The Factors for Dutch Disease in the Palestinian Economy

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Abstract
The Palestinian economy is primarily affected by internal and external exogenous political constraints, structural limitations and foreign aid, rather than by endogenous economic free market factors. Underemployment of labor and limited viable opportunities for capital are largely due to limitations on exports and the free flow of goods, services and labor that are imposed by Israel and other neighboring countries, as well as on the shortage of arable land and water. Through theoretical considerations and empirical investigation, this paper claims that the constraints on the Palestinian economy as well as foreign aid result in the symptoms associated with an economy infected by Dutch Disease.

Introduction

In a simple, closed 'island' economy, savings and investments increase GDP. This concept lies at the heart of the classic static model developed by Harrod (1939) and Domar (1946) and of Solow's (1956) neoclassical model. In such a closed economy, decreasing marginal productivity places a ceiling on GDP, and foreign aid remains the only alternative for improving standards of living.

The economies of the West Bank, and especially that of the Gaza Strip, resemble such island. There are no free and open ports of entry on land, air or sea. Borders are subject to frequent and, occasionally, prolonged closures. Arable land and water are extremely limited. The export of services and labor is highly restricted due to logistical difficulties and closures that are imposed primarily by Israel but also by Egypt and Jordan.

In this paper, we claim that in the current political situation in which there are deep under-employment and a lack of economically viable opportunities for capital, savings and investment are irrelevant for growth. Foreign development aid (FDA) in any form may relieve the misery of poverty and close the balance of payments gap, but it may not be effective in increasing sustainable GDP growth.

This paper examines whether the long-term dependency of the West Bank and Gaza Strip (WBGS) on foreign revenues, initially from Palestinian workers in Israel and subsequently from massive foreign aid and donations, infected the WBGS with Dutch Disease. In 1987, revenues from labor abroad (mainly from Israel) amounted to 30% of the WBGS's GNP, and the foreign transfers in terms of foreign transfers and net capital transfer (FTR+ NCT) were 10.3% of the GNP. In 2007, labor in Israel constituted only 10.1% of the GNP, whereas foreign transfers that close the balance of payments gap comprised 32.8% of the GNP. However, the level of 2007 per capita GNP is almost identical to that of 1978 per capita GNP.

The next section provides a review of the literature concerning the macroeconomic development models and empirical studies that are relevant to the economic development of the WBGS. The one-gap macroeconomic model is developed in Section Three. The fourth Section is devoted to an empirical examination of the model, and Section Five concludes the paper.

Literature Review

The literature identifies two major types of constraints to growth in developing economies: First, the gap between the level of savings and investment required to reach growth targets and second balance of payments gap (Chenery and Straut (1966) and Bacha (1990)). However, economic development can be constrained by many factors, including a lack of infrastructure (Bertrand-Albala (2008) and Siddiq (2008)); a lack of technical knowledge and human capital (Shell (1996) Lucas (1988), Romer (1986, 1990) and Fayissa and El-Kaissy (1999)); political factors such as the type of regime (Boone (1996), Burnside and Dollar (2000) and Knack (2001)); social structure and income inequality (Kuznets (1995), Birdsall, Ross, and Sabot (1995) Barro (1999) and Knowles (2005)); and political unrest and terror (Alesina, Özler, Roubini and Swagel (1996), Abadie and Gardeazabal (2003,2005), Blomberg, Hess and Orphanides (2004) and Selah(2004)).

Many argue that foreign capital transfers can bridge the internal savings gap and the balance of payments gap and boost growth to threshold target levels. Despite the appealing positive impact of FDA in theory, there is a large body of empirical literature that questions the effectiveness of FDA on long-term economic growth. Griffin and Enos (1970), claim that FDA primarily increases consumption rather than investment and growth. Boone (1996) also found that foreign aid boosts consumption rather than development. Collier and Dollar (2002) and Burnside and Dollar (2000, 2004), claim that FDA is neither categorically beneficial nor detrimental to economic growth.

Djankov et. Al. (2006) reviewed much of the literature pertaining to the impact of aid on growth and examined the economic development of poor countries subsequent to the receipt of FDA. They find that there is a negative correlation between FDA and democracy in poor developing countries. Also Barrow and Sala-i-Martin (1995) claim that the effectiveness of aid depends on a variety of interacting factors.

Rajan and Subramanian (2006) claim that FDA is similar to the "natural resources curse" that leads to Dutch Disease. Elbadawi (1999) and Munemo, Bandyopadhyay and Basistha (2007) also support the notion that aid breeds Dutch Disease. On the other side, many recent studies persist in the claim that growth is positively correlated with FDA (see, among others, Dalgaard et. Al. (2004) and Easterly (2004)).

The World Bank (1999) and the Secretariat of the Ad Hoc Liaison Committee (1999) are the only studies that have provided an initial glimpse at the effectiveness of foreign aid in the WBGS in the few years after the Oslo Accord. Le More (2008) claims that the FDA to the WBGS following the Oslo Accord was wasted money, as it failed to promote peace.

Astrup and Dessus (2002) claim that the replacement of the wages of Palestinians formerly employed in Israel with FDA funds serves to increase the symptoms of Dutch Disease in the WBGS. Also Petri (1997) views the WBGS as the victim of Dutch Disease.

The Macro Economic ' Balance of payments One-Gap' Model

Chenery and A. Strthe's (1966) Two-Gap model is an extension of the simple Harrod Domar static model. According to this model, growth is constrained by two gaps. The first one is the gap between savings and investment, for which the claim is that poor countries are trapped in a vicious cycle of low savings, underinvestment and lack of growth. The second gap is the balance of payments gap created by insufficient exports for providing the necessary foreign currency for investment. The vicious cycle generated by these two gaps can be solved by the infusion of *FDA*. In the model, we assume that only one gap is relevant, the-balance of payments gap. However, we assume that exports are mainly constrained exogenously, according to the demand in Israel and the closures imposed on the WBGS. *FDA* enables the increase of imports and consumption. Expressing *GNP* in terms of balance of payments constraints can lead to a valuable model only if the impact of endogenous and exogenous parameters on this constraint can be determined.

