BALANCING HUMAN DEVELOPMENT WITH ECONOMIC GROWTH: A STUDY OF ASEAN 5

SWAHA SHOME, SARIKA TONDON [*]

ABSTRACT*: Economic growth as measured by the GDP of an economy should eventually lead to economic development and better quality of life for its citizens. In many developing countries however, the ranking according to GDP does not match its ranking according to indicators of economic development. This article explores this issue in the ASEAN 5 economies and draws divergent results for the five economies.*

KEY WORD: *ASEAN 5, GDP, HDI, Life Expectancy, Education Index, Correlation*

JEL CLASSIFICATION: *O40, O47*

Economic growth of a country is defined by an increase in its output which is measured by calculating the Gross Domestic Product (GDP). The economic development on the other hand is a broader concept .It reflects the social and technological progress of the economy and is an indicator of the quality of life led by the citizens of the economy. The two terms referred to above need not always go hand in hand. Economic development refers to improvements in indicators such as literacy rates, health conditions, and poverty rates. A quantitative measure of GDP does not take into account these factors and hence the debate. It is often believed that economic growth can only be a precursor to economic development and the latter cannot happen without the former. The logic is that higher levels of output can be redirected into higher spending on education, health and poverty alleviation which will eventually impact the productivity of the citizens leading to higher growth. A group of economists do argue that economic growth can be significant when countries act as resource providers to rich economies and no gain in wealth gets diverted to the parent economy thus causing a scenario of growth without development.

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The article attempts to study the correlation between growth and development in the ASEAN 5 economies and investigate into the development scenario of each member countries. ASEAN or the Association of South Asian Nations was formed in August 1967 by five member countries namely, Indonesia, Malaysia, Philippines, Thailand and Singapore. The association was extended later by new members such as Brunei Darussalam in 1984, Vietnam in 1995, Laos and Myanmar in 1997 and Cambodia in 1999. The human development indicator is an index created by the United Nation Development Program (UNDP). The human development report is published every year since 1990. The Human Development Index (HDI) serves as an indicator to measure a country's progress not just in terms of its output but more social indicators of life expectancy, education and standard of living etc. It is a weighted average of indices of life expectancy, education measured by adult literacy and enrollment and the standard of living measured by the GDP growth. It may however be mentioned that annual comparisons of the index are not very effective as the HDI reflects long term changes.

1. RESEARCH METHODOLOGY

This paper aims to investigate the movement of the two parameters GDP and HDI and check if there exists a significant correlation between their trends .Based on this, we aim to prove the following hypothesis: *H0: There is no difference between the rate economic growth and human development for ASEAN 5.*
H1: The rate of economic growth is faster than human development for ASEAN 5.
For our research we have considered ASEAN economies as a conglomerate and to understand the movement further we have also considered the ASEAN countries individually. The G.D.P data for conglomerate has been taken from International Monetary Fund(IMF).The HDI data for the conglomerate has been found by taking out simple mean of the individual H.D.I's.The Pearson correlation have been found, which are shown by fitting line in the scatter plots. The time period considered for this purpose is between 2000 and 2009. The 2009 report is based on the data of 2007.
For considering individual economies, Pearson's Correlation coefficient has been found and is shown graphically with the help of scatter plots.
As HDI is a summary measure of human development and it consider both income and non income parameters, we conclude our research by finding correlations of GDP with non –income parameters viz. Life Expectancy Index and Education Index for individual economies. These have also been demonstrated by scatter diagrams.
All data for GDP has been taken from IMF site, and HDI data, life expectancy index and education index have been taken from the Human development reports published by UNDP. For our research purpose correlation equal to 0.5 and above is considered strong. Table 1 shows the trend in HDI rank and Human Development Index for ASEAN 5. The latest human development report was released in October 2009 based on data in 2007. The countries were grouped into four categories as shown in the box below. The report covers 180 countries. The top twenty countries this year have been put in an exclusive group of very high human development. Of the ASEAN 5 economies, Singapore and Malaysia are in the category of high human development

and the remaining economies in the category of medium human development. The following chart indicates the trend in GDP and the Human Development index. A correlation between the two parameters has also been attempted. The following table shows the correlation results for the period under study.

