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A RANKING OF ISLAMIC COUNTRIES IN TERMS OF THEIR LEVELS OF SOCIO-ECONOMIC DEVELOPMENT

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In this study, the comparative socio-economic development level of the Islamic countries is studied for the year 1996. After a set of indicators defined as measures of social and economic development level has been selected, the Islamic countries are ranked according to these indicators by using the Principal Component Analysis.

1. INTRODUCTION

The Organisation of the Islamic Conference (OIC) is an international organisation which aims at developing political, economic, cultural, social and scientific co-operation between the member countries. Such kinds of developments on a global scale and their potential have become more evident since the establishment of the OIC. However, differences in socio-economic structures have been blocking the deepening of co-operation between the member states. Nevertheless, the level of co-operation achieved so far is not inconsiderable.

The development of economic relations between countries may lead to various higher forms of integration, ranging from the establishment of free trade areas to customs unions or an economic community. Economic integration, which may lead to higher rates of output growth and higher productivity through an easier and more unrestricted movement of capital and a better and more efficient division of labour, may bring about various benefits such as a faster growth in the volume of foreign trade, a more rapid development of new markets and new opportunities for investment and an enhanced ability to compete in global markets due to productivity-increasing and unit-cost reducing effects of economic integration.

The Islamic countries have a considerable economic potential that might eventually lead to the establishment of an Islamic Free Trade Area or even, in time, to the establishment of an Islamic Common Market. Briefly put, efforts

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are being made to further increase economic co-operation between the Islamic countries so that economic and social development in these countries may be accelerated and OIC countries may attain a more effective role in the global economy.

This study aims at providing a summary of quantitative information on the comparative standing of Islamic countries in terms of socio-economic development. Socio-economic indicators are very important for the countries as a monitor. They show where society has to go and how it changes. The fact that there are numerous measurements which could be used as indicators of the level of socio-economic development necessitates the use of multivariate analysis. A favourite choice in this context is the Principal Component Analysis, which has also been selected for use in this study. This is a statistical technique that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables that represents most of the information in the original set of variables. A small set of uncorrelated variables is much easier to understand and to use in further analysis than a larger set of correlated variables.

For this end, after this short description of the method of principal components, a set of main variables indicative of the level of social and economic development were selected and defined and then, using these 'indicators', the Islamic countries were ranked in terms of their level of social and economic development.

2. THEORY OF PRINCIPAL COMPONENT ANALYSIS

Principal Component Analysis (PCA) is one of the most important statistical techniques known for some 40 years or so. The idea was originally conceived by Pearson (1901) and independently developed by Hotelling (1933).

As a first objective, PCA seeks the standardised linear combination of the original variables which has maximal variance. More generally, PCA looks for a few linear combinations which can be used to summarise the data, losing in the process as little information as possible. This attempt to reduce dimensionality can be described as " parsimonious summarisation" of the data.

The goal of PCA is similar to that of factor analysis (another multivariate technique) in that both techniques try to explain part of the variation in a set of observed variables on the basis of a few underlying dimensions. PCA has no underlying statistical model of the observed variables and focuses on explaining the total variation in the observed variables on the basis of maximum variance properties of principal components. Factor Analysis, on the other hand, has an underlying statistical model that partitions the total variance

into common and unique variance and focuses on explaining the common variance, rather than the total variance, in the observed variables on the basis of a relatively few underlying factors.

PCA searches for a few uncorrelated linear combinations of the original variables that capture most of the information in the original variables. A set of p indicators (let us say socio-economic indicators) which can be characterised as a p dimensional random vector (x_1, x_2, ..., x_p), can be linearly transformed by $y= a_{1x}x_1 + a_2x_2 + ...+ a_px_p$ into a one dimensional socio-economic index, y. In PCA, the weights (i.e. $a_1, a_2, ..., a_p$) are mathematically determined to maximise the variation of the linear composite or, equivalently, to maximise the sum of the squared correlations of the principal component with the original variables. The linear composites (principal components) are put in order with respect to their variation so that the first few account for most of the variation present in the original variables, or the first few principal components together have, overall, the highest possible squared multiple correlations with each of the original variables.

