Journal of Applied Economics and Business

OPEN ACCESS ARTICLE

CORRECTION OF STRUCTURAL IMBALANCES EXPERIENCE OF SUDAN

Khalafalla Ahmed Mohamed Arabi

College of Administrative and Financial Sciences, University of King Khalid, Saudi Arabia

karabi@kku.edu.sa

Abstract

This paper investigates the magnitudes of structural imbalance in Sudan economy, measures taken to tackle the problem, and the outcome of those remedies i.e. structural adjustment programs (SAPs). Sudan has been implementing SAPs for four decades none of the objectives has been achieved. Inference statistics has been used to identify the imbalances accompanied by econometric tools i.e. the spline regression, and vector error correction to quantify the effects on economic growth as the ultimate target of SAPs. The main findings are that real effective exchange rate (REER) as a summary index of pricing policy and competitiveness has a negative impact on economic growth contrary to the growth of labor productivity (LPGR). The paper recommends the taking on of alternative programs.

Key words:

Growth; Impact; Objectives; SAPs; Structural Imbalances.

INTRODUCTION

Developing countries including Sudan have been suffering from several interrelated and mutually effective structural imbalances, and this fact has had economic, political and social reasons. Economic reasons relate to the reliance on the production and exportation of primary goods exploiting obsolete technology, unskilled labor, insufficient and low quality inputs (Ibrahim, 2015; Arabi, 2012). The political reasons rest on the collapse of the Soviet Union and the disintegration of the Socialist system which was a blow to the third world countries where such aid had stopped, the experience one-party State doomed to failure and most of LDCs lost their strategic importance by the end of the cold war combined with low commodity prices and unfulfilled aspirations of economic development, others descended to low levels of backwardness (Alhayaly & Ali, 2010). However, the two-gap model is considered as a better interpreter on structural imbalances (Muhannah, 2014). It postulates that

developing economies face two gaps in their economy i.e. the saving-investment gap, and export–import gap. The first gap is the outcome of low level saving compared to massive amount of investment required for economic development. This gap is financed mainly by aid, external borrowing and trade surpluses. Concerning the second gap developing countries produce and export only primary goods, while importing consumer and capital goods leading usually to current account deficits. Adopting the notion of the free market would only mean that it would get LDCs locked in to the agricultural sector and their manufacturing sector would never grow, thereby ruling out a structural transformation in the nature of the economy (https://www.quora.com/What-is-the-two-gap-model-in-development-economics).

In early 1980's the World Bank (WB) and International Monetary Fund (IMF) engaged on imposing structural adjustment programs (SAPs) on many developing countries including Sudan. Most countries applied SAPs has been suffering from poverty, unemployment, income inequality, desertification, environment degradation, displacement, the reluctance of political participation, and loss of legitimacy of political systems through military coups and civil war and the influx of refugees.

Sudan inherited a dual economy from the colonial rule in 1956 consisting of traditional and modern sector. Even with series of short term, medium and long term development plans, the majority of the population still depends on the traditional sector for their living. The development process and the inappropriate economic policies led to internal and external imbalances. The first attempt to correct imbalance was the devaluation of the exchange rate by 43% in September 1978 as recommended by IMF. Then the six year plan (1976/77 - 1981/82) has been replaced by rolling development programs constructed by World Bank experts. The plans designed typically on SAPs framework to require Sudan to keep concentration on the production of cash crops and minerals at the expense of food crops; eliminate subsidies to reduce government spending; pay less attention to social programs and wellbeing; frequently devaluate the local currency; liberalize trade; and privatize public enterprises.

The motivation for this paper is the persistence of those in power in Sudan to adhere to the directives of the World Bank and IMF and reject to admit alternative programs in spite of the apparent failure of SAPs. Many Sudanese scholars wrote about, and criticized SAPs, the prominent of who is Ali Abdel Gadir (1992, 1992, 2003, and 2007). SAPs entail sacrifice of present pain for future hope. Many questions require answers i.e. did SAPs improve Sudan's foreign investment climate? Did they boost foreign exchange earnings? Did they reduce government deficits? How long will the pain and hope last?

