External Debt and Economic Growth in Tunisia

Author: **Nasfi Fkili Wahiba,** Doctor of Economics, Research Unit "Enterprise Economy Environment" Higher Institute of Management University of Gabes, Tunisia, nasfiwahiba@yahoo.fr

The objective of this study is to identify the effect of external debt on economic growth; we used the debt service as percentage of exports and debt indicators in the first and second degree. The econometric estimation showed that the sign of the coefficient of debt is positive and the debt squared is negative, and beyond a certain stock, the impact of debt on growth becomes negative and Tunisia must control its debts as additional increases will have adverse impacts on the economic performance of the country. Therefore, the borrowing should remain a necessity in cases of extreme emergency, not a solution to all economic problems experienced by the country.

Keywords: Debt, External financing, Growth

Introduction

External financing is one of the main ways available to developing countries to accelerate growth and achieve a greater volume of investment, except that national economic structures must be adapted to master the flow of resources provided, repay debts and not be locked in a vicious circle of external debt.

So when external financing is available, poor countries that benefit will be faced with problems related to non-availability of highly qualified labor. Thus, with the change in production structure, some countries have

an inability to adapt to the requirements related to the change in the internal and external demand, similarly, the small national markets is a problem for poor countries as regards the flow of goods exported.

Review of the literature on the relationship Debt –Growth

To be interested in different theoretical interpretations of external debt we start with the classical conception of debt. For classical economists, the external debt is regarded as a future tax. According to Ricardo, the loan is a tax deferred over time and members of the company will be forced to pay taxes later for the reimbursement of the loan regardless of the generational shift. In this context, the behavior of agents is based on anticipation of an increase in taxes.

While the Keynesian conception of debt considers that there is no cost of debt for present or future generations, given the investments made. For Keynesians, debt promotes recovery of aggregate demand and leads to increased investment and hence production.

The theory of rational expectations, deepens the thesis of Ricardo on the basis of expectations. For proponents of this school, if the state finance increased public spending by borrowing or if it lowering taxes and not affect the public spending and the money supply, agents will anticipate a tax increase which is necessary to pay the debt, they will increase their savings to guard against future income taxes. Thus, for Barro. RJ [1] this policy stimulus has no stimulating effect of the economy, so tax rates and primary spending should be kept fixed to avoid intertemporal distortions.

Concerning the effect of debt on economic growth, some argue that the loan can guide developing countries to consolidate their growth; these countries have used debt capital for productive investment and to ensure macroeconomic stability. The growth should accelerate and allow repay debts; however, the consequences of the accumulation of debts hamper growth. Thus, when it turns out that the debts exceed the repayment capacity, service costs discourage the country's internal and external investors and this will affect growth. Indeed, maintaining debt at reasonable and manageable levels is more beneficial to growth, but the accumulation of this debt is damage to the economy.

However, other theoretical arguments consider that an increase in the public debt leads to reduced growth by crowding out effect of

productive investment due to the fact that resources are allocated to debt settlement rather than pro-growth investments. Other arguments are based on the calculation of fiscal sustainability based on the relationship between growth rates and interest burden of the debt that led the government to impose a heavy tax (expensive) that will slow growth.

Avramovic and al [2] determines the behavior of debt in the process of growth in three stages, the first, usually characterized by a lack of domestic savings, loans are intended to finance investments and pay interest, they increase and the resources available and help save some income in order to finally create finance investments through internal resources.

In the second step the local savings should fund a portion of the investments, thus, the debt accumulated during the first stage continues in the second except that the pace of growth is less rapid to a certain level where it will stop increasing. At this level local savings should be sufficient to cover the needs of investment and should enable the country to support the load of debt service. During the third stage local savings which is supposed sufficient enough to finance investments allows you to pay the interest on the debt.

According Avramovic, achieving these three steps is performed for thirty-six years. However this model is impractical in developing countries seen frequent changes in interest and exchange rates. In addition, the effects of stimulating growth loans are products after a certain period.

Some studies involving external debt and growth showed that external resources have positive and significant effects on the growth of the economy. Osei [3] analyzes the problem of the debt of Ghana to seek measures that are proportionate and effective. The author examines the impact of external debt on economic growth; he also assesses the sustainability of the debt and its effect on the country's growth for the period 1983-1990.

The author argues that the external debt reached a critical level, this is explained by the country's inability to produce sufficient foreign currency by export earnings and the low rate of return which were applied borrowed funds. The study showed that the country must expand its export base and seek to increase its domestic economy given that the use of outside is one of the factors that constrains the écononomique growth of this country.