Table 1. Human Development Index and Global Rank

ASEAN Countries	HDI INDEX							
	2000		2001		2002		2003	
	Rank	HDI	Rank	HDI	Rank	HDI	Rank	HDI
Indonesia	110	0.673	112	0.682	111	0.692	110	0.697
Malaysia	59	0.797	58	0.79	59	0.793	61	0.796
Philippines	77	0.726	85	0.751	83	0.753	84	0.758
Singapore	25	0.885	28	0.884	25	0.902	25	0.907
Thailand	70	0.753	74	0.768	76	0.768	73	0.778
	2004		2005		2006		2007	
	Rank	HDI	Rank	HDI	Rank	HDI	Rank	HDI
Indonesia	108	0.711	109	0.723	109	0.729	111	0.734
Malaysia	61	0.805	63	0.821	63	0.825	66	0.829
Philippines	84	0.763	102	0.744	102	0.747	105	0.751
Singapore	25	0.916	28	0.922	28	0.942	23	0.944
Thailand	74	0.784	81	0.777	81	0.786	87	0.783
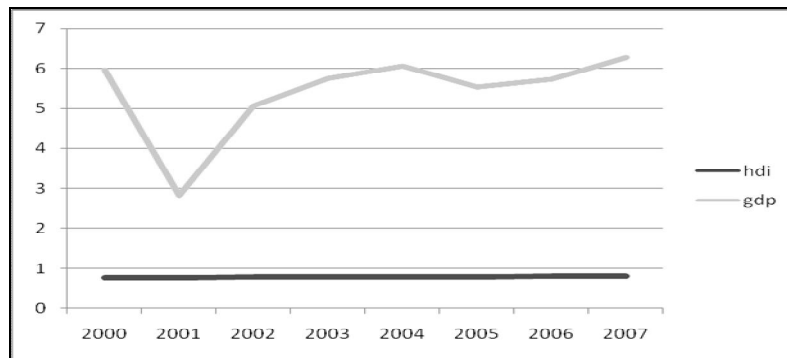
Figure 1. Correlation between GDP and Human Development Index

		HDI	GDP
HDI	Pearson Correlation	1	.476
	Sig. (2-tailed)		.234
	N	8	8
GDP	Pearson Correlation	.476	1
	Sig. (2-tailed)	.234	
	N	8	8

Table 2. Trend Correlation Values between GDP and HDI for ASEAN 5

The above values of correlation indicate that the correlation between Growth and Human development index has been positive but low for the region as a whole. In

other words these economies have made significant progress in growth but not in the index of development. The scatter plot below reflects the same inference.
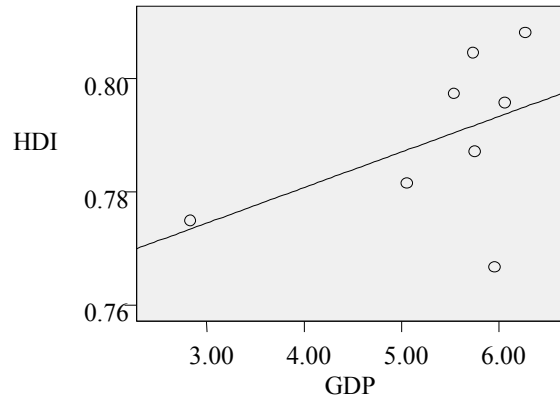
Figure 2. Scatter Plot for GDP and HDI

In order to explore the correlation between HDI and GDP growth rates, we will look at the correlation of each of the member countries. This will help us to understand why there is discrepancy between the countries on the HDI index and identify those economies which are the driver economies in growth as well as development.

