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External Debt and Economic Growth: Case of Jordan (1990-2011)

Dr. Samer Ali Abdelhadi
Administrative and Financial Sciences Faculty, University of Petra, PO Box 961343, Postal Code 11196, Amman, Jordan
E-mail: samerabdelhadi@hotmail.com

Abstract
External debt is considered a significant source of income for less developed countries. Jordan, as one of these countries, relied much on external debt to finance its saving investment gap and balance of payment deficit. The main objective of this paper is to explore the relationship between external debt and economic growth in Jordan during the period of 1990-2011, using time series econometric techniques. This paper shows that there is a positive and significant relationship between external debt and economic growth. Debt servicing has a negative and significant relationship with economic growth.
Keywords: Economic Growth, External Debt, Ordinary Least Squares, Fully Modified Least Squares.

1.Introduction:

The development process of the Jordanian economy during the past five decades resulted in significant achievements in various fields of economic and social development, has been characterized the achievements in achieving high growth rates in real GDP by more than the rate of population growth, and building a broad base of infrastructure support for the process of production, and the establishment of many manufacturing industries and agricultural projects, in addition to the expansion and development of base education and health services, cultural and other.

Despite these achievements, however, that Jordan could not expand the productive base in the form that allows him to achieve a degree of self-sufficiency needs of various goods and services. As a result, it has turned a large section of public and private spending toward imports of consumer and capital goods, which resulted in a chronic deficit and constantly in the public budget and the balance of trade, and it was relying external funding sources such as aid and external public debt and remittances Jordanian citizens abroad.

This study aims to reach whether there is a relationship between external debt and debt service on the one hand and economic growth of Jordan during the period 1990 – 2011, and the nature of that relationship through the use of statistical and econometric methods to get results confirm or deny the existence of such a relationship.

Foreign loans play a leading role in the development process, especially when directed towards productive projects, and so can the next generation of up to pay these debts through productive projects, as foreign loans represent an increase in purchasing power, and hence an increase in consumer demand and investment resulting in increased in income and employment.

The study will rely on style descriptive analysis of external debt in terms of its development and its impact on the Jordanian economy, in addition to statistical analysis by relying on methodology least squares routine to know the nature and direction of the relationship between the variables of the study, but for the data relied on data Department of Statistics and bulletins central bank and bulletins and the Ministry of Finance.

This study is based on two assumptions:

1. That there is a direct correlation between external debt and economic growth of Jordan during the study period.
2. That there is a direct correlation between the external debt service and Jordanian economic growth during the study period.

And the main objective of this paper is to verify these assumptions by using time series econometrics techniques and through employing usual Ordinary Least Square method. The model has the following form:

$$RGDP= \beta_0 + \beta_1 ED + \beta_2 DS + \beta_3 L + \beta_4 K + \varepsilon i$$

Where RGDP is Real Gross Domestic Product at fixed prices, ED is external debt, DS is debt servicing, L is the labor force and K is the fixed capital formation. Labor and capital has been adding to this model because of the important role played by these components in the process of economic growth of any country, according to various economic theories.

2.Literature Review

Many empirical studies have investigated the effect of external debt on economic growth, some end up finding a negative impact on economic growth while others do not find any significant relationship between economic growth and external debt. Nevertheless, the findings of these studies are mixed; therefore, in this scenario it is hard to say whether external debt has positive, negative or any significant impact on economic growth.

Fosu (1999) has employed an augmented production function to investigate the impact of external debt on

economic growth in sub-Saharan Africa for the 1980 – 1990 periods. The study reveals that there is a negative relationship between debt and economic growth. The study also shows that a rather weak negative impact of debt on investment levels.

Lyoha (1999) used simulation approach to investigate the impact of external debt on economic growth in sub-Saharan African countries estimating a small macro-econometric model for the period 1970-1994. He found an inverse relationship between debt overhang, crowding out and investment, thereby concluding that external debt depresses investment through both a "disincentive" effect and a "crowding out" effect, thus affecting economic growth.

Karagol (2002) examined relationship between economic growth and external debt service for Turkey during 1956 -1996. The author used multivariate co-integration techniques. The study shows that there exists a negative relationship between external debt and economic in the long run.

