Additionally, this assessment suggests that the comparator used here – parity between the numerical HDI and its scaled educational component, may merit some reassessment. Perhaps the comparator should be trends, such as the shown global trend line. In that case, some economies that have literacy rates slightly higher than their Basic HDI, but still below the global trend for literacy, may also be placed on the table of lagging economies in literacy. This would mean that an economy "X" with, say, HDI of .68 and literacy rate of about 70 per cent might look to economies with similar HDI but higher literacy rates, and see if those economies contain ideas for strategizing economy "X"'s improvements in its education programmes.
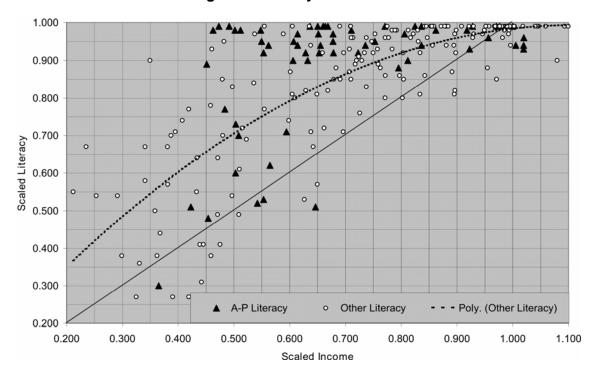
Figure 3. Literacy[18] vs. income

Discussion on Life Expectancy

Figure 4 plots literacy (scaled as shown in column 5 table A1) vs. HDI. Economies of Asia-Pacific are shown in triangles, with other global economies listed in table A1 shown as circles with white interiors, with economies having life expectancies significantly impacted by HIV/AICS shown by circles with grey interiors. The trend line is only for non-Asian-Pacific economies, not so significantly impacted by HIV/AIDS. Unlike with income or literacy, life expectancy values tend to be much closer to proportionate for an economy's respective HDI (e.g. the trend line is rather close to the straight, solid, diagonal line). However, it is interesting to note that while lower-middle HDI economies in Asia-Pacific tend to lie slightly above the diagonal (of proportionality between life expectancy and HDI), moderate-to-higher HDI economies in the region (with HDI above about .700), tend to be slightly below the diagonal of proportionality.

This pattern is even more strongly evident in figure 5. Indeed, many of the highest income economies of the world, and in the region, have life expectancy values slightly disproportionately low (below the diagonal line). Where moderate income economies' investments in health care (and literacy) appear to have delivered, have higher income

---

[18] Scaled literacy is shown in column 5, and scaled income is column 3, of Table A1.

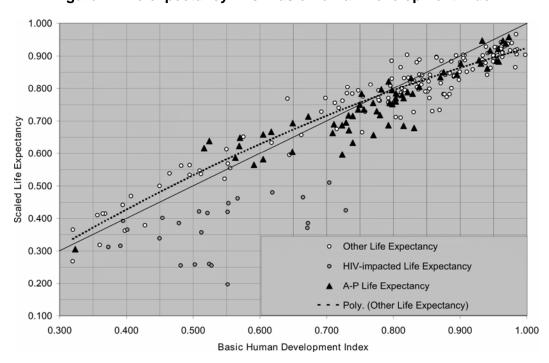economies lost some of that delivery? Or, are there public health issues for such

Figure 4. Life expectancy[19] vs. Basic Human Development Index

"richer" economies, that remain to be addressed? If this paper placed higher emphasis on Africa, a discussion of the recent improvements in life expectancy in many HIV/AIDS-impacted economies would receive more discussion. It might be worth noting, however, that the recent increase in access by more peoples in those economies to more effective medications appears to be lowering mortality rates, with resultant increases in life expectancy at birth for those economies. Hopefully, this will encourage countries in Asia and the Pacific, which are considered threatened by a second wave of HIV/AIDS growth, to combat this disease as Thailand (in the region) and several sub-Saharan African and other countries have done with notable progress now delivering increased life expectancies.

Table 4 lists regional economies with lagging scaled life expectancy indices, as well as their respective HDI relative strengths, as seen by comparing columns 3, 5, and 7 in table A1. The figure in brackets is the difference between HDI and life expectancy (columns 8 and 7 in table A1). It should be noted that the figure for the USA is the national figure – showing life expectancy as the weakest relative component in the USA's HDI. For Hawaii, the Asian-Pacific regional economy, life expectancy has been estimated at about 80 years, which would roughly halve the gap (in parenthesis after the country name in table 4) for the USA (State of Hawaii) to .0.36.

Regional economies with the strongest positive performance in life expectancy compared with their respective Basic HDIs are (in order, from largest positive performance) Bangladesh, Nepal, Pakistan, Timor-Leste and India. That these economies have Basic HDIs of about .51 to about .62., one should ask – how much of this relative longevity is due to lifestyle, and how much to a responsive health care system? Answers are beyond the scope of this report, but might be valuable for their peers in the .500s and .600s ranges of HDI.

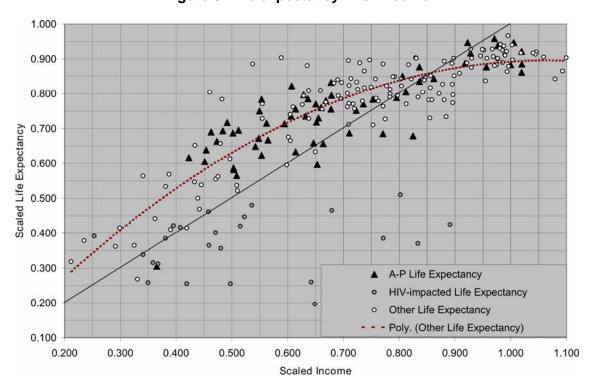[19] Scaled life expectancy is shown in column 7, and HDI is column 8, of Table A1.

Figure 5. Life expectancy[20] vs. income

Table 4. Asian-Pacific economies with lagging life expectancies

Economy (lag amount)	Strength	Economy (lag amount)	Strength
Russian Fed. (.153)[a]	Literacy	Maldives (.061)	Literacy
Kazakhstan (.131)	literacy	Mongolia (.061)	Literacy
Nauru (.125)	Literacy	Singapore (.057)	Income
Turkmenistan (.113)	Literacy	Taiwan, China (.056)	Income
Azerbaijan (.107)	Literacy	Fr. Polynesia (.051)	Literacy
Kiribati (.105)	Literacy	Cook Islands (.046)	Literacy
Brunei Darussalam (.079)	Income	Palau (.046)	Literacy
USA (.068)	Income	Thailand (.045)	Literacy

Notes:
[a.] The "lag amount) (e.g. figure in parentheses) is the amount that life expectancy is disproportionately low compared to Basic HDI. It is computed as the difference: Column 8 – Column 7 in Table A1.

The Human Development Index over time

Tables A5[21] and A6 list HDI values across time, mostly from past HDRs. Without quantitatively over-driving such values by computing "growth percentages across years" it is clear that, even with inconsistencies between HDI values computed in

---

[20] Scaled life expectancy is in column 7, with scaled income in column 3, of Table A1.
[21] Tables A5 and A6 are long, so are given as appendices at the end of this report.

different years or for different years, economies such as China; Hong Kong, China; Indonesia; Japan; Malaysia; Republic of Korea; and Singapore have grown markedly since 1960. In the past thirty years, Bangladesh; India; Indonesia; the Lao People's Democratic Republic; Nepal and Pakistan have grown significantly in HDI; while in the past twenty years, Bhutan and Cambodia have led the pace in the region. Slower developers have tended to be economies that have already reached very high HDI levels, or countries that have undergone traumatic circumstances, such as countries in transition, and several economies in the Pacific which have not been successful in economically capitalizing on their high literacy rates to increase their incomes.

Example application: Connectivity and Human Development

As a country pursues development, many specialists have noted their traditional priority for education and health care, with well-planned and implemented transport, communication, environmental sustainability, hazard risk reduction, and other segments of government services competing next for resources. The HDI can be used to compare with indicators of delivery of such other services, to see what crops up. As a full investigation of all the above-mentioned segments is beyond the scope of this paper (and one might have difficulty finding good indicators of some of those segments), this paper offers information and communication use as an example. Where the International Telecommunication Union first proposed the Digital Access Index, then the Digital Opportunity Index, I have focused on a simpler indicator of delivery (not mixing process or potential with actual delivery), which has also permitted me to be more geographically inclusive. Some reports on the 8th Millennium Development Goal[22] include as associated indicators the number of fixed line telephones, of mobile telephones, and of Internet users as a percentage of a society's population as performance indicators. I (Hastings, 2006) introduced the Connection Index, a straightforward composite[23] of those three indicators, as a prototype indicator of ICT delivery. The same paper (Hastings,2006) offered prototype CI values for all ESCAP members and associate members. A current estimate for the Connection Index, and its components, are given in table A6.[24]

Figure 6 plots Connection Index vs. Basic HDI. The trend line in white is for non-Asian-Pacific economies; that in black is for Asian-Pacific economies. It is immediately apparent that Asian-Pacific economies tend to trail their developmental peers in the middle and upper-middle ranges of development – only possibly passing their developmental peers at the uppermost values of HDI. In a previous (as yet unpublished) study, I found that certain countries, most notably some in the Caribbean, and the Baltic republics, appeared to have relatively high Internet usage for their costs of access and development levels. It might be worth investigating what might cause higher Connectivity Index values in other parts of the world, and what potential benefits and trade-offs might be associated with such connectivity. For example, is the

---

[22] http://www.developmentgoals.org

[23] Connection Index = CI = ((percentage of fixed lines) + (percentage of mobile accounts))/2 + (percentage of Internet users). If none of the percentage of fixed lines, mobile lines and percentage of Internet users does not exceed 100 per cent, the Connection Index will not exceed 200 (100 for phones – blended, and 100 for Internet). Actually, any of these could exceed 100 – for example if everyone had an individual home and work phone, and home and work Internet account. In addition, in several economies, mobile phone usage exceeds 100 per cent (with more than one SIM card active for many individuals.   Source   data   include   the   ITU   World   Telecommunication   Indicators   data, http://www.internetworldstats.org, data on the Commonwealth Secretariat Website, source data summarized in Wikipedia lists of mobile cellular phone carriers in Asia and the Pacific (and other parts of the world), and individual economy Websites.

[24] Table A6 is long, so is placed as an appendix at the end of this report.

dominance of mobile phones over the Internet and fixed lines in many Asian-Pacific economies appropriate? Or, might the mix of services available in appropriate languages for Asian-Pacific communities different from those in some other regions? Are more economically viable, developmentally supportive and/or entertaining services available elsewhere? In any case, where some people believe that Asia-Pacific is driving information and communication technologies, and beneficial applications, compared to elsewhere – this chart suggests that there may be opportunity for re-assessing that hypothesis.
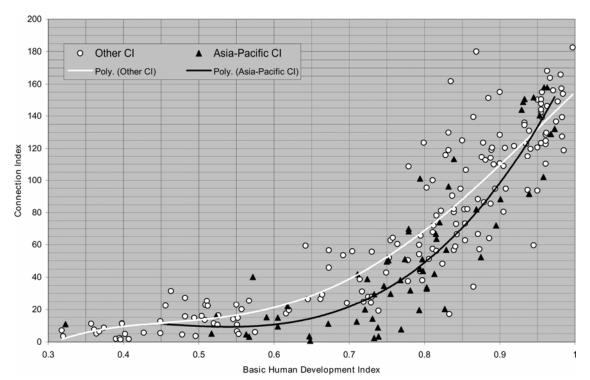
Figure 6. Connection Index[25] vs. Basic Human Development Index

4. Discussion: On the Concept of an HDI

Returning to the assertion of several scholars (e.g. reported in Cahill, 2005 and others), that there is a high degree of correlation between individual components of the HDI, I recall a phrase in my graduate school statistics book (but unfortunately, not the author or title of that book): "The (statistical) least-squares fit is always better than the true fit." Yes, but it is the true fit, not the statistical one, that we seek. Statistical correlation coefficients may hide the diversity of understanding that we can obtain by combining good indicators for "money in the pocket", knowledge, and "a long and healthy life". Thus the assessments sketched above, associated with figures 1-6.

