HUMAN DEVELOPMENT INDEX AS AN INDICATOR OF STANDARD OF LIVING IN SOUTHEAST ASIAN COUNTRIES

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Abstract: Human Development Index or HDI which was coined by United Nations Development Programme (UNDP) in 1990 has become a standard measure of development in this world. The HDI is a composite index of four variables: life expectancy at birth; adult literacy rate; an aggregate primary, secondary and tertiary gross enrolment ratio; and a transformation of per capita GDP in US dollar purchasing power parity terms. This paper will explore the human development index in Southeast Asian (SEA) countries namely Malaysia, Indonesia, Thailand, Philippines, Singapore, Myanmar, Brunei, Cambodia, Laos PDR and Vietnam. The analysis shows that three out of the four SEA countries with the highest HDI has experienced a decline in its HDI. The recent economic crisis has brought an adverse impact on Singapore, Brunei and Thailand where there was a decline in the standard of living in these countries. Malaysia is the only country in SEA that has been having a steady growth in its HDI. The recent economic crisis has actually reduced the standard of living in most of the SEA countries.

Keywords: Human Development Index, Life Expectancy Index, Education Index, GDP Index, Standard of Living, Southeast Asia

INTRODUCTION

In the past, a single measure that was widely used to compare standard of living between countries is a country's GDP (Gross Domestic Product) or GNP (Gross National Product). Due to many limitations of this particular measure as a measure of standard living, a new measure of standard of living was devised namely Human Development Index or HDI. HDI which was coined by United Nations Development Programme(UNDP) in 1990 has become a standard measure of development in this world. UNDP in its Human Development Report 1990 defined human development as 'a process of enlarging people's choices with the most critical ones are to lead a long and healthy life, to be educated and to enjoy a decent standard of living' (Human Development Report, 1990) [2]. The HDI is a composite index of four variables: life expectancy at birth; adult literacy rate; an aggregate primary, secondary and tertiary gross enrolment ratio; and a transformation of per capita GDP in US dollar purchasing power parity (PPP) terms (Cahill, 2002) [1]. Longevity and knowledge refer to the formation of human capabilities, and income is a proxy measure for the choices people have in putting their capabilities to use (Human Development Report, 1990) [2].

The HDI attempts to rank all countries on a scale of 0 (lowest human development) to 1(highest human development) based on three goals or end products of development: longevity as measured by life expectancy at birth, knowledge as measured by a weighted average of adult literacy (two-thirds) and mean years of schooling (one-third), and standard of living as measured by real per capita income adjusted for the differing purchasing power parity) of each country's currency to reflect cost of living and for the assumption of diminishing marginal utility of income (Todaro and Smith, 2002) [4]. Using these three measures of development and applying a formula to data for 175 countries, the HDI ranks all countries into three groups: low human development (0.0 to 0.499), medium human development (0.50 to 0.799), and high human development (0.80 to 1.0) (Todaro and Smith, 2002) [4].

The objective of this paper is twofold. Firstly it intends to analyse the trend in human development indices in SEA countries namely Malaysia, Indonesia, Thailand, Philippines, Singapore, Myanmar, Brunei, Cambodia, Laos PDR and Viet Nam. Secondly, it intends to analyse if recent economic crisis has brought any adverse impact on the standard of living in SEA countries.

DISCUSSION

Measurement Of Human Development Index

Three distinct aspects of human development which is covered in HDI namely life expectancy index, income index and education index can be constructed as a composite index. The three indices (Philipson and Soares, 2001) [3] are constructed for each country i, according to the following formulas:

$$\text{Life expectancy index}_i = (\text{Life exp}_i - \text{Life exp}_{min})/(\text{Life exp}_{max} - \text{Life exp}_{min})$$

$$\text{Income index}_i = [\ln(\text{income}_i) - \ln(\text{income}_{min})]/[\ln(\text{income}_{max}) - \ln(\text{income}_{min})]$$

$$\text{Education index}_i = (2/3)*(\text{Adult lit}_i - \text{Adult lit}_{min})/(\text{Adult lit}_{max} - \text{Adult lit}_{min}) + (1/3)*(\text{Enrollment}_i - \text{Enrollment}_{min})/(\text{Enrollment}_{max} - \text{Enrollment}_{min})$$

$$\text{HDI}_i = (\text{Life expectancy index}_i + \text{Income index}_i + \text{Education index}_i)/3$$