This paper differs from others in its methodology which use suitable Spline regression and error correction model instead of the typical employment of dummy variable to assess the role SAPs to arrive at the determinants of their ultimate target i.e. economic

growth spanning for four decades. The paper is organized as follows: introductory section, literature review in the second section, theoretical background and methodology occupy the third and fourth sections respectively, results and discussion are in the fifth section and finally the conclusion.

LITERATURE REVIEW

Ibrahim (2015) examined the impact of the SAPs on the agricultural finance in Sudan and identified the role of the Agricultural Bank in financing the agriculture sector as the sole primary finance for the agricultural projects in Sudan. Many negative results were appeared in terms of GDP declining which had affected the investment programs. Shah (2013) cited that many developing nations are in debt and poverty partly due to the IMF and the World Bank policies which led to the dependency of the developing or third world countries, on the richer nations despite claim of the IMF and World Bank that they will reduce poverty. Abdulmuneim (2012) identified the ups and downs that affect general Arab economies during the 1990's period compared to the 2000's period. Trend analysis showed that Arab economies have been affected by a number of ups and downs during the second period compared to the first period. Nevertheless the Arab economies' recovery from these fluctuations was faster during the second period compared to the first one, reflecting the positive impact of economic reform programmes and policies, in addition to the impact of fiscal and monetary policies that have been adopted for price stability and the government budget deficit and reduce fluctuations in exchange and interest rates, which helped to lay the foundations of economic stability in the short and medium term.

Hassan (2012) investigated the relationship between inequality, poverty and growth reaching the conclusion that, in the long- run the causality runs from inequality, poverty to growth, and to poverty, while in the short-run causal effects, runs from poverty to growth. Thus, there is unidirectional relationship, running from growth to poverty, both in the long- run and short run. Almaghrabi (2010) specified that the experience of many countries that were implementing such programs explained that the latter has negative implications for the standard of living in these countries. They contribute in determining the evolution of national output and income redistribution, and affect employment and prices, overhead, etc. Affecting the poor strata of the society, as well as low income and led entire communities to serious positions, as they touched the lowest conditions of their lives and their livelihoods.

Ali (2007) believed that the empirical evidence on the impact of public policies on poverty can best be characterized as mixed. Alshamari (2007) considered the effects of SAPs in Yemen presenting a low effect on growth by general budget deficit ratio to GDP, and the current account deficit ratio to the GDP compared to positive effects of the inflation rate, and the exchange rates. He established that the reason of the problem in Yemen wills not monetary imbalances but real imbalances. Ogbimi (2001) reached the conclusion that after implementing SAPs many African countries have

still not made measurable progress. Nigeria has implemented SAP for almost a decade now, but none of the objectives has been achieved, and there is no indication that any of them can be achieved using the chosen program instruments. Indeed, all that is still obviously present in Nigerian foreign exchange market and the ceremonies associated with it. The situation is not different in Ghana, Zambia, and other African nations implementing SAPs. Sharabi (1997) recognized that the phenomenon of lack of improvement in employment levels and worsening unemployment is seen in the Maghreb countries and other developing countries that implemented structural adjustment measures since the beginning of the 1980s.

Alhabab (1997) observed that the group of countries that traditionally applied to macroeconomic policies aimed at stabilizing the economy, most notably begin to reduce currency exchange rate, cut government spending, reduce liquidity Algeria and Egypt were the exception centering reform policies in institutional reforms and incentives in agriculture in the first place. Noorbakhsh and Paloni (1997) set up that SAPs do not seem to have had a lasting or significant impact on supply capacity and diversification of production. If this interpretation is correct, the growth in exports may not be sustainable. Thus, while structural adjustment policies seem to work in the short-run to medium, the sustainability of trade policy reforms requires an explicit targeting of capacity and production diversification. Ali (1992) presented the impact of SAPs on the dispersion of poverty in the Sudan establishing that SAPs policies affect income distribution, inflation, and cause an increase in the number of poor.