Notations and basic equations

C_P- private consumption
I- Investment
C_G- Governmental consumption
E_X - Export of goods and services
I_M- Import of goods and services
FTR- Financial transfers to the private and public sectors.
NCT- Net Capital and Transfers
W- Salaries of residents from abroad and net income from abroad.
Y- Gross national product (GNP)
Y_d- Gross domestic product (GDP)
β- Proportion of import out of uses.
Source/uses parity

(1) $C_P+C_G+I+E_X+W = Y+I_M$
The import function is:

 (2) $IM= \beta [C_P+C_G+I+E_X]$
The balance of payments constraint can be expressed as:

(3) $E_X+FTR+NCT+W=I_M$
 By inserting I_M from (2) into (3) and solving for I, we obtain:

(4) $I = \dfrac{E_X + FTR + NCT + W}{\beta} - C_P - C_G - E_X$

Let us now solve Y by restating I in (1) in terms of equation (4) and by replacing I_M in (1) by the import function in (2) to obtain:

(5) $C_P + C_G + \dfrac{E_X + FTR + NCT + W}{\beta} - C_P - C_G - E_X + E_X + W = Y + E_X + FTR + NCT + W$

Solving Y from the above expression yields:

(6) $Y = \dfrac{1}{\beta}\left[(E_X + FTR + NCT)(1-\beta) + W\right]$

The *GDP* can be written as:

(7) $Y_d \equiv GDP = \dfrac{(1-\beta)}{\beta}\left[E_X + FTR + NCT + W\right]$

The ratio of $\dfrac{(1-\beta)}{\beta}$ is the "foreign currency GDP multiplier". For example, if β =0.4, then

$\dfrac{(1-\beta)}{\beta}$ =1.5. Namely, if β is given, 1 USD of resource in foreign currency will increase GDP by 1.5

USD. The lower β is, the higher the foreign currency GDP multiplier is. Equations (6) and (7) express the following obvious claim.

Claim1

In a given period, Y and Y_d are determined solely by the source of foreign currency: (E_X, *FTR*, *NCT*, and *W*) and by β, the ratio of imports to uses.

Discussion

In all economies, *FTR* is assumed to be exogenous and *NCT* is at least partially endogenous, at least in the short run, as borrowing and fluctuations in foreign currency reserves can affect this term. However, in some economies, such as the Palestinian economy, *NCT* can be almost entirely exogenous. Given the fragile political situation in the WBGS, borrowing in the free market is impossible, and foreign currency reserves are negligible. In most economies, W, E_x and β are endogenous and can be derived from economic equilibrium conditions. In the case of the WBGS, exports E_X and the remittances of wages from WBGS residents abroad are primarily constrained by Israel. Thus, β remains the sole endogenous factor that can be lower by lowering the production of tradable goods that have a high component of imports or by decreasing the level of investments in sectors that have a high import component. The analysis of these alternatives is given below.

Tradable vs. Non-tradable: Real Economy Partial Equilibrium Analysis

Let us assume that consumption is composed of tradable and non-tradable goods. Manufactured products are tradable goods that have a high import component. According to the distinction between tradable and non- tradable sectors, equations (1) and (2) can be restated as:

(1)' $C_T + C_N + I_T + I_N + E_X + W = Y + I_M$

where C_T and I_T denote the consumption and investment of the tradable goods, and C_N and I_N represent the consumption and investment of non-tradable goods, respectively.

(2)' $I_M = \beta_{CN} C_N + \beta_{IN} I_N + \beta_T [C_T + I_T + E_X]$

where β_{CN}, β_{IN} denote the proportion of imports out of non-tradable consumption and investment, respectively, *and* β_T represents the proportion of imports out of tradable consumption, investment and exports.

By restating (3) in terms of the last two equations, (1)′ and (2)′, we derive the following:

(6)' $Y = C_N(1 - \dfrac{\beta_{CN}}{\beta_T}) + I_N(1 - \dfrac{\beta_{IN}}{\beta_T}) + \dfrac{1}{\beta_T}\left[(E_X + FTR + NCT)(1 - \beta_T) + W\right]$

Equation (6) is a specific case of (6)' when $\beta_{CN}=\beta_{IN}=\beta_T\equiv\beta$ (i.e., the propensity to import is identical in the tradable and non-tradable sectors).

In the model, β_{CN} and β_{IN} are lower than β_T. Increasing the level of C_N and I_N and decreasing the relative weight of tradable consumption and investment can increase Y. However, an increase in Y by increasing the size of the non-tradable sector at the expense of the size of the tradable sector does not necessarily increase welfare.

Optimal Levels of C_N and C_T and Dutch Disease.

Assume that despite the theoretical reservations (see Arrow (1950)) one can aggregate the social utility of the economy. The optimal levels of C_N and C_T are the ones that maximize the aggregate utility under the balance of payment constraint. Given level of investments, I_T and I_N, generate a trade-off constraint line between C_N and C_T, which is given in (8) below:

$$(8) \quad C_N = -\frac{\beta_T}{\beta_{CN}}C_T + \frac{1}{\beta_{CN}}[(1-\beta_T)E_X + FTR + NCT + W - \beta_T I_T - \beta_{IN} I_N]$$

The trade-off function in (8) is depicted in figure 2 below:

Figure 1 : The Optimal Combination of C_N and C_T
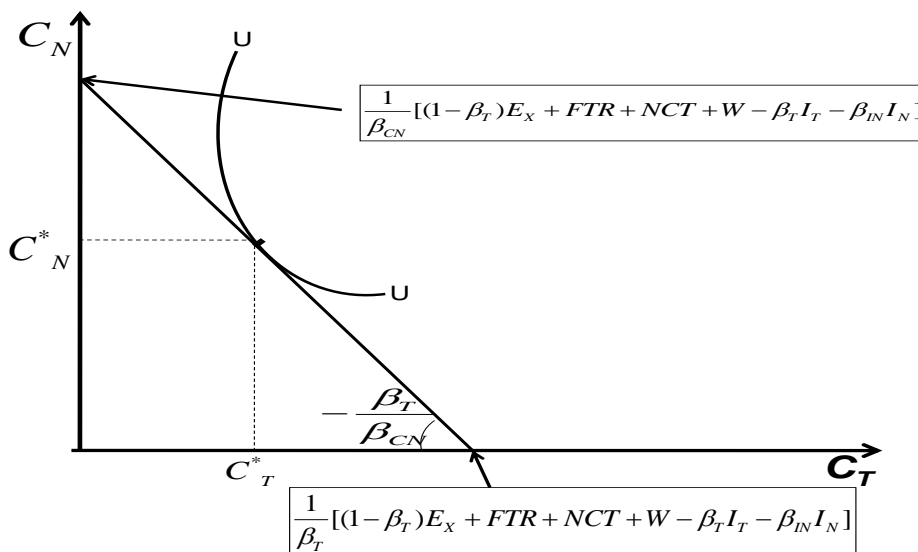
From this Figure, it can be seen that the socially optimal aggregate levels of C_N and C_T are C^*_N and C^*_T. These optimal levels are obtained at the point of tangency between the trade-off line and the social utility indifference curve, UU. Increasing C^*_N above this level and lowering C^*_T along the trade-off line will increase Y but decrease social welfare. Note that the higher the ratio of β_T/β_{CN}, the steeper the slope of the trade-off line in Figure 1.

Thus, because the UU social utility indifference curve is convex, the optimal consumption C^*_N, of non-tradable goods will increase, and the optimal consumption of tradable goods C^*_T will decrease. Thus, a higher ratio β_T/β_{CN} implies an increase in the optimal level of the 'low-import' sectors of the economy.