To combine the variables together to form one index, the first three variables are transformed to index values between zero and one, where zero represents the theoretical maximum value possible (Cahill, 2002) [1]. The GDP statistic is transformed by taking the natural logarithm in order to force diminishing returns to GDP, and then scaled to the zero-one range (Cahill, 2002) [1]. Life expectancy index is obtained through life expectancy at birth which is a measure for longevity. Income index is obtained through adjusted per capita income in PPP$ which measures decent standard of living. Education index uses adult literacy rate and combined enrolment ratio which measure the knowledge aspect of human development.

The following example shows how HDI is measured. Assume in year 2001, the data for Malaysia are as follows:

If,
Life expectancy at birth(years)= 72.8
Adult literacy rate(% age 15 and above)= 87.9
Combined primary, secondary and tertiary gross enrolment ratio(%)= 72
GDP per capita (PPP US$) = 8750

So,
Income index = [log (8750) – log (100)] ÷ [log (40000)- log (100)] = 0.75
Life expectancy index = [72.8-25] ÷ [85-25] = 0.80
Adult literacy index = [87.9 – 0] ÷ [100-0] = 0.879
Gross enrolment index = [72-0] ÷ [100-0] =0.72
Education index = 2/3(Adult literacy index) + 1/3 (gross enrolment index)
= 2/3(0.879) + 1/3 (0.72)
= 0.83

Thus,
HDI = 1/3(income index) + 1/3 (life expectancy index) + 1/3 (education index)
= 1/3 (0.75) + 1/3 (0.80) + 1/3 (0.83)
= 0.790

Life Expectancy Index

Table 1 shows the life expectancy index for Southeast Asian (SEA) countries from 1997 to 2001. It is evident from table 1 that all SEA countries displayed an increase in the life expectancy except Myanmar which showed a decline in life expectancy in 1999. Singapore has the highest life expectancy index in SEA which was 0.88 in 2001 and life expectancy at birth was 77.8 years in 2001. Lao PDR has the lowest life expectancy index which is only 0.48 (2001).

The life expectancy at birth for Lao PDR is only 53.9 years in 2001. Based on the data we can say that the life expectancy for SEA countries is improving because of the availability of better health care facilities and better access to health care.

Table 1: Life Expectancy Index For Southeast Asian Countries, 1997-2001

Country	Year				
	1997	1998	1999	2000	2001
Singapore	0.87	0.87	0.87	0.88	0.83
Brunei	0.84	0.84	0.85	0.86	0.85
Malaysia	0.78	0.79	0.79	0.80	0.80
Thailand	0.73	0.73	0.75	0.84	0.73
Philippines	0.72	0.73	0.73	0.91	0.74
Indonesia	0.67	0.68	0.68	0.69	0.69
Viet Nam	0.71	0.71	0.71	0.72	0.73
Myanmar	0.59	0.59	0.52	0.52	0.53
Cambodia	0.47	0.48	0.52	0.52	0.54
Lao PDR	0.47	0.48	0.47	0.47	0.48

Source: Human Development Report, various years

Education Index

Table 2 shows the education index for SEA countries. This index comprises two aspects of education namely adult literacy rate (% age 15 and above) and also combined primary, secondary, tertiary gross enrolment ratio (%). Almost all of the SEA countries displayed an increase in education index. In 2001, Philippines had the highest education index in SEA. This has since 1997 been fluctuating between 0.90 and 0.91. Education index is the lowest for Lao PDR which was only 0.50 (1998) and later improved to 0.63 in 2001. This shows that most of the SEA countries give great importance to investment in human capital which is being translated into an increasing education index especially in countries like Singapore, Brunei, Malaysia, Thailand, Philippines, Indonesia and Vietnam which hit the 0.80 mark. The Human Development Report(1996) [2] stated that:

The human capital models show how education allows the whole education process to benefit from "positive externalities". Educated people use capital more efficiently, so it becomes more productive. They are also more likely to innovate - to devise new and better forms of production. Moreover, they spread the benefits to their co-workers, who learn from them and also become more productive. Thus, the rising level of education causes a rise in the efficiency of all factors of production.

