IMPACTS OF FOREIGN SAVINGS INFLOWS
ON THE PALESTINIAN ECONOMY: A CGE ANALYSIS

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Abstract

This paper investigates the impact of increasing foreign savings by 50% from the base line on the aggregate Palestinian economy variables. A simulation of increasing foreign savings is carried out using a 2012 Palestinian Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE). We simulate the impact of a 50% increase in foreign savings, which could come about due to increased access to world financial markets or in the form of foreign aid inflows. The simulation results show that real GDP increases by 1.60 % and nominal GDP by 4.53%. The level of real private consumption increases by 16.53%. Import increases by 18.89% and export decreases by 16.03 % in real term. The trade deficit increases by 31.64 %. Real exchange rate and nominal exchange rate decrease by 7.40% and 5.0 % from the base line respectively. Absorption increases by 10.79% in real terms. This increase occurs through the domestic (non-tradable) price index, which decreases by 2.50%.

Keywords: Trade Liberalization, foreign savings, current account deficit, Computable General Equilibrium, Palestinian economy

INTRODUCTION

The Palestinian economy faces a more uncertain prospect with fundamental changes: GDP is driven more by government spending and foreign aid, and there are less resources for investment, thereby further reducing the productive base of the economy, which is needed for a stable and viable independent Palestine. The continued isolation of the West Bank and Gaza under the Israeli closures and the blockade of Gaza have further fragmented the economy. Trade dependence on Israel is reinforced by the Palestinians' significant reliance on it for imports and exports. The trade deficit with Israel is estimated to have increased from 38% in

1999 to 56% of GDP in 2008. The increase in the trade deficit with Israel is driven by the loss of productive capacity and the inability of local producers to meet demand, which has increased dependence on imported consumer goods (UNCTAD, 2009). Foreign savings play a significant role in the infrastructure and social sector requirements of developing countries. The capacity to borrow capital from the rest of the world is a basic different between open and closed economies. Open economies able to finance productive investments that could not carry out based only on domestic savings. Open economies incline to borrow capital from the rest of the world, which imply runs a current account deficit. Current account deficits lead to the build up of foreign debt that must be paid back in the future. The current account balance is the total of exports of goods and services to the rest of the world less imports of goods and services, in addition to net income and unilateral transfers including workers' remittances, grants, gifts, etc. The national accounts identities show that the current account balance is the difference between domestic investment and savings. A current account deficit entails an excess of investment over savings. It might caused by an investment surge due to better growth outlook or a deficient in savings due to severe public consumption. A foreign saving finances the current account deficit, which are international capital inflows (Belke and Dreger, 2013). The inflow of foreign capital can induce the exchange rate to appreciate, which boosts real wages and imports and affects exports and future economic growth. Asian economies have protected their (competitive) exchange rates in order to support growth (Bresser-Pereira and Gala, 2008). Economic theory informs us that whether a current account deficit is good or bad depends on the causes leading to increase the deficit, however economic theory also conveys what to search for in considering the desirability of a current account deficit. If the current account deficit indicates an excess of imports over exports, it may be suggestive of competitiveness difficulties, however the current account deficit also entails an excess of investment over savings, thus it could similarly be indicating a highly productive, growing economy. If the current account deficit indicates low savings rather than high investment, which hasty fiscal policy or a consumption extravaganza might cause it. Without aware which of these is caused the current account deficit, it makes little sense to tell if a current account deficit is "good" or "bad." the current account deficit manifest underlying economic inclinations, which might be desirable or undesirable for a nation at a specific point in time (Ghosh and Ramakrishnan, 2012).

Palestine is a small, resource-poor and import dependence economy. The Palestinian economy relies on external resources. Palestine is highly open import dependent economy and imports play a crucial rule in influencing domestic activities and balance of payments situation. Current account deficit is a persistent feature of the Palestinian economy. The current account deficit (foreign savings) as a ratio to GDP was 8.5% 2007 and increased to 30.3% in 2012. In

terms of the certain components of the current account, imports have always surpassed exports. The trade deficit was 64.7 % and 67.4% of GDP in 2007 and 2012 respectively. The trade deficit is the principal cause of the current account imbalance. Further, Palestine depends on imports to meet its consumption and production requirements. In 2012, imports of goods represented 80.9% of domestic GDP, while exports only counted for 13.5%. In 2012, Palestine ran a $ 2,291.4 million current account deficit, it as well confronted a $ 2,291.4 million net inflow of foreign capital, in the form of external debt, aid, foreign direct investment, portfolio investment and other forms of capital flows (PCBS, 2014a; PCBS, 2014b).