Schclarek (2004) could not find any evidence that external debt may affect total factor productivity. However, he found that in case of developing countries higher growth rate is associated with a relatively lower external debt levels and this negative relationship is mainly driven by public external debt rather than private external debt.

Mohamed (2005) used a time series data from 1978–2002. He used growth rate of real export earnings to capture the impact of export promotion strategy, while inflation to capture the impact of macroeconomic policy. He concluded that external debt and inflation deter economic growth, while, real exports have positive and significant impact on economic growth.

Adepoju et al. (2007) analyzed the time series data for Nigeria over a period from 1962 to 2006. Exploring time to time behavior of donor agencies as an outcome of various bilateral and multilateral arrangements, they concluded that accumulation of external debt hampered economic growth in Nigeria.

Jayaraman et al. (2008) focused on the flow of foreign aid in 6 Pacific Island countries over the period of 1988-2004.While assessing whether the higher flow of foreign aid and external debt had ever contributed to economic growth in these countries, the study concluded a significantly positive relationship between external debt and real GDP; and an inverse relationship between higher fiscal deficit and GDP growth.

Hameed et al. (2008) explored the dynamic effect of external debt servicing, capital stock and labor force on the economic growth for Pakistan for a period of 1970-2003. They found an adverse effect of external debt servicing on labor and capital productivity which ultimately hampers economic growth.

Butts (2009) investigated the causal relationship between short term external debt and GDP growth rate for 27 Latin American and Caribbean countries over a period of 1970-2003 and found an evidence of granger causality in 13 countries.

Malik et al. (2010) explored the relationship between external debt and economic growth in Pakistan for the period of 1972 – 2005. They found that External Debt and Debt Servicing are negatively and significantly related with economic growth.

3.What the external public debt

The external public debt historically controversial continuously over two centuries, one hand opposed the classical school strongly advocated balance the state budget, on the other hand supported by many economists, led by economic Keynes external borrowing, and called for the principle of deficit financing and that there is no longer any need to balance the general budget, and that any deficit that may occur could be financed by external borrowing.

Despite the presence of favored domestic debt to foreign debt due cons of external debt, which will be mentioned later, but that does not mean that the internal loans do not have any negatives, because of offers these debts, whether companies or banks or other parties internal also get the benefits of the amounts that are loaned, and therefore there are those who pay taxes to finance the burden of that debt, and this in turn will affect the distribution of income among the citizens of the state.

On the other hand, it is in favor of the foreign debt it considers the only solution to get rid of the economic problems, but in fact, we find it useful vessels that will quickly reveal negative aspects other as they lead to an increase in poverty in the borrowing countries and increasing wealth in the rich countries, in addition to The servicing of this debt leads to the depletion of real wealth that borrowing countries and a heavy burden on the shoulders of generations of leaders.

Borrowing from abroad is fiscal policy outdated, where poor countries are resorting to it in order to continue, and I have walked the developing countries in the way of borrowing as I thought it was capable of exploiting those debts in the development programs of different, but after many years of moving in this belief found itself it could not achieve the desired objectives of development programs, as well as become solvent external or internal, but that these debts become hamper economic development.

And in front of the inability of these countries to pay this debt, in response to pressure from international institutions like the World Bank and the IMF, have resorted developing countries to further borrowing or debt

rescheduling previous offer many concessions and sacrifices which may affect the sovereignty sometimes, for example, doubled the size of the external debt of developing countries Arab almost seven times during the period from 1980 to 2000, rising in size from $ 49 billion to $ 325 billion U.S. this increase was accompanied by a similar increase in the gross domestic product.

And Jordan as one of the developing countries is characterized by low per capita income, which in turn is reflected on the low domestic savings like other developing countries, which called for some economists that the developing countries trapped in a vicious dubbed the cycle of poverty, and that explain the phenomenon of underdevelopment and decline in developing countries, and this has several of the economists on the difficulty of achieving sustainable growth rates pursued by the Arab countries without recourse to external funding sources.

It should be noted that each of the Organization for Economic Cooperation and Economic Development and the World Bank and the International Monetary Fund and the Bank for International Settlements has agreed on the definition of external debt as a "total debt at a certain date equivalent amounts of contractual obligations of current and leading to the payment of individuals residing in the State to individuals not resident in the other country bonds and paying off the debt primary with or without benefits or pay the interest with or without payment of the amount".