THEORETICAL BACKGROUND

The first principle economic and financial adjustment should pave the way to financial reform i.e. to treat budget weakness before financial repression (Alkawaz, 2009). Structural adjustment is the set of free market economic policy reforms imposed on developing countries by the World Bank and International Monetary Fund (IMF)) as a condition for receipt of SAPs to improve a country's foreign investment climate by eliminating trade and investment regulations, to boost foreign exchange earnings by promoting exports, and to reduce government deficits through cuts in spending. The necessary measures to ensure economic recovery and growth are: specialization in the production of cash crops; abolishing subsidies; cuts in government expenditure; devaluation of local currency; foreign investment; and privatization of government enterprises. The process of adjustment, as described by many World Bank and IMF officials to developing countries, is one of "sacrifice" of "present pain for future hope". Currency devaluation is assumed to increase the country's competitiveness which can be captured by real effective exchange rate (REER) which is defined as the weighted average of a country's currency relative to an index or basket of other major currencies, adjusted for the effects of inflation. The weights are determined by comparing the relative trade balance of a country's currency against each country within the index (Investopedia, 2017).

METHODOLOGY AND DATA

Data sources

The model consists of four variables; real GDP growth (GR) that is the dependent variable and three independent variables i.e. growth of labor productivity (LPGR), growth of general price (PGR), and real effective exchange rate. Data of the first three variables were collected from the Central Bureau of Statistics; the forth was obtained from the database of real effective exchange by the World Bank (RRER). Data sample covers the period 1960-2014. The selection of the start period is due to the fact that it represents the beginning of first comprehensive development Plan and the establishment of the Central Bank of Sudan.

Methodology

Regression models in which the function changes at one or more points along the range of the predictor are called splines, or piecewise polynomials, and the location of these shifts are called knots. The polynomials join the knots $\{\varphi_j; j = 1,2,\cdots,m\}$ obeying continuity conditions for the function itself and its first $n-1$ derivatives. Most commonly n equals three; a cubic spline function is defined as:

$$y = S(x) = P_i(x) = a_j + b_j x + c_j x^2 + d_j x^3$$

Spline Ordinal will be selected since the order of the categories of the observed variable is preserved in the optimally scaled variable. Category points will be on a straight line (vector) through the origin. The resulting transformation is a smooth monotonic piecewise polynomial of the chosen degree. The pieces are specified by the user-specified number and procedure-determined placement of the interior knots.

RESULTS

Means and variances of major economic indicators have been compared during two sub-periods i.e. before and after implementation of SAPs. Major indicators include economic growth, unemployment, saving ratio, investment ratio, labor productivity, total revenue, total expenditure, budget deficit, trade balance, money supply, general price growth rate, the inflation rate saving-investment gap; and export-import gap. The comparisons revealed the rejection of equal variances hypothesis of all variables except labor productivity, and the rejection of equal means of all variables except unemployment and real effective exchange rate (Annex 1).

The mean ratios of Sudanese gross domestic saving and total investment to GDP on the one hand and total export and total import on the other hand during the periods before the application of SAPs were 7.56% against 16.22% for first set compared to 15.32% and 18.62% for second set showing apparent resource gap dominance over external gap. After the application of SAPs the mean ratios were 4.97% against 23.87% for first set compared to 7.30% and 11.2% for second one. The bright side of the application was considerable increase in investment ratio and decrease in import ratio,

while the dark one was the decline in saving and export ratio, the consequence was a rise in the internal and external gap from 8.7% to 18.9% and from 3.3% to 3.9% respectively. Sudan similar to other developing countries started off with very low savings as engaging in a big push by investing heavily in development projects. The financing of the internal gap through foreign trade dwindled forcing the government to resort to external borrowing taking into account that Sudan by definition produces only primary goods, whereas it would require large imports of consumer and capital goods. Investment increase was financed mainly by foreign borrowing lead to the accumulation of external debt which rose from 4.1 billion USD before SAPs to 46.6 billion in 2014.