The Optimal Level of I_N and I_T and Dutch Disease.

Under capital rationing, the maximum total Net Present Value (*NPV*) of an investment is obtained when investments are ranked by the profitability index (*PI*), which is the ratio of Present Value (*PV*) relative to total investment (*I*). Thus, the relevant capital rationing rule is as follows.

Claim II

Under balance of payments constraints, an investment project *j* is preferred over an investment project *i*, if and only if:

(9) $$PI_j > PI_i \frac{\beta_j}{\beta_i}$$

where PI_j and PI_i are the profitability indexes of project *j* and *i*, respectively, and β_J and β_i are the proportion of foreign currency to investments *j* and *i* ratios, respectively.

The proof is immediate because the contribution in terms of *NPV* per one unit of the constrained foreign currency is equal to $\dfrac{NPV_J}{\beta_J I_J}$ and $\dfrac{NPV_i}{\beta_i I_i}$ for projects *i* and *j*, respectively. Using the definition of *PI* and assuming positive βs completes the proof.

The balance of payments trade-off line between I_N and I_T is given in equation (10)

(10) $$I_N = -\frac{\beta_T}{\beta_{IN}} I_T + \frac{1}{\beta_{IN}}[(1-\beta_T)E_X + FTR + NCT + W - \beta_T C_T - \beta_{CN} C_N]$$

According to claim II, regardless of the total investment, *I*, which is composed of I_N and I_T, the optimal proportion between the two should guarantee that the profitability index of the marginal projects meets the following condition:

(11) $$\frac{PI^M{}_N}{PI^M{}_T} = \frac{\beta_T}{\beta_{IN}}$$

Where $PI^M{}_N$ and $PI^M{}_T$ are the profitability indexes of the marginal investment in the tradable and the non-tradable sectors.

Equation (11) defines a path of optimal proportions between I_N and I_T such as the one that is described in Figure 2 below.

Figure 2 : The Optimal Combination Path of I_N and I_T
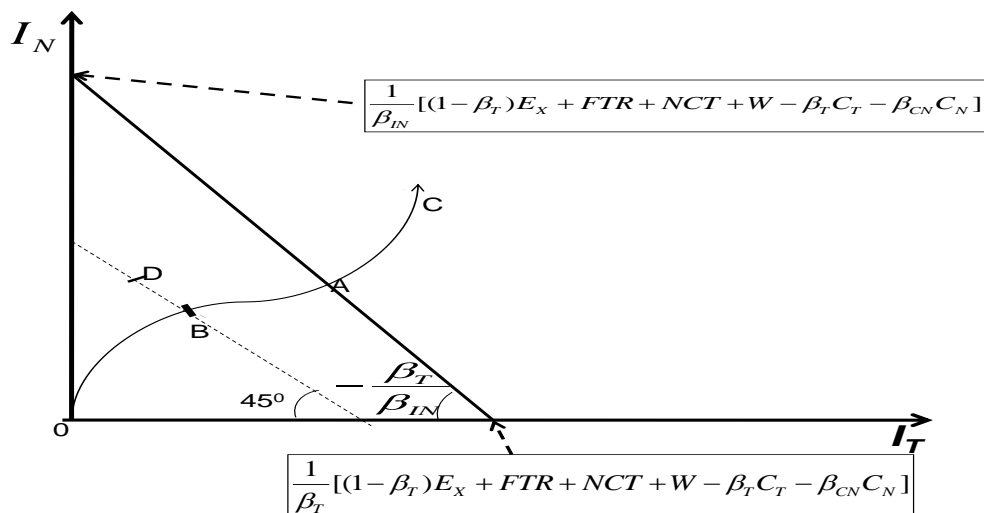
The path starts at point 0. At this point, the total investment is zero. Total investment increases as we move away from the zero investment point. The optimal path line *0BAC* is not necessarily a straight line. According to equation (6)', an increase in *Y* can be attained if we move from optimal points, such as B, A, or C, that are on the optimal path to suboptimal points, above or below this line. The cost of such a decision is a sub-optimal NPV. For example, point D is on a dashed line that lies parallel to the balance of payments line and crosses point B. On this line, the total foreign currency required for investment remains constant. However, as proved in claim II, total NPV at point D is lower than the *NPV* of point B, which is on the optimal path line.

It is possible that the marginal project has negative NPV before the balance of payments constraint is effective. In such a case, it will be worth increasing consumption until balance of payments constraint is effective and NPV of marginal project is nonnegative. The limitations on exports imposed on the WBGS lower the attractiveness of developing industrial exports. In addition to these constraints, a lack of water and arable land limit also the potential for agricultural exports. Under these conditions, it is not surprising that FDA can generate "white elephant" projects that do not contribute to growth and perpetuate the symptoms of the Dutch Disease originally generated by the lack of profitable opportunities.

Empirical Findings

There are four major empirical data difficulties. First, macro-economic data found in the publications of the Israel Central Bureau of Statistics (ICBS) that covers the period between the first Intifada and the Oslo Accord (1988-1993) is partial and questionable due to data collection difficulties during a period of clashes between Israel and the Palestinians. Thus, we supplemented the ICBS data for this period with data from Arnon et al. (1997) but did not examine the reliability of their data. The second problem relates to differences in the calculations of ICBS up to 1993 and the calculations of Palestinian Central Bureau of Statistics (PCBS) from 1994 and on. For example due to political reasons ICBS and PCBS considered differently the size of the population. The third problem relates to the political and economic separation between the West Bank and Gaza Strip following the *Hamas* control of Gaza at the end of 2006. Since then, a tight closure has been imposed on the Gaza Strip, accompanied by severe economic deterioration in Gaza.

As a result of this extreme difference between the West Bank and Gaza Strip it was decided to end the major analysis at the end of 2006. The fourth empirical problem relates to the large economic differences between the period up to Oslo (1968-1993) and from Oslo (1994-2007). Only from 1994 there is a dramatic increase in the foreign aid and only from that period and on the PA started to develop selfcontrol governmental system. Thus, we had to divide the analysis to two period were in the second period we can analysis only 13-14 years.

According to the analysis, *FTR+NCT, EX* and *W* are exogenous parameters. The sum of foreign transfers and net capital transfers *(FTR+NCT)* represents the total foreign aid given plus foreign investments made *(FDA+FDI)* in the WBGS. This term is estimated as the deficit in the current account of the balance of payments minus revenues from worker remittances from the outside of WBGS, primarily from Israel. In the case of the WBGS, because there is no Palestinian currency, internally induced changes to the exchange rate are not possible. Due to the high political risk, including the risk of recurring violence and the low level of currency reserves, endogenous changes of *NCT* virtually does not exist.

