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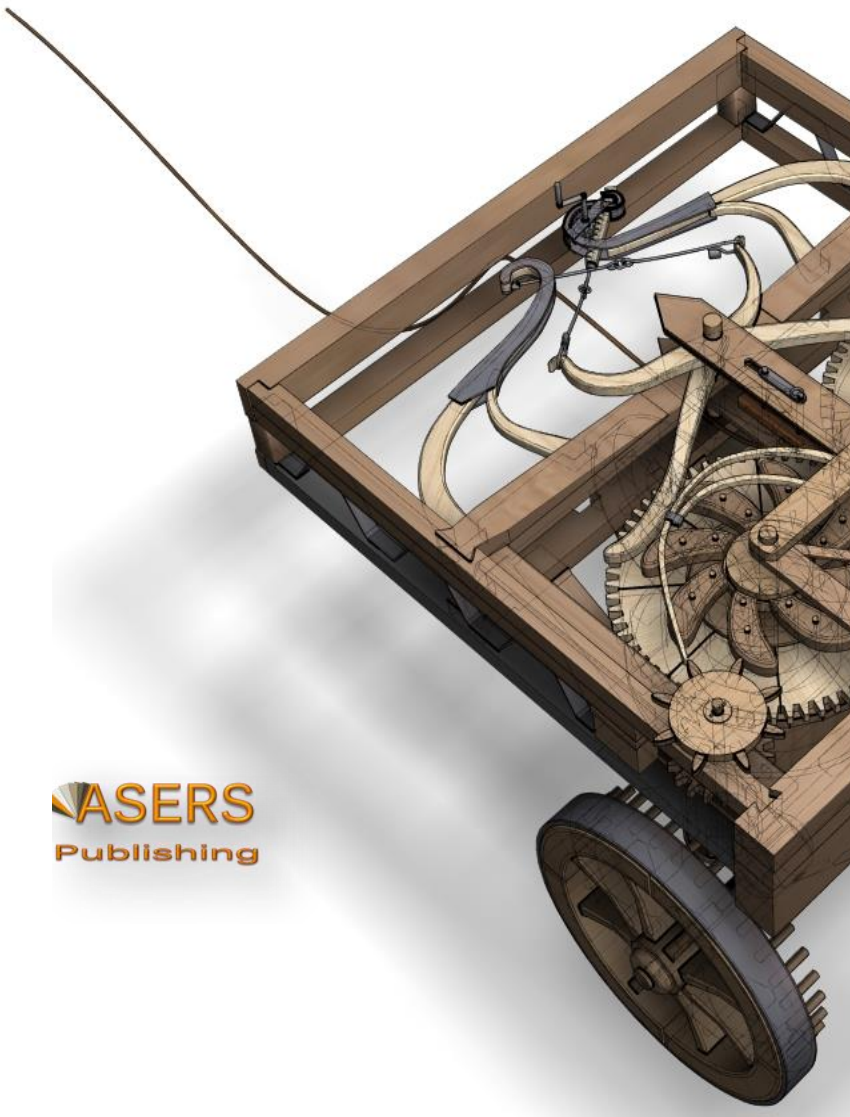

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research to be conquered in order to reach the specific information they require. To combat this tendency, **Theoretical and Practical Research in Economic Fields** has been conceived and designed outside the realm of the traditional economics journal. It consists of concise communications that provide a means of rapid and efficient dissemination of new results, models and methods in all fields of economic research.

Theoretical and Practical Research in Economic Fields publishes original articles in all branches of economics – theoretical and empirical, abstract and applied, providing wide-ranging coverage across the subject area.

Journal promotes research that aim at the unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems and that are penetrated by constructive and rigorous thinking. It explores a unique range of topics from the frontier of theoretical developments in many new and important areas, to research on current and applied economic problems, to methodologically innovative, theoretical and applied studies in economics. The interaction between empirical work and economic policy is an important feature of the journal.

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The primary aim of the Journal has been and remains the provision of a forum for the dissemination of a variety of international issues, empirical research and other matters of interest to researchers and practitioners in a diversity of subject areas linked to the broad theme of economic sciences.

All the papers will be first considered by the Editors for general relevance, originality and significance. If accepted for review, papers will then be subject to double blind peer review.

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IS SLOW ECONOMIC GROWTH ORIGINATING FROM THE TOTAL EXTERNAL DEBT STOCK IN DEMOCRATIC REPUBLIC OF CONGO?

