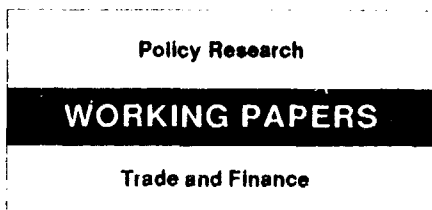


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# Public Sector Debt, Fiscal Deficits, and Economic Adjustment

## A Comparative Study of Six EMENA Countries

Alfredo E. Thorne  
and  
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Why did some highly indebted Latin American countries experience high inflation as a result of the external shock of the 1980s, while other countries managed to absorb the shock and resume growth?

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**This paper — a product of the Trade and Finance Division, Technical Department, Europe, Middle East, and North Africa Regional Office (EMENA) — is part of EMENA's regional study on external debt and inflation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Lanha Ly, room H9-071, extension 37352 (68 pages). January 1992.**

Thome and Dastgheib analyzed the experience of six countries in the EMENA region (Algeria, Morocco, Pakistan, Portugal, Turkey, and Yugoslavia), and compared it with the experiences of Latin American countries.

They conclude that some countries successfully absorbed the external shock of the 1980s by:

- Minimizing the effects of the external shock by combining external and domestic debt strategies.
- Adjusting their fiscal deficits.
- Experiencing a positive external shock.

- Fostering growth by stimulating export growth and developing domestic financial markets.

No single country fully implemented this strategy; those most successful in doing so were Morocco, Portugal, and Turkey.

Their experience contrasts with that of some Latin American countries that experienced a similar external shock but failed to undertake fiscal adjustment and financed most of their deficit through money finance --- thus experiencing high inflation levels and overburdening their private sector. In some respects, Yugoslavia had the same experience.

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1/ This paper was done as part of the EMENA Technical Department Regional Study on External Debt and Inflation. The authors would like to thank Roberto Rocha for allowing them to use his information on Yugoslavia.

## I. INTRODUCTION

In the 1980s developing countries were negatively affected by the international economy. OECD economies' adjustment policies of the early 1980s led to a sharp increase in international interest rates and to a fall in commodity prices which triggered the International Debt Crisis. While in the 1970s developing countries had ready access to international finance at negative real interest rates, in the 1980s international finance became almost unavailable and interest rates on foreign debt became positive in real terms. Such conditions compelled many highly-indebted developing countries to repay their external debts by producing a net transfer abroad. The increase in international interest rates to positive levels also increased these countries' cost of servicing their external debts. To confront these new conditions highly-indebted developing countries resorted to very different debt strategies.

Existing literature has devoted considerable attention to the Latin American experience but less has been given to heavily-indebted EMENA countries. This paper is an attempt to fill this gap. It analyzes the experiences of six EMENA countries in coping with the effects of changes in the international economy during the 1980s. The objective of the paper is to draw the differences and parallels between the experiences of these EMENA countries and those of the highly-indebted Latin American countries. This will enable us to distinguish the positive and negative aspects of each experience. The six EMENA countries are: Algeria, Morocco, Pakistan, Portugal, Turkey and Yugoslavia. The main criterion for their selection was diversity in strategies followed to deal with the International Debt Crisis. The only common feature is that all are heavily-indebted countries.

This paper is also different from other studies in the methodology used. Unlike other studies that have used flow data, we use data on stocks of total public debt to estimate real total public debt and real public sector (or operational) deficits.<sup>2</sup> This methodology will enable us to make comparisons among countries. But more importantly, by using stock data we will be able to define a consistency framework that links the public, external and private sectors; and to consolidate the non-financial public sector and the central bank. The consistency framework will enable us to analyze the effects of the public debt strategy on macroeconomic performance. The consolidation will provide us a more accurate measure of the total public sector debt, the public sector (non-financial public sector and quasi-fiscal) deficit and the sources of finance used. For instance, it is common for central banks in developing countries to take the role of the public sector and extend low-cost loans to particular sectors of the economy thus generating the so-called "quasi-fiscal deficits." Also, the consolidation of the non-financial and central bank will allow us to use and estimate of the total net public sector external debt, i.e., including the foreign assets and liabilities of the central bank. However, a disadvantage of using stocks of debt is that the analysis of the public sector will be limited to total public sector debt, the size of public sector deficits and their sources of finance. It will not be possible to analyze the composition of the revenues and expenditures. But such extensions are beyond the scope of this paper.

We concluded that strategies differ among countries and that these different strategies distinguish the successful from the unsuccessful experiences.

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2/ This methodology initially was developed in S. van Wijnbergen, R. Anand, A. Chibber and R. Rocha (1992). It was also used for the report: World Bank (1990). For further extensions and applications see Rocha (1991), van Wijnbergen (1989) and Thorne (1991).

Countries that coped successfully with the negative external shock of the early 1980s were those that: (i) minimized the effects of the external shocks by combining an external and domestic debt strategy; (ii) adjusted their fiscal deficit; (iii) experienced a positive external shock; and (iv) fostered growth by stimulating export growth and developing their domestic financial markets. In contrast, the less successful countries were the ones that postponed their fiscal adjustment and increased their total public sector indebtedness. In such cases the persistent fiscal imbalances led to a combination of high inflation rates and borrowers' reluctance to lend. In the extreme cases--notably some Latin American countries--this led to a dramatic surge in inflation levels which imposed a fiscal adjustment. The fiscal adjustment is a key element, not so much as an instrument to reduce the size of total real debt, but as a way to limit the growth in the total real debt to GDP ratio and as a way to impose greater efficiency to the economy. But fiscal adjustment, fostering growth and the reform of the financial system, should be sequenced in a pre-determined manner. For instance, a quick opening of the financial system in the absence of a fiscal adjustment could result in an increase in the inflation level, high real interest rates and a slowdown in GDP growth, thus undermining the overall strategy.

The organization of the paper is as follows. The next section opens the discussion on the public sector debt strategy by analyzing the size of the public debt and its composition among external and domestic sectors and the central bank. This discussion on countries' debt strategies is further pursued by explaining the role of exogenous and endogenous factors in increasing the ratios of external and domestic debt to GDP. The third section analyzes the role of fiscal deficit and financing and their effects on inflation. It also

looks at the problem of sustainable fiscal policy. The fourth section examines the effect of the public sector indebtedness on the domestic financial system. This will be done by analyzing the transfer problem and its effects on the private sector. In the last section we summarize our most important conclusions.

## II. THE PUBLIC SECTOR DEBT STRATEGY

A key objective of this comparative study is to understand the differences among countries in their public debt strategies. This can be done by analyzing how each country met the debt solvency condition and to what extent they also met the debt creditworthiness condition after the external shock of the early-1980s. The importance of the early-1980s external shock is that it led many countries to fail in meeting the debt creditworthiness condition.<sup>3</sup> The analysis of how countries met these two conditions would enable us to understand to what extent the public debt strategy and fiscal policy, in general, was sustainable. The solvency condition says that the net present value of total net public sector debt cannot be greater than the net present value of its total net fixed assets or, what is the same, that the net present value of the public sector net worth cannot be negative. The creditworthiness debt condition is a more difficult one and refers to the lenders' perception of the public sector ability to service its debt. This says that it is not only necessary for the public sector to be able to promptly service its debt, but that their lenders will also need to be convinced that this in fact will happen. Usually creditworthiness is assessed by the total public sector debt to GDP ratio and, in the case of external debt, also by its ratio to total exports.

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3/ See Cohen (1985).

In this section we will use the debt solvency and creditworthiness conditions to guide our analysis of the evolution and composition of public sector indebtedness. Although it is rare for a country to fail in meeting the debt solvency condition because it is always possible to increase taxes (conventional or the nonconventional inflation-tax) or reduce expenditures, a greater level of indebtedness is associated with worsening of economic conditions, i.e., lower economic growth. It is apparent that the rate of growth is affected by the tax level, by the size of public sector expenditures and by sharp reductions in public sector investment. Therefore, increases in the level of public sector indebtedness not corresponded by increases in public sector fixed assets would result in a lowering of public sector net worth. The analysis of public sector indebtedness will be undertaken by examining the evolution in total net public debt. This is a better proxy for public sector net worth than the external public sector debt used in other studies. The creditworthiness debt condition will be analyzed (in this and the following section) by examining how the external shock of the early-1980s affected the size of total public debt--i.e., the debt solvency condition--and the domestic policies that each country undertook to reduce the size and costs of servicing total public debt. In other words, the domestic policies undertaken by each country to regain creditworthiness.

#### A. Evolution of Public Debt

In the period 1979-89, the evolution of total public sector (PS) debt for the six countries showed two very different patterns. (See Figures 1a and 1b and Table 1.) The first pattern consisted of the total level of public indebtedness peaking in the mid-1980s and then falling in the late-1980s. The countries where this was more apparent are Morocco, Portugal, Turkey and



Yugoslavia. But of these four countries, Morocco is the country where the decreasing trend was less apparent; and Portugal and Yugoslavia where it was more apparent. The second pattern consisted of a constantly increasing trend in the level of public indebtedness. Examples are the cases of Algeria and Pakistan. However, this pattern was slightly more pronounced in Algeria than it was in Pakistan.

Concerning the level of total public debt, Morocco is the country with the highest level. By the mid-1980s, Morocco's ratio of total public debt to GDP reached about 130 percent. Although the other countries' level of total debt was lower, it was very high by international standards. For instance, the ratio of total public debt to GDP reached a maximum of about 92 percent in 1989 for Algeria; 109 percent in 1984 for Portugal and 95 percent in 1989 for Pakistan. These ratios compare closely to the total public debt to GDP ratios for Italy and Belgium, which are the OECD countries with the highest level of public indebtedness. (In 1986, Italy's ratio was 99 percent and Belgium's was 128 percent.<sup>4</sup>) The other two countries, Turkey and Yugoslavia, had a lower ratio of total public debt to GDP thus indicating a lower level of public indebtedness. In Turkey this ratio reached a maximum of 63 percent in 1988 and in Yugoslavia it reached 52 percent in 1984.

**External Public Sector Debt.** Another important characteristic of the evolution of total public debt has been the large contribution of external public debt. In most of the six countries the external public debt accounted for more than half of the total public debt. This characteristic has been particularly clear during the periods of the highest level of public indebtedness, such as

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4/ See: OECD (1990).

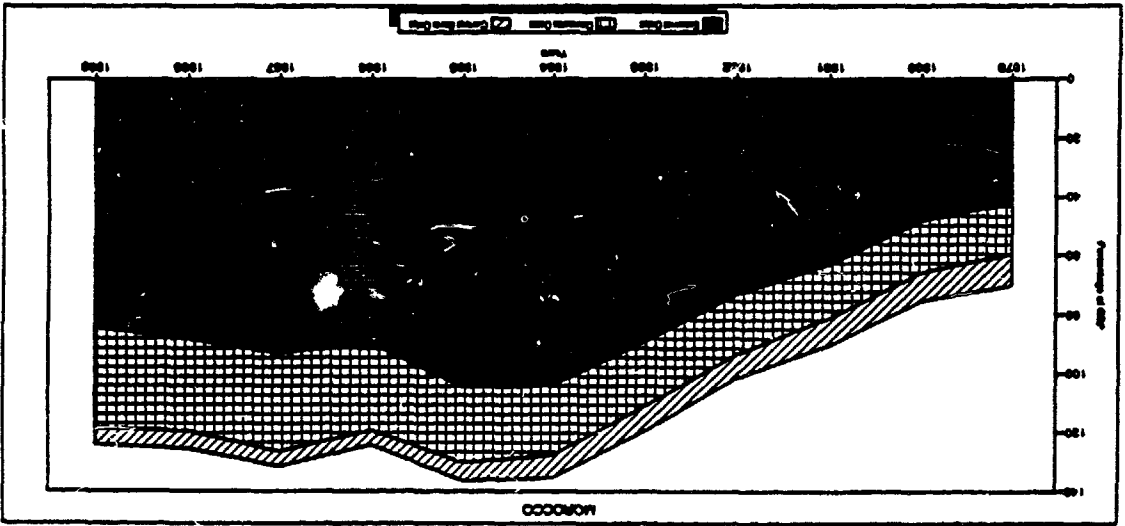
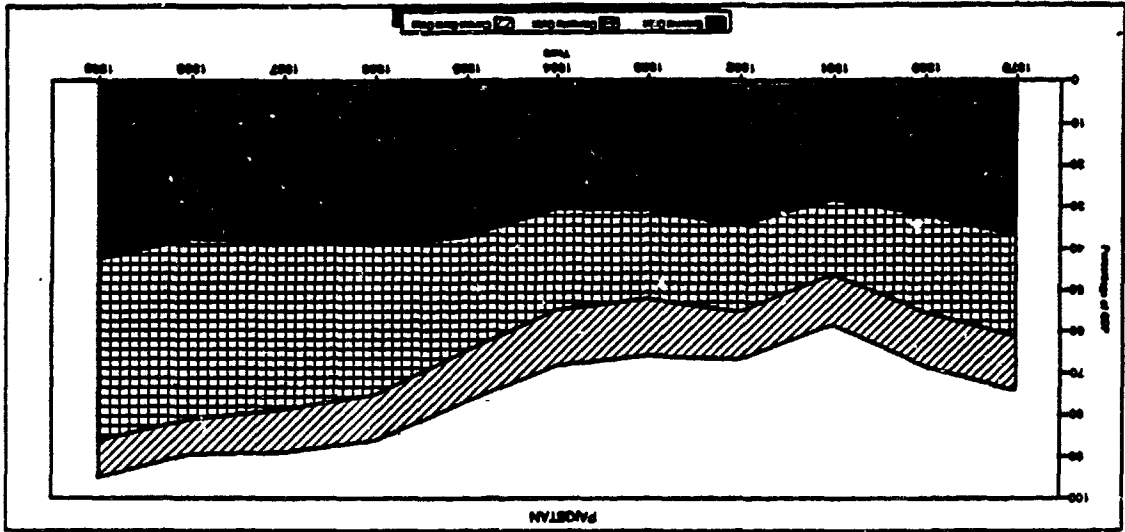


