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Evaluating The World Bank's Role in Supporting Structural Adjustment Programs in Developing countries with Special Reference to Egypt

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(Reader)

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Dedication

To my Father and Mother

Nagah and Mervat

To my Sisters

Samar, Wafaa, Samah and Mona

My warmest thanks go to my father and mother, Nagah and Mervat. They are the ones who have constantly been at my side during time of stress and duress, reminding me to have faith in God and myself. They are the ones who have made this journey possible. I thank them for their love, encouragement, support and guidance in every step of my life. They gave me much and helped me to achieve my dreams, while they never asked for anything in return. I owe them who or what I am today.

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Abstract

Vita

CHAPTER 1. INTRODUCTION AND LITERATURE REVIEW

1.1 Introduction

Strategies of development have been changing over the last two decades and a greater emphasis has been given on private activity and competitive markets. Until the early 1970s, economic policy in most developing countries was characterized by confidence in the capacity of government to spur growth and correct market failures.

By the late 1970s the government in many developing countries had dominated most of economic activities to a degree that resulted in serious inefficiency and structural imbalances in the economies of these countries. This led to an overall economic and social crisis that imposed the necessity of change.

The role of the state had to be re-examined and priorities needed to be reassessed. The emerged question was about the best way of using the available resources in a more effective and efficient manner. To meet the challenge, developing countries started actively seeking to obtain the advantages of private initiative and market discipline instead of central planning through comprehensive programs of economic reform and structural adjustment. The World Bank and the International Monetary Fund responded to such emerging changes in policies and ways of thinking of developing countries through different levels of cooperation.

The present study tackles Structural Adjustment Programs recommended by the World Bank as well as their evaluation to come out with what can be recommended to enhance the progress and welfare of such countries in general and Egypt more specifically.

The evaluation is carried by the help of a macroeconomic model to trace the effect of the policies recommended by the World Bank on the main economic indicators, e.g. annual GDP growth rate, annual GNP per capita growth rate, annual exports of goods and services growth rate, Current Account Balance, Gross Domestic Savings, Gross Domestic Investment, Gross Foreign Direct Investment, Gross Private Capital Flows, and Foreign Direct Investment. With the exception of the first two indicators, all indicators are expressed as a percentage of GDP. Also social indicators, like public expenditure on health as a percentage of GDP, sanitation as a percentage with access, will be used to capture the importance of environmental issues in adjustment lending decisions made by the World Bank. Most recent adjustment programs explicitly include environmental goals or loan conditionalities addressing environmental concerns.

Since 1988 the social dimensions of adjustment lending operations have taken on an explicit position in the form of various social sector strategies. These include three main categories of action, all of which indirectly bear the ability to manage the environment:

- Strengthening of institutional capability for design/implementation of poverty alleviation programs.
- Employment generation in the short-run.
- Increased budgetary support for basic social services.

Although general adjustment operations tend to involve cuts in overall public spending, an important strategy in recent years has been to increase the budgetary allocation to health and social services.

The focus of the current study is the examination of the argument that Structural Adjustment Programs are likely to have a positive impact on the main economic indictors of developing countries after controlling for external shocks.

More specifically, we question the success of World Bank adjustment lending for the Middle East and North Africa Region (MENA) for the period from 1980 till 1997.

One of the reasons for using MENA countries is that no previous work has been done for these countries in this context.

Additionally most countries in this region share a lot of common factors:

- Most of these countries had intense encounters with colonialism. In response to this experience those countries adopted statist development strategies in the postcolonial period. The government was taking control of investment and production, providing mass access to education and social services, and redressing the huge inequalities that had emerged in the society. The instruments of such policy were nationalization, protection for domestic industries, large public investment programs and extensive systems for subsidies for basic goods and services.
- No other region has experienced so many military conflicts – the Arab-Israeli conflict, the Iran-Iraq war, the Gulf war, the conflict in former Spanish Sahara, the civil wars in Algeria, Lebanon, and Yemen. The losses in human life and in physical capital from these conflicts had a significant negative impact on economic welfare and slowed progress in development.
- The economic crisis affecting the region since 1986 was the product of two factors, the collapse in world oil prices and the decline of productivity. Investment in MENA countries declined in the 1980s, but the fall in output was more extreme than the collapse

of investment – implying that not only did the quantity of investment fall, but so did its productivity. Economic policies have been slow to adjust to these changed circumstances.

The current study is organized as follows. Chapter 1, "introduction" continues with a literature review and develops the model and the methodology applied here. Chapter 2, "Structural Adjustment and the Role of the World Bank" discusses the Structural Adjustment Operation (SAO), The Structural Adjustment Loans (SAL), the relationship between Structural Adjustment Programs and the Environment, and finally the Macroeconomic Reform and Structural Adjustment in Egypt. Chapter 3, "Empirical Evidence", as its title describes, presents empirical evidence from Dollar and Svensson's (1998), Conway (1991), Faini, de Melo, Semlali and Stanton's (1990), and World Bank (1990). Chapter 4, entitled "Empirical Testing and Results", first presents the data used in the estimation of the model developed here and then discusses the findings of the estimated models. Finally, the last chapter "Conclusion and Recommendations", summarizes the policy implications that can be extracted from the current study and presents some suggestions for future research as more data are becoming available.

1.2 Literature Review

This review first focuses on the impact of aid on government policies and growth. Then the effect of poverty reduction on economic growth. Then the impact of Structural Adjustment Programs on income distribution. Then the impact of adjustment on investment. Then the political economy factors that affect the likelihood of successful reforms. Finally, the impact of adjustment programs on some economic indicators.

Mosley (1995) concludes from case study evidence that conditional World Bank aid has affected the policies of the recipients "a little, but not as much as the Bank hoped."

Collier (1997) argues that the domestic political forces determine government policy, rather than what the World Bank conditions its aid upon.

Burnside and Dollar (1997) show that aid promotes growth only in a good policy environment, so that the channeling of resources into poor policy environments that accompanies failed adjustment programs has a high cost.

Bourguignon, Branson, and de Melo (1989) develop a macroeconomic model, which Bourguignon, de Melo, and Suwa (1989) later use to simulate adjustment for two archetype economies: a low income African country and a middle income Latin American country. They find that initial characteristic of the economy affect the distributional results, as well as institutional characteristics do, such as low supply and demand elasticity and the rigidity of the labor and commodity markets. They concluded that devaluation helps the poor (especially in the low income country) because they are improving exports, import rationing worsens inequality because premiums accrue to capitalists, and uniform government expenditure cuts have little effect on income distribution in the low income country, however they are bad for the middle income modern sector workers. With real wage and price rigidity, government expenditure cuts cause a great increase in inequality and in the number of poor firstly because of unemployment and lower productivity growth, and secondly because capitalists are better able to protect their income since markup pricing protects profits.

Bourguignon (1989) analyzes poverty reduction in an optimal growth framework, which emphasizes the tradeoff between current poverty reduction and growth. The model does not specifically trace the impact of adjustment policies on distribution. Instead, it starts with a concern for the poor and analyzes the tradeoffs involved for improving their consumption. In particular, the model examines these issues during a period of adjustment, following a permanent adverse shock, when the marginal productivity of capital is momentarily much higher. The shock causes a drop in all incomes, and redistribution policies are severely limited by the need to increase investments for the structural adjustment to take place. The economic and political costs associated with current transfers are significant after a permanent shock, and simulations suggest that it may be optimal to start redistribution later in the adjustment period.

Maasland (1990) reviews the different methods for measuring how adjustment affects the distribution of income and characterizes them as qualitative or quantitative – and general equilibrium or partial equilibrium.

She concluded that no single integrated model can answer all questions. The most practical approach for a particular country depends on the issues that the country faces – and available data and resources.

In a data – poor country with no micro-surveys or good macro data, a more qualitative, partial – equilibrium approach will be required. If the country has a micro-survey, poverty profiles can be quantitative and more detailed. In a data – rich country, macroeconomic and microeconomic data can be combined to construct a computable general equilibrium model with which to generate quantitative estimates of the impact of

adjustment policies. Between these extremes, other methodologies may be applicable – depending on the availability of data and the particular focus of the reform program. Partial analysis may be relevant if a country faces special issues.

Maasland and Van der Gaag (1992) assess the effect of Bank – supported programs on living conditions. They find that even in the short run, does not appear to exist systematic relationship between living conditions and adjustment lending. Furthermore, most long–run indicators of living conditions continued to improve in early intensive adjustment lending (EIAL) countries. The exceptions were school enrollment ratios and the share of public expenditure in the social sectors; the authors observe a reduction in the share of education expenditures as well as a decrease in school enrollment in some EIAL countries. This phenomenon could affect not only the distributional effect of the program but ultimately, through its impact on the formation of human capital, the long – run prospects for growth.

Serven and Solimano (1992), examine the performance and determinants of investment in developing countries. Their central observation, based on a sample of 78 developing countries, is that the rate of investment increased to around 1982, and then took a sharp drop. This overall trend, however, conceals some important variation across regions. The authors examine analytically and empirically how adjustment and reform measures contributed to countries' investment performance and in particular why the investment response has often been slow and weak. They conclude by pointing out three key reforms that are prerequisites for a vigorous private investment response:

macroeconomic stability, adequate provision of infrastructure by the public sector, and sufficient external support for the reform programs.

Deininger, Squire, and Basu (1997) show that the Bank's administrative resources have a high return in investment projects, so that using these resources on low – probability reformers has an opportunity cost.

The theoretical discussion in political economy identifies several factors affecting the likelihood of successful reforms. A major one is political instability.

Alesina and Drazen (1991) show how stabilization can be delayed due to a "war of attrition" between two powerful groups. In the Alesina and Drazen model, the two groups both bear a cost as long as the stabilization is delayed.

Another dimension that has received attention is the identity of the government (free – marketeers, right - wing, left – wing, populist). Svensson (1997) shows that political liberalization raises the incentives for public agencies to implement policies more efficiently.

Dollar and Svensson (1998) show that successful adjustment loans are associated with governments that were democratically elected, while political instability is highly correlated with failed adjustment. Also, they show that successful loans get about 10% more World Bank's preparation resources (measured in staff-weeks) than failed loans. A recently elected government that launches reform has a 95% chance of success, ceteris paribus, compared to only a 65% probability of success for an authoritarian leader in power already for 13 years.

Berg and Batchelder (1985) and Sachs (1986) suggest that structural adjustment programs have much less of an impact than the World Bank claims for them.

Behrman and Deolalikar (1989) in a study on Jamaica, analyze time series of indicators. They estimate the secular growth of available indicators and test whether significant shifts in the relation occurred during the adjustment period. This method identifies whether the adjustment period differed from the secular trend, as opposed to being a period of poor performance as part of a longer experience. They find that controlling for past trends leads to a much less negative assessment of adjustment impacts than other authors had found. Their analysis is a rough attempt to try to separate the counterfactual from adjustment policies, but it cannot clearly establish causal effects of adjustment programs, because there is no control for other variables that may affect the indicator of interest.

Faini, de Melo, Senhadji–Semlali, and Stanton (1990) compare the average values of economic indicators for 1982-86 with the corresponding values for 1978–81 for a sample of 93 countries. They control for the external environment and initial conditions and allow for policies that would have been adopted if the countries had not participated in adjustment.

They find no statistical evidence of faster (or slower) growth for the countries that received loans. Additionally they find that a higher Current Account surplus or lower inflation during 1978–81 were associated with better investment performance during 1982 – 86, while deterioration in the external environment in 1982 – 86 was associated with lower growth during that period.

They also examine the investment – output relationship for 14 countries that received sizable growth – oriented adjustment loans – estimating the growth foregone because of lower aggregate investment under adjustment. They conclude that signs of sustainable recovery through higher investment were not evident, at least through 1986. However, these results are not surprising, because considerable time must pass for the benefits of structural reform to materialize.

Jaspersen and Shariff (1990) examine the macroeconomic underpinnings of Bank – supported adjustment programs for 184 World Bank loans to 62 countries during the 1980s. They conclude that macroeconomic policy reform and improved macroeconomic performance are critical to successful implementation and sustainability of structural reform. After looking at recent experience with macroeconomic conditionality, the authors conclude that macroeconomic policy and sequencing issues increasingly have been addressed explicitly in the design of recent adjustment loans, but there still is scope for: i) strengthening the analytical framework and macroeconomic policy conditionality in adjustment loans, and ii) greater realism about the time and external resources needed to achieve adjustment and growth objectives.

Conway (1991) examines the data on actual economic performance for 75 countries for the period 1976–86 to measure the effectiveness of the World Bank's structural adjustment programs.

He finds a clear association between participation in a World Bank adjustment lending program and cross – country differences in economic performance and policy. Countries that participated in adjustment lending programs tended to have the more rapid economic growth, more rapid inflation, a less negative Current Account Balance as a

percentage of GNP, deeper financial sectors, a lower ratio of government spending to GNP, and depreciation of the real exchange rate, compared with countries that did not participate in such programs.

Conway speaks of the association and correlation, not causes. No components of adjustment lending programs are singled out to praise or blame. The methodology he used does not identify causal links between Bank Adjustment Programs and these measures, and provides no means of separating the effects of Bank lending from other factors.

Corbo and Fischer (1992) review the rationale for Bank financial support for adjustment programs. They distinguish between stabilization and structural reforms. This distinction is especially important in countries experiencing acute macroeconomic imbalances. In such countries reforms should start with policy and institutional changes that address the root causes of the acute macroeconomic imbalances. Only after progress has been made in reducing inflation and the fiscal and Balance of Payments deficits should the country attempt other structural reforms aimed at improving the mobilization and allocation of resources for sustainable and equitable growth. The ultimate success of adjustment depends not only on getting the right policies in place but also on getting political support for the reforms.

Corbo and Rojas (1992) assess the effectiveness of adjustment lending. This evaluation requires a comparison of the performance of countries receiving adjustment lending with estimates of how they would have performed without it but with other conditions the same. Estimation of this counterfactual without – adjustment–lending scenario is central to the assessment of the effectiveness of adjustment lending.

Webb and Shariff (1992) review the experience with the design and implementation of adjustment programs. They organize the review according to the policy area:

Macroeconomics; government finances and administration; trade; the agricultural, industrial and financial sectors; public enterprises; and the environment.

Macroeconomic issues, for example, are usually handled in conjunction with the IMF, but the World Bank is including its own conditionality in this area with increasing frequency. However, agriculture, industrial and financial sector adjustment programs increasingly call for complementary reforms of institutions and commercial regulations.

Guigale and Dinh (1990) present a short - and medium – term dynamic model of the Egyptian economy and use it to simulate the effects on output and inflation of stabilization – cum – adjustment program.

Their conclusion suggests that the public sector should live within its means at once. This is a demanding prescription: political and social pressure can become intolerable under adjustment. But Guigale and Dinh show that both a slowdown in output and the initial rise in inflation associated with a tough reform program will be short – lived (between one and two years). And a 'do – nothing' strategy will soon push the country into a serious crisis, the correction of which will certainly be more painful.

Dailami and Dinh (1991) describe some of the structural problems Egypt's economy has faced in the past decade and policy initiatives that the government has undertaken, and review the economy's financial sector. They analyze the role that interest rate policy could play in Egypt's stabilization and adjustment program, particularly how it would affect the outcomes of the important objectives of attracting workers'

remittances, encouraging domestic residents to hold deposits in local currency, and increasing investment efficiency.