Is GDP per capita at purchasing power parity a good indicator for "money in the pocket"? It's certainly not ideal. Could a better indicator be the minimum wage rate in an economy – the actual one if this differs from the legal one? The figure that I would like to see would be the median net income after required basic housing, food, clothing, education, healthcare and transport costs are deducted, for the three middle income quintiles of an economy. But this might take awhile to develop for 230+ economies. In the meantime, I'll accept GDP per capita at purchasing power parity as

---

[25] The Connection Index is column 6 of table 4.

the best available proxy. However, Hastings (2008b) adds the GINI coefficient as an indicator of egalitarianism of income, in an attempt to enrich the concept of "money in the pocket".

Is simple literacy a good indicator for knowledge? Certainly, this is a non-ideal indicator, as well. But should we be comfortable with the addition of school enrollment as part of this component? I am not. School enrollment describes process, but not necessarily delivery (other than of open doors to current students). How to get an indicator of actual delivery of educational resources to individuals – and their actual benefit from them? How to develop an indicator that cuts through claims that schools are available – in the light of statistics that, for example, about two thirds of Thais outside of Bangkok have left school by the age of about 12?[26] If illiteracy rates are sadly high in another economy, is there true support for adult education to rectify this problem, as was spectacularly demonstrated in the Seychelles not long ago to raise literacy levels from less than 60 per cent to over 90 per cent? If one asks whether this is meaningful, if the education increased token literacy but may have had little real benefit for the people – does a 2006 IMF estimate GDP per capita (at PPP) of almost $20,000 and a Basic HDI of .848 (table 1) suggest some good results in the Seychelles? Hastings (2008b) adds an indicator of egalitarian access to education, regardless of wealth, in an attempt to better describe "knowledge for everyone."

Is simple life expectancy at birth a good indicator for "a long and healthy life". The World Health Organization is working on a new indicator to describe the typical length of healthy life – in response to conditions whereby some people are placed into a fight to prolong life against a debilitating and ultimately fatal illness – sometimes placed into a prolonged period of pain and suffering as such disease advances, prior to actual death. The concept is a worthy one, but may take awhile before it can include 230+ economies. Similarly, infant and child mortality may be useful – but these are more stylized (oriented toward the very young), rather than aimed at the whole life-span of individuals. Hastings (2008b) adds an indicator of egalitarian access to health care resources, regardless of wealth, in an attempt to better describe "a long and healthy life" for everyone.

Beyond adding indicators for egalitarianism of income, access to knowledge and health-supporting resources (which are a prerequisite for true "human development"), the author has been investigating the current situation – possibly supporting the development of a Human Security Index. That process, and a prototype <<HSI>> are described in Hastings (2008b).

Unfortunately, such attempts at more sophisticated indicators result in geographic constraints, as input data are not well compiled for so many countries to date. An elegantly simple HDI, perhaps strengthened by increased geographic completeness, remains a valuable concept, and tool.

I do not run statistical correlations between the income, literacy, life expectancy and HDI[27] – but the reader is invited to do so. Rather, I note that each component: income,

---

[26] UNDP, 2003, 2007. Thailand National Human Development Reports 2003, 2007.

[27] Such correlations have been done by Cahill (2005) and others. Despite relatively high correlation coefficients between the components, one can easily discern meaningful patterns of diversity, which appear to be rather significant – and worthy of assessment in themselves. Indeed, in my early work with the HDI, in 1987 (before the HDI had been named by UNDP, I was performing statistical classifications on my HDIs of the time. One of the remarkable patterns of the time was a cluster around Persian Gulf economies, with relatively high oil-supported incomes, life expectancies that were typical for their HDIs, but literacy rates that were anomalously low, mostly caused by the high gender discrepancies in literacy

literacy and life expectancy, is a diverse statement on the human condition in the region, and globally. The region tends to be relatively well off on literacy, but disparities remain in many economies primarily by wealth, gender, age, and sometimes by minority groups' lesser access to educational resources for various means in Asia and the Pacific. The region tends to be somewhat less well off with regard to life expectancy, with many economies with HDI values of .7 or more (about ¾ of regional economies) lagging their global peers as seen in figure 4. Despite being famous for economic engines, and having several countries with huge current accounts surpluses, the income component appears to be a bit low except at upper income levels – more so for Asia and the Pacific, but also globally – suggesting that the current weighting (to transform from raw GDP PC PPP to the HDI income component) results in low numbers over much of the income range.

The assessments above lead to another question – are the formulae for computing the scaled income, education, and health components of the HDI appropriate? Maybe not. Literacy rates are proportionately high – suggesting that they might be over-weighted. Similarly, income is somewhat low for middle HDI economies, and may be high (but may be unfairly capped at about the figure for the USA – perhaps unfairly hurting economies with greater GDP per capita than the USA's). Actually, perhaps there has been enough (or more than enough, if you wish) tinkering with the HDI over its lifetime. One of the elegances, arguably, of the HDI is its simplicity. Perhaps such simplicity should remain fundamental to its future.

And yet another question. Should the HDI be changed? Is it still timely? Though section 6 below makes some suggestions for change in the HDI, in general, I hope that this paper adequately expresses my admiration with the general approach, and impact, of the HDI. I believe that, with the possible implementation of the suggestions below, the HDI will stand alongside more detailed indices (such as my own attempt at a Human Security Index in Hastings, 2008b), particularly if UNDP extends its own effort geographically, as this paper demonstrates should be possible.

The assessments above also lead to one final question – did this study over-drive the HDI? Is the HDI intended to be a simple indicator? Was this study like the purchaser of an economy car putting expensive performance tyres on it, and trying to drive it like a Ferrari? I expect that some people, who have not tried to extend and understand the HDI in the manner of this report, may have their own views on how to use it. However, I also believe that the HDI, used cautiously with other data, is not merely an illustrative tool, but is also an analytical tool, to help drive national, regional, and global strategies on development.

5.   Discussion: The HDI as an Aid to Strategizing Development

In discussions above, a few strategic suggestions were made on using this Basic HDI to help guide developmental strategies:

A first approach might be to look at table 1a for economies of interest, and look at relative strengths and weaknesses of those economies in the (admittedly somewhat contrived, but potentially still invaluable) context of the HDI. If HDI, subregional, socio-economic, governance or other peer economies demonstrate better performance in that particular sector (income, knowledge or life expectancy), one may find good practices in said economies to use for ideas.

---

that characterized those economies two decades ago. Clear implications for possible educational policy decisions were apparent from such assessments.

This study also looked at other indicators, as possible guides to developmental strategizing. For example, China, Japan, the Russian Federation, Singapore, Malaysia, Taiwan (China), Hong Kong (China), the Islamic Republic of Iran, Indonesia, the Philippines, Thailand, Azerbaijan, Republic of Korea, Uzbekistan, Myanmar, Turkmenistan, Bangladesh, and several other economies in the region run current accounts surplus (in latest available figures reported in several sources such as CIA (2008) and Wikipedia. Though these surpluses vary per capita, they may leave some room for strategizing policy adaptations, and at least modest programmes, to pursue strengthening of either (a) the weakest component of their respective HDIs or (b) those components that are most likely to help increase sustainable development benefiting ones peoples.

In a more specific example, Hastings (2008a) analyzed Basic HDI components for the Pacific, and found that literacy (represented by HDI-scaled literacy as shown in column 5 of table 1) is higher than HDI itself (column 8) for all studied Pacific economies. In addition, scaled income (column 3 of table 1) tended to be lower than Basic HDI for most Pacific economies. In short, the Pacific can be characterized as having at least a core of "bargain knowledge workers" ready for employment or business opportunities rather up the "economic food chain" from basic agriculture or fisheries. Opportunities brought by increased connectivity – in terms of job opportunities (call centers, back-office support) or business opportunities (operating such services, strengthening community-centric tourism businesses, pursuing and marketing cultural creativity from art/crafts/design to television script-writing) are exciting – if supportive environments can be implemented and marketed. Such analysis was only possible because of the Basic HDI, which included the many Pacific economies that have been regularly overlooked by the global HDR.

6.   Conclusions and suggestions

This paper introduces a Basic Human Development Index, geographically extended by over 50 economies beyond those included in UNDP (1990-2007). The paper looks at Asian-Pacific economies, and finds distinct patterns of income, literacy, and life expectancy for various levels of Basic HDI – some of these being consistent with global patterns, some apparently being unique in the region (or, as just noted unique, and significant, for the Pacific).

This study comes at a time of possible transition for the UNDP HDI – implied by the late release of the 2007 HDR, the planned skipping of a HDR in 2008, and the marked increase in number of economies exceeding the FDR's income cap (implying, at a minimum, an adjustment to that $40,000 cap and a re computation of all HDIs to be consistent with such revised cap if it is made).

It is hoped that this effort will offer ideas for further enhancement of UNDP's HDI, to consider (1) extending the geographic completeness of its version of HDI, (2) more thoroughly documenting its compilation efforts especially with respect to the diversity of candidate sources and variations of compilation/editing of source data, and (3) assessing the education component with respect to creating a results-oriented replacement for processes-oriented indicators of school life expectancy or school enrollment.

What are specific suggestions from this study for a continued UNDP global HDR? They are:

1. Consider raising the cap on GDP per capita, perhaps to $100,000, to give a few years' period before many incomes exceed that cap. According to IMF (2008) data and models, Luxembourg and Qatar exceeded $80,000 GDP per capita in 2007 and are expected to exceed $90,000 GDP per capita by 2010, with Luxembourg forecast to exceed 100,000 GDP per capita by 2013. (GDP per capita for Luxembourg and Qatar in table 1a are affected by lower figures by the other sources for income used by this study.)
2. Expand to a more complete global coverage – as this study demonstrates is possible. Should non-members be included? Yes, if this is to be an indicator of truly global importance, all economies should be included.
3. Consider analysis of the disaggregated components of the HDI, as prototyped in section 4 above – as strategic developmental assistance for economies, as an annual component of the HDR.
4. Consider, in national HDRs, attempting to produce disaggregated HDIs that harmonize with the global HDRs, as well as possibly more sophisticated extensions of the concept as might be appropriate and possible with national data and editorial teams. Such geographically disaggregated data would facilitate developmental strategizing – such as helping potential partners helping to strategize locations and types of partnership investments and activities. This would immeasurably increase the value of the global and national HDRs.

Acknowledgements

References

Cahill, M. B. (2005). "Is the Human Development Index redundant?" *Eastern Economic Journal*; vol. 31, pp. 1-6.

Central Intelligence Agency (2008). *World Factbook.* (Washington, DC, U.S. Government Printing Office) www.cia.gov/cia/ publications/factbook
Gordon, Raymond G., Jr., ed. (2005). Ethnologue: Languages of the World, 15th edition. (Dallas, SIL International) www.ethnologue.com

Hastings, David A. (2006). "Asia-Pacific connectivity: the current situation and prognosis" *Asia-Pacific Journal of Information, Communication and Space Technology*, Vol. 1, pp. 13-60. www.unescap.org/icstd/pubs/st_escap_2375.pdf

Hastings, David A., ed. (2008a). *Pacific Connectivity: The Current Situation; Opportunities for Progress* (Bangkok, Thailand, United Nations) www.unescap.org/icstd/pubs/st_escap_2472.pdf

Hastings, David A. (2008b). "Describing the human condition – from human development to human security: an environmental remote sensing and GIS approach" *Proceedings, GIS IDEAS 2008.* (Osaka, Osaka City University)

Hastings, David A., and Paula K. Dunbar (1998). "Development and assessment of the Global Land One-km Base Elevation digital elevation model (GLOBE)" *Archives of Photogrammetry and Remote Sensing*, vol. 32, no. 4, pp. 218-221.