FIGURE 1a  
STRUCTURE OF TOTAL PUBLIC DEBT

FIGURE 1b  
STRUCTURE OF TOTAL PUBLIC DEBT

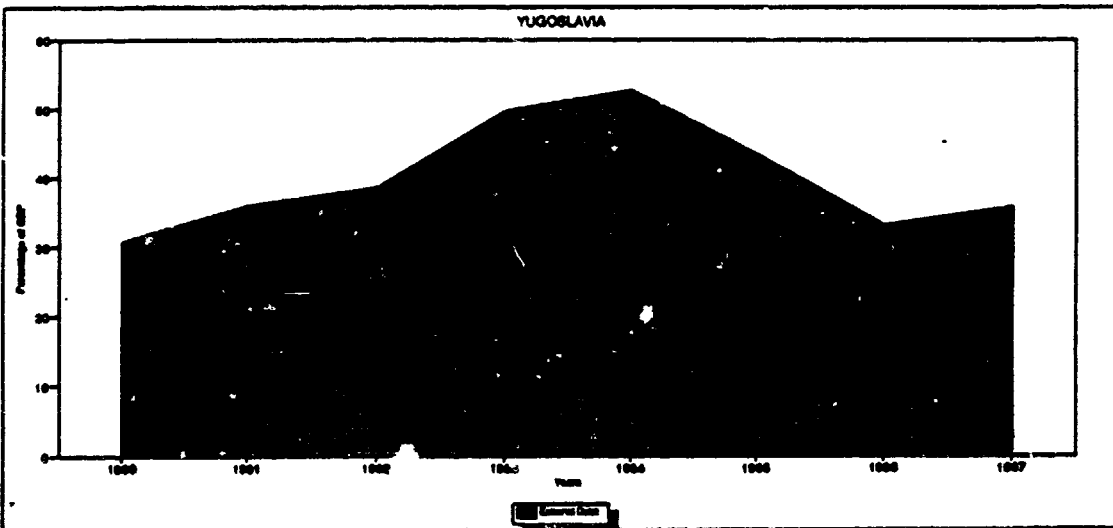
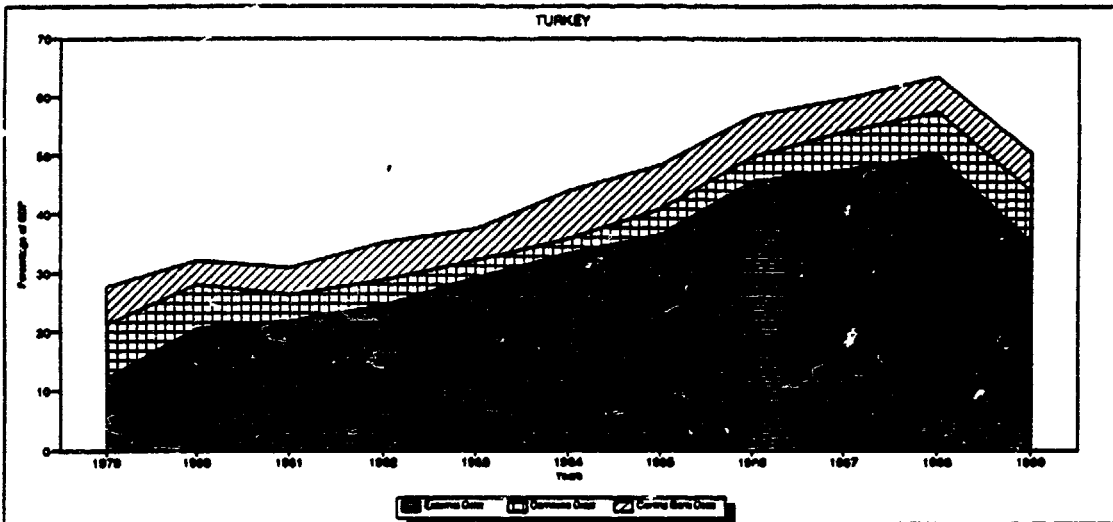
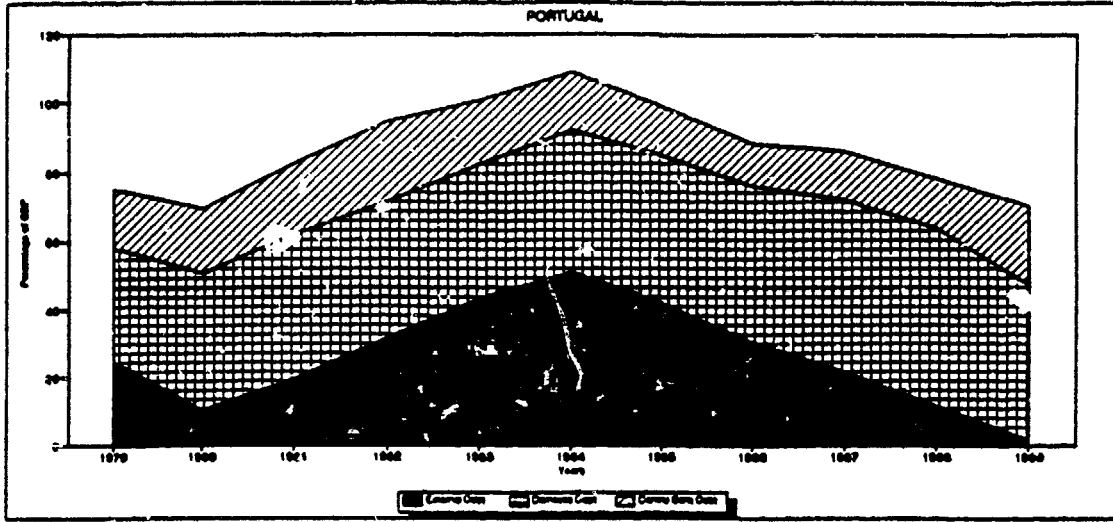


TABLE 1: STRUCTURE OF PUBLIC SECTOR DEBT  
(Percentage of GDP)

ALGERIA:	1980-81	1982-84	1985-89
<b>I. TOTAL DOMESTIC DEBT PLUS CENTRAL BANK FINANCE</b>			
A. Domestic Debt Finance	14.4	18.6	21.3
Banks	3.0	3.3	5.2
Private Sector	5.1	6.4	5.8
BAD & CNEP	6.3	8.9	10.4
B. Central Bank Finance	15.9	13.7	19.3
<b>II. TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains)</b>	39.5	49.0	58.3
Liabilities	50.8	56.1	63.7
Assets	11.2	7.1	5.4
<b>IIa. TOTAL NET FOREIGN DEBT (Incl. K Losses/Gains)</b>	31.6	26.3	30.1
<b>MEMO:</b>			
ACCUMULATED FOREIGN EXCHANGE LOSSES (IIa-II)	-8.0	-22.7	-28.1
Domestic Debt Incl. Bad Loans to Enterprises	82.0	85.6	68.5
<b>MOROCCO:</b>			
	1980-81	1982-84	1985-89
<b>I. TOTAL DOMESTIC DEBT PLUS CENTRAL BANK FINANCE</b>			
A. Domestic Debt Finance	18.0	22.2	31.0
Net Bank Credit	8.0	9.4	15.2
Specialized Fin. Org.	1.9	2.2	2.0
NonFinancial Private Sector	3.2	3.0	7.3
Arrears	4.9	7.6	6.5
B. Central Bank Finance	9.5	8.1	5.7
<b>II. TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains)</b>	51.1	59.7	58.7
Liabilities	53.0	60.4	59.8
Assets	1.9	0.7	1.1
<b>IIa. TOTAL NET FOREIGN DEBT (Incl. K Losses/Gains)</b>	55.5	88.7	91.8
<b>MEMO:</b>			
ACCUMULATED FOREIGN EXCHANGE LOSSES (IIa-II)	4.4	29.0	33.1
<b>TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains and Debt Relief)</b>	51.1	55.3	54.0

TABLE 1: STRUCTURE OF PUBLIC SECTOR DEBT (cont...)  
(Percentage of GDP)

PAKISTAN:	1980	1982-84	1985-89
<b>I. TOTAL DOMESTIC DEBT PLUS CENTRAL BANK FINANCE</b>			
A. Domestic Debt Finance	20.8	22.2	38.3
B. Central Bank Finance	12.8	13.0	10.1
<b>II. TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains)</b>	34.6	38.4	31.5
Liabilities	42.7	47.9	36.2
Assets	8.1	9.5	4.8
<b>IIa. TOTAL NET FOREIGN DEBT (Incl. K Losses/Gains)</b>	29.9	31.9	38.8
<b>MEMO: ACCUMULATED FOREIGN EXCHANGE LOSSES (IIa-II)</b>	-4.6	-6.5	7.4

PORTUGAL:	1980-81	1982-84	1985-89
<b>I. TOTAL NET DOMESTIC DEBT PLUS CENTRAL BANK FINANCE</b>			
A. Total Domestic Debt	41.6	40.0	47.3
1. Instruments			
Bonds and Bills	18.3	15.0	34.3
Treasury bills	0.0	0.0	10.7
Government bonds and other	18.3	15.0	23.7
Net Bank Credit	23.3	25.1	13.0
2. Borrowers			
General Government	20.1	18.4	35.6
Nonfinancial PSEs	21.4	21.7	11.7
B. Central Bank Finance	19.7	19.6	15.7
<b>II. TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains)</b>	14.8	27.9	15.6
Foreign Liabilities	40.9	47.5	45.9
Foreign Assets	26.2	19.6	30.3
<b>IIa. TOTAL NET FOREIGN DEBT (Incl. K Losses/Gains)</b>	14.8	41.9	21.3
<b>MEMO: ACUMULATED FOREIGN EXCH. LOSSES (IIa-II)</b>	0.0	14.0	5.7

TABLE 1: STRUCTURE OF PUBLIC SECTOR DEBT (cont...)  
(Percentage of GDP)

TURKEY: 1/	1980-81	1982-84	1985-89
<b>I. TOTAL NET DOMESTIC DEBT PLUS CENTRAL BANK FINANCE (A+B)</b>			
<b>A. Total Domestic Debt</b>	6.0	3.3	6.3
<b>Instruments</b>			
Bonds and Bills	3.5	3.4	5.6
Net Bank Credit	3.1	1.9	1.8
EBFs	-0.5	-2.0	-1.1
<b>Borrowers</b>			
Central Government	2.4	2.9	5.3
Nonfinancial SEEs	4.1	2.4	2.1
EBFs	-0.5	-2.0	-1.1
<b>B. Central Bank Finance</b>	4.3	6.7	6.6
<b>II. TOTAL NET FOREIGN DEBT (Excl. K Losses/Gains)</b>	19.5	21.0	26.7
<b>IIa. TOTAL NET FOREIGN DEBT (Incl. K Losses/Gains)</b>	21.2	29.0	43.0
<b>MEMO: ACUMULATED FOREIGN EXCH. LOSSES (IIa-II)</b>	1.7	8.0	16.4

YUGOSLAVIA: 2/	1980-81	1982-84	1985-87
<b>Total Net Foreign Debt (incl. K losses/Gains)</b>	33.3	47.0	37.4
<b>Total Net Foreign Debt (excl. K losses/Gains)</b>	34.3	43.6	29.3

SOURCE: See statistical annexes.

1/ Percentage of GNP

2/ Percentage of GSP

the mid- and late-1980s, and the most extreme examples are Morocco, Turkey and Yugoslavia. In the case of Morocco total external debt accounted for 80 percent of total public debt at its highest in 1985, 79 percent for Turkey in 1988 and 100 percent for Yugoslavia in 1984. Although in the other countries external debt was not as important, nonetheless it made for about 50 percent of total public debt. In Algeria external debt accounted for 48 percent of total debt in 1989, 45 percent for Pakistan in 1989 and 47 percent for Portugal in 1984.

The high proportion of external public debt makes these six countries' external debt burden comparable to those of the highly-indebted countries. On average, the external debt to GDP ratio for the period 1983-85, (when it reached its highest level) was 100 percent for Morocco, 49 for Yugoslavia, 45 for Portugal, 33 for Turkey, 32 for Pakistan and 23 for Algeria. For the same period this ratio was 47 percent for the highly-indebted countries. However, these six EMENA countries are different from the highly-indebted in two respects. First, not all of the six countries were classified as highly-indebted and thus not eligible of the special treatment that these countries were subjected to. This in a way explains the differences in debt strategy followed. And second, unlike the highly-indebted countries, the six EMENA countries hold a substantial amount of domestic debt.<sup>5</sup>

**Domestic Public Sector Debt.** The composition between external and domestic public debt is another important feature of the six EMENA countries. Perhaps with the exception of Yugoslavia, the rest of the countries showed an increasing trend in their domestic debt to GDP ratios. This starts in the early

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<sup>5/</sup> Brazil and Mexico are exceptions of highly-indebted countries with low levels of domestic public debt.

1980s, which coincides with the beginning of the external debt problem. Within the six countries there have been two distinct patterns. The first one consisted of those countries whose domestic debt to GDP ratio increased sharply. These are the cases of Pakistan and Morocco. Pakistan's ratio increased from 21 percent in 1980-81 to 38 percent in 1985-89, while Morocco's increased from 18 to 31 percent. The second pattern consisted of the countries whose ratio did not show a sharp increase, but whose ratio evidence the importance of domestic debt in total public debt. These were the cases of Algeria whose ratio increased from 14 percent in 1980-81 to 21 percent in 1985-89; and Portugal whose ratio increased from 41 to 47 percent. Although Turkey's domestic debt has been relatively small as a share of total public debt, it showed a faster increase in the second half of the 1980s. The ratio of domestic debt to GDP increased from 3 percent in 1982-84 to 6 percent in 1985-89.

**Central Bank Public Sector Debt.** Another issue concerns the importance of central bank debt and its relation to total and domestic public debt.<sup>6</sup> Once again, it is possible to distinguish two distinct patterns among the six EMENA countries. The first is the group of countries where central bank debt was important relative to total public debt. The countries where this have been more apparent are Algeria and Turkey. It has also been the case of Yugoslavia, but data is not reported. In the cases of Algeria and Turkey this type of debt was as important as the total domestic debt. In Algeria and for the period 1980-86 the ratio central bank debt to GDP was 20 percent of GDP, while domestic debt was 22 percent; and in Turkey, it was 8 percent while domestic debt was 9

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6/ The ratio of total central bank debt to GDP measures the real stock of central bank public sector debt outstanding and should not be taken as the volume of central bank finance.



percent. The second pattern are the countries where this type of debt was relatively unimportant. These have been the cases of Morocco and Pakistan. Portugal has been a rare case because although central bank debt was important, it was relatively low compared to total and domestic public debt.

The increasing reliance on domestic and central bank debt starting in the early-1980s has been an important feature of countries' response to the external debt problem. Countries responded to the increasing cost of external debt and to the international market rationing, by increasing their domestic or central bank debt. Analyses of some individual country experience indicates that this was explained by the authorities' inability to increase in the short run the volume of public revenues.<sup>7</sup> Tax systems in most of these countries were either inefficient (low level of compliance) or their tax bases were very narrow (due to low income levels). In the past--partly due to the access to low-cost international debt--the individual country authorities felt no need to develop their tax systems and thus when the external debt crisis occurred most countries had weak tax systems. The increase in tax revenues required a comprehensive tax reform, and in most cases this constituted a long-term reform. Also, and for similar reasons, the mix between domestic and central bank debt is related to the ability of the authorities to increase their borrowing domestically. As will be discussed later, this was due to the fact that some countries had a more developed domestic financial system which was capable of providing this additional financing and that the authorities followed a low-inflation policy to encourage its development further.

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7/ Examples are: Montiel and Haque (1990) and Faini (1991).

An important perspective of the public debt problem of these six EMENA countries can be provided by comparing their experience with that of the more developed OECD countries.<sup>8</sup> First is the composition of debt. While these countries' total public debt consisted mainly of external debt, developed countries' public sector debt consisted mostly of domestic debt. This difference made the debt problem of these six countries more prone to external shocks as that of the early-1980s. Second is the use of debt. While more developed countries increased their level of indebtedness to finance their capital accumulation (the only exceptions being the finance of wars), this is not so clear in the case of these six countries. If that was the case, the productivity of capital would have increased in the 1980s. And there is no indication that that happened. On the contrary, there is indication that the external public debt substituted partly for current revenues as evidenced by the weakening of their tax systems and also that it was invested in not very efficient investment projects. These differences made the public debt problem of these countries more difficult and countries more prone to external and domestic shocks. Third is the method used for reducing the debt to GDP ratios. In the case of the developed countries this resulted from an increase in capital productivity (higher growth rates) and an increase in tax revenues. The six EMENA countries showed a different pattern. A first group while reducing their total public debt, increased their domestic public debt; and the second group increased their total public debt by increasing central bank public debt.

