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International Journal of Current Research
Vol. 10, Issue, 01, pp.64326-64334, January, 2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

MEASURING SOCIAL PROGRESS IN A RURAL SETTING THE CASE OF *ALKUMUR* VILLAGE - SUDAN

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ARTICLE INFO

Article History:
Received 02nd October, 2017
Received in revised form
19th November, 2017
Accepted 18th December, 2017
Published online 19th January, 2018

Key words:
Alkumur,
Social progress,
SPI,
Basic Human Needs,
Foundations of Wellbeing,
Opportunity.

ABSTRACT

This study attempted to evaluate social progress in a rural setting taking Alkumur as a case study. This study used both scenery and primary data. The secondary data obtained from (UNDP) study for all countries of the world in 2016. The SPI was estimated as 46% from Alkumur data. This is higher than Sudan national Figure by 16 points. The SPI was also calculated from primary data through questioner conducted in Alkumur village 2017. Fifty-three indicators were used and proxied to provide an interval estimate of SPI in the range (22, 54) which includes the point estimate of 38%. The conclusion of the study reveals that from secondary data, Alkumur SPI amounted to 46.93% versus 30.55% for whole of Sudan. The difference is 16.38%. The SPI in Alkumur is approximately 38% which represents the mean of the secondary and primary data, exceeding that for Sudan by 7.45%. The test of association reflects a statistically significant association between SPI at the household level and all other prediction. From the discussion with many of the elderly and the youth of the village, including males and females, it appears that villagers are full of optimism and enthusiasm to promote their village in all aspects of life. The coherence the population of the village represents a driving force that makes the potential of social progress very promising and reliable. The only one recommendation suggested by the study is to establish a vocational training center for both sexes.

Citation: Abdelhalim E. El-Farouk and Salma Magdi Saeed Osman, 2018. "Measuring social progress in a rural setting the case of *Alkumur* village - Sudan", *International Journal of Current Research*, 10, (01), 64326-64334.

INTRODUCTION

Social progress indexis a recent concept for the measurement of countries welfare. The Social Progress Index (SPI) measures the extent to which countries provide for the social and environmental needs of their citizens. The Social Progress Imperative (2017) has released a paper detailing how the SPI can help measure 16 of the 17 Sustainable Development Goals, (http://www.socialprogressimperative.org/). Fifty-four indicators in the areas of basic human needs, foundations of well-being, and opportunity to progress show the relative performance of nations. The index is published by the nonprofit Social Progress Imperative.It measures the well-being of a society by observing social and environmental outcomes directly rather than the economic factors. The social and environmental factors include wellness (health, shelter, and sanitation), equality, inclusion, sustainability and personal freedom and safety. The index defines social progress as "the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential" It is a very complicated and comprehensive index that includes in its calculation human development concept, sustainable development concept, and social security concept. Hence, its measurement isa formidable task, especially in developing countries where data sets are poor in coverage and content. Even collecting data from thecommunity in these countries is difficult because of higher illiteracy rates. In this research, authors made a pioneer attempt, at least in Gezira state in Sudan, to measure the index in rural setting taking Alkumur village, in South Gezira localityin Gezira State, as a case study. It is an inductive research for the purpose of setting off some starting point in the methodology of the concept in Sudan. Social progress is the idea that societies can develop or improve in terms of their social, political, and economic structures. This may happen as a result of thedirect human action, as in social enterprise or through activism, or as a natural part of sociocultural evolution. Empirically, social progress is observable on the ground in terms of community organization and cleanness of people, streets, and houses. It is also observed in terms of community socio-economic institutions (health and education) and people social security. Our initial visit to Alkumur village gave us the impression that the people of this village are exerting tremendous effort to remake their society with the above-mentioned concepts. For this reason, it was thought measuring social progress was asmart idea and a possible induction in that village.

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Research Questions

To what extent can one succeed innumerically measuring the SPI in a rural setting – *Alkumur* village?

To what extent do certain predictors (not used in the calculation of SPI) associate with it?

How do the people of *Alkumur* think about social progress?
Research Objectives

The main objective is to enhance research methodology in the area of social change and add anew stock of data to the discipline. Other sub-objectives:

1- To estimate numericallythe SPI in a Sudanese rural setting – *Alkumur* village.
2- To evaluate whether certain predictors that are not used in the calculation of SPI associated with it.
3- To evaluatethe perception and attitudes of the people of *Alkumur*towards social progress concept.