Tables 1 presents key macroeconomic indicators for the period 1968-2007. The average annual *FTR+NCT* in the years 1994-2007 is approximately 47% of the *GDP*. The average per capita *FTR+NCT* during 1993-2007 is more than three times higher than the average in 1968-2003. Following the second *Intifada*, the low *FDI* declined further due to political risk and terror and average currency deposits during the years 1999-2007 was US$ 593 million (see Table 2) which can finance about three months of the balance of payments deficit.

As is evident in Table 4, in the years 2000-2007, between 89%-92% of Palestinian exports are destined for Israel, whereas approximately 72% of its imports originate in Israel. Accordingly, for all intents and purposes, international trade of WBGS is exogenous.

The relative level of imports, denoted in the model as *β*, equals the ratio of imports to the total national uses (see Equation (2)). The average *β* for the period 1968-2007 is 42.0% (see Table 1), with a small standard deviation of 3.7%. Thus, *β* is virtually constant, and the small changes that do occur are temporary, due primarily to political events. As a result, the Palestinian *GNP* is determined exogenously by the parameters of Equation (6).

Methodological difficulties such as simultaneity, causality, and multi-co-linearity and serial correlation impair the test of the Dutch Disease hypothesis. In order to test the potential impact of simultaneity between the parameters in (6) and (7), <u>expected</u> export and import that are estimated by external model replaces the actual export and import in (6) and (7) in the multivariate regression analysis. The expected values of export are determined by regressing the exports of WBGS (E_X) on the *GNP* of Israel (Y_{IL}), and the expected import is determined by regressing imports of WBGS (I_M) on investment (*I*), private (C_P) and public (C_G) consumptions. The results of the regressions are:

For the period 1968-1993:
$E_X\hat{} = 161***+ 0.0031***Y_{IL}$ and R^2=0.56.
$I_M\hat{} = 561.8***+0.615***C_P+-5.281***C_G+0.934***I$ and R^2=0.93 (F=93.9)
For the period 1994-2007:
$E_X\hat{} = 451*+ 0.0008Y_{IL}$ and R^2=0.02. (F=0.276)
$I_M\hat{} = 182.0+-0.0001C_P+1.730***C_G+0.678***I$ and R^2=0.94 (F=56.7).

Only in the first period export is a positive function of the *GNP* of Israel. The import in the period before Oslo is positively related to private consumption and investment while import is negatively related to government consumption. In the second period private consumption does not affect import but on the one hand there is a very high positive relationship of 1.73 between import and governmental consumption in the second period. Such positive relationship is a typical Dutch disease symptom. However, in the second period the PA made substantial efforts to build their self-control independent governmental system.

The second methodological issue is related to the difference between the statistical relationship and causality relationship. A negative relationship between *GDP* and *FTR + NCT* could be due to the negative impact of *FTR+NCT* on *GDP*, which is a type of Dutch Disease symptom, but, at the same time, this negative correlation may reflect the fact that low *GDP* attracts more humanitarian foreign aid. Granger's causality approach is applied to differentiate between the two potential reasons for the statistical relationship. Namely, first we examined the impact of *FTR+NCT* in a given year on the *GDP* of the same year and then we examine the *FTR+NCT* of a

previous year and *FTR+NCT* of the year after. If earlier *FTR+NCT* determines *GDP* more than later *FTR+NCT*, then we can infer that *FTR+NCT* determines *GDP* and vice versa.

Third methodological problem relates to the indirect effect of *FTR+NCT* on consumption and investment that are not visible directly in equations (6) and (7). We have no way to differentiate directly between these two potential effects and we can only partially infer it by analyzing ratios of various macro figures.

Additional difficulty relates to serial correlation. In the first period of 1969-1993 there is a very significant linear relation between *GDP* and years.

GDP=-5869***+30.17***Year, R²=0.83 and F=118.2***

In the second period of 1994-2007 the linear relation between *GDP* and years is not significant. In both periods there is no significant linear relationship between Per capita *GDP* and the years. In order to avoid serial correlations in all periods and both for *GDP* and per capita *GDP*, the dependent variable is the *GDP* growth (*GDPG*) rather than the *GDP*.

Probably the most difficult problem in regression analysis is multicolinarity among the explanatory variables. We performed multicolinearity analysis in the two periods. Table 8 presents correlations between annual changes of the factors stipulated in equations (6) and (7) both in aggregate and per capita terms. According to Table 5 there are no significant correlations between the explanatory variables in the period before Oslo. In the second period there are significant negative correlations between changes of *(FTR+NCT)* and change in *W*. This negative correlation indicates that the decrease in the income from work in Israel is replaced by an increase if foreign aid. Thus, if both factors tend to increase *GDP*, then the negative correlation between the independent factors may tend to lower their mutual impact on *GDP*.

Also in the second period there is a significant negative correlation between *β* and the changes in per capita income from work in Israel (*W*). The empirical results that will be presented later show clearly that *β* is negatively associated with growth of per capita *GDP*. Thus, this negative correlation tends increase the statistical positive relationship between W and per capita *GDP* in the second period.

Additional correlation tests that are not presented here show the following:
1. In both periods *β* is positively correlated with *FTR+NCT*. This positive correlation is due to the definition of *β*. This correlation is reduced but not eliminated when we replace *β* by *β^* which is the estimated one as import is anticipated according to an external model.
2. In all cases there is a strong positive correlation between export (*Ex*) and *W* as both parameters are determined by the policy of Israel.
3. In all periods higher ratio of *FTR+NCT* to *GNP* is positively correlated with the ratio of C_P, C_G, I_M, and *NPC* to *GNP*.
4. The ratio of *FTR+NCT* to *GNP* is negatively associated with the ratio of E_X+ *W*   to *GNP*. Namely, part of *FTR+NCT* was in exchange to the income from export to Israel and work in Israel.

Table 6 presents the results of multivariate regression analysis where estimated *β* and export (denoted by *β^* and $E_X^$) replace the actual ones in order to minimize the impact of simultaneity. According to equations (6) and (7) an increase (decrease) in *FTR+NTC* should increase (decrease) *GNP* and *GDP* provided that other explanatory variables are not changed in a

way that cancelled that increase (decrease). The results show that only in the second period of 1994-2007 there is a significant positive impact of *FTR+NCT* on *GDP*. The positive impact exists in total terms and also in per capita terms. The positive impact disappears when we measure the impact of *FTR+NCT* of previous year *(t-1)* or next year *(t+1)* on the *GDP* of year t. According to Table 10 there is no significant effect of *FTR+NCT* on *GDP* in the first period. Though $\beta^\wedge$ is only the estimated β, according to the external regression model, in both periods we do observe very significant negative impact of $\beta^\wedge$ on *GDP* and per capita *GDP*.