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8/ See Buitter (1985); Chouraqui, Jones and Montador (1986) and OECD (1990).

**B. Factors Explaining the Change in the Debt to GDP Ratio**

We now can turn to the analysis of the effects of the early-1980s external shock and of domestic policies on the total public sector debt to GDP ratio. This will enable us to further understand the differences in debt strategy followed by each country. In particular, it will enable us to understand how differently each of these six countries was affected by the external shock and how they responded. In addition, it will enable us to understand the factors that led the debt to GDP ratio to increase (or decrease) faster in some countries relative to others. The exogenous factors will be defined as the effects of the external shock on the debt to GDP ratio and the endogenous factors as the effects of domestic policies.

**External Debt**

We can analyze the effects of the external shock and of the domestic policies on the external PS debt by breaking down the change in the external PS debt to GDP ratio as shown in equation (1):

$$\begin{aligned}
 (1) \quad \Delta \left[ \frac{b^*_t \cdot e_t}{rgdp_t} \right] &= \frac{[\Delta \tilde{b}^*_t \cdot \tilde{e}_{80}]}{rgdp_t} + \frac{[\Delta b^*_t \cdot e_t - \Delta \tilde{b}^*_t \cdot \tilde{e}_t]}{rgdp_t} \\
 &+ \frac{[\Delta \tilde{b}^*_t \cdot \tilde{e}_t - \Delta \tilde{b}^*_t \cdot \tilde{e}_{80}]}{rgdp_t} - rg\hat{d}p_t \cdot \frac{[b^*_{t-1} \cdot e_{t-1}]}{rgdp_t}
 \end{aligned}$$

$b^*$  is the stock of total net PS debt in current US dollars divided by a trade-weighted average international price index with weights given by the

currency composition of each country's trade,  $e$  is the real effective exchange rate,  $rgdp$  is the GDP in constant 1980 prices,  $\tilde{b}^*$  is the stock of net external PS debt in dollars net of capital losses due to fluctuations in international exchange rates (measured at 1980 exchange rates) divided by an international trade-weighted average price index net of fluctuations in international exchange rates (also measured at 1980 exchange rates),  $e$  is the real effective exchange rate using this international price index net of fluctuations in international exchange rates,  $\Delta$  indicates first difference of a variable, a hat above a variable indicates the rate of change and the subscripts on variables are indices for time period.

Using equation (1) we can analyze both the effects of the external shock and of domestic policies. The first term in equation (1) measures the effect of changes in the stock of external PS debt free of capital losses, that is, the debt measured at 1980 international and domestic exchange rates. This estimate is unaltered by both changes in the international exchange rates or changes in domestic real exchange rate or both. Although the conventionally measured ratio of external PS debt to GDP (Figures 1a and 1b) can artificially fall if the authorities let the domestic currency overvalue or if the international exchange rates fluctuate, the first term in equation (1) would be unaffected. The second term, the effect of foreign factors or exogenous factors, measures the effect of changes in international exchange rates and in the composition of the external PS debt. (Although it also includes cross effects, these are assumed to be small.) The third term measures the effects of changes in the real effective exchange rate. And the fourth term measures the effect of the rate of growth of GDP. These estimates are reported for the six countries in Figures 2a and 2b.

**Exogenous Factors.** Using equation (1) we can explain the different elements of each country external debt strategy. We start by considering the effects of the external shock. The six countries differ in terms of access to fresh external resources. In general, the greater a country's access to external resources, the less painful the adjustment to the 1980s external shock. This is indicated by the change in the stock of external PS debt free of capital losses. When it is positive, it indicates that the country benefitted from a positive transfer from abroad and when it is negative it indicates that the country experienced a negative transfer. A key difference between these six countries and the Latin American highly-indebted countries was their access to foreign financing in 1980-84. In 1980-84, the six countries increased their stock of external PS debt free of capital losses (raised real resources from abroad). In 1985-89, the experience of these six countries differed. While Algeria, Turkey, Pakistan and Morocco benefitted from a transfer from abroad, Portugal and Yugoslavia had to transfer resources abroad.<sup>9</sup> The access to foreign resources made the adjustment to the external conditions of the 1980s less painful.

The other foreign factor was the combined effect of the change in international prices and in composition of external PS debt. The price and currency composition effects quantifies the effect of trade shocks on the external PS debt. This results from our definition of stock of external PS debt in 1980 constant dollars, as expressed by equation (2):

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9/ Portugal's case is different from that of Yugoslavia. While Yugoslavia performed a transfer abroad by repaying external PS debt, Portugal accumulated a large volume of foreign exchange reserves as a result of its good economic performance. However, in both cases the effect was to reduce the net external PS debt.

FIGURE 2a  
DECOMPOSITION OF CHANGES IN EXTERNAL DEBT TO GDP RATIO

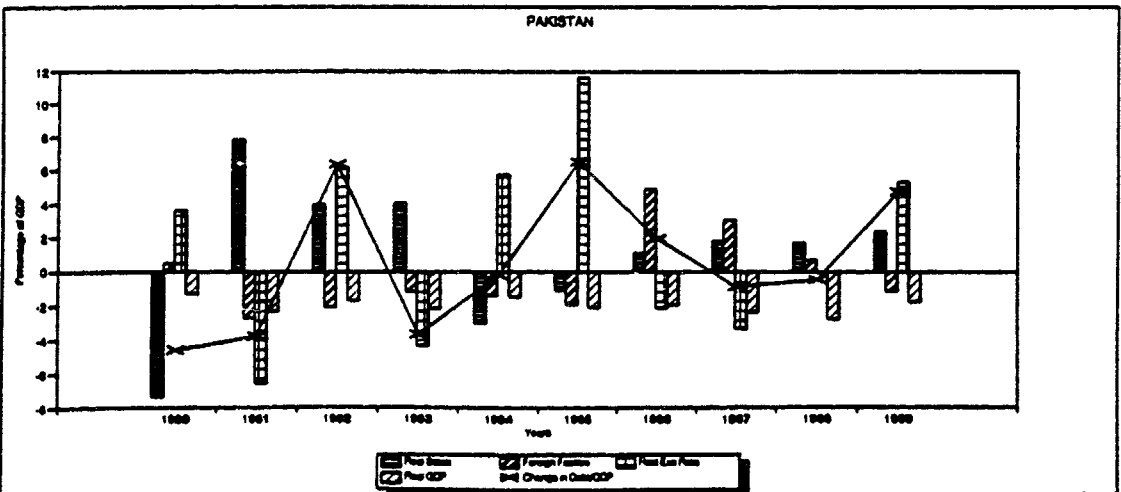
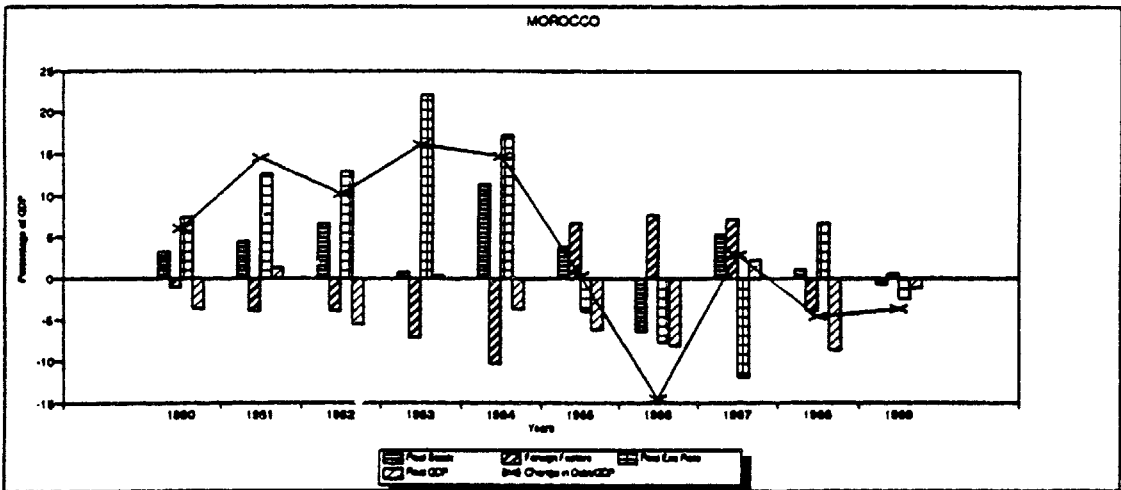
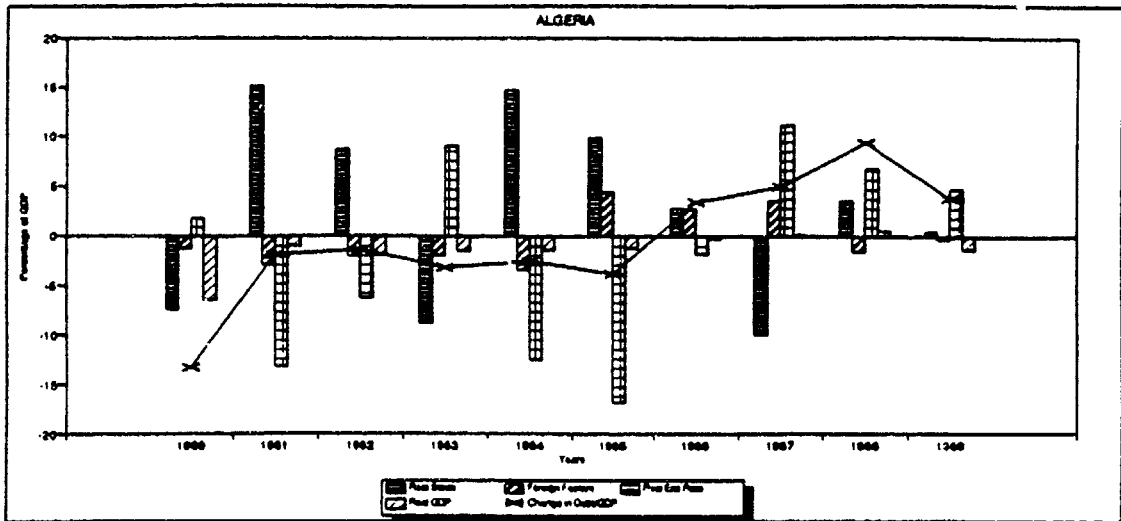
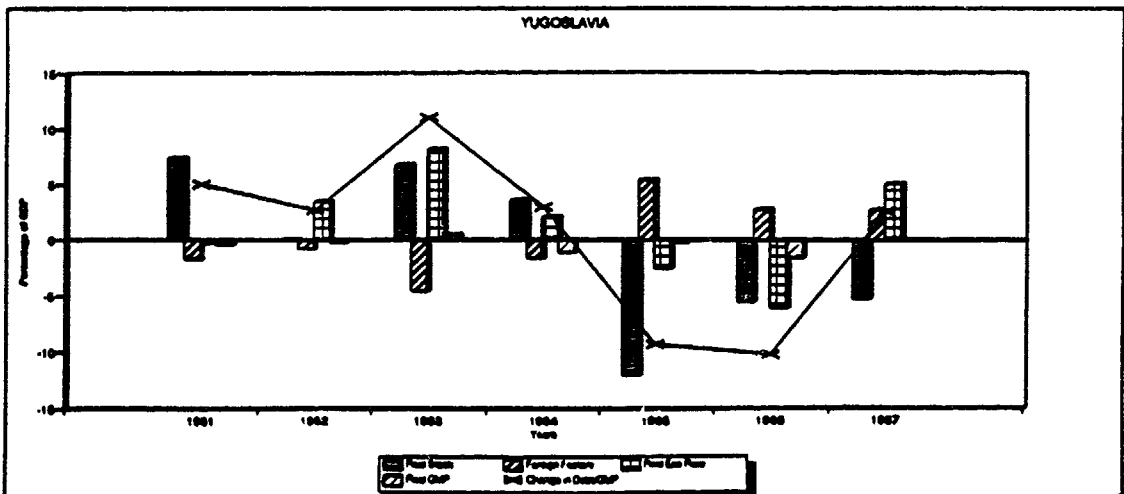
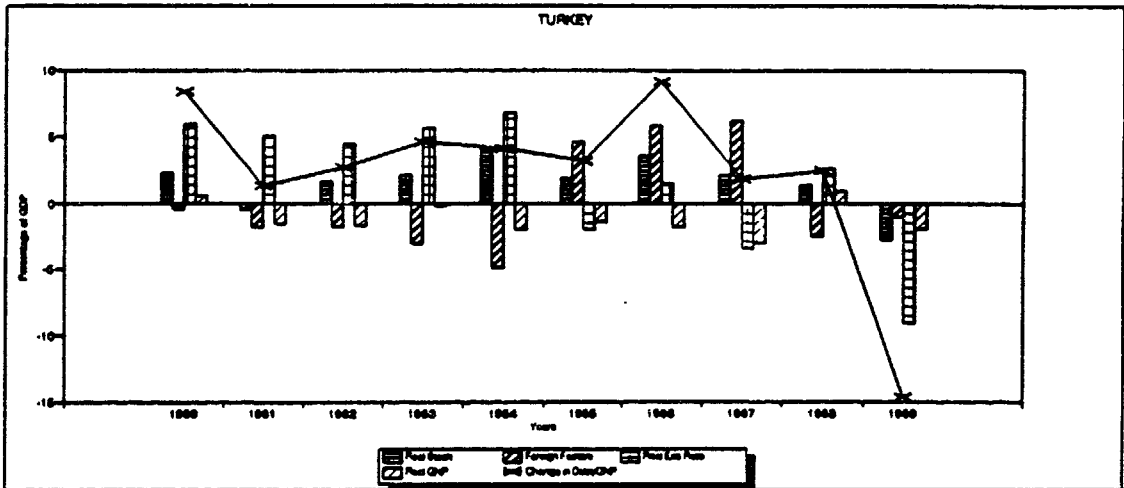
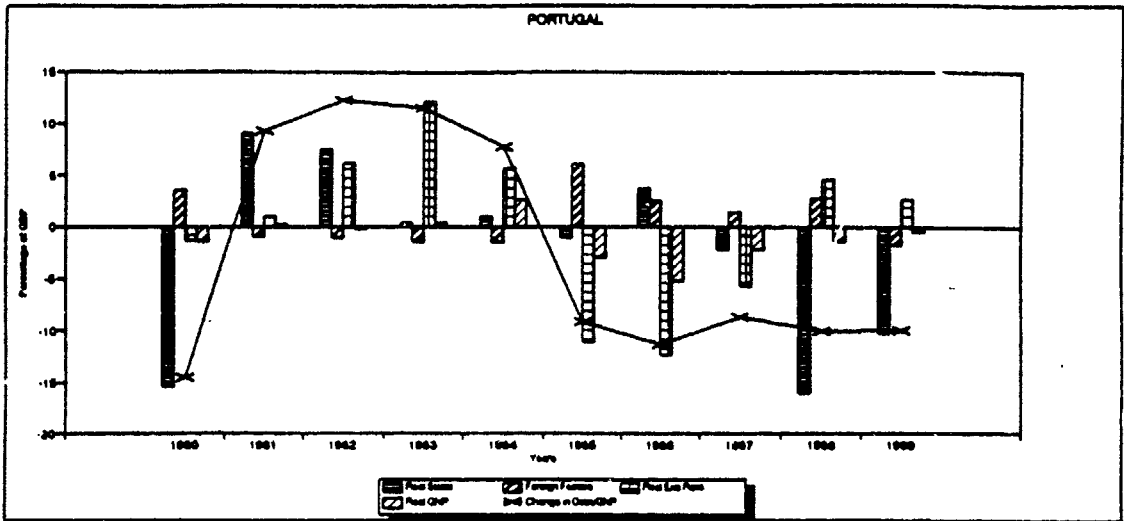


FIGURE 2b  
DECOMPOSITION OF CHANGES IN EXTERNAL DEBT TO GDP RATIO



$$(2) \quad b^* \equiv \frac{B^*}{P^*}$$

B\* is the stock of external PS debt denominated in current dollars and P\* is the trade-weighted average international price index with weights given by trade currency composition.