The objective of this study is to show empirically the impact of increasing foreign savings (current account shock) by 50% on macroeconomic indicators such as on domestic production, imports, export, household consumption, and other related variables. To quantify the impact of increasing foreign savings on the Palestinian Economy, we constructed a general equilibrium model that captures the economic conditions and characteristics of the Palestinian economy, and we constructed a 2012 social accounting matrix for Palestine. The study focuses on the impacts of a 50% increase foreign savings as relative to the baseline.

LITERATURE REVIEW

The inflow of foreign capital can induce the exchange rate to appreciate, which boosts real wages and imports and affects exports and future economic growth. Ngalawa (2014) used Computable General Equilibrium model for Malawi to measure the impact of an increase in foreign savings and tariff cut. Ngalawa fond that doubling foreign savings boost consumption and negatively influences the production side of the economy. A 100% raise in foreign savings is overall detrimental to the economy. Total real exports, real exchange rate, nominal exchange rate, decline by 4.9%, 1.4%, 1.0% respectably. Real absorption increases by 1.9%, real household consumption increases by 4.0%, and total imports increases by 1.3%. Ahmed and O'Donoghue (2009) used Computable General Equilibrium model for Pakistan to measure the impact of changes in import prices and increase in foreign savings that are usually arranged for developing countries in order to supplement the domestic savings and direct investment towards developments and social sectors. As a result of a 50 percent increase in foreign savings: GDP increases by 0.1 percent. The private consumption increases by 2.8 percent, imports increase by 3.7 percent and exports decline by 6.5 percent. Siddiqui and Kemal (2006) used Computable General Equilibrium model for Pakistan to measure the impact of an increase in foreign capital on poverty both in the presence and in the absence of trade liberalisation. They found that increase in foreign capital inclines to decrease poverty in the presence as well as in the absence of trade liberalisation. Reinhart and Reinhart (2008) evaluated capital inflow in

181 countries for the period of 1960-2007. They found that for emerging markets, capital inflows are related to a higher possibility of financial and economic crisis. Bresser-Pereira and Gala (2008) highlight that the inflows of foreign capital appreciate the exchange rate. That consecutively increases the real wages and imports. This has implications for exports and future economic growth. Although medium income countries are capital poor, current account deficits (foreign savings) will boost consumption rather than enhance the rate of capital accumulation and aggregate demand. As a result, the rate of substitution of foreign savings for domestic savings will be to a certain extent high, and the country will indebted to consume, not to invest and grow. Eichengreen and Leblang (2003), studied the effect of capital liberalization on growth between 1880 and 1997 on 21 countries, they found that capital control might be negative, as they may distort resource allocation.   However, capital control is positive in evading macroeconomic failure. Bresser-Pereira and Nakano (2002) studied   the impact of foreign savings on growth. They estimated the impact an increase in foreign savings rate on GDP per capita growth. They used a sample of 51 countries from 1979 to 1998. They found a 1 percent increase in foreign savings in relation to GDP had a long-term effect of 0.005 percent in GDP per capita growth. Choong et al (2010) examined the impact of different types of capital flows on economic growth in 51 developed and developing countries for the duration of 1988-2002. They found that FDI has a positive effect on growth, whereas foreign debt and portfolio investment have a negative effect on growth.