2. PHILIPPINES

Table 3. Trend Correlation Values between GDP and HDI for the Philippines

		GDP	HDI
GDP	Pearson Correlation	1	-.070
	Sig. (2-tailed)		.870
	N	8	8
HDI	Pearson Correlation	-.070	1
	Sig. (2-tailed)	.870	
	N	8	8

Inference: Negative low correlation

The following diagram shows the scatter plot for Philippines which clearly supports our inference of low negative correlation. The Philippines have been ranked 105 in the latest report. If one looks at past statistics, the rank was 90 in 2008, 84 in 2006, 83 in 2004 and 85 in 2003. Although the ranking has dropped successively the index has shown a marginal growth of 0.49%. The Philippines showed highest GDP growth in 32 years with 7.4% in 2007. However, even at that point, the HDI rating was only 124th. The life expectancy in Philippines had increased from 1994 to 2000 but thereafter remained stagnant at 77. The slow growth in index despite stagnant life expectancy and high GDP can then be attributed to a stagnant education index. The adult literacy rate increased from 92.6% in 2000 to 93% in 2005 and remained stagnant thereafter. The gross enrollment ratio had increased to 80.6% in 2005 but fell to 79.6% in 2005 and remained stagnant ever since.
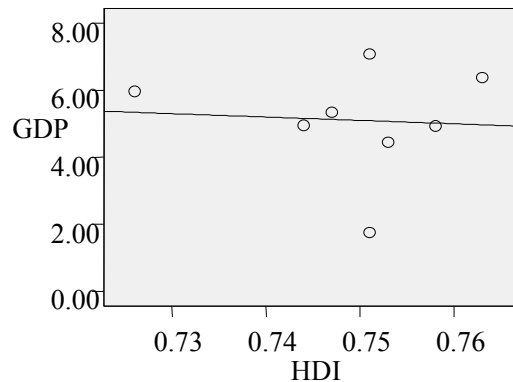
Figure 3. Scatter Plot of GDP and HDI for the Philippines

Table 4. Philippines' Human development index 2007

Hdi Value	Life Expectancy At Birth	Adult Literacy Rate	Gross Enrollment Ratio	Gdp Per Capita (Ppp$)
105 (0.751)	91 (71.6)	54 (93.4)	58 (79.6)	124 (3406)

*Figures outside brackets indicate global ranking, Figures within brackets indicate percentage of population, * UNDP report 2007

The Philippines has an HDI of 0.751 which is lower than the average of 0.770 for East Asia and Pacific. It is within the category of medium development countries and is higher than the average of such countries in terms of the HDI. As shown in the table Philippines has a reasonably high adult literacy rate at 93.4% and a reasonable life expectancy at birth. However, as seen in chart 1, there has not been a significant change in HDI index since 2001. 28% of children below five in Philippines years are underweight and 7% of population still does not get clean drinking water.

3. SINGAPORE

Of all the economies under study, Singapore has the highest ranking and is considered to be in the category of high human development. Yet, the correlation though positive is not high. This implies that growth has increased at a faster pace than development.

Table 5. Correlation between HDI and GDP for Singapore

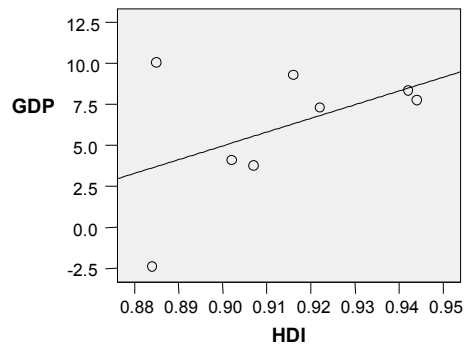|		GDP	HDI
GDP	Pearson Correlation	1	.471
	Sig. (2-tailed)		.239
	N	8	8
HDI	Pearson Correlation	.471	1
	Sig. (2-tailed)	.239	
	N	8	8