Equation (2) indicates that it will be more expensive for a country to service its debt if the currency composition of the debt and trade differ and if the trade-weighted average international price index falls. These effects will undermine the cost of the external PS debt by making it more expensive in terms of purchasing power parity of trade flows. This will be true notwithstanding the fact that a price fall might result in an unrealized capital loss because it will have an immediate effect on: (i) the amortization and interest payments; and (ii) the country's creditworthiness. The effects of this price index (P\*, Int. Cur. Prices) for each of the six countries is illustrated in Figures 3a and 3b by comparing its evolution to that of the trade-weighted average international price index free of fluctuations in international exchange rates ( $\bar{P}^*$ , Int. Adj. Prices).<sup>10</sup>

In 1980-89, it is possible to distinguish four patterns in terms of the effect of trade shocks on external PS debt for these six countries. First is the case of Yugoslavia, which was positively affected, that is, experienced an increase in its trade-weighted international price index and thus a terms of

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10/ The real exchange rates (RERI) reported in these figures were estimated using the IMF methodology. An increase in the index indicates a real overvaluation and a fall a real devaluation.



trade gain. Second are the cases of Pakistan and Portugal which, although experiencing a decline in its trade-weighted international price index (a loss) in 1980-84, recovered most of this loss in 1985-89. Third are the cases of Morocco and Turkey which, even though experiencing a more sizeable loss shock in 1980-84, recovered most of it and made an additional gain in 1985-89 relative to the 1980 level. The fourth is the case of Algeria, which experienced an even more sizeable loss in 1980-84 and only recovered part of it in 1985-89, thus sustaining a loss relative to the 1980 level.<sup>11</sup>

However and as a way to off-set these price effects, most countries decided to change their trade currency composition or their external PS debt currency composition or both. This explains why these six countries' external PS debt to GDP ratio was reduced by the combined effect of changes in international prices and in currency composition (third term in equation (1), see Figures 2a and 2b). On average in 1980-84 the fall in the external PS debt to GDP ratio explained by these effects was 5.3 percent of GDP in Morocco, 2.3 in Turkey, 2.3 in Algeria, 2.1 in Yugoslavia, 1.8 in Pakistan, and 0.3 in Portugal. The change in currency composition also explains that in 1985-89 the effect was the opposite: to increase the external PS debt to GDP ratio. (Note that in the majority of countries most of the effect was concentrated in 1985-87, thus suggesting a degree of surprise.) Nevertheless, in 1985-89 the magnitude of the effect of the change in international prices and currency composition was small and most countries were more prepared to absorb it than they were in 1980-84. In 1985-89

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11/ Algeria's decline in the trade-weighted average international price index was explained, to a large extent, by the switch in its trade currency composition in the early-1980s.

the increases in the external PS debt to GDP ratio explained by these effects were: 3.6 percent of GDP in Morocco, 3.6 in Yugoslavia, 2.6 in Turkey, 2.2 in Portugal, 1.8 in Algeria and 1.1 in Pakistan.

**Endogenous Factors.** Concerning the domestic response to the external shock, countries responded by devaluing their real exchange rate and by stimulating a faster rate of growth of GDP.<sup>12</sup> In general and assuming that exports are elastic to the real effective exchange rate, a more depreciated exchange rate would reduce the external PS debt to export ratio; and a higher GDP growth, as indicated by equation (1), would reduce the ratio of external PS debt to GDP. However for a country to effectively regain creditworthiness, the negative effect of the depreciation in the real exchange rate on the external PS debt to GDP ratio has to be smaller than its positive effect on the rate of growth of real exports. In other words, the depreciation of the real exchange rate effectively needs to produce a switch of resources away from the production of non-tradeables and into the production of tradeables in a very short period of time, otherwise it might increase the external PS debt to GDP and undermine the rate of growth of GDP.

Evidence for the six countries shows that only a few countries successfully managed to devalue their real exchange rate and to induce a higher GDP growth (see RERIs in Figures 3a and 3b). The successful ones were Turkey, Morocco and Portugal. Algeria and Pakistan decided for the less risky option of stimulating growth in the short term by allowing the overvaluation of their real exchange rates. Yugoslavia is an example where a real devaluation failed to result in

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12/ Such a policy was usually part of a more comprehensive adjustment effort and included a exchange rate policy and aggregate demand management.

a higher export and GDP growth. Although in the case of Yugoslavia this it had to do with its nature of being a socialist economy in transition to a market one; this experience is also very common among Latin American countries.<sup>13</sup>

It is important to note that the three successful countries (and Yugoslavia) also accomplished a reduction in the external PS debt to GDP ratio. However, this reduction happened notwithstanding the fact that, with the exception of Portugal, they were also borrowing from the international market. The three countries owed their success to their rapid policy response and positive supply response. The three countries undertook their domestic adjustment in the early-1980s in response to the external shock. Although there were very important differences in the design of the adjustment programs, in all three the effects on the external PS debt to GDP ratio were similar. In 1980-84, all of them experienced a heavy capital loss in their external PS debt as a result of the real devaluation, which was only partly offset by the effect of the rate of growth of GDP. This loss however resulted in a benefit in 1985-89. All of them experienced a very rapid growth in real GDP and in real exports. Also, some countries allowed their real exchange rates to overvalue.<sup>14</sup>

The magnitude of these effects illustrates the trade-offs made by these countries. In 1980-84, Morocco's external PS debt to GDP ratio increased by 14.5 percent of GDP as a result of the devaluation of the real exchange rate and

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13/ Obviously the reasons have been different. While in Yugoslavia the lack of supply response had to do with its socialist nature, in the case of the Latin American countries it had to do with the ill-designed adjustment policies. For an interesting account of economic adjustment in socialist countries see Fabrizio Coricelli and Roberto Rocha (1991).

14/ In some countries the overvaluation was not the result of a strong economic performance (the fundamentals), such as was the case of Portugal after joining the EEC, but rather it was a policy decision, such as was the case of Turkey.

FIGURE 3a  
FOREIGN ADJUSTED AND CURRENT PRICES AND RERI

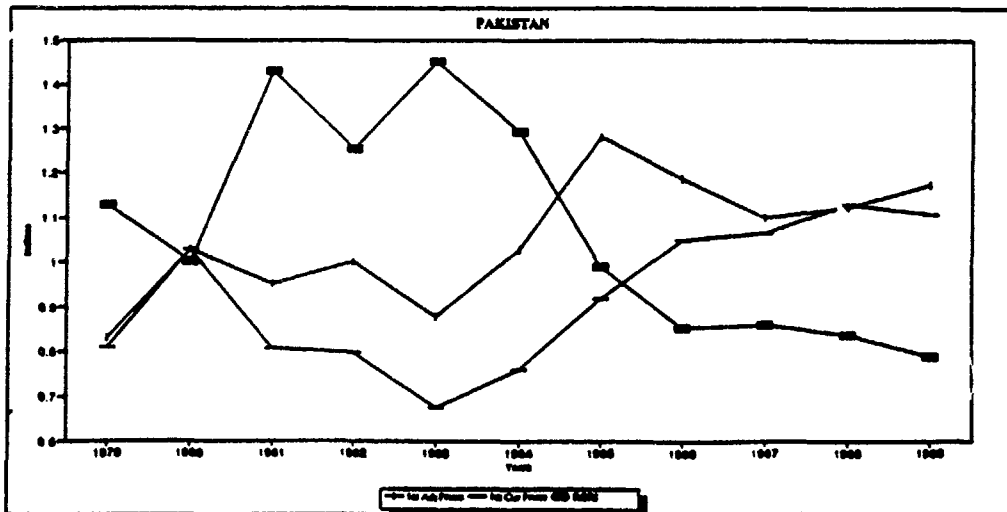
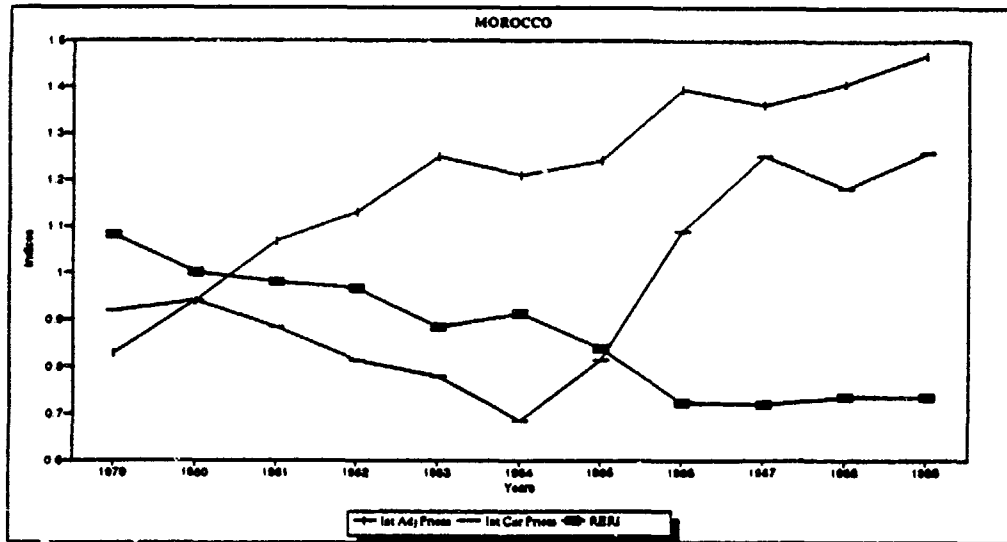
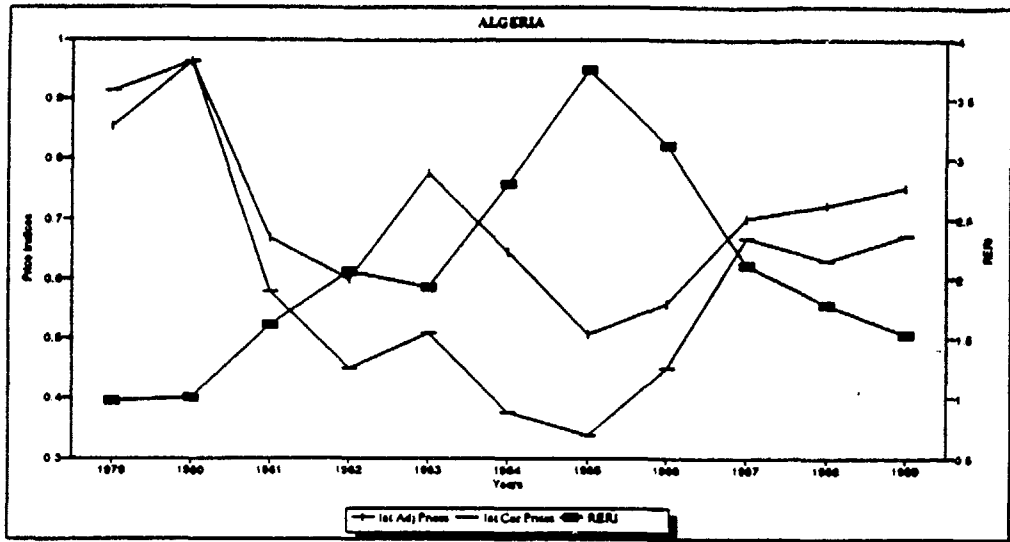
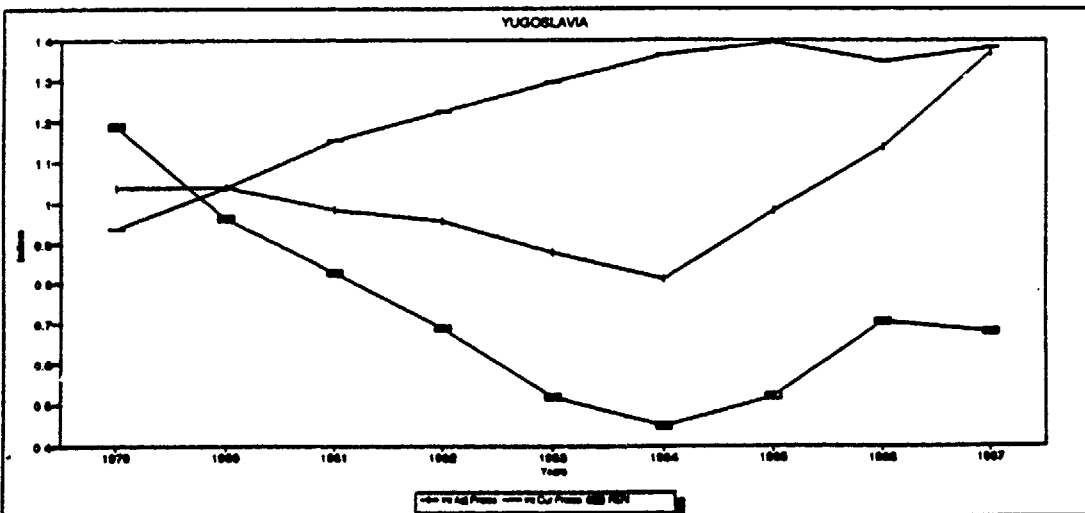
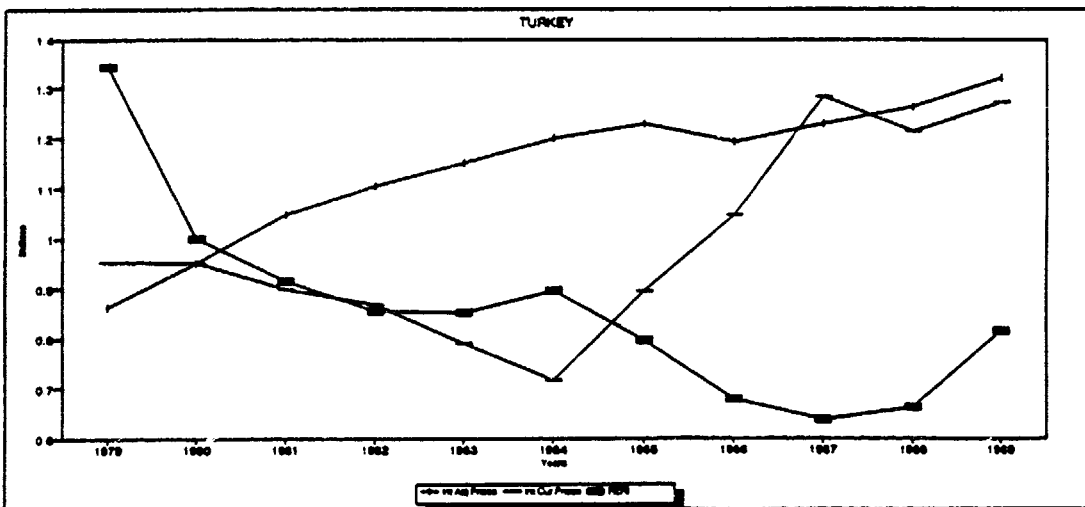
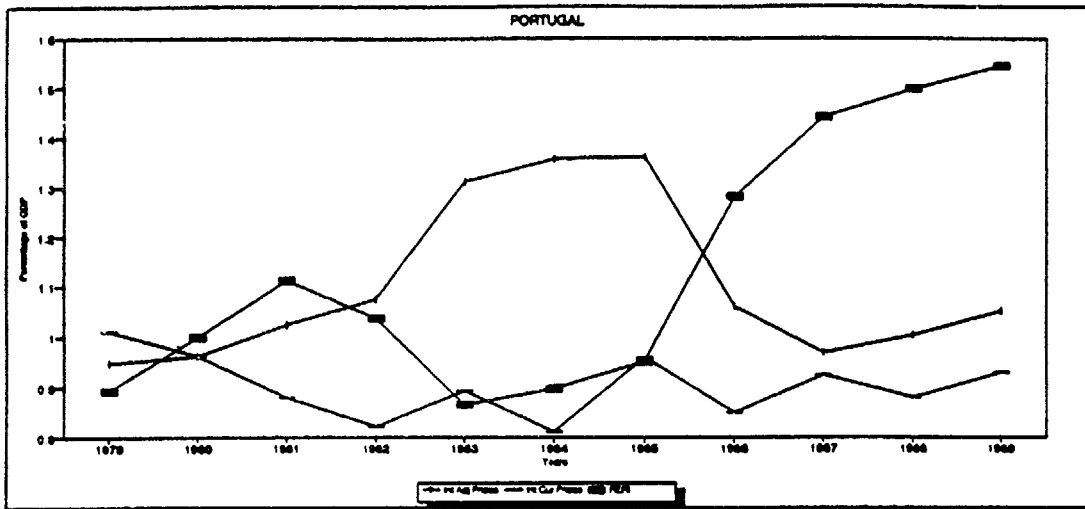


