



The Role of Banking Finance and Monetary Policy in Enhancing Human Development Index in Sudan (1999-2018)

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ABSTRACT

Through a regression model, the study highlighted the role of the banking finance and monetary policy in enhancing human development index (HDI) in Sudan during the period (1999-2018). The descriptive analytical approach was used to achieve the objectives of the study. Secondary data were collected from; annual reports of the Central Bank of Sudan, World Bank and UNDP database. Inflation rates were used to indicate the efficiency of monetary policy. To ensure stationarity of the variables used to estimate the model, Augmented Dickey-Fuller (ADF) and unit root tests were calculated. Results of ADF test show that, the set of variables are stationary at 1st difference. Ordinary least squares method was used to determine and conclude the direction of relations between the HDI and variables. The results found that there is a positive relationship between HDI and changes in provision of banking finance and inflation during the period of the study. Moreover, it's found that, monetary policy in term of inflation indirectly contributed to enhance HDI through money supply increase. The study recommends the commercial banks in Sudan to expand granting finance to the various economic activities especially the production sector. Furthermore, monetary authority should adopt contractionary monetary policy to reduce inflation and improve the standard of living.

Keywords: Banking Finance, Monetary Policy, Inflation, Human Development Index

JEL Classifications: E3, G21, I31, O5

1. INTRODUCTION

Inequalities in human development hurt societies and weaken social cohesion and people's trust in government, institutions and each other. The reduction of human development index (HDI) indicating a decline in the performance of economies, wastefully preventing people from reaching their full potential at work and in life. Inequalities in human development are a defining bottleneck in achieving Sustainable Development. Sudan's HDI value for 2018 is 0.507 which put the country in the low human development category and positioning it at 168 out of 189 countries and territories. Due to the importance of human development, this paper attempts to highlight the potential role of banking finance in enhancing HDI in Sudan during (1999-2018).

1.1. Statement of the Problem

The status of Sudan's HDI has made a remarkable progress in a number of indicators particularly those relating to peace, health and education. Available evidence suggests that education, health, gender equity, social protection and standards of living have expanded significantly in spite of the numerous challenges facing Sudan internally and externally (UN, 2015). There are various complex interdependences between economic and political factors and HDI. Banking sector in Sudan provides financing to all economic sectors (production, education, health, services, energy and mining, trade, etc.) thus, they are indirectly working to improve the components of HDI. The research problem is inspired by highlighting the role of banking finance and monetary policy in strengthening HDI in Sudan during the period 1999-2018.

1.2. Importance of the Research

The work on studying the factors that improve and enhance the HDI represents the importance of this paper and its scientific contribution to the knowledge.

1.3. Objectives of the Research

The objectives of the research are as follows:

- To examine the relationship between banking finance and HDI in Sudan (1999-2018).
- To evaluate the efficiency of monetary policy in term of inflation and its effect on HDI.

1.4. The Research Hypotheses

The study aims to examine the following hypotheses:

- There is a significant relationship between Banking finance and HDI in Sudan.
- There is a significant relationship between HDI and Inflation rate in Sudan.

2. LITERATURE REVIEW

Hassan and Ibrahim (2009) measured human development in the Sudan during the period 1975-2003, by using a Revised Human Development Index (RHDI). Results showed that there is a significant difference between human development performance in Sudan using the conventional HDI and the RHDI.

FAO (2011) provided a brief description of how income and human poverty indicators are often interrelated in two aspects. First, various poverty situations often overlap. Mostly, a malnourished person (income-poor) is also poorly educated and without access to health care. Second, human development is key for enhancing human capabilities that lead to improvements in incomes and food.

This means that human poverty reduction is critical for enhancing food poverty reduction. Further, an overall assessment of all income and human development dimensions is also made to derive a unified indicator: The HDI, which is usually derived by international institutions. Nevertheless, it is also common in poverty measurements to assess separately income (food) poverty and human poverty.

Suliman (2012) analyzed and determined the sources of inflation in Sudan over the period 1970-2002. The main results were that inflation in Sudan is determined in the long run by the exchange rate and foreign price. The findings suggest that the policy of defending the exchange rate reform, although it contributed to bringing inflation down, may not be sustainable in the long run due to the sluggish adjustment of the real exchange rate towards equilibrium. The authorities need to develop sound indirect monetary instruments to supplement the policy of exchange rate anchoring. Fighting inflation also depends on the ability of policy to reduce the effects of supply shocks emanating from droughts and foreign price movements as reflected in the costs of imported inputs.