Inference: Low correlation

Figure 4. Scatter Plot of GDP and HDI for Singapore

Table 6. Singapore's Human development index 2007

HDI value	Life Expectancy At Birth	Adult Literacy Rate	GDP per capita (PPP$)
23(0.944)	13(80.2)	51(94.4)	7(49704)

*Figures outside brackets indicate global ranking, Figures within brackets indicate percentage of population, * UNDP report 2007*

4. INDONESIA

Table 7. Correlation Between HDI And GDP For Indonesia

		GDP	HDI
GDP	Pearson Correlation	1	.706
	Sig. (2-tailed)		.050
	N	8	8
HDI	Pearson Correlation	.706	1
	Sig. (2-tailed)	.050	
	N	8	8
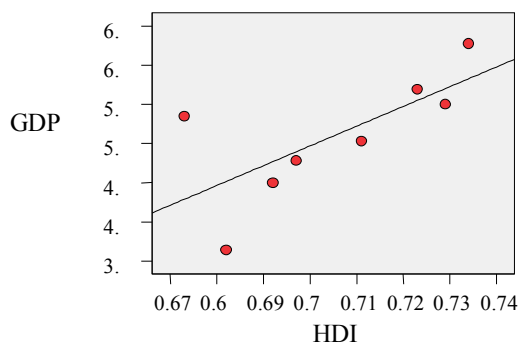
Inference: high correlation

Figure 5. Scatter Plot of GDP and HDI for Indonesia

Indonesia is the only country with high correlation between GDP and HDI. Since the end of the crisis in 1997, Indonesia has made significant progress in reducing poverty. However, 52% of the population lives on less than $2 a day. This has resulted in a decline in nutritional status of children under five. Indonesia is still under the bracket of a low income food deficient country. Indonesia is also vulnerable to earthquakes, floods, tsunami and drought. Malaria affects 20% of the citizens. About 28% of the children are malnourished. There is a severe lack of sanitation and safe drinking water. There are more than three million children who are working and many of them in hazardous occupation. However Indonesia has made significant effort to reduce the poverty by increasing its subsidized rice program. The HDI index was 107 in 2005 and has fallen to 111 in 2007. The life expectancy for males is 69 for males and 72 for females. Indonesia was severely hit by the Asian crisis in 1997. The economy recovered in 2000 and showed a 4.8% increase. The economy slowed down again in 2004 and 2005. The tsunami and the earthquake in 2005 and 2006 again shook the economy. Between 2004 and 2005 the GDP growth rate ranged between 5-6%. However the unemployment rate continues to remain very high reaching around 11 %.

Table 7. Singapore's Human development index 2007

HDI Value	Life Expectancy At Birth	Adult Literacy Rate	Gross Enrollment Ratio	GDP Per Capita (PPP$)
111(O.734)	99(70.5)	61(92)	115(68.2)	121 (3712)

*Figures outside brackets indicate global ranking, Figures within brackets indicate percentage of population, * UNDP report 2007

Indonesia has signed a Dakar Convention which aims to „*the attainment of a 50 percent increase in adult literacy, particularly in women, by the year 2015*". By 2002, since Indonesia's literacy rate had reached about 89.51, the target was modified to become "*the attainment of a 50 percent decrease in adult illiteracy aged 15 and above by 2015*". Indonesia has the lowest ranking among ASEAN 5 but is making significant progress in attaining a better life for its citizens.
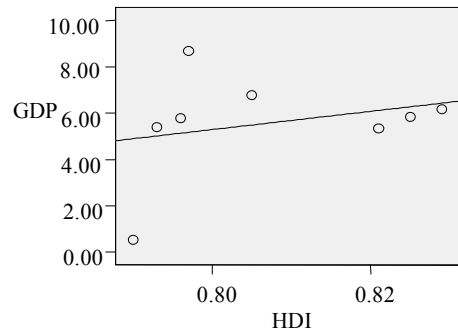
5. MALAYSIA

Malaysia is a multi ethnic, multi cultural population with a good standard of living. It achieved universal primary education in 1990.