FIGURE 3b  
FOREIGN ADJUSTED AND CURRENT PRICES AND RERI



it only fell by 2.2 percent of GDP as a result of the higher rate of growth of GDP. The net effect accounted for most of the 12.4 percent of GDP increase in the total external PS debt to GDP ratio. The experiences of Turkey and Portugal are similar. The devaluation of the real exchange rate increased the external PS debt to GDP ratio in Turkey by 5.7 and in Portugal by 4.7 percent of GDP; and the rate of growth reduced this ratio by 1 and 0.3 percent of GDP, respectively. Therefore, in total the external PS debt to GDP in these two countries increased by 4.2 and 5.2 percent of GDP, respectively. However, in 1985-89 the experience changed. Morocco's and Portugal's external PS debt to GDP ratio fell by 3.9 and 9.9, respectively, of which 4.3 and 2.5 percent of GDP was accounted for by the higher GDP growth and 3.8 and 4.4 percent of GDP was accounted for by the effect of the real exchange rate. In the same period Turkey increased its external PS debt to GDP ratio by 0.4 percent of GDP, but both the rate of growth of GDP and the real devaluation had the effect of reducing the ratio in 1.4 and 2 percent of GDP, respectively.

Compare these experiences to those of Algeria and Pakistan. Both countries postponed their devaluation and in 1980-84 benefitted from a capital gain and from the effect of the positive growth in GDP. This enabled them to reduce the external PS debt to GDP ratio in the mid-1980s. However, this changed in 1985-89. Pakistan started to devalue its real exchange rate in 1983 and Algeria in 1985, which resulted in a sharp increase in the external PS debt to GDP ratio. Although both countries managed to continue growing, this effect was not strong enough to outweigh the effect of the real devaluation. The net effect was an increase in their external PS debt to GDP ratio. Another important

difference with the three successful countries was that they did not accomplish their transformation into export-oriented economies as was the case of the three successful countries.

Domestic Debt

We can analyze the factors affecting the domestic PS debt by decomposing its ratio to GDP, as we did with the external PS debt. This is shown in equation (3):

$$(3) \quad \Delta \left[ \frac{b_t}{rgdp_t} \right] = \frac{\Delta B_t}{P_t \cdot rgdp_t} - \left[ \frac{B_{t-1}}{P_t \cdot rgdp_t} \right] \cdot \hat{P}_t \\ - \left[ \frac{B_{t-1}}{P_t \cdot rgdp_t} \right] \cdot rg\hat{d}p_t - \left[ \frac{B_{t-1}}{P_t \cdot rgdp_t} \right] \cdot \hat{P}_t \cdot rg\hat{d}p_t$$

B is the stock of total domestic PS debt in current prices, P is the end-period domestic price index with base in mid-1980, b is the stock of domestic PS debt in 1980 constant prices (b=B/P), rgdp is the GDP in 1980 constant prices, the subscripts are indices for time period, and a hat above a variable indicates the rate of change.

Equation (3) breaks down the domestic PS debt to GDP ratio into four components (see estimates in Figures 4a and 4b). Using these four components we can understand the differences in countries' domestic debt strategies. The first component measures the volume of nominal debt issued, the other two components measure the extent to which countries used the rate of inflation and

a higher rate of growth as mechanisms to reduce their domestic PS debt to GDP ratio. The last component, which is almost negligible, is the cross effect of the rate of inflation and rate of growth of GDP.

Evidence for the five countries (Yugoslavia is excluded because it had no domestic PS debt) suggests: (i) a common response to the external shock of the early-1980s; and (ii) three different domestic debt strategies. All countries responded to this shock by slowly increasing their domestic PS debt to GDP in 1982-84 and accelerating it in 1985-89. The three distinct domestic debt strategies combined a fast growth in their nominal domestic debt (first component in equation (3)) with either a high rate of growth of GDP or a high rate of inflation as forms of reducing their domestic debt to GDP ratios. The trade-offs in choosing one or the other alternative can be explained by using the debt solvency condition as expressed in equation (4):

$$(4) \quad (r_t - rg\hat{d}p_t) \leq 0 \quad \text{where:} \quad r_t = \left[ \frac{1 + i_t}{1 + \hat{p}_t^e} \right] - 1$$

$r$  is the real interest rate on domestic PS debt and  $rg\hat{d}p$  is the rate of growth of real GDP,  $i$  is the nominal interest rate on domestic PS debt,  $\hat{p}^e$  is the expected inflation rate and the subscript indicate indices for time period.

Equation (4) says that the debt to GDP ratio can be increased as long as the difference between the real interest rate and the rate of growth of GDP is less than zero. This solvency condition states that the income generated



FIGURE 4a  
DECOMPOSITION OF CHANGES IN DOMESTIC DEBT TO GDP RATIO

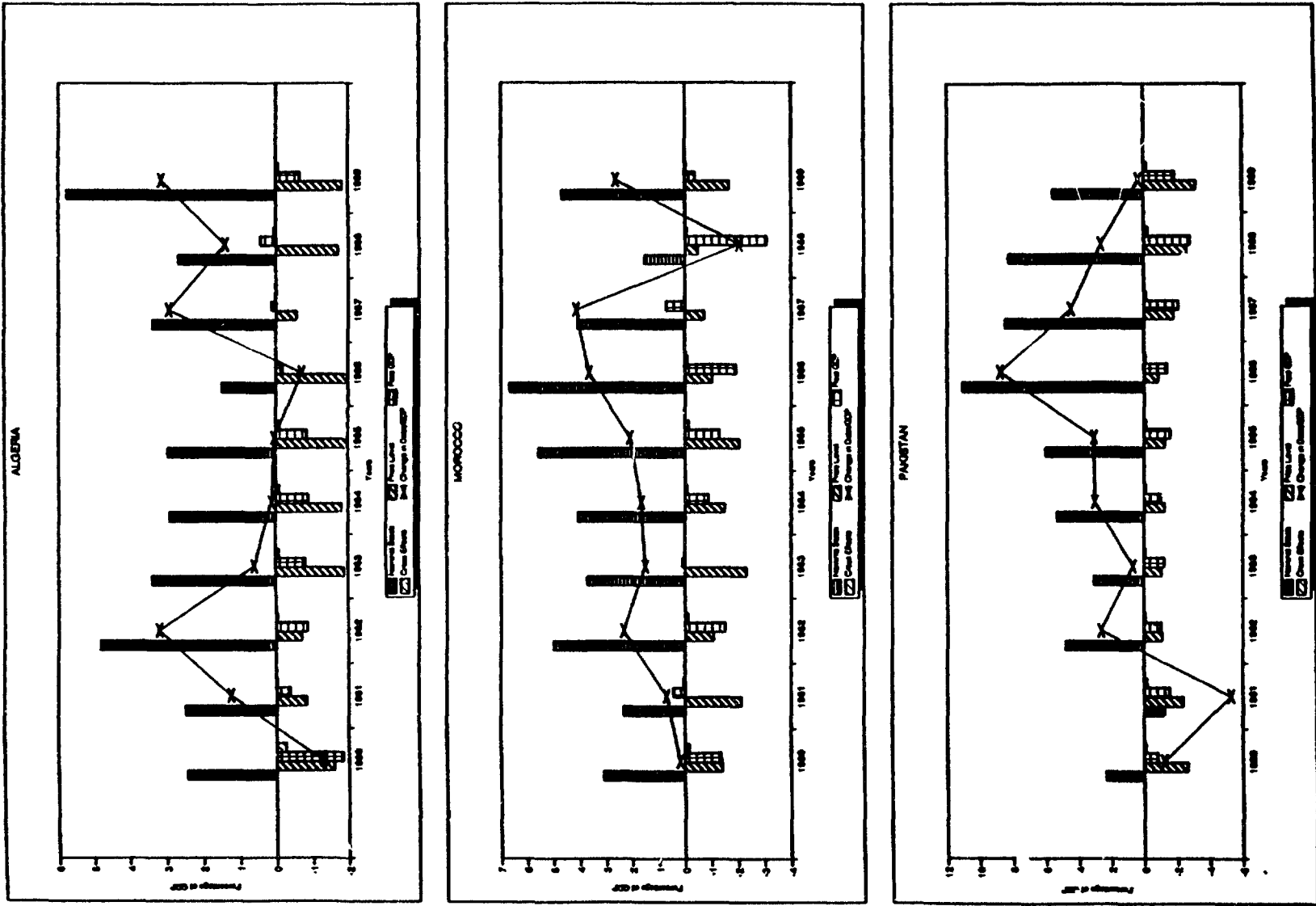
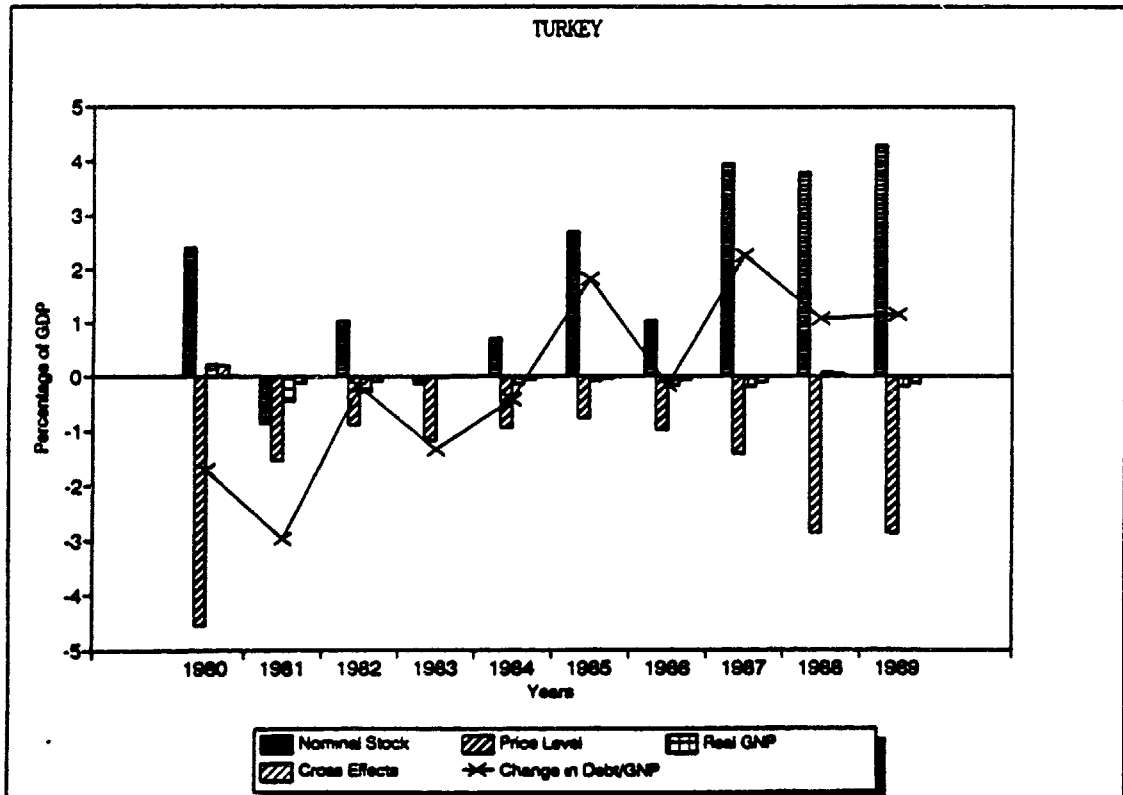
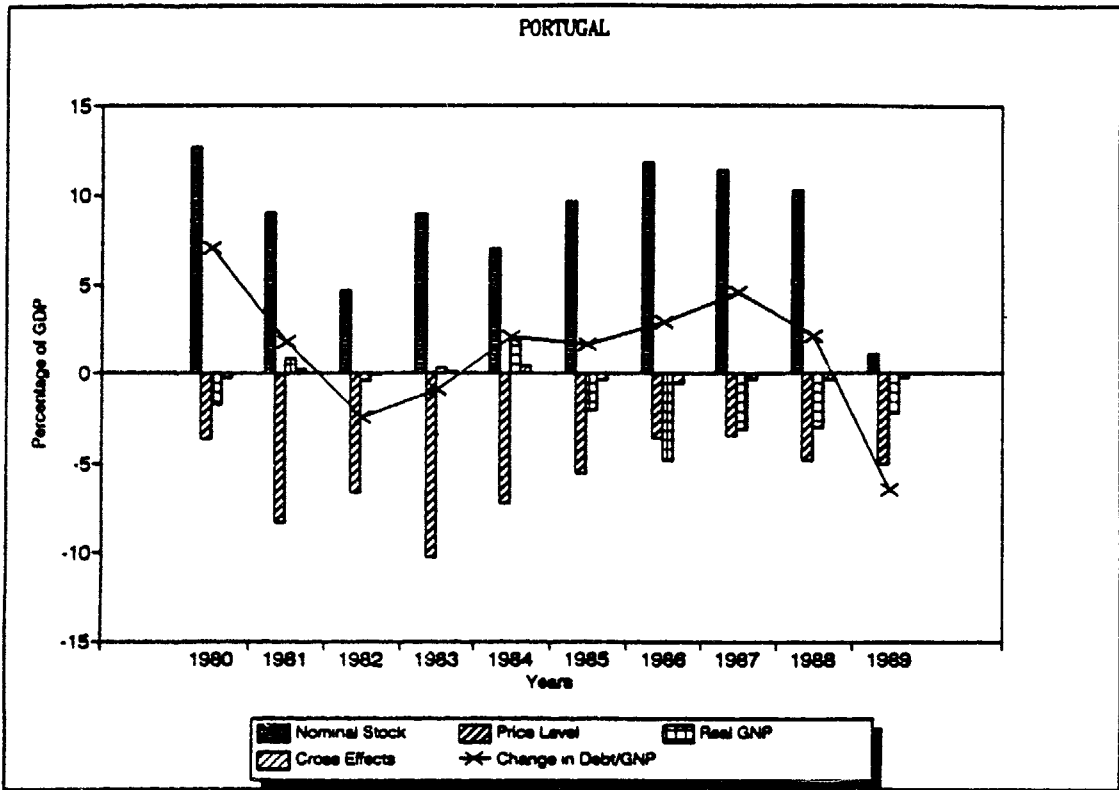