TABLE 1. SUMMARY OF ERROR CORRECTION RESULTS

Variable	Long-run	Short-run
REER(-1)	-15174.9**	
D(REER(-1))		-1024.7
D(REER(-2))		-781.968
D(TB(-1))		-0.27545*
D(TB(-2))		1.585924***
Y(-1)	471.3253***	
D(Y(-1))		2.292119
D(Y(-2))		749.5657
Speed of Adjustment	-0.45565*	
R-squared	0.561465	

***, **,* significance at level 1%, 5% and 10% respectively

The signs of real effective exchange rate and real growth domestic product are as expected sign and are significantly different from zero in the long-run indicating their effect on trade balance. The only significant variable in the short-run is the trade balance lagged twice demonstrating low adjustment process.

Spline Regression Results

TABLE 2. MODEL SUMMARY

Multiple R	R Square	Adjusted R Square	Apparent Prediction Error
.752	.565	.530	.435
Dependent Variable: Growth Rate of Real GDP Predictors: Labor Productivity Growth Rate Real Effective Exchange Rate			

The proportion of the variance in the independent variables real effective exchange rate and growth of labor productivity is almost 57% indicating model adequacy.

TABLE 3. ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	31.077	4	7.769	16.238	.000
Residual	23.923	50	.478		
Total	55.000	54			
Dependent Variable: Growth Rate of Real GDP Predictors: Labor Productivity Growth Rate Real Effective Exchange Rate					

The influence of explanatory variables was apparent by analysis of variance whereas the null hypothesis of no effect has been rejected at 1% level of significance.

Bootstrapping is a method used below for deriving robust estimates of standard errors for regression estimates. It is most useful as an alternative to parametric estimates when the assumptions of those methods are in doubt (as in the case of regression models with heteroscedastic residuals fit to small samples.

TABLE 4. COEFFICIENTS

	Standardized Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Labor Productivity Growth Rate	.642	.084	2	58.431	.000
Real Effective Exchange Rate	-.331-	.125	2	7.003	.002
Dependent Variable: Growth Rate of Real GDP					

Real effective exchange rate has a negative impact on economic growth in contrast to the effect of labor productivity.

TABLE 5. CORRELATIONS AND TOLERANCE

	Correlations			Importance	Tolerance	
	Zero-Order	Partial	Part		After Transformation	Before Transformation
Labor Productivity Growth Rate	.676	.695	.638	.768	.989	.988
Real Effective Exchange Rate	-.397	-.446-	-.329	.232	.989	.988
Dependent Variable: Growth Rate of Real GDP						

Labor productivity is an important factor in the growth of the economy besides its strong correlation with it. Real effective exchange has less importance in the growth of the economy reflected by negative moderate correlation.

DISCUSSION

Imposition of SAPs on Sudan led to increase unemployment, rise in number of poor, widening saving-investment, and export-import gaps, frequent devaluation of the local currency, continuous internal and external deficits, shrinking role of manufacturing sector manifested in sharp decline in utilized capacity, increased import of consumer goods, continuous rise in consumer and general prices, depletion of middle class, decline in total factor productivity, increased share of services at the expense of agriculture. To sum the pain has been lasting for four decades without hope for better future. Despite these shortcomings there's an abnormal persistence on continuing to implement structural adjustment programmes regardless of the existence of alternatives that have been proposed by international parties.

Foreign direct investment is thought to boost economic growth due to the availability of pulling factors. Pulling factors that attract foreign direct investment (FDI) to Sudan

are many of which are its location linking Arab countries with Africa, huge mineral reserves, fertile arable land, plenty of water resources, and introduction of Investment Encouragement Acts eliminating trade and investment regulations and offer concessions. On the other hand there are many obstacles hamper FDI inflow of which are the oscillations of major macroeconomic indicator responding to internal factors such as bureaucracy, shortage of energy, civil war, and external factors i.e. economic sanctions. Less effort has been exerted to attract FDI before 1990 since then much attention has been devoted to attract FDI. Most FDI were in oil, agriculture, and services (Ibrahim & Hassan, 2012). Even with huge amount of FDI inflow Sudan suffered from foreign exchange shortage, technology still lagging behind, and the number of unemployed has been growing.