Table 8. Correlation between HDI and GDP for Malaysia

		GDP	HDI
GDP	Pearson Correlation	1	.268
	Sig. (2-tailed)		.522
	N	8	8
HDI	Pearson Correlation	.268	1
	Sig. (2-tailed)	.522	
	N	8	8

There has been significant fall in the infant and maternal mortality rates. Malaysia can boast of a well developed primary health care system, availability of

drinking water, good hygiene and nutrition. However Malaysia is not without its challenges. HIV threats are increasing everyday. Reported HIV cases are seen to double every three years.

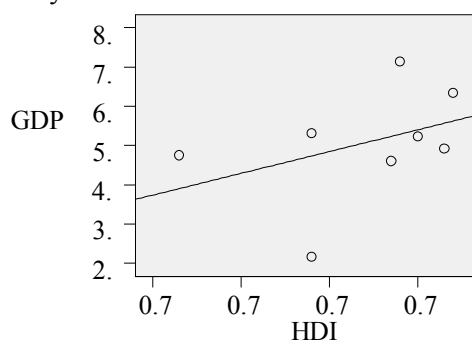*Inference: low positive correlation*

Figure 6. Scatter Plot of GDP and HDI for Malaysia

Table 9. Malaysia's Human development index 2007

HDI Value	Life Expectancy At Birth	Adult Literacy Rate	Gross Enrollment Ratio	GDP Per Capita (PPP$)
66(0.829)	55(74.1)	62(91.9)	102(71.5)	61(13518)

*Figures outside brackets indicate global ranking, Figures within brackets indicate percentage of population, * UNDP report 2007

The Malaysian government has started "VISION 2020" to shape Malaysia as a fully industrialized economy with an equally good standard of living. Malaysia has also launched the "unite for children" as well as aids global campaign in 2005 to control its biggest challenge to development.

6. THAILAND

Thailand's development program is based on sufficiency economy which is an innovative approach to development based on principles of moderation, wisdom and need for sufficiency.

Table 10. Correlation between HDI and GDP for Thailand

		GDP	HDI
GDP	Pearson Correlation	1	.397
	Sig. (2-tailed)		.330
	N	8	8
HDI	Pearson Correlation	.397	1
	Sig. (2-tailed)	.330	
	N	8	8

Inference: Low positive correlation

Thailand is a medium income economy. Poverty in the economy has come down from 38% in 1990 to 11% in 2004 but there is still a high degree of inequality. The level of school enrollment is fair but quality of higher education is poor. Availability of health services is also not uniform and maternal mortality is relatively high. Whatever development has so far taken place also has an urban bias. Child mortality is also of concern as is the growing incidence of aids. Since 2001, however there has been effort at providing universal health care rural debt relief and village level development. The following table shows the correlation between GDP and HDI for the period under study.

Figure 7. Scatter Plot of GDP and HDI for Thailand

Table 11. Malaysia's Human development index 2007

HDI value	Life expectancy at birth (years)	Adult literacy rate (% ages 15 and above)	Combined gross enrolment ratio (%)	GDP per capita (PPP US$)
87.(0.783)	107. (68.7)	52. (94.1)	68. (78.0)	82. (8,135)

*Figures outside brackets indicate global ranking, Figures within brackets indicate percentage of population, * UNDP report 2007

The above discussion clearly reflects that the correlation between GDP and HDI has been low for most economies except Indonesia. This clearly supports our hypothesis that there is much scope for diverting the gains of growth to education and health in these economies.

3. NON INCOME PARAMETERS

Since there is a debate as to whether growth and development are always positively correlated, an alternative study relates to a comparison between the rankings of GDP and HDI.
The UNDP Report states that the gap between a country's HDI rank and GDP per capita rank reflects how effectively economic growth has been directed towards human development. A higher HDI ranking relatively to a GDP ranking indicates that a nation's economic wealth has benefited its citizens equitably. A positive figure indicates that the HDI rank is higher than the GDP per capita (PPP US$) rank; a negative figure, the opposite. The following table shows the same for ASEAN 5. It is

interesting to note that Philippines which have a negative correlation between GDP and HDI have the highest positive difference.