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Abstract:

Unsustainable debt reduces the productivity of a country. Ten years following its "1960 independence", the Democratic Republic of Congo adopted policies that resorted to external finances while the world was at the peak of the 1970 Petro-dollar crisis. The following decade, in the 1980's, with the fall in price of raw materials, the Democratic Republic of Congo was trapped in an unsustainable debt burden cycle that stagnated its economy and according to the World Bank data, reduced its GDP per Capita. The rise of active armed conflicts in the 1990's and political unrest during the 2000's added pressures to resort to further financial support from external creditors, facilitating corruption and poverty in the process.
The inability to service debts leads to economic consequences. One of these consequences is reduction in productivity. With empirical evidence, our analysis will be looking at the Congolese productivity from independence in 1960 to the historical democratic transfers of power in late 2018 to understand the effects of external debts in its economic growth.

Keywords: *Sub-Saharan economic growth, economy of the Democratic Republic of Congo, GDP per capita, total external debt stock, general economics*.

JEL Classification: F43; H54.

Introduction

Since its independence in 1960, the Democratic Republic of Congo has been in a debt and aid cycle from external creditors. With an aim of assessing the relationship between the total external debt stock and economic growth in the Democratic Republic of Congo, this paper will have a fourfold objective by (i) providing an overview background of the Democratic Republic of Congo External Debt, (ii) have a view of the economy of the Democratic Republic of Congo since 1960 to 2019 using its GDP per Capita before (ii) exploring the total external debt stock data from the same period (iii) to conclude, *ceteris paribus*, on relationships between total external debt stock and economic growth to draw recommendations.

1. An Overview on the Democratic Republic of Congo External Debt

Ten years following its 1960 independence, the Democratic Republic of Congo solicited external financial support to maintain peace and support its economy following the Congo Crisis. The mismanagement of funds in the mid 1970's led to further political unrest fuelling corruption and poverty of the 1980's, which in turn led to further armed conflicts in the 1990's and early 2000's. According to Collier (2008), the conflict trap theory is one of the reasons negatively impacting economic growth of countries such as the Democratic Republic of Congo since armed conflicts lead to poverty and poverty is the cause of armed conflicts.

In the Democratic Republic of Congo, successive governments have been unable to end the poverty cycle with much of their policies evolving around borrowing from external creditors to tackle internal economic challenges as well as reverting to external aid for further support.

Moyo (2010) investigated the myth around financial aid to poorer countries to conclude that it failed to stimulate economic growth for African countries but contributed to corruption such as the embezzlement of US$5 billion, between 1970 to 1998, by Marechal Mobutu Sese Seko Kuku Ngbendu WA Za Banga, the late president of Zaïre (actual Democratic Republic of Congo).

Much of the Congolese debt was incurred during the Cold War era when then President Mobutu received more aid from the U.S.A. than the rest of Sub-Saharan Africa combined. According to Boyce and Ndikumana (2002), in 1993, following years of mismanagement, the World Bank suspended its financial assistant to the Democratic Republic of Congo and in 1994, annual inflation was 9,796.9%. The total external debt service increased from 119.6% in 1990 to 271.4% in 1995. In 1997, following 32 years in power, then President Mobutu accumulated a personal fortune estimated at US$5 billion, while his government ran up an estimated *total external debt stock* of around US$12 billion, which represented nearly 225% of GDP and 1,280% of export. They left the country, following a military coup, with unsustainable debts and arrears repayment of US$10.9 million. In 1998, armed conflicts financed by the government of Rwanda and Uganda added further pressures to the repayment of debts.