4.An Overview of External Debt and Economic Growth in Jordan

Since independence Jordan is facing serious problems in balance of payment deficit. To finance this balance of payment deficit the country adopted to rely on external debt. Statistics indicate that Jordan resorted to external borrowing in the financial year 1949 - 1950, where he held the first external loan from the British government worth one million Jordanian dinars. Table 2 show the External Debt as a percentage of RGDP. External debt exceeded 100% of RGDP from 1990 to 1999, and less than 100% and more than 50% from 2000 to 2007, and less than 50% from 2008 to 2011.

4.1Gross Domestic Product

Jordan has experienced a fluctuated economic growth. RGDP at constant prices has increased from 3.4193 billion Jordanian dinar in 1990 to 10.244 billion dinar in 2011, thus had achieved an annual growth rate of around 5.06%.

As showing in Table 1, the Real GDP growth rate varies during periods over the Jordanian economy, in 1995 achieved the Jordanian economy growing at constant prices reached 6.2% and thus exceeded the targeted program debugging economic and of 5%. In 1999, it was characterized by the performance of the Jordanian economy humbled like the past three years, where conditions were regional cause impeding economic growth, where RGDP grew by 3.4%, and it should be noted that the drought experienced by the Kingdom in that year have had a clear impact in humility economic growth rate (Central Bank's Annual Reports, 1999). Then the growth rate in RGDP continued rise for the following years where in 2004 reached about 8.6% and then declined slightly in 2005 to reach 8.1%, while at the end of the study period reached 7.8%, the same growth rate for 2007.

Table 1: Real GDP

Year	Real GDP	Growth in RGDP(%)	Year	Real GDP	Growth in RGDP(%)
1990	3419.3	----	2001	5704.2	0.053
1991	3474.3	0.016	2002	6034.2	0.058
1992	3967.3	0.142	2003	6285.2	0.042
1993	4151.1	0.046	2004	6823.7	0.086
1994	4358.1	0.050	2005	7379.6	0.081
1995	4627.7	0.062	2006	7976.9	0.081
1996	4724.3	0.021	2007	8629	0.082
1997	4880.5	0.033	2008	9253.3	0.072
1998	5027.5	0.030	2009	9760	0.055
1999	5198	0.034	2010	9985.4	0.023
2000	5418.7	0.042	2011	10244	0.026

