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The Human Development Index and Small States

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THE HUMAN DEVELOPMENT INDEX AND SMALL STATES

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Abstract. This paper attempts to examine how small states fare in terms of human development. It examines the Human Development Index for the period 1990 to 2004 and averages the scores for five groups of countries classified according to population size. The very small countries are those with a population of 1.5 million or less. The paper finds that these countries tend to obtain relatively high scores on the HDI. Many studies have found that these countries are also particularly economically vulnerable. The paper argues that the HDI may be failing to reflect the particular difficulties faced by small countries due to their economic vulnerability. Better consideration of vulnerability issues in the measurement of human development may thus be warranted.

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Introduction

The *Human Development Report*, published annually by the United Nations Development Programme, shifts the development debate away from the exclusive concern with economic growth and closer to a balanced concern for equity, sustainability, productivity and empowerment (www.undp.org).

One of the most important features of the *Human Development Report* is the Human Development Index (HDI). The Index aims to analyse the comparative status of socioeconomic development in both developed and developing nations. This is a measure of development based on relative achievement in economic growth, education and health. The HDI highlights the success of some countries and the slower progress of others in this regard. It could therefore facilitate the identification of priorities for policy intervention and the evaluation of progress over time.

One of the more important aspects of the debate on economic growth and development in recent years concerns the issue of economic vulnerability. Briguglio (1992; 1995) pioneered the research on economic vulnerability that examines the proneness of countries to external economic shocks. There emerged a strand of literature proposing alternative measurements, and sometimes definitions, of economic vulnerability. An important conclusion of this research is that small island economies are the most economically vulnerable group of countries, as they are exposed to shocks outside their control emanating from factors such as their inherent openness and dependence on strategic imports.

Furthermore, a number of high per capita income small countries are still considered to be economically vulnerable, but have adopted policies to strengthen their resilience (Briguglio, *et al*, 2005). Examples of this reality include Singapore, Cyprus and Malta.

This paper explores the relationships between the concepts propounded by the Human Development Report and those related to vulnerability by examining the HDI performance of small states and the relation between the HDI and measurements of vulnerability. The principal objective of the paper is to gauge the extent to which the HDI reflects the particular difficulties faced by small countries. The next two sections give a brief overview of the methodology of computation of the HDI and of its benefits and pitfalls. These are followed by a discussion on the HDI performance of small states, and on the relationship between the HDI and vulnerability indices.

How the HDI is Computed

The HDI is computed on the basis of three indicators. These relate to (a) health (measured by life expectancy); (b) education (measured by adult literacy rates and mean years of schooling) and (c) income (measured by GDP per capita, adjusted as explained below). High life expectancy is valued in itself and it is also indicative of the quality and delivery of healthcare. Literacy is essential if people are to be able to communicate, to appreciate their culture, and to obtain and keep jobs. Income per capita relates to the

ability of the population to meet its basic needs and generate resources to sustain advancement in all areas of development.

The HDI is then calculated as a simple average of the three indicators.

For each of the components of the HDI, a well known-standardisation procedure is applied prior to averaging, as follows:

$$XSij = (Xij - MinXj) / (MaxXj - MinXj)$$

where: XSij is the value of the standardised observation i of variable j;
Xij is the actual value of the same observation;
MinXj and MaxXj are the minimum and maximum values of variable j.[1]

This transforms the values of observations so that they take a range of values from 0 to 1. This procedure not only derives relative country rankings for each component, but reduces each component to a comparable basis which may subsequently be used for averaging.

Countries with an HDI score below 0.5 are considered as having low human development, while those countries with an HDI score of between 0.5 and 0.8 are considered as having a medium level of development. Those with an HDI score above 0.8 are considered as having a high level of human development.

Strenghts and Weaknesses of the HDI

The major strength of the HDI is that it presents a single measure of development which takes into account the economic and social aspects of human life. This has served to broaden public interest in the other variables, notably education and health,that are crucial factors in human development.

The Human Development Report is not a conclusive statement, but is an exercise of continuous monitoring so as to advance debates into development issues. Within the limits of the three components, the HDI has served to broaden substantially the empirical attention that the assessment of development processes receives.