The Study Village

The coordinates of *Alkumur* village are 14.28° N, and 33.39° E, taken from the heart of the village, (see Figure (1) below). It is located and surrounded by agricultural fields. The overwhelming majority of its population have direct or indirect relation with agriculture. The people of *Alkumur* village originally came from the Northern State – the region of Wad Alhabishi and Wad Hamid. They migrated in groups following the Nile strip until they arrived atWad Medani and from there moved to the Gezira scheme where they worked as tenants during the condominium colonial government of Sudan. Not less than 90% of the original population belongs to Algaaleen tribe but afterward, they mixed with other tribes through domestication and intermarriage to constitute the current ethnic structure. According to authors' projections based on 2008 census data, the population of the village has reached 9380 (1330 households) by the year 2016, with 43% of them under 15 years. Infant and Under 5 mortality rates are 75 and 60 per thousandrespectively basedon our questionnaire data fitted to Coale-Demney model life Table. Fertility has declined from 6.7 in 1993 toaround 4.8 in 2016. The demographic picture reflects an inception stage of demographic transition. The population is famous forits strong bonds of kinship which created a strong feeling of solidarity among them. It may be that this is the most probable reason that makesthe village exceptional in rural development initiatives compared with their neighboring villages. There are a number of bootstrap safety nets and social and health institutions that are exceptionally successful. These include a well-established health center with two doctors and 31 paramedical, all from the village. The center includes a pharmacy associated with the National Revolving Drug Fund and a family planning unit headed by a health visitor and equipped with safe motherhood services supported by a delivery room and a theater. The center also includes a five-days functioning vaccination unit.The financial support for the center depends mainly on local self-initiatives which started with the Million Bricks Project that was executed by the village's youths in the year 2005. In that project, the village youths accomplished production of more than one million red bricks which was a strong push to the construction of school classrooms and other public facilities. The villagers are planning to upgrade the health center into a district hospital in the near future.

Figure 1. A Satellite Image of Alkumur Village in Sudan Extracted from Google Earth

There are six schools in the village, three for boys and three for girls. The three schools for boys/girls include a basic school, a secondary school, and a Quranic school. The average enrollment for basic schools is around 80 pupils per academic year and around 70 for secondary schools. Unlike city schools the dropout rate is negligible. The school staff is usually complete and constitutes a mixture of teachers from the village and neighboring villages which are usually from the same tribe. Approximately, 10% of the pupils in all schools are migrant agricultural worker children, most of them are Fallata. Althoughthe village community is an inclusive community, there is some concern about the Fallata, of Nigerian origin, high population growth rate. The village sporting and social club is beautifully built without resemblance to any other in south Gezira locality. The village youths are looking at the club as their future hope for civilization light amplification. However, the achievement in terms of sport is still poor. The most important achievement of the village in which the youth had positive contribution was the accomplishment of an asphalted road that directly connects the village with the capital of the state Wad Medani and the modern garbage collection project that turned the village into one of the cleanest locations in the whole of the Gezira state. The deterioration of the Gezira scheme that hit hard most of the villages has had little impact on *Alkumur* farmers. This is because of the dedication of farmers towards their tenancies, and because of their personal attachment to their land. Unlike other tenants neighboring villagers, those from *Alkumur* do not rely on renting their tenancies to immigrants from Darfur, Kurdufan or other States. They are in direct charge of their own fields.*Alkumur*, which is classified by as a big village or, by others, as a small town, is divided into numerous blocks of residential areas where women groups are shouldering a tremendous job. These groups constitute examples of successful cooperative societies that look after the wellbeing of women, particularly at times of weddings and deaths. Each society carries the responsibilities of preparing and execution of the occasion that occurs to whoever woman in each block. The costs associated with the occasion will be divided equally by each member woman in that society. By doing so, a lot of the economic burden is reduced to almost nil. In addition, women are responsible for the collection of the money charged

for the daily collection of the household garbage by the assigned group of workers using a modern and an environmentally friendly truck designed to collect the village rubbish. The collected trash is loaded and emptied into a far deep bitch and burnt away from the village premises.

Conceptual Framework

The conceptual framework for this inductive research is presented in Figure (2) in terms of three categories of independent variables. The first category which deals with the 78 indicators is denoted by direct measuring variable copied from UNDP, 2016 social progress report. The rest of independent variables (about 20 of them) are denoted as indirect and intermediate variables. They are clearlydepicted in the schematic representation of Figure (2). The schema indicators are converted intomeasurable variablesin Table (1).

MATERIALS AND METHODS

Data Sources

First, it is necessary to tell that the sample sizedetermined for this study had been based on the simple random samplingequation on the assumption that the households of *Alkumur*are homogenous. A corrected sample size of 88 households has been determined and specified to be the sample to be surveyed in the village, out of 1330. The study utilized both secondary and primary data. The secondary data were obtained from UNDP social progress international study, 2016. The primary data were collected through astructured questionnaire executed by the authors in *Alkumur* during February 2017.