Source: Dept. of Statistics of Jordan

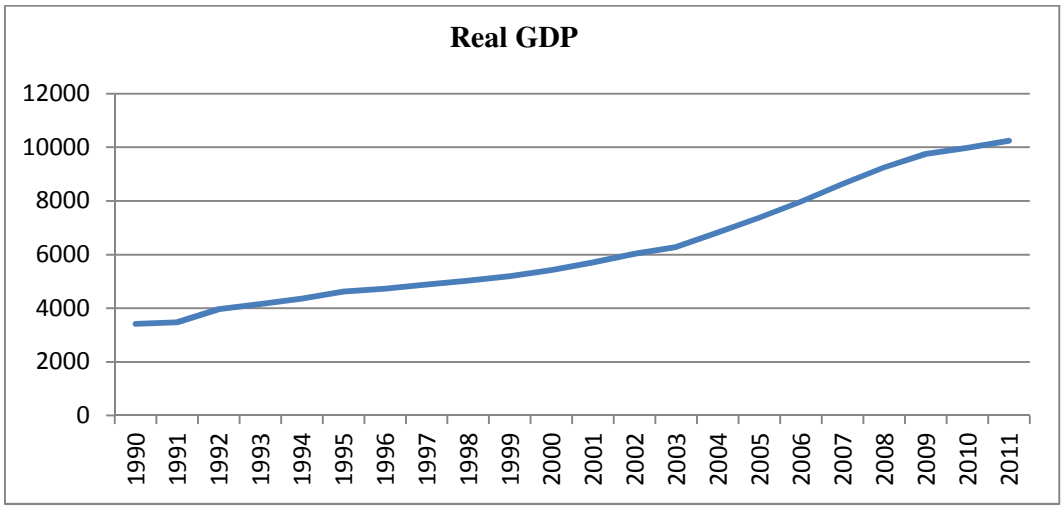

Figure 1: Real GDP

4.2External Debt

Given the Table 2, we find that the balance of the external public debt has seen some fluctuations during the study period, reaching 4.9118 billion dinar in 1995, compared with 4.7205 billion dinar in 1994, recording a slight increase by 4%, as was the rise due to the requirements of necessary external financing at this stage and to enable the Government to follow the debugging process of economic restructuring in various economic activities. At the end of 1999 rose balance the external public debt equivalent to 176.4 million dinar representing 3.3% from its level in 1998 to reach 5.5101 billion dinar in 1999 compared with 5.3337 billion JD in 1998. The reason for this rise is due to the high exchange rate of the Japanese yen in the international markets resulting in higher value of debt Japanese denominated in Jordanian dinar as well as increase the size of withdrawals from external loans provided by some international financial institutions like the World Bank .

As in 2000 has decreased the outstanding balance of external public debt to become 5.0453 billion dinar. The reason for this is the low exchange rates for the currencies of creditor nations, in addition to the high proportion of repayments of loans for Foreign Affairs, as well as buying (swaps) external debt or write off foreign debt of some countries. The balance of the external public debt tend to rise in 2003 and 2004 to record 5391.8 and 5.3488 billion dinar respectively, while in 2005 it dropped this balance clearly to $ 5.0567 billion Jordanian dinar, i.e., that there is a decrease in the balance, including 5.5% from the previous year. However, 2006 recorded an increase by 129.8 to become 5.1865 billion Jordanian dinar, and came to this increase due to higher currency exchange rates Home of creditor nations against the U.S. dollar and consequently against the Jordanian dinar. In 2007, it rose by 66.8 million Jordanian dinar to become 5.2533 billion Jordanian dinar, then dropped and significantly in 2008 by 1.6131 billion Jordanian dinar from its level at the end of 2007 to $ 3.6402 billion Jordanian dinar came this decline is the result of a decline in net external lending as a result of the implementation of the repurchase agreements with member states of the Paris Club of non-concessional export loans.

Table 2: External Debt

Year	External Debt	Growth in ED(%)	Year	External Debt	Growth in ED(%)
1990	5064.3	------	2001	4969.8	-0.015
1991	4958.7	-0.021	2002	5350.4	0.077
1992	4577.6	-0.077	2003	5391.8	0.008
1993	4229.6	-0.076	2004	5348.8	-0.008
1994	4720.5	0.116	2005	5056.7	-0.055
1995	4911.8	0.041	2006	5186.5	0.026
1996	5164.3	0.051	2007	5253.3	0.013
1997	4998.1	-0.032	2008	3640.2	-0.307
1998	5333.7	0.067	2009	3869	0.063
1999	5510.1	0.033	2010	4610.8	0.192
2000	5043.5	-0.085	2011	4486.8	-0.027

Source: Ministry of Finance of Jordan

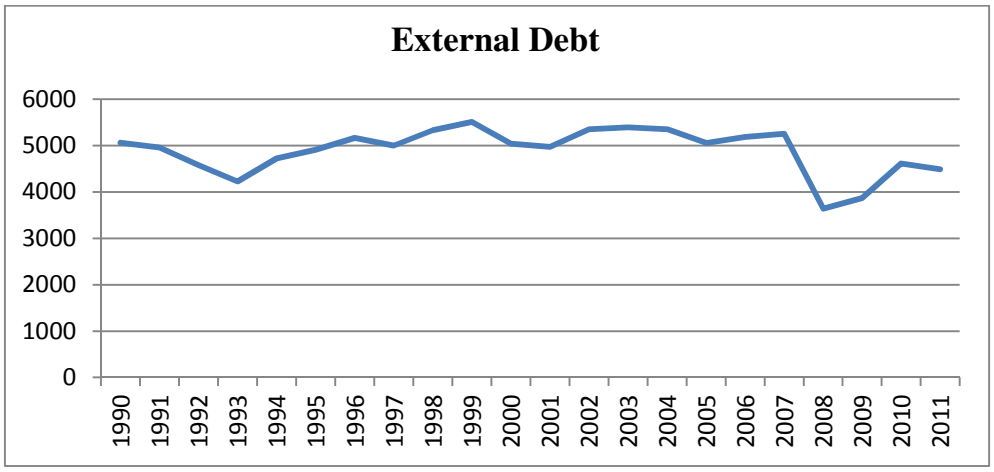

Figure 2: External Debt

4.3Debt Services

High debt generally leads to high debt service liability. The foreign loans obtained by the Jordan has formed a burden on the Jordanian economy and the goal repay those loans, in addition to the benefits of these loans, and will be talking in this part of the statement Jordan's ability to meet this burden through some indicators used in this area is the most important: Rate payments (premiums and benefits) to GNP.