Table 12. Difference in GDP per Capita Rank and HDI Rank for ASEAN 5

Country	GDP per capita ($PP) Rank less HDI rank
Philippines	+19
Singapore	-16
Indonesia	10
Malaysia	-5
Thailand	-5

Since Indonesia and Philippines has shown the most extreme results in this group with the former showing high positive correlation and the latter showing negative correlation, a comparison between these two economies is shown in the following diagram.
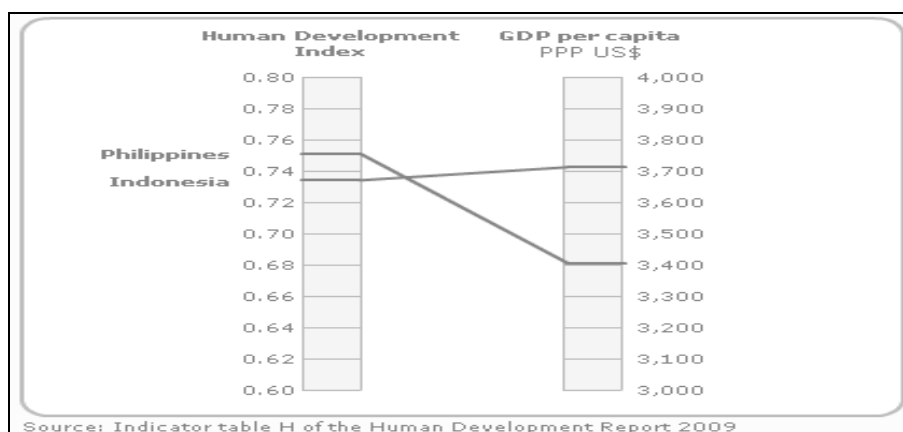
Figure 8. Comparison of GDP per capita and HDI for Indonesia and Philippines

Since the HDI index is a weighted average of the GDP per capita, education and life expectancy of the citizens, we will now concentrate on the non income parameters and its relation to GDP as the per capita income is already included in HDI calculation. According to UNDP, the education index, is measured as a weighted average of the adult literacy rate (with two-thirds weightage) and the sum of primary, secondary, and tertiary gross enrollment ratio (with one-third weightage). The second index is the life expectancy index. **Life expectancy** is the expected number of years of life remaining at a given age. In order to calculate the index the formula applied is

$$LEI = x - Minimum\ (x)/\ maximum(x) - minimum(x).$$

UNDP considers minimum = 25years and maximum = 85 years as an average of the population.

To show how the GDP has been directed towards education and life expectancy, we have done a correlation between GDP and education index(EI) and as

well as between GDP and life expectancy index.(LEI).The following table gives the results of the same. Scatter plots for each are included in the appendix.

As seen in the table, the correlation of GDP and life expectancy for all the five economies is relatively high except Malaysia. The correlation of GDP and education index is exactly the opposite. The correlation ranges between very low negative to high negative indicating that education requires a push in every economy. The UNICEF has taken active steps in providing health services and establishing schools and learning centers in most of these economies especially Thailand.

Table 13. Correlations of GDP with Life Expectancy Index and Education Index

| Countries	Life Expectancy Index	Education Index
Indonesia	.851 (Very high)	.389 (low)
Malaysia	0.004 (Negligible)	0.080 (Very low)
Philippines	0.655 (high)	-0.760 (Very High ,negative)
Singapore	0.511 (high)	.338 (Low)
Thailand	0.620 (high)	-0.464 (low ,negative)