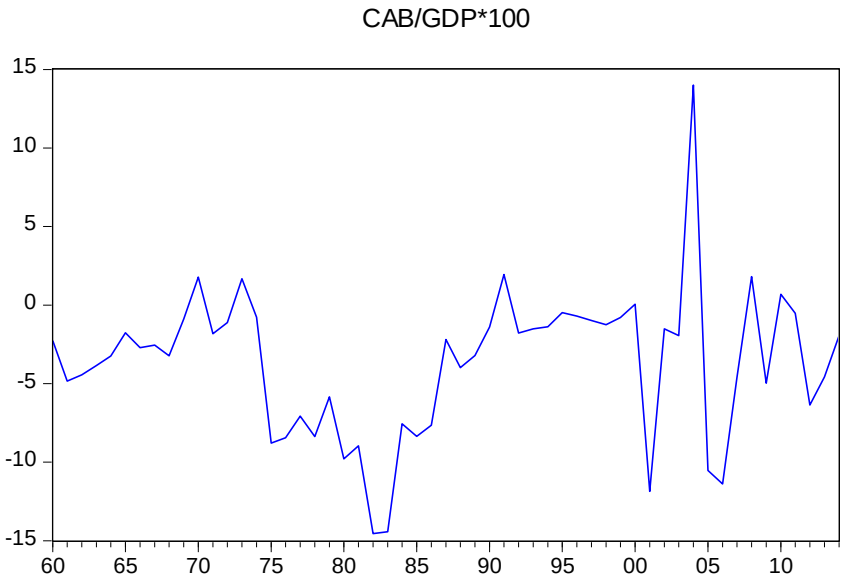

FIG. 1. CURRENT ACCOUNT BALANCE RATIO TO GDP

Sudan involved in endless devaluation. The J-curve hypothesis has been rejected ever since the long-run effect of the effective exchange is negative and significantly different from zero (Annex 2) confirming results obtained by Arabi and Abdalla (2014) for the period 1979-2006. The devaluation of the exchange rate was assumed by SAPs to cause the current account to deteriorate in the short-run and improve in the long-run empirical results reveal that the year preceding the implementation the current account ratio to GDP was -8.4 improved to -5.8 immediately one year after, then showed downward trend to reach -14.6 four years, then showed an upward trend to reach 1.9 ten years later declined slightly to 0.1 eight years after that, followed by period of sharp oscillations to rest at -1.9 at the end period. The period before SAPs was relatively stable compared to SAPs period i.e. long-run improvement is still lacking (Figure 1).

The transformation of the economy as envisaged by SAPs has not been achieved agricultural sector contributed to GDP by 47.1% before SAPs declined to 26.1% after. The contribution of the manufacturing sector rose slightly from 7.26 to 7.4%, the

services sector took the lead. One of cornerstone of SAPs is the fiscal policy manifested in cuts in expenditure and increase in tax both have negative effects on social services and the poor. Number under the poverty line has been increasing since the implementation of SAPs (Ali 1992, 1997 and 2007).

Budget deficit ratio to GDP increased to 4.7% after the implementation of SAPs compared to 3.3% before due to the financing of civil war security, and public administration. Cuts in government spending initiated by SAPs to reduce budget deficit were at the expense of poor.

Empirical Result shows that the long–run effect of SAPs on economic growth is negative meaning the continuation of the pain and loss of hope. However the situation has been aggravated by the loss of oil revenue and devaluation by more than 130% of the local currency since July 2009 the succession of Southern Sudan into independent country.