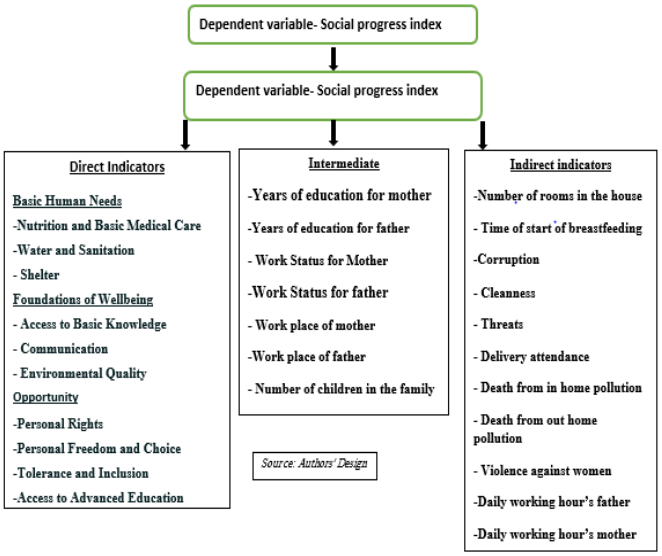


Figure 2. Schematic Representation of the Conceptual Framework

Table 1. Variable Definition

S.No.	Name	Type	Type of Influence	Scale of Measure	Source
1	Social progress index	Dependent	Numeric	Scale	
2	Nutrition and Basic Medical Care	Independent	Direct	Nominal	Primary data
3	Water and Sanitation	Independent	direct s	Nominal	Primary data
4	Shelter	Independent	direct s	Nominal	Primary data
5	Access to Basic Knowledge	Independent	direct s	Nominal	Primary data
6	Communication	Independent	direct s	Nominal	Primary data
7	Environmental Quality	Independent	direct s	Nominal	Primary data
8	Personal Rights	Independent	direct s	Nominal	Primary data
9	Personal Freedom and Choice	Independent	direct s	Nominal	Primary data
10	Tolerance and I3nclusion	Independent	direct s	Nominal	Primary data
11	Access to Advanced Education	Independent	direct s	Nominal	Primary data
12	Years of education for mother	Independent	Numeric	Scale	Primary data
13	Years of education for father	Independent	Numeric	Scale	Primary data
14	Work Status for fathers	Independent	Endogenous	Nominal	Primary data
15	Work Status for fathers	Independent	Intermediate	Nominal	Primary data
16	Work place of father	Independent	Intermediate	Nominal	Primary data
17	Work place of mother	Independent	Intermediate	Nominal	Primary data
18	Number of children in the family	Independent	Numeric	Scale	Primary data
19	Number of rooms in the house	Independent	Numeric	Scale	Primary data
20	Time of start of breastfeeding	Independent	Numeric	Scale	Primary data
21	Corruption	Independent	Indirect indicators	Nominal	Primary data
22	Cleanness	Independent	Indirect indicators	Nominal	Primary data
23	Threats	Independent	Indirect indicators	Nominal	Primary data
24	Delivery attendance	Independent	Indirect indicators	Nominal	Primary data
25	Death from in-home pollutions	Independent	Indirect indicators	Nominal	Primary data
26	Death from out homepollution	Independent	Indirect indicators	Nominal	Primary data
27	Violence against women	Independent	Indirect indicators	Nominal	Primary data
28	Daily working hours father	Independent	Numeric	Scale	Primary data
29	Daily working hours mother	Independent	Numeric	Scale	Primary data