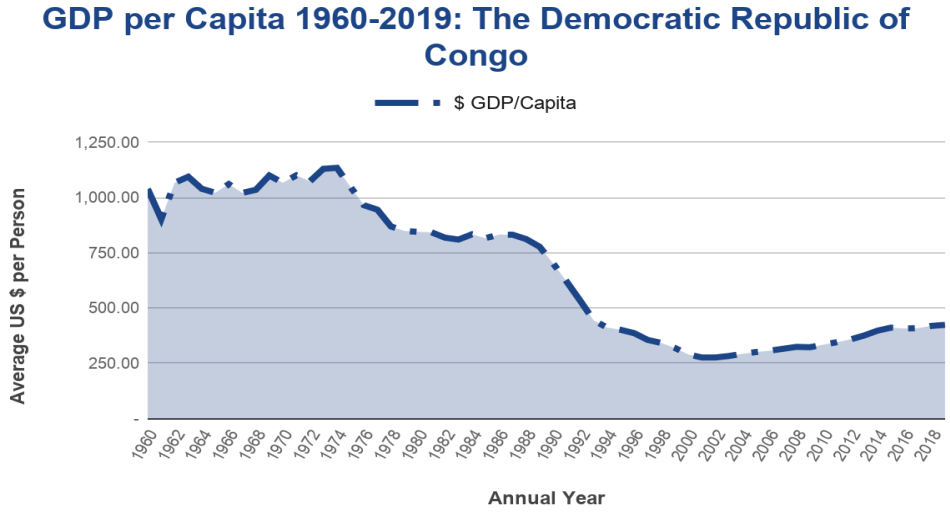
The I.M.F. and the World Bank stated that the Democratic Republic of Congo was vulnerable to financial shocks because of its debt burden and promoted S.A.P. as responsible economic policies for developing countries since the early 1980s by the provision of loans conditional on the adoption of set standard policies. And according to the joint World Bank - IMF Debt Sustainability Analysis approved by Estevão *et al.* (2019), the Democratic Republic of Congo has been making progress since the early years of 2000's.

However, The Sentry (2019) investigated corruption between Congolese officials and bankers legitimising illegal transactions from external loans using banking institutions to enrich a selected minority at the expense of the overall population, which raised the question of whether aid money and programs set by the Bretton Woods institutions are beneficial to the overall Congolese population.

2. Data and Empirical Strategy

We are aiming to look at data covering the full term in office of different governments. This paper will be looking at data from 1960 to 2018 to understand GDP per Capita and total external debt stock. We will also have a partial insight of the current government by adding data from 2019. Therefore, we will base our analysis on 60 paired observations.

2.1. Data



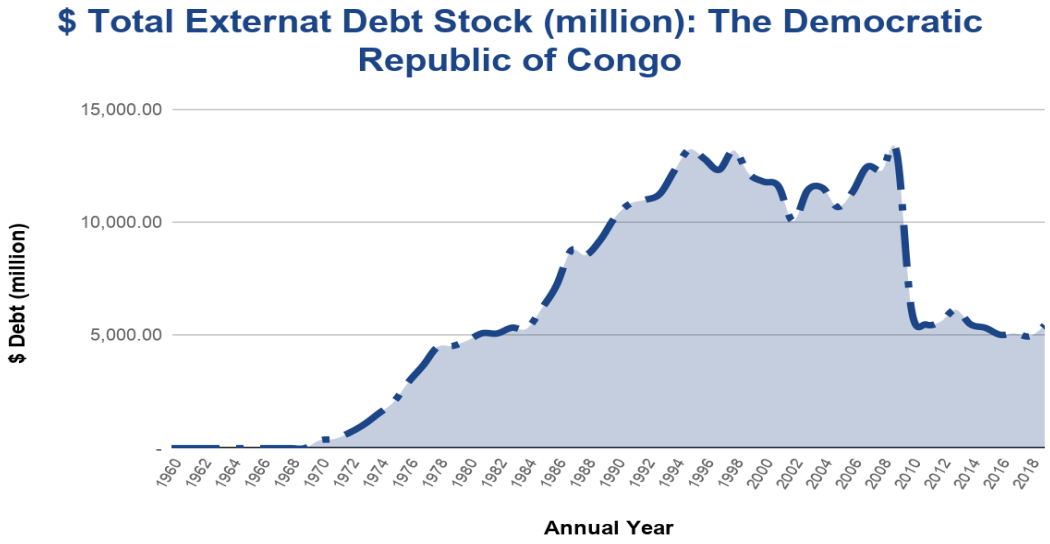
Graph 1. Average productivity of Congolese in US $ from 1960 to 2019. Data were collected from the World Bank adjusted at 2010 to exclude the effect of inflation allowing accurate economic comparison year on year

For economic growth, we will refer to GDP per Capita, which is identified as a country standard of living with data collected from the World Bank at 2010 constant[1]. The World Bank is a recognised and reliable global source of economic data. Countries' data are from their respective national statistical systems and improved to global standards to become effective analytical tools.

As the World Bank's goal is the reduction of poverty by providing loans and grants, data have been assessed by the organisation to be accurate and trustworthy for decision-making.