REER determines the competitiveness of the country relative to its trade partners reflecting on the one hand the fitness of the economic policies towards the external sector, and the pricing policy on the other hand. Labor productivity is essential in terms of economic growth it shows the effect of economic active population. Real effective exchange rate has been showing an upward trend except the year 1992 indicating a negative impact on economic growth due to the loss of competitiveness. On the labor productivity affects growth positively in terms of increased production but the other side of the story is that the economically active population supports 83% of the population.

The UN Economic Commission for Africa (ECA) provided a comprehensive and credible alternative to SAPs in 1989. The African Alternative Framework called for "adjustment with transformation" which called for a reduction in the continent's reliance on external trade and financing, the promotion of food self-sufficiency and greater popular participation in economic planning and decision-making. The Third World Network and Freedom from Debt Coalition have proposed numerous alternative policies: promoting diversification in the products; facilitating the diversification away from traditional commodities, take into account environmental impacts; land reform, institutional reforms; at the international level, measures to reduce the debt problems of poorer countries, regulate capital markets and address unfair trading practices.

CONCLUSION

Sources, causes, and magnitude of structural imbalances in Sudan have been scrutinized via descriptive and econometric tools during the period 1960-2014. Real effective exchange rate affects real growth rate negatively in contrast to the growth of labor productivity. Sudan should exert more effort to reschedule external debt; draw high and low limits for debt; expand loans for more borrowers rather than confining

to a limited number; checking the records of debtors to demonstrate actual need for money; international institutions should take into account the need for the State's economic situation without regard to the political aspects; international institutions should not lend corrupt governments. LDCs including Sudan should redirect loans to productive development projects; eradicate administrative corruption; redistribution of the budget for agricultural, industrial and health projects rather than purchasing of weapons; launch reform programmes at the banking and finance and tax and customs by encouraging investment by increasing production. UNDP (1997) underlines good governance, among other things, is "participatory, transparent and accountable, effective and equitable," and promotes the rule of law. It ensures that political, social, and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources

REFERENCES

Abdulmuneim, H. (2012). Performance of Arab Economies during the Last Two Decades: Features and Stability Policies: Arab Monitory Fund Working Paper (http//www.amf.org.ae/sites/default/files/Research%20and%20Studies/Articles%20and%20Speeches/ar).

Alhabab, M. S. (1997). Structural Adjustment of Arabic Agriculture under Economic Reforms. Forum on Structural Adjustment Programs in Arab Countries Algeria, 24-28 April.

Alhayaly, A-A. & Ali, J. T. (2010). Effects of Structural Adjustment on Democracy in Third World Countries, University of Diyala, Iraq, 414-430 (http://humanmag.uodiyala.edu.iq/uploads/pdf/aadad/2010/a43/18.pdf).

Ali, A. & Shenggen, F. (2007). Public Policy and Poverty Reduction in Arab Countries (http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.141.3527 &rep=rep1&type=pdf).

Ali, A. G. A. (2003). Can the Sudan Reduce Poverty by half by the Year 2015, Arab Planning Institute -Working Paper (http://www.arab- api.org/images/ publication/pdf/ 260/260_wps0304.pdf).

Ali, A. G. A. (1992). Child Poverty: Concept and Measurement. Arab Planning Institute (API) -Working Paper, 139-154.

Ali, A. G. A. (1992). Structural Adjustment Programs and Poverty Creation. Evidence from Sudan' Eastern Africa Social Scientific Research Review, 8.

Alkawaz, A. (2009). Sequencing of Reforms. Arab Planning Institute (http://www.arab-api.org/images/training/programs/1/2009/14_C40-5.pdf).

Almaghrabi, M. A. (2010). Report on Structural Adjustment Policies and Economic Adjustment. Local Development Management Forum (https://www.geniusdisplay.com/a/display.php).

Al-Muhannah, H. G. M. (2014). Structural Imbalances and the Developmental Treatment Methods in Arab Selected Countries with Special Reference to Iraq for (1994-2010). Master Thesis, University of Kufa, Iraq.