For a group comprising 99 countries in the developing world, Elbadawi and al [4] studied the impact of debt on growth. To do this they highlighted three channels through which debt can affect the growth of the country, the first focuses on the impact of debt on investment, the second takes into account the effect on liquidity owing to the puncture due to the debt service and the third transmission channel is indirect through of the effect of debt on public sector spending. The authors have demonstrated the existence of a Laffer curve on which we can distinguish the limit of stimulating growth through the accumulation of debt, beyond this limit the impact will be negative. Thus, for a study period of 1964-1994 Elbadawi.I and al have shown that debt can have a positive effect on growth, while the accumulation of debt has a negative impact.

By studying the case of a group of African countries Berthélemy and Vourch [5] investigated the effect achieved by a debt relief on consumer behavior. Among the variables considered the author used the ratio of the stock of debt to gross domestic product which had a positive effect because the higher it is, the more the government will release next year amounts to cover costs of debt. The estimate showed that a significant part of the debt relief obtained was spent by the government.

Yapo [6] examines the determinants of debt; it proves that the terms of trade and the debt service divided by exports have a significant effect on debt, thus the increase in debt service relative to exports and declining terms of trade pushing the country further into debt.

The study conducted by Patillo, Poirson and Ricci [7] shows that there is no statistically significant relationship between the ratio of external debt service to exports and economic growth. This argument was even suggested by Djikstra and Hermes [8] who concluded that the evidence of a positive or negative effect is not established between debt service and growth. Patillo, Poirson and Ricci [9] studied empirically the ways in which this external debt affects growth, the study was conducted during the period 1969-1998 for a set of 61 countries development. The authors have shown that the negative effects on the accumulation of physical capital may explain the negative impact of debt on growth. Similarly, the negative effects on the overall productivity of factors may contribute to the reduced growth of the country.

Thus, with the influx of foreign debt, investors will anticipate an increase in taxes for the State to repay the debt, which reduces investment

and slows the dynamics of capital accumulation. Moreover, the state can't conduct costly economic reforms in mind that future benefits in terms of higher domestic production will help repay creditors.

The low economic environment affects the efficiency of capital allocation and the suitability of investments which negatively affects economic growth. Similarly, Singh and Zammit [10] suggest that a high debt level disrupts the macroeconomic stability of the country, discouraging capital inflows this has negative consequences for growth, and this argument is well stated by Cerra, Rishi and Saxena [11].

Analysis of external debt in Tunisia

The main parameters of the external debt in the medium and long-term include the stock of external debt, the debt ratio, the debt service and the coefficient of the debt service. We present their developments during the period 2007-2012.

Table 1: The parameters of the external debt in the medium and long-term

Designation	2007	2008	2009	2010	2011	2012
Outstanding external debt (millions of dinars)	19728	21301	21977	23582	25348	28462
Debt ratio (% of GNDI)	39,7	38,9	37,3	36,9	39,1	39,6
Debt service (millions of dinars)	3334	2621	3184	3269	3737	4071
Coefficient of the debt service (percentage of current revenue)	11,7	7,7	10,6	9,3	10,6	10,5

Source: The Tunisian central bank.

With these data related to Tunisian central bank we can determine the growth rate of the debt outstanding during the period 2007-2012 the rate

is 44.27%. The debt ratio was higher in 2007, he then narrowed to 2010 and resumed its rise in 2011. The evolution of these parameters will be represented in the following graphs with OD: Outstanding Debt, DS: Debt Service, DR: Debt ratio and CS: coefficient of debt service as a percentage of current revenues.
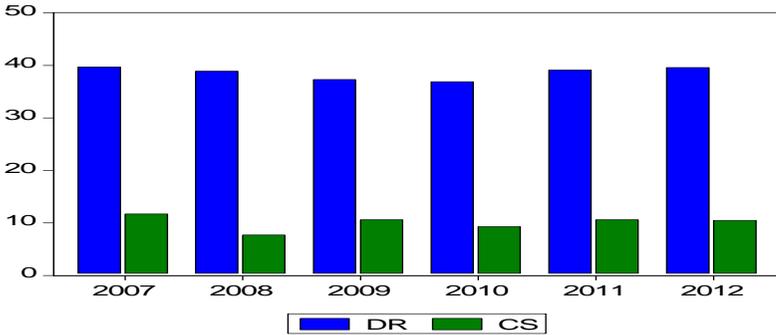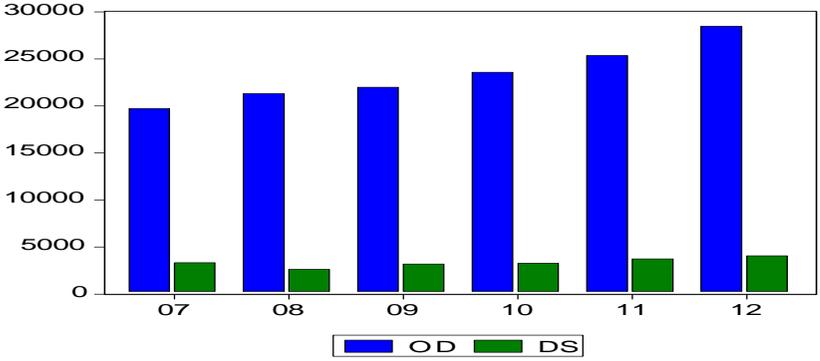
External debt is distributed short, medium and long- term, the evolution of total debt by the term is summed up in the following:

Table 2: Total External Debt by the term

Designation	2009		2010		2011		2012	
	TMD	% of total	TMD	% of total	TMD	% total	TMD	% of total

Debt in the medium and long- term	21977	77,5	23582	76,7	25348	76,8	28462	74,8
Short-term debt	6369	22,5	7148	23,3	7662	23,2	9603	25,2
financial engagement	4630	16,4	5009	16,3	5151	15,6	6103	16,0
commercial engagement	1739	6,1	2139	7,0	2511	7,6	3500	9,2
Total	28346	100	30730	100	33010	100	38065	100

This period is characterized by a continued worsening of the debt for the medium and long-term, we see an increase of 7.48% between 2010 and 2011 and a rate of 12.28% between 2011 and 2012, while short-term engagements recorded an increase of 25.33% due to an increase of 952 million dinars for financial engagements and 989 million dinars of trade engagements. These considerable increases are graphically represented on the next curve.
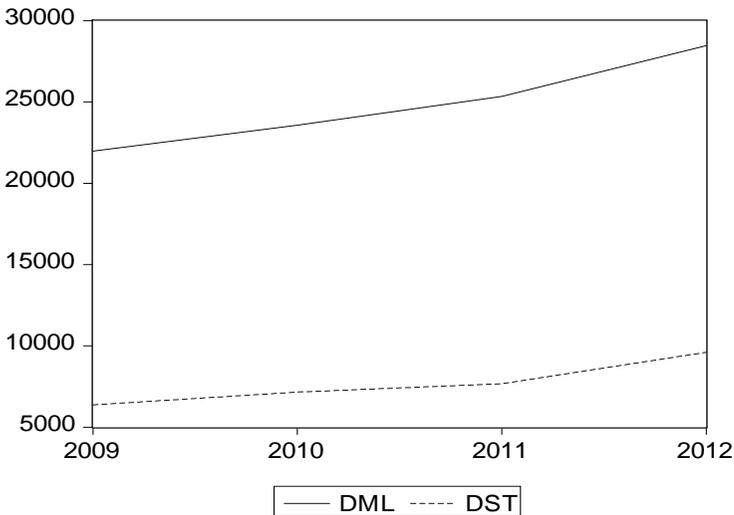
On the distribution of external debt in the medium and long- term by group of countries or by lenders at the end of 2012, we mention that countries and organizations related to the European Union are the main lenders to Tunisia, which is indicated in the following table.

Table 3: Outstanding external debt in the medium and long-term through group of countries and lending organizations to 31/12/2012.

Designation	Amount in TMD	Share of total in %
Countries and organizations of the European Union	9455	33,2
Group of the World Bank	3658	12,9
African Development Bank	4547	16,0
North American countries (NAFTA)	127	0,4
Arab countries and organizations	1808	6,3
Asian countries (Non-Arab)	1556	5,5
Other countries and organizations	1302	4,6
Financial Markets	6009	21,1
Total	28462	100

Countries and organizations related to the European Union participate with a share of 33.2% of the total debt. The contribution of financial markets is 6009 million Tunisian dinars. Similarly, the African Development Bank participates with a significant share representing 16% of the total. This share is close to that of the World Bank for an amount of 3658 million dinars.

Empirical study: The case of Tunisia

In order to study the effect of external debt on the growth we rely on a set of variables that can affect economic growth in order to estimate the following model by means of the software Eviews:

$$PIB = C_1 + C_2\ INV + C_3\ DET + C_4 SDT + C_5 TIM + C_6 POP + C_7 DET2$$

We present the variables:

INV: Public investment in gross domestic product.

DET: Outstanding debt divided by gross domestic product.

SDT: Debt service divided by exports of goods and services.

AIR: Average interest rate on the debt.

POP: Annual growth rate of the population.

DET2: The square of the outstanding debt divided by gross domestic product.

Since we have time series over a period from 1975 to 2012, some caution is needed before making the estimate by the method of ordinary least squares. It is important to ensure the stationarity of the variables through the unit root test. The results provided by the test shows that the variables are stationary at the 1% significant level.

The results for the econometric estimation of the model for a period from 1975 to 2012 are as follows.