The annual GDP per capita will measure the value of yearly production in the Democratic Republic of Congo during the selected period and divided by the number of inhabitants in the middle of relevant years. Data are adjusted for inflation and differences at the 2010 fixed prices to allow accuracy in economic comparisons.

Graph 1 suggests that the Democratic Republic of Congo's standards of living from 1960 to 2019 has more than halved to prompt questions about economic related events from the 1970's to early 2000's. One of these factors, *ceteris paribus*, is the total external debt stock, which is defined by the World Bank[2] as debt owed to non-residents and repayable in currency, goods, or services. Total external debt stock is the sum of public, publicly guaranteed, and private non-guaranteed long-term debt, use of IMF credit, and short-term debt where short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt.



Graph 2. Total External Debt Stocks of the Democratic Republic of Congo in million US $ from 1960 to 2019. Data were collected from the World Bank

Graph 2 shows the Democratic Republic of Congo total external debt stock in US$ from 1960 to 2019 suggesting an increase as an independent country from US$5,000 million in the 1970's to around US$10,000 to US$15,000 million in the 1990's and early 2000's. A sharp decrease was observed from 2008 to 2010, when analysis approved by Estevão *et al.* (2019) suggested progress was made from S.A.P.

2.2. Empirical Strategy

The paper analyses the relationship between total external debt stock in the Democratic Republic of Congo and economic growth. *Graph 1* & *Graph 2* are signalling a negative correlation, which we will further investigate with the linear regression *(eq.2.1)*:

$$G_t = \alpha + \beta D_t + \varepsilon \qquad 2.1$$

G_t represents the standard of living determine by the GDP per Capita at year *t;*

α_t is the intercept, the GDP per Capita at zero total external debt stock.

β is our slope to determine how growth will behave with additional debts.

D_t is the shock to growth, the independent variable that is debt during year *t;*

ε represent the error in our model; *ceteris paribus* factors.

[1] Data available from the World Bank: https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?locations=CD

[2] The Democratic Republic of Congo data for total external debt stock were isolated from the world data that are available from the World Bank at: https://data.worldbank.org/topic/external-debt?display=d

3. *Results and Interpretation*

3.1. Main Results

3.1.1. Testing: T-Test

The T-Test determines the level of significance between our selected data (GDP per Capita & Debt) and their respective means.

Our Hypotheses are as follow:

$H_0: \mu \leq 0$; *null hypotheses assuming growth not impacted by debt*
$H_1: \mu > 0$; *alternative hypotheses that our growth increases following debt*

With a 5% significance (0.05), giving us a 95% accuracy of samples.

t-Test: Paired Two Sample for Means		
	$ GDP/Capita	$ Debt (million)
Mean	669.3261883	6290.983121
Variance	97203.59543	21128117.66
Observations	60	60
Pearson Correlation	-0.8226372648	
Hypothesized Mean Difference	0	
Df	59	
t Stat	-8.966834891	
P(T<=t) one-tail	0	
t Critical one-tail	1.671092973	
P(T<=t) two-tail	0	
t Critical two-tail	2.000995318	

The absolute value of our t-Stat at 8.9 suggests that there is greater evidence against the null hypotheses.

And with both P values (one & two tails) equal to zero, the null hypotheses (H_0) will be rejected with strong evidence of higher significance and accuracy of selected data.

3.1.2. Linear Regression

Having tested the significance/accuracy of our data, we will look into their relationships from 2.1. Our primary aim is to determine how GDP per Capita reacts as a dependent variable of the total external debt stock.

The key result will be the R Square, which determines the level in which the total external debt stock influences GDP per Capita.

It indicates that from our 60 observations, GDP per Capita is influenced at 67.67% by total external debt stock.

With the significance F lower than 0.05 at 0, we have a strong significance regression for our results and also confirmed by our T-Test in 3.1.1.