They represent part of the gross national product goes to serve the burden of foreign loans. Noting Table 3, we find that the rate of debt servicing is high in the first years of the study, which reported the highest level in 1992, reaching 17.5%, while it was between 4.3% and 7.5% for the years 1994 to 2002. In 2003 it jumped this ratio to reach 10.2%, and the main reason for this is the high amounts outstanding loan installments and their benefits in that year and by 81.6% reported in 2002, while the gross national product for that year have grown by 6.3%. This ratio turned to decline in subsequent years from 2004 to 2007, while in 2008 it increased the size of repayments increased by 308.7% to $ 1.9545 billion Jordanian dinar due to the signing of the kingdom to an agreement with the Paris Club to buy a large part of the debt export to member states where they were buying 2.4 billion U.S. dollars, which prompted this figure to rise to up to 12.4%. It is worth mentioning that the higher rates of this indicator, the form of a burden on the national economy through that part absorbed GNP to cover these payments.

Table 3: Debt Servicing

Year	External Debt Servicing	GNP	EDS/GNP(%)	Year	External Debt Servicing	GNP	EDS/GNP(%)
1990	314.7	2521.4	12.5	2001	426.7	6478.3	6.6
1991	469.9	2736.9	17.2	2002	412.4	6848.6	6.0
1992	599.9	3424.3	17.5	2003	749.1	7320.8	10.2
1993	495.4	3735.2	13.3	2004	492.4	8285.1	5.9
1994	232	4206.9	5.5	2005	421.9	9163.9	4.6
1995	251	5797.9	4.3	2006	445.5	10996.6	4.1
1996	305	5799.9	5.3	2007	478.2	12616.0	3.8
1997	346	5090.1	6.8	2008	1954.5	16087	12.3
1998	361.4	5604	6.4	2009	391.8	17272.4	2.3
1999	353.9	5769.4	6.1	2010	450	18697.3	2.4
2000	453.3	6069.7	7.5	2011	518.8	20348.8	2.5

Source: Ministry of Finance of Jordan

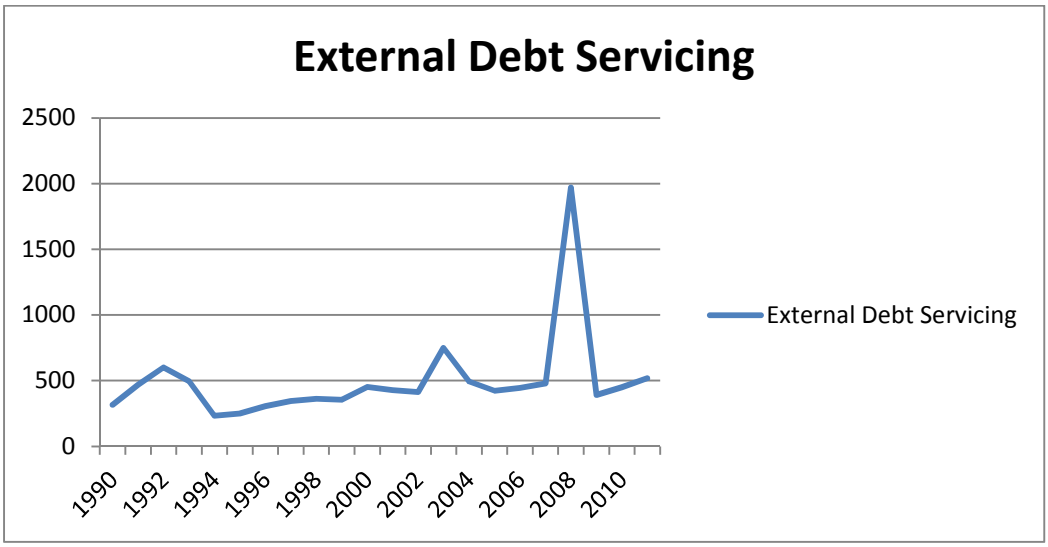

Figure 3: External Debt Servicing

5.Data Issues and Empirical Results:

The data has been obtained mainly from Department of Statistics and Ministry of Finance of Jordan. The model has the following form:

$RGDP = \beta_0 + \beta_1 ED + \beta_2 DS + \beta_3 L + \beta_4 K + \varepsilon i$

This equation can be estimated by Ordinary Least Squares method (OLS), assuming that the random errors are distributed normally with mean zero and fixed amount of variance, and the lack of self correlation between the values of random errors chain, as well as the lack of correlation between the explanatory variables with each other, and between them and random error term. Also the time series variables must be stable (Stationary), that is, average and variance and covariance have constant over time, but in the absence of any one of these conditions, the data are not stable, and in this case, the estimate coefficients model in a way that ordinary least squares not be appropriate.

The problem of stationarity has been solved through using the unit root test. Augmented Dickey-Fuller (ADF) has been applied to variables of study. By using ADF unit root test, the following hypotheses are tested:

$H0: \alpha = 0$ vs. $H1: \alpha \neq 0$

If the absolute value of a statistical test is less than the critical value, then accepted the null hypothesis (H0), meaning that there is an unit root (the time series not stable). In the absence of stationarity, take the first difference and if it is stable, the origin series will be integrated of order one I(1). In the absence of stationarity after first difference, take second difference and if its stable, the origin series will be integrated of order tow I(2) and so on.

ADF test has performed to test the unit root hypothesis to all variables. The results of this test are reported in table 4 and 5. Note that all variables are not integrated at the same order. Only DS series is stationary at level when checked with intercept and with intercept and trend.

Table4: ADF Test with Intercept

Variables	Level	First Difference	Result
RGDP	0.311	3.71	I(1)
ED	2.27	3.56	I(1)
DS	3.35	-	I(0)
L	1.33	3.62	I(1)
K	0.38	3.57	I(1)

Source: Author calculation using E-views 3.1

Table 5: ADF Test with Intercept and Trend

Variables	Level	First Difference	Result
RGDP	4.16	-	I(0)
ED	2.30	3.61	I(1)
DS	3.53	-	I(0)
L	2.67	3.72	I(1)
K	3.30	-	I(0)

Source: Author calculation using E-views 3.1

After verifying that the time series not stable at levels, Co-integration Test has been tested between the variables of the study. The results of the test indicate co-integration of the variables included in the model. In case of co-integration, we can use two methods to estimate the economic functions: the first method is Error Correction Model (ECM), which provides a methodology able to discuss the issue of non stationarity time series and misleading correlation. The second method is Fully-Modified Ordinary Least Square (FM-OLS) for Phillips and Hansen, 1990 that will be used in this study.

FM-OLS has been used to check the impact of external debt, debt servicing, labor and fixed capital formation on economic growth in Jordan. Results of estimation are reported in table 6.

RGDP= - 2555.2 + 0.42053 ED - 0.12259 DS + 0.0039952 L + 0.90757 K

Table 6: Fully Modified Phillips-Hansen Estimates. Dependent variable is RGDP. 22 observations used for estimation from 1990 to 2011

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
Intercept	-2555.2	809.7397	-3.1556* [.006]
ED	.42053	.19492	2.1574* [.047]
DS	-.12259	.065912	-1.8599** [.081]
L	.0039952	.6722E-3	5.9436* [.000]
K	.90757	.19243	4.7163* [.000]

Source: Author calculation using Microfit 4.0

Note: *, ** and *** indicate the level of significant at 1%, 5% and 10%.

6.Conclusions:

The main objective of this paper is to study the effect of external debt on economic growth of Jordan. Jordan has relied much on external debt in order to finance its saving investment gap and balance of payments deficits. This study found that there is a positive and significantly relationship between external debt and economic growth in Jordan. But with the increasing reliance on foreign funds and of loans foreign, in particular, led to rising debt service burdens, which has a negative impact on economic growth in Jordan, and this is shown by the results of this study, which explored that there is an inverse and significantly relationship between debt service and economic growth, because the country spend major portion of its Balance of Payment to serve its external debt.

So, the policy makers should create credibility and a favorable investment climate to stimulate local an foreigner investors' confidence in order to get rid of reliance on external debt.

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