Interest rates clearly need to be increased, but the complexity and depth of the distortions in both the real and the financial sides of the economy tend to reduce the benefits of a sharp rise in interest rates and increase the pressure on a weak financial system. Of particular concern are the potential effects of higher interest rates on the investment performance of the business sector and the solvency of the banking sector.

The authors recommend that changes in the level and structure of interest rates be planned in several steps and carried out in conjunction with other adjustment measures, such as reducing the budget deficit, reforming public enterprises, and streamlining public investment. But the increases in interest rates should be high enough to mark a clear departure from past policies and to send the proper signal to economic agents.

1.3 The Model

As we can see there is disagreement in the literature about the impact of adjustment programs on the main economic indicators.

Statistical evaluation of adjustment programs is difficult because any assessment of performance must recognize that performance will be strongly influenced by the external environment. Countries under adjustment programs that faced a more unfavorable environment should be expected to show less improvement in performance. There are number of approaches for the statistical analysis of countries' performance.

-The Before – and – After Approach:

This approach compares a given indicator of performance after adopting a specific adjustment program with performance on that indicator prior to the program. The before – and – after estimator is the mean change in the target variable over some relevant period. If Δy denotes the change in the target variable between the program period and the previous period, the before – and – after estimator (β) involves calculating the mean change across the group of program countries for each of the macroeconomic outcome variables to be analyzed, i.e.

$$\Delta y = \beta$$

Therefore, any change in a target variable in a program country or group of program countries will be attributed to the program. The standard t–test is usually used to test the significance of the estimator β.

The results are likely to be biased and inconsistent, because this approach assumes implicitly that all other things are equal. It is difficult to determine whether observed changes in the GDP growth rate for example are attributed to the adoption of an adjustment program or to other non-program factors that have not been held fixed in the analysis. This point is important because the non-program determinants, especially terms of trade and international interest rates, changed widely from year to year and country to country.

- The Control Group Approach:

This approach is designed to overcome, in part, the inability of the before – and – after approach to distinguish between program and non–program determinants of macroeconomic outcomes. This approach uses the behavior of a control group, which is a

group of non-program countries to estimate what would have happened in the program group in the absence of programs. It assumes that the only difference between the program and non-program groups is that countries in the former are undertaking a program.

This approach still assumes also that both program and non-program countries face the same external environment, and the effect on performance of these determinants is the same for both groups of countries. Also this approach ignores also the effects of the pre–program characteristics on performance.

The control – group estimator is calculated by estimating the following regression for the sample of program and non-program countries:

$$\Delta y = \beta_0 + \beta_1 d,$$

where d is a dummy variable with a value of one for program countries. The estimated value of β_1 is equal to the difference in the mean changes in the target variables for program and non-program countries. So, a statistically significant value for β_1 will show that the change in the target variable for the program country was different from the corresponding change in non-program countries.

This approach assumes that global factors affect program and non–program countries equally. Such an assumption introduces a bias whenever program countries differ from non-program countries.

- The Modified Control – Group Approach:

This approach controls for world economic conditions and the stance of country policies without a program. It was used in World Bank's report on Adjustment Lending II (1990).

The basic equation for the macroeconomic target variable is:

$$Y = \mathbf{x}'\omega + \mathbf{w}'\alpha + \beta d + e$$

Where **x** is a K – element vector of the macroeconomic policy instruments that would have been observed in the absence of a program, **w** is an M – element random vector of world non–program variables relevant to the country, and d is a dummy variable that take a value of unity if a country has a program and a value of zero otherwise. This equation implies that the level of the targeted results will be a function of four factors:

i) The value of selected policy instruments that would have occurred in the absence of a program, **x**.

ii) The change in selected world economic conditions, **w**.

iii) The total effects of a Bank–supported program if the country has a program in place, d.

iv) A range of unobservable shocks that are specific to the country, e.

The model used in this study is derived from the modified control – group approach. This econometric procedure shows the impact of adjustment lending programs on selected performance indicators such as GDP growth rate, GNP per capita growth rate, export growth rate, Current Account Balance, Gross Domestic Savings as a percentage of GDP, Gross Domestic Investment as a percentage of GDP, Gross Foreign Direct Investment as a percentage of GDP, Gross Private Capital Flows as a percentage of GDP, Foreign Direct Investment as a percentage of GDP, health expenditure as a percentage of GDP, and sanitation as a percentage with access. Also we will separately examine the effect of external shocks like terms of trade.

The basic equation for the macroeconomic target variable in this model is:

$$Y = \alpha + \beta X + \gamma W + \theta Aid + \eta LDTOT + \varepsilon,$$

Where Y denotes the macroeconomic target variable (such as GDP growth, GNP per capita gross, Current Account Balance (% of GDP), Gross Domestic Savings (% of GDP), Gross Domestic Investment (% of GDP), etc.).

X is World Bank's Adjustment Loans as a percentage of GDP or as a percentage of total external debt or World Bank Loans as a dummy variable.

W represents other types of debts, e.g. long–term debt, short–term debt, use of IMF credit as a percentage of GDP or as a percentage of total external debt.

Aid is aid as a percentage of GDP.

$LDTOT$ denotes logarithmic difference of terms of trade, which represents external shocks.

ε denotes the unobservable shocks.

Other explanatory variables such as population growth (annual %), inflation, consumer prices (annual %) and Gross Domestic Investment (annual % growth) are also included in the model.

1.4. Data

The data in this study were extracted from the World Bank's database and World Bank's publications.

The sample covers the period 1980–1997.

As it is explained earlier five MENA countries that received structural adjustment loans from the World Bank over this period are included

Middle East and North Africa Region (MENA) countries	
Middle East:	Egypt
	Jordan
North Africa:	Algeria
	Morocco
	Tunisia

Chapter 2: Structural Adjustment and the Role of the World Bank

2.1 The Structural Adjustment Operation (SAO)

The Structural Adjustment as a technical terminology identifies those comprehensive changes in the structure and performance of the national economy in context of the economic reform programs applied on varied levels in two groups of countries:

- Developing countries adopted mixed economic systems as from 1940s of this century and initiated adjustment operations in different approaches since 1960s and 1970s.
- Eastern and Central European countries since the pre-stage of communist regimes collapse.

In operation, the Structural Adjustment is a comprehensive policy of economic reform aims at:

- Reducing the role of the state in the creation and operation of productive assets, thus strengthening the market-based economic system.
- Improving the regulatory environment for the private sector by increasing competition and by putting private and public companies on an equal footing.
- Correcting distortions in the price structure and creating incentive system through the liberalization of pricing and trade policies.

The three main objectives that the Structural Adjustment pursues are:

i) Restoring macroeconomic balance and reducing inflation.

ii) Stimulating medium and long term growth with the intention of the transition of the economy to perform on free market basis.

iii) As the far reaching goal of any economic reform is the human and his welfare, thus, protecting the vulnerable groups against negative impacts of the reform process through modification of social policies, is one of the most important components of any Structural Adjustment Program especially in the early phases of reform.

In implementation, the Structural Adjustment Operations vary in levels and steps from one country to another according to certain measures reflect the degree and depth of structural and economic distortions. No one single prescription could be recommended for the different causes and degrees of sickness; admitting this fact and taking it into consideration leads to questioning of policies to be adopted and actions to be taken in order to put the economy on a right path. Away of getting into complicated comparisons between ideologies or between different schools of development studies; the real facts of world economic developments all along this century proved the viability of freedom as an economic principal. Thus, putting the economy on the right path is the other face of the coin, the first is the economic reform and the Structural Adjustment Operations. This concept means initiating certain bundle of new policies and modifications in existing policies on two combined levels:

- Macroeconomic management to reestablish equilibrium (Stabilization), and
- Micro activities on sectoral levels (Structural Adjustment).

Stabilization policies work mainly on the demand side to reduce inflation and external deficits (though they have also supply-side effects). Structural adjustment policies are concerned with the supply side; they address the efficiency of resource use, emphasizing reforms in specific sectors especially trade, finance and industry.

It is possible to postpone structural reform during stabilization (For example, Egypt's Stand-by Arrangement in 1987), but the converse is rarely true. Structural reforms have to precede or accompany stabilization efforts. Similarly, stabilization could not be sustainable without structural reforms. Stabilization is supported by the International Monetary Fund in the form of the so-called Stand-by Arrangement.

As mentioned above, adjustment programs usually supported by the International Monetary Fund and the World Bank, address internal and external imbalances and in varying degrees, incentives and institutions. In the short run, stabilization can lower output growth. The benefits take a lot longer time to come through, as do the gains from structural reform. Some studies have found an association between adjustment programs and improvements in the Balance of Payments. The effects on growth were less clear. Other studies mentioned negative effect on growth immediately after a program.

Reform programs in general have to deal with the trade-off among policies. It is called the problem of competition between instruments. For example, reform of the financial sector calls in most cases for distressed financial institutions to be restructured: in the short-run, this may raise public spending and make it harder to cut the budget deficit. Adopting positive interest rates lowers the burden of credit subsidies but increases the cost of servicing domestic debt. Lower tariffs may initially reduce government revenues, whereas shifting from quantitative restrictions to tariffs may cause bigger fiscal deficit.

Many reform programs have successfully dealt with conflicts. But many also have failed. Therefore, it is important to have overall perspective takes into consideration the following:

The investment response: It should be positive to monitor the credibility of the reform. It means transfers of resources from abroad and internal private sector confidence.

The macroeconomic stability: to help the success of the trade reform; financial sector reforms (for more reference see World Bank, 1988, 1990).

2.2 The Structural Adjustment Loans (SAL)

The Structural Adjustment Loans is the second form of support from the World Bank to governments initiating structural adjustment, especially during the difficult times of transition. The amount and conditionality of a Structural Adjustment Loan differs from country to another according to certain bundle of measures designed by the World Bank.

The Structural Adjustment Loans are not investment loans. They are granted to help a country in adjustment process to reduce imbalance in its Balance of Payments. The Structural Adjustment Loan is designed to help strengthening reforms in the productive sectors of the economy. The components of an individual Structural Adjustment Loan are derived from the broad description of the reform program as explained in the Government's letter of development policy. To contract on an individual Structural Adjustment Loan, there are certain actions that have to be taken in the pre-stage of the Structural Adjustment Loan, and actions to be taken during its execution. Additionally, the adjustment program should be summarized in the letter of development policy, and an agreement on its components should be reached between the Government and the World Bank.

Upon the country's fulfillment of targeted actions within the time frame stated in the letter of development policy and as agreed upon between both two parties, the Structural Adjustment Loan could be released in the form of tranches. Each one accompanies and supports certain steps of progress in the adjustment program.

In implementation, an individual Structural Adjustment Program supported by Structural Adjustment Loan covers:

- The macroeconomic adjustment and stabilization.
- Restructuring of public sector.
- Price liberalization policies.
- Foreign trade liberalization.
- Private sector development.
- The environment protection.
- Protecting poor groups against the negative impacts of the reform.

There is a follow up report prepared every six months in collaboration between the World Bank and the Government. Such report monitors the Structural Adjustment Program progress as agreed upon between both parties. Such report is not the only form of follow-up, sectoral supervision missions and experts from different departments of the World Bank visit the country during the implementation of the program to monitor the progress and give the advice and technical opinion on reform issues (for more reference see World Bank, 1988, 1990, 1993).

2.3 Structural Adjustment Programs and the Environment

The World Bank identified the need to integrate environmental concerns in economic reforms as a key priority, for which there is growing consensus in the international community. In addressing the linkages between adjustment lending and the environment, it is important to bear in mind that lending operations often incorporate specific, fairly short-run objectives and the loans are intended for rapid disbursement. While environmental objectives can be, and increasingly are, built into loan conditions, there are many other environment objectives that require long-term institutional and capacity - building reforms and for which adjustment lending is a singularly inappropriate instrument.

Adjustment programs appeared on balance, to have a positive effect on the environment. There were many potential complementarities between major adjustment policies and environmental goals - primarily through measures designed to improve efficiency and reduce wasteful use of resources. The following ranges of adjustment policies - involving the agriculture/forestry, energy, and industry sectors have positive impacts on natural resource use:

- Adjustments in agricultural producer prices.
- Removal/reduction of agricultural input subsidies.
- Tax adjustments on agricultural exports.
- Improved terms of trade on agricultural products.
- Adjustments in energy prices.
- Trade and industry policy reforms.
- Public expenditure changes in agriculture/forestry.

- Public expenditure changes in energy.
- Public expenditure changes in industry.
- Institutional reforms in agriculture/forestry.
- Institutional reforms in energy.
- Institutional reforms in industry.

For example, in the agricultural sector, changes in producer prices or adjustments in export taxes may have important consequences for soil productivity and erosion. Differential output pricing or agricultural taxation can result in substantial changes in cropping patterns and land uses and consequently could lead to varying degrees of soil erosion. While increases in producer prices or reduction in export taxes may generally encourage investments for land improvements, higher prices for tree crops would appear to have a beneficial environmental effect. However, increases in the prices of other commercial crops or subsistence food crops may be associated with land degradation.

Additionally there will be improvements in health and ecological risks after reducing agricultural chemical subsidies. Finally, regarding the industrial sector we can argue that industrial reforms may be associated with long-term environmental benefits through increased efficiency.

2.3.1 Social Dimensions of Structural Adjustment and their Environmental Implications

Poverty has important environmental dimensions; but the linkages are complex, poorly understood, and work in both directions. For example, short time horizons lead to use up natural resources at a more rapid rate than may be socially desirable, and can be a

disincentive to invest in resources that yield returns only after a number of years. However, short time horizons are not an innate or exclusive characteristic of the poor. Rather, they are often the consequence of market, policy, and institutional failures, some of which in fact contribute to the initial causes of poverty. For example, with little access to credit markets, the poor often have few options, and may have no other resource than the more intensive extraction of their own or open-access resources.

Environmental degradation appears to reinforce several of these links between poverty and high fertility, and contributes to the risk of impoverishment. Because the poor tend to have access only to the more environmentally fragile resources, they more often face higher levels of resource productivity decline through soil degradation, loss of tree cover, and so on. Soil degradation not only reduces income, but also increases income variability because soil moisture retention capacity and drought resistance will be affected. Furthermore, the poor may switch to crop residue and animal dung for fuel, thus depriving their fields of organic material needed to retain soil fertility and prevent soil degradation. Environmental degradation may therefore reinforce some of the links between poverty and rapid population growth.

Structural Adjustment Operations, are directed at removing market, policy and institutional failures. To the extent one identifies such failures as underlying the observed environmentally destructive behavior of the poor, Structural Adjustment Operations' components aimed at addressing these failures or directly alleviating poverty are likely to be environmentally benign (for more details see Warford et al., 1994).

2.3.2 Description of the Environmental Components in World Bank Adjustment Loans to Tunisia (1986-1989)

The only MENA country that had environmental conditions in the loans that received from the World Bank is Tunisia. We are going to study Tunisia's case and later we will examine how this can be applied in Egypt.

First Agricultural Sector Adjustment Loan in 1986 (the environmental components):

a. Management of natural resources:

Land resources:

The problem areas: highly skewed land distribution and under utilization of farm land by absentee-owners; lack of land tax to encourage efficient operations: increasing fragmentation of holdings due to inheritance; poor economic performance of small-sized farms; lack of clear titles; etc.). The program covers the following land issues:

- Land tenancy legislation (extended duration of rural land leases to 3-9 years to encourage on-farm investments.
- Program to transfer State-owned lands to private parties or leasing to private companies.
- Land titling program to facilitate farmers' access to institutional credit.
- Promote economic land through taxation of agricultural property.
- Legislation to maintain size of farm holding to preserve economically viable units.