Source: Based on the schematic representation

Table 2. Three Dimensions of the SPI with their Intermediate Categories

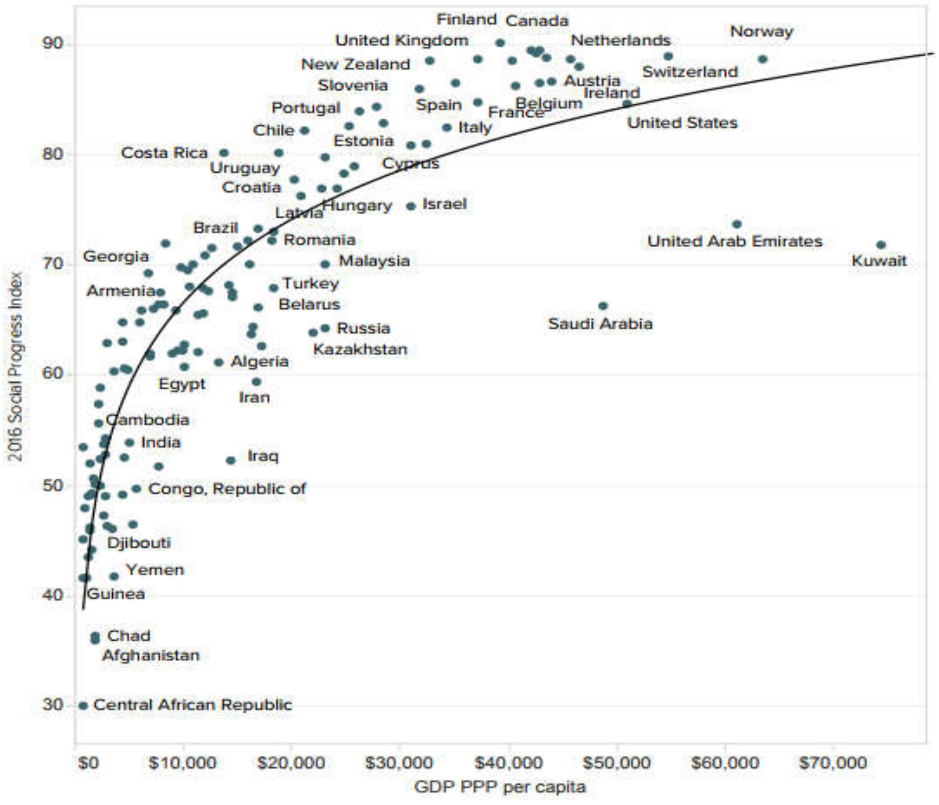
Basic Human Needs	Foundations of Wellbeing	Opportunity
Nutrition and Basic Medical Care	Access to Basic Knowledge	Personal Rights
Water and Sanitation	Access to Information and Communication	Personal Freedom and choice
Shelter	Health and Wellness	Tolerance and Inclusion
Personal Safety	Environmental Quality	Access to Advanced Education

Source: KUZNETS (2016)

Table 3. The Fifty-Three Measurable Indicators: Main and subdivisions

Basic Human Needs			
Nutrition & Basic Needs	Water & Sanitation	Shelter	Personal Safety
Undernourishment	Access to piped water	Availability of affordable housing	Homicide rate
Depth of food deficit	Rural access to improved water source	Access to electricity	Level of violent crime
Maternal mortality rate	Access to improved sanitation facilities	Quality of electric supply	Perceived criminality
Child mortality rate	Access to piped water	Household air pollution attributable deaths	Political terror
Deaths from infectious diseases			Traffic deaths
Foundations Of Wellbeing			
Access to Basic Knowledge	Access to Information & Communication	Health & Wellness	Environmental Quality
Adult literacy rate	Mobile telephone subscriptions	Life expectancy at 60	Outdoor air pollution causing deaths
Primary school enrollment	Internet users	Premature deaths from non-communicable diseases	Wastewater treatment
Lower secondary school enrollment	Press Freedom Index	Obesity rate	Greenhouse gas emissions
Upper secondary school enrollment		Suicide rate	Biodiversity and habitat
Gender parity in secondary enrollment			
Opportunity			
Personal Rights	Personal Freedom and Choice	Tolerance & Inclusion	Access to Advanced Education
Political rights	Freedom of life choices	Tolerance for immigrants	Years of tertiary schooling
Freedom of speech	Freedom of religion	Tolerance for homosexuals	Women's average years in school
Freedom of assembly/ association	Early marriage	Discrimination and violence against minorities	Inequality in the attainment of education
Freedom of movement	Contraception Demand Satisfied	Religious tolerance	Globally ranked universities
Private property rights	Corruption	Community safety net	Percentage of tertiary students enrolled in globally ranked universities

Source: Amended by authors from KUZNETS (2016)



Source: Social Progress Index (2016):

Figure 3. Social Progress Index vs GDP per capita

Table 4. Social Progress Index of Selected Countries (2016)

Very High Social Progress			High Social Progress		
Rank	Country	Score	Rank	Country	Score
1	Finland	90.09	13	Austria	86.60
2	Canada	89.49	14	Japan	86.54
3	Denmark	89.39	15	Germany	86.42
4	Australia	89.13	16	Belgium	86.19
5	Switzerland	88.87	17	Spain	85.88
Upper Middle Social Progress			Lower Middle Social Progress		
39	United Arab Emirates	73.69	63	Ukraine	66.43
40	Mauritius	73.24	64	ElSalvador	66.36
56	Tunisia	68.00	65	SaudiArabia	66.30
21	Portugal	83.88	66	Belarus	66.18
58	Turkey	67.82	67	Armenia	66.05
Low Social Progress			Very Low Social Progress		
96	Senegal	55.64	127	Yemen	41.76
97	Cambodia	54.28	128	Guinea	41.66
98	India	53.92	129	Niger	41.63
99	Kenya	53.72	130	Angola	39.70
100	Malawi	53.44			
Very Low Social Progress					
127	Yemen	41.76	131	Chad	36.38
128	Guinea	41.66	132	Afghanistan	35.89
129	Niger	41.63	133	Central African Republic	30.03
130	Angola	39.70			