FIGURE 4b  
DECOMPOSITION OF CHANGES IN DOMESTIC DEBT TO GDP RATIO



would be sufficient to repay the debt.<sup>15</sup> However, if this difference turns negative, for instance, because of a loss in creditors' confidence, then the solvency condition can only be satisfied by amortizing the debt (this is the so-called transversality condition).<sup>16</sup> Therefore, the ideal debt strategy is the one that would allow a country to increase the debt without inducing creditors to lose their confidence. This can best be accomplished by increasing the nominal debt while undertaking a low-inflation and high-growth policy. The low-inflation would encourage asset-holder's demand for Government securities (by increasing their return and reducing the level of risk involved), while a high rate of growth of GDP would reduce the domestic debt to GDP ratio. A strategy to increase the debt to GDP ratio while generating high inflation as a method of reducing the debt to GDP ratio is risky. In general, a high inflation rate by increasing the variance of the ex-ante real interest rate would result either in a fall in the demand for Government securities or in an increase in the real interest rate. Therefore, a strategy to reduce the domestic debt to GDP ratio by increasing the rate of inflation would limit the ability to raise domestic debt.

Let's now consider the three domestic debt strategies followed by these five countries. First is the strategy followed by Morocco, Pakistan and Portugal, which were the countries that increased the domestic PS debt to GDP ratio faster. These countries combined low-inflation and high-growth policies to encourage the demand for Government securities while keeping their domestic PS debt to GDP ratio relatively low. Of the three Pakistan is the country that exploited this strategy most. However, there are a few factors that made Pakistan's strategy

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15/ In net present value terms, it states that the net present value of the debt is smaller than the net present value of total income or of total net wealth.

16/ See Cohen (1985) and Buiters (1985) for a discussion of these debt solvency conditions.

less admirable than that of Morocco and Portugal. First was the absence of an explicit policy for reducing the size of the total debt. Domestic debt was used in addition to rather than as a substitute for external debt. Second and related, was the absence of an economic adjustment. Both of these effects resulted in a constant increase in total domestic PS debt to GDP ratio. The problems of this strategy were apparent in the late-1980s. While the authorities continued increasing the nominal domestic debt (first component in equation (3)), the rate of growth of GDP provided limited relief and the inflation rate started becoming a more important method of reducing the domestic PS debt to GDP ratio. However and in spite of these difficulties, the rate of growth remained high and that of inflation low.

The experiences of Morocco and Portugal were more revealing. Both countries had a policy to reduce their total PS debt to GDP ratio. The domestic debt increased because they reduced their external debt faster than their total debt. In other words, they used the domestic debt as a substitute for external debt. In addition, both countries (as explained before) started their economic adjustment in the mid-1980s. These positive elements of their debt strategy became apparent in the change in the components of the domestic debt to GDP ratio. While in 1982-84 they increased their nominal debt and used the inflation rate as the main instrument to reduce the domestic debt to GDP ratio, in 1985-89 they increased their nominal debt faster and the rate of growth of GDP became a more important instrument for reducing their domestic debt to GDP ratio. Morocco reduced its annual average inflation rate from 9 percent in 1982-84 to 5 percent in 1985-89 and Portugal reduced its from 24 to 12 percent.

The second strategy was that followed by Algeria. Like the other countries considered, Algeria also increased substantially its domestic PS debt to GDP ratio in the second half of the 1980s. However, like Pakistan, it is a country that used its domestic debt to avoid an economic adjustment in the mid-1980s.<sup>17</sup> During most of the mid-1980s, Algeria raised substantial volumes of nominal debt while limiting the growth of its domestic debt to GDP ratio. It accomplished this by a combination of moderate inflation (hovering around 9 percent p.a.) and a high GDP growth. But this changed in the late 1980s when it experienced a slowdown in its GDP rate of growth. The rate of growth of GDP fell from an annual average of 5.8 percent in 1982-84 to 1.4 percent in 1985-89. In spite of this however in the late 1980s, Algeria's rate of inflation remained moderate (hovering around 9 percent p.a.) and continued increasing its domestic debt to GDP ratio by increasing its nominal debt.

The third strategy was that followed by Turkey. It was a case of a country with a low domestic debt to GDP ratio. However, this low domestic debt level was explained by the debt strategy undertaken. In the mid-1980s, Turkey increased its nominal debt very fast, while experiencing a very high inflation rate. The economic adjustment undertaken in the early-1980s failed in leading to a fall in inflation. The effect of the inflation on the domestic debt to GDP ratio was so strong that in 1985-89 of the 3 percent of GDP increase in nominal debt, the inflation rate effect reduced it by 2 percent of GDP and the effect of the rate of growth was negligible despite the fact that GDP grew on average by 3.7 percent. In 1985-89, the annual average rate of inflation was 53 percent. This high inflation rate also limited Turkey's ability to use the domestic debt

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17/ This was in spite of the fact that Algeria experienced a significant external shock in the mid-1980s by the fall in the international price of oil.

because investors in Government securities demanded a very high premium to compensate for the price uncertainty. Such conditions made domestic debt a very expensive source of finance.<sup>18</sup>

### III. THE ROLE OF PUBLIC SECTOR DEFICITS AND FINANCING

The role of fiscal policy in the overall debt strategy is the focus of this section. Fiscal policy is assessed using the concept of real deficit and by including the central bank.

#### A. The Real Public Sector Deficits

The linkages between the real PS deficit and the stocks of domestic and external PS debt can be explained using the definition of real PS deficit, as stated in equation (5):<sup>19</sup>

$$(5) \quad D_t + r_t \cdot b_{t-1} + r^*_t \cdot \tilde{b}^*_{t-1} \cdot \tilde{e}_{80} \equiv \Delta H_t + \Delta b_t + \Delta \tilde{b}^*_t \cdot \tilde{e}_{80}$$

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18/ See Thorne (1991) for a more detailed account of Turkey's problems with the domestic debt management in the late-1980s.

19/ To simplify, in equation (5) we omitted the cross-effects and the foreign exchange capital losses terms. Moreover, the public sector real deficit (see Table 2) is defined by excluding the capital losses due to fluctuations in domestic and international exchange rates because a large portion of them are unrealized. If we include them, the estimated deficits would differ substantially from the deficits estimated using total expenditures and revenues (above-the-line). See Thorne (1991) for an application to the case of Turkey.

D is the primary PS deficit,  $r^*$  is the annual average real interest rate in US dollars on external PS debt, H is the portion of the stock of nominal base money used for financing the public sector (real adjusted base money) and the rest of variables are as defined before.

Equation (5) establishes the relation between the increase in stocks and the real fiscal deficits. It indicates that the stocks of real domestic and external PS debt will increase if the real fiscal deficits are large and if the authorities limit the expansion in nominal base money. Therefore, equation (5) enables us to relate the real fiscal deficit to our previous analysis of changes in debt stocks. It is apparent that the second term on the right of equation (5) expressed as a ratio of real GDP is identical to the sum of the first and second components of equation (3); and the third term on the right of equation (5) expressed as a ratio of real GDP is identical to the first term in equation (1).

There are two other important aspects of equation (5) that require some discussion. First is the use of real PS deficit for assessing PS performance. This deficit is corrected for the effects of both domestic and international inflation. This correction provides a more accurate estimate of the PS performance. More importantly, it enables us to compare the PS performance of these six countries even though these countries experienced different inflation rates.<sup>20</sup> The real PS deficit classifies as current expenses only the real interest payments and treats the compensation for erosion of inflation (which is usually included in the nominal interest payments) as a source of finance because it is strictly debt amortization. Although the correction of international inflation might

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20/ Although the inflation level also affects PS expenditures and revenues, this will be assumed to be small compare to the effect on domestic and external PS debt. See Tanzi (1977).

appear unnecessary, it is not. Our previous discussion has shown that these countries were affected by the international inflation rate because: (i) the international prices experienced wide fluctuations; and (ii) the external debt was very large.

Second is the consolidation of the non-financial and central bank's quasi-fiscal deficits. This consolidation enables us to correct for countries' different practices in recording the PS deficit. This will make the PS performance comparison among countries more accurate. It is common for some countries to include all of their current financial expenses in their non-financial PS accounts, while others include them as part of the central bank. In some countries central banks assume a prominent role in granting low-cost loans to the public and private sectors or in servicing a substantial portion of the external debt or both without necessarily reflecting these expenses in the accounts of the non-financial public sector.

The six countries have been classified into three subgroups according to their PS performance. A first subgroup consisting of Portugal and Morocco were the countries that undertook a remarkable fiscal adjustment; a second group consisting of Algeria and Turkey undertook a limited adjustment; and a third group consisting of Pakistan and Yugoslavia undertook no fiscal adjustment (See Figure 5 and Table 2). All six countries' real PS deficits showed a deterioration in the early-1980s resulting from the effect of the external shock. In the early-1980s the six countries confronted a sharp increase in the real interest rate as a result of a higher nominal international interest rate and of a fall in the international inflation rate. The differences in PS performance among countries after 1982 are explained by the extent to which these countries undertook



domestic policies in response to the 1980s external shock.

Morocco and Portugal undertook a fiscal adjustment in the early-1980s. In the case of Portugal these policies were preparatory for entering the EEC and started very early in the 1980s. Portugal's real PS deficit fell from 7.6 percent of GDP in 1980-81 to 5.2 percent in 1982-84 and to 3.4 percent in 1986-89. By 1988-89 Portugal was showing a real PS balance surplus. Although the extent to which Portugal provides an example of what can be expected from an adjustment is arguable because it benefitted substantially from joining the EEC, these benefits were only apparent after 1984. However, in 1982-84 Portugal undertook most of the fiscal adjustment.

Morocco's domestic policies also led to a sharp fall in the real PS deficit. However, there were two differences with Portugal's. First, most of the adjustment took place after 1984. The real PS deficit after reaching a peak of 14.6 percent of GDP in 1984 fell to an annual average of 4 percent in 1985-89. Second, Morocco combined its domestic adjustment policies with a financing policy. The adjustment policies consisted of the reform of the public and trade sectors, while the financing consisted of the debt relief granted by its foreign creditors starting in 1983 and the accumulation of arrears with domestic public sector contractors. While the domestic adjustment reforms contributed to the restructuring of the economy, the financing policies contributed to lowering the cash-flow cost of the external debt and provided additional domestic financing. For instance, while in 1982-84 the real PS deficit in accrual terms was 10.0 percent of GDP, in cash-flow terms it was 5.6 percent. This financing policy enabled Morocco to spread-out the heavy burden of debt payments over several years, thus facilitating the domestic adjustment.

FIGURE 5  
REAL PUBLIC SECTOR BALANCES  
(Percentage of GDP)

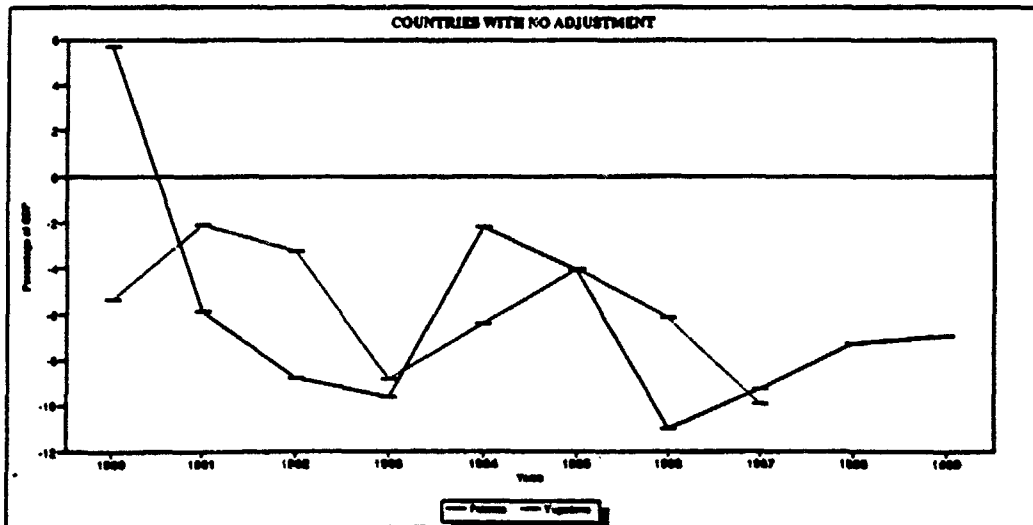
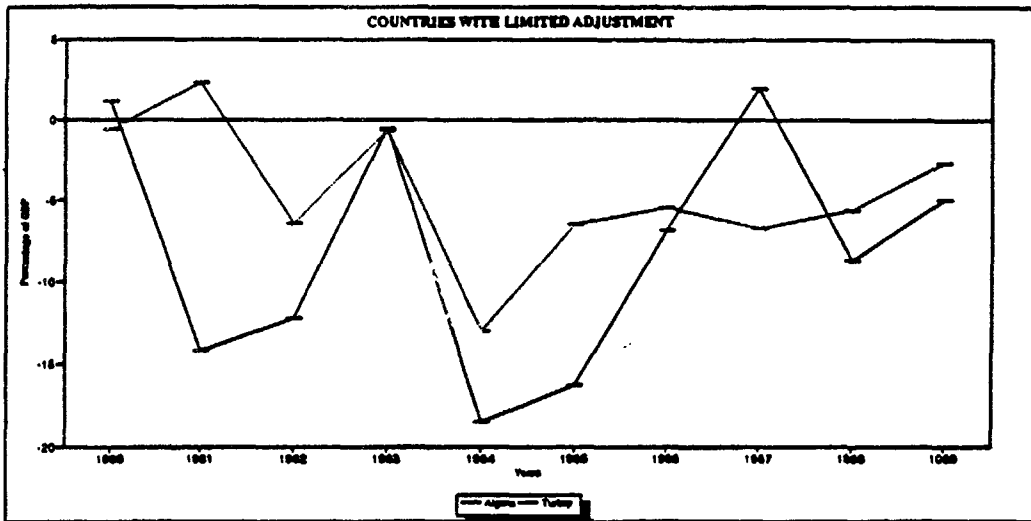
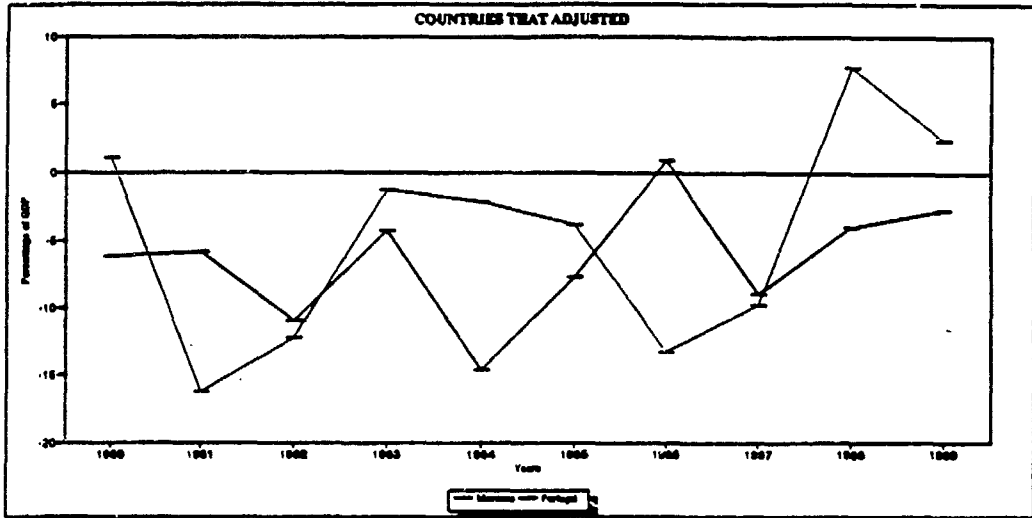