Table 2 : Education Index (%) for Southeast Asian countries, 1997-2001

Country	Year				
	1997	1998	1999	2000	2001
Singapore	0.85	0.86	0.87	0.87	0.87
Brunei	0.84	0.84	0.86	0.86	0.89
Malaysia	0.79	0.79	0.80	0.80	0.83
Thailand	0.83	0.84	0.84	0.84	0.88
Philippines	0.90	0.91	0.91	0.91	0.90
Indonesia	0.78	0.79	0.79	0.79	0.80
Viet Nam	0.82	0.83	0.84	0.84	0.83
Myanmar	0.74	0.75	0.75	0.75	0.72
Cambodia	0.64	0.48	0.66	0.66	0.64
Lao PDR	0.57	0.50	0.51	0.52	0.63

Source: Human Development Report, various years

GDP Index

GDP Index comprise of per capita GDP. Table 3 shows the GDP index for SEA countries. Almost all of the SEA countries displayed an increase in GDP index. Singapore recorded a decline in GDP index in 1998 (0.92) and in 1999 (0.89) from 0.94 (1997). This decline is attributable to the economic downturn which has effected Singapore badly. Myanmar also recorded a decline in GDP index from 0.41 in 1997 and 1998 to 0.39 in 1999, 2000 and 2001. Despite the economic downturn which badly hit many SEA countries, Malaysia was somewhat able to improve its GDP index from 0.73 in 1997 and 1998 to 0.75 in 2000 and 2001. Indonesia also recorded a decline in GDP index from 0.59 (1997) to 0.55 (1998). GDP per capita for Indonesia declined from US$3490 (1997) to US$2651 (1998). Even though, Indonesia had a higher GDP per capita compared to Viet Nam in 2001, Viet Nam had done much more in translating that income into human development. This is evident from higher HDI for Viet Nam compared to Indonesia in 2001.

Table 3 : GDP Index For Southeast Asian countries, 1997-2001

Country	Year				
	1997	1998	1999	2000	2001
Singapore	0.94	0.92	0.89	0.91	0.91
Brunei	0.95	0.85	0.87	0.86	0.88
Malaysia	0.73	0.73	0.74	0.75	0.75
Thailand	0.70	0.67	0.69	0.69	0.69
Philippines	0.59	0.60	0.61	0.61	0.61
Indonesia	0.59	0.55	0.56	0.57	0.56
Viet Nam	0.47	0.47	0.49	0.50	0.51
Myanmar	0.41	0.41	0.39	0.39	0.39
Cambodia	0.43	0.42	0.44	0.45	0.49
Lao PDR	0.43	0.48	0.45	0.46	0.46

Source: Human Development Report, various years

HDI For SEA Countries During And After The Economic Crises

Table 4 below shows the HDI for SEA countries in 1995 and 1997 to 2001. In 1995 and 1997, Singapore and Brunei were the only two SEA countries that fell under the high human development category. Lao PDR was the only SEA country that fell under the low level of human development category in 1995 and 1997. Other SEA countries fell under the medium level of human development category during this period. In 1998, a similar pattern can be observed. Only Singapore and Brunei Darussalam are classified as high human development countries. Lao PDR still falls under the low human development countries category. All the SEA countries saw a decline in their HDI as one of the components in the HDI, that is the GDP declined during this period due to the economic recession which badly affected many SEA countries. This trend continued up to 2000. In 2001, Lao PDR managed to pull itself into the medium human development category.

Table 4 : HDI for SEA Countries From 1997-2001

Countries	Year					
	1995	1997	1998	1999	2000	2001
Singapore	0.857	0.888	0.881	0.876	0.885	0.884
Brunei Darussalam	Na	0.878	0.847	0.857	0.856	0.872
Malaysia	0.760	0.768	0.772	0.774	0.782	0 790
Thailand	0.749	0.753	0.745	0.757	0.762	0.768
Philippines	0.733	0.740	0.744	0.749	0.754	0.751
Viet Nam	0.649	0.681	0.671	0.682	0.688	0.688
Indonesia	0.664	0.664	0.670	0.677	0.684	0.682
Myanmar	Na	0.580	0.585	0.551	0.552	0.556
Cambodia	0.531	0.514	0.512	0.541	0.543	0.549
Lao PDR	0.445	0.491	0.484	0.476	0.485	0.525