Hastings, David A., and Paula K. Dunbar (2000). "Topographic Data" in Ryutaro Tateishi and David A. Hastings, eds. *Global Environmental Databases: Present Situation – Future Directions* (Hong Kong, China, GeoCarto International Centre) pp. 41-67.

Hastings, David A., and Paula K. Dunbar (1999). *Global Land One-kilometer Base Elevation (GLOBE) Digital Elevation Model, Documentation* (Boulder, Colorado, National Oceanic and Atmospheric Administration, National Geophysical Data Center, Key to Geophysical Records Documentation 34)

IMF (2008). *World Economic Outlook Database.* (Washington, DC, International Monetary Fund, April 2008)

Leclerk, Jacques (2007). *L'amenagement lingistique dans le monde.* (Quebec, Canada, University of Laval) www.tlfq.ulaval.ca/axl/

Row, Lee W., III, David A., Hastings, and Paula K. Dunbar (1995). *TerrainBase Worldwide Digital Terrain Data, Documentation Manual* (Boulder, Colorado, National Oceanic and Atmospheric Administration, National Geophysical Data Center, Key to Geophysical Records Documentation 30)

UNDP, 1990-2007. *Human Development Report* (New York, United Nations Development Programme) http://hdr.undp.org

Table A1. Geographically extended prototype
Basic Human Development Index

Table A1a. Basic Human Development Index -
Computed and ranked with no income cap

Economies in Table 1a, not given an HDI by UNDP in Table 1 of UNDP (2007) are denoted by ***bold italic underlining*** in column 1.

Economies in **Asia-Pacific**, and/or **ESCAP Members**, are highlighted in **bold type** in column 2**.**

Components which are significantly ($\geq$ 0.050 scaled value points) below an economy's HDI are highlighted in ***bold italics*** in respective columns 3, 5, or 7.

Components which are significantly ($\geq$ 0.50 scaled value points) higher than an economy's HDI are highlighted by **bold underlining** in respective columns 3, 5, or 7**.**

	Column 1	Col . 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Economy	Income[a] Blend	Income[b] (scaled)	Literacy[c] Blend	Literacy[d] (scaled)	Life Expectancy[e] Blend	Life Expectancy[f] (scaled)	Basic[g] HDI
1	Luxembourg	72 664	**1.100**	99	0.990	79.2	*0.903*	0.997
2	Jersey	57 000	**1.059**	99	0.990	79.3	*0.905*	0.985
3	Andorra	38 800	0.995	99	0.990	83.0	0.967	0.984
4	Cayman islands	52 707	**1.046**	99	0.985	80.2	*0.919*	0.983
5	Liechtenstein	52 150	**1.044**	99	0.990	79.8	*0.913*	0.983
6	Norway	50 891	**1.040**	99	0.990	80.0	*0.917*	0.982
7	Bermuda	69 900	1.093	99	0.985	76.9	*0.865*	0.981
8	Switzerland	40 581	1.002	99	0.990	81.4	0.940	0.977
9	Guernsey	44 600	1.018	99	0.990	80.0	*0.917*	0.975
10	**Japan**	33 553	0.971	99	0.990	82.5	0.958	0.973
11	Iceland	37 169	0.988	99	0.990	81.2	0.936	0.971
12	**Australia**	34 784	0.977	99	0.990	81.3	0.938	0.968
13	Sweden	35 657	0.981	99	0.990	80.8	0.930	0.967
14	**Netherlands**	37 644	0.990	99	0.990	79.6	*0.910*	0.963
15	Canada	36 570	0.985	98	0.980	80.5	0.925	0.963
16	**Hong Kong, China**	41 296	1.005	94	0.938	81.8	0.947	0.963
17	Austria	37 509	0.989	99	0.985	79.7	*0.912*	0.962
18	**France**	32 799	0.967	99	0.990	80.7	0.928	0.961
19	Ireland	40 765	1.003	99	0.985	78.8	*0.896*	0.961
20	Gibraltar	38 200	0.992	97	0.970	80.3	0.921	0.961
21	San Marino	35 840	0.982	96	0.960	81.5	0.942	0.961
22	**Singapore**	44 928	**1.019**	93	0.934	80.3	*0.922*	0.959
23	**Norfolk Island**	40 000	1.000	99	0.990	78	*0.883*	0.958
24	**United Kingdom**	34 756	0.977	99	0.990	79.1	*0.902*	0.956
25	Monaco	30 000	0.952	99	0.990	80.5	0.926	0.956
26	Finland	34 875	0.977	99	0.990	79.0	*0.899*	0.955
27	Germany	33 216	0.969	99	0.990	79.4	0.907	0.955
28	Belgium	34 686	0.976	99	0.990	79.0	*0.900*	0.955
29	Denmark	36 644	0.985	99	0.990	78.4	*0.890*	0.955
30	Italy	29 963	0.952	99	0.987	80.5	0.925	0.955
31	**United States of America**	45 020	**1.020**	96	0.955	78.1	*0.885*	0.953

23

	Column 1	Col . 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Economy	Income[a] Blend	Income[b] (scaled)	Literacy[c] Blend	Literacy[d] (scaled)	Life Expectancy[e] Blend	Life Expectancy[f] (scaled)	Basic[g] HDI
32	Spain	29 536	0.949	98	0.975	80.6	0.927	0.950
33	Faroe Islands	31 000	0.957	99	0.990	79.1	0.902	0.950
34	Man, Isle of	34 375	0.975	99	0.990	78.0	*0.884*	0.950
35	British Virgin Islands	38 500	0.994	98	0.978	76.8	*0.863*	0.945
36	**New Zealand**	25 977	0.928	99	0.990	80.0	0.917	0.945
37	EUROPEAN UNION	29 325	0.948	99	0.990	78.5	*0.892*	0.943
38	Greece	28 962	0.946	97	0.970	79.5	0.908	0.941
39	**Brunei Darussalam**	44 955	**1.019**	94	0.936	76.7	*0.861*	0.939
40	Qatar	64 432	**1.080**	90	0.896	75.5	*0.841*	0.939
41	Israel	26 029	0.928	96	0.955	80.7	0.929	0.937
42	Kuwait	39 117	0.996	94	0.937	77.7	*0.878*	0.937
43	Cyprus	26 285	0.930	97	0.975	79.1	0.901	0.935
44	Falkland Islands	25 000	0.922	99	**0.990**	78.3	*0.888*	0.933
45	**Macau, China**	25 175	0.923	93	0.930	81.8	0.947	0.933
46	Slovenia	26 240	0.930	99	**0.993**	77.5	*0.875*	0.933
47	**Taiwan Province of China**	30 801	0.956	96	0.961	77.6	*0.876*	0.931
48	**Republic of Korea**	24 464	0.918	98	**0.984**	78.2	0.887	0.929
49	Czech Republic	23 080	0.908	99	**0.990**	76.5	*0.858*	0.919
50	Aruba	21 800	0.899	98	**0.975**	76.1	*0.851*	0.908
51	Portugal	21 277	0.895	94	0.940	78.2	0.886	0.907
52	Malta	21 685	0.898	92	0.915	79.1	0.902	0.905
53	Puerto Rico	19 600	0.881	94	0.939	78.6	0.894	0.905
54	Martinique	14 400	*0.829*	98	**0.979**	79.2	0.903	0.904
55	**Guam**	15 000	*0.836*	99	**0.990**	77.6	0.877	0.901
56	United Arab Emirates	33 641	**0.971**	85	*0.850*	77.8	0.880	0.900
57	Barbados	16 921	0.856	99	**0.992**	76.1	0.851	0.900
58	Slovakia	19 257	0.878	99	**0.994**	74.6	*0.827*	0.900
59	**French Polynesia**	17 500	0.862	98	**0.980**	75.6	*0.844*	0.895
60	US Virgin Islands	14 500	*0.831*	95	**0.950**	79.1	0.901	0.894
61	Poland	15 808	0.845	99	**0.992**	75.3	*0.838*	0.892
62	Bahrain	30 484	0.955	88	0.879	75.2	*0.836*	0.890
63	Croatia	15 500	0.842	99	**0.985**	75.5	0.841	0.889
64	Chile	13 373	*0.817*	96	**0.964**	78.0	0.883	0.888
65	Hungary	18 529	0.872	99	**0.992**	73.0	*0.800*	0.888
66	Netherlands Antilles	16 000	0.847	96	**0.964**	75.8	0.846	0.886
67	Estonia	19 616	0.881	99	**0.994**	71.9	*0.781*	0.885
68	Bahamas	21 440	0.896	97	**0.973**	71.4	*0.773*	0.881
69	Argentina	13 737	*0.822*	97	**0.975**	75.5	0.841	0.879
70	Lithuania	17 148	0.859	99	**0.994**	71.9	*0.782*	0.878
71	Latvia	16 608	0.853	99	**0.995**	71.9	*0.781*	0.876
72	**Northern Mariana Islands**	12 500	*0.806*	97	**0.970**	76.0	0.849	0.875
73	Turks & Caicos Islands	11 500	*0.792*	98	**0.980**	75.9	0.848	0.873
74	Costa Rica	10 163	*0.771*	96	**0.958**	78.1	0.885	0.871
75	Uruguay	11 292	*0.789*	98	**0.977**	75.9	0.848	0.871
76	Cyprus, TR North	16 900	0.856	94	**0.940**	74.0	*0.817*	0.871
77	Greenland	20 000	0.884	99	**0.990**	69.0	*0.733*	0.869
78	**New Caledonia**	15 000	0.836	94	**0.935**	75.1	0.835	0.869
79	Saint Pierre and Miquelon	7 000	*0.709*	99	**0.990**	78.7	0.895	0.865
80	Anguilla	8 800	*0.747*	95	**0.950**	78.8	0.897	0.865
81	Trinidad & Tobago	16 793	0.855	99	**0.985**	68.8	*0.730*	0.857
82	Bulgaria	10 941	*0.784*	98	**0.983**	72.9	*0.798*	0.855