Forestry resources:

The problem areas experience the adverse effect of degradation on soil and water conservation (80% of Tunisian land already subject to erosion). The conditions of the

loan require that the government would prepare a program of actions to implement a forestry strategy that includes:

- An amendment of the law to limit fuel wood gathering and grazing rights to those who live within the forests.
- Develop forest grasslands to increase their carrying capacity ten-fold.
- Use of mechanical planting in reforestation projects for better growth rates.

b. Public sector investment strategies with obvious implications for natural resource use:

- In livestock: development of forage resources nationwide; extension services to cover the integration of livestock with cereal production).
- In forestry: increase budgetary allocations to arrest the loss of forest cover and develop forestry's productive potential to reduce imports (for example, 95% of industrial wood requirements are imported); rehabilitate existing forests; establish nurseries; reforestation programs; wood energy conservation plan; etc.
- In fruit trees: establishment of pasture within the framework of a balanced system of livestock and fruit trees; maintenance of existing plantations.
- In fisheries: development of a master plan for fisheries' management.
- In irrigation: rehabilitation and maintenance of existing irrigation infrastructure; investments for increased efficiency in water use.

In summary, the Agricultural Sector Adjustment Loan was comprised of environmental objectives that were related to soil/water conservation, preservation of forest resources, and improved management of natural resources.

The Second Agricultural Sector Adjustment Loan in 1989 (the environmental components):

- Phased elimination of input subsidies (for example, irrigation water, fertilizer, animal feeds, and credit).
- The government under the first agricultural adjustment loan conducted a review of legislation governing pesticide use and handling. The revised legislation has been finalized, and its enactment would be supported under the second agricultural adjustment loan. This loan thus incorporated training and extension for the safe use, storage and handling of these agricultural chemicals.
- Irrigation development: for example, extension services concerning on-farm investments to increase water use and for flood control (for further details see Warford et al., 1994).

The above conditions about management of land resources and public investment Strategies in livestock, fruit trees, fisheries, and in irrigation could be applied also in Egypt because Egypt shares these common characteristics with Tunisia. However the conditions about management of forestry and public investment in forestry cannot be applied in Egypt because of Egypt's geography (for more details see Warford et al., 1994).

2.4 Macroeconomic Reform and Structural Adjustment Program in Egypt

By early 1990s and specifically by fiscal year 1990, total external debt had reached about U.S.$50 billion or 132% of GDP with debt service obligations of U.S.$6 billion or 50% of all foreign exchange earnings. Less than half of these obligations could

be paid during the year while debt arrears increased to reach over U.S.$11 billion. Public and publicly guaranteed medium and total long-term debt accounted for U.S.$40 billion, short-term debt stood at U.S.$7 billion, private non-guaranteed debt accounted for U.S.$1.1 billion.

Such debt buildup had jeopardized the creditworthiness of Egypt. It was unaffordable to have an inflation rate of 20% by fiscal year 1990 compared to 12% at fiscal year 1988. Such rate of inflation putted heavy pressure on the financial market controls (deposit interest rates had nominal ceilings that are well below the rates of inflation, 8%P.A. vis-à-vis 20% P.A. respectively).

These negative developments combined with the second Gulf crisis in 1990 and it's high costs for Egypt and it's economy imposed a critical question: *'Where from here?'*

It is noteworthy to mention those cautious steps taken by the Egyptian Government in 1986 towards an adjustment program that was supported by the International Monetary Fund's Stand-by Arrangement in 1987, and by the World Bank's assistance. But it is important to state that adjustment measures were not enough especially in the dark shades of ingrained major imbalances and distortions.

In November 1991 the Government of Egypt initiated the structural adjustment program focusing on all aspects of disequilibria and distortions in the economy. The program components were:

- Macroeconomic reform.
- Public enterprise reform.
- Domestic price liberalization.

- Foreign trade liberalization.
- Private sector reform.
- Establishing the Social Fund for Development.

In the letter of development policy, Egypt's Government had drawn the lines of reform explaining goals and instruments. The main feature of the program is it's intention to transit the economy from a highly interventionist centrally planned one with massive price distortions to one that is decentralized, market-based and more outward-oriented. Before getting into the details of the reform program, it is important to mention these constraints that had been taken into consideration in designing the program:

- The danger of an inflationary shock that may result in the short-term as a result of correcting the exchange rate and the price liberalization. To avoid such danger, restriction on fiscal and monetary policies were vital.
- The political limits on compressing the short-term decline in GDP, employment and consumption per capita.
- The importance of restoring the creditworthiness in order to ensure sustainable growth.

This program faced great uncertainties and risks in view of Egypt's weak creditworthiness and large debt. As a result, the efforts needed were great. Upon reaching the agreement between the World Bank and the Government of Egypt on the contents of the letter of development policy, a matrix of policies and actions had been derived to cover all components of the program. Egypt embarked on this program benefited from:

- Strong support from it's creditors in the shape of debt relief, debt forgiveness and debt rescheduling.

- Grants from the donors' community to establish the Social Fund for Development to mitigate the negative impacts of the reform on the vulnerable groups.
- Technical assistance and funding from the World Bank and the donors' community to establish and strengthen the public enterprise office and the banking sector reforms.
- Sectoral technical assistance and funding from different resources to assist all agencies and ministries involved in the reform process.
- Stand-by Arrangement from the International Monetary Fund.
- The Structural Adjustment Loan from the World Bank.

As the Government of Egypt's reform program had been approved and accepted by the World Bank in order to avoid the negative effects of the reform process during the difficult time of transition, the structural adjustment loan had been conceived as the first series of adjustment operations over the medium to longer term. It represents an important element in a multi-year Bank assistance strategy. It was considered in March 1989, and the loan documents were signed in November 1991. The loan amount was $300 million. The amount was decided according to Egypt's balance of payments needs and prospects of fiscal year 1992/93. The loan is to be repaid in twenty years with five years grace period and at the standard variable interest rate.

The loan was described in the report of the World Bank's president as follows: "The proposed structural adjustment loan emphasizes the structural reforms needed to improve resource allocation and growth. In addition to supporting an adequate medium-term macroeconomic framework and financing plan. It supports the initiation of reforms

in Public sector, including privatization, it also supports the government in reducing distortions in both prices and the overall incentive environment".

Evaluation:

Egypt's economic reform and structural adjustment program has an ultimate goal: sustainable economic growth and the improvement of the country's living standard. As a result of the program, consumer price index has been reduced from 21% P.A. in fiscal year 1990 to 12% P.A. in fiscal year 1993. The government had successfully stabilized the macroeconomic environment through sharp reductions in the budget and current account deficits. The fiscal deficit (excluding investments by public enterprises) had declined from 17% of GDP in fiscal year 1991 to 4.1% in fiscal year 1993. Due in part to large sterilization operations (in response to massive capital inflows).

The government's interest payments on domestic debt have increased from 4% of GDP in fiscal year 1991 to 7.5% in fiscal year 1993. The primary fiscal deficit has swung from a deficit of 10% of GDP to a surplus of 6.5% of GDP. The deficit in the current account balance (excluding official transfers) was reduced from U.S.$3.7 billion in fiscal year 1990 to U.S.$0.4 billion in fiscal year 1993.

Aided by large inflows of short term, private capital, the level of international reserves soared to about U.S.$14 billion in fiscal year 1993. As a result of debt forgiveness granted to Egypt in 1991, and the Paris club agreement, total external debt has declined from U.S.$51 billion in 1990, to U.S.$38.5 billion in Mid - 1993 and the scheduled debt service to exports ratio has fallen from 46% to 16.7%.

Table 2.4.1: Economic Costs and Benefits of the Structural Adjustment Program in Egypt

Benefits:

The benefits from the economic reform program (of which the structural adjustment loan supported an important initial part) are the gradual re-establishment of Egypt's macroeconomic equilibrium and creditworthiness, a resumption of economic growth, and better focused social policies. Without an economic reform program of the type being pursued by the Government, the Egyptian economy would continue to be plagued by economic stagnation and imbalances. As the previously existing social safety net could not have been maintained, all segments of the population would have suffered from the decline in per capita income-rich and poor, urban and rural alike.

Another important benefit of the structural adjustment loan was its catalytic role as a mobilizer of other foreign resources, and in encouraging the debt rescheduling and relief required to restore creditworthiness.

Costs: Social Impact:

Social costs induced by the structural adjustment loan include increases in domestic and import prices and in taxes, thereby reducing private purchasing power in the short term. Also, the reduction in government expenditures has slowed the pace at which the public sector has hired new employees. On the other hand, as the economic reform measures supported by the structural adjustment take hold, employment and incomes in the private sector, both rural and urban, have increased in the longer term, and consumer welfare will benefit from increases in the efficiency of resource mobilization and use that would result from trade and price liberalization. Other elements in the World

Bank's future lending program are designed to compensate for some of the negative impacts of the adjustment program by increasing access to training and social services. The World Bank has been designing, with the Government a program that aims at protecting the poorest from the reform effort, while laying the basis for broader participation in the benefits of subsequent economic expansion. The Government has already taken initial action to assure a nutritional "safety net".

Costs: Budgetary:

The structural adjustment loan generated some costs to the budget. However, many of these costs were not additional in that they were being borne either off the budget or by the economy as a whole. The structural adjustment loan supported policies that have made these costs either more transparent or that have incorporated into the budget and they include:

a- the conversion of central government debt into equity for non-financial public enterprises, including authority organizations, such as those for electricity and the railways.

b- The fiscal reduction of the implicit tax imposed on cotton producers.

c- Social programs associated with poverty alleviation, such as food subsidies, etc.

Table 2.4.2: Summary of Assessments

A. Achievement of objectives	*Substantial*	*Partial*	*Negligible*	*Not applicable*
Macro policies	Yes			
Sector policies	Yes			

Financial objectives	Yes		
Institutional Development	Yes		
Physical objective			Yes
Poverty reduction		Yes	
Gender issues			Yes
Other social objectives		Yes	
Environmental objectives			Yes
Public sector management	Yes		
Private sector development		Yes	
B. Project sustainability	*Likely*	*Unlikely*	*Uncertain*
	Yes		
C. Bank performance	*Highly satisfactory*	*Satisfactory*	*Deficient*
Identification		Yes	
Preparation assistance		Yes	
Appraisal		Yes	
Supervision		Yes	
D. Borrower performance	*Highly satisfactory*	*Satisfactory*	*Deficient*
Preparation	Yes		
Implementation		Yes	
Covenant compliance		Yes	
E. Assessment of outcome	*Highly satisfactory*	*Satisfactory*	*Deficient*
		Yes	

Table 2.4.3: Assessment of outcome

1. Macroeconomic Framework:	
Adherence to agreed macroeconomic framework: includes achieving satisfactory progress with an external financing program (debt relief or equivalent support), reducing budget deficits for fiscal year 1992 and fiscal year 1993, and pursuing consistent monetary and exchange rate policies. Satisfactory macroeconomic performance and policies to be evaluated in accordance with indicators attached to the letter of development policy.	*Done*
2. Public Enterprise Reform: Privatization:	
Progress, satisfactory to the Bank, in implementing the fiscal year 91/92-privatization program. Adoption of a fiscal year 92/93 privatization program, satisfactory to the Bank.	*Done*
3. Price Liberalization: Energy:	
Implementation of the agreed Action Plan, including a. the increase of weighted average petroleum product prices at least 56% of internationally traded equivalents, based on the formula agreed to with the Bank, prior to December 1991. b. the increase of average electricity prices to at least 69% of estimated long run marginal cost.	*Done*
4. Price Liberalization: Agriculture:	
Raising of cotton procurement prices to at least 66% of international prices for the 1992 crop year, in accordance with a formula agreed to with the Bank, while eliminating subsidies for fertilizers and pesticides in fiscal year 1993.	*Done*

5. Trade Policy Liberalization:	
Reduction of the production coverage of import bans to 10.6% of tradable goods output (measured as the sum of agricultural and manufacturing production); this is equivalent to a 70% reduction in the production coverage in the base period (March 1990).	*Done*
6. Private Sector Development:	
Issuance of a decree allowing the public fertilizer and cement companies to sell up to 40% of their production to private distributors/companies by July 1,1992.	*Done*
7. Other Structural Reforms	
Satisfactory implementation of other elements in the Government's Economic reform program, as set forth in the letter of development policy.	*Done*

Source: World Bank. (1996). Implementation Completion Report. Arab Republic of Egypt. Structural Adjustment Loan (Loan 3353 EGT). Washington, D.C.

CHAPTER 3: EMPIRICAL EVIDENCE

3.1 Dollar and Svensson's Model (1998)

Dollar and Svensson started with 272 World Bank adjustment loans completed during the period 1980 – 1995. For 179 of these loans they assembled data on several political – institutional factors, other exogenous variables (such as initial per capita GDP and population), and variables under the World Bank's control. The dependent variable in their study is a zero – one variable reflecting failure or success of each adjustment loan as determined by the Operations Evaluation Department (OED) of the World Bank. They use the following notations:

y_i^* is the probability of success of adjustment program i. This probability is not directly observable. Instead they observe a zero – one indicator of success, y_i.

p_i is an nx1 vector of political – economy variables reflecting country conditions at the time of approval of adjustment loan i.

b_i is a kx1 vector of variables, associated with adjustment loan i, under the World Bank's control.

z_i is an mx1 vector of exogenous variables that do not influence success or failure of reform.

ε_{yi} is a scalar and ε_{bi} (a kx1 vector) mean zero error terms.

Their model can be summarized as follows:

$$y_i^* = c_y + b_i'\delta_y + p_i'\beta_{yp} + \varepsilon_{yi}$$

$$b_i = c_b + \lambda_b' z_i + \beta_{bp}' p_i + \varepsilon_{bi},$$

where c_y is a scalar, δ_y and c_b are kx1 vectors, β_{yp} is an nx1 vector, λ is an mxk matrix, and β_{bp} is an nxk matrix. They run six regressions.

In the first regression they use only the political – economy variables, this regression predicted correctly 75 % of the observations.

In the second regression they add some additional exogenous variables: initial per capita GDP, population, and regional dummies. They show that adjustment loans tend to be less successful in low – income countries and in Africa. And this second regression indicates that those associations arise from the fact that low – income countries and African countries have characteristics that are not conductive to reform.

In the third regression they add Bank–related variables to a probit regression. They use the simple correlations and the partial correlations in the probit regressions to eliminate the variables that seem to have no relationship at all with outcome: number of conditions, loan size, prior analytical work, and expected length of the reform program.

In the fourth regression they show the probit regression after these variables are removed. Of the remaining Bank–related variables they find that preparation is positively associated with outcomes.

In the fifth regression they instrument for preparation and supervision, using the Two – Stage Generalized Least Squares Estimator. Once Bank–effort variables (preparation and supervision) were treated as endogenous, they find that there is no relationship between any of them and the success or failure of adjustment programs.

In the sixth regression they drop all the Bank variables except preparation and supervision–for which they instrument–and again they find no relationship.

Their results can be described as:

Successful adjustment loans are associated with governments that are democratically elected (50% of successes compared to 32% of failures). Also political instability (measured in their model by the average number of government crises) is highly correlated with failed adjustment.

As for the World Bank related variables. they find that successful loans get about 10% more preparation resources (measured in staff-weeks) than failed loans. Failed loans get about 50% more supervision staff-weeks.

Also they find that high degrees of fractionalization are bad for policy reform and that long - term incumbents are not likely candidates for reform. The turning points for the length of tenure and ethnic fractionalization vary between 15–21 years and 0.44–0.49 respectively.