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[1]Up to 1993 the minimums and maximums were changed each year following the performance of the countries at the extreme ends of the scale. However as predicted, shifting the goal posts annually makes comparisons across time more difficult. In fact in 1994 "normative" values for life expectancy, adult literacy, mean years of schooling and income. These minimums and maximums are not the observed values in the best or worst performing countries today but most extreme values observed over a long period (HDR, 1994; 341). With the new fixed goal posts the greatest differences from previous values are in the much lower maximums for life expectancy (25 years instead of 42 years) and for literacy rates (0% rather than 12%) and in the higher maximums for the life expectancy (85 years instead of 78.6 years) and mean years of schooling (15 years rather than 12.3 years). This amendment obviously made the HDI value more easily comparable across countries over time (HDR, 1994: 341)

The Nobel Laureate Amartaya Sen stated that "the HDI, which is inescapably a crude index, must not be seen as anything other than an introductory move in getting people interested in the rich collection of information that is present in the Human Development Report" (Human Development Report, 1999).

However, the HDI has also attracted considerable criticism. Various analysts questioned several aspects of the HDI. One of the most debatable issues is the reason underlying both the choice as well as the number of indicators within the HDI. The Human Development Report 1993 gives a brief explanation as to why each indicator was chosen outlining the relative advantages as well disadvantages.

For instance, in the health dimension, one of the advantages of the use of the life expectancy variable is that its variance across individuals within a country is likely to be much smaller than that of income. However, there could be equally important indicators which could be used, such as infant mortality, life expectancy at one year or under five mortality.

Literacy involves a combination of two indicators, adult literacy rate and the mean years of schooling for individuals over 25 years of age. Critics of this approach argued that literacy is quite difficult to measure. Trabold-Nubler (1991) argued that non-traditional modes of acquiring education should also be incorporated in the HDI. However, it would bedifficult to obtain reliable data on these issues across countries and over time.

The third indicator, namely income per capita, is the most problematic one. The indicator used is per capita GDP in purchasing power parity (PPP) dollars. Apart from the discounting procedure used, there is the problem of income distribution, which if very uneven can be a misleading indicator of well-being of households.

The HDI has also been criticized for failing to include factors which are important for improving quality of life such as the presence of democracy, good governance of the society and a fair judicial system.

Segerfeldt and Wallen (2003) question the relevance of the HDI for industrialized nations, commenting that the approach is more suited for developing countries

One may also argue that the HDI is simply an adjustment to GDP statistics without fundamentally altering their results, given that there is a strong correlation between health, education and GDP per capita.

Mitropolitski (2004) argues that the HDI, although used as reference yardstick, is less about human development than about the state's ability to present a picture according to its interests. Taking the three basic components of the HDI into consideration, Mitropolitski states that although longevity is not something that can be played around with easily by government statistics, small changes in this variable lead to substantial differences in the place the country occupies in the HDI. It would not be a surprise that certain authoritarian regimes are ready to put three or four additional months to their citizen's average lifespan for this reason.

Mitropolitski maintains that the HDI does not make any reference to the quality of education. He believes that just like real incomes, schoolenrolment can be manipulated at will. Whist attempting to prove the HDI's inadequacy, Mitropolitski draws up the example of two countries producing equal amount of goods with equal longevity and education levels. These two countries so far will obviously have the same HDI. However he continues, if one of the countries spends much more on defence than the other, the level of welfare in the two countries will be different. This will reduce the disposable income and make the country less affluent than the other. The HDI does not take this into account.

Another issue relates to the reliability and accuracy of statistics. One has to keep in mind that data is very often dependent on sample surveys and censuses which are not necessarily carried out by every country and over sufficiently frequent periods.

Furthermore, the political sensitivity of the HDI may encourage statistical forgery.

The Human Development Report (2004) itself states that there are still "many gaps and problems" in the data for measuring human development. The report recommends that in order to improve the usefulness of the index it is important to provide "sustainable statistical capacity in countries". This requires both financial and political commitment at both national and international levels (HDR, 2004: 252-254). Furthermore, the *Human Development Report* admits that the HDI does not include important aspects of human development, notably the ability to participate in the decisions that affect one's life and to enjoy the respect of others in the community (2004: 254-256).

The Human Development Index and Country Size

In this section, the HDI scores, averaged over the period of 1990 to 2004 are examined to see whether there is a relation between country size and the HDI. Countries are grouped into 5 categories in terms of population size, as follows:

- Very Large with a population of over 50 million;
- Large with a population between 10 and 50 million;
- Medium-sized with a population between 5 and 10 million;
- Small with a population between 1.5 and 5 million; and
- Very Small with a population of 1.5 million and less.