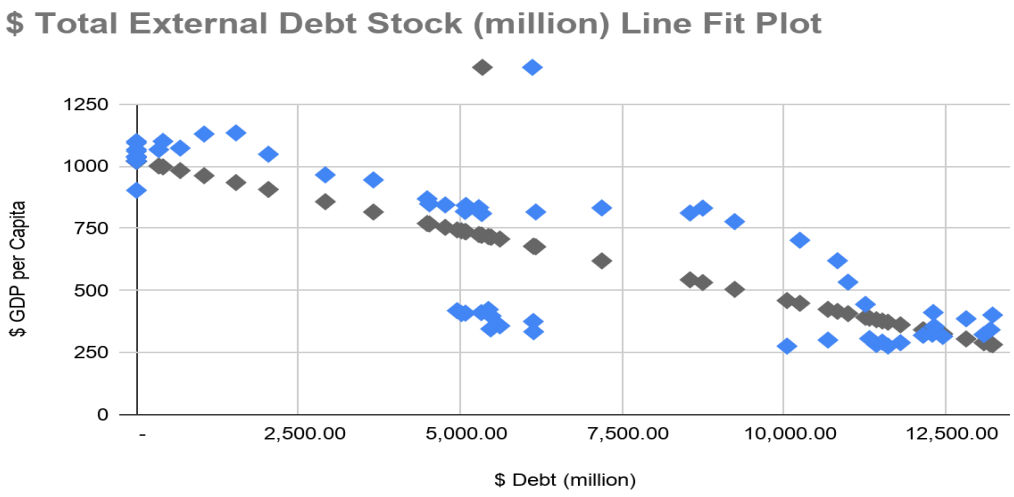
Our coefficients are suggesting that:

- we should be expecting US$1,020 GDP per Capita as intercept, at
- a negative debt of (US$0.055 million) as our slope confirming the negative relationship between debt and GDP per Capita.

By targeting a GDP per Capita of US$ 1,020, we will be reducing the total external debt stock by US$ 0.055 million. Or with a reduction of US$0.055 million in the total external debt stock, we would expect a GDP per Capita of US$ 1,020.

Looking in the P value, we can confirm that the total external debt stock has an effect on GDP per Capita because at 0, our P value are lower than 0.05

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.8226372648							
R Square	0.6767320694							
Adjusted R Square	0.6711584844							
Standard Error	178.7864023							
Observations	60							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	3881066.627	3881066.627	121.4177353	0			
Residual	58	1853945.503	31964.57764					
Total	59	5735012.13						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95%	Upper 95%
Intercept	1020.350875	39.33920073	25.93725484	0	941.604911	1099.096838	941.604911	1099.096838
$ Debt (million)	-0.0557980652	0.005063817857	-11.01897161	0	-0.06593439764	-0.04566173275	-0.06593439764	-0.04566173275



Graph 3. Total External Debt Stocks vs GDP per Capita of the Democratic Republic of Congo from 1960 to 2019. Data collected from the World Bank and process using excel scatter graph

With *Graph 3,* we are predicting GDP per Capita using coefficients from selected data. The black dots are our predicted GDP per Capita, which decreases as debt increases. The blue dots are the actual GDP per Capita fitting our expectations. The higher the total stock of external debt, the lower our GDP per Capita.

We can confirm that Eq.2.1 is a good regression and there is a negative relationship between GDP per Capita and External Debt.

Conclusion & Recommendations

Our aim was to determine whether slow economic growth was a consequence of external debt in the Democratic Republic of Congo. We selected data from 1960 to 2019 and suggested a linear regression with GDP per Capita as a dependent variable of total external debt stock. We tested our data for significance to fit our regression model. Our results confirm that **in the Democratic Republic of Congo, assuming that all other economic factors are held constant and using GDP per Capita as an indicator of productivity/standard of living, there is a negative correlation between economic growth and the total external debt**. With higher debts, productivity tends to decrease.

Therefore, the Democratic Republic of Congo required a robust national budget that will tackle the total external debt stock to support economic growth. Not prioritizing debt reduction, but sustainability is key as total external debt stock has been constantly increasing from the 1970's the late 1990's, but stabilized in the early years of 2000 when we could observe stable GDP per Capita.

Debt may influence, but it is not necessarily the main issue. Our analysis assumed that all other economic factors were constant. Roux de Bézieux (2020) stated in an interview that debt reduction in time of crisis is not necessarily the priority, but the ability to reimburse it by setting robust economic policies for the future. With regards to the Democratic Republic of Congo, robust policies are key to sustain the debt adequately by reimbursing interest and principal while promoting growth.

The total External Debt Stock of the Democratic Republic of Congo has been one of its economic challenges from 1970's to the early years of 2000, adversely influencing it by more than 60%. Reducing the Debt should be a social responsibility. The country should therefore determine its limits identifying the level where its debt does not prejudice its economic growth. Then set robust policies aiming to reach a GDP per Capita at US$ 1,020 through job creation, revised expenditures and implementing fair taxation to start repaying the total external debt stock and reduce its reliance on aid.