They also show that successful adjustment loans are associated with countries with better fiscal balance prior to the reform and larger exogenous shocks during the reform period.

Dollar and Svensson present the variables they use and their regression results as follows:

Table 3.1.1:Variable defined in the literature-Empirical proxy

Political instability	Average number of governmental crises during the implementation of the program.
Social Division	Ethnic fragmentation
Length of tenure	Years the incumbent that signed the reform has been in power.

Democratically elected	Dummy variable taking the value of 1 if the incumbent that signed the reform was put in power by a democratic election prior to the reform, 0 otherwise.
Crisis	Terms of trade shock: Prior reform; During Implementation of reform. Inflation prior to reform. Budget surplus prior to reform.

Table 3.1.2a: Features of Successful and Failed Adjustment Programs:

	Successful	Failed
Country Characteristics		
Democratically Elected	50.4%	32.3%
Government Crisis During Reform Period	8.0%	22.8%
Ethnolinguistic Fractionalization	0.48	0.51
Length of Time the Incumbent has been In Power Prior to the Reform	7.5	7.8
World Bank Related Variables		
Preparation Staff Weeks	141	128
Supervision Staff Weeks	69	101
Number of Conditions	45	44
Loan Size (million $)	160	153
Sample Information		
Number of Loans	117	65

Table 3.1.2b: Features of Successful and Failed Adjustment Programs (small sample)

	Successful	Failed
Country Characteristics		
Budget surplus prior to the reform	-0.043	-0.059
Inflation prior to the reform	27%	34%
Income inequality	44.0	43.5
Terms of trade shock	-1.92	-1.54

Table 3.1.3: Probit Outcome Regressions:

Dependent variable: OED evaluation on adjustment operations

Regression No.	(1)	(2)	(3)	(4)	(5)	(6)
Observations	220	215	163	182	179	179
Countries	67	67	58	60	60	60
Constant	-0.098	-0.753	-0.753	-0.895	-0.366	1.175
	(-0.32)	(-0.34)	(-0.46)	(-0.83)	(-0.25)	(0.93)
Ethnic Fractionalization	5.930	6.218	6.590	8.584	7.763	6.861
	(4.16)	(4.00)	(3.00)	(4.52)	(4.04)	(3.74)
Government Crisis	-1.301	-1.494	-2.950	-2.433	-2.285	-1.942
	(-3.94)	(-4.10)	(-4.60)	(-4.47)	(-4.29)	(-3.92)
Democratically Elected	0.585	0.658	0.857	0.792	0.912	0.812
	(2.61)	(2.71)	(2.704)	(2.72)	(3.09)	(2.80)
Time in Power	-0.089	-0.10	-0.175	-0.133	-0.113	-0.107
	(-2.07)	(-2.16)	(-2.79)	(-2.45)	(-2.09)	(-2.00)

Preparation Staff Weeks	0.682	0.903	0.323	0.091
	(1.39)	(2.16)	(0.24)	(0.08)
Supervision Staff Weeks	-1.554	-1.428	-0.869	-0.934
	(-2.73)	(-2.98)	(-0.67)	(-0.84)
Finance Conditions (%)	1.274	1.252	1.423	
	(1.78)	(1.86)	(2.02)	
Macro & Fiscal Conditions (%)	0.448	0.927	0.766	
	(0.44)	(1.06)	(0.89)	
Sectoral Conditions (%)	2.087	1.536	1.161	
	(2.82)	(2.46)	(1.83)	
Trade Conditions (%)	1.965	1.181	0.961	
	(2.42)	(1.85)	(1.46)	
2nd and 3rd Tranch Conditions	1.849	0.915		
	(2.28)	(1.45)		
Number of Conditions (%)	0.368			
	(1.39)			
Loan Size (LOG)	-0.144			
	(-0.82)			
Expected Reform Period	-1.4E-3			
	(-0.31)			
Prior Analytical Work(log)	0.051			
	(0.35)			

Sub – Saharan Africa	-0.175 (-0.44)			
Latin America & Caribbean	0.009 (0.02)			
East Asia in Regression	0.056 (0.12)			
Initial GDP per capita (log)	-0.213 (-0.98)			
Initial Population (log)	0.144 (1.56)			
Predicted ability	0.75	0.73	0.83	0.80

Table 3.1.4: Preparation regressions		
Dependent variable: Preparation Staff Weeks		
Regression No.	(1)	(2)
Observations	219	179
Countries	67	60
Constant	1.813	3.311
	(21.58)	(4.38)
Ethnic Fractionalization	0.376	0.018
	(1.00)	(0.04)
Government Crisis	-0.132	-0.223
	(-1.51)	(-2.48)
Democratically Elected	0.098	0.124
	(1.67)	(1.98)
Time in power	0.013	0.004
	(1.24)	(0.36)
Finance Conditions (%)		-0.149
		(-1.07)
Macro &Fiscal Conditions (%)		-0.260
		(-1.33)
Sectoral Conditions (%)		0.002
		(0.02)
Trade Conditions (%)		-0.021

		(-0.15)
Number of Conditions (%)		0.153
		(3.29)
Loan Size (log)		0.281
		(5.29)
Structural Adjustment Loan		-0.145
		(-2.16)
Sub – Saharan Africa		-0.080
		(-0.78)
Latin America & Caribbean		-0.284
		(-3.06)
East Asia		-0.148
		(-1.39)
Initial GDP per capita (log)		-0.064
		(1.04)
Initial Population (log)		-0.147
		(-3.90)
R^2	0.04	0.34
Adjusted R^2	0.01	0.26

Table 3.1.5: Supervision regressions		
Dependent variable: Supervision Staff Weeks		
Regression No.	(1)	(2)
Observations	179	179
Countries	60	60
Constant	2.685	3.272
	(4.02)	(3.11)
Ethnic Fractionalization	-0.134	-0.144
	(-0.42)	(-0.46)
Government Crisis	-0.029	-0.017
	(-0.39)	(-0.18)
Democratically Elected	-6.1E-3	-0.009
	(-0.01)	(-0.18)
Time in Power	0.003	0.004
	(0.29)	(0.48)
Preparation Staff Weeks	0.339	0.364
	(5.14)	(1.34)
Finance Conditions (%)	-0.078	-0.120
	(-0.67)	(-0.99)
Macro & Fiscal Conditions (%)	-0.323	-0.256
	(-1.97)	(-1.41)
Sectoral Conditions (%)	0.180	1.75

	(1.65)	(1.59)
Trade Conditions (%)	-0.141	-0.141
	(-1.25)	(-1.23)
Number of Conditions (%)	0.074	0.077
	(1.85)	(1.28)
Loan Size (log)	0.210	0.220
	(4.37)	(2.50)
Structural Adjustment Log	-0.062	-0.105
	(-1.10)	(-1.58)
Sub – Saharan Africa	0.093	
	(1.09)	
Latin America & Caribbean	0.020	
	(0.25)	
East Asia	-0.118	
	(-1.33)	
Initial GDP per capita (log)	-0.153	-0.184
	(-2.96)	(-3.39)
Initial Population (log)	-0.099	-0.124
	(-3.00)	(-2.66)
R^2	0.50	
Adjusted R^2	0.45	

Table 3.1.6: Linear Probability Regressions

Dependent variable: OED evaluation on adjustment operations

Regression No.	(1)	(2)	(3)	(4)	(5)	(6)
Observations	220	215	163	182	179	179
Constant	0.472	0.674	0.505	0.306	0.513	0.852
	(4.77)	(1.01)	(1.40)	(1.13)	(1.30)	(2.54)
Ethnic Fractionalization	1.888	1.939	1.513	2.199	2.187	2.122
	(4.29)	(4.09)	(2.97)	(4.62)	(4.23)	(4.20)
Government Crisis	-0.423	-0.452	-.635	-0.575	-0.617	-0.594
	(-4.08)	(-4.20)	(-4.77)	(-4.85)	(-4.84)	(-4.82)
Democratically Elected	0.184	0.204	0.232	0.218	0.260	0.253
	(2.66)	(2.68)	(2.96)	(2.86)	(3.25)	(3.15)
Time in Power	-0.026	-0.028	0.041	-0.033	-0.030	-0.029
	(-2.08)	(-2.15)	(-2.80)	(-2.34)	(-2.09)	(-2.04)
Preparation Staff Weeks			0.142	0.196	-0.009	-0.019
			(1.18)	(1.81)	(0.02)	(-0.06)
Supervision Staff Weeks			-0.316	-0.344	-0.207	-0.236
			(-2.47)	(-3.00)	(-0.55)	(-0.74)
Finance Conditions (%)			0.316	0.298	0.359	
			(1.76)	(1.66)	(1.92)	
Macro & Fiscal Conditions (%)			0.119	0.207	0.191	
			(0.47)	(0.89)	(0.79)	

Sectoral Conditions (%)		0.450	0.366	0.299
		(2.44)	(2.14)	(1.66)
Trade Conditions (%)		0.449	0.270	0.247
		(2.30)	(1.59)	(1.36)
2nd and 3rd Tranch Conditions		0.413	0.266	
		(2.09)	(1.51)	
Number of Conditions (%)		0.076		
		(1.21)		
Loan Size (log)		-0.063		
		(-1.45)		
Expected Reform Period		-7.8E-05		
		(-0.69)		
Prior Analytical Work (log)		0.008		
		(0.22)		
Sub – Saharan Africa	-0.080			
	(-0.66)			
Latin America & Caribbean	-0.020			
	(-0.18)			
East Asia	0.025			
	(0.19)			
Initial GDP per capita (log)	-0.086			
	(-1.24)			
Initial Population (log)	0.030			

	(1.24)			
R^2	0.17	0.20	0.34	0.32
Adjusted R^2	0.15	0.15	0.28	0.26

3.2 Conway's Model (1991)

Conway assembled data for 76 countries from the 1989 World tables and World Debt Tables of the World Bank. We have a special interest for this model because this dissertation uses World bank loans as a percentage of GDP, as a percentage of total external debt, and as a dummy variable, while Conway treat these loans as a dummy variable only.

Conway assumes that measures of economic performance will respond systematically to four sets of determinants: external incentives, secular economic development trends, economic policy choices and country-specific structural factors. Suppose that this systematic relationship can be represented in reduced form for country i in period t (t = 1, 2, ,T) as:

$$Y_{it} = a_i^{\bullet} + X_{it}b_i + S_{it}c_i + P_{it}g_i + \varepsilon_{it}^{\bullet}$$

$a_i^{\bullet}$ is a measure of systematic country-specific contribution to economic performance. The three data matrices X_{it}, S_{it} and P_{it} include time series of variables measuring incentives (and disincentives) to economic performance. The external incentives in X_{it} can be either price-based (for example, terms of trade, real interest rate) or macroeconomic (for example, world demand, debt burden) in nature. The columns of S_{it} and P_{it} measure secular economic trends and policy choice respectively. $\varepsilon_{it}^{\bullet}$ is the random

component and is assumed independently distributed across time periods. b_i, c_i and g_i are conformable vectors measuring country-specific responses to these incentives.

There are three important elements of country-specific behavior that can be decomposed in this analysis. First, a large a_i^* in comparison with other countries indicates country-specific success given a stable international environment. Second, the country's economic structure as captured in (b_i, c_i, gi) can be relatively more or less successful in responding to changes in the environment. Third, government policy (P_{it}) can be more or less flexible in responding to changes in the environment.

$$Y_{it} = a_i + X_{it}b + S_{it}c + P_{it}g + \varepsilon_{it}$$

The intercept a_i includes two types of effects. The first represents idiosyncratic country performance abilities. The second indicate the country's structural flexibility in adjustment to external, secular and policy shocks compared with the normal response. The terms in b, c and g are the normal responses to country i's economic environment. The error term ε_{it} incorporates the random error and the cross-period variability in country-specific response. Given the definitions of the time-series means, the error term ε_{it} has an expected value of zero; however, it may exhibit cross-period autocorrelation.

$$Y_t = A_i + X_tb + S_tc + P_tg + \varepsilon_t$$

This measure of economic performance will serve as the basis of cross-country comparisons of success in structural adjustment.

The government policy choice P_{it} is a third component of country-specific performance. It is also an endogenous decision, and can be represented by a reaction function. Observed policy will then have the characteristics in the following equation,

with an autonomous (and country-specific) component G_i, a component induced by external and secular variables ($X_{it}P_{ix} + S_{it}P_{is}$) and a random component v_{it}^*.

$$P_{it} = G_i + X_{it}P_{ix} + S_{it}P_{is} + v_{it}^*$$

P_s and P_x represent normal policy reactions to external and secular shocks, respectively.

$$P_{it} = q_i + X_{it}P_x + S_{it}P_s + v_{it}$$

Conway assumes that economic growth (YGR) and the rate of domestic inflation (DINF) are indicators of internal balance. The current account surplus or deficit (CAR) measures performance in attaining external balance. The investment ratio (IR) is a measure of intertemporal balance. The ratio of government current expenditure to GNP (GOV) is a measure of fiscal policy stance.

To adjust for the external environment, Conway assumes that both countries, performance should be evaluated as if they faced the same terms of trade. By doing this, he claims that the comparison is corrected for external differences and focuses on policy structural differences between the economies.

The real international interest rate (RR) is defined ex post by subtracting the US inflation rate from the country's average nominal rate on international borrowing. International debt is total debt, including private, public and publicly guaranteed, deflated to billions of 1980 US dollars. It is stated in per capita form, and is divided into a longer-term component (LTDPC) and a short-term component (STDPC). The terms of trade (TOTA, TOTB) are the ratio of average export to average import prices. The share of total output produced in the agricultural sector (YASHR) is a proxy inversely related to the country's secular stage of economic development. It is likely that there are other common international influences on economic performance in these countries as well,

and to measure the impact of these, Conway introduced a series of year-specific dummy variables (D7 for 1977 through D5 for 1985) as explanatory variables. These are, for example, the average annual impact of the restrictions on international credit that as Sachs (1989) documents were imposed in the post-1982 period.

Conway assumes that the external environment variables in period t are exogenous to the country's economic performance in that year. For TOTB and RR this is equivalent to asserting that each sample country is small in its goods and capital markets.

Participation in an adjustment-lending program is measured through the use of the variable DAL. It is defined to be unity during years in which countries are participating in a SAL or SECAL program.

Least-squares estimation was used to calculate the normal response of performance and policy measures to the external environment and to derive the appropriate country-specific adjusted measures. The fixed-effect coefficients in the regression results then represent the deviation of country-specific performance from th normal performance. The coefficient of IAL represents the average annual increase in country-specific performance associated with participation in an AL program.

The coefficients of IAL in next table represent the amount by which the dependent variable rises on average during years when a SAL or SECAL is in force. Adjustment lending programs are correlated with an increase of real GDP growth of 1.98 percent per year and with an increase in the annual inflation rate of 10 percentage points. Countries with adjustment lending programs had current account deficit ratios to GNP that were roughly 2.1 percentage points more positive than those without. the investment ratio is positively but insignificantly correlated with participation in an adjustment

program: there is a rise in the ratio of an average 0.56 percentage point annually for those economies participating in the programs. All of these correlations are significantly different from zero at the 95 percent level of confidence except for that of the investment ratio.