Algebraically, the first principal component, y_1, is a linear combination of x_1, x_2, ..., x_p

$$y_1 = a_1' x= a_{11}x_1 + a_{21}x_2 + ...+ a_{p1}x_p = \Sigma\, a_{1i}x_i$$

such that the variance of y_1 is maximised given the constraint that the sum of the squared weights is equal to one ($\Sigma\, a_{1i}^2 = 1$). PCA finds the optimal weight vector ($a_{11}, a_{21},.....,a_{p1}$) and the associated variance of y_1 which is usually denoted by λ_1.

The second principal component, y_2, involves finding a second vector ($a_{21}, a_{22},....., a_{2p}$) such that the variance of

$$y_2= a_2'x = a_{21}x_1 + a_{22}x_2 + ...+ a_{2p}x_p = \Sigma\, a_{2i}x_i$$

is maximised subject to the constraint that it is uncorrelated with the first principal component and $\Sigma\, a_{2i}^2 = 1$. This results in y_2 having the next largest sum of squared correlations with the original variables. The first two principal components together have the highest possible sum of squared multiple correlations with the p variables.

This process can be continued until as many components as variables are calculated. However, the first few principal components usually account for most of the variation in the variables although small components can also provide information about the structure of the data. The main statistics resulting from a principal components analysis are the variable weight vector $a= (a_1, a_2,.....,a_p)$ associated with each principal component and its associated

variance, λ. The pattern of variable weights for a particular principal component is used to interpret the principal component and the magnitude of the variance of the principal components provides an indication of how well they account for the variability in the data.

The Basic Concept of PCA

The variance of a linear composite can be more easily expressed in matrix algebra as a′Ca where a is the vector of variable weights and C is the covariance matrix. PCA finds the weight vector a that maximises vector a that maximises a′Ca given the constraint that

$$\Sigma a_i^{\,2} = a'a = 1$$

A linear composite can be based on a covariance matrix or a correlation matrix, R, which is a covariance matrix of standardised variables. If we have a set of n observations, on p variables, then we can find the largest component of R, the correlation matrix, as the weight vector $[a_{11}, a_{12},.....,a_{1p}]$ which maximises $\Sigma a_{1i}x_i$. It can be shown that the above definition of principal components leads to the matrix equation $Ra = \lambda a$, where λ is the latent root of the correlation matrix R and a is its associated latent root vector. Latent roots are sometimes called eigenvalues and latent vectors are sometimes called eigenvectors.

As it is explained above, there are p linear transformations (principal components) of the original p variables. They are $y_1 = \Sigma a_{1j}xj$, $y_2 = \Sigma a_{2j}xj$,…….. $y_p = \Sigma a_{pj}xj$. They can be expressed more succinctly in matrix algebra as y = A′ x, where y is a p element vector of principal component scores, A′ is a p × p matrix of latent vectors with the i^{th} row corresponding to the elements of the latent vector associated with the i^{th} latent root, and x is a p element column vector of the original variables. This is a linear transformation of a p element random vector x into a p element random vector y, the principal component. From the definition of principal components, A A′ = I and A is the matrix with latent vectors as columns, A′ is the transpose of A and I is the p×p identity matrix.

Since the i^{th} latent root and its associated latent root must satisfy the matrix equation $R\ a_i = \lambda\ ai$, premultiplying it by ai′, $ai'R\ a_i = ai'\ \lambda\ ai = \lambda i$ for the variance of the i^{th} principal component since

$ai'ai = \Sigma a_{ij}^{\,2} = 1$.

$Ra_1 = \lambda\ a_1$, $R\ a_2 = \lambda_2\ a_2$, ……, $Ra_p = \lambda_p\ a_p$ by combining these relations

in one matrix expression as R A = A Λ where A is a matrix of eigenvectors as column vectors, and Λ is a diagonal matrix of the corresponding latent roots ordered from largest to smallest.

The elements of Λ, the diagonal matrix of latent roots, have to be in the same order for matrix equation R A = A Λ to hold. It can be generalised from ai′Rai = λi as the equation for the variance of the i^{th} principal component as A′RA = Λ where A′ is the transpose of A. That is, since RA = A Λ, it can be premultiplied in both sides of this expression to obtain A′RA = A′ A Λ = Λ. The goal of PCA is to decompose the correlation matrix. That explains the variation expressed in R in terms of weighting vectors of the principal components and variances of the principal components.

It is often easier to interpret the principal component when the elements of the latent vector are transformed to correlations of the variables with the particular principal components. This can be done by multiplying each of the elements of a particular latent vector, a_i, by the square root of the associated latent root √λi. Thus the correlation of the variables with the i^{th} principal component is √λiai.