Table4: Estimation results

Variables	Coefficient	t-statistic
C_1	-70,814	-3.842
INV	0,494	3.832
DET	0,300	2.056
SDT	-0,122	-2.318
AIR	-0,307	-2.855
POP	-0,387	-3.244

DET^2	-0,258	-1.333
R-Squared	0,727	
F- Statistic	8,460	

The estimated model shows that investment positively affect economic growth. Thus, the development of a country passes mainly through his efforts on investment. Moreover, it is the exogenous variable that most affects the dependent variable in our model.

The ratio of debt service to exports had a negative contribution, so it is a factor slowing the growth of gross domestic product. The increase in this ratio requires the country to borrow more to repay part of the principal debt.

In addition, if the resources come from exports are insufficient to repay the loans while the country delaying payment arrears for several years. With the pressure of creditors and the accumulation of arrears, the country will be forced to borrow in order to pay old debts which increase the service external and slow growth.

The outstanding debt has a positive effect. Thus, an increase in the stock of debt is reflected by an increase in gross domestic product, so the debt is not a negative factor in the economy, but it is only in its management that the government should address. Moreover even industrialized countries have resorted to external financing in times of economic recession.

Likewise, we introduced the indicator of external debt to GDP squared with the aim to highlight a Laffer curve between debt and growth. In addition it is to indicate that there is a degree from what the effect of debt on growth becomes negative, because from this level any additional debt becomes negative and detrimental to growth. Thus, the econometric estimation showed that the ratio of external debt to gross domestic product is positive and its square is negative which proves the Laffer curve for the case of Tunisia.

The variable Average interest rate on the debt is often used to identify the stability and solvency of the debt this rate negatively affects the gross domestic product, which is the same for the variable POP. Thus, an increase in the population significantly increases the social needs and

charges that population growth decreases the country's resources which risks increasing poverty. This variable is often taken into account in econometric studies, given its involvement in economic policies aimed at reducing poverty.

Conclusions

This paper examines the impact of external debt on economic growth; we proceed by an econometric estimation through the Eviews software by combining a set of variables that affect growth. Thus, we use the outstanding debt in relation to gross domestic product and debt service divided by exports, this ratio has a negative effect on the growth of the country while the first he recorded a positive coefficient but to a certain threshold where the effect of the debt is negative, hence the existence of a curve of the Laffer debt induced by growth.

Variable average interest rate on the debt and the annual growth rate of the population have a negative impact on the growth of gross domestic product, while the variable indicating public investment has a positive sign reflecting the importance of investment in reviving the economy.

Thus, Tunisia offsets its internal shocks of the revolution by making use of debt to try to maintain the standard of living of domestic agents. Except that these circumstances may keep Tunisia for a long time in a vicious circle of excessive debt.

References

[1]. R. J. Barro, *"Are government bonds net wealth?",* Journal of Political Economy,Vol. 82, Issue 6, PP: 1095-1117, 1974.

[2]. D. Avramovic and al, *"Economic Growth and External debt",* International Bank for Reconstruction and Development, 1964.

[3]. B. Osei, *"Ghana: the burden of debt service payment under structural Adjustment"* African Eonomic Research Consortium, Research Paper n° 33, Nairobi, 1995.

[4]. I. Elbadawi, J.B. Ndulu and N. Ndung'u, *"Debt Overhang and Economic Growth in Saharan Africa",* A paper presented to the IMF/

World bank conference on External Financing for Low Income Countries in December, 1996.

[5]. J.C. Berthlemy, and F.Vourch'h, *"Allégement de la dette et croissance"*, OECD, Paris, 1997.

[6]. Yapo L. 2002. *Les déterminants de l'endettement extérieur des PPTE: Cas de la Cote d'Ivoire.World Intitute for Development Economics Research*, Discution Papers N° 14, janvier.

[7]. C. Patillo, H. Poirson and L. Ricci, *"External Debt and Growth"* IMF Working Paper No. 02/69, 2002.

[8]. G. Dijkstra and N. Hermes, *"The Uncertainty of Debt Sercice Payments and Economic Growth of HIPCs"*, Discussion paper n° 2001/122, United Nations University, 2001.

[9]. C. Pattillo, H. Poirson and L. Ricci, *"What Are Channels Through Which External Debt Affects Growth?"*, IMF Working Paper. WP/04/15, 2004.

[10].Singh.A & Zammit.A, (2006). *"Corporate Governance, Crony Capitalism and Economic Crises: should the US business model replace the Asian way of "doing business"?,"* Corporate Governance: An International Review, Wiley Blackwell, vol. 14(4), pages 220-233, 07.

[11]. V. Cerra, M.Rishi and S. Saxena, *"Robbing the Riches: Capital Flight, Institutions and Debt"*, Journal of Development Studies, Vol. 44, Issue 8, PP: 1190-1213, 2008.