TABLE 2: REAL CONSOLIDATED PUBLIC SECTOR DEFICIT  
(Percentage of GNP)

ALGERIA	1980-81	1982-84	1985-89	MOROCCO	1980-81	1982-84	1985-89
Total Real PS Deficit (Excl. K losses of For. Debt)	6.5	10.4	6.9	Total Real PS Deficit (Excl. K losses of For. Debt)	6.0	10.0	4.5
A Adjusted Money Finance	1.4	3.3	4.0	A. Adjusted Money Finance	1.2	1.0	0.5
Inflation Tax	2.3	2.2	2.8	Inflation Tax	1.5	1.2	0.7
Seignorage	-0.9	1.1	1.2	Seignorage	-0.4	-0.1	-0.2
B. Net Domestic Debt Finance (1)	1.2	2.2	1.6	B. Net Domestic Debt Finance	0.9	2.6	3.3
Banks	-0.1	0.5	1.0	Net Bank Credit	0.5	0.9	2.1
Private Sector	0.2	0.6	0.0	Specialized Fin. Org.	0.2	0.2	0.0
BAD & CNEP	1.2	1.2	0.6	NonFinancial Private Sector Arrears	-0.1	0.1	1.5
C. Net Foreign Debt Finance (Excl. K. losses of For. Debt)	3.9	4.9	1.3	C. Net Foreign Debt Finance (Excl. K. losses of For. Debt)	3.9	6.3	0.6
Increase in Foreign Liabilities	7.0	2.8	0.8	Increase in Foreign Liabilities	2.7	6.0	0.9
Increase in Foreign Assets	3.1	-2.0	-0.6	Increase in Foreign Assets	-1.2	-0.3	0.3
D. Net Foreign Debt Finance (Incl. K. losses of For. Debt)	-3.8	-0.8	4.0	D. Net Foreign Debt Finance (Incl. K. losses of For. Debt)	11.5	16.7	0.4
MEMO:				MEMO:			
Foreign Exch. Losses (D-C)	-7.7	-5.6	2.6	Foreign Exch. Losses (D-C)	7.6	10.3	-0.2
Total Real PS Deficit Incl. BAD Loans to Enterprises	12.9	11.2	3.9	Net Foreign Debt Finance (Excl. K. losses of For. Debt and Debt Relief)	3.9	3.3	1.7

TABLE 2: REAL CONSOLIDATED PUBLIC SECTOR DEFICIT (Con't)  
(Percentage of GNP)

PAKISTAN	1980-81	1982-84	1985-89	PORTUGAL	1980-81	1982-84	1985-89
Total Real PS Deficit (Excl. K losses of For. Debt)	0.1	6.9	7.7	Total Real PS Deficit (Excluding K losses of For. Debt)	7.6	5.2	3.4
A. Adjusted Money Finance	1.8	1.9	0.8	A. Adjusted Money Finance	5.9	3.5	4.2
Inflation Tax	1.6	0.8	0.9	Inflation Tax	3.8	5.0	2.0
Seignorage	0.2	1.1	-0.2	Seignorage	2.1	-1.6	2.2
B. Net Domestic Debt Finance	-2.0	3.3	5.9	B. Net Domestic Debt Finance	4.9	-1.2	4.3
C. Net Foreign Debt Finance (Excl. K losses of For. Debt)	0.2	1.7	1.2	Instruments			
Increase in Foreign Liabilities	2.2	2.7	0.4	Bonds and Bills	5.6	-2.4	8.2
Increase in Foreign Assets	2.0	1.1	-0.7	Treasury bills	0.0	0.0	2.4
D. Net Foreign Debt Finance (Incl. K losses of For. Debt)	-2.4	2.8	4.6	Government bonds and other	5.6	-2.4	5.8
MEMO:				Net Bank Credit	-0.7	1.2	-3.9
Foreign Exch. Losses (D-C)	-2.6	1.0	3.4	Borrowers			
				General Government	5.8	-1.7	7.5
				Nonfinancial PSEs	-0.9	0.5	-3.2
				C. Net Foreign Debt Finance (Excluding K losses of For. Debt)	-3.2	2.9	-5.2
				Increase in Foreign Liabilities	6.6	0.5	1.9
				Increase in Foreign Assets	9.8	-2.5	7.1
				D. Net Foreign Debt Finance (Including K losses of For. Debt)	-2.1	9.6	-7.4
				MEMO: Foreign Exchange Losses (D-C)	1.1	6.7	-2.2

TABLE 2: REAL CONSOLIDATED PUBLIC SECTOR DEFICIT (Con't)  
(Percentage of GNP)

TURKEY	1980-81 1982-84 1985-89			YUGOSLAVIA	1980-81 1982-84 1985-87		
	1980-81	1982-84	1985-89		1980-81	1982-84	1985-87
Total Real PS Deficit (Excluding K losses of For. Debt)	-0.9	6.7	5.4	Real Quasi-Fiscal Deficit	3.7	6.2	6.7
A. Adjusted Money Finance	0.5	4.5	2.7	A. Money Finance	2.2	2.7	4.3
Inflation Tax	1.4	3.0	2.9	Inflation Tax	3.6	3.6	4.9
Seignorage	-0.9	1.5	-0.1	Seignorage	-1.4	-0.9	-0.7
B. Net Domestic Debt Finance	-2.3	-0.5	1.4	B. Debt Finance	-1.5	-3.4	-2.4
Bonds and Bills	-0.2	0.3	0.7				
Net Bank Credit	-1.6	-0.5	0.4				
EBFs	0.0	0.0	0.0				
C. Net Foreign Debt Finance (Excluding K losses of For. Debt)	0.9	2.7	1.3				
D. Net Foreign Debt Finance (Including K losses of For. Debt)	5.3	5.1	1.8				
MEMO: Foreign Exchange Losses (D-C)	4.4	2.4	0.6				

SOURCE: See Annex.

Algeria and Turkey are cases of limited PS adjustment. Algeria is a case of a socialist economy that postponed its adjustment and transition to a market economy until the late-1980s and limited the effect of the external shock of the 1980s by letting its domestic currency overvalue in real terms. These policies resulted in an initial improvement in its real PS deficit in 1982-83, but it then deteriorated very fast in 1984-85. It was this PS deficit deterioration and the negative effect of the oil shock in the mid-1980s that led the authorities to start adjusting the economy. However, Algeria's domestic adjustment policies were partial when compared to those undertaken by Morocco and Portugal and this could partly explain the difference in economic dynamism.<sup>21</sup> Algeria's real PS deficit fell from a peak of 18.5 percent of GDP in 1984 to an annual average deficit of 6.9 percent of GDP in 1985-89. Although there is little question concerning the improvement in PS performance in the late-1980s, the real PS deficit estimate might hide the true PS adjustment because it excludes the operations of public sector enterprises.

Turkey is also a case of limited PS adjustment, this is despite the fact that in the early-1980s (before the external shock) it undertook a very strong and comprehensive domestic adjustment. In fact, Turkey's adjustment policies were perhaps more radical than those undertaken by countries such as Morocco and Portugal, and this might explain its private sector dynamism. This adjustment consisted of trade, fiscal and financial sector reforms. In the mid-1980s Turkey's PS, as the other six countries, was also negatively affected by the external shock thus resulting in a real PS deficit, but this was not promptly corrected. Turkey's real PS balance shifted from a 0.9 percent of GDP

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21/ A more fundamental reason was the participation of the private sector in the economy.

surplus in 1980-81 to a deficit of 6.7 percent in 1982-84 and 5.4 percent in 1985-89.<sup>22</sup> The 1989 fiscal improvement was explained by the effect of the overvaluation of the real exchange rate on the external debt payments.

Pakistan and Yugoslavia illustrate cases of countries that undertook no PS adjustment. In the 1980s in both countries the real PS deficits showed no improvement trend. In the case of Pakistan despite the authorities repeated attempts to reduce the deficit, the plans were never implemented or they were postponed.<sup>23</sup> In the case of Yugoslavia the fiscal disadjustment originated in the central bank, e.g., quasi-fiscal deficit. As the authorities devalued the currency in an effort to correct relative prices, this generated substantial foreign exchange losses in the enterprise and banking sectors which were covered by the central bank. In Pakistan in 1983 the real PS deficit reached a peak of 9.6 percent of GDP and was 7.7 percent on average in 1985-89. While in Yugoslavia in 1983 the real quasi-fiscal deficit was 8.8 percent of GDP and was 6.7 percent on average in 1985-87.

## B. Sources of Finance and Inflation

The six countries' differences in fiscal adjustment are mirrored by differences in the sources used to finance their deficits. These differences explained the different effects that the deficits had on macroeconomic performance and, in particular, on inflation performance. In general, the larger the portion

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22/ Turkey's case is also different from other countries, such as Morocco's, because Turkey did not reschedule its external PS debt nor benefit from external debt relief. Although these differences had no direct effects on the real PS deficit estimates in Table 2 because they were calculated in accrual terms, it had an indirect effect through the sources of finance.

23/ See Montiel and Ul Haque (1990).

of the deficit financed by money creation, the greater the inflation rate. In turn, the portion of the deficit financed by money creation is explained by the size of the deficit and availability of external and domestic debt financing. We will start by describing the differences in financing patterns and then we will relate them to the level of inflation.

The two countries that undertook a successful fiscal adjustment, Morocco and Portugal, relied on external and domestic debt as their primary sources of finance and relied very little on money finance. In 1982-84, both countries financed their deficit using foreign finance and to a less extent domestic finance. In 1985-89, this pattern changed and they relied more on domestic than on external finance. In 1982-84 the external debt financed about half of Portugal's deficit and about a third of Morocco's, while domestic debt finance was negative in Portugal and contributed to about a third of Morocco's deficit. In 1985-89, the external debt finance was negative in Portugal and less than a fourth of the deficit in Morocco, while domestic debt finance was larger than the deficit in Portugal (was used for repaying the external debt) and about three quarters of the deficit in the case of Morocco. Money finance in both countries was very small. In the case of Portugal it fell from 5.9 percent of GDP in 1980-82 to 3.5 in 1982-84 and increased to 4 percent in 1985-89. However, the increase in money finance was used to finance the increase in central bank's foreign assets and resulted from the rapid re-monetization after Portugal joined the EEC. In the case of Morocco, money finance was extremely low throughout the 1980s. It fell from 1.2 percent of GDP in 1980-82 to 1.0 percent in 1982-84 and to 0.5 percent in 1985-89.



The two countries that undertook a limited fiscal adjustment, Algeria and Turkey, showed some similarities with Morocco and Portugal but also important differences in terms of deficit financing. The similarities consisted of having had access to external debt finance until the mid-1980s, while the differences were the restricted access to domestic finance and the greater use of money finance. In 1982-84, external debt financed half of Algeria and Turkey's deficits, while domestic debt financed one fourth of Algeria's deficit and nothing of Turkey's. This happened while these two countries' deficits were increasing relative to the 1980-81 level. In 1985-89, external finance fell in both countries. In Algeria it fell to one sixth of the deficit, while in Turkey it fell to one fourth. However, this fall in external finance was not matched by an increase in domestic debt finance. Both in Algeria and Turkey domestic debt finance was one fourth of the deficit. Both countries compensated the absence of domestic debt in 1982-84 and the fall in external debt finance in 1985-89 by resorting to money finance. In Algeria money finance increased from 1.4 percent of GDP in 1980-81 to 3.3 percent in 1982-84 and to 4.0 percent in 1985-89. In Turkey money finance increased from 0.5 percent of GDP in 1980-81 to 4.5 percent in 1982-84 and was 2.7 percent in 1985-89. In 1985-89 and in both countries, money finance contributed to financing about half of the total deficit.

The two countries that made no fiscal adjustment, Pakistan and Yugoslavia, are extreme cases. Pakistan is an extreme case of domestic debt finance, while Yugoslavia is an extreme case of money finance. It is this dissimilarity in financing patterns that explains the difference in macroeconomic performance. Pakistan increased its domestic debt financing from -2.2 percent of GDP in 1980-81 to 3.3 percent in 1982-84 and to 6 percent in 1985-89. This increase in domestic debt financed the increase in the deficit from 0 percent in 1980-82 to 6.8 percent

in 1982-84 and compensated for the fall in external debt and money finance between 1982-84 and 1985-89. External debt finance fell from 2.7 percent of GDP to 0.4 percent and money finance from 1.9 percent to 0.4 percent. In Yugoslavia a large portion of the increase in the quasi-fiscal deficit was financed using money finance. While in 1980-81 money financed accounted for about half of the deficit, in 1985-87 it accounted for two thirds of the total.

Inflation had a very important role in financing the PS deficit. Countries that resorted actively to money finance were also the countries that experienced the highest inflation rates (see Figure 6). Examples of these cases were Yugoslavia, Turkey, Portugal in the early-1980s and Algeria in the mid-1980s. But more importantly, the reverse was also true: countries that limited their reliance on money finance were the countries with the lowest inflation rates. These were the cases of Morocco, Pakistan and Portugal in the second half of the 1980s. Inflation, therefore, was used as a last-resort mechanism to raise the additional finance. Typically these were the countries that: (i) confronted a heavy external debt burden; (ii) had limited possibilities of raising additional external and domestic PS debt; and (iii) performed a very small (if any) fiscal adjustment.