PCA is useful in significantly reducing the dimensionality of a data set characterised by a large number of correlated variables. The principal components often have a natural interpretation; if not, they can be rotated. In general, PCA helps us understand the structure of a multivariate data set.

3. SELECTION OF SOCIAL AND ECONOMIC VARIABLES

The 33 variables selected as indicators of social and economic level of development which are chosen from international sources such as the *World Development Indicators 1998* of the World Bank, and the *Human Development Report 1998* of the UNDP are listed below. They are listed in two groups, namely 'Economic Indicators' and 'Social Indicators', composed of 14 and 19 variables respectively:

Economic Indicators

1. GRaGDP Growth Rate of GDP (Between 1990-1995) (%)
2. PCGDP Per Capita GDP ($)
3. SiGDP Share of Investment in GDP (%)
4. SSaGDP Share of Saving in GDP (%)
5. SDGDP Share of Debt in GDP (%)
6. SAGDP Share of Agriculture in GDP (%)
7. SIGDP Share of Industry in GDP (%)
8. SSeGDP Share of Services in GDP (%)

Economic Indicators (continued)

9.	SAPA	Share of Active Population in Agriculture (%)
10.	SAPI	Share of Active Population in Industry (%)
11.	APRa	Active Population Rate (%)
12.	M/GDP	Share of Imports in GDP (%)
13.	X/GDP	Share of Exports in GDP (%)
14.	X/M	Export/ Import (%)

Social Indicators

1.	GraP	Growth Rate of Population (Between 1990-1995) (%)
2.	FeRA	Fertility Rate (%)
3.	UPRa	Urban Population Rate (%)
4.	LiRa	Literacy Rate (%)
5.	PTRa	Pupil-Teacher Ratio at Primary Level (%)
6.	SPSGDP	Share of Public Spending on Education in GDP (%)
7.	LEB	Life Expectancy at Birth (Year)
8.	IMRa	Infant Mortality Rate (per 1000 live births)
9.	NmPD	Number of People per Doctor
10.	NmPB	Number of People per Bed
11.	ShHGDP	Share of Public Spending on Health in GDP
12.	DCIPC	Daily Calorie Intake per Capita (Calorie)
13.	PCEC	Per Capita Electric Consumption (Mln. kW-h)
14.	TVPP	TV Receivers per 100 people (Number)
15.	DNPP	Daily Newspapers per 100 People (Number)
16.	TMPP	Telephone Mainlines per 100 People (Number)
17.	CprPa	Consumption of Printing Paper per 1000 People (Ths. Metric Tons)
18.	NCPP	Number of Cars per 100 People
19.	EAWR	Rate of Economically Active Women (%)

Since the data about Afghanistan, Brunei, Comoros, Djibouti, Maldives, Somali and the Central Asian countries for the selected 33 indicators were not available in the international sources we used, only 40 of the 56 countries are included in this study. However, it is possible to select other socio-economic variables which refer to socio-economic development, but lack of sufficient data concerning the countries involved in the study has prevented the use of all specific variables.

4. THE DERIVATION OF A RANKING OF SOCIO-ECONOMIC DEVELOPMENT

The 40 Islamic countries and the 33 variables used in the study form a 40x33 data matrix. After the standardisation of the variables, the variance-covariance matrix was calculated. In this case, the Bartlett test was used to find out if the

correlation matrix is the unit matrix or not. In our study, the result of the Bartlett test statistics was calculated as 1081.7 and, therefore, the null hypothesis "the correlation matrix is a unit matrix" was rejected. Since the correlation matrix is not a unit matrix, Principal Component Analysis could be used.

First, the eigenvalues and the proportion of the total variance explained by each of the principal components were calculated. In accordance with the Kaiser rule, only the first 8 factors which had eigenvalues greater than one were used. The Kaiser Rule helps us decide on how many principal components to retain. Kaiser recommends dropping those principal components of a correlation matrix with latent roots less than one. According to this rule, principal components with variances less than one contain less information than a single standardised variable whose variance is one. These values were given in Table 1.