Alshamari, M. S. (2007). The Role of Adjustment Economic Policies in Correcting Structural Imbalances in Yemen. Scientific Journal of Karbala University, 4, 11-25.

Arabi, K. A. M. & Abdalla, S. Z. S. (2014). Is there evidence of a J-curve for the Sudanese trade data?. International Journal of Social Sciences and Entrepreneurship, 1(10), 154-167.

Arabi, K. A. M. (2012). Two Gap Analysis: Case of Sudan Scientific Journal for Humanity Sciences. Sudan Academy of Science.

Hassan, H. M. (2012). Cointegration growth, poverty and inequality in Sudan. Munich Personal RePEc Archive (https://mpra.ub.uni-muenchen.de/36651).

Ibrahim, N. M. A. (2015). The Impact of Structural Adjustment Programs on Agricultural Finance in Sudan: a Case Study Agricultural Bank of Sudan 1992-2012. University of Sudan for Science and Technology (Investopedia http://www.investopedia.com/terms/r/reer.asp#ixzz4Z3ZOUPNd).

Noorbakhsh, F. & Paloni, A. (1997). Assessing the Effect of Structural Adjustment Programmes on Export Performance in Developing Countries. Centre for Development Studies University of Glasgow.

Ogbimi, F. E. (2001). Structural Adjustment is a Wrong Policy. African Technology Forum, 8(1).

Shah, A. (2013). Structural Adjustment Programs a Major Cause of Poverty.

Sharabi, A. (1997). Structural Adjustment Programs and the Problem of Unemployment in Maghreb countries Forum on Structural Adjustment Programs in Arab Countries Algeria 24-28 April.

UNDP. (1997). Conceptualizing Governance: Discussion Paper 2. New York: Management Development and Governance Division, Bureau for Policy and Programme Support.

Annex 1. Tests of Equality of Variances and Means

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	Df	Sig. (2-tailed)
Unemployment Growth Rate	= Variances	.263	.610	-.920-	53	.362
	≠Variances			-1.090-	52.191	.281
General Price Growth Rate	= Variances	12.859	.001	-3.369-	48	.001
	≠Variances			-3.978-	37.458	.000
Saving Ratio to GDP	= Variances	2.891	.095	3.679	49	.001
	≠Variances			3.489	33.667	.001
Investment Ratio to GDP	= Variances	6.838	.012	-3.635-	47	.001
	≠Variances			-4.121-	41.443	.000
Import Duty Ratio to GDP	= Variances	55.291	.000	11.305	53	.000
	≠Variances			8.485	19.001	.000
Labor Productivity Growth Rate	= Variances	2.159	.148	-1.982-	53	.053
	≠Variances			-2.364-	51.749	.022
Money Supply Growth Rate	= Variances	4.532	.038	-3.329-	53	.002
	≠Variances			-4.161-	45.766	.000
Real Effective Exchange Rate	= Variances	10.310	.002	.594	53	.555
	≠Variances			.766	39.840	.448
Export of Goods	= Variances	33.182	.000	-3.050-	53	.004
	≠Variances			-4.052-	34.000	.000
Import of Goods	= Variances	18.728	.000	-2.668-	53	.010
	≠Variances			-3.543-	34.000	.001
GDP growth rate	= Variances	19.211	.000	-2.724-	53	.009
	≠Variances			-3.618-	34.000	.001
Trade Balance ratio to GDP	= Variances	7.253	.009	2.952	53	.005
	≠Variances			3.368	52.837	.001
Total Central Expenditure	= Variances	38.380	.000	-3.045-	53	.004
	≠Variances			-4.045-	34.000	.000
Total Central Revenue	= Variances	38.256	.000	-2.976-	53	.004
	≠Variances			-3.953-	34.000	.000
Budget Deficit Ratio to GDP	= Variances	22.226	.000	2.139	53	.037
	≠Variances			2.841	34.000	.008
Inflation Rate	= Variances	17.107	.000	-3.455-	53	.001
	≠Variances			-4.422-	41.436	.000
Growth Rate of Real GDP	= Variances	.668	.417	-2.342-	53	.023
	≠Variances			-2.248-	34.998	.031
General Price Growth Rate	= Variances	9.050	.004	-3.272-	53	.002
	≠Variances			-4.087-	45.924	.000
CAB	= Variances	23.327	.000	2.481	53	.016
	≠Variances			3.295	34.000	.002
GAP1	= Variances	34.987	.000	3.146	52	.003
	≠Variances			4.118	33.000	.000