The exercise is carried out for all countries (including the high income countries) and for developing countries only (i.e. excluding high income countries). The full results of this analysis are reported in Gatt (2004) and are summarised in Tables 1 and 2 and Figures 1 and 2.

The results indicate that the very small countries, as a group, recorded relatively high scores, even though they were not always in the leading position. In most years between 1990 to 2004, the very large countries, which included the United States, the United Kingdom, Germany and Japan, also registered high HDI scores. The medium-sized and large countries did not do so well especially when compared to the very small states and very large states. There is therefore a U-shaped pattern in the

Table 1
HDI and its Components for all Countries: Averages for1990-2004

	Life Expectancy Index	Education Index	GDP per capita	HDI
Very Small	0.677	0.734	0.638	0.683
Small	0.651	0.714	0.594	0.663
Medium	0.631	0.730	0.564	0.627
Large	0.621	0.694	0.574	0.646
Very Large	0.689	0.731	0.656	0.715

Figure 1
HDI Averages for all Countries (1990-2004)

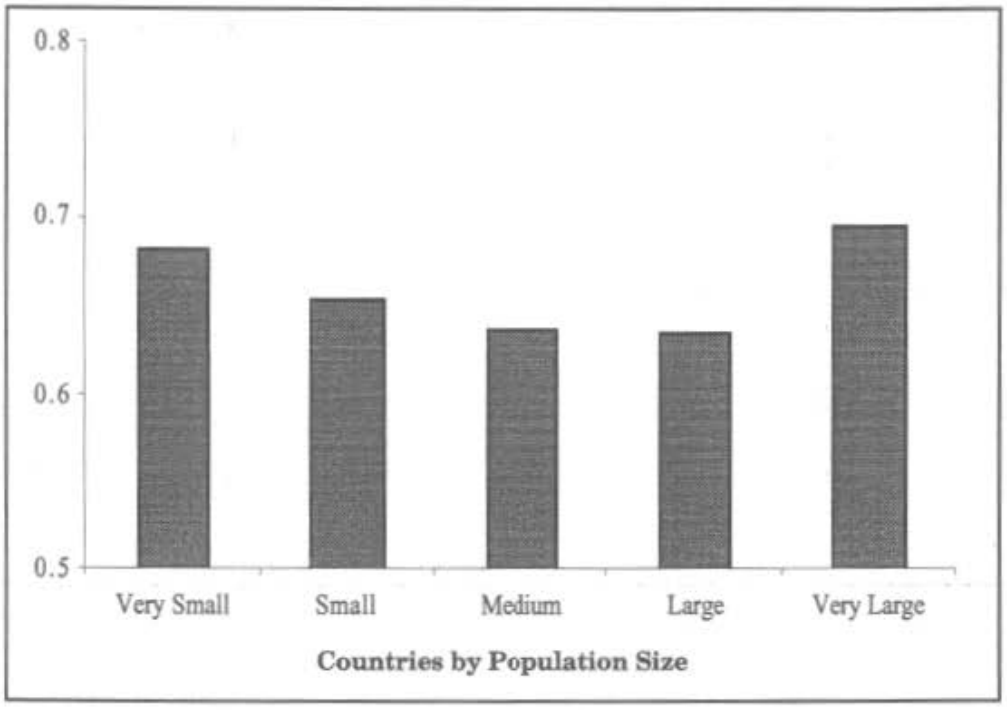
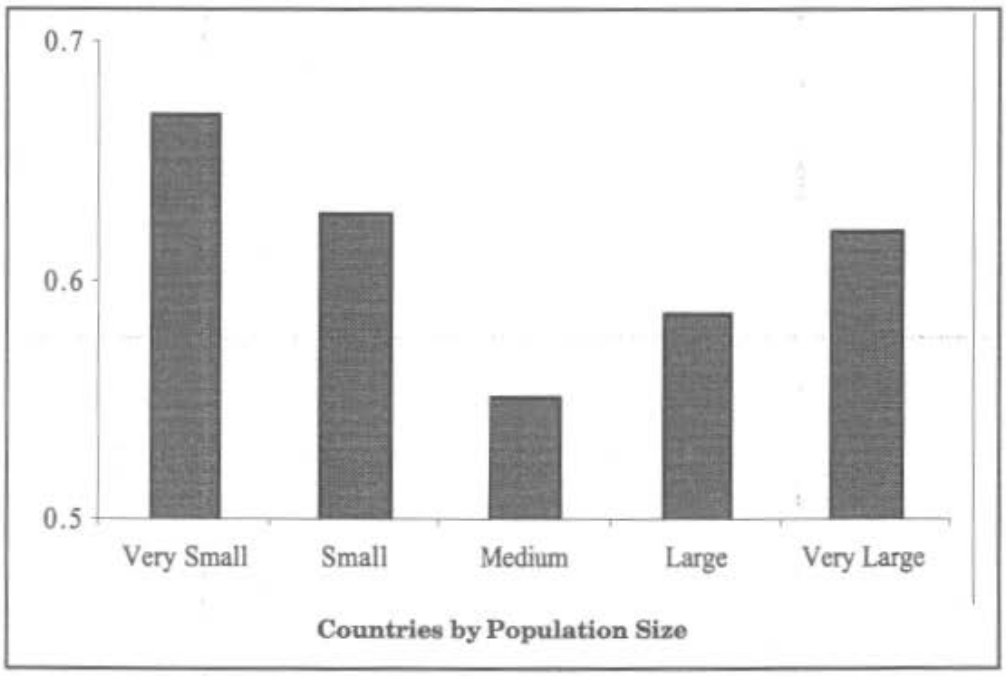