Source: Selected from, www.socialprogressimperative.org

Table 5. ANOVA Table

Model		Sum of Squares	d f	Mean Square	F	Sig.
	Regression	20344.340	2	10172.170	366.997	.000
	Residual	2355.968	85	27.717		
	Total	22700.308	87			

Source: SPSS output based on world data 2016

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.947	.896	.894	5.265	.896	366.997	2	85	.000	.192

Source: SPSS output based on world data 2016

Table 7. Correlations

Correlation		Social Progress Index	GDP	Educational score
Pearson Correlation	social progress index	1.000	.681	.854
	GDP	.681	1.000	.348
	educational score	.854	.348	1.000
Sig. (1-tailed)	social progress index	.	.000	.000
	GDP	.000	.	.000
	educational score	.000	.000	.
	social progress index	88	88	88
N	GDP	88	88	88
	educational score	88	88	88

Source: SPSS output based on world data 2016

Methods ofAnalysis

The analysis of data is divided into two parts. Part A concerns with estimating SPI for*Alkumur* from secondary data using least square multiple regression. Part B attempted to estimate the same measure through somewhat complex methodology from primary data collected through a structured questionnaire addressed to 88 households form some total of 1330 households. 53 indicators were proxied from some 98 questions.The reader may expect authors to present tables of frequencies regarding the socio-economic, demographic and environmental characteristics associated with *Alkumur* population. Unfortunately, this is not going to be the case because it will prolong the size of the paper unnecessarily. As the main objective of this study is to calculate the SPI for the village, the authors preferred to go directly for that measurement. The abandoned tables will be presented in another forthcoming paper.

Measuring Social Progress

The Social Progress Index is a tool developed by the International Organization Imperative Social Progress, which measures the extent to which countries cover social and environmental needs of its citizenry. There are fifty-two indicators in three areas or dimensions: Basic Human Needs, Foundations of Wellbeing and Opportunities which show the relative performance of nations. The detailed mathematical and statistical procedures followed to calculate the SPI can be browsed in the website http://www.socialprogressimperative. org., or Stern, S., Wares, A. and Epner, T. (2017) The most

Table 8. Coefficient Table

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
Constant	30.666	1.575		19.470	.000					
GDP	.318	.027	.436	11.703	.000	.681	.786	.409	.879	1.138
Educational Score	.511	.027	.702	18.833	.000	.854	.898	.658	.879	1.138

Source: SPSS output based on world data 2016

Table 9. Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Condition Index		
				Constant	GDP	Educational score
	1	2.655	1.000	.02	.04	.01
	2	.281	3.074	.09	.92	.04
	3	.065	6.410	.89	.03	.94

Source: SPSS output based on world data 2016

famous study similar to ours is that of SimonKuznets (2016) in Bratislava, Czechoslovakia. The three areas are summarized into a number of indicators by Simon Kuznets (2016) and depicted in the following framework in Table (2). These 9 intermediate categories are further broken down into 53 measurable indicators as shown below in Table (3). In (2016), the United Nation Development Program UNDP undertook a global study to estimate SPI for all countries of the world where the data permits at least the calculation of 3 estimates for each sub-area. The calculated estimate was then fitted to a global isomer linking them with the GDP per capita for each country.The countries included in the isomer are shown above in Figure (3).

RESULTS

The analysis of data is divided into three parts. Part A concerns with estimating SPI for*Alkumur* from secondary data using least square multiple regression. Part B attempts to estimate the same measure through somewhat complex methodology from primary data collected through a structured questionnaire addressed to 88 households form some total of 1340 households. 53 indicators were proxied from some 98 questions. Part C utilized inferential statistics, namely,cross-tabulations and chi-square test to measures association of some selected predictors (predictors that were not used in the calculation of the SPI are not included); in addition to factor analysis for structure detection of the predictors in relation to respondent attitudes measured in a Likert scale.

Estimating SPI from secondary data

There are meager studies in the area of social progress. The only study that provides estimates for the index at international level is the United Natation Development Program (UNDP) study in 2016. UNDP Published estimates of SPI for 88 countries in 2016. The estimates were based on an isomer. This study utilized these estimates with two other estimates on GDP per capita and education score. These two indicators are taken from world data sheet 2016. Taking SPIas a dependent variable and GDP and education scores for the 88 countries as independent variables, we run a general linear model to predict the SPI for *Alkumur* using our questionnaire to find proxies for GDP and education score. It must be said that such estimates are very rough. It meant to give a first idea and a benchmark estimate about the level of SPI in *Alkumur*.