4. CONCLUSION

The above inferences clearly indicate that development and growth have not moved in tandem in the ASEAN 5 economies. Removing the income parameter from the HDI has shown that all five economies need to take effort in directing growth towards education. Only then will the challenges of development be met by achieving a higher growth rate.
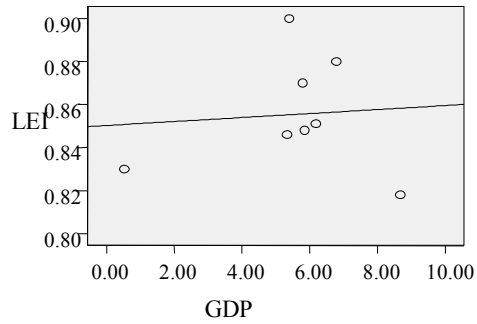
APPENDIX:

MALAYSIA

Correlations

		GDP	LEI
GDP	Pearson Correlation	1	.004
	Sig. (2-tailed)		.992
	N	8	8
LEI	Pearson Correlation	.004	1
	Sig. (2-tailed)	.992	
	N	8	8
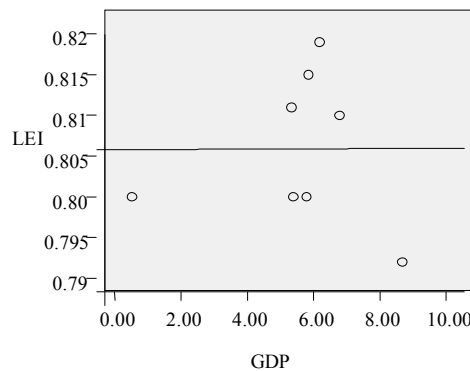
Correlations

		GDP	EI
GDP	Pearson Correlation	1	.080
	Sig. (2-tailed)		.851
	N	8	8
EI	Pearson Correlation	.080	1
	Sig. (2-tailed)	.851	
	N	8	8

INDONESIA

Correlations

		GDP	LEI
GDP	Pearson Correlation	1	.851**
	Sig. (2-tailed)		.007
	N	8	8
LEI	Pearson Correlation	.851**	1
	Sig. (2-tailed)	.007	
	N	8	8

**.Correlation is significant at the 0.01 level
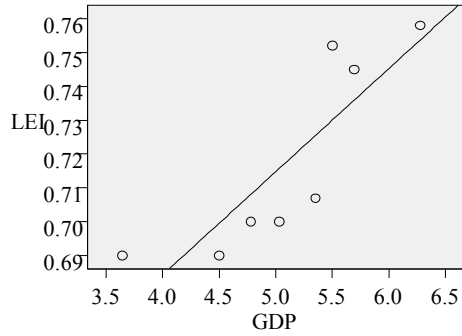
Correlations

		GDP	EI
GDP	Pearson Correlation	1	.389
	Sig. (2-tailed)		.341
	N	8	8
EI	Pearson Correlation	.389	1
	Sig. (2-tailed)	.341	
	N	8	8
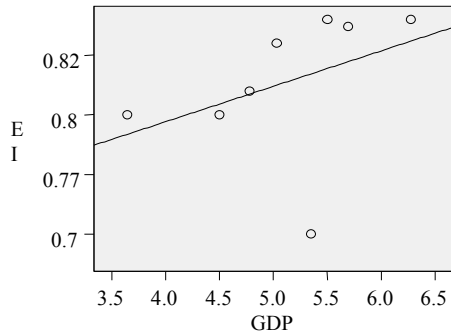
PHILLIPINES

Correlations

		GDP	LEI
GDP	Pearson Correlation	1	.655
	Sig. (2-tailed)		.078
	N	8	8
LEI	Pearson Correlation	.655	1
	Sig. (2-tailed)	.078	
	N	8	8
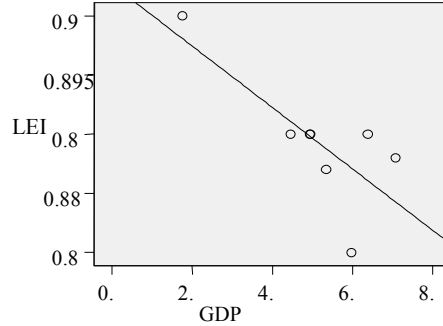
Correlations