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Appendix

	Growth, Debt & Politics - DR Congo				
Year	*$ GDP/Capita*	*% growth*	*$ Debt (million)*	*Leader*	*Regime*
1960	1,038.93		-	Kasa-Vubu	Elected
1961	903.13	-13.07	-	Mobutu	Interim
1962	1,067.06	18.15	-	Kasa-Vubu	Elected
1963	1,094.01	2.53	-	Kasa-Vubu	Elected
1964	1,039.41	-4.99	-	Kasa-Vubu	Elected
1965	1,021.61	-1.71	-	Kasa-Vubu	Elected
1966	1,060.77	3.83	-	Mobutu	Dictatorship
1967	1,020.79	-3.77	-	Mobutu	Dictatorship
1968	1,034.88	1.38	-	Mobutu	Dictatorship
1969	1,099.68	6.26	-	Mobutu	Dictatorship
1970	1,066.77	-2.99	345.22	Mobutu	Dictatorship
1971	1,100.42	3.15	410.05	Mobutu	Dictatorship
1972	1,073.00	-2.49	676.59	Mobutu	Dictatorship
1973	1,129.87	5.30	1,046.51	Mobutu	Dictatorship
1974	1,134.30	0.39	1,538.50	Mobutu	Dictatorship
1975	1,048.55	-7.56	2,038.61	Mobutu	Dictatorship
1976	965.20	-7.95	2,918.45	Mobutu	Dictatorship
1977	944.92	-2.10	3,661.97	Mobutu	Dictatorship
1978	869.07	-8.03	4,491.70	Mobutu	Dictatorship
1979	848.75	-2.34	4,527.13	Mobutu	Dictatorship
1980	844.50	-0.50	4,770.69	Mobutu	Dictatorship
1981	842.57	-0.23	5,090.79	Mobutu	Dictatorship
1982	818.23	-2.89	5,078.79	Mobutu	Dictatorship
1983	809.72	-1.04	5,335.73	Mobutu	Dictatorship
1984	833.58	2.95	5,289.77	Mobutu	Dictatorship
1985	816.14	-2.09	6,171.27	Mobutu	Dictatorship
1986	832.28	1.98	7,190.75	Mobutu	Dictatorship
1987	831.65	-0.08	8,749.84	Mobutu	Dictatorship
1988	812.00	-2.36	8,553.69	Mobutu	Dictatorship
1989	777.26	-4.28	9,243.64	Mobutu	Dictatorship
1990	702.13	-9.67	10,250.73	Mobutu	Dictatorship
1991	619.80	-11.73	10,831.93	Mobutu	Dictatorship
1992	533.53	-13.92	10,995.02	Mobutu	Dictatorship
1993	444.05	-16.77	11,263.66	Mobutu	Dictatorship
1994	411.49	-7.33	12,311.69	Mobutu	Dictatorship
1995	401.19	-2.50	13,229.23	Mobutu	Dictatorship
1996	386.11	-3.76	12,819.90	Mobutu	Dictatorship
1997	355.53	-7.92	12,326.99	Mobutu	Dictatorship

	Growth, Debt & Politics - DR Congo				
Year	*$ GDP/Capita*	*% growth*	*$ Debt (million)*	*Leader*	*Regime*
1998	341.78	-3.87	13,192.16	Kabila (L-D)	Dictatorship
1999	319.56	-6.50	12,155.73	Kabila (L-D)	Dictatorship
2000	289.99	-9.26	11,804.40	Kabila (L-D)	Dictatorship
2001	276.14	-4.77	11,612.18	Kabila (J)	Dictatorship
2002	276.06	-0.03	10,051.61	Kabila (J)	Dictatorship
2003	282.65	2.39	11,433.51	Kabila (J)	Dictatorship
2004	292.35	3.43	11,524.22	Kabila (J)	Dictatorship
2005	300.56	2.81	10,683.99	Kabila (J)	Dictatorship
2006	306.53	1.98	11,326.30	Kabila (J)	Elected
2007	315.26	2.85	12,459.47	Kabila (J)	Elected
2008	324.04	2.78	12,296.41	Kabila (J)	Elected
2009	322.42	-0.50	13,093.04	Kabila (J)	Elected
2010	334.02	3.60	6,136.64	Kabila (J)	Elected
2011	345.27	3.37	5,473.72	Kabila (J)	Elected
2012	357.60	3.57	5,615.75	Kabila (J)	Elected
2013	375.22	4.93	6,132.47	Kabila (J)	Elected
2014	397.34	5.90	5,481.89	Kabila (J)	Elected
2015	411.02	3.44	5,327.95	Kabila (J)	Elected
2016	407.29	-0.91	5,021.57	Kabila (J)	Elected
2017	408.92	0.40	5,083.90	Kabila (J)	Elected
2018	418.99	2.46	4,955.69	Kabila (J)	Elected
2019	423.64	1.11	5,437.55	Tshisekedi (F)	Elected