Table 1
Eigenvalues of the Correlation Matrix and Total Variance Explained

Component	Eigenvalues	% of Variance	Cumulative %
1.	13,7	41,6	41,6
2.	3,1	9,3	50,9
3.	2,6	7,9	58,8
4.	2,1	6,3	65,1
5.	1,6	4,9	69,9
6.	1,5	4,5	74,5
7.	1,4	4,2	78,7
8.	1,0	3,0	81,7

According to this analysis, the weights are assigned so that the first factor of the new variables captures the maximum variance, the second has the maximum possible variance unaccounted by the first and so on. In Table 1, the first component accounts for only 41.6% of the generalized variance, the first and the second components account for only 50.9% and the cumulative variance of the eight components is 81.7%. It shows a loss of information of 18.3%. The other result we get from Table 1 is that only six factors may be selected for this study, because the 7th and 8th factors have a very small variance share of the generalised variance. Finally, the variance proportion of 74.5% of the 33 variables is informative enough to be used in this analysis and indicators can be grouped under six factors.

The next step is the calculation of the Component Matrix which is given in Annex 2. It shows the correlation between the original variables and the factors. This matrix enables us to determine the variables with the highest factor correlation and group them under that factor. In this case, the original 33

variables were grouped under six factors, with over two thirds grouped under the first factor. According to this table, the list below was obtained. After that step, the most important thing is giving suitable names to the factors.

Variables grouped under the first factor:

SAPA	Share of Active Population in Agriculture
LEB	Life Expectancy at Birth
SAPI	Share of Active Population in Industry
UPRa	Urban Population Rate
TMPP	Telephone Mainlines per 100 People
IMRa	Infant Mortality Rate
SAGDP	Share of Agriculture in GDP
PCEC	Per Capita Electric Consumption
EAWR	Rate of Economically Active Women
LiRa	Literacy Rate
CPrPa	Consumption of Printing Paper per 1000 People
SIGDP	Share of Industry in GDP
DNPP	Daily Newspapers per 100 People
TVPP	TV Receivers per 100 People
PCGDP	Per Capita GDP
NCPP	Number of Cars per 100 People
NmPD	Number of People Per Doctor
PTRa	Pupil-Teacher Ratio at Primary Level
FeRA	Fertility Rate
DCIPC	Daily Calorie Intake Per Capita
X/GDP	Share of Exports in GDP
NmPB	Number of People Per Hospital Bed
ShHGDP	Share of Public Spending on Health in GDP

Variables grouped under the second factor:

APRa	Active Population Rate
M/GDP	Share of Imports in GDP
SPSGDP	Share of Public Spending on Education in GDP

Variables grouped under the third factor:

SSeGDP	Share of Services in GDP
X/M	Export/ Import
SSaGDP	Share of Saving in GDP

Variable grouped under the fourth factor:

SiGDP	Share of Investment in GDP

Variables grouped under the fifth factor:

GRaP	Growth Rate of Population
SDGDP	Share of Debt in GDP

Variable grouped under the sixth factor:

GRaGDP	Growth Rate of GDP

The factor weight of the first component indicates that the 23 original variables which are grouped under it can be considered to be a valid yardstick of the level of socio-economic development. It is observed that scores of the 23 variables which have been grouped under the first component are high and significant. When we examine the values of correlation that belong to the variables grouped under the first factor, we see that they truly reflect the link with development. For example, there is a strong negative relation between the share of active population in agriculture and economic development. As a proof of this fact, the variable named SAPA (Share of Active population in Agriculture) has a factor weight of -0.921 with respect to the first factor. The fact that most of the original variables grouped under the first factor which explained 41.6% of the total variance enables us to call it "The Socio-economic Development Factor for the OIC Countries". Therefore, there was no need for rotation to overcome the problem of naming the factor. Since the aim of this study is to rank the OIC countries in terms of their socio-economic development level, it is possible to eliminate the other factors which have a relatively low variance share of the total variance explained.

The ranking of OIC countries in terms of their levels of socio-economic development as defined by the first factor is given below in Table 2.

Table 2 indicates that these 40 countries can be categorised into three main groups: the first seven countries who have positive factor values of over 1; a second group of 14 countries (ranked 8th through 21st) who have positive factor values of less than 1; and thirdly, the remaining 19 countries with negative factor values.