Table 2
HDI and its Components. Averages for (1990-2004)
Developing Countries Only

	Life Expectancy Index	Education Index	GDP per capita	HDI
Very Small	0.669	0.728	0.619	0.670
Small	0.632	0.694	0.551	0.631
Medium	0.575	0.636	0.449	0.541
Large	0.595	0.618	0.529	0.605
Very Large	0.645	0.639	0.556	0.643

Figure 2
HDI Averages for Developing Countries
(1990-2004)



HDI scores, with the HDI tending to decrease as the population gets bigger up to a certain point, after which the HDI starts to increase again as population size increases, as reproduced in Figure 1.

Table 1 also indicates that large countries have a relatively low life expectancy on average. This is also the case with the Education Index, where the large countries obtained the lowest average. The reason for this is that this group contains the majority of low-income countries. A striking result is that the very small countries attained the highest average for the Education Index – scoring even higher than the very large countries.

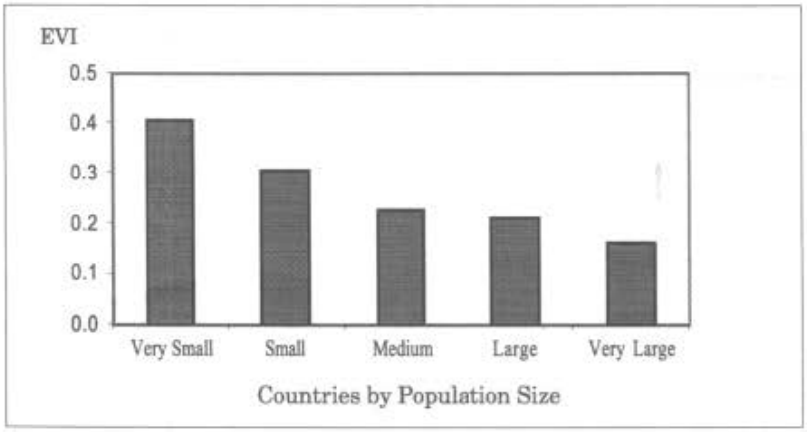
Table 2 and Figure 2 show the results of running the same procedure for developing countries only i.e omitting the high income countries. In this case the very small countries performed much better than the very large countries in all components and in the HDI itself. The U-shaped tendency once again clearly emerges from Figure 2. The very small countries scored higher than the groups of countries in all the indices.

This U-shaped pattern of HDI in relation to population was also investigated using regression analysis, as reported in Appendix 1. The results confirm the tendency that the HDI is U-shaped, therefore tending to be relatively high for very small countries, decreasing as the population increases, reaching a trough in the case of medium sized countries and than rising again for large and for very large countries.