Application of the general linear regression model for *Alkumur*

Linear regression is used to model the value of a dependent scale variable based on its linear relationship to one or more predictors. The procedure creates a model for *SPI* using *GDP and educational score*s predictors". The model provides the following statistics: coefficient estimates, an ANOVA Table, multiple R statistics collinearity diagnostics, part and partial correlations, and tolerance. The model begins with ANOVA shown in Table (5). The ANOVA Table reports a significant *F* statistic, indicating that using the model is better than guessing the mean for *Alkumur*. As shown in Table6 (modelsummary) as a whole, the regression does a good job of modeling SPI. Nearly 90% of the variation in SPI is explained by the model (R^2 = 0.896). The model fit looks positive, the first section of the coefficients Table shows that there are two predictors in the model. The F test is statistically significant withDurbin Watson test far less than 3.0, indicating that these variables contribute much to the model, see Table (6). To determine the relative importance of the significant predictors for *Alkumur*, look at the standardized coefficients. As shown in Table8, the eduscorehas a larger coefficient (0.702) compared to *GDP* (0.436), actually contributes more to the model because it has a larger absolute standardized coefficient.

The second section of the coefficients Table (8) shows that there is noproblem with multicollinearity. For most predictors, the values of the part and partial correlations are positively far from the zero-order correlation. This means, for example, that much of the variance in SPI that is explained by Eduscore or GDP or both is not much explained by other variables. The tolerance is the percentage of the variance in a given predictor that cannot be explained by other predictors. Thus, the large tolerances show that only 12% of the variance in a given predictor can be explained by the other predictors.When the tolerances are close to 1.0, there is very low multicollinearity and the standard error of the regression coefficients will be reduced. A variance inflation factor (VIF) smaller than 2 is usually considered not problematic, and the largest VIF in the Table is (1.138). As shown in Table (9), the collinearity diagnostics confirm that there are no serious problems with multicollinearity. The two eigenvalues are not close to 0, indicating that the predictors are not correlated and that any changes in the data values may not lead to large changes in the estimates of the coefficients. The condition indices are shown in Table (9). They are computed as the square roots of the

ratios of the largest eigenvalue to each successive eigenvalue. Values greater than 15 indicate a possible problem with collinearity; greater than 30, a serious problem. Our two indices are far smaller than 15, suggesting no problem with collinearity. Therefore, we do not need to rerun the regression using *z* scores of the independent variables.

Predicting SPI for *Alkumur*

Since we are now somewhat confident that the general linear model is robust, healthy and sufficient for prediction, it remains to calculate GDP and Eduscore from *Alkumur* questionnaire data. The GDP in *Alkumur* using income per month is not straightforward and it may not be accurate but it gives at least a proxy. To get an estimate we first calculated the median income as the Table is open from both sides. The median is divided by the square root of the sample size for standardization to give a GDP estimate that lies in the range of 6.5. To estimate the educational score from our survey data we used aweighted average foreducation years of household members. The weights are the rank of the level where1 is given to schooling years (0-9), 2 for (10-14), 3 for (20-24) and 4 for (24+). The weighted average was then calculated as 27.8 years representing Eduscore. The prediction of SPI for *Alkumur* is now straightforward. The prediction equation from the general linear model is:

$$SPI = 30.66 + 0.318\ GDP + 0.511\ Eduscore$$
$$SPI = 30.66 + 0.318\ (6.5) + 0.511\ (27.8) = 46.93$$

Hence, SPI for *Alkumur* is46.93 which is approximately similar to that for Ecuador. This index is 16.38 points higher than the index for Sudan as a whole (30.55).

Estimating SPI from Survey data

Important characteristics

Age distribution

Age data derived from the household population of the village reflected a distribution thatappears approximately normal. The mean and median are identical (38.9 years), while the mode is slightly higher (40 years). These statistics suggest that the distribution is slightly skewed to the left (skewness = 1.01) with average kurtosis. It is observed that overwhelming majority of thehousehold population are aged less than 40 (87.5%). This suggests that the household composition in *Alkumur* has a very young population segment. This is an indication of thepossible positive frontier for social progress.

Educational level for mothers and Fathers

The educational level distribution for mothers in households reflected a striking feature where only 4.5% of the mothers in the sample are illiterate. This can only be found in developed countries. 43.1% of the respondent population have educational level secondary and over with about 8% postgraduate. This is a sign of transient social progress. As for fathers, the educational level distribution has also revealed a striking feature. Only 2.27% of the fathers in the sample are illiterate. This is a rare feature in developing countries. 43.2% of respondents have educational level secondary and over with about 8% postgraduate. This is another sign of a transient social progress.

Mothers' and Fathers' occupational classification

Most of the mothers are housewives, 89.8%. It is surprising that the majority are housewives, although 68% of them have theeducational level of secondary level and 17% are university graduates. The occupation of fathers is totally different from that of mothers in the fact that all fathers are working and there was not a single one who's not working. Most of them are farmers or workers, 84.1%, while the remaining part, 15.9%, occupy other types of occupation.