UN (2015) mentioned that, since independence Sudan has been confronted with a wide range of challenges that hinder it

development. For instance, the social, economic and political costs of conflicts in Sudan have been extremely high. Besides, the secession of Southern Sudan has resulted in two challenging issues that would seriously affect the development performance of Sudan. The first challenge is the spread of conflict in new areas and the second challenge is the loss of the bulk of oil revenues which resulted in far reaching economic and social impacts.

Hassanain and Elzahi (2016) determined the milestones of alleviating poverty through Zakah Systems in the Republic of the Sudan. The results suggest that despite some operational inefficiencies and the challenges facing the Sudanese Zakah Chamber there exists a positive and significant relationship between the program and poverty alleviation in Sudan.

Usman and Tasmin (2016) explored the conceptual framework on the role of Islamic micro-finance in improving human development in Muslim Countries. The findings of the study show that Islamic micro-finance is a growing market position with a comprehensive approach towards human empowerment, increased income and well-being.

Elhadary et al. (2018) investigated the demographic dividends in Sudan by focusing on its opportunities and challenges. The study found that, Sudan is lagging behind in getting maximum benefit out of the demographic windows and that even the decision makers are not aware of the demographic dividend.

Isbell and Elawad (2019) surveyed a sample of Sudanese people about the economic conditions. The key findings are: As of mid-2018, management of the economy was by far the most important problem that Sudanese wanted their government to address, cited by 85% of citizens as a top priority. More than 7 in 10 Sudanese (72%) described the country's economic situation as "fairly bad" or "very bad," and a majority (59%) expected things to get worse during the coming year. About half (48%) said their personal living conditions were bad. One-third (33%) of Sudanese said they had gone without enough food (33%) at least once during the year preceding the survey, while more than half had lacked sufficient clean water (57%), needed medical care (51%) and cooking fuel (68%). Frequent shortages of basic necessities were most common among rural residents, young citizens, those with little or no formal education, and residents of the Darfur region. Overall, more than three-fourths (77%) of Sudanese saw the country as headed in the wrong direction, a sharp increase from 47% in 2015. About 9 out of 10 Sudanese said the government was performing "fairly badly" or "very badly" in managing the economy (88%), raising living standards of the poor (90%), creating jobs (86%), and narrowing gaps between rich and poor (89%).

Kinnunen et al. (2019) examined the impact of economic and political systems on HDI by using Bertelsmann Foundation's data on 123 countries. The study found important predictors for high HDI levels.

UNDP (2019) reported that, during 1990-2018, Sudan's HDI value increased from 0.332 to 0.507. It attributed to Sudan's life expectancy at birth increased by 9.6 years, mean years of schooling

increased by 2.2 years and expected years of schooling increased by 3.8 years. Sudan’s GNI per capita increased by about 145.5 percent between 1990 and 2018.

Prakash and Garg (2019) offered approach to measure the human development, progress and growth of any country. It developed an alternative index to the conventional “HDI,” named as “Composite Development Index (CDI)” and have also presented an original approach to evaluate it quantitatively. The results found that, there is no country was even able to have a CDI score of 0.8 on a scale of 0.1-1. Moreover, it can be concluded that efforts to have a high CDI (in comparison to a high GDP or HDI only) will pave the way forward for sustainable development and holistic progress for all the countries of the world.

Ataey et al. (2020) investigated the degree to which the prevalence of obesity and overweight is affected by HDI and its components in Eastern Mediterranean Region Countries. The results show that, the prevalence of obesity was determined to be significantly higher among females than males, and the gross national index per capita was found to be significantly higher for males than females ($P < 0.05$). Significant positive correlations were found between HDI and its components and sex, as well as indices of obesity and overweight.