Column 1		Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Economy	Income[a] Blend	Income[b] (scaled)	Literacy[c] Blend	Literacy[d] (scaled)	Life Expectancy[e] Blend	Life Expectancy[f] (scaled)	Basic[g] HDI
83	Serbia	10 535	*0.777*	96	**0.964**	74.3	0.822	0.854
84	Mexico	12 318	0.803	92	**0.918**	75.5	0.841	0.854
85	Saint Kitts and Nevis	13 002	0.812	98	**0.978**	71.2	*0.770*	0.853
86	Romania	10 931	*0.783*	98	**0.977**	72.4	*0.790*	0.850
87	Seychelles	14 801	0.834	92	**0.920**	72.4	*0.791*	0.848
88	Oman	21 341	**0.895**	81	0.808	74.6	0.827	0.843
89	Venezuela	10 955	*0.784*	93	**0.932**	73.7	0.811	0.842
90	Panama	9 346	*0.757*	93	**0.926**	75.5	0.841	0.841
91	Macedonia, TFYR	8 303	*0.738*	96	**0.964**	74.0	0.816	0.839
92	Guadeloupe	7 900	*0.729*	90	**0.900**	78.3	0.888	0.839
93	**Malaysia**	12 944	0.812	90	**0.900**	73.3	0.805	0.839
94	Bosnia & Herzegovina	7 187	*0.713*	96	**0.960**	75.6	0.843	0.839
95	Albania	6 241	*0.690*	99	**0.986**	75.4	0.840	0.839
96	Saudi Arabia	21 515	**0.896**	82	0.816	72.8	0.797	0.837
97	Antigua & Barbuda	15 575	0.843	86	0.859	73.2	0.803	0.835
98	Cuba	4 500	*0.635*	99	**0.986**	77.8	0.879	0.833
99	Montenegro	7 045	*0.710*	96	**0.964**	74.4	0.823	0.832
100	Belarus	10 387	*0.775*	99	**0.995**	68.6	*0.727*	0.832
101	**Russian Federation**	14 008	0.825	99	**0.992**	65.7	*0.679*	0.832
102	**Cook Islands**	9 100	*0.753*	95	**0.950**	72.0	0.783	0.829
103	Saint Lucia	8 933	*0.750*	92	**0.916**	74.1	0.818	0.828
104	**American Samoa**	5 800	*0.678*	97	**0.970**	74.9	0.832	0.827
105	Libya	12 387	0.804	85	0.847	74.3	0.821	0.824
106	Dominica	7 648	*0.724*	91	**0.910**	75.0	0.833	0.822
107	Montserrat	3 400	*0.589*	97	**0.970**	79.2	**0.903**	0.821
108	**Turkey**	11 727	0.795	88	**0.877**	72.3	0.788	0.820
109	Ecuador	6 508	*0.697*	92	**0.921**	74.9	0.831	0.816
110	Mauritius	11 845	0.797	86	0.857	72.7	0.795	0.816
111	**Kazakhstan**	10 130	0.771	99	**0.992**	66.1	*0.685*	0.816
112	**Thailand**	8 215	*0.736*	94	**0.939**	71.2	0.770	0.815
113	**Tonga**	5 492	*0.669*	99	**0.989**	71.8	0.780	0.813
114	Colombia	6 926	*0.707*	93	**0.931**	73.0	0.799	0.812
115	Saint Vincent & the Grenadines	8 131	*0.734*	92	**0.921**	71.7	0.779	0.811
116	Grenada	9 110	*0.753*	97	**0.970**	67.6	*0.710*	0.811
117	French Guiana	8 300	*0.738*	83	0.830	76.9	**0.865**	0.811
118	Brazil	9 424	*0.759*	89	**0.887**	72.2	0.786	0.811
119	Lebanon	9 656	0.763	88	**0.876**	71.7	0.779	0.806
120	**Georgia**	4 522	*0.636*	99	**0.990**	72.1	0.784	0.803
121	Ukraine	7 023	*0.710*	99	**0.989**	67.7	*0.712*	0.803
122	**Samoa**	5 215	*0.660*	99	**0.989**	70.6	0.760	0.803
123	**Armenia**	4 923	*0.650*	99	**0.989**	71.2	0.769	0.803
124	Reunion	6 000	*0.683*	88	**0.885**	74.8	0.831	0.799
125	**Palau**	7 600	*0.723*	92	**0.920**	70.1	0.752	0.798
126	Saint Helena	2 500	*0.537*	97	**0.970**	78.1	**0.884**	0.797
127	**China**	5 824	*0.678*	92	**0.918**	72.7	0.795	0.797
128	Jordan	5 183	*0.659*	92	**0.916**	73.5	0.809	0.795
129	**Azerbaijan**	7 068	*0.711*	98	**0.985**	66.2	*0.687*	0.794
130	**Niue**	5 800	*0.678*	95	**0.950**	70.3	0.754	0.794
131	Paraguay	4 571	*0.638*	94	**0.935**	73.5	0.808	0.794
132	Suriname	7 461	*0.720*	90	**0.903**	70.4	0.757	0.793

	Column 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Economy	Income[a] Blend	Income[b] (scaled)	Literacy[c] Blend	Literacy[d] (scaled)	Life Expectancy[e] Blend	Life Expectancy[f] (scaled)	Basic[g] HDI
133	**Wallis and Futuna**	3 800	*0.607*	95	**0.950**	74.3	0.822	0.793
134	Peru	7 366	*0.718*	89	**0.890**	71.2	0.770	0.793
135	**Sri Lanka**	4 325	*0.629*	92	**0.919**	72.8	0.796	0.781
136	**Maldives**	4 952	*0.651*	97	**0.969**	68.1	*0.718*	0.779
137	Jamaica	6 261	*0.690*	85	**0.855**	72.6	0.793	0.779
138	**Iran (Islamic Republic of)**	10 153	0.771	80	0.802	70.8	0.764	0.779
139	Dominican republic	6 922	*0.707*	87	**0.867**	70.7	0.761	0.778
140	Belize	7 031	*0.710*	85	**0.853**	71.3	0.771	0.778
141	**Fiji**	5 072	*0.655*	94	**0.935**	68.8	0.730	0.774
142	**Turkmenistan**	5 336	*0.664*	99	**0.987**	64.4	*0.656*	0.769
143	**Philippines**	3 960	*0.614*	94	**0.935**	70.3	0.755	0.768
144	Tunisia	7 735	0.726	76	0.755	73.7	0.812	0.764
145	Moldova	2 774	*0.555*	99	**0.991**	68.7	0.728	0.758
146	**Fed. States of Micronesia**	4 417	*0.632*	90	**0.900**	69.1	0.734	0.755
147	El Salvador	5 483	*0.668*	82	**0.823**	71.5	0.775	0.755
148	Guyana	3 747	*0.605*	99	**0.989**	64.9	*0.665*	0.753
149	**Viet Nam**	2 753	*0.553*	92	**0.921**	72.0	0.783	0.752
150	**Tokelau**	2 690	*0.549*	95	**0.950**	70.0	0.750	0.750
151	Syria	4 332	*0.629*	82	**0.825**	72.6	0.793	0.749
152	**Indonesia**	3 776	*0.606*	90	**0.897**	69.1	0.735	0.746
153	WORLD	9 244	0.756	79	0.790	66.2	*0.687*	0.744
154	**Kiribati**	3 965	*0.614*	97	**0.970**	63.0	*0.634*	0.739
155	Kosovo	1 800	*0.482*	95	**0.950**	72.0	0.783	0.739
156	**Marshall Islands**	2 900	*0.562*	94	**0.937**	67.9	0.714	0.738
157	**Dem. People's Rep. of Korea**	1 900	*0.491*	99	**0.990**	68.0	0.717	0.733
158	**Mongolia**	2 668	*0.548*	98	**0.978**	65.3	*0.672*	0.733
159	**Uzbekistan**	2 149	*0.512*	98	**0.984**	66.7	0.695	0.731
160	Algeria	6 484	0.696	71	0.710	72.1	**0.785**	0.730
161	Palestinian Authority	1 578	*0.460*	93	**0.926**	73.2	**0.803**	0.730
162	Equatorial Guinea	20 842	**0.891**	87	**0.870**	50.5	*0.425*	0.729
163	Cape Verde	3 860	*0.610*	80	**0.804**	70.7	0.761	0.725
164	**Kyrgyzstan**	2 023	*0.502*	98	**0.984**	66.2	0.687	0.724
165	**Nauru**	5 000	*0.653*	92	**0.915**	60.8	*0.596*	0.721
166	Honduras	3 742	*0.605*	81	**0.812**	69.4	0.740	0.719
167	Bolivia	3 665	*0.601*	87	**0.875**	65.5	0.675	0.717
168	Egypt	5 278	*0.662*	72	0.725	70.3	0.755	0.714
169	**Tuvalu**	1 600	*0.463*	98	**0.980**	66.4	0.690	0.711
170	**Tajikistan**	1 702	*0.473*	99	**0.994**	64.8	0.663	0.710
171	Gabon	12 220	**0.802**	80	**0.798**	55.6	*0.510*	0.704
172	Nicaragua	2 777	*0.555*	77	**0.766**	71.2	**0.770**	0.697
173	Guatemala	4 572	0.638	71	0.710	68.7	0.729	0.692
174	Botswana	14 747	**0.833**	81	**0.814**	47.2	*0.370*	0.673
175	South Africa	10 176	**0.772**	86	**0.862**	48.1	*0.385*	0.673
177	Namibia	5 851	0.679	85	**0.847**	52.9	*0.465*	0.664
178	Sao Tome & Principe	1 766	*0.479*	85	**0.850**	64.4	0.656	0.662
179	**Myanmar**	1 492	*0.451*	89	**0.890**	61.3	0.605	0.648
180	**Solomon islands**	1 815	*0.484*	77	**0.766**	66.6	0.693	0.647
181	Iraq	3 600	0.598	74	**0.741**	60.7	0.595	0.645
182	Morocco	4 260	0.626	53	*0.533*	71.1	**0.768**	0.642
183	Congo, Republic of	2 481	*0.536*	84	**0.843**	53.8	*0.480*	0.620
184	**India**	2 945	*0.565*	62	0.621	65.0	0.667	0.618

26

	Column 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	Economy	Income[a] Blend	Income[b] (scaled)	Literacy[c] Blend	Literacy[d] (scaled)	Life Expectancy[e] Blend	Life Expectancy[f] (scaled)	Basic[g] HDI
_185_	Mayotte	4 900	0.650	57	_0.565_	63.0	0.633	0.616
186	**Cambodia**	2 040	_0.503_	73	**0.731**	59.9	0.581	0.605
187	**Bhutan**	4 804	0.646	51	_0.510_	64.5	0.658	0.605
188	**Lao People's Democratic Rep.**	2 104	_0.508_	70	**0.699**	58.9	0.564	0.590
189	Comoros	1 346	_0.434_	64	**0.639**	64.1	**0.651**	0.575
190	**Pakistan**	2 574	0.542	52	_0.525_	63.9	**0.648**	0.572
191	Kenya	1 557	_0.458_	78	**0.782**	52.7	_0.462_	0.567
192	**Timor-Leste**	2 750	0.553	53	0.525	62.4	**0.623**	0.567
193	**Papua New Guinea**	2 036	_0.503_	60	0.598	60.2	0.587	0.563
194	Ghana	1 682	_0.471_	64	0.644	58.3	0.555	0.557
195	Djibouti	2 287	0.522	69	**0.691**	51.8	_0.446_	0.553
196	Cameroon	2 189	0.515	72	**0.723**	50.2	_0.419_	0.552
197	Madagascar	1 019	_0.387_	70	**0.697**	59.1	0.568	0.551
198	Yemen	1 959	_0.497_	54	0.543	61.8	**0.613**	0.551
199	Swaziland	4 880	**0.649**	81	**0.806**	36.8	_0.196_	0.550
200	Sudan	2 121	0.510	61	**0.606**	56.3	0.522	0.546
201	Lesotho	1 970	0.497	83	**0.826**	40.3	_0.254_	0.526
202	Angola	4 690	**0.642**	67	**0.673**	40.6	_0.259_	0.525
203	**Bangladesh**	1 517	_0.454_	48	0.476	63.3	**0.638**	0.523
204	Tanzania	1 150	_0.408_	74	**0.737**	50.0	_0.417_	0.520
205	**Nepal**	1 259	_0.423_	51	0.511	62.0	**0.617**	0.517
206	Mauritania	2 109	0.509	49	0.492	57.2	0.536	0.512
207	Nigeria	1 775	0.480	70	**0.695**	46.4	_0.357_	0.511
208	Haiti	1 339	_0.433_	55	0.547	57.8	0.547	0.509
209	Uganda	1 066	_0.395_	71	**0.707**	50.3	_0.421_	0.508
210	Zimbabwe	813	_0.350_	90	**0.904**	40.5	_0.259_	0.504
211	Eritrea	771	_0.341_	58	**0.584**	58.8	**0.564**	0.496
212	Togo	983	_0.381_	57	**0.568**	57.0	0.533	0.494
213	Senegal	1 725	0.475	41	_0.410_	58.7	**0.562**	0.482
214	Zambia	1 232	_0.419_	77	**0.772**	40.3	_0.255_	0.482
215	Rwanda	980	_0.381_	67	**0.669**	48.1	_0.384_	0.478
216	Gambia	1 441	0.445	41	_0.405_	57.3	**0.538**	0.463
217	Cote d'Ivoire	1 678	0.471	49	0.494	49.1	0.402	0.456
218	Benin	1 389	0.439	41	0.409	55.0	**0.500**	0.449
219	Malawi	770	_0.341_	67	**0.667**	45.3	_0.338_	0.449
220	Congo, Demo. Rep. of the	409	_0.235_	67	**0.667**	47.7	0.378	0.427
221	Guinea	1 413	0.442	31	_0.311_	53.1	**0.469**	0.407
222	Chad	1 564	**0.459**	38	0.383	46.9	0.365	0.402
223	Guinea-Bissau	573	_0.291_	54	**0.541**	46.7	0.361	0.398
224	Ethiopia	876	0.362	38	0.384	51.5	0.442	0.396
225	Burundi	456	_0.253_	54	**0.542**	48.5	0.391	0.395
226	Central African Republic	856	0.358	50	**0.495**	43.9	_0.315_	0.390
227	Mozambique	905	0.368	44	**0.442**	43.7	_0.312_	0.374
228	Burkina Faso	1 233	**0.419**	27	_0.271_	49.9	0.415	0.368
_229_	Somalia	600	_0.299_	38	0.378	49.9	**0.414**	0.364
_230_	Liberia	356	_0.212_	55	**0.554**	44.1	0.318	0.361
231	Mali	1 036	0.390	27	_0.272_	49.6	**0.410**	0.357
_232_	**Afghanistan**	891	0.365	30	0.300	43.3	0.305	0.323
233	Niger	700	0.325	27	_0.269_	46.9	0.365	0.320
234	Sierra Leone	725	0.331	36	0.356	41.1	_0.268_	0.318