The regression models in Table 7 apply actual betas and actual export instead of estimated $\beta^\wedge$ and estimated export $E_X^\wedge$. According to these regressions, in both periods and not only in the second period, there is a positive impact of FTR on NCT in a given year t on *GDP* and Per capita *GDP* of that year. According to the regressions in Table 6 there are no significant effect of either previous or next year *FTR+NCT* on *GDP* of a given year. In all cases there is significant negative relationship between β and *GDP* and per capita *GDP*. As expected from (6) and (7), in most cases W is positively correlated with *GDP* and per capita *GDP*.

In almost all cases there are positive significant relationships between unemployment rate and *GDP*. We also find that only in the second period, when *FTR+NCT* was heavy, unemployment in year *t* is significantly positively correlated with GDP even when *FTR+NCT* is in year *t-1*. When *FTR+NCT* in year *t-1* was replaced by *FTR+NCT* of year *t* or year *t+1* then the correlation became insignificant. This result is an indication of Dutch Disease effect.

Classic Dutch Disease is caused by local currency appreciation due to the heavy inflow of foreign currency following the exploitation of new natural resources. Following the first *Intifada* in 1987, we observe the following:

-       In the period 1987-2007 the per capita *GNP* fell from 1,849 USD in 1987 in 1987 to 1,504 in 2007 (-19%), whereas per capita *GDP* is about the same. A decline in *GDP* and per capita *GDP* of WBGS in these years occurred primarily during the second *intifada* years. The decrease in *Per capita GNP* stemmed from the decrease of worker remittances from labor in Israel and the Persian Gulf states following the expulsion of Palestinian workers after the first Gulf War. During this same period, foreign aid in terms *FTR+NCT*, increased to three times pre-1988 levels.

-       Since the First *Intifada*, revenues from exports and worker remittances from Israel decreased in per capita terms and in terms of their ratio to *GNP*. Much of this decrease has been replaced by an increase in *FTR+NCT*.

-       In 1987, before the First *Intifada*, per capita imports to WBGS came to US $1,073 and comprised 82% of per capita *GDP* and 3.2 times the per capita export of 329 USD. In that year, exports were only 25.3% of *GDP.* In 1994, per capita imports were US $1084 and 74.7% of the *GDP*. However, imports in 1994 were 5.8 times higher than exports, which declined to US $209 per capita, comprising only 14.7% of the *GDP*. In 2007, exports as a percentage of *GDP* and in per capita terms decreased even more, falling to 13.2% of the *GDP* and to US $179 per capita. All of these Dutch Disease symptoms may stem also from closures and economic separation between Israel and WBGS and not due to vast supply of foreign currency due to external support.

-       According to Table 3, since 1994 and until 2007, the ratio of revenues from agriculture to *GDP* dropped from 13.2% to 5.6% and the ratio of the manufacturing sector decreased from 19.7% in 1994 to 9.9% in 2007. At the same time, the ratio of the public sector to *GDP* increased from 9.4%

to 13.9%. Part of the increase in the public sector is due to the establishment of the self controlled governmental institutions of the Palestinian Authority.

-          According to unemployment data (that is not presented in the Tables) , between 1994 and 2007, the unemployment rate in the West Bank climbed from 17.39% to 20.61%. Unemployment peaked at 30.9% during the *Al Aqsa Intifada* in 2002. In the Gaza Strip, the unemployment rate soared, climbing from 25% in 1994 to 39% in 2002 (and 37% in 2006, and 32% in 2007). As was shown before this unemployment is affected by foreign aid.

          As previously noted, an increase in per capita *FTR+NCT* accompanied by a decrease in *GDP* or Per capita *GDP* is not a conclusive indication of Dutch Disease. It is very possible that the causality is reversed (i.e., lower *GDP* leads to higher foreign aid). The attempt to solve this issue by examining the impact of lagged changes of *FTR+NCT* on changes in *GDP* and *GNP* at most only partially resolves this issue. Namely, the fact that *FTR+NCT* in year t effect positively only the *GDP* of that year and does not affect positively the *GDP* of the next year may indicate that there is no long term positive impact of *FTR+NCT* on *GDP* and there is only a dependence of *GDP* on the foreign currency flow from foreign aid. The above claim can be supported with the negative correlation between the annual ratio of *FTR+NCT* to *GNP* and the annual ratio of investment to *GNP*. Namely, in the case of the WBGS, the significant positive correlation between changes in *FTR+NCT* and changes in *GNP* and *GDP* is accompanied by a decrease in the ratio of the tradable manufacturing and agricultural sectors and an increase in the portion of the non-tradable services sectors and a decrease in exports.

          One can also observe a dramatic increase in capital formation following the Oslo Accord, which apparently did not generate growth. From 1968 to 1987, overall net capital increased by 320%, whereas productive net capital (machines) increased only by 52%, and *GDP* increased by 239%. From the Oslo Accord in 1994 until 2007, overall net capital increased by 113%, and productive capital increased by 438%, whereas *GDP* increased only by 50%. In per capita terms, the overall net capital increased by 33.9% from 1994 to 2007, and productive capital increased by 238%, whereas the per capita *GDP* decreased by 5.4%. During the same period, the net capital per employed person increased from USD 21.7 thousand to USD 25.1 thousand. One can claim that both the unemployment of labor and the under-employment or inefficiency of capital prevailed. For all the above reasons, it is possible to conclude that the WBGS is indeed infected by Dutch Disease.

          The question that remains to be asked is whether the flow of *FDA* funds (in terms of *FTR+NCT)* lies at the heart of the problem or whether other factors are to blame.

          The empirical results indicate a net positive impact of *FTR+ NCT* on *GDP* growth. However, these empirical evidences do not provide a conclusive answer to the question. The infection may be due to *FDA* as well as to the exogenous constraint on exports, the possible internal political and economic governance problems and terror and clashes with Israel. Relatively large monopolies have meaningful control over the economy, and these monopolies are related to the governing party. For all practical purposes, there is neither a meaningful financial sector nor a long-term savings and pension system. The corporate governance system is young and inexperienced. The political system is unstable due to fierce armed clashes not only with Israel but also between the internal political elements.

Conclusion

This paper claims that the *GDP* growth in the WBGS is primarily determined by exogenous factors. Growth in WBGS is also hindered by factors that are related to the special internal and external turbulent political situations and the lack of a well-functioning financial sector and corporate governance. A balance of payments gap model is developed to express the relationship between exogenous factors and *GNP* or *GDP*. According to the model, the balance of payments gap can be controlled endogenously by switching from tradable sectors to non-tradable sectors. The claim that *GNP* as well as *GDP* are mainly determined exogenously under the model is supported by empirical data covering the period from 1968-2007.