Table 1: HDI, Banking Finance and Inflation in Sudan 1999-2018

Year	HDI	Banking finance as share of GDP	Inflation rate: CPI
1999	0.40	2.72	17.2
2000	0.40	3.00	7.1
2001	0.41	3.60	1.9
2002	0.41	4.33	22.2
2003	0.42	5.06	6.5
2004	0.43	6.24	9.7
2005	0.44	8.11	8.5
2006	0.45	10.55	7.2
2007	0.45	11.04	14.8
2008	0.46	52.91	14.3
2009	0.47	10.57	11.3
2010	0.47	13.76	13.0
2011	0.48	12.81	18.1
2012	0.49	10.83	35.6
2013	0.48	11.12	36.5
2014	0.50	8.63	36.9
2015	0.50	10.25	16.9
2016	0.50	12.49	17.8
2017	0.51	16.17	32.4
2018	0.51	11.77	63.3

Source: IMF (2019) and CBOS –Annual Reports Different Issues (1999-2018)

World Bank (2020) stated that, Sudan’s economic freedom score is 45.0, making its economy the 173rd freest in the 2020 index. Its overall score has decreased by 2.7 points due to a substantial drop in the fiscal health score. Sudan is ranked 44th among 47 countries in the Sub-Saharan Africa region, and its overall score is well below the regional and world averages.

Although, many research bodies have defined, discussed, examined, reviewed, stated, investigated and explored the performance of HDI through all over the world, however, this study extends the previous work by highlights the role banking finance and monetary policy in enhancing HDI in Sudan (1999-2018).

3. POSITION OF HDI, BANKING FINANCE AND INFLATION IN SUDAN 1999-2018

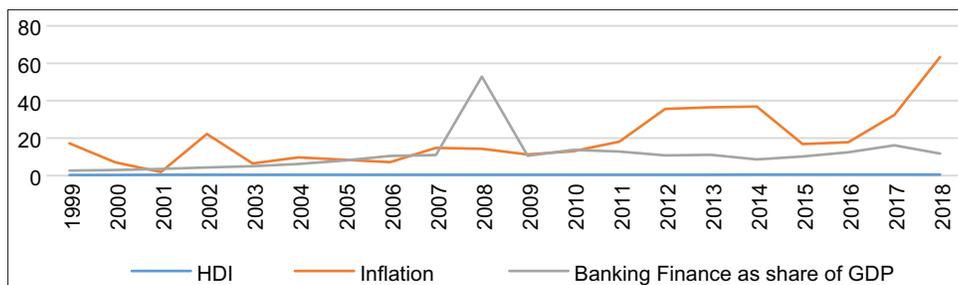
From the Table 1 and Figure 1, it is seen that HDI during the period 1999-2018 ranged between 0.40 and 0.51 indicating progress has-been severely slowed by the eruption of violent conflict and the resulting impacts on institutional stability and social capital.

As for the position of banking finance it is notice that since 1999 to 2007, it started to increase at increasing rate reached 52.9% of GDP in 2008. But it sharply declined to 10.5% of GDP in 2009 indicating a weak performance of banking sector and Sudan economy. However, the secession of South Sudan on the 9th of January 2011, set in motion by the Comprehensive Peace Agreement CPA signed in 2005, has created a new reality in the country with far reaching economic, political and social implications on the country. The economic and financial losses related to the secession are substantial and have affected all the sectors of the economy (UN, 2015).

For the period of (1999-2018) except (2000-2001) and (2003-2006), Sudan economy faced a high inflation (more than one digit). A higher inflation reduces the purchasing power of money resulted in dampened private consumption and declined the standard of living. Moreover, high inflationary pressures and sharp currency movements caused people demanded more money to meet their basic needs.

To examine the hypotheses, the study used annually secondary data covering the period 1999-2018. Data are gathered from annual reports of the Central Bank of Sudan, World Bank and UNDP database. Moreover, the previous studies which related to HDI. By applying ADF and Unit Root test, data stationary test was runs. The study employed the Ordinary Least Squares method.

Figure 1: Trend of HDI, banking finance as share of GDP and inflation



4. RESULTS AND ANALYSIS

To empirically examine the potential influence of banking finance and inflation on HDI, econometric techniques of analysis will be used.

4.1. Simple Model Specification

The model is specified as follows:

$$HDI = f(\text{Banking Finance, Inflation}) \quad (1)$$

“Eq. (1)” rewritten as follows:

$$HDI = f(\text{BF, Inf}) \quad (2)$$

“Eq. (2)” tell as that human development index is a function of banking finance and inflation as a control factor.