Note: Parameters (including weights) are the result of averaging processes, and are displayed

at lower precision than the actual averaging process. Thus some apparent blunders (e.g. "identical" life expectancies of Denmark and the USA truncated to 4 significant digits resulting in slightly different scaled values for apparently (but not truly) identical average values are the result of such truncating.

a. "Income Blend" is short for Gross Domestic Product Per Capita at Purchasing Power Parity un US$, edited and averaged from four sources (International Monetary Fund, World Development Indicators, HDR and CIA World Factbook reported values.

b. "Income (scaled)" is the income blend run through the weighting formula used by the UNDP Human Development Index (and described in Human Development Reports), with the exception that the HDR's ignoring of incomes above US$40,000 is replaced with a policy of incorporating all income levels (thus allowing this component to have weights above 1.000).

c. "Literacy Blend" is an edited mean of literacy values (in percentage of population) from five sources (UN statistics, UNESCO statistics, World Development Indicators, HDR and CIA World Factbook).

d. "Literacy (scaled)" is the literacy blend run through the weighting formula used by the UNDP Human Development Index. Where the HDR also incorporates school enrollment, that indicator is not used here due to geographic unevenness of that parameter – including lack of availability from multiple sources for many economies listed here.

e. "Life Expectancy blend" is the Life Expectancy at Birth (in years), edited and averaged from four sources (World Health Organization, UN Statistics, HDR and CIA World Factbook).

f. "Life Expectancy (scaled)" is the Life Expectancy at Birth blend run through the weighting formula of the UNDP Human Development Index.

g. "Basic HDI" is the mean of the three indices for income, literacy, and life expectancy.

Table A1b. Basic Human Development Index – Re-ranked with income capped at $40 000 as per the latest published UNDP HDI methodology[28]

Economies in Table A1b, not given an HDI by UNDP in Table 1 of UNDP (2007) are denoted by *__bold italic underlining__* in column 1.

Economies in **Asia-Pacific**, and/or **ESCAP Members**, are highlighted in **bold type** in column 2**.**

Components which are significantly (≥ 0.050 scaled value points) below an economy's HDI are highlighted in ***bold italics*** in respective columns 3, 5, or 7.

Components which are significantly (≥ 0.50 scaled value points) higher than an economy's HDI are highlighted by **__bold underlining__** in respective columns 3, 5, or 7**.**

	Economy	Income Blend	Income (scaled)	Literacy Blend	Literacy (scaled)	Life Expectancy Blend	Life Expectancy (scaled)	Basic HDI
1	Andorra	38 800	0.995	99	0.990	83.0	0.967	0.984
2	Switzerland	**40 000**	1.000	99	0.990	81.4	0.940	0.977
3	**Japan**	33 553	0.971	99	0.990	82.5	0.958	0.973
4	Iceland	37 169	0.988	99	0.990	81.2	0.936	0.971
5	Norway	**40 000**	1.000	99	0.990	80.0	0.917	0.969
6	Guernsey	**40 000**	1.000	99	0.990	80.0	0.917	0.969
7	**Australia**	34 784	0.977	99	0.990	81.3	0.938	0.968
8	Cayman islands	**40 000**	1.000	99	0.985	80.2	0.919	0.968
9	Liechtenstein	**40 000**	1.000	99	0.990	79.8	0.913	0.968
10	Sweden	35 657	0.981	99	0.990	80.8	0.930	0.967
11	Jersey	**40 000**	1.000	99	0.990	79.3	0.905	0.965
12	Luxembourg	**40 000**	1.000	99	0.990	79.2	0.903	0.964
13	Netherlands	37 644	0.990	99	0.990	79.6	0.910	0.963
14	Canada	36 570	0.985	98	0.980	80.5	0.925	0.963
15	Austria	37 509	0.989	99	0.985	79.7	0.912	0.962
16	**France**	32 799	0.967	99	0.990	80.7	0.928	0.961
17	**Hong Kong, China**	**40 000**	1.000	94	0.938	81.8	0.947	0.961
18	Gibraltar	38 200	0.992	97	0.970	80.3	0.921	0.961
19	San Marino	35 840	0.982	96	0.960	81.5	0.942	0.961
20	Ireland	**40 000**	1.000	99	0.985	78.8	0.896	0.960
21	**Norfolk Island**	40 000	1.000	99	0.990	78.0	0.883	0.958
22	**United Kingdom**	34 756	0.977	99	0.990	79.1	0.902	0.956
23	Monaco	30 000	0.952	99	0.990	80.5	0.926	0.956
24	Finland	34 875	0.977	99	0.990	79.0	0.899	0.955
25	Germany	33 216	0.969	99	0.990	79.4	0.907	0.955
26	Belgium	34 686	0.976	99	0.990	79.0	0.900	0.955
27	Denmark	36 644	0.985	99	0.990	78.4	0.890	0.955
28	Italy	29 963	0.952	99	0.987	80.5	0.925	0.955
29	**Singapore**	**40 000**	1.000	93	0.934	80.3	0.922	0.952
30	Spain	29 536	0.949	98	0.975	80.6	0.927	0.950
31	Bermuda	**40 000**	1.000	99	0.985	76.9	0.865	0.950
32	Faroe Islands	31 000	0.957	99	0.990	79.1	0.902	0.950

---

[28] The table only shows the 50 highest-ranked economies, as all others have the same Basic HDI, and rankings, as in table A1a.

	Economy	Income Blend	Income (scaled)	Literacy Blend	Literacy (scaled)	Life Expectancy Blend	Life Expectancy (scaled)	Basic HDI
33	Man, Isle of	34 375	0.975	99	0.990	78.0	0.884	0.950
34	**United States**	**40 000**	1.000	96	0.955	78.1	0.885	0.947
35	British Virgin Islands	38 500	0.994	98	0.978	76.8	0.863	0.945
36	**New Zealand**	25 977	0.928	99	0.990	80.0	0.917	0.945
37	EUROPEAN UNION	29 325	0.948	99	0.990	78.5	0.892	0.943
38	Greece	28 962	0.946	97	0.970	79.5	0.908	0.941
39	Israel	26 029	0.928	96	0.955	80.7	0.929	0.937
40	Kuwait	39 117	0.996	94	0.937	77.7	0.878	0.937
41	Cyprus	26 285	0.930	97	0.975	79.1	0.901	0.935
42	Falkland Islands	25 000	0.922	99	0.990	78.3	0.888	0.933
43	**Macau, China**	25 175	0.923	93	0.930	81.8	0.947	0.933
44	Slovenia	26 240	0.930	99	0.993	77.5	0.875	0.933
45	**Brunei Darussalam**	**40 000**	1.000	94	0.936	76.7	0.861	0.933
46	**Taiwan Province of China**	30 801	0.956	96	0.961	77.6	0.876	0.931
47	**Republic of Korea**	24 464	0.918	98	0.984	78.2	0.887	0.929
48	Czech Republic	23 080	0.908	99	0.990	76.5	0.858	0.919
49	Qatar	**40 000**	1.000	90	0.896	75.5	0.841	0.912
50	Aruba	21 800	0.899	98	0.975	76.1	0.851	0.908

Table A5. (Basic) Human Development Index – Trends Over Time[29]

Column 1 Economy	Col. 2 1960	Col. 3 1970	Col. 4 1975	Col. 5 1980	Col. 6 1985	Col. 7 1990	Col. 8 1995	Col. 9 2000	Col.10 2005	Col. 11 2008
Luxembourg	*0.826*	*0.843*	0.836	0.850	0.863	0.890	0.913	0.929	0.944	*0.997*
Jersey										*0.985*
Andorra										*0.984*
Cayman Islands										*0.983*
Liechtenstein										*0.983*
Norway	*0.865*	*0.878*	0.870	0.889	0.900	0.913	0.938	0.958	0.968	*0.982*
Bermuda										*0.981*
Switzerland	*0.853*	*0.872*	0.883	0.895	0.902	0.915	0.926	0.946	0.955	*0.977*
Guernsey										*0.975*
Japan	*0.686*	*0.875*	0.861	0.886	0.899	0.916	0.929	0.941	0.953	*0.973*
Iceland	*0.865*	*0.887*	0.868	0.890	0.899	0.918	0.923	0.947	0.968	*0.971*
Australia	*0.850*	*0.862*	0.851	0.868	0.880	0.894	0.934	0.949	0.962	*0.968*
Sweden	*0.867*	*0.881*	0.872	0.882	0.893	0.904	0.935	0.952	0.956	*0.967*
Netherlands	*0.855*	*0.867*	0.873	0.885	0.899	0.914	0.934	0.947	0.953	*0.963*
Canada	*0.865*	*0.887*	0.873	0.888	0.911	0.931	0.936	0.946	0.961	*0.963*
Hong Kong, China	*0.561*	*0.737*	0.763	0.803	0.830	0.865	0.886	0.919	0.937	*0.963*
Austria	*0.797*	*0.857*	0.848	0.862	0.876	0.899	0.918	0.938	0.948	*0.962*
France	*0.853*	*0.871*	0.856	0.872	0.884	0.907	0.925	0.938	0.952	*0.961*
Ireland	*0.710*	*0.829*	0.823	0.835	0.851	0.875	0.898	0.931	0.959	*0.961*
Gibraltar										*0.961*
San Marino										*0.961*
Singapore	*0.519*	*0.682*	0.729	0.762	0.789	0.827	0.865	0.895	0.922	*0.959*
Norfolk Island										*0.958*
United Kingdom	*0.857*	*0.873*	0.853	0.860	0.870	0.890	0.929	0.931	0.946	*0.956*
Monaco										*0.956*
Belgium	*0.826*	*0.851*	0.852	0.869	0.883	0.903	0.931	0.943	0.946	*0.955*
Finland	*0.811*	*0.855*	0.846	0.866	0.884	0.906	0.918	0.940	0.952	*0.955*
Denmark	*0.857*	*0.879*	0.875	0.883	0.890	0.898	0.916	0.935	0.949	*0.955*
Germany	*0.841*	*0.856*	..	0.863	0.871	0.890	0.913	0.928	0.935	*0.955*
Italy	*0.755*	*0.831*	0.845	0.861	0.869	0.892	0.910	0.926	0.941	*0.955*
United States of America	*0.865*	*0.881*	0.870	0.890	0.904	0.919	0.931	0.942	0.951	*0.953*
Spain	*0.636*	*0.820*	0.846	0.863	0.877	0.896	0.914	0.932	0.949	*0.950*
Faroe Islands										*0.950*
Man, Isle of										*0.950*
New Zealand	*0.852*	*0.861*	0.854	0.860	0.871	0.880	0.908	0.927	0.943	*0.945*
British Virgin Islands										*0.945*

---

[29] Columns 2 and 3 are adapted from table 5 of UNDP (1998); columns 4-10 are adapted from table 2 of UNDP (2007); column 11 is from this paper's table 1, column 8. Note that the method of computing the UNDP HDI has changed many times over its lifetime – and that input data also have changed – so that comparisons of computed values from different Human Development Reports must be done extremely cautiously. In Table 2, columns 2 & 3 are thus not directly/simply comparable with columns 4-11. I have developed a methodology for roughly adjusting the columns, akin to image matching for compositing in remote sensing technology – but have not applied that here. Similarly, values in column 11, computed by myself, are not directly comparable with the other columns (though may be more comparable with columns 4-10 than are columns 2-3). These numbers are thus "piecewise discontinuous" in time, with the statistically greatest discontinuity found between columns 2-3, and a statistically slighter discontinuity between columns 10-11.