The size and Significance of AL Program Effects 76 – country sample		
Dependent variable	IAL Coefficient	T – statistic
Performance measures:		
YGR	1.98	3.94
DINF	10.04	3.84
CAR	2.10	3.58
IR	0.56	1.08
Policy realizations:		
MON	1.91	3.72
GOV	-0.48	2.80
RERA	-7.15	5.23
RERB	-0.27	4.32

There were also significant differences in policies implemented by AL program and non–AL program countries. Government current expenditure is lower by 0.48 percentage points of GNP in SAL recipients, while financial deepening is increased by 1.9 percentage points. Those countries with AL programs, experienced depreciated real

exchange rates relative to those countries that did not participate. All of these correlations are significantly different from zero at the 95 percent level of confidence.

There are significant differences between the performance of recipients of AL programs and of those who did not: economic growth is more rapid and the current account closer to balance on average for recipient countries, while inflation is also significantly higher in those countries. The sign of the effect on domestic investment is encouraging, although the coefficient is insignificant. These effects are contemporaneous with a significant policy shift among recipient countries. Government current expenditure as a share of GNP is lower, financial deepening is more pronounced, and the real exchange rate is depreciated on average when compared with non-recipient countries.

3.3 Faini, deMelo, Senhadji-Semlali and Stanton's Model (1990)

Faini, de Melo, Senhadji-Semlali and Stanton claim that any "before and after" analysis should be complemented by a control group approach to reduce the bias in the estimated values of the selected indicators. These considerations are taken into account in their model presented below.

They denote the set of performance indicators j for country i by y_{ij}. They postulate that changes in the value of each performance indicator depend on a vector of autonomous policy changes, Δx_i on changes in the external environment, SH_i.

$$\Delta y_{ij} = \alpha_{0j} + \Delta x_i'.\alpha_i + SH_i.\alpha_{2j} + CON.\alpha_{3j} + \varepsilon_{ij}$$

Where CON is a dummy variable that takes the value of 1 for countries that received a World Bank adjustment loan. Because autonomous policy changes are

unobservable for countries participating in World Bank's adjustment programs, they specify the following reaction function:

$$\Delta x_i = \gamma . [y_i^d - (y_{i-1})] + \varsigma_{ij}$$

Thus, autonomous policies are specified as an adjustment process of the performance indicators towards their desired values (y_i^d). Under the long-run assumption ($y_i = y_i^d$), substituting ΔX_i', gives the final equation for estimation:

$$\Delta y_{ij} = \beta_{0j} + (y_{i-1}').\beta_{ij} + SH_i.\beta_{2j} + CON.\beta_{3j} + \theta_{ij}$$

In this model, Δ refers to a difference between the "post" and "pre" adjustment periods.

Their sample consists of data for 93 developing countries. Among these countries, 32 did not receive any World Bank adjustment loans during 1982-86. Another 9 received their first adjustment loan only in 1985 or 1986. These countries are added to those who did not receive adjustment loans so that the control group includes 41 countries. The remaining 52 countries received World Bank adjustment lending. In this group, only 2 countries received their first adjustment loan in 1984. Hence, they interpret the statistical results as pertaining to the performance of 50 countries which received adjustment loans in 1982 or 1983 and were carrying out policy reforms whose performance-enhancing effects were supposed to last throughout the period of analysis (i.e. until 1986). The performance of these countries is compared with the performance of 43 countries (of which 11 countries had been implementing adjustment lending policy reforms since 1984).

Also they construct a proxy for the external environment, SH_i, by measuring terms of trade and interest rate shocks.

The effects of participation in World Bank's adjustment programs are measured by the coefficient on the dummy CON. The first result they found is participation in World Bank's programs does not appear to affect output growth in a significant manner, after having controlled for the negative influence of external shocks. They also find that adjustment lending is positively correlated with the current account performance. The fact that they measure performance over a three to five year period (depending on when the country received its first adjustment loan) may therefore account for their finding an insignificant effect of World Bank's adjustment programs on growth.

Additionally their results suggest a sizeable output loss because of lower aggregate investment levels during the period of adjustment. This is due to the fact that use the expenditure-switching policies that accompanied the adjustment programs resulted in an increase in the relative price of imported capital goods. Also, uncertainty is likely to have led many private investors to either keep their capital abroad or in existing activities until the subjective probability that the reforms and adjustment programs will not be reversed is high enough for them to commit to new investments.

We can summarize their results in the following tables:

Table3.2.1: Performance Under Adjustment Lending

Dependent Variable	Y_{-1}	I/Y_{-1}	CA_{-1}	P_{-1}	SH	CON	F	NOBS
ΔY	-.677	.006	-.134	.010	-.069	-.001	28.15	79
	(-6.32)	(.17)	(-2.68)	(.46)	(-2.06)	(-.19)		
$\Delta I/Y$	.246	-.295	.279	-.047	-.049	-.006	10.81	80
	(1.67)	(-4.61)	(2.61)	(-2.65)	(-.68)	(-.68)		

ΔP	-.146	-.072	-.161	.077	.140	.008	1.42	79
	(-.60)	(-.70)	(-.95)	(.58)	(.98)	(.43)		
ΔCA	.395	.133	-.490	.026	-.68	.034	13.60	80
	(3.00)	(3.07)	(-6.55)	(1.87)	(-.84)	(4.83)		

The constant term is omitted from the results, and the t-statistics are in parentheses.

All variables used are average values over 1982-86 (for example, y is average GDP growth during 1982-86).

Y = GDP growth; I/Y = INV/GDP; CA = CA/GDP; P is the inflation rate; SH is the external shock estimate; CON = dummy variable with value 1 if participating in a World Bank's adjustment program; F = statistic; NOBS = number of observations used in regression.

Results are corrected for heteroscedasticity by weighing each observation by the inverse of its estimated standard error.

Table 3.3.2: Output Loss Due To Lower Investment

Country	Adjustment period	Cumulative effect	Average one-year effect	World Bank's adjustment lending as % of GDP
1. Chile	82-86	-.170	-.034	.010
2. Colombia	85-85	-.004	-.004	.002
3. Ghana	82-85	-.034	-.009	.025
4. Jamaica	81-86	-.118	-.020	.031
5. Ivory coast	80-86	-.049	-.007	.019

6. Kenya	82-86	-.141	-.028	.011
7. Korea	81-86	.120	.020	.003
8. Malawi	81-86	-.260	-.043	.033
9. Mexico	82-86	-.230	-.046	.004
10. Morocco	83-86	-.076	-.019	.013
11. Pakistan	80-86	-.053	-.008	.004
12. Philippines	80-86	-.097	-.014	.004
13. Thailand	82-86	-.083	-.017	.004
14. Zambia	84-86	-.037	-.012	.005

3.4 World Bank's Model (1990)

The World Bank's first report (1988) on adjustment lending concluded that the 30 countries receiving adjustment loans before 1985 performed better on average, by the end of 1987, than developing countries not receiving such loans. This conclusion was based on two comparisons: between the performance of countries before and after receiving adjustment loans, and between the average performance of countries receiving adjustment loans before 1985 and that of countries not receiving such loans. The 30 countries receiving loans had modest improvements in performance despite facing a more unfavorable external environment than the other group of countries. The 12 countries that received three or more adjustment loans before 1987 had more pronounced improvements.

The second report (1990) focuses mainly on the contribution of adjustment lending to sustainable growth. For this purpose, it examines the performance of intermediate indicators of structural transformation-saving ratios, investment ratios and export ratios-along with the rate of output growth. The analysis groups countries into three categories: early intensive-adjustment-lending (EIAL), other adjustment lending (OAL), and non-adjustment lending (NAL) countries.

The World Bank use two approaches in this second report. The first is the control-group approach. The basic equation for this approach is:

$$\Delta y_i = \beta_0 + \beta_1 d_i,$$

where d_i is a dummy variable with a value of one for program countries. The estimated value of β_1 is equal to the difference in the mean changes in the target variables for program and non-program countries. Thus, a statistically significant value for β_1 would indicate that the change in the target variable for the program country was different from the corresponding change in non-program countries (the control group).

This approach controls for the effect of changes in the global economic environment, but it assumes that such global factors affect program and non-program countries equally. Such an assumption introduces a bias whenever program countries differ from non-program countries.

The second one is the modified control-group approach. It is based on this basic equation:

$$y_i = X_i'\omega + W_i'\alpha + \beta_4 d_i + e_i.$$

where x_i is a K-element vector of the macroeconomic policy instruments that would have been observed in the absence of a program in country I; W_i is an M-element random

vector of world non-program variables relevant to country i; and d_i is a dummy variable that takes the value of unity if a country has a program and a value of zero otherwise. This equation says that the level of the targeted results will be a function of four factors:

- The value of selected policy instruments that would have occurred in the absence of a program, x.
- The change in selected world economic conditions, W.
- The total effects of a Bank-supported program if the country has a program in place, d.
- A range of unobservable shocks that are specific to country i, ei.

Overview of the Data:

A sample that contained observations from77 developing countries during the period 1970-88 sample period was used in this report. The sample period was divided into three periods: 1970-80 (first), 1981-84 (second) and 1985-88 (third), with the latter corresponding to the adjustment period.

The Empirical Results:

The coefficients of the program effects are statistically significant for the rate of growth of GDP and the ratio of exports to GDP: they show an improvement in the program period (1985-88) relative to periods one and two. In contrast, the other two indicators do not show significant improvement with respect to either of the previous periods. With constant prices, only the change in the average rate of growth is positive and statistically significant. The ratio of investment to GDP shows a substantial decrease

with respect to the period 1970-80. In contrast, the changes in the ratios of savings to GDP and exports to GDP are not significant. Thus, if only the results from the control-group approach were used to evaluate the adjustment-lending program, the conclusion would be that it led to improvements in the rate of GDP growth and the current price ratio of exports to GDP.

In the case of the constant price ratios, the investment ratio decreased with respect to the period 1970-80, while the change in the other ratios was not statistically significant. The inconsistency of the control-group estimates was overcome by using the modified control-group estimates.

After explicitly controlling for the size of the external shock, initial conditions and the policies followed in the pre-program period by each country, the Bank find that the adjustment programs had a positive and significant effect on the rate of growth of GDP. This finding is verified when comparing performance in 1985-88 with 1970-80 and 1981-84. The change in the annual average rate of GDP growth in the EIAL countries was 1.6 percentage points higher than that in all the other countries when measuring changes with respect to 1970-80. When measuring differences with respect to 1981-84, the adjustment programs are estimated to have boosted the rate of GDP growth by about 2 percentage points.

When the Bank controls for other factors, the coefficients of the program effects indicate that the programs also had a positive and significant effect on the ratio of exports to GDP equal to about 6.5 percentage points of GDP between 1970-80 and 1985-88 and 2.5 percentage points of GDP between 1981-84 and 1985-88.

From this analysis it can be concluded that the adjustment lending programs in the EIAL countries contributed to higher GDP growth and higher ratios of exports to GDP, while the ratio of saving to GDP improved with respect to the values reached in the early 1980s. However, the ratio of investment to GDP decreased on average for program countries over the level reached in the seventies.

The results for control-group approach and modified control-group approach can be shown as follows:

Table 3.4.1: Control-Group Estimates of the Program Effects

Periods Compared	Change in GDP growth	Change in investment/GDP	Change in savings/GDP	Change in exports/GDP
A. Ratios at current prices				
1985-88	0.017	-0.015	0.014	0.042
with 1970-80	(2.402)	(-1.108)	(0.839)	(2.023)
1985-88	0.028	0.017	0.021	0.042
with 1981-84	(3.141)	(1.498)	(1.438)	(3.070)
B. Ratios at constant prices				
1985-88	-0.017	-0.031	-0.013	0.038
with 1970-80	(2.402)	(-1.786)	(-0.620)	(1.603)
1985-88	0.028	0.017	0.025	0.018
with 1981-84	(3.141)	(1.322)	(1.516)	(1.466)

Note: The t-values are in parentheses.

Table 3.4.2: Modified Control-Group Estimates of the Program Effects (constant

prices)

A. 1985-88 relative to 1970-80

Variables[a,b]

	Constant	GDP1	INV1	SAVDOM1	EXP1	RER1	FISC1	Shock2	d[c]
Change in	0.004	-0.61	0.03	-0.01	-0.03	-0.00	-0.05	-0.03	0.02
GDP Growth	(0.13)	(-5.16)	(0.69)	(-0.42)	(-1.198)	(-0.003)	(-0.74)	(-1.36)	(2)[d]
Change in	0.01	0.85	-0.56	-0.01	0.02	0.00	-0.09	0.04	-0.03
investment	(0.13)	(3.34)	(-5.51)	(-0.17)	(0.43)	(0.61)	(-0.76)	(0.72)	(-1.7)[e]
/GDP									
Change in	-0.09	1.34	-0.01	-0.34	0.004	0.00	0.08	-0.01	0.01
saving/GDP	(-0.97)	(3.97)	(-0.08)	(-3.28)	(0.06)	(0.71)	(0.51)	(-0.19)	(0.54)
Change in	-0.09	-0.41	0.63	-0.29	-0.18	0.001	0.62	-0.07	0.06
exports/GDP	(-0.7)	(-0.75)	(3.75)	(-1.82)	(-2)	(0.49)	(2.85)	(-0.83)	(2)[d]

B. 1985-88 relative to 1981-84

Variables[a,b]

	Constant	GDP2	INV2	SAVDOM2	EXP2	RER2	FISC2	Shock3	d[c]
Change in	0.01	-0.75	0.057	-0.03	-0.01	0.00	0.03	0.03	0.02
GDP growth	(0.62)	(-11.48)	(1.52)	(-0.99)	(-0.71)	(0.64)	(0.88)	(0.46)	(2.6)[f]
Change in	0.03	0.02	-0.34	0.09	-0.02	0.00	-0.05	0.08	0.001
investment	(0.91)	(0.06)	(-4.99)	(1.63)	(-0.66)	(0.36)	(-0.86)	(0.81)	(0.04)
/GDP									
Change in	-0.03	0.12	0.09	-0.24	0.07	0.00	-0.03	0.13	0.04

saving/GDP	(-0.7)	(0.86)	(0.79)	(-2.7)	(1.25)	(0.31)	(-0.31)	(1.2)	(2.2)[d]
Change in	-0.01	0.09	0.03	0.03	0.07	-0.00	0.00	0.06	0.02
exports/GDP	(-0.22)	(0.82)	(0.49)	(0.51)	(1.52)	(-0.85)	(0.01)	(0.69)	(1.6)[g]

a. Variables:

GDP1: average rate of GDP growth, period 1970-80

INV1: ratio of domestic investment to GDP, period 1970-80

SAVDOM1: ratio of domestic saving to GDP, period 1970-80

EXP1: ratio of total exports to GDP, period 1970-80

RER1: real exchange rate index, period 1970-80

FISC1: ratio of fiscal deficit to GDP, period 1979-80

Shock2: total external shock (positive), period 1985-88 relative to period 1970-80

GDP2: average rate of GDP growth period 1981-84

INV2: ratio of domestic investment to GDP, period 1981-84

SAVDOM2: ratio of domestic saving to GDP, period 1981-84

EXP2: ratio of total exports to GDP, period 1981-84

RER2: real exchange rate index, period 1981-84

FISC2: ratio of fiscal deficit to GDP, period 1981-84

Shock3: total external shock (positive), period 1985-88 relative to period 1981-84

b. Estimation for the equation for modified control-group, using d as an instrument of d.

c. d = 1 for EIAL countries (program countries), 0 otherwise.

d. Statistically significant at the 5 percent level.

e. Statistically significant at the 7.5 percent level.

f. Statistically significant at the 2.5 percent level.

g. Statistically significant at the 10 percent level.

Note: The t-values are in parentheses.

CHAPTER 4: EMPIRICAL TESTING AND RESULTS

4.1 Data Description

The data used in this dissertation cover the period 1980-1997 and were extracted from the World Bank's database and World Bank's publications.