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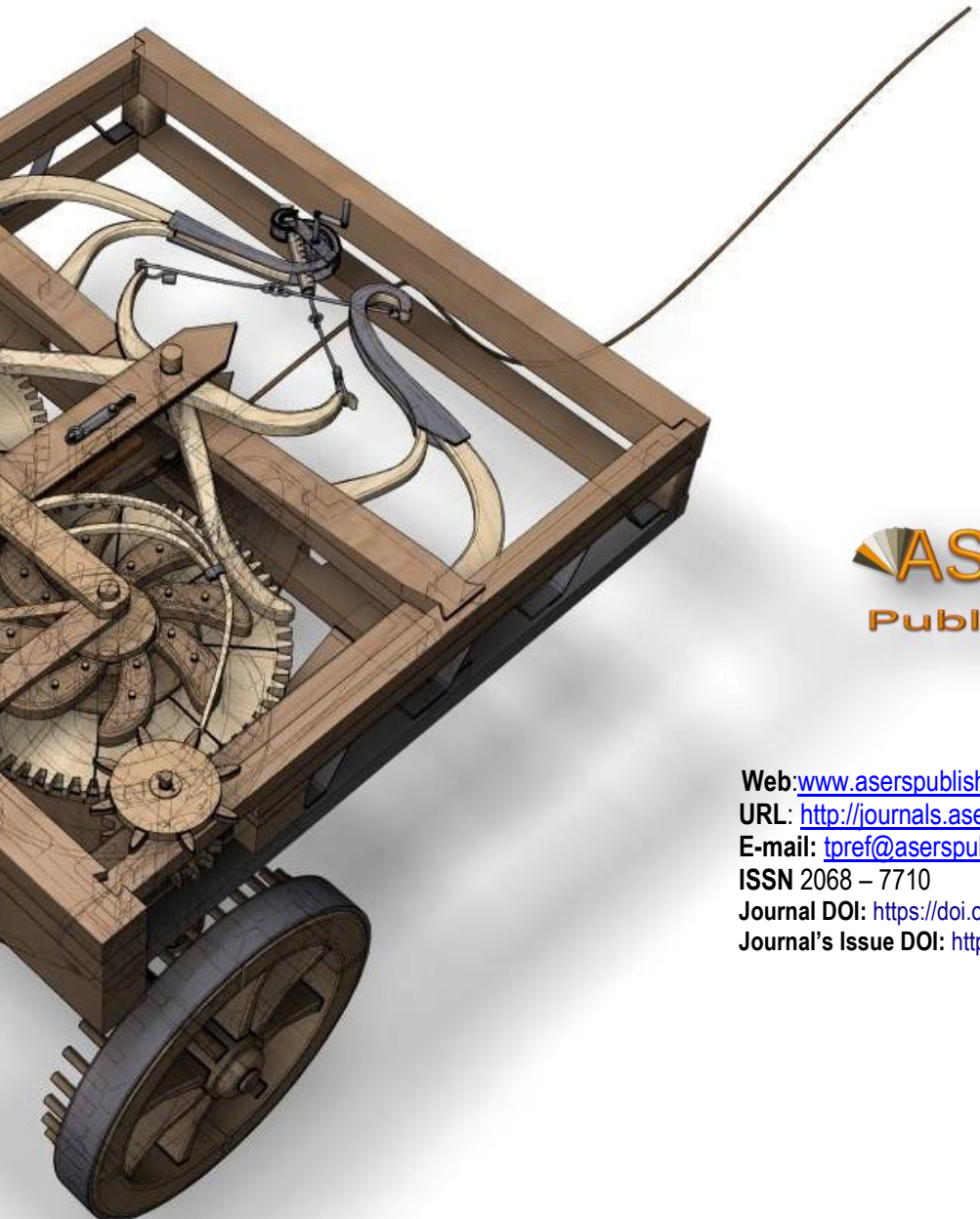

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