Column 1 Economy	Col. 2 1960	Col. 3 1970	Col. 4 1975	Col. 5 1980	Col. 6 1985	Col. 7 1990	Col. 8 1995	Col. 9 2000	Col.10 2005	Col. 11 2008
EUROPEAN UNION										*0.943*
Greece	*0.573*	*0.723*	0.841	0.856	0.869	0.877	0.882	0.897	0.926	*0.941*
Brunei Darussalam						0.800	0.869	0.866	0.894	*0.939*
Qatar						0.760	0.820	0.813	0.875	*0.939*
Israel	*0.719*	*0.827*	0.805	0.830	0.850	0.869	0.891	0.918	0.932	*0.937*
Kuwait			0.771	0.789	0.794	0.815	0.826	0.855	0.891	*0.937*
Cyprus	*0.579*	*0.733*		0.809	0.828	0.851	0.870	0.893	0.903	*0.935*
Slovenia						0.851	0.857	0.891	0.917	*0.933*
Falkland Islands										*0.933*
Macao, China										*0.933*
Taiwan Province of China										*0.931*
Korea, Republic of	*0.398*	*0.523*	0.713	0.747	0.785	0.825	0.861	0.892	0.921	*0.929*
Czech Republic						0.845	0.854	0.866	0.891	*0.919*
Aruba										*0.908*
Portugal	*0.460*	*0.588*	0.793	0.807	0.829	0.855	0.885	0.904	0.897	*0.907*
Malta	*0.517*	*0.615*	0.738	0.772	0.799	0.833	0.857	0.877	0.878	*0.905*
Martinique										*0.904*
Puerto Rico										*0.904*
Guam										*0.901*
Barbados	*0.678*	*0.824*				0.877	0.879	0.881	0.892	*0.900*
United Arab Emirates	*0.515*	*0.601*	0.734	0.769	0.790	0.816	0.825	0.837	0.868	*0.900*
Slovakia							0.875	0.845	0.863	*0.900*
French Polynesia										*0.895*
U.S. Virgin Islands										*0.895*
Poland						0.806	0.822	0.852	0.870	*0.892*
Bahrain				0.747	0.783	0.808	0.834	0.846	0.866	*0.890*
Croatia						0.812	0.805	0.828	0.850	*0.889*
Chile	*0.584*	*0.682*	0.708	0.743	0.761	0.788	0.819	0.845	0.867	*0.888*
Hungary	*0.625*	*0.705*	0.786	0.801	0.813	0.813	0.817	0.845	0.874	*0.888*
Estonia				0.811	0.820	0.813	0.792	0.829	0.860	*0.885*
Bahamas				0.809	0.822	0.831	0.820	0.825	0.845	*0.881*
Argentina	*0.667*	*0.748*	0.790	0.804	0.811	0.813	0.836	0.862	0.869	*0.879*
Lithuania						0.827	0.791	0.831	0.862	*0.878*
Latvia				0.797	0.810	0.804	0.771	0.817	0.855	*0.876*
Northern Mariana Islands										*0.876*
Turks & Caicos Islands										*0.875*
Uruguay	*0.737*	*0.762*	0.762	0.782	0.787	0.806	0.821	0.842	0.852	*0.871*
Costa Rica	*0.550*	*0.647*	0.746	0.772	0.774	0.794	0.814	0.830	0.846	*0.871*
Cyprus, Turkish Rep. of North										*0.871*
Greenland										*0.869*
New Caledonia										*0.869*
Anguilla										*0.865*
Saint Pierre & Miquelon										*0.865*
Trinidad and Tobago	*0.737*	*0.789*	0.756	0.784	0.782	0.784	0.785	0.796	0.814	*0.857*
Bulgaria				0.771	0.792	0.794	0.785	0.800	0.824	*0.855*
Mexico			0.694	0.739	0.758	0.768	0.786	0.814	0.829	*0.854*
Serbia										*0.854*

Column 1 Economy	Col. 2 1960	Col. 3 1970	Col. 4 1975	Col. 5 1980	Col. 6 1985	Col. 7 1990	Col. 8 1995	Col. 9 2000	Col.10 2005	Col. 11 2008
Saint Kitts and Nevis						0.726	0.829	0.814	0.821	*0.853*
Romania			..	0.786	0.792	0.777	0.772	0.780	0.813	*0.850*
Seychelles						0.750	0.845	0.821	0.843	*0.848*
Oman			0.487	0.547	0.641	0.697	0.741	0.779	0.814	*0.843*
Venezuela	*0.600*	*0.728*	0.723	0.737	0.743	0.762	0.770	0.776	0.792	*0.842*
Panama	*0.485*	*0.592*	0.718	0.737	0.751	0.752	0.775	0.797	0.812	*0.841*
Malaysia	*0.330*	*0.471*	0.619	0.662	0.696	0.725	0.763	0.790	0.811	*0.839*
Macedonia (TFYR)						0.820	0.749	0.782	0.801	*0.839*
Albania				0.675	0.694	0.704	0.705	0.746	0.801	*0.839*
Bosnia and Herzegovina									0.803	*0.839*
Guadeloupe										*0.839*
Saudi Arabia	*0.448*	*0.511*	0.611	0.666	0.684	0.717	0.748	0.788	0.812	*0.837*
Antigua and Barbuda						0.811	0.865	0.810	0.815	*0.835*
Cuba								0.795	0.838	*0.833*
Russian Federation						0.815	0.771	0.782	0.802	*0.832*
Belarus						0.790	0.755	0.778	0.804	*0.832*
Montenegro										*0.832*
Cook Islands										*0.829*
Saint Lucia						0.702	0.819	0.782	0.795	*0.828*
American Samoa										*0.827*
Libyan Arab Jamahiriya						0.709	0.791	0.783	0.818	*0.824*
Dominica						0.813	0.849	0.799	0.798	*0.822*
Montserrat										*0.821*
Turkey	*0.333*	*0.441*	0.594	0.615	0.651	0.683	0.717	0.753	0.775	*0.820*
Mauritius	*0.486*	*0.524*		0.662	0.692	0.728	0.751	0.781	0.804	*0.816*
Kazakhstan						0.771	0.724	0.738	0.794	*0.816*
Ecuador	*0.422*	*0.485*	0.636	0.678	0.699	0.714	0.734	0.742	0.772	*0.816*
Thailand	*0.373*	*0.465*	0.615	0.654	0.679	0.712	0.745	0.761	0.781	*0.815*
Tonga									0.819	*0.813*
Colombia			0.663	0.694	0.709	0.729	0.753	0.772	0.791	*0.812*
Brazil	*0.394*	*0.507*	0.649	0.685	0.700	0.723	0.753	0.789	0.800	*0.811*
Grenada						0.773	0.829	0.747	0.777	*0.811*
Saint Vincent & Grenadines						0.723	0.823	0.743	0.761	*0.811*
French Guyana										*0.811*
Lebanon						0.692	0.730	0.748	0.772	*0.806*
Samoa					0.709	0.721	0.740	0.765	0.785	*0.803*
Ukraine						0.809	0.756	0.761	0.788	*0.803*
Georgia							0.659	0.758	0.754	*0.803*
Armenia						0.737	0.701	0.738	0.775	*0.803*
Reunion										*0.799*
Palau										*0.798*
China	*0.248*	*0.372*	0.530	0.559	0.595	0.634	0.691	0.732	0.777	*0.797*
Saint Helena										*0.797*
Jordan	*0.296*	*0.405*		0.647	0.669	0.684	0.710	0.751	0.773	*0.795*
Paraguay	*0.474*	*0.511*	0.667	0.701	0.707	0.718	0.737	0.749	0.755	*0.794*
Azerbaijan							0.623	0.751	0.746	*0.794*

33

Column 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col.10	Col. 11
Economy	1960	1970	1975	1980	1985	1990	1995	2000	2005	2008
Niue										*0.794*
Peru	*0.420*	*0.528*	0.647	0.676	0.699	0.710	0.737	0.763	0.773	*0.793*
Suriname						0.760	0.775	0.766	0.774	*0.793*
Wallis and Futuna										*0.793*
Sri Lanka	*0.475*	*0.506*	0.619	0.656	0.683	0.702	0.721	0.731	0.743	*0.781*
Jamaica	*0.529*	*0.662*	0.686	0.689	0.690	0.713	0.728	0.744	0.736	*0.779*
Maldives						0.640	0.695	0.753	0.741	*0.779*
Iran, Islamic Republic of	*0.306*	*0.406*	0.571	0.578	0.615	0.653	0.693	0.722	0.759	*0.779*
Belize				0.712	0.718	0.750	0.777	0.795	0.778	*0.778*
Dominican Republic	*0.385*	*0.455*	0.628	0.660	0.684	0.697	0.723	0.757	0.779	*0.778*
Fiji			0.665	0.688	0.702	0.713	0.743	0.747	0.762	*0.774*
Turkmenistan						0.680	0.751	0.713		*0.769*
Philippines	*0.419*	*0.489*	0.655	0.688	0.692	0.721	0.739	0.758	0.771	*0.768*
Tunisia	*0.258*	*0.340*	0.519	0.575	0.626	0.662	0.702	0.741	0.766	*0.764*
Moldova				0.700	0.722	0.740	0.684	0.683	0.708	*0.758*
El Salvador	*0.339*	*0.422*	0.595	0.590	0.611	0.653	0.692	0.716	0.735	*0.755*
Micronesia, Fed. States of										*0.755*
Guyana			0.682	0.684	0.675	0.679	0.699	0.722	0.750	*0.753*
Viet Nam						0.590	0.620	0.672	0.711	0.733	*0.752*
Tokelau										*0.750*
Syrian Arab Republic	*0.318*	*0.419*	0.547	0.593	0.628	0.646	0.676	0.690	0.724	*0.749*
Indonesia	*0.223*	*0.306*	0.471	0.533	0.585	0.626	0.670	0.692	0.728	*0.746*
WORLD										*0.744*
Kiribati										*0.739*
Kosovo										*0.739*
Marshall Islands										*0.738*
Mongolia						0.637	0.654	0.638	0.667	0.700	*0.733*
Korea,Democratic People's Republic of										*0.733*
Uzbekistan						0.704	0.683	0.691	0.702	*0.731*
Algeria	*0.264*	*0.323*	0.511	0.562	0.613	0.652	0.672	0.702	0.733	*0.730*
Palestinian Authority									0.731	*0.730*
Equatorial Guinea					0.484	0.505	0.529	0.606	0.642	*0.729*
Cape Verde					0.589	0.627	0.678	0.709	0.736	*0.725*
Kyrgyzstan						0.659	0.722	0.696		*0.724*
Nauru										*0.721*
Honduras	*0.280*	*0.350*	0.528	0.578	0.611	0.634	0.653	0.668	0.700	*0.719*
Bolivia	*0.308*	*0.369*	0.519	0.553	0.580	0.606	0.639	0.677	0.695	*0.717*
Egypt	*0.210*	*0.269*	0.434	0.482	0.532	0.575	0.613	0.659	0.708	*0.714*
Tuvalu										*0.711*
Tajikistan						0.705	0.703	0.638	0.640	0.673	*0.710*
Gabon	*0.259*	*0.378*				0.675	0.608	0.647	0.677	*0.704*
Nicaragua	*0.344*	*0.462*	0.583	0.593	0.601	0.610	0.637	0.671	0.710	*0.697*
Guatemala	*0.311*	*0.392*	0.514	0.550	0.566	0.592	0.626	0.667	0.689	*0.692*
South Africa	*0.464*	*0.591*	0.650	0.670	0.699	0.731	0.745	0.707	0.674	*0.673*
Botswana	*0.207*	*0.284*	0.509	0.571	0.624	0.674	0.658	0.631	0.654	*0.673*
Vanuatu						0.666	0.621	0.542	0.674	*0.672*