Source: Human Development Report, various years

Singapore has experienced a decline in its HDI from a record high of 0.888 in 1997 to 0.884 in 2001. Before the economic crisis, HDI for Singapore was 0.857 (1995). This shows that the economic crisis had a negative effect on Singapore. Generally speaking, the economic crisis has reduced the standard of living in Singapore. The same goes for Brunei Darussalam where in 1997 the HDI was 0.878. In 1998, the HDI for Brunei Darussalam dropped tremendously to 0.847. Thailand also experienced a decline in HDI from 0.753 in 1997 to 0.745 in 1998. Malaysia is the only country in SEA that has been having a steady growth in her HDI from 0.76 (in 1995) to 0.790 (in 2001).

Singapore and Brunei Darussalam are the only two countries in SEA that have been in the high human development category for the past 6 years. In the near future, Malaysia will be able to push itself into the high human development category. This is evident from the value of HDI in Malaysia which is approaching the high human development category. In 2001, the HDI for Malaysia was 0.790. This is attributable to the many efforts of the Malaysian government to improve the three key aspects of human development. It is not impossible for Malaysia to move into the high human development category in a few years time. From 1995 to 2001, Myanmar has been displaying a decline in its human development when the HDI fell from 0.585 (1998) to 0.551 (1999). Lao PDR which has always been in the low human development category managed to pull itself into the medium human development category in 2001 with a HDI value of 0.525. With the movement of Lao PDR into medium human development category, all the SEA countries now fall under the category of high and medium human development category.

Change In HDI For SEA Countries From 1975-2000

Table 5 shows the development of HDI for SEA countries from 1975-2000. From the table it is obvious that only Singapore has made a significant progress in HDI when it moved from medium human development to high human development in 1990 (0.818). Malaysia had also made a tremendous progress during this period. The HDI for Malaysia had increased from 0.616 (1975) to 0.782 (2000). Viet Nam had also made significant progress from a HDI of 0.583 (1985) to 0.688 (2000). This is attributable to the Doi Moi policy of Viet Nam. Indonesia was also able to move from low human development in 1975 (0.469) to medium human development in 1980 (0.530). Only Lao PDR remained in the low human development category in 2000 compared to other SEA countries. But in 2001, Lao PDR also managed to pull itself up into the medium human development category.

Table 5 : HDI for SEA Countries From 1975-2000

Countries	Year					
	1975	1980	1985	1990	1995	2000
Singapore	0.722	0.755	0.782	0.818	0.857	0.885
Brunei Darussalam	Na	na	na	na	na	0.856
Malaysia	0.616	0.659	0.693	0.722	0.760	0.782
Thailand	0.604	0.645	0.676	0.713	0.749	0.762
Philippines	0.652	0.684	0.688	0.716	0.733	0.754
Viet Nam	Na	na	0.583	0.605	0.649	0.688
Indonesia	0.469	0.530	0.582	0.623	0.664	0.684
Myanmar	Na	na	na	na	na	0.552
Cambodia	Na	na	na	0.501	0.531	0.543
Lao PDR	Na	na	0.374	0.404	0.445	0.485

na – not available
Source: Human Development Report, various years

CONCLUSION

The recent economic crisis has actually reduced the standard of living in most of the SEA countries. Singapore has experienced a decline in its HDI from a record high of 0.888 in 1997 to 0.884 in 2001. Before the economic crisis HDI for Singapore was 0.857 (1995). This shows that the economic crisis has brought negative effect on Singapore. Generally speaking, the economic crisis has reduced the standard of living in Singapore. The same goes for Brunei Darussalam where in 1997 the HDI was 0.878. In 1998, the HDI for Brunei Darussalam dropped tremendously to 0.847. Thailand also experienced a decline in HDI from 0.753 in 1997 to 0.745 in 1998. Malaysia is the only country in SEA that has been having a steady growth in its HDI from 0.76 in 1995 to 0.790 in 2001. As HDI measures only the average national achievement and not how well it is distributed in a country, disaggregating a country's HDI by region and population group can spotlight stark disparities between rural and urban areas and among regions and ethnic and income groups (Human Development Report , 2001). Disaggregating a country's HDI by region and population group can better reflect the standard of living in SEA countries.

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