RESEARCH METHODOLOGY

Computable general equilibrium models are an important tool of analysis in development economics. The computable general equilibrium methodology is a powerful methodological tool for examining the impacts across multiple markets of changes in policy variables or exogenous shocks and an instrument for policy analysis. They are used for making predictions about the behavior of economies in response to shocks and to different policies. Computable general equilibrium models are derived from economic theory. The competitive market equilibrium of supply and demand is determined by the demand functions of the consumers and the production functions of the firms. Computable general equilibrium models represent the direct and indirect interactions between all sectors of the economy. The computable general equilibrium framework provides a theoretical quantification that combines the general equilibrium structure formalized by Arrow and Debreu with real economic data -provided by a social accounting matrix- to solve numerically for the quantities of supply, demand and price that preserve equilibrium across all markets. The computable general equilibrium model interprets all of the payments in the social accounting matrix.

The model accordingly follows the social accounting matrix disaggregation of factors, activities, commodities, and institutions. Computable general equilibrium models are specified in a set of mathematical equations that define the behavior of the different actors. Some of the equations are nonlinear. There is no objective function. The equations contain a set of constraints, which have to be satisfied by the system as a whole but are not necessarily considered by any single actor. These constraints cover markets (factors and commodities) and macroeconomic closures (Savings-Investment, the government, and the current account). Computable general equilibrium models are used to compute quantities and prices in different equilibria. When the economy is at its initial equilibrium, policy changes or shocks lead to changes in prices, activity levels and demands that produce a new equilibrium. By comparing the new and the benchmark equilibrium prices, production levels, consumptions and income levels, we can perform a quantitative analysis and evaluate the effects of these policies or exogenous shocks (Shoven and Whalley, 1984; Lofgren et al., 2002). A computable general equilibrium (CGE) model of the Palestinian economy is constructed for this study. The Palestinian model builds on the Lofgren et al. (2002) standard model framework.

Foreign Savings in the Model

The current account balance, which is articulated in foreign currency, requires equality between the nation's spending and it's revenues of foreign exchange.

$$\sum_{c} \text{pwm}.\,\text{QM} + \sum_{f} \text{transfr}_{\text{row},f} = \sum_{c} \text{pwe}.\,\text{QE} + \sum_{f} \text{transfr}_{i.\text{row}} + \text{FSVA}$$

import spending	+	factor transfers to RoW	=	export revenue	+	institutional transfers from RoW	+	foreign savings

Where: FSAV = foreign savings , QM is quantity of imports, QE is quantity of exports, pwm is import price (foreign currency) , pwe is export price, $\text{transfr}_{\text{row},f}$ is factor transfer to the world and $\text{transfr}_{i.\text{row}}$ is institutional transfers from the world.

$$\sum_{c} \text{MPS}.\,(1 - \text{TINS}).\,\text{YI} + \text{GSAV} + \text{EXR}.\,\text{FASV} \sum_{f} \text{transfr}_{\text{row},f} = \sum_{c} \text{PQ}.\,\text{QINV} + \sum_{c} \text{PQ}.\,\text{qdst}$$

Non government savings	+	government savings	+	foreign savings	=	fixed investment	+	stock changes

Where: MPS is marginal propensity to save for domestic nongovernment institution, TINS is direct tax rate for institution, YI is income of institution, GSAV is government savings, EXR is exchange rate, PQ is composite commodity price, QINV is quantity of fixed investment demand for commodity and qdst is quantity of stock change. Total savings and total investment have to be equal. Total savings is the sum total of savings from domestic nongovernment institutions, the government, and the rest of the world (foreign savings). Total investment is fixed investment (gross fixed capital formation) plus stock changes.

Database: Social accounting matrix of Palestine

A social accounting matrix is a comprehensive, economy-wide data framework, representing the economy of a country. Social accounting matrix is a square matrix in which each account is represented by a row and a column. The elements of the matrix represent the payment from the account of a column to the account of a row. A social accounting matrix accounts for the economy-wide circular flow of incomes and payments in the economy. It represents the structure, internal and external links of the economy, and the roles of agents and sectors in the economy (King, 1985; Roland-Holst, 2008). A social accounting matrix contains most of the data required to implement a computable general equilibrium model analysis. The computable general equilibrium model has to be based on recent relevant available data to be credible for policy analysis. When historical data are used for policy analysis, it should be demonstrated that the structure of the economy has not substantially changed for the evaluation and analysis of policies to be credible and valuable.