There is a strong indication in the data that WBGS has symptoms indicative of Dutch Disease. These symptoms are reflected in more than ten years of deterioration of per capita *GNP* and *GDP,* coinciding with mass increase in per capita foreign aid, a decrease in the ratio of agriculture and manufacturing to *GDP* and an increase in the ratio of services to *GNP*. During this period, there was also a dramatic increase in per capita productive investment, but this increase was accompanied by a decrease in per capita *GDP* and per capita exports as well as a decrease in the ratio of exports to *GNP.*

The analysis may indicate that there are inefficient investments and under-employment of capital, even though the level of productive capital per capita and per employee is relatively low. The unemployment of labor and also, probably, of capital can be due to many factors, one of which may be the constraints on the outlets of export from new capital ventures. It appears that the reasons for Dutch Disease symptoms are at most only partially due to the heavy and continuous *FDA*. The exogenous constraints placed on the WBGS economy can also contribute to the symptoms of Dutch Disease. We find that foreign aid is positively correlates with the growth of *GDP* and per capita *GDP*. However this is the net effect of foreign aid does not contradict the claim that foreign aid contributes to the Dutch Disease symptoms in the WBGS.

Acknowledgement

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Notes

1. "Dutch Disease" is the term used to describe the seemingly anomalous phenomenon by which a flood of foreign currency into an economy, rather than stimulating growth, leads to the contraction of GDP.
2. Most of our analysis is ended 2007/2006 the years when the Hamas took control of Gaza.
3. For a description, review and analysis of the two- gap model see Harms and Lutz (2004).
4. It can be assumed that most services and investment in infrastructure, such as highways, educational systems and housing, are considered non-tradable consumption and investment and have relatively low β.
5. The above assertion is more readily observable in the Gaza Strip than in the West Bank.
6. Arnon et al. (1997) analyze separately West Bank and Gaza Strip.
7. The *** indicates significance level of less than 1%. ** indicates significance level of less than 5%. * indicates significance level of less than 10%. If there are no *, then significance level is more than 10%.
8. Once again this result is not reasonable and maybe it is due to the second intifada.
9. Based on figures in Table 3.
10. One can claim that part of the increase of services is due to the establishment of the newborn PA. However, many of the public services already existed before 1994.
11. See Arnon et al. (1997) for capital intensity in WBGS in Table 2.4 and an international comparison of 1989 investment in Table 2.2.

Table 1: Selected economic indicators for WBGS, 1968-2007 (in million U.S. dollars, 2004 prices)

Years	Population[1]	GDP	GNP	β	Foreign aid (FTR + NCT)	Wages from Abroad (W)	Import minus Export (IM-EX)	Export (EX)	Import (IM)	Net Capital[2] (NC)	Net Productive Capital Stock (NPC[3])
1968	938	538	543	36.40%	176.3	5	182	127	308	588.4	235.4
1969	951	603	642	39.80%	241.7	38	280	120	400	579.2	207.6
1970	970	670	752	38.60%	213.8	82	296	125	421	634.1	224.4
1971	990	763	911	40.30%	188.7	149	337	178	515	696.9	248.2
1972	1011	892	1152	43.50%	213.7	260	474	213	687	773.8	271.3
1973	1037	857	1131	46.60%	268	274	542	206	748	909.7	300.3
1974	1069	1046	1322	43.90%	295.1	276	571	249	820	1049.3	297.8
1975	1092	1058	1388	47.00%	295.4	330	626	313	939	1230.7	296.4
1976	1111	1219	1551	44.70%	291.5	332	623	360	984	1443.5	291.7
1977	1134	1207	1544	47.20%	371.1	338	709	371	1080	1673.7	275.5
1978	1159	1362	1740	44.40%	291.9	378	670	418	1088	1916.8	263.7
1979	1167	1340	1780	45.80%	300.2	439	739	393	1132	2202.5	271.6
1980	1172	1536	1942	42.20%	287.9	406	694	427	1121	2530.2	285
1981	1191	1440	1888	46.30%	301.9	448	750	493	1242	2809.7	287.7
1982	1214	1564	2118	43.70%	185.6	554	740	475	1215	3083.2	284.8
1983	1246	1504	2093	45.00%	188	589	777	455	1232	3368.5	289.6
1984	1285	1580	2110	42.70%	224.7	530	754	422	1176	3638.8	305
1985	1323	1570	2055	43.20%	301.6	485	787	408	1195	3881.7	314.2
1986	1362	1873	2489	42.30%	272.5	616	888	484	1372	4138.6	324.1
1987 , 1st intifada	1408	1824	2604	45.30%	267.4	780	1047	464	1511	4462.6	358.3
1988	1459	1798	2470	38.60%	155.8	672	828	303	1130	4820.3	410.9
1989	1505	1838	2511	36.40%	120.8	673	793	257	1050	5115.8	422.7
1990	1563	2187	2968	30.90%	-87.8	781	693	286	979	5418.6	439.5
1991	1641	2095	2850	40.50%	364.2	755	1119	305	1424	5697.1	449.8
1992	1725	2595	3506	37.60%	295.5	911	1206	359	1566	5959.1	458.8
1993	1800	2870	3494	34.90%	596.4	624	1220	317	1537	6257.3	471.6
1994 post Oslo	2111	3014	3408	43.20%	1452.3	395	1847	442	2289	6593.7	486
1995	2217	3195	3685	41.10%	1245	490	1735	497	2233	7282.3	666.7
1996	2327	3287	3723	42.60%	1450.2	436	1886	553	2439	7918	837.5
1997	2,462	3703	4220	41.60%	1535.2	517	2052	587	2639	8611.9	1053.7
1998	2,547	4150	4872	41.70%	1518.4	722	2240	724	2964	9377.4	1271
1999	2,633	4514	5288	44.60%	2124.3	774	2898	732	3631	10295.7	1547.8
2000, 2nd Intifada	2,720	4120	4773	45.20%	2000.6	652	2653	746	3399	11630.6	2008.3
2001	2,801	3767	4098	43.30%	2102.2	332	2434	446	2880	12449.1	2258.1
2002	2,884	3265	3513	46.60%	2191.6	248	2440	408	2848	12760.6	2309.8
2003	2,970	3751	4013	45.30%	2387.6	262	2650	459	3108	12847.4	2315
2004	3,058	4198	4430	40.90%	2193.4	232	2425	484	2909	13140.9	2402.4
2005	3,155	4560	4897	38.10%	1866.3	337	2204	598	2801	13203.8	2263.4
2006	3,255	4322	4720	40.20%	1884.2	398	2282	629	2911	13522	2319.7
2007	3,357	4536	5048	37.90%	1655.9	513	2168	601	2769	13888	2615.8

Source: Israel Central Bureau of Statistics up to 1994 and Palestinian Central Bureau of Statistics from 1994.

[1]Mid-year estimates.

[2] Net capitals are calculated by assuming that 1968 initial capital is the average of net capital to GDP in 1980-1987.

Annual net capital is calculated by a formula that is given to us by the ICBS. This method is based on the "perpetual inventory method"

and normal distribution of the life of the assets with constraints of 50% and 150%. The expected life span is eight years for machines

and equipment and 40 years for construction. [3]Equipment.