Basic human needs components

Basic human needs constitute the third component of social progress index. It includes four major components: nutrition and basic medical care, shelter, water and sanitation, and personal safety. Breastfeeding is one of the components of nutrition. This is taken as one of the components of nutrition and basicmedicalcare.Results show that majority of mothers breastfeed their children (96.6%). Of thiscomprehensive breastfeeding, 81.9% of the women breastfeed more than 16 months.The average period of starting crushed food is 6.3 months, this is converted into a proportion relative to the year by dividing by 12 months. The indicator is found to be pointingto 0.525. The percentage of women whose children completed the 3 doses of thevaccine is 93.2% and is taken as anindicator for immunization. Undernourishment, an indicator of SPI, isproxied as 93.2% for protein intake and 94.3% of iron intake. The geometric mean of the two is found to be about 93.7%. This is taken as anindicator of iron and protein non-deficiency. As for shelter, the survey results calculatedthe number of respondents who own bricks and cement houses, theirsource of cooking energyand durable goods.Thecalculated geometric mean of the four is 85.6%, a percentage which is taken as an indicator of shelter. Safe waterresults revealed a good picture ofthemainsource of drinking water, how drinking water is keptinside the house, and how do households treat water to make it safer to drink. The value of safe water indicator is calculated and proxied by the geometric mean of the three subcomponentsresulting in a value of 89.4%.On the other hand, sanitation, provides data on kind of toilet facility, whether thetoilet is far from the kitchen, how householdsdispose oftheir wastes, level of cleanliness of the house, how food is kept, and where animals are kept. The sanitation indicator is proxied by the geometric mean of the six indicators and it amounted to78.8%. Personal Safety shows that the traffic deaths amounted to 10.2% of all deaths. The estimation of basic human needs components is derived by taking the geometric mean of all previous sub-components. The result is:

$$\theta_1 = \sqrt[8]{(0.966)\times(0.535)\times(0.909)\times(0.937)\times(0.856)\times(0.102)\times(0.894)\times(0.788)}$$
$$= 0.636$$

Foundations of Wellbeing

Access to basic knowledge provides informationon the number of children in basic school, number of members in secondary school now, and number of females in secondary school now. For literacy, the study used the average for Sudanwhich is (70%). The geometric means of the four indicators gives the indicator for access to basic knowledge. The calculated indicator resulted in a value of 0.46%. The other indicator is access to information and communications. It provides information about the percentage of persons who own mobile

phones in the house (28.4%), and for the percentage internetusersthe study relied on the average for Sudan that amounts to (20%). The geometric means of the tow indicators provide a calculated indicator for access to information and communications that amounted to 23.8%. Health and Wellness.

This indicator providesinformation about life expectancy at 60 and obesity rate. The analyzed data exposed respective results of (21.6%) and (13.6%). The geometric means of the tow indicators gives the indicator for Health and Wellnessa calculated value of 17.14%. Environmental Quality. On the other hand, reveals outdoor air pollution attributable deaths amounted to nothing in *Alkumur*. Thus, theenvironmental quality indicator is proxied by the geometric mean of the one indicator is 100%.The estimation of foundations of wellbeing components by taking the geometric mean of all previous sub-components. The result is:

$$\theta_2 = \sqrt[4]{(0.099)*(0.171)*(0.238)*(0.046)} \quad = \mathbf{0.116}$$

Opportunity

The opportunityindicator provides data on access to advanced education and personal freedom and choice. Access to advanced educationis a subcomponent of this indicator of opportunity. It includes the four variables, namely, number of members in advanced education, number of females in advanced education, number of members in universities, number of members in globally ranked universities. The geometric mean of the four amounted to 13.8%. On the other side, personal freedom and choiceprovide data on freedom over life choice, freedom over life choices, satisfied demand for contraception. The geometric means of the four indicators gives the indicator for which is calculated is 37.9 %. The estimation of opportunity components by taking thegeometric mean of all previous sub-components produced the following result:

$$\theta_3 = \sqrt[2]{(.0138)*(0.379)} \quad = \mathbf{0.257}$$

$$\text{AsSPI} = \sqrt[3]{\theta_1} \times \theta_2 \times \theta_3 \text{, therefore:}$$

$$\mathbf{SPI} = \sqrt[3]{(0.257)\times(0.116)\times(0.636)} \quad = \mathbf{0.267}$$