Significant similarities would be noted in the comparison of the data in Table 2 with the UNDP ranking of these countries in terms of 'development' and 'income distribution' given in Annex Tables 3 and 4. Of the countries included in the first group, Qatar, UAE and Kuwait are among the high-income countries. The average per capita income of these countries is about 10 000 dollars and the other common point is that they are all, except Malaysia, oil-rich Gulf countries. The Gulf countries possess an estimated 64% of the world's total oil reserves. Saudi Arabia, just by herself, has 27% of the world oil reserves. They have managed to attain high per-capita income levels and

Table 2
Socio-Economic Development Ranking of OIC Countries

No.	Country Name	Factor Score
1.	Kuwait	2,387
2.	United Arab Emirates	2,219
3.	Bahrain	1,616
4.	Qatar	1,500
5.	Lebanon	1,218
6.	Malaysia	1,096
7.	Saudi Arabia	1,063
8.	Libya	0,865
9.	Oman	0,759
10.	Jordan	0,687
11.	Tunisia	0,656
12.	Algeria	0,624
13.	Turkey	0,604
14.	Iran	0,364
15.	Syria	0,249
16.	Egypt	0,236
17.	Iraq	0,226
18.	Morocco	0,139
19.	Indonesia	0,079
20.	Gabon	0,034
21.	Albania	0,014
22.	Yemen	-0,294
23.	Pakistan	-0,403
24.	Nigeria	-0,409
25.	Cameroon	-0,498
26.	Mauritania	-0,574
27.	Sudan	-0,717
28.	Senegal	-0,764
29.	Gambia	-0,874
30.	Bangladesh	-0,894
31.	Benin	-0,958
32.	Sierra Leone	-0,959
33.	Guinea-Bissau	-0,996
34.	Guinea	-1,021
35.	Mozambique	-1,117
36.	Uganda	-1,129
37.	Mali	-1,224
38.	Chad	-1,242
39.	Burkina Faso	-1,243
40.	Niger	-1,320

considerable economic development thanks to their very substantial oil revenues. Malaysia also appears in this group, but unlike others, it is not a Middle Eastern country and owes its high ranking not to oil revenues but to its industrial development.

The 14 countries which appear in the second group are located in North Africa and East and South Asia. They have an average per capita income of about US$ 4000, which puts them in the category of middle-income developing countries. The share of industrial output in these countries, on average, has far outstripped the share of agricultural output in the GDP (40% versus 19%) and many have foreign trade surpluses. Their rate of population growth is considerably less than those in the third group and, in some cases, also less than those of the Gulf countries in the first group. The 19 countries which form the third group all belong to the category of low-income and least developed countries in Annex Tables 3 and 4 and they have an average per capita income of about US$ 400. The economies of these countries, most of which are located in West Africa, depend on natural resources and agriculture. The rapid population growth that could not be stopped for years has almost become their destiny. Because of that, there was no increase in the income per person. The rapid population growth has decreased the productivity per person and caused the incomes to remain low. These countries have always had to use up the capital to service more people instead of providing means for a smaller number of people. And as they could not find the necessary resources, their debts kept on increasing.

5. CONCLUSION

In this study, an attempt has been made to devise a ranking of OIC member countries in terms of their comparative levels of socio-economic development. 33 variables (14 of which are economic and 19 are social) were selected for 40 Islamic Countries for which reliable international data were available. The Principal Component Analysis, the favourite statistical method for multivariate variables, was used for analysing the data and a ranking of these countries was derived with the help of the SPSS 7.5 statistical programme. As a result of the relevant process, eigenvalues and the proportion of total variance explained by each of the principal components were calculated in the first place. According to this, six factors which have a cumulative variance share of 74.5% were chosen as the principal component. And when the component matrix that determined the variable with the highest factor correlation was calculated, it showed which variables were under which factors. Moreover, it was observed that the 23 socio-economic variables had been grouped under the first component, giving enough information about the development level of the countries. Therefore, the last ranking was called the “Socio-Economic Development Ranking of OIC Countries”. The ranking of the countries made on the basis of ‘The Socio-Economic Development of the OIC Countries’ indicated that these 40 countries might be divided into three groups, the first of which included seven oil-rich Gulf countries plus Malaysia, while the second group consisted of 14 North African and South and East Asian countries. The

remaining 19 countries located in West Africa are comprised in the UNDP Human Development's ranking of income and development list.

It is obvious that the Islamic countries whose total population accounts for one-fifth of the world population may be considered as having economies which complement each other since some are rich in human resources while others are extremely rich in fuel reserves and some other important raw materials. The efforts of the OIC countries for achieving economic integration should be evaluated in this global context. However, there are various impediments on this route, not the least of which are the differences in their economic and social structures.