The countries included in the sample are Middle Eastern and North African countries (MENA), they are all countries that received structural adjustment loans from the World Bank over this period. Although Yemen is an MENA country that received such loans it was not included into our sample because there are not enough data available. Data for the Republic of Yemen are available from 1990 onward; data for previous years refer to aggregated data for the former People's Democratic Republic of Yemen and the former Yemen Arab Republic)

The list of the countries in the sample is:

Two countries in the Middle East: Egypt, Jordan, and three countries in North Africa: Algeria, Morocco, and Tunisia.

The economic indicators that are studied here are:

Description	Notation
GDP growth (annual %)	GDP_GR
GNP per capita growth (annual %)	GNP_P_GR
Exports of goods and services (annual % growth)	EXP_GR
Current Account Balance (% of GDP)	CAB
Gross Domestic Savings (%of GDP)	GDS
Gross Domestic Investment (% of GDP)	GDI

Gross Foreign Direct Investment (% of GDP)	GFDI
Gross Private Capital Flows (% of GDP)	GPCFL
Foreign Direct investment, Net Inflows (% of GDP)	FDI_NIF

This chapter studies the impact of the following economic magnitudes on the previously described indicators:

Description	Notation
World Bank adjustment loans [% of GDP-PPP (current international $)].	WBL_G
World Bank adjustment loans (% of total external debt)	
Dummy for World Bank adjustment loans.	WBL_Dummy
Use of IMF credit [% of GDP-PPP (current international $)].	UOIMFC_G
Use of IMF credit (% of total external debt)	UOIMFC_D
Short-term debt [% of GDP-PPP (current international $)]	Short_debt_G
Short-term debt (% of total external debt)	Short_debt_D
Long-term debt [% of GDP-PPP (current international $)].	Long_debt_G
Long-term debt (% of total external debt)	Long_debt_D
Total external debt [% of GDP-PPP (current international $)].	TOT_debt_G
Aid (% of GNP)	Aid
Log difference terms of trade [it is obtained by dividing current exports and imports (expressed in dollars) by the constant values and then taking the log difference of the result].	LDTOT
Population growth (annual %).	POP_GR

Inflation, consumer prices (annual %).	INFL_CPI
Gross Domestic Investment (annual % growth).	GDI_GR

4.2 Summary of Descriptive Statistics

Table 4.2.1 presents the statistics for the variables used in this study. It contains the average statistics, the standard deviation and the number of observations for each country in our sample.

We notice that annual GDP growth rate (GDP_GR) is higher for Egypt than for the rest of the countries (5.13), while it has the lowest standard deviation (2.35). Algeria has the lowest average (1.87), while Jordan has the highest standard deviation (6.90).

Similar remarks can be made from the sample for the annual per capita GNP growth rate (GNP_P_GR) where Egypt has the highest average (3.73), while Algeria has the lowest average (2.86). Algeria has also the lowest standard deviation (7.82), while Jordan has the highest standard deviation (7.82).

On the other hand the annual exports of goods and services growth rate (EXP_GR) for Jordan has the highest mean (9.06) and standard deviation (14.25), while Algeria has the lowest for both (mean = 2.75, standard deviation = 5.55).

We also notice for the Current Account Balance expressed as a percentage of GDP (CAB) for Jordan has the highest average (-4.99), while Algeria has the lowest average (0.06), as well as the lowest standard deviation (2.40), while Egypt has the highest standard deviation (5.68).

The Gross Domestic Savings expressed as a percentage of GDP (GDS) for Algeria has the highest mean (33.39), and Jordan has the lowest (-1.34). Tunisia has the lowest standard deviation (1.73), while Algeria has the highest (8.42).

Gross Domestic Investment as a percentage of GDP (GDI) for Algeria has the highest mean (31.90), with the lowest mean for Morocco (23.31). Jordan has the highest standard deviation (6.81), and Morocco has the lowest one (2.39).

Gross Foreign Direct Investment expressed as a percentage of GDP (GFDI) for Tunisia and Algeria has the highest and the lowest mean respectively (0.87, 0.09). Jordan has the highest standard deviation (0.78), while Algeria has the lowest standard deviation (0.20).

We notice for Gross Private Capital Flows expressed as a percentage of GDP (GPCFL) that Jordan has the highest mean and standard deviation (mean = 4.66, standard deviation = 5.10), while Algeria has the lowest mean (1.05) and Morocco has the lowest standard deviation (0.50).

As for Foreign Direct Investment, net inflows expressed as a percentage of GDP (FDI_NIF) we find that Egypt has the highest mean (2.09) and Algeria has the lowest (0.05), while Tunisia has the highest standard deviation (1.19) and Algeria has the lowest (0.20).

We notice that Egypt has the lowest average and standard deviation for World Bank loans as a percentage of GDP (mean = 0.01, Standard deviation = 0.06), while Jordan has the highest (mean = 0.23, standard deviation = 0.45).

We can draw the same conclusion for Egypt when we consider World Bank loans as a percentage of total external debt (mean = 0.05, standard deviation = 0.22), while Tunisia has the highest (mean = 0.77, standard deviation = 1.31).

For use of IMF credit expressed as a percentage of GDP (UOIMFC_G) we observe that Morocco has the highest mean and standard deviation (mean = 1.38, standard deviation = 1.06), while Egypt has the lowest (mean = 0.25, standard deviation = 0.24).

Same conclusion can be drawn for use of IMF credit expressed as a percentage of total external debt (UOIMFC_D).

As for short-term Debt expressed as a percentage of GDP (Short_debt_G) we notice that Jordan has the highest mean and standard deviation (mean = 8.80, standard deviation = 4.22), while Morocco has the lowest mean (4.02), Tunisia has the lowest standard deviation (0.93).

Similar conclusion can also be drawn for Jordan when we look at short-term debt as a percentage of total external debt (Short_debt_D) (mean = 14.87, standard deviation = 6.11), while Morocco has the lowest mean and standard deviation (mean = 4.02, standard deviation = 3.30).

As for long-term debt expressed as a percentage of GDP (Long_debt_G)) we notice that Morocco has the highest mean and standard deviation (mean = 50.60, standard deviation = 14.38), while Tunisia has the lowest (mean = 21.85, standard deviation = 1.45).

For long-term debt expressed as a percentage of total external debt (Long_debt_D) we notice that Algeria has the highest mean (91.28), and the lowest

standard deviation (3.42), while Jordan has the lowest mean (83.71) and Morocco has the highest standard deviation (6.05).

We also notice for Total External Debt expressed as a percentage of GDP (Tot_debt_G) that Jordan has the highest mean and standard deviation (mean = 60.26, standard deviation = 16.59), while Algeria has the lowest (mean = 24.04, standard deviation = 1.36).

On the other hand for aid expressed as a percentage of GNP we notice that Jordan has the highest mean (13), then comes Egypt (6.13). The lowest mean was for Algeria (0.48), same applies to standard deviation (7.66).

As for log difference terms of trade (LDTOT) we notice that Algeria has the highest mean and standard deviation (mean = -2.89, standard deviation = 0.77), while Jordan has the lowest mean (-4.29) and Morocco has the lowest standard deviation (0.18).

For population growth rate (POP_GR) we notice that Jordan has the highest mean and standard deviation (mean = 4.16, standard deviation = 1.83), while Morocco has the lowest (mean = 2.03, standard deviation = 0.19).

As for inflation rate for consumer prices (INFL_CPI) we notice that Algeria has the highest mean and standard deviation (mean = 15.10, standard deviation = 9.46), while Tunisia has the lowest (mean = 6.31, standard deviation = 1.75).

Finally for Gross Domestic Investment growth rate (GDI_GR) we notice that Jordan has the highest mean and standard deviation (mean = 7.13, standard deviation = 23.16), while Algeria has the lowest (mean = -1.24, standard deviation = 7.98).

One would argue that variables that are related to environmental factors like public expenditure on health, as a percentage of GDP and sanitation as percentage with access should be included as explanatory variables to the models. However, close examination of the data availability revealed that there are no sufficient observations in order for these variables to be included. Public expenditure on health as percentage of GDP has a total of only 23 observations, while sanitation as percentage with access has a total of only 21 observations, even after taking Yemen into consideration. If one suspects a unit root problem and thus we should calculate the first differences, then the remaining number of observations is 9 for the first variable and only 1 for the second. Thus, these variables will not be used, and they are dropped out of the sample.

The detailed summary statistics are presented in table 4.2.1.

The detailed correlation estimates are shown in table 4.2.2. It is worth noticing that World Bank adjustment loans expressed as a percentage of GDP or as a percentage of total external debt have positive correlation with GDP growth rate, exports of goods and services growth rate and current account balance as a percentage of GDP, while it has negative correlation with some other explanatory variables such as Gross Domestic Investment, Gross Foreign Direct Investment, Gross Private Capital Flows and Foreign Direct Investment, Net Inflows all expressed as a percentage of GDP.

Also notice that there is a positive correlation between long-term debt expressed as a percentage of total external debt and the Current Account Balance. Similarly, there is a positive correlation between long-term debt expressed as a percentage of GDP and Gross Domestic Investment as a percentage of GDP, but negative correlation between

long-term debt as a percentage of total external debt and Gross Domestic Investment as a percentage of GDP.

Overall we find more consistent relationships between alternative debt estimators and economic indicators when these are expressed as a percentage of GDP rather when they are expressed as a percentage of total external debt (see for example the correlations between debt estimators as a percentage of total external debt and Current Account Balance as a percentage of GDP.

Finally, it appears that the influence of inflation on the main economic indicators under study varies across them. Similar argument can be made for annual Gross Domestic Investment growth rate.

As one would expect, there is positive correlation between measures of World Bank's adjustment loans and use of IMF credit. It is also interesting to note the strong- mostly positive- relationship that appears to exist between aid and various measures of debt, while terms of trade have the adverse effect.

4.3 Model Estimation

The complete sample has 90 observations. The applied method of estimation is Generalized Least Squares (GLS). Additionally we imposed cross section weights to correct for the cross section heteroscedasticity that arises from the presence of five countries.

The following is a summary of the results. The complete tables are presented after this discussion.

In the model for annual GDP growth rate (GDP_GR), which is a particularly important performance indicator since adjustment policies aim at accelerating economic growth, we noticed that World Bank adjustment loans as a percentage of GDP or as a percentage of total external debt have a significantly positive impact on this indicator. This supports the theory that World Bank's adjustment loans have a positive effect on growth. The same does not apply when we treat World Bank adjustment loans as a dummy variable. Previous studies [Dollar and Svensson (1998), Conway (1991), Faini, de Melo, Senhadji-Semlali and Stanton (1990), World Bank (1990)] use the dummy variable for World Bank adjustment loans to examine the impact of such loans on various economic indicators. This study uses instead the value of the loan expressed as a percentage of GDP or as a percentage of total external debt for each country in comparison with the World Bank adjustment loans as a dummy variable that takes the value of unity when there is a World Bank's adjustment program and zero otherwise. We find for some of the other indicators that models that included World Bank adjustment loans as a percentage of GDP or as a percentage of total external debt have better fit than models that included World Bank adjustment loans as a dummy. Additionally we find that when the coefficient of WBL_G is significant, the coefficient of WBL_dummy is not always significant.

The GNP per capita growth rate (GNP_P_GR) is positively affected by World Bank adjustment loans. This is supporting the theory that the World Bank's adjustment loans have a positive effect on GNP per capita growth rate, and it can be interpreted that the World Bank manages to reduce poverty in MENA countries.

Many MENA countries with the help of the World Bank demonstrated that they can reduce poverty. By 1990 only 5.6% of the MENA's population lived with less than $1 a day -the global benchmark for absolute poverty- compared with 14.7% in East Asia and 28.8% in Latin America. Also regardless of the level of wealth, poverty was lower in MENA countries than other developing countries

. When we regress the annual exports of goods and services growth rate (EXP_GR) on World Bank adjustment loans we find that these loans have a positive impact on export growth. As before, this finding supports the hypothesis that World Bank adjustment programs have a positive impact on export growth since one of the main targets of these programs is to promote export growth.

For the case of Current Account Balance expressed as a percentage of GDP (CAB) we notice that countries in our sample that receive adjustment loans attained an improvement in their current account balance. Note also that in all the models for CAB that aid expressed as a percentage of GDP has a negative impact on this indicator. It is not unusual to find that aid has a negative impact on some economic indicators in recipient countries. Mosley and Hudson (1996) and Svensson (1996) have shown that when the donor-recipient relationship is modeled as a non-cooperative game, moral hazard problems can lead to aid having little impact on the problems it is intended to alleviate.

As for Gross Domestic Savings expressed as a percentage of GDP (GDS) we find that World Bank's adjustment programs have a positive impact on this indicator. We also notice that terms of trade have a negative impact on this indicator. This negative effect of

LDTOT on gross domestic savings implies that these countries suffer from the deterioration of their terms of trade.

We also find that World Bank loans have a significantly negative impact on Gross Domestic Investment as a percentage of GDP. Unfortunately we do not find that these loans have any significant effect on Gross Foreign Direct Inflows, Gross Private Capital Flows, Foreign Direct Investment-net inflows all expressed as a percentage of GDP (GDI, GFDI, GPCFL, FDI_NIF). The impact of those loans on these indicators is negative, although the estimated coefficients are not significant. As history shows that MENA countries have been unable to keep national capital at home, and they have been unsuccessful at attracting foreign investors. Investment either domestic or foreign has been insufficient in these countries because the business environment is plagued by burdensome regulations. Privatization has been slow. Infrastructure quality is inadequate and financial markets remain underdeveloped.

All our findings support the existing theories that World Bank adjustment loans have a positive impact on GDP growth rates, GNP per capita growth rates, exports of goods and services growth rates and Current Account Balance, while they have a negative influence on investment whether domestic or foreign.

Additionally, we find that the use of World Bank adjustment loans as a percentage of GDP or as a percentage of total external debt have better explanatory power than the use of a dummy as previous studies have done.

Finally we notice that foreign investment indicators are first, self-driven and second they are influenced by political conditions that they are not within the scope of this study.

The following tables present the summary statistics, correlation statistics, and the detailed results for the regressions of the economic indicators under study on number of explanatory variables.