Some of the indicators are internationally not found in *Alkumur*. They are maternal mortality rate, homicide rate, level of violent crime, perceived criminality, suicide rate, these are given high weight (≥ 0.90) and calculate θ_4 (geometric mean) from them because we did not find any cases in *Alkumur*. The final SPI is calculated as 38%. The result is a point estimate of SPI for *Alkumur*. To obtain an interval estimate we had to calculate standard error. The standard error of the SPI is the binomial standard division of θ divided by 4. The range of the interval is (0.22, 0.54). The interval indicates that both estimates (from secondary data and survey data) lie within the range. It is, therefore, safe to estimate the final SPI as the average of the two which is equal to 38.0%.

$$\textbf{Final SPI} = \quad = \sqrt[2]{(.527)*(0.267)} = 0.38$$

Conclusion

This study attempted to evaluate social progress in a rural setting taking *Alkumur* as a case study. This study used both scenery and primary data. The secondary data obtained from (UNDP) study for all countries of the world in 2016. The SPI was estimated as 46%from *Alkumur* data. This is higher than Sudan national Figure by 16 points. The SPI was also calculated from primary data through questionerconducted in *Alkumur* village 2017. Fifty-three indicators were used and proxied to provide an interval estimate of SPI in the range (22, 54) which includes the point estimate of 38%.

We can conclude the following

From secondary data, Alkumur SPI amounted to 46.93% versus 30.55% for whole of Sudan. The difference is 16.38%. The SPI in *Alkumur* is approximately 38% the mean of the secondary and primary data, exceeding that for Sudan by 7.45%. The test of association reflects astatistically significant association between SPI at thehousehold level and all other prediction. From the discussion with many of the elderly and the youth of the village, including males and females, it appears that villagers are full of optimism and enthusiasm to promote their village in all aspects of life. The coherencethe population of the village represents a driving force that makes the potential of social progress very promising and reliable. *We taste the sweetness of being together for our village*; said one of the females working in the health center of the village.

Recommendations

This study suggests only one single recommendation that addresses the greatest concerns of the village population. This biggest concern is expressed by the village residents as the lack of job training and lack of jobs. Many people graduated high school but they had difficulty finding a job locally. People who were not pursuing high school graduation had no program options nearby to seek training from. Lack of job training contributes to ongoing suffering for many. With the ever-increasing number of students graduating out of school system in Sudan, it is clear that not everyone pursues higher academic studies in colleges and universities. On the other hand, there is always the need for skilled workforce in any society. More importantly, if we are to promote *Alkumur* village and the many other villages surrounding it, we will need the necessary skills for enhancing social progress in different technical fields. This study proposes establishment of a vocational training centertoserve the village population and populations of many villages surrounding it. The proposed Vocational Training Centre (VTC) thus provides this opportunity for school graduates (both sexes) who are less academically gifted but has the potentials to excel in a range of technical skills in various fields so that they can serve in different industries, community centers in Sudan or abroad. Even they can set up their own business entrepreneurship and generate self-employment. The initial suggested vocational tracks will be sewing and auto mechanics. The village has ample vacant area where the VCT can be established. Training associated with this VTC is expected to provide training in technical trades such as Motor Mechanic, Wireman/Electrician, Blacksmith, and Carpentry for male students. For females, it can provide for Service Trades such as sewing, hair and skin care, and hairdressing. Females can also enjoy training in areas such as

housekeeping, food and beverage service, food production, bakery, and confectionary. Thus, the VTC will also benefit local people with the opportunity to learn and expand their skills. The business support given will help people who participate enhance their own businesses and improve their income. The center will not only benefit *Alkumur* residents, but also people from nearby villages, and people throughout Gezira state where such centers are very rare if ever found. They will learn skills that they can use to pull themselves out of suffering and poverty. The networking among students and teachers, from both sexes, will contribute to social development, social progress, and lifelong friendships.

REFERENCES

http://www.socialprogressimperative.org, Social Progress Index (2016) http://13i8vn49fibl3go3i12f59gh.wpengine.netdna-cdn.com/wp-content/uploads/2016/06/SPI-2016-Main-Report.pdf

http://www.socialprogressimperative.org/wp-content/uploads/2017/09/SDG-Short-Paper-Final1.pdf

Kuznets, S. 2016. Social Progress Index 7th European Summit of Regions and Cities BRATISLAVA, 8TH JULY 2016, https://cor.europa.eu/en/events/Documents/1Michael%20Green_CoR.pdf

Stern, S., Wares, A. and Epner, T. 2015. Methodology to Calculate SPI, http://www.socialprogressimperative.org/wp-content/uploads/2016/04/2015-Methodology-Report.pdf

Stern, S., Wares, A. and Epner, T. 2017. Social Progress Index 2017 Methodology Report. Social Progress Imperative; https://www.socialprogressindex.com/assets/downloads/resources/en/English-2017-Social-Progress-Index-Methodology-Report_embargo-until-June-21-2017.pdf

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