Column 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col.10	Col. 11
Economy	**1960**	**1970**	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2008**
Namibia						0.485	0.698	0.657	0.650	_0.664_
Sao Tome and Principe						0.550	0.624	0.667	0.654	_0.662_
Myanmar	_0.243_	_0.318_				0.560	0.542	0.562	0.583	_0.648_
Solomon Islands						0.600	0.608	0.632	0.602	_0.647_
Iraq										_0.645_
Morocco	_0.198_	_0.282_	0.435	0.483	0.519	0.551	0.581	0.613	0.646	_0.642_
Congo	_0.241_	_0.307_	0.478	0.520	0.567	0.559	0.546	0.518	0.548	_0.620_
India	_0.206_	_0.254_	0.419	0.450	0.487	0.521	0.551	0.578	0.619	_0.618_
Cambodia						0.410	0.540	0.547	0.598	_0.616_
Mayotte										_0.616_
Bhutan						0.380	0.437	0.510	0.579	_0.605_
Lao People's Democratic Rep.						0.448	0.478	0.524	0.563	0.601	_0.590_
Comoros				0.483	0.500	0.506	0.521	0.540	0.561	_0.575_
Pakistan	_0.183_	_0.244_	0.367	0.394	0.427	0.467	0.497	0.516	0.551	_0.572_
Kenya	_0.192_	_0.254_	0.466	0.514	0.534	0.556	0.544	0.529	0.521	_0.567_
Timor-Leste									0.514	_0.567_
Papua New Guinea	_0.208_	_0.325_	0.431	0.462	0.481	0.495	0.532	0.544	0.530	_0.563_
Ghana	_0.233_	_0.283_	0.442	0.471	0.486	0.517	0.542	0.568	0.553	_0.557_
Djibouti						0.476	0.485	0.490	0.516	_0.553_
Cameroon	_0.191_	_0.253_	0.422	0.468	0.523	0.529	0.513	0.525	0.532	_0.552_
Madagascar	_0.237_	_0.291_	0.407	0.444	0.440	0.450	0.463	0.493	0.533	_0.551_
Yemen	_0.092_	_0.138_				0.402	0.439	0.473	0.508	_0.551_
Swaziland			0.527	0.561	0.588	0.633	0.641	0.592	0.547	_0.550_
Sudan	_0.160_	_0.188_	0.354	0.381	0.400	0.429	0.463	0.491	0.526	_0.546_
Lesotho	_0.245_	_0.307_	0.499	0.541	0.571	0.605	0.616	0.581	0.549	_0.526_
Angola	_0.139_	_0.195_				0.400	0.436	0.428	0.446	_0.525_
Bangladesh	_0.166_	_0.199_	0.347	0.365	0.392	0.422	0.453	0.511	0.547	_0.523_
Tanzania	_0.162_	_0.211_				0.421	0.419	0.433	0.467	_0.520_
Nepal	_0.128_	_0.162_	0.301	0.338	0.380	0.427	0.469	0.502	0.534	_0.517_
Mauritania			0.383	0.410	0.435	0.455	0.487	0.509	0.550	_0.512_
Nigeria	_0.184_	_0.230_	0.321	0.378	0.391	0.411	0.432	0.445	0.470	_0.511_
Haiti	_0.174_	_0.218_		0.442	0.462	0.472	0.487	0.491	0.529	_0.509_
Uganda	_0.185_	_0.213_			0.420	0.434	0.433	0.480	0.505	_0.508_
Zimbabwe	_0.284_	_0.326_	0.550	0.579	0.645	0.654	0.613	0.541	0.513	_0.504_
Eritrea						0.435	0.459	0.483	_0.496_
Togo	_0.123_	_0.183_	0.423	0.473	0.469	0.496	0.514	0.521	0.512	_0.494_
Senegal	_0.146_	_0.176_	0.342	0.367	0.401	0.428	0.449	0.473	0.499	_0.482_
Zambia	_0.258_	_0.315_	0.470	0.478	0.489	0.477	0.439	0.420	0.434	_0.482_
Rwanda			0.337	0.385	0.403	0.340	0.330	0.418	0.452	_0.478_
Gambia	_0.068_	_0.107_	0.290			0.340	0.436	0.472	0.502	_0.463_
Côte d'Ivoire	_0.168_	_0.243_	0.419	0.448	0.453	0.450	0.436	0.432	0.432	_0.456_
Malawi	_0.144_	_0.176_	0.330	0.355	0.370	0.388	0.444	0.431	0.437	_0.449_
Benin	_0.130_	_0.162_	0.312	0.344	0.367	0.374	0.403	0.424	0.437	_0.449_
Congo, Demo. Republic of the	_0.179_	_0.235_	0.414	0.423	0.430	0.423	0.391	0.375	0.411	_0.427_
Guinea	_0.083_	_0.111_				0.310	0.387	0.439	0.456	_0.407_
Chad	_0.112_	_0.135_	0.296	0.298	0.342	0.364	0.377	0.397	0.388	_0.402_

Column 1 Economy	Col. 2 1960	Col. 3 1970	Col. 4 1975	Col. 5 1980	Col. 6 1985	Col. 7 1990	Col. 8 1995	Col. 9 2000	Col.10 2005	Col. 11 2008
Guinea-Bissau	*0.091*	*0.125*	0.267	0.271	0.300	0.322	0.350	0.365	0.374	*0.398*
Ethiopia					0.311	0.332	0.347	0.379	0.406	*0.396*
Burundi	*0.131*	*0.157*	0.290	0.318	0.352	0.366	0.347	0.368	0.413	*0.395*
Central African Republic	*0.160*	*0.196*	0.350	0.371	0.394	0.398	0.390	0.394	0.384	*0.390*
Mozambique	*0.169*	*0.248*		0.304	0.291	0.317	0.335	0.375	0.384	*0.374*
Burkina Faso	*0.086*	*0.116*	0.257	0.280	0.305	0.321	0.337	0.353	0.370	*0.368*
Somalia						0.350				*0.364*
Liberia						0.430				*0.361*
Mali	*0.083*	*0.102*	0.245	0.268	0.272	0.296	0.321	0.352	0.380	*0.357*
Afghanistan						0.320				*0.323*
Niger	*0.090*	*0.134*	0.246	0.264	0.261	0.279	0.296	0.321	0.374	*0.320*
Sierra Leone	*0.095*	*0.155*				0.320	0.325	0.320	0.336	*0.318*

Table A6. Basic HDI and the Connection Index[30]

Economy	Basic HDI	Fixed Lines 2008	W-less users 2008	I-net users 2008	Connection Index
Afghanistan	0.323	0.3	17.2	2.1	**5.4**
Albania	0.839	11.3	72.1	15.0	**28.3**
Algeria	0.730	9.1	81.4	10.3	**27.8**
American Samoa	0.827	16.7	3.6	10.0	**10.1**
Andorra	0.984	49.8	100.0	78.9	**76.9**
Angola	0.525	0.6	19.4	0.6	**5.3**
Anguilla	0.865	45.3	172.0	30.7	**69.7**
Antigua & Barbuda	0.835	45.5	133.6	72.3	**80.9**
Argentina	0.879	24.0	102.2	23.4	**43.2**
Armenia	0.803	19.7	36.3	5.8	**16.9**
Aruba	0.908	38.4	104.9	23.1	**47.4**
Australia	0.968	47.1	102.5	54.2	**64.5**
Austria	0.962	40.4	116.8	51.2	**64.9**
Azerbaijan	0.794	14.8	50.8	12.2	**22.5**
Bahamas	0.881	40.1	112.9	36.2	**56.4**
Bahrain	0.890	26.3	148.3	33.2	**60.3**
Bangladesh	0.523	0.8	30.4	0.3	**7.9**
Barbados	0.900	50.1	87.8	59.5	**64.2**
Belarus	0.832	37.9	76.0	61.9	**59.4**
Belgium	0.955	44.6	102.0	49.9	**61.6**
Belize	0.778	11.8	41.1	11.1	**18.8**
Benin	0.449	1.2	21.0	1.7	**6.4**
Bermuda	0.981	89.5	93.3	74.4	**82.9**
Bhutan	0.605	3.4	17.2	4.6	**7.5**
Bolivia	0.717	7.1	34.2	10.5	**15.6**
Bosnia & Herzegovina	0.839	27.1	80.0	26.8	**40.2**
Botswana	0.673	7.3	75.8	4.3	**22.9**
Brazil	0.811	20.5	63.1	26.1	**33.9**
British Virgin Islands	0.945	53.2	36.4	14.8	**29.8**
Brunei	0.939	21.0	78.9	41.7	**45.8**
Bulgaria	0.855	30.1	133.0	24.9	**53.2**
Burkina Faso	0.368	0.7	10.9	0.6	**3.2**
Burundi	0.395	0.5	2.9	0.8	**1.2**
Cambodia	0.605	0.3	17.9	0.5	**4.8**
Cameroon	0.552	0.8	24.5	2.2	**7.4**
Canada	0.963	64.5	57.6	85.2	**73.1**
Cape Verde	0.725	13.8	27.9	7.0	**13.9**
Cayman Islands	0.983	84.9	76.6	46.6	**63.7**
Central African Rep.	0.390	0.3	3.0	0.3	**1.0**
Chad	0.402	0.1	8.5	0.6	**2.5**
Chile	0.888	20.3	83.9	33.5	**42.8**
China	0.797	27.5	42.7	15.8	**25.5**
Colombia	0.812	17.8	73.5	26.2	**35.9**

---

30   The Connectiion Index = ((Fixed Telephone Lines %) + (Mobile Cellular Users %)/2) + (Internet Users %) . It uses the three indicators of ICT performance noted in the 8th Millennium Development Goal. Table 1 attempts to extend global coverage of the source indicators, than is currently available in a single source.   It thus attempts to extend the geographic inclusiveness on connectivity, while coining an indicator based solely on raw delivery of services (or, on raw receipt of services). The Connection Index first appeared in Hastings (2006).