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Annex 1: Descriptive Statistics

	Minimum Value	Maximum Value	Mean	Std. Deviation
NmPD	536	53996	8964,9	11965,5
PCGDP	86	24,3	3,2	5,4
DCIPC	1710	3429	2610,6	493,8
PCEC	14	14178	1765,9	3297,2
NmPB	157	5479	1045,8	1083,6
SDGDP	6,7	443,6	101,6	87,9
IMRa	11	179	70,5	41,9
LEB	38	76	85,8	10,9
LiRa	13,6	92,4	56,6	21
NCPP	1	398	56,5	104
UPRa	12,5	97	47,9	24,1
SAPA	1,2	97	46,6	29,2
SSeGDP	23	69	45,1	10,4
M/GDP	2	455	42,4	70,5
APRa	26	55	41,3	8,5
X/GDP	1,4	409,2	36,9	73,5
EAWR	11	48	33,2	11,4
PTRa	6	63	33	15,5
SIGDP	12	63	31,6	14,6
SAGDP	1	56	23,2	11,4
SiGDP	6	60	21,4	9,8
SAPI	1,8	33,7	16,6	9,9
SSaGDP	-22	48	12,9	13,9
TVPP	1	73	12,9	15,6
TMPP	0,1	33,2	5,7	8,1
FeRa	2,6	7,4	4,9	1,5
DNPP	1	40	4,9	7,2
CprPa	0,1	39	4,7	8,5
SPSGDP	1,3	9,1	3,6	1,7
GRaGDP	-29	38,9	3,3	12,8
GraP	-4,5	6,4	2,9	1,8
ShGDP	0,3	7	2,1	1,3
XM	0,1	3	0,9	0,7

Annex 2: Component Matrix

	1.Factor	2. Factor	3. Factor	4. Factor	5. Factor	6. Factor
SAPA	**-0,921**	0,175	0,056	-0,015	0,002	0,035
LEB	**0,891**	-0,158	-0,133	0,130	-0,125	0,118
SAPI	**0,871**	-0,194	-0,169	0,117	-0,019	-0,032
UPRa	**0,852**	0,007	0,0046	-0,067	0,028	-0,025
TMPP	**0,842**	0,373	0,178	0,039	0,059	0,026
IMRa	**-0,838**	0,083	0,176	-0,165	0,091	-0,149
SAGDP	**-0,814**	0,150	-0,042	-0,114	-0,267	-0,234
PCEC	**0,800**	0,374	0,200	-0,314	0,095	0,144
EAWR	**0,787**	0,305	-0,191	0.010	-0.207	0,083
LiRa	**0,756**	0,035	-0,121	0,102	-0,399	-0,245
CprPa	**0,756**	0,477	0,011	0,139	0,041	-0,047
SIGDP	**0,750**	-0,178	0,469	-0,146	-0,058	0,072
DNPP	**0,747**	0,431	-0,177	-0,348	-0,001	0,133
TVPP	**0,739**	-0,023	0,101	-0,114	0,252	0,129
PCGDP	**0,718**	0,156	0,281	-0,239	0,184	-0,115
NCPP	**0,692**	0,168	-0,242	-0,345	0,174	-0,470
NmPD	**-0,681**	0,383	0,062	-0,094	0,193	0,200
PTRa	**-0,653**	0,251	0,139	0,137	0,048	0,431
FeRa	**-0,621**	-0,149	0,412	-0,246	0,510	-0,078
DCIPC	**0,613**	-0,097	-0,241	0,381	0,029	-0,219
X/GDP	**0,530**	0,474	0,506	0,336	0,077	-0,066
NmPB	**-0,494**	0,261	-0,190	0,138	0,132	0,328
ShHGDP	**0,444**	0,146	-0,307	-0,336	0,112	0,315
APRa	0,372	**0,740**	0,126	0,051	-0,211	0,151
M/GDP	0,394	**0,601**	0,328	0,448	0,164	-0,183
SPSGDP	0,327	**-0,466**	-0,081	-0,022	0,290	0,406
SseGDP	0,154	0,028	**-0,600**	0,375	0,480	0,246
X/M	0,436	-0,263	**0,569**	-0,198	-0,180	0,110
SsaGDP	0,382	-0,297	**0,432**	0,279	-0,273	0,415
SiGDP	0,169	0,085	-0,069	**0,610**	-0,198	0,255
GraP	-0,249	-0,319	0,291	0,470	**0,516**	-0,282
SDGDP	0,008	0,106	0,311	0,036	**-0,366**	-0,033
GraGDP	0,348	0,331	-0,420	-0,053	0,142	**-0,395**