A 2012 social accounting matrix for Palestine is constructed. The 2012 social accounting matrix is used as the initial data for the calibration of the Palestinian computable general equilibrium model. See table 2: Macro 2012 social accounting matrix for Palestine million of dollars.

THE SIMULATION AND EMPIRICAL RESULTS

We simulate the impact of a 50% increase in foreign savings, which could come about due to increased access to world financial markets or in the form of foreign aid inflows. The simulation considers the impact of a 50% increase in foreign savings on production, and macroeconomic aggregate. The simulation results show that real GDP increases by 1.60 % and nominal GDP by 4.53%. The level of real private consumption increases by 16.53%. Import increases by 18.89% and export decreases by 16.03 % in real term. The decline in exports indicates worsening in the trade balance. The trade deficit increases by 31.64 %; net taxes increases by

8.27%, as a percentage of GDP the trade deficit increases by 13.04 percentage points from 44.16 % of GDP at base line to 52.80% of GDP after foreign savings shock (tables 1).

Foreign savings can considerably change the real and nominal exchange rates, which in turn affect the trade balance. Real exchange rate and nominal exchange rate decrease   by 7.40% and 5.0 % from the base line respectively.   In addition, changes to the production of domestically consumed goods, absorption (total domestic spending on a good estimated at the domestic prices), increases by 10.79% in real terms. This increase occurs through the domestic (non-tradable) price index, which decreases by 2.50%.

Table 1 National Accounts

| | millions USD | | | As % of GDP | |
	Base line	Foreign saving shock	% Change	Base line	Foreign saving shock
Absorption	9794.700	10851.663	10.791	144.162	152.802
Private consumption	6394.380	7451.343	16.530	94.115	104.922
Gov. consumption	2302.570	2302.570	-	33.890	32.422
Investment	1097.750	1097.750	-	16.157	15.457
Exports	1091.460	916.466	-16.033	16.065	13.276
Imports	4091.930	4864.971	18.892	60.227	70.475
Net Taxes	1408.024	1525.969	8.268	17.291	21.487
GDP	6794.230	6903.158	1.603	100.000	100.000
Trade Deficit	3000.470	3948.505	31.645	44.157	57.192

Table 2 The macro 2012 social accounting matrix of Palestine

	1	2	3	4	5	6	7	8	Total
1-Activities		10456.04							10456.04
2-Commodities	4886.99	1033.29		6394.38	2302.57	1097.75		1091.46	16806.44
3-Factors	5386.21								5386.21
4-Households			5671.96		371.43				6043.39
5-Government							1801.95	818.65	2626.60
6-Saving-Invest.				-750.92	-47.40			1896.07	1097.75
7-Taxes	182.84	1225.18		399.93					1801.95
8-Rest of the world		4091.93	-285.75						3806.18
Total	10456.04	16806.44	5386.21	6043.39	2626.60	1097.75	1801.95	3806.18	

CONCLUSION

Foreign savings are necessary for developing countries to supplement domestic savings and therefore, invest in their infrastructure and social sector requirements. This paper represents quantifying of the impacts of an inflow of foreign savings (current account shock) in the Palestinian economy by using a computable general equilibrium model. The results show that a 50% increase in foreign savings leads to higher household's welfare that measured in terms of real household consumption. However, a 50% increase in Palestine foreign savings, which could come in the shape of foreign aid will harm the economy's production side by at first adversely influencing the country's by the appreciation to the real and the nominal exchange rates. That lowers the competitiveness of domestic goods on the foreign market, which influences exports adversely. In addition, exchange rate appreciation promotes consumption and reduces private savings. The production side of the economy is adversely affected while the consumption side is positively impacted. Investment as a percentage of GDP declines following a cut in the production of export goods. As a result of the exchange rate appreciation the price of domestic non tradable goods is weaken as consumers preferences lean to cheaper imported substitutes. The increases in domestic prices relative to world prices lead to change in relative prices, which damage the tradable sector. The reduction of the tradable sectors relative to the non-tradable sectors reveals the existence of Dutch disease. Thus, a 50% increase in foreign savings, which could come in the form of foreign aid, has a Dutch Disease impact on the Palestinian economy. Further research is needed to investigate the impact of increasing the household savings on the macroeconomic variables in Palestine.

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