Table 2: Detailed balance of payments items

Item	1999	2000	2001	2002	2003	2004	2005	2006	2007
Current account (net)	-1,285	-950	-572	-435	-931	-1216	-938	-813	-410
Goods (net)	-2,148	-1,960	-1,305	-1,222	-1,628	-1899	-2,171	-2,519	2600
Exports (fob)	527	491	392	320	327	355	352	565	538
Imports (fob)	2,676	2,451	1,697	1,542	1,955	2254	2,523	2,619	3139
Services (net)	-264	-294	-527	-489	-341	-302	-255	-284	-452
Exports	203	241	115	98	109	133	185	181	179
Imports	467	535	641	587	450	435	440	465	631
Income (net)	754	669	326	224	253	229	356	423	547
Receipts	776	709	342	232	255	263	392	431	555
Compensation of employees	706	620	200	141	204	204	269	310	380
Of which from Israel	*687*	*601*	*179*	*106*	*168*	162	221	260	315
Investment income	70	89	142	91	51	58	88	122	175
Payments	22	40	16	9	2	33	36	9	8
Current transfers (net)	374	636	934	1,052	785	756	1,132	1,283	2094
Inflows	459	728	1,000	1,115	877	858	1,226	1,389	2202
To the government sector	236	240	325	415	662	532	953	1,096	1048
Donors transfers	*227*	*234*	*324*	*414*	*660*	531	951	1,093	1044
To the private sector	223	488	675	700	215	326	272	293	1153
Outflows	85	93	66	63	92	102	93	106	107
Capital and financial account (net)	1,214	1,086	720	414	1,130	1298	1,050	894	228
Capital account (net)	271	189	216	291	289	660	388	272	395
Capital transfers (net)	270	188	215	291	289	660	388	272	394
Inflows	270	188	215	291	289	660	388	272	394
Outflows	0	0	0	0	0	0	0	0	0
Acquisition / disposal of non- produced	1	0	1	0	0	0	0	0	0
Financial account (net)	943	897	504	123	841	638	661	622	-167
Direct investment (net)	102	-156	-345	-337	-31	60	6	-121	-16
Change in investment abroad (net)	-87	-218	-364	-346	-49	12	-40	-139	-44
Change in investment in Palestine (net)	189	62	19	9	18	49	47	19	28
Portfolio investment (net)	-57	-1	-65	-79	-25	22	5	-8	-126
Assets (net)	-72	-13	-79	-87	-38	14	-9	-8	-126
Liabilities (net)	15	12	14	8	13	8	14	0	0
Other investment (net)	863	1,145	898	553	997	584	625	773	67
Assets (net)	661	1,087	902	591	1,074	513	512	775	86
Currency and deposits	*527*	*970*	*769*	*379*	*897*	415	544	765	67
Liabilities (net)	202	58	-4	-38	-78	71	112	-2	-19
Loans	*119*	*121*	*42*	*43*	*27*	55	52	11	9
Currency and deposits	*78*	*-61*	*-41*	*-80*	*-105*	16	61	-13	-29
Net errors and omissions	71	-136	-148	21	-199	-83	-112	-81	182
Overall balance	-35	91	-16	15	101	27	-26	22	91
Financing	35	-91	16	-15	-101	-27	26	-22	-91
Change in reserve assets (+ = Decrease)	35	-91	16	-15	-101	-27	26	-22	-91

Source: PCBS

Table 3: Economic activity in the WBGS, 1994-2007 (percentage of *GDP*)

Economic Activity	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture and fishing	13	14.7	11.6	11.6	10.4	9.8	9.1	7.7	7.9	7.1	5.2	5.6	5.6
Mining, manufacturing, electr. and water	20.5	16.8	15.3	14.8	14.6	13.2	16.4	16.4	17	17.1	17	15	13.8
Mining and quarrying	0.9	0.8	0.7	0.7	0.8	0.6	0.6	0.8	0.6	0.7	0.6	0.5	0.4
Manufacturing	18.4	14.9	13.3	12.8	12.6	11.4	12.5	11.8	12.6	13.2	13	11.7	9.9
Electricity and water supply	1.2	1.1	1.3	1.3	1.2	1.2	3.3	3.8	3.8	3.2	3.4	2.8	3.5
Construction	6.9	8.4	7.8	8.9	13.7	8.9	5.5	3.9	5	5.7	6.8	7.2	6.2
Wholesale and retail trade	15.2	10.9	11.4	10.5	11	11.3	9.6	11.9	9.8	9.8	9.4	9.6	9.2
Transport, Storage and Communications	3.2	3	3.9	4.6	5.1	5.4	5.6	5.6	4.6	6.1	5.8	6.6	7.5
Financial intermediation	2	2.2	2.7	3.2	3.7	4.4	3.6	4.2	4.1	3.6	4.4	4.3	5.2
Other services	21	20.1	20.6	20.3	19.5	21.8	21.5	23.5	22.8	22.8	23	19.6	22.2
Real estate, renting and business services	10.5	9.7	10.4	9.8	8.9	11.8	10.3	11	10.3	10.4	10.3	7	7.6
Community, social and personal services	0.6	0.6	0.6	0.6	0.6	0.7	0.8	1	1.2	0.9	1.2	1.1	1.5
Hotels and restaurants	1.3	1.1	1.2	1.3	1.3	0.8	0.5	0.2	0.4	0.7	0.8	0.9	0.7
Education	5.1	5.4	5.9	5.9	5.9	5.9	7.1	8	7.6	7.8	8.2	7.9	9.6
Health and social work	3.5	3.3	2.5	2.7	2.8	2.6	2.8	3.3	3.3	3	2.5	2.7	2.8
Public administration and defence	11.4	12.6	11.9	10.9	11	12.6	17.6	16.7	16.9	14.3	14.1	15.7	13.9
Households with employed persons	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	0.1	0.1
Public owned employed persons	0	1	2.4	2.8	3.5	4.7	2.8	3.6	4.5	3.7	3.4	4.5	5.8
Less: FISIM	-1.2	-2	-2.3	-2.5	-2.9	-3.8	-3.1	-3.1	-3	-2.8	-2.6	-3	-5.7
Plus: Customs duties	1.7	5.7	7.1	7.3	4.6	4.8	4.5	2.7	4.4	4.8	5.9	6.7	6.3
Plus: VAT on imports, net	6.1	6.4	7.4	7.4	5.6	6.7	6.7	6.7	5.8	7.7	7.6	8.1	9.9
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: PCBS

Table 4: Destination of exports and origin of imports to WBGS, 2000-2006
(Million U.S., dollars)

	2000	2001	2002	2003	2004	2005	2006	2007
Total Palestinian Exports	401	290	241	280	313	335	367	513
Total Palestinian Imports	2382	1516	2034	1800	2373	2667	2759	3141
Palestinian Net balance Trade	1981	1743	1275	1521	2061	2331	2392	2628
Total National Exports	295	218	178	196	216	235	264	348
Total Re Exports From Palestine	106	73	63	84	97	101	103	165
Total Exports From West Bank	323	252	208	234	273	294	333	491
Total Exports From Gaza Strip	78	38	33	45	35	41	34	22
Total Palestinian Imports From Israel	1739	1352	1117	1310	1748	1873	2002	2307
Total Palestinian Exports to Israel	370	273	216	256	281.1	290.6	326.6	455
Percentage of Palestinian Imports From Israel	73.0%	89.2%	54.9%	72.7%	73.7%	70.2%	72.6%	73.4%
Percentage of Palestinian Exports to Israel	92.3%	94.0%	89.7%	91.5%	89.9%	86.6%	89.1%	88.7%

Source: PCBS

Table 5: Correlations between major explanatory variables in equations 6-7, both in aggregate and per capita terms 1968-1993 (top numbers) and 1994-2007 (bottom numbers).