The HDI and the Vulnerability Index

In assigning relatively high scores to very small countries, the HDI may be ignoring the issues of vulnerability which typically characterise small states and impinge on their development processes. The particular vulnerabilities faced by small countries are now well-documented. These arise from a high degree of openness to international trade, a high degree of concentration of exports and imports due to more limited diversification possibilities and a high variability in output growth. The difficulties faced by small states are often viewed to be adequately summarised in the concept of economic vulnerability, whose measurement encompasses issues which are of direct interest to the development processes in small states.

Figure 3
The EVI and Population Size



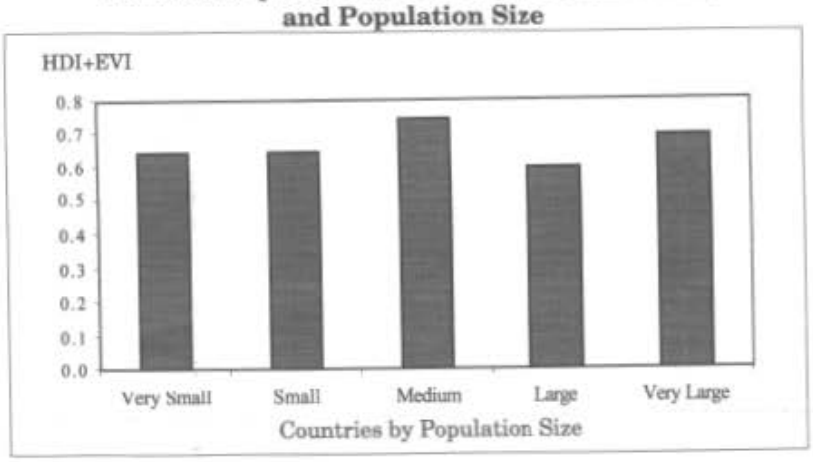
The Economic Vulnerability Index (EVI) assesses the extent to which a country is exposed to external shocks. Briguglio's (1997) index is made up of four components, namely Trade Openness, Export Concentration, Dependence on Strategic Imports and Peripherality. Briguglio found that as a group small island developing states tend to be more vulnerable than other groups of countries.[2] Using Briguglio's 1997 vulnerability index, it can be seen from Figure 3 that on average the smaller the population, the higher the vulnerability scores.

On the other hand, as already indicated, the very small and small countries registered relatively high HDI scores. It was shown that there was a U-shaped pattern, with medium-sized and large countries registering lower scores and very small, and very large countries.

When the HDI was augmented by Briguglio's EVI by means of simple averaging of the two indices, the relationship between the HDI+EVI and population size is no longer U-shaped, as can be seen in Figure 4.

2. This result was also reported in Atkins *et al* (2000) and Crowards (1999).

Figure 4
Relationship between HDI+EVI (Standardised) and Population Size



These results would seem to suggest that the HDI may overstate the good economic and social conditions in small states, in that it leaves out the fact that they tend to be very economically vulnerable.

Conclusion

The Human Development Index aims to analyse the comparative status of socioeconomic development in both developed and developing nations. It facilitates the determination of priorities for policy intervention and the evaluation of progress over time in the areas of education, health and economic growth. As was explained in the paper, this approach has met with some success and with criticism.

One of the more important aspects of the debate on economic growth and development in recent years concerns the issue of economic vulnerability. Small island states are found to be highly economically vulnerable in many studies, as they are exposed to shocks outside their control.

This paper finds that very small countries, which are particularly vulnerable, tend to obtain high scores on the HDI. The paper argues that the HDI may be failing to reflect the particular difficulties faced by small countries in their processes of economic development. Better consideration of vulnerability issues in the measurement of human development may thus be warranted.

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APPENDIX 1

Regression Analysis for the Relationship between HDI and Population for 2004

The data from the 2004 *Human Development Report* was used for an additional test of the HDI/population relationship. The regression method was applied. Given the already observed U-shaped pattern, the relationships using a quadratic formulation was estimated, as follows:

$$HDI = \alpha + \beta P + \chi P2$$

where the variables P refers to the log of population size. The test was applied for developing countries only. Table A1 gives the estimated coefficients of the quadratic equation, which are found to be statistically different from zero at the 95% level of significance. The results are plotted in Figure A1.

Table A1
Estimated Coefficients of the
Quadratic Equation for Developing Countries

	Estimate of α	Estimate of β	Estimate of χ
Estimate	2.141	-0.178	0.005
t-statistic	3.574	-2.290	2.095

$R^2 = 0.62$

Figure A1
A Quadratic Specification of the HDI/Population Relationship