		GDP	EI
GDP	Pearson Correlation	1	-.760*
	Sig. (2-tailed)		.029
	N	8	8
EI	Pearson Correlation	-.760*	1
	Sig. (2-tailed)	.029	
	N	8	8
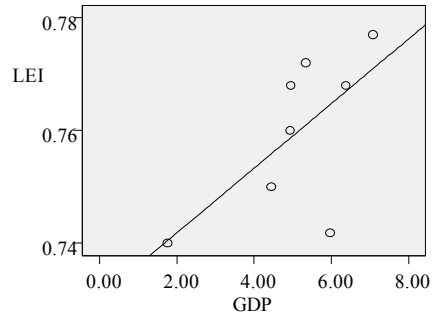
*. Correlation is significant at the 0.05 level (2-ta

SINGAPORE

Correlations

		GDP	EI
GDP	Pearson Correlation	1	.338
	Sig. (2-tailed)		.413
	N	8	8
EI	Pearson Correlation	.338	1
	Sig. (2-tailed)	.413	
	N	8	8
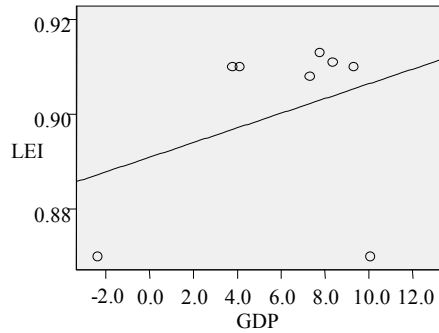
Correlations

		GDP	LEI
GDP	Pearson Correlation	1	.511
	Sig. (2-tailed)		.196
	N	8	8
LEI	Pearson Correlation	.511	1
	Sig. (2-tailed)	.196	
	N	8	8
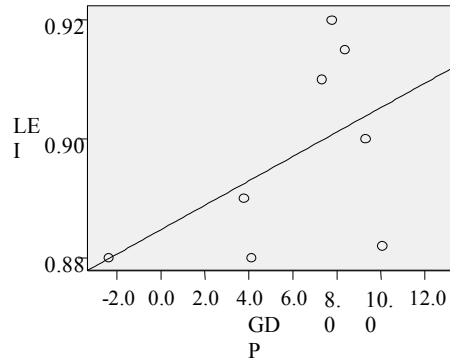
THAILAND

Correlations

		GDP	LEI
GDP	Pearson Correlation	1	.620
	Sig. (2-tailed)		.101
	N	8	8
LEI	Pearson Correlation	.620	1
	Sig. (2-tailed)	.101	
	N	8	8
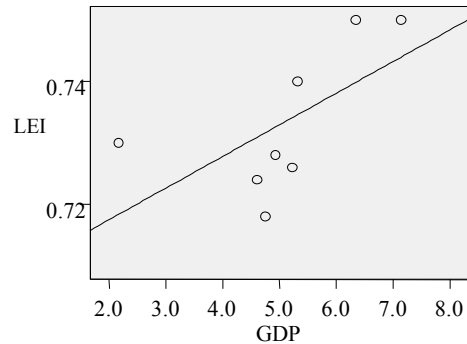
Correlations

		GDP	EI
GDP	Pearson Correlation	1	-.464
	Sig. (2-tailed)		.246
	N	8	8
EI	Pearson Correlation	-.464	1
	Sig. (2-tailed)	.246	
	N	8	8
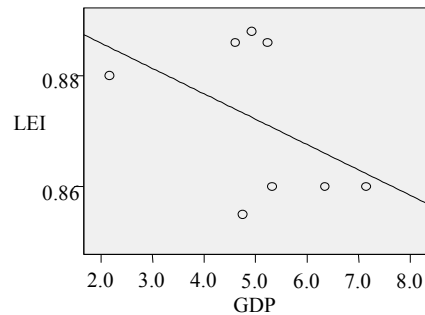
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