Table 4.2.1: Summary Statistics

Data		*Algeria*	*Egypt*	*Jordan*	*Morocco*	*Tunisia*	*Sample Statistics*
GDP_GR	Average	1.87	5.13	4.51	3.57	4.20	3.86
	Std. Dev.	2.98	2.35	6.90	5.86	2.92	4.62
GNP_P_GR	Average	-0.91	3.73	0.01	1.48	1.90	1.24
	Std. Dev.	2.86	6.87	7.82	6.26	3.48	5.89
Exp_GR	Average	2.75	5.49	9.06	6.40	4.86	5.71
	Std. Dev.	5.55	7.08	14.25	6.73	6.54	8.68
CAB	Average	0.06	-3.87	-4.99	-3.66	-4.73	-3.69
	Std. Dev.	2.40	5.68	5.50	4.19	2.98	4.65
GDS	Average	33.39	22.03	-1.34	16.25	22.30	18.53
	Std. Dev.	5.22	8.39	8.42	2.21	1.73	12.83
GDI	Average	31.90	24.40	30.63	23.31	27.79	27.61
	Std. Dev.	4.02	6.04	6.81	2.39	3.94	5.86
GFDI	Average	0.09	0.86	0.80	0.34	0.87	0.63
	Std. Dev.	0.20	0.45	0.78	0.30	0.62	0.60
GPCFL	Average	1.05	2.35	4.66	1.45	3.58	2.73
	Std.Dev.	0.61	0.69	5.10	0.50	1.21	2.75
FDI_NIF	Average	0.05	2.09	0.61	0.88	1.90	1.11
	Std. Dev.	0.20	1.03	0.82	0.86	1.19	1.17
WBL_G	Average	0.05	0.01	0.23	0.18	0.19	0.13

	Std. Dev.	0.11	0.06	0.45	0.21	0.33	0.28
WBL_D	Average	0.20	0.05	0.35	0.55	0.77	0.38
	Std. Dev.	0.42	0.22	0.61	0.63	1.31	0.76
UOIMFC_G	Average	0.47	0.25	0.86	1.38	0.50	0.69
	Std. Dev.	0.57	0.24	0.78	1.06	0.40	0.77
UOIMFC_D	Average	1.89	0.62	1.42	4.05	2.03	2.00
	Std. Dev.	2.25	0.50	1.45	2.95	1.60	2.21
Short_debt_G	Average	1.80	5.31	8.80	1.34	1.69	3.79
	Std. Dev.	1.43	3.31	4.22	1.16	0.93	3.84
Short_debt_D	Average	6.83	13.40	14.87	4.02	7.02	9.23
	Std. Dev.	5.04	4.93	6.11	3.30	3.78	6.25
Long_debt_G	Average	23.42	29.87	50.60	28.58	21.85	30.86
	Std. Dev.	2.80	9.95	14.38	3.49	1.45	13.05
Long_debt_D	Average	91.28	85.97	83.71	91.94	90.95	88.77
	Std. Dev.	3.42	5.20	5.29	6.05	4.60	5.90
Tot_debt_G	Average	25.69	35.44	60.26	31.29	24.04	35.34
	Std. Dev.	3.31	13.31	16.59	4.75	1.36	16.33

Aid	Average	0.48	6.13	13.00	3.35	2.24	5.04
	Std. Dev.	0.27	3.22	7.66	1.68	0.92	5.77
LDTOT	Average	-2.89	-3.06	-4.29	-3.47	-3.30	-3.40
	Std. Dev.	0.77	0.39	0.56	0.18	0.24	0.68
POP_GR	Average	2.68	2.30	4.16	2.03	2.19	2.67
	Std. Dev.	0.40	0.27	1.83	0.19	0.57	1.17
Infl_cpi	Average	15.10	15.08	6.52	6.48	6.31	10.06
	Std. Dev.	9.46	5.24	6.20	3.39	1.75	7.23
GDI_GR	Average	-1.24	1.47	7.13	2.69	3.08	2.62
	Std. Dev.	7.98	10.41	23.16	9.50	13.23	13.91

Table 4.2.2: Correlation Statistics

	GDP_gr	*GNP_p_gr*	*Exp_gr*	*CAB*	*GDS*	*GDI*	*GFDI*	*GPCFL*	*FDI_NIF*
GDP_gr	1.00								
GNP_p_gr	0.83	1.00							
Exp_gr	0.03	0.03	1.00						
CAB	-0.11	0.01	0.15	1.00					
GDS	-0.16	0.00	-0.16	0.26	1.00				
GDI	0.18	0.06	0.08	-0.25	0.04	1.00			
GFDI	0.12	0.09	0.12	-0.26	-0.28	0.27	1.00		
GPCFL	0.18	0.02	0.07	-0.35	-0.27	0.17	0.21	1.00	
FDI_NIF	0.12	0.18	0.08	-0.25	-0.04	-0.01	0.78	0.09	1.00
WBL_G	0.00	-0.04	0.13	0.02	-0.10	-0.05	-0.08	-0.07	-0.16
WBL_D	0.04	0.01	0.14	0.12	0.02	-0.15	-0.13	-0.08	-0.13
DUMWBL	0.01	-0.02	0.10	0.13	0.04	-0.14	-0.21	-0.13	-0.25
UOIMFC_G	-0.06	-0.08	0.06	-0.19	-0.18	-0.16	-0.23	-0.05	-0.37
UOIMFC_D	-0.06	-0.04	0.05	-0.13	0.00	-0.21	-0.27	-0.14	-0.33
Short_debt_G	0.16	-0.03	0.11	-0.33	-0.60	0.25	0.25	0.50	0.08
Short_debt_D	0.30	0.14	0.12	-0.21	-0.43	0.34	0.31	0.26	0.20
Long_debt_G	-0.06	-0.20	0.12	-0.38	-0.60	0.15	0.05	0.45	-0.14
Long_debt_D	-0.30	-0.14	-0.14	0.26	0.46	-0.28	-0.22	-0.22	-0.09
Tot_debt_G	-0.01	-0.17	0.12	-0.39	-0.63	0.17	0.09	0.48	-0.11
Aid	0.23	0.04	0.24	-0.14	-0.67	0.18	0.25	0.44	0.04
LDTOT	0.03	0.14	-0.19	0.00	0.69	0.10	-0.20	-0.23	0.06
POP_GR	0.07	-0.14	0.05	-0.25	-0.40	0.33	0.00	0.75	-0.24
INFL_CPI	-0.20	-0.15	-0.05	0.00	0.35	0.15	0.05	-0.11	0.02
GDI_gr	0.49	0.40	0.12	-0.11	-0.19	0.22	0.12	0.18	0.08

Table 4.2.2: Correlation Statistics (continued)

	WBL_G	*WBL_D*	*DUMWBL*	*UOIMFC_G*	*UOIMFC_D*	*Short_ debt_G*	*Short_ Debt_D*
WBL_G	1.00						
WBL_D	0.87	1.00					
DUMWBL	0.77	0.82	1.00				
UOIMFC_G	0.41	0.36	0.48	1.00			
UOIMFC_D	0.34	0.39	0.48	0.93	1.00		
Short_debt_G	-0.03	-0.19	-0.24	-0.04	-0.25	1.00	
Short_debt_D	-0.19	-0.27	-0.35	-0.19	-0.33	0.86	1.00
Long_debt_G	0.26	0.00	0.04	0.25	-0.03	0.76	0.41
Long_debt_D	0.07	0.14	0.19	-0.14	-0.02	-0.82	-0.94
Tot_debt_G	0.22	-0.02	-0.01	0.24	-0.04	0.84	0.52
Aid	0.15	-0.04	-0.05	-0.02	-0.19	0.72	0.60
LDTOT	-0.08	0.00	-0.07	-0.18	-0.09	-0.34	-0.17
POP_GR	-0.04	-0.14	-0.18	-0.03	-0.22	0.73	0.45
INFL_CPI	-0.08	-0.09	-0.04	-0.06	0.00	0.02	0.01
GDI_gr	0.17	0.09	0.05	0.00	-0.02	0.12	0.12

Table 4.2.2: Correlation Statistics (continued)

	Long_debt_D	*Tot_debt_G*	*Aid*	*LDTOT*	*POP_GR*	*INFL_CPI*	*GDI_gr*
Long_debt_D	1.00						
Tot_debt_G	-0.54	1.00					
Aid	-0.56	0.62	1.00				
LDTOT	0.21	-0.43	-0.51	1.00			
POP_GR	-0.39	0.72	0.58	-0.26	1.00		
INFL_CPI	-0.01	-0.01	-0.03	0.19	-0.08	1.00	
GDI_gr	-0.12	0.14	0.26	-0.14	0.02	-0.15	1.00

Table 4.3.1: Annual Gross Domestic Product growth rate (GDP_GR)

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	4.58[3]	4.99[2]	-34.31	4.51[3]
	(2.38)	(2.29)	(23.37)	(24.41)
WBL_G	2.64[3]	2.47[3]		
	(1.55)	(1.52)		
WBL_D			0.95[2]	
			(0.47)	
WBL_Dummy				1
				(0.9)
Short_Debt_G	0.9[1]	0.84[1]		0.8[1]
	(0.21)	(0.2)		(0.22)
Short_Debt_D			0.6[1]	
			(0.23)	
Long_Debt_G	-0.2[1]	-0.2[1]		-0.18[1]
	(0.07)	(0.07)		(0.07)
Long_Debt_D			0.33	
			(0.23)	
Aid	-0.07		-0.12	-0.05
	(0.1)		(0.1)	(0.11)
LDTOT	-0.6	-0.5	-1.1	-0.52
	(0.6)	(0.6)	(0.7)	(.66)

POP_GR	-0.11	0.17	0.27	-0.12
	(0.56)	(0.55)	(0.48)	(0.57)
R^2	39.4%	38.42%	41.37%	35.1%
Adjusted R^2	34.74%	34.5%	36.86%	30.1%
F-statistic	8.45	9.86	9.17	7.03
DW- statistic	2.22	2.21	2.14	2.33
# of panel observations	85	85	85	85

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.2: Annual per capita GNP growth rate (GNP_P_GR)

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	-29.89	5.1	3.39	-3.23
	(29.2)	(3.65)	(2.9)	(25.05)
WBL_D	1.08[3]			
	(0.56)			
WBL_Dummy		1.96[3]	1.97[2]	1.77[3]
		(1.15)	(1.03)	(1.1)
Short_Debt_G		0.65[2]	0.72[1]	
		(0.31)	(0.28)	
Short_Debt_D	0.54[3]			0.3
	(0.29)			(0.24)
Long_Debt_G		-0.2[1]	-0.2[1]	
		(0.09)	(0.08)	
Long_Debt_D	0.3			-0.03[3]
	(0.29)			(0.25)
Aid	-0.09	0.05	0.002	-0.07
	(0.19)	(0.21)	(0.21)	(0.17)
LDTOT	-0.48	-0.08	-0.72	-0.58
	(0.98)	(0.96)	(0.72)	(0.76)
POP_GR	-1.16[3]	-0.7	-0.43	-0.85
	(0.69)	(0.79)	(0.71)	(0.65)

INFL_CPI			-0.13[1]	-0.11[2]
			(0.05)	(0.05)
AR(1)			-0.28[1]	-0.28[1]
			(0.12)	(0.12)
R^2	13.06%	12.39%	25.61%	24.57%
Adjusted R^2	6.4%	5.66%	16.85%	15.7%
F-statistic	1.95	1.83	2.92	2.01
DW- statistic	2.33	2.42	1.99	2.77
# of panel observations	85	85	77	77

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.3: Annual exports of goods and services growth rate (EXP_GR)				
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	6.59	28.22	4.81	7.14
	(14)	(38.65)	(3.38)	(14.1)
WBL_D	1.66[2]	1.48[2]	1.67[2]	
	(0.87)	(0.89)	(0.81)	
WBL_Dummy				2.24
				(1.5)
Long_Debt_D	-0.02	-0.23		-0.02
	(0.15)	(0.38)		(0.15)
Aid	0.26	0.3	0.27	0.27
	(0.23)	(0.24)	(0.21)	(0.23)
LDTOT	-0.38	0.13	-0.22	-0.17
	(1.1)	(1.27)	(1.1)	(1.1)
INFL_CPI	-0.17[2]	0.16[2]	-0.16[2]	-0.18[2]
	(0.08)	(0.08)	(0.08)	(0.08)
GDI_GR	-0.03			
	(0.06)			
R^2	9.7%	10.94%	10.6%	7.6%
Adjusted R^2	2.4%	3.8%	5.95%	1.6%
F-statistic	1.34	1.53	2.28	1.26

DW- statistic	2.28	2.28	2.29	2.27
# of panel observations	82	82	82	82

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.4: Current Account Balance as a percentage of GDP

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	-4.94[3]	-4.94[3]	-48.35[3]	34.3
	(2.86)	(26.36)	(26.29)	(35.09)
WBL_D	0.82[2]	0.7[3]		
	(0.42)	(0.42)		
WBL_Dummy			0.96	2.05
			(0.87)	(1.63)
UPOMFC_D	-0.34			
	(0.42)			
Short_Debt_D		0.2	0.23	-0.27
		(0.27)	(0.28)	(0.34)
Long_Debt_D		0.43[3]	0.45[3]	-0.27
		(0.26)	(0.26)	(0.35)
Aid	-0.42[1]	-0.42[1]	-0.35[1]	0.18
	(0.13)	(0.13)	(0.13)	(0.21)
LDTOT	-0.96	-1.07	-1.03	0.27
	(0.87)	(0.79)	(0.77)	(1.07)
INFL_CPI	0.12	0.12	0.13[3]	-0.19[1]
	(0.08)	(0.08)	(0.08)	(0.07)
GDI_GR	-0.07[1]	-0.07[1]	-0.07[1]	-0.02
	(0.02)	(0.02)	(0.02)	(0.06)

AR(1)	0.46[1]	0.44[1]	0.41[1]	-0.15
	(0.11)	(0.1)	(0.11)	(0.11)
R^2	53.39%	55.5%	54.6%	12.9%
Adjusted R^2	48.22%	49.8%	48.7%	2.69%
F-statistic	10.3	9.68	9.32	1.26
DW- statistic	2.2	2.3	2.29	2.1
# of panel observations	71	71	71	77

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.5: Gross Domestic Savings as a percentage of GDP

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	2.02	5.9	2.38[1]	7.14
	(5.17)	(3)	(0.5)	(5.99)
WBL_G	2.2[1]	5.65[3]		
	(0.62)	(2.96)		
WBL_Dummy				0.06
				(0.57)
UOIMFC_G	-2.28[1]	0.43	-2.3[1]	-0.32
	(0.8)	(0.97)	(0.8)	(0.95)
Aid	0.03	0.1		0.14
	(0.15)	(0.2)		(0.15)
LDTOT	-5.49[1]	0.008	-5.85[1]	-3.76[1]
	(1.11)	(1.04)	(0.63)	(1.27)
POP_GR			0.26	
			(0.29)	
INFL_CPI	0.035	-0.17[1]	0.05	0.005
	(0.08)	(0.06)	(0.08)	(0.08)
GDI_GR	0.0008			0.02
	(0.01)			(0.02)
AR(1)	0.92[1]	-0.17	0.92[1]	0.92[1]

	(0.03)	(0.11)	(0.02)	(0.03)
R^2	98.7%	14.1%	98.8%	
Adjusted R^2	98.6%	5.4%	98.7%	98.8%
F-statistic	769.5	1.6	1162.9	975.6
DW- statistic	2.77	2.12	2.72	2.77
# of panel observations	77	77	77	77

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.6: Gross Domestic Investment as a percentage of GDP

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	20.82[1]	22.1[1]	22.61[1]	20.9
	(4.52)	(3.7)	(3.7)	(3.66)
WBL_G	-1.72[2]	-1.74[2]		
	(0.89)	(0.87)		
WBL_D			-0.72[1]	
			(0.27)	
WBL_Dummy				-1.19[1]
				(0.41)
UOIMFC_G		0.86		
		(0.64)		
UPOMFC_D			0.3	0.39[3]
			(0.24)	(0.22)
TOT_Debt_G	0.03			
	(0.06)			
Aid	0.13	0.15	0.13	0.2[2]
	(0.12)	(0.11)	(0.11)	(0.11)
LDTOT	0.03	0.3	0.43	0.03
	(0.94)	(0.93)	(0.94)	(0.94)
INFL_CPI	0.09[3]	0.1[2]	0.1[2]	0.1[2]