The model is specified in symbols as follows:

$$HDI = \beta_0 + \beta_1 \log(\text{BF}) + \beta_2 \log(\text{Inf}) + \mu_i$$

Where:

HDI: Human development index

HDI is a summary measure for assessing long-term progress in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living, 1 = The most developed (UNPD, 2019).

β_0 : Constant parameter or intercept.

β_1, β_2 : Coefficients of independent variables.

log: Algorithmic form of the variables.

BF: Banking finance represents the finance provided by the banking institutions in Sudan to all economic sectors.

Inf: Inflation rate measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly (Knoema, 2019).

μ_i : Error term.

4.2. Stationary Test Results

Before estimating of the model, ADF test had been calculated, results of unit root test is reported in Table 2.

Table 2 shows that the set of time series are stationary at 1st difference of 5% MacKinnon Critical Value and its integrated of order I (1), includes Log(BF) and Log (INF).

4.3. Empirical Results

The results of the estimated parameters of the model using Ordinary Least Squares method showed in Table 3.

4.4. Discussion of the Results

The study examined the potential influence of the banking finance and inflation on HDI in Sudan (1999-2018).

The value of Adjusted R-Squared is 0.65, this means that the explanatory variables (banking finance and Inflation) explained about 65% of total changes in HDI. The total test of regression is significant because, F- statistic have value of (17.46476) with probability (0.000121).

Table 2: Unit root test results

Null hypothesis: D(Log(HDI)) has a unit root, exogenous: Constant						
Lag length: 2 (Automatic based on SIC, MAXLAG=3)						
ADF Test Equation, Constant, Trend NO,(1ST Difference)						
Variable	ADF statistic	Probability	MacKinnon critical value (%)			Decision at (5%)
			1	5	10	
Log(BF-1)	-7.15921	0.0000	-8.57386	-3.040391	-2.660551	Stationary
Log(INF-1)	-5.040476	0.0005	-3.959148	-3.081002	-2.681330	Stationary

*Time series stationary at 1st difference of 5% MacKinnon critical value. Source: Own calculation

Table 3: Summary of OLS regression results

Dependent variable: Log(HDI(-1)), Method: least squares					
Sample (adjusted): 2001-2018, Included observations: 18 after adjustments					
Variable	Coefficient	SE	t-Statistic	Prob.	
C	-1.044907	0.043855	-3.82615	0.0000	
Log(BF(-1))	0.050364	0.018387	2.739096	0.0152	
Log(Inf(-1))	0.054691	0.016848	3.246098	0.0054	
R-squared	0.699577		Mean dependent var.		-0.794030
Adjusted R-squared	0.659520		SD dependent var.		0.078665
SE. of regression	0.045901		Akaike info criterion		-3.173633
Sum squared resid	0.031604		Schwarz criterion		-3.025238
Log likelihood	31.56270		Hannan-Quinn criter.		-3.153171
F-statistic	17.46476		Durbin-Watson stat		1.528760
Prob. (F-statistic)	0.000121				

Source: Author’s calculation

The estimated parameter of banking finance (logBF) has a positive sign with probability of (0.0152) indicating that an increase of provision of banking finance to the different economic sectors would probably improve the HDI by (0.050364) percent.

The estimated parameter of inflation (LogInf) appeared with a positive sign. It has high influence (probability 0.0054) to the HDI. It is telling that a one percent increases in inflation rate would probably lead to improving HDI by (0.054691) percent.

The positive relationship between inflation and HDI can be explained by the fact that in developing countries like Sudan, the expansion of development spending and establishment of new projects might lead to high inflation due to increased importation of equipment's, machinery and technology with a decrease in exports (Abdalla, 2016. p. 3). But in the long term the relationship will be reversed to negative, which means low inflation improves the HDI.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

- The expansion provision of banking finance to the economic sectors have positive effect on the HDI.
- Monetary policy was not effective in reducing inflation in Sudan, especially in 2018 due to the rapid increase in money supply that caused hyperinflation of 63.3%.
- In developing countries like Sudan, the study found a positive relationship between inflation and HDI.

5.2. Recommendations

- To improve HDI, banks in Sudan should expand in the provision of finance to economic sectors with focuses on production sector in order to increase GDP, consequently reduce inflation.
- Monetary authority should adopt contractionary monetary policy to control inflation by reducing supply of money to improve the value of local currency, consequently rises standard of living and HDI.

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