Annex 2

Dependent Variable: LOG(GDP)				
Method: Least Squares				
Date: 02/22/17 Time: 06:55				
Sample: 1979 2014				
Included observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(EXPORT)	0.652885	0.150435	4.339997	0.0001
LOG(IMPORT)	0.285491	0.156056	1.829414	0.0764
C	3.778743	0.629817	5.999751	0.0000
R-squared	0.916679	Mean dependent var		14.71363
Adjusted R-squared	0.911629	S.D. dependent var		4.051622
S.E. of regression	1.204433	Akaike info criterion		3.28955
Sum squared resid	47.87175	Schwarz criterion		3.42151
Log likelihood	-56.2119	Hannan-Quinn criterion.		3.335608
F-statistic	181.5298	Durbin-Watson stat		0.256159
Prob(F-statistic)	0.000000			

Vector Error Correction Estimates			
Date: 02/22/17 Time: 07:54			
Sample: 1979 2014			
Included observations: 36			
Standard errors in ( ) & t-statistics in [ ]			
Cointegrating Eq:	CointEq1		
TB(-1)	1		
REER(-1)	-15174.9		
	-6116.13		
	[-2.48112]		
Y(-1)	471.3253		
	-69.6414		
	[6.76789]		
Error Correction:	D(TB)	D(REER)	D(Y)
CointEq1	-0.45565	1.71E-06	0.000341
	-0.28653	-3.30E-06	-7.10E-05
	[-1.59024]	[0.51275]	[4.81238]
D(TB(-1))	-0.27545	-4.17E-07	-0.0003
	-0.39096	-4.60E-06	-9.70E-05
	[-0.70455]	[-0.09171]	[-3.13187]
D(TB(-2))	1.585924	-1.36E-06	-0.00019

	-0.34412	-4.00E-06	-8.50E-05
	[4.60870]	[-0.33837]	[-2.17889]
D(REER(-1))	-1024.7	-0.36365	3.753219
	-15771.1	-0.18362	-3.90578
	[-0.06497]	[-1.98049]	[0.96094]
D(REER(-2))	-781.968	0.007717	3.259191
	-15706.4	-0.18286	-3.88976
	[-0.04979]	[0.04220]	[0.83789]
D(Y(-1))	2.292119	-0.00699	-0.56702
	-786.475	-0.00916	-0.19477
	[0.00291]	[-0.76377]	[-2.91120]
D(Y(-2))	749.5657	0.002894	-0.34798
	-772.364	-0.00899	-0.19128
	[0.97048]	[0.32181]	[-1.81920]
R-squared	0.561465	0.180304	0.323739
Adj. R-squared	0.470734	0.010711	0.183823
Sum sq. resids	6.04E+14	81880.72	37049021
S.E. equation	4563989	53.13636	1130.289
F-statistic	6.188221	1.063159	2.313813
Log likelihood	-599.203	-190.213	-300.278
Akaike AIC	33.67796	10.95627	17.071
Schwarz SC	33.98586	11.26417	17.37891
Mean dependent	-1201770	-0.25556	733.7744
S.D. dependent	6273467	53.42325	1251.115
Determinant resid covariance (dof adj.)		7.27E+22	
Determinant resid covariance		3.80E+22	
Log likelihood		-1089.1	
Akaike information criterion		61.83876	
Schwarz criterion		62.89444	