		$\dfrac{(FTR+NCT)_t}{(FTR+NCT)_{t-1}}$	$\dfrac{Ex_t}{Ex_{t-1}}$	$\dfrac{W_t}{W_{t-1}}$	β
$\dfrac{(FTR+NCT)_t}{(FTR+NCT)_{t-1}}$	AGGREGATE				
	PER CAPITA				
$\dfrac{Ex_t}{Ex_{t-1}}$	AGGREGATE	-0.071 0.433			
	PER CAPITA	-0.036 0.208			
$\dfrac{W_t}{W_{t-1}}$	AGGREGATE	0.118 -0.468*	-0.014 0.406		
	PER CAPITA	0.126 -0.529*	0.005 0.515*		
β	AGGREGATE	0.235 0.285	0.172 -0.206	-0.113 -0.632**	
	PER CAPITA	0.241 0.327	0.207 -0.251	-0.108 -0.621**	

* Less than 10% two-tailed significance level
** Less than 5% two-tailed significance level
*** Less than 1% two-tailed significance level

Table 6: Regression analysis: Dependent variable is the annual change in *GDP*. The independent variables are: the estimated $\beta^\wedge$, unemployment, *NC*, *NPC*, estimated *EX^*, *FTR+NCT, W*.

		1969-1993			1994-2006		
		Timing of *FTR+NCT*			Timing of *FTR+NCT*		
Timing of Foreign Aid		*t-1*	*t*	*t+1*	*t-1*	*t*	*t+1*
Intercept	Per capita	0.0960	0.0076	-0.0571	2.476	1.962*	4.3291
	Total	0.6230	-0.5355	0.2166	8.1275*	2.894	14.0709**
NC	Per capita	0.0000	-0.0000	0.0000	-0.0017	-0.0009*	-0.0019
	Total	0.0000	-0002*	-0.0001	-0.0002	-0.0002**	0.0001
NPC	Per capita	-0.0002	-0.0008	-0.0006	0.0054*	0.0027**	0.0049*
	Total	-0.0004	-0.0013	-0.0012	0.0011	0.0007**	0.0003
Ex^	Per capita	0.0030	0.0046	0.0045	0.0129	0.0068**	0.0058
	Total	0.00015	0.0074*	0.0051	-0.0092	-0.0002	-0.0248**
FTR+NCT	Per capita	0.0005	0.0000	0.0001	-0.0003	0.0009***	0.0003
	Total	0.0005	-0.0003	0.0000	-0.0001	0.0003***	-0.0025*
W	Per capita	0.0001	0.0002	0.0002	0.0008	0.0008***	0.0003
	Total	0.0003	0.0000	0.0002	0.0012**	0.0009***	0.0016*
β^	Per capita	-2.1704**	-2.6093**	-2.2192**	-4.5140	-5.7288***	-3.0137
	Total	-2.177**	-1.9858*	-2.7548**	-5.8891**	-5.6638***	-4.1593**
Unemployment	Per capita	1.3432	1.5061	1.6113	1.2359	1.1721***	0.60196
	Total	-2.1171**	1.9820*	1.80994	1.2084**	1.0311***	1.2038**
R Square	Per capita	0.460	0.380	0.404	0.773	0.963	0.768
	Total	0.460	0.469	0.423	0.864*	0.988	0.911
F	Per capita	2.0639*	1.4878	1.643	2.4288	18.828***	2.368
	Total	2.0659*	2.14*	1.782	4.552*	29.098***	7.271**
Observations	25	25	25	25	13	13	13

Table 7: Regression analysis: Dependent variable is the annual change in *GDP*. The independent variables are: *β*, unemployment *NC, NPC, EX, FTR+NCT, W.*

Timing of Foreign Aid		1969-1993			1994-2006		
		Timing of *FTR+NCT*			Timing of *FTR+NCT*		
		t-1	t	t+1	t-1	t	t+1
Intercept	Per capita	0.6914	1.3363***	0.8359*	4.7283	2.4540	5.0923
	Total	0.7346**	1.6359***	0.8105**	1.6006	1.6488*	1.2882
NC	Per capita	-0.0001**	-0.0002***	-0.0001***	-0.0017	-0.0006	-0.0019
	Total	-0.0001***	-0.0002***	-0.0002***	-0.0002	-0.0001	-0.0001
NPC	Per capita	0.0013	0.0006	0.0010	0.0040	0.0013	0.0042
	Total	0.0018**	0.0007	0.0016*	0.0006	0.0002	0.0005
Ex	Per capita	0.0009*	0.0010**	0.0010**	-0.0018	-0.0011	-0.0014
	Total	0.0011**	0.0007**	0.0011**	-0.00003	-0.0002	-0.0006
FTR+NCT	Per capita	0.0003	0.0006**	0.0002	0.0002	0.0010**	0.0003
	Total	0.0001	0.0064**	0.0000	0.0000	0.0005**	-0.0001
W	Per capita	0.0003	0.0010**	0.0005	0.0016	0.0013	0.0017
	Total	0.0001	0.0013**	0.0003	0.0011	0.0009	0.0020
β	Per capita	-2.8941***	-4.3550***	-3.0187***	-0.406	-3.711**	-0.9036
	Total	-3.1502***	-5.1117***	-3.2243***	-2.6616	-4.6138***	-2.0242
Unemployment	Per capita	1.5306*	1.2765	1.4099	0.3900	0.8992**	0.3903
	Total	1.6426**	1.5452**	1.6596**	1.010	0.9103***	1.0858*
R Square	Per capita	0.675	0.749	0.695	0.704	0.664	0.6945
	Total	0.704	0.787	0.709	0.589	0.885	0.611
F	Per capita	5.0502***	7.2567***	5.546***	1.7018	4.3915*	1.624
	Total	5.7824***	8.9929***	5.9082***	1.014	5.4763**	1.1205
Observations	25	25	25	25	13	13	13