Economy	Basic HDI	Fixed Lines 2008	W-less users 2008	I-net users 2008	Connection Index
Comoros	0.575	2.3	4.8	2.6	**3.1**
Congo, Demo. Rep.	0.427	0.0	10.5	0.4	**2.8**
Congo, Republic of	0.620	0.4	35.4	1.7	**9.8**
Cook Islands	0.829	36.0	22.5	27.5	**28.4**
Costa Rica	0.871	32.2	33.8	33.6	**33.3**
Cote d'Ivoire	0.456	1.4	40.0	1.6	**11.2**
Croatia	0.889	40.1	110.5	43.8	**59.5**
Cuba	0.833	9.3	1.8	11.6	**8.6**
Cyprus	0.935	44.0	112.6	44.5	**61.4**
Cyprus, TRN	0.871	32.6	54.2		
Czech Republic	0.919	28.3	128.4	43.2	**60.8**
Denmark	0.955	51.9	114.7	64.3	**73.8**
Djibouti	0.553	1.6	5.4	1.4	**2.4**
Dominica	0.822	29.4	58.7	37.2	**40.6**
Dominican Republic	0.778	9.7	56.5	17.2	**25.1**
Ecuador	0.816	13.5	75.6	11.5	**28.1**
Egypt	0.714	14.9	39.8	11.4	**19.4**
El Salvador	0.755	15.8	89.5	10.0	**31.3**
Equatorial Guinea	0.729	2.0	43.4	1.6	**12.1**
Eritrea	0.496	0.8	1.4	2.5	**1.8**
Estonia	0.885	37.1	148.4	58.4	**75.6**
Ethopia	0.396	1.1	1.5	0.4	**0.8**
European Union	0.943			59.9	
Falkland Islands	0.933	83.5	25.0	81.7	**68.0**
Faroe Islands	0.950	48.7	108.0	71.9	**75.1**
Fiji	0.774	12.9	70.3	9.4	**25.5**
Finland	0.955	33.0	115.2	68.2	**71.2**
France	0.961	56.5	89.8	49.6	**61.3**
French Guiana	0.811			19.0	
French Polynesia	0.895	20.7	66.5	28.5	**36.1**
Gabon	0.704	2.0	87.9	10.9	**27.9**
Gambia	0.463	4.5	46.6	5.9	**15.7**
Georgia	0.803	12.5	38.4	8.2	**16.8**
Germany	0.955	65.1	120.0	51.5	**72.0**
Ghana	0.557	1.6	33.0	2.8	**10.0**
Gibraltar	0.961	87.5	89.0	22.1	**55.2**
Greece	0.941	55.9	138.0	22.8	**59.9**
Greenland	0.869	62.8	115.9	90.8	**90.0**
Grenada	0.811	26.7	44.6	21.8	**28.7**
Guadeloupe	0.839			19.3	
Guam	0.901	40.5	59.4	38.5	**44.2**
Guatemala	0.692	10.5	76.0	10.2	**26.7**
Guernsey	0.975	68.6	95.0	54.8	**68.3**
Guinea	0.407	0.3	2.4	0.5	**0.9**
Guinea-Bissau	0.398	0.3	17.5	2.3	**5.6**
Guyana	0.753	14.7	37.5	25.8	**25.9**
Haiti	0.509	1.7	22.9	10.4	**11.4**
Honduras	0.719	9.7	30.4	4.7	**12.4**
Hong Kong, China	0.963	53.8	152.0	55.0	**78.9**
Hungary	0.888	32.4	112.0	41.9	**57.0**
Iceland	0.971	62.0	115.4	67.2	**78.0**
India	0.618	3.4	23.1	6.9	**10.1**

Economy	Basic HDI	Fixed Lines 2008	W-less users 2008	I-net users 2008	Connection Index
Indonesia	0.746	7.7	50.2	5.6	**17.3**
Iran	0.779	33.5	41.8	32.3	**35.0**
Iraq	0.645	4.0	48.4	0.2	**13.2**
Ireland	0.961	49.1	121.0	39.7	**62.4**
Israel	0.937	43.9	128.5	28.9	**57.5**
Italy	0.955	46.3	146.0	54.4	**75.2**
Jamaica	0.779	12.9	93.7	55.3	**54.3**
Japan	0.973	40.0	86.6	68.9	**66.1**
Jersey	0.985	80.7	98.0	29.5	**59.4**
Jordan	0.795	9.9	83.0	19.0	**32.7**
Kazakhstan	0.816	21.0	81.6	12.3	**31.8**
Kenya	0.567	0.7	34.0	8.0	**12.7**
Kiribati	0.739	4.3	0.8	0.8	**1.7**
Korea, Democratic People's Republic	0.733	5.0		0.0	**1.2**
Korea, Republic	0.929	49.6	90.7	73.8	**72.0**
Kosovo	0.739	5.0	33.3		
Kuwait	0.937	18.7	106.0	31.6	**47.0**
Kyrgyzstan	0.724	9.1	40.5	14.1	**19.4**
Lao People'sDemocratic Republic	0.590	1.6	25.2	1.7	**7.6**
Latvia	0.876	28.3	97.4	51.7	**57.3**
Lebanon	0.806	18.9	30.7	26.3	**25.5**
Lesotho	0.526	3.0	22.7	3.5	**8.2**
Liberia	0.361	0.2	15.0	0.0	**3.8**
Libya	0.824	14.6	73.1	4.4	**24.1**
Liechtenstein	0.983	58.0	87.0	66.7	**69.6**
Lithuania	0.878	23.6	144.9	39.3	**61.8**
Luxembourg	0.997	53.2	164.0	74.0	**91.3**
Macau, China	0.933	37.0	165.1	49.5	**75.3**
Macedonia, TFYR	0.839	22.7	74.5	33.6	**41.1**
Madagascar	0.551	0.7	11.3	0.6	**3.3**
Malawi	0.449	1.3	7.6	1.0	**2.7**
Malaysia	0.839	16.4	90.6	59.7	**56.6**
Maldives	0.779	10.9	104.0	10.8	**34.1**
Mali	0.357	0.7	20.1	0.8	**5.6**
Malta	0.905	48.7	91.4	38.9	**54.5**
Man, Isle of	0.950	63.7	40.0	41.7	**46.8**
Marshall Islands	0.738	8.3	1.4	4.0	**4.4**
Martinique	0.904			32.3	
Mauritania	0.512	1.1	41.6	1.0	**11.2**
Mauritius	0.816	28.5	74.2	27.0	**39.1**
Mayotte	0.616	6.2	28.8		**17.5**
Mexico	0.854	18.5	64.1	21.4	**31.4**
Micronesia, Fed.States	0.755	7.8	24.7	13.5	**14.9**
Moldova	0.758	28.5	63.0	18.5	**32.1**
Monaco	0.956	103.7	52.5	61.0	**69.6**
Mongolia	0.733	5.9	28.9	12.0	**14.7**
Montenegro	0.832	58.9	107.3	46.8	**65.0**
Montserrat	0.821			41.3	
Morocco	0.642	7.7	64.2	23.4	**29.6**
Mozambique	0.374	0.3	15.4	0.9	**4.4**

Economy	Basic HDI	Fixed Lines 2008	W-less users 2008	I-net users 2008	Connection Index
Myanmar	0.648	0.9	0.4	0.1	0.4
Namibia	0.664	6.7	42.0	4.9	14.6
Nauru	0.721	13.8	10.9	2.2	7.3
Nepal	0.517	2.7	5.3	1.2	2.6
Netherlands	0.963	44.7	109.0	91.4	84.1
Netherlands Antilles	0.886	35.9	90.1	1.0	32.0
New Caledonia	0.869	24.9	73.0	33.2	41.1
New Zealand	0.945	40.8	101.6	80.4	75.8
Nicaragua	0.697	4.4	37.9	2.8	12.0
Niger	0.320	0.2	6.3	0.3	1.8
Nigeria	0.511	1.1	36.0	6.8	12.6
Niue	0.794	61.8	38.2	55.7	52.9
Norfolk Island	0.958	119.0		27.5	43.5
Northern Mariana Is	0.875	24.2	57.3	11.5	26.1
Norway	0.982	42.3	110.5	80.9	78.6
Oman	0.843	10.3	96.3	13.1	33.2
Pakistan	0.572	3.0	56.0	10.7	20.1
Palau	0.798	31.8	4.7	25.6	21.9
Palestinian Authority	0.730	9.4	27.5	9.5	14.0
Panama	0.841	14.7	71.5	15.7	29.4
Papua New Guinea	0.563	1.0	4.7	1.8	2.3
Paraguay	0.794	7.4	70.7	4.6	21.8
Peru	0.793	9.6	55.3	27.4	29.9
Philippines	0.768	4.3	60.0	6.0	19.1
Poland	0.892	27.1	108.7	42.0	55.0
Portugal	0.907	39.0	135.0	33.4	60.2
Puerto Rico	0.905	26.2	84.8	25.1	40.3
Qatar	0.939	28.2	150.4	41.8	65.5
Reunion	0.799	34.0	74.7	69.2	61.8
Romania	0.850	20.1	118.0	56.0	62.5
Russian Federation	0.832	30.8	119.3	21.1	48.1
Rwanda	0.478	0.2	6.5	1.1	2.2
Saint helena	0.797	45.6		15.3	19.1
Saint Kitts & Nevis	0.853	63.1	25.2	37.9	41.0
Saint Lucia	0.828	32.6	65.7	66.7	57.9
St. Pierre & Miquelon	0.865	68.1			17.0
Saint Vincent & the Grenadines	0.811	18.9	86.3	47.3	50.0
Samoa	0.803	10.9	46.0	4.5	16.4
San Marino	0.961	70.1	83.0	52.0	64.3
Sao Tome & Principe	0.662	4.9	19.1	14.6	13.3
Saudi Arabia	0.837	16.2	114.7	25.1	45.3
Senegal	0.482	2.2	39.0	6.6	13.6
Serbia	0.854	30.4	85.7	15.2	36.6
Seychelles	0.848	26.2	89.2	37.0	47.3
Sierra Leone	0.318	0.5	13.2	0.2	3.5
Singapore	0.959	41.9	134.0	70.0	79.0
Slovakia	0.900	21.4	112.6	43.6	55.3
Slovenia	0.933	42.8	96.4	65.0	67.3
Solomon Islands	0.647	1.6	2.2	1.6	1.8
Somalia	0.364	1.2	6.9	1.1	2.6
South Africa	0.673	9.6	87.1	8.2	28.2
Spain	0.950	42.0	110.2	44.5	60.3

Economy	Basic HDI	Fixed Lines 2008	W-less users 2008	I-net users 2008	Connection Index
Sri Lanka	0.781	14.2	41.4	4.0	**15.9**
Sudan	0.546	0.9	19.4	3.9	**7.0**
Suriname	0.793	18.0	70.8	9.6	**27.0**
Swaziland	0.550	4.3	33.3	4.1	**11.4**
Sweden	0.967	60.4	113.7	76.8	**81.9**
Switzerland	0.977	66.8	108.2	61.6	**74.5**
Syria	0.749	17.3	33.6	17.4	**21.4**
Taiwan Prov. of China	0.931	62.5	106.1	64.5	**74.4**
Tajikistan	0.710	4.3	20.0	0.3	**6.2**
Tanzania	0.520	0.6	20.4	1.0	**5.7**
Thailand	0.815	11.0	80.4	21.0	**33.4**
Timor-Leste	0.567	0.2	6.0	0.1	**1.6**
Togo	0.494	1.3	18.2	5.1	**7.4**
Tokelau	0.750	20.9		39.0	**24.7**
Tonga	0.813	21.0	46.4	8.4	**21.0**
Trinidad & Tobago	0.857	24.3	75.6	32.3	**41.1**
Tunisia	0.764	12.3	75.1	16.7	**30.2**
Turkey	0.820	24.6	88.0	17.7	**37.0**
Turkmenistan	0.769	8.2	4.4	1.4	**3.9**
Turks & Caicos Is.	0.873	14.8	99.6		**28.6**
Tuvalu	0.711	7.4	10.7	32.8	**20.9**
Uganda	0.508	0.5	13.6	6.5	**6.8**
Ukraine	0.803	27.8	119.6	21.6	**47.7**
United Arab Emirates	0.900	31.6	173.4	52.5	**77.5**
United Kingdom	0.956	55.4	122.0	66.2	**77.4**
United States	0.953	53.4	83.5	71.9	**70.2**
Uruguay	0.871	28.9	90.0	29.0	**44.2**
US Virgin Islands	0.731	6.7	13.0	4.4	**7.1**
Uzbekistan	0.672	3.9	11.5	3.5	**5.6**
Vanuatu	0.842	18.4	86.1	20.7	**36.5**
Venezuela	0.752	32.7	27.2	20.5	**25.2**
Viet Nam	0.894	64.0	71.7	26.9	**47.4**
Wallis and Futuna	0.793	11.5		5.5	**5.6**
World	0.744	19.2	49.6	21.9	**28.1**
Yemen	0.551	4.5	13.8	1.4	**5.3**
Zambia	0.482	0.8	22.1	4.2	**7.8**
Zimbabwe	0.504	2.6	9.2	10.1	**8.0**