Annex 3: UNDP Socio-Economic Development List

No.	Least Developed Countries	Developing Countries		Developed Countries
1.	Afghanistan	Algeria	Namibia	Australia
2.	Angola	Antigua & Barbuda	Nicaragua	Austria
3.	Bangladesh	Argentina	Nigeria	Belarus
4.	Benin	Bahamas	Oman	Belgium
5.	Bhutan	Bahrain	Pakistan	Canada
6.	Burkina Faso	Barbados	Panama	Croatia
7.	Burundi	Belize	Papua N. G.	Czech Republic
8.	Cambodia	Bolivia	Paraguay	Denmark
9.	Cape Verde	Botswana	Peru	Finland
10.	Central African Rep.	Brazil	Philippines	France
11.	Chad	Brunei Darussalam	Qatar	Georgia
12.	Comoros	Chile	Saint Kitts	Germany
13.	Djibouti	China	Saint Lucia	Greece
14.	Equatorial Guinea	Colombia	Saint Vincent	Iceland
15.	Eritrea	Congo	Saudi Arabia	Ireland
16.	Ethiopia	Costa Rica	Senegal	Israel
17.	Gambia	Côte d'Ivoire	Seychelles	Italy
18.	Guinea	Cuba	Singapore	Japan
19.	Guinea-Bissau	Cyprus	South Africa	Luxembourg
20.	Haiti	Dominica	Sri Lanka	Netherlands
21.	Kiribati	Dominican R.	Suriname	New Zealand
22.	Lao P. Dem. Republic	Ecuador	Swaziland	Norway
23.	Lesotho	Egypt	Syria	Poland
24.	Liberia	El Salvador	Thailand	Portugal
25.	Madagascar	Fiji	Trinidad	Spain
26.	Malawi	Gabon	Tunisia	Switzerland
27.	Maldives	Ghana	Turkey	Sweden
28.	Mali	Grenada	U.A.E.	England
29.	Mauritania	Guatemala	Uruguay	U.S.
30.	Mozambique	Guyana	Viet Nam	
31.	Myanmar	Honduras	Zimbabwe	
32.	Nepal	Hong Kong		
33.	Niger	India		
34.	Rwanda	Indonesia		
35.	Samoa	Iran		
36.	Sao Tome	Iraq		
37.	Sierra Leone	Jamaica		
38.	Solomon Islands	Jordan		
39.	Somalia	Kenya		
40.	Sudan	Korea		
41.	Tanzania	Kuwait		
42.	Togo	Lebanon		
43.	Tuvalu	Libya		
44.	Uganda	Malaysia		
45.	Vanuatu	Mauritius		
46.	Yemen	Mexico		
47.	Zaire	Mongolia		
48.	Zambia	Morocco		

Annex 4: OIC Countries Income Groups

No.	Low-Income Countries	Middle-Income Countries	High-Income Countries
	less than US$ 725	**US$ 725 - 8955**	**more than US$ 8955**
1.	Afghanistan	Algeria	Brunei
2.	Albania	Bahrain	Kuwait
3.	Azerbaijan	Djibouti	Qatar
4.	Bangladesh	Gabon	U.A.E.
5.	Benin	Indonesia	
6.	Burkina Faso	Iran	
7.	Cameroon	Egypt	
8.	Chad	Jordan	
9.	Comoros	Kazakhstan	
10.	Iraq	Lebanon	
11.	Gambia	Libya	
12.	Guinea	Malaysia	
13.	Guinea-Bissau	Maldives	
14.	Kyrgyzstan	Morocco	
15.	Mali	Oman	
16.	Mauritania	Saudi Arabia	
17.	Mozambique	Syria	
18.	Niger	Tunisia	
19.	Nigeria	Turkey	
20.	Pakistan	Turkmenistan	
21.	Senegal	Uzbekistan	
22.	Sierra Leone		
23.	Somalia		
24.	Sudan		
25.	Tajikistan		
26.	Uganda		
27.	Yemen		