The relation between money finance and the inflation rate can be illustrated by breaking down money finance into seignorage and inflation-tax, as shown in equation (6):

$$(6) \quad \frac{\Delta H_t}{GDP_t} = [\hat{h}_t] \cdot \frac{h_{t-1}}{rgdp_t} + \left[ \frac{\hat{p}_t}{1 + \hat{p}_t} \right] \cdot \frac{h_{t-1}}{rgdp_t}$$

h is the adjusted money base in domestic currency divided by the domestic price index, p is the end-period domestic price index and the rest of variables are as before.

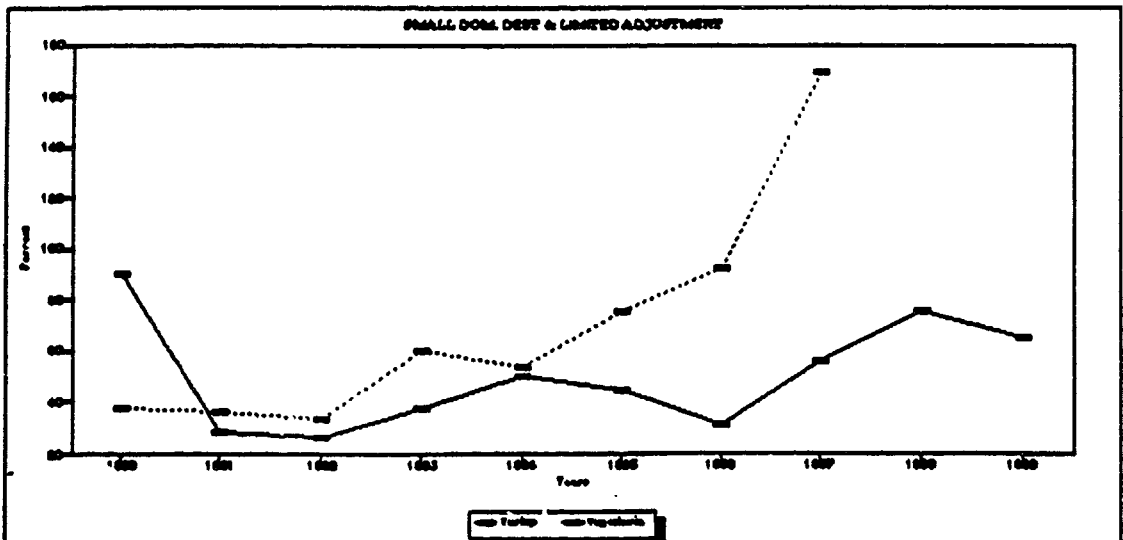
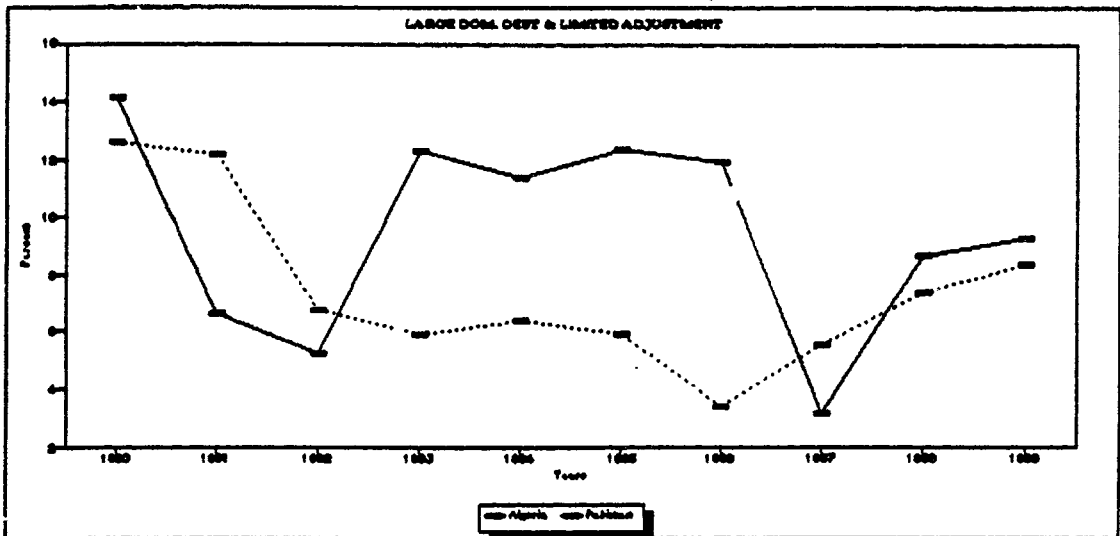
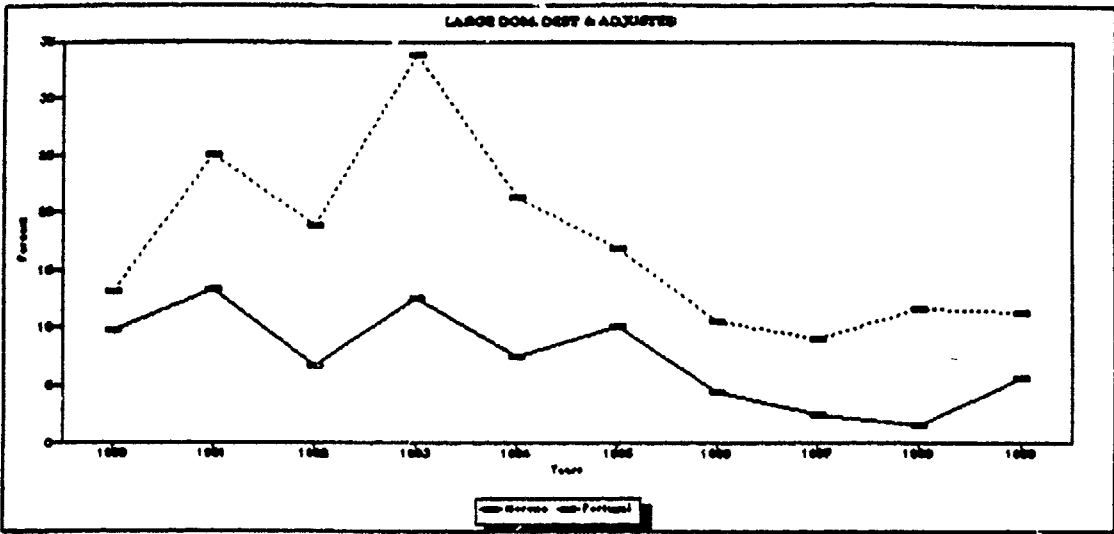
Equation (6) establishes the well-known money market equilibrium condition and its relation with the real PS deficit and changes in stocks of debt is established by equation (5). The first component at the right of equation (6) is the seignorage and the second is the inflation-tax. This equation indicates that if the authorities expand the money base in excess of asset-holders' demand for base money--captured by seignorage--then this will result in a disequilibrium in the money market and thus in a greater inflation level.<sup>24</sup> This equation therefore links the real PS deficits with the inflation level. Also, equation (6) indicates that for a given demand for money, the higher the inflation level, the larger the volume of resources appropriated through the inflation-tax. Therefore, using equation (6) we can estimate the amount of resources that countries raised through inflation. These estimates are reported in Table 2.

Estimates for the breakdown of money finance for the six countries indicate that countries that performed a limited or no adjustment (except for Pakistan) raised substantial resources through the inflation-tax and these reached their highest level in 1985-89. These are the cases of Algeria, Turkey and Yugoslavia. In 1985-89, Algeria financed a third of its deficit with the inflation-tax, Turkey about half and Yugoslavia about three quarters. Of these countries Algeria was the only country that experienced a modest inflation rate, but in Turkey it reached about 80 percent p.a. in the late-1980s and in Yugoslavia

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24/ The demand for base money assumes a unitary elasticity with respect to nominal income, which might not hold in countries experiencing high inflation levels. However, this is only used for illustrative purposes.

FIGURE 6  
INFLATION RATE, DECEMBER



it reached about 170 percent in 1987. In this respect, these three countries replicate the experience of the highly-indebted Latin American countries which experienced very high inflation levels.

However and as is well-known, inflation-financing is a self-defeating policy. First, inflation also has a negative effect on the revenue from inflation-tax which becomes stronger as the inflation rate increases.<sup>25</sup> This results from the negative elasticity of demand for money with respect to the inflation rate. Therefore, the higher the inflation rate the lower asset-holders' demand for base money and the lower the inflation tax. Second and perhaps more important, a financing policy based on high inflation undermines the ability of the PS to use domestic debt as a source of finance.

Portugal's experience is worth looking at. In 1983 Portugal's inflation rate reached about 36 percent and during most of the early-1980s the inflation tax was the most important source of revenue. Also, domestic debt financing was very unimportant. In 1980-81, the inflation-tax accounted for about 50 percent of the deficit and in 1982-84 for about 100 percent. But the authorities radically changed this in the mid-1980s by bringing the inflation-rate down to about 10 percent p.a. In 1985, they also developed the market for Government securities by liberalizing their financial system. The results were impressive: in 1985-89 domestic debt financing accounted for more than 100 percent of the deficit and demand for money was so strong that it enabled the authorities to expand base money without causing inflation. Expansion in base money also accounted for 100 percent of the deficit. This enabled the authorities to accumulate foreign reserves equivalent to their total external debt.

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25/ See Easterly and Schmidt-Hebbel (1991).

#### IV. EFFECTS OF PUBLIC INDEBTEDNESS ON THE FINANCIAL SYSTEM

A key aspect of a debt strategy is its effect on the private sector and its response. Ideally, the strategy should aim at minimizing the negative effects on the private sector and maximize its positive response. In this section we consider these problems.

##### A. The Transfer Problem

The real net savings identity relates the real net savings of the external, public and private sectors. Using this identity we will be able to analyze the effects on the private sector of the public sector debt strategy and deficit policies. By definition the sum of the real net savings of the external, public and private sectors are zero, as expressed in equation (7):

$$(7) \quad rns_t^{ex} + rns_t^{pu} + rns_t^{pr} \equiv 0$$

rns is ratio of real net savings to real GDP, superscripts ex, pu and pr indicate the external, public and private sectors. The real net savings of the external sector is the non-interest current account with opposite sign plus the real interest payments on total external debt and is equal to the increase in total net external debt. This expressed as ratio of GDP, is shown as equation (8):

(8)

$$rns_t^{ax} \equiv -nica_t \cdot e_t + \frac{r^*_t \cdot \tilde{b}^{*T}_{t-1} \cdot \tilde{e}_{80}}{rgdp_t}$$
$$\equiv \frac{\Delta \tilde{b}^{*T}_t \cdot \tilde{e}_{80}}{rgdp_t}$$

nica is the non-interest current account in US dollars as ratio of real GDP, superscript T denotes total external debt (private and public sector)<sup>26</sup> and the rest of variables are as defined before. The real net savings of the public sector is the real PS deficit with opposite sign and the real net savings of the private sector is estimated as a residual using equation (7).

In equation (7) the net savings identity is defined in real terms. This identity in real terms provides a more accurate estimate of the resources transferred between sectors because it classifies only the real interest payments on the domestic and external debt as an expense of the public sector and as an income of the private and external sectors. As is well-known, when nominal interest payments on the external and domestic debt are classified as an expense, the PS expenditures and the savings of the external and private sectors will be overestimated because the compensation for the erosion of inflation is classified as an expense rather than as a capital amortization. Moreover, using the real net savings identity, we will be able to make comparisons among countries that experienced different domestic and external inflation rates and different levels of domestic and external debts.

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26/ In most countries the private external debt accounted for a very small proportion of the total external debt.

Using equation (7) we can analyze the effects on the private sector of the public sector debt strategy and fiscal deficit policies. This equation will indicate whether a country experienced an external or an internal transfer or both as a result of these policies. An external transfer will be experienced when resources are transferred to service the external debt, while an internal transfer will be experienced when the domestic PS debt increases. An external transfer is a transfer between the external sector, on one side, and the public and private sectors, on the other. An internal transfer is a transfer between the public and the private sectors. An internal transfer can result because the public sector needs resources to finance the deficit or because it needs additional resources to finance the external debt or both. Therefore, the debt strategies and the deficit policies undertaken will have an effect in terms of transfer of resources from the external to the public sectors and from the private to the public sectors. (The real net savings estimates are reported in Table 3.)

Concerning the external transfer, in the 1980s most of the countries experienced a change in the resources transferred from abroad. This resulted from the external shock (less availability of foreign finance and higher real cost of external debt) and from their external debt strategy. While in 1982-84 most countries benefitted from a positive net real external savings (a positive net transfer from abroad), in 1985-89 most countries experienced either a fall (Portugal) or negative net real external savings (a negative net transfer from abroad). The only country that did not experience this change was Pakistan, which experienced a small increase in its real net external savings from 1.0 percent of GDP to 1.5 percent. The countries that experienced the most dramatic change were Yugoslavia, Morocco and Portugal. In Yugoslavia this change was quite dramatic. Real net external savings shifted from 2.7 percent of GDP in



1982-84 to -11 percent in 1985-89. In Morocco and Portugal the real net external savings fell in about 6 percent of GDP between 1982-84 and 1985-89. The countries whose real net external savings experienced a small fall were Algeria and Turkey. In both countries the real net external savings fell in about 1 percent of GDP between 1982-84 and 1985-89.

Countries differ on the effects of the external transfer on the private sector real net savings. That is, on the magnitude of the internal transfer. In this respect, the six countries can be divided into two groups. A first group relates to the countries that confronted a very small external transfer. These are the cases of Algeria, Pakistan and Turkey. Note that these countries were the ones that performed a very limited (Algeria and Turkey) or no fiscal adjustment (Pakistan). However, the combined effect of the external transfer and the fiscal adjustment (or lack of thereof) affected the private sector differently in these three countries. This is apparent when the periods 1982-84 and 1985-89 are compared. In Algeria these combined effects resulted in a fall in the transfer of resources between the private and the public sectors (real net private sector savings) because the small fiscal adjustment off-set the fall in real net external savings. In Pakistan although the real PS deficit increased, this was compensated by the increase in real net external savings and thus the private sector was unaffected. In Turkey the combined effect resulted in a greater internal transfer from the private to the public sector because the fall in real net external savings was not compensated by a fiscal adjustment.

A second group concerns the countries that confronted a larger external transfer. These are the cases of Morocco, Portugal and Yugoslavia. However, these three countries responded differently to the fall in real net external

**TABLE 3: REAL SAVINGS BALANCES**  
(Percent of GDP)

<b>ALGERIA</b>	<b>1982-84</b>	<b>1985-89</b>
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	-0.8	-1.4
B. Public Sector	-10.4	-6.9
C. Private Sector	11.2	8.3
Inflation tax	2.2	2.8
Memo item: NICA/GDP	3.0	1.6
<hr/>		
<b>MOROCCO</b>	<b>1982-84</b>	<b>1985-89</b>
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	5.9	-1.5
B. Public Sector	-10.0	-4.5
Gross Savings	-3.8	0.1
Investment	6.1	4.6
C. Private Sector	4.1	6.0
Gross Savings	22.9	23.1
Market Determined	21.7	22.4
Inflation Tax	1.2	0.7