	(0.05)	(0.05)	(0.05)	(0.05)
GDI_GR	0.09[1]	0.09[1]	0.09[1]	0.09[1]
	(0.02)	(0.01)	(0.01)	(0.01)
AR(1)	0.85[1]	0.84[1]	0.84[1]	0.84[1]
	(0.05)	(0.05)	(0.05)	(0.05)
R^2	95.6%	96.7%	96.9%	97.8%
Adjusted R^2	95.2%	96.3%	96.6%	97.6%
F-statistic	215.3	286.3	306.3	441.7
DW- statistic	1.63	1.67	1.64	1.62
# of panel observations	77	77	77	77

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.7: Gross Foreign Direct Investment as a percentage of GDP				
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	-0.06	-0.02	-0.02	-0.15
	(0.15)	(0.16)	(0.16)	(1.94)
WBL_G	-0.001			
	(0.1)			
WBL_Dummy		-0.01	-0.01	-0.01
		(0.03)	(0.03)	(0.03)
Short_Debt_G		0.01	0.01	
		(0.01)	(0.01)	
Short_Debt_D				0.005
				(0.02)
Long_Debt_G		0.0005	-0.0005	
		(0.006)	(0.006)	
Long_Debt_D				0.001
				(0.02)
TOT_Debt_G	0.002			
	(0.005)			
Aid	-0.0002	-0.002	0.002	0.004
	(0.02)	(0.02)	(0.02)	(0.02)
LDTOT	-0.02	-0.02	-0.02	-0.02

	(0.02)	(0.02)	(0.02)	(0.03)
AR(1)	0.81[1]	0.81[1]	0.81[1]	0.81[1]
	(0.07)	(0.07)	(0.07)	(0.07)
R^2	36.23%	36.81%	36.8%	36.7%
Adjusted R^2	31.54%	31.15%	31.1%	31%
F-statistic	7.7	7.7	6.5	6.5
DW- statistic	1.67	1.67	1.7	1.7
# of panel observations	77	74	74	74

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.8: Gross Private Capital Flows as a percentage of GDP

Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	-0.06	-0.02	1.26	-7.7
	(0.15)	(0.16)	(1.16)	(8.9)
WBL_G	-0.0007			
	(0.1)			
WBL_Dummy		-0.01	-0.1	-0.1
		(0.03)	(0.2)	(0.2)
Short_Debt_G		0.01	0.14	
		(0.01)	(0.09)	
Short_Debt_D				0.13
				(0.09)
Long_Debt_G		0.0005	-0.02	
		(0.93)	(0.03)	
Long_Debt_D				0.08
				(0.09)
TOT_Debt_G	0.002			
	(0.005)			
Aid	-0.0002	0.002	0.06	0.06
	(0.02)	(0.94)	(0.06)	(0.05)
LDTOT	-0.02	-0.02	-0.2	-0.3
	(0.02)	(0.02)	(0.24)	(0.26)
AR(1)	0.81[1]	0.81[1]	0.65[1]	0.64[1]

	(0.07)	(0.07)	(0.1)	(0.1)
R^2	36.23%	36.8%	41.47%	43.1%
Adjusted R^2	31.54%	31.15%	36.22%	38%
F-statistic	7.7	6.5	7.9	8.5
DW- statistic	1.67	1.67	2.24	2.23
# of panel observations	74	74	74	74

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Table 4.3.9: Foreign Direct Investment-Net Inflows as a percentage of GDP				
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Constant	0.07	-0.06	0.02	-0.06
	(0.22)	(0.21)	(1.35)	(0.21)
WBL_G	0.007			
	(0.1)			
WBL_Dummy		-0.02	-0.02	-0.02
		(0.03)	(0.02)	(0.03)
Short_Debt_G	-0.03[3]	-0.03[2]		-0.03[2]
	(0.01)	(0.01)		(0.01)
Short_Debt_D			-0.01	
			(0.01)	
Long_Debt_G	-0.002	0.003		0.003
	(0.008)	(0.008)		(0.008)
Long_Debt_D			-4.10E-05	
			(0.01)	
Aid	0.02	0.02	0.01	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
LDTOT	0.002	-0.01	-0.006	-0.008
	(0.03)	(0.03)	(0.03)	(0.03)
INFL_CPI	0.0009			
	(0.002)			
AR(1)	0.78[1]	0.78[1]	0.78[1]	0.78[1]

	(0.07)	(0.07)	(0.07)	(0.07)
R^2	35%	33.6%	33.8%	38.6%
Adjusted R^2	28.4%	33.6%	33.8%	33.6%
F-statistic	5.3	7.65	7.7	7.6
DW- statistic	1.9	1.95	1.94	1.9
# of panel observations	77	80	80	80

[1]significant at 5% level of significance; [2]significant at 10% level of significance;

[3] significant at 20% level of significance

Chapter 5: Conclusions and Recommendations

5.1 Summary of Empirical Results

This study presented a quantitative analysis of adjustment programs in MENA countries. In other words, it assessed macroeconomic performance under World Bank's supported adjustment programs. We used main economic indicators to measure performance. these indicators are:

Annual GDP growth rate, is a particularly important performance indicator since adjustment policies aim at accelerating economic growth. But the gross domestic product may or may not increase more rapidly than population, hence the importance of the second indicator, which is annual GNP per capita growth rate. Export performance was measured by annual exports of goods and services growth rate. The savings indicator then investment indicators followed the Current Account Balance indicator whether domestic or foreign.

This study has shown that World Bank's adjustment programs appear to have a positive impact on most of the main economic indicators mentioned above. Adjustment programs in MENA countries are estimated to have boosted GDP growth. World Bank's involvement in these countries adjustment programs has, on average, been associated with better growth performance. These countries also expanded exports, they exhibited improvements in their current account balance, and increased their domestic savings rates.

Thus, adjustment programs have had a positive and statistically significant impact on growth, exports, Current Account Balance and Gross Domestic Savings. However, it

has had a negative impact on Gross Domestic Investment. It also had a negative, though not statistically significant, effect on foreign investment indicators.

The impact of adjustment programs on investment indicators should be interpreted carefully. Since adjustment is not found to reduce growth, it must have increased the average efficiency of capital. A decrease in the investment rate was part of the adjustment when the adjustment programs aims at curtailing low-efficiency public and private investment projects.

This decline came not only from lower private investment, probably caused in part by greater economic uncertainty at the start of an adjustment program. A reduction in the rate of private investment may be unavoidable in the initial phase of an adjustment program. With the pressure to reduce public sector deficits, many governments reduced their investment programs, because of the difficulty of reducing some kinds of subsidies, especially food subsidies. Such reductions of public investment especially in infrastructure can jeopardize the resumption of private investment. Expansion of efficient public investment, however, enhances the supply response to the reformed incentive structure by increasing the credibility of adjustment programs and thus contributing to the expansion of private investment (for further details see Rodrik, 1992).

To conclude we can say that the initial uncertainty when an adjustment program is started most likely discourages private investment. Investment does not respond well when investors, domestic and foreign, questions whether the government can sustain its reform and when legal and bureaucratic impediments are left untouched. Private investors often wait before making irreversible investment decisions, keeping their assets elsewhere (the waiting option, Dornbusch, 1991). A stable macroeconomic framework,

coupled with public investment in infrastructure that supports private investment, could contribute to increasing investment and thus restoring sustainable growth as adjustment continues. As the adjustment program becomes more credible, domestic and foreign investors start to believe that the new incentives are credible and consistent with the long-run objectives of economic policy, private investment in this case should start to increase. Output and savings should then rise further as investment boosts to growth of capacity. The economy then enters into a virtuous cycle.

5.2 Policy Recommendations

Following from the discussion in the previous chapters the following policy recommendations can be made for the enhancement of the welfare of MENA countries in general and more specifically of Egypt:

1- Promote non-oil exports:

We derive these recommendations from the East Asian experience, where successful exporters used four key elements:

a- Access for exporters to imports at world prices.

b- Export financing.

c- Assistance in market penetration.

d- Policy flexibility in response to changing circumstances.

What sectors are likely to fuel the growth in exports?

The main export growth so far has been in chemicals, clothing, machinery, textiles, and other manufacturers, such as carpets, gold, silver, and jewlery. Building

competitive advantage on this existing export capacity is the most promising approach in the immediate future.

2- Make the private sector more efficient:

Privatization needs to be a priority. Countries with large and inefficient public sectors (such as Algeria and Egypt) will have to focus simultaneously on selling off state-owned enterprises and trying to attract private investment in infrastructure. Countries with less burdensome public enterprise sectors (Such as Jordan, Morocco, and Tunisia) will be able to focus on attracting investment in infrastructure and other services that are crucial to long-term competitiveness.

Privatization programs in MENA countries are at different stages of implementation and have taken a variety of approaches. In general, privatization programs have been among the slowest of all reforms, reflecting the political difficulties of subjecting public enterprises to market forces.

A strategy of dismantling many of the currently burdensome regulations, while simultaneously building a system that addresses the needs of a more global economy, is necessary in many MENA countries. Key elements of such a system would include:

- Intellectual property rights to encourage investment in information.
- Environmental protection to account for externalities.
- Consumer safety standards to encourage quality improvements.
- Regulations to promote competition in the provision of infrastructure.
- Liberalization of financial markets (including greater foreign investment in financial services) to lower borrowing costs and provide greater long-term and equity finance.

International experience points to several lessons for countries that want to accelerate privatization:

- Centralize: Multiple agencies and reviews complicate implementation, and sectoral ministries or holding companies often have substantial vested interests in avoiding sales of their public enterprises. A single privatization agency, headed by a "champion" of privatization, has proven most effective elsewhere.
- Simplify the process: The most effective method is a simple, transparent auction in which price is the sole determinant of who buys the enterprise. Restrictions on potential buyers, complicated post-privatization conditions, and the use of multiple criteria for competing bids have slowed the process considerably.
- Sell privatization to the public: Public information campaigns are needed to explain the process, show that it is fair, and persuade the public and workers of the advantages.
- Use consultants and investment bankers: While responsibility for privatization should be centralized, implementation should be decentralized. Consultants or investment bankers should be paid a fee based on the sales price of the firm to ensure that they will have a strong incentive to sell enterprises quickly and at the highest price.

3- Reduce poverty through faster growth:

Higher growth is a prerequisite to reducing poverty and to providing a sustainable basis for adequate social spending and safety nets in the future. The difference between 0% and 1% average growth in the MENA region has a huge impact on poverty-no growth means 8 million more poor people in the region. Without the higher growth that reform can bring, the number of poor (living on less than $1 a day) would rise to about 15

million by 2010. And because there are many people in the MENA region who are very close to the poverty line, their vulnerability to poor economic outcomes is great.

Policies have to become much more specific, targeted to address the needs of the chronic poor. The amounts needed to eliminate poverty are small, but some leakages are inevitable, and targeting can be costly, both politically and administratively. Tunisia's subsidy program, which includes some targeting, still costs three times as much as would be needed to give all the poor the equivalent of the poverty line income each year. Egypt's social assistance program provides very small payments (about 5% of the poverty line) to 2.7 million beneficiaries, but administrative costs consume 12% of total costs.

The export orientation needed for growth is good for the poor because it creates lower-wage jobs that the poor can do. To ensure that growth is good for the poor, it is essential that wages are kept in check and remain flexible, especially in the early stages of reform. Morocco and Tunisia's recent success in reducing poverty stems in large part from the fact that growth created employment in the lower-wage jobs that favor the poor. Such expansion in low-wage job opportunities is the first step in lifting people out of poverty.

Also, to use resources better, women may well represent the most important untapped economic potential in many MENA countries. With the lowest female labor force participation rates in the world, women's human capital is underused in almost all MENA countries. In Morocco and Tunisia rising female labor force participation has been important in the recent decline in poverty. Moreover, the poor social indicators in many MENA countries can be directly attributed to the neglect of female education and

the inability to capture the enormous externalities from educating girls-in life expectancy, infant mortality, and nutrition. Yet the financial cost of redressing the gender gap in education in MENA countries is less than 1% of GDP, a trivial sum relative to the payoff in both incomes and social indicators. Overcoming the more binding social and cultural constraints to educating girls must be an important element of any strategy of reform.

Finally, we can say that the absolute costs of implementing some of the reforms outlined above are fairly small. Providing a package of basic health care interventions would cost less than 0.5% of the region's GDP. Paying every poor person enough to bring them to the poverty line is less than 1% of GDP in most countries. And eliminating the gender gap in education would cost less than 1% of the region's GDP. Economic growth is central to making such higher spending on the social sectors politically viable.

The costs of reform can be shared -with the private sector and with donors- and there is no shortage of financing to cushion the costs of adjustment in the MENA region. The approximately $350 billion in assets held abroad is just one source of potential financing for the massive investments in new industries, new infrastructure, and new commercial and social services. Also, private capital inflows are another source of potential financing. With such additional external support, the costs of reform in terms of lower consumption and higher unemployment can be significantly reduced.

The key is for international support to reinforce rather than replace the reform process. The central issue for governments is to have a credible long-term strategy. Thus, to be successful, the government must own an adjustment program. External financing alone won't work. It is important to diagnose the country's development problems and to build a consensus around the adjustment program.

5.3 Summary of Conclusions

This discussion focused on the effect that World Bank adjustment loans have on a variety of economic indicators. The study is applied to five MENA countries (Egypt, Jordan, Algeria, Morocco and Tunisia). The finding of the current study support the theory of a positive impact of World Bank's adjustment loans on GDP, GNP per capita, Exports growth, Gross Domestic Savings and a negative influence on investment indicators whether domestic or foreign. One of the innovations of this study is the use of the value of World Bank's adjustment loans as a percentage of GDP and total external debt instead of the use of dummy as the existing literature have done, we find that the use of World Bank's adjustment loans as a percentage of GDP or total external debt have better explanatory power than the use of a dummy variable.

Additionally, the dissertation includes a literature review, as well as policy recommendations. More specifically for Egypt we can conclude that it is necessary to promote non-oil exports, make the private sector more efficient and reduce poverty through faster growth.

5.4 Further Enhancements of the Model

The present study has a detailed discussion about the social dimensions of structural adjustment and their environmental implications. However due to data limitations it was not possible to assess the effect of structural adjustment programs on certain indicators, such as public expenditure on health as a percentage of GDP, sanitation as a percentage with access that's why it was not possible to include them into

the quantitative analysis of chapter 4. Further research for empirical evidence should be conducted, as data are becoming available.

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Evaluating the World Bank's Role in Supporting Structural Adjustment Programs in Developing Countries with Special Reference to Egypt

Dissertation directed by Prof.Dominick Salvatore.

This discussion focuses on the effect that World Bank adjustment loans have on a variety of economic indicators. The study is applied to five MENA countries (Egypt, Jordan, Algeria, Morocco, and Tunisia).

The findings of the current study support the theory of a positive impact of World Bank adjustment loans on GDP, GNP per capita, exports growth rates, Gross Domestic Savings, Current Account Balance and a negative influence on investment indicators whether domestic or foreign. One of the innovations of this study is the use of the value of World Bank's adjustment loans instead of the use of dummy as the existing literature have done.

Additionally, the dissertation includes a literature review, as well as policy recommendations. More specifically for Egypt we can conclude that it is necessary to promote non-oil exports, make the private sector more efficient and reduce poverty through faster growth.

VITA

Amal Nagah Elbeshbishi, daughter of Nagah Elbeshbishi and Mervat Abed was born on September 14, 1965, in Mansoura, Egypt. After graduating from College de la Sainte Famille and Mansoura Secondary School in Mansoura, Egypt, she entered College of Commerce at Mansoura University in 1982. In 1986, she received the Bachelor of Arts degree in Economics with Distinction. In 1992, she earned her Master of Arts degree in Economics. In 1993, she received Mansoura University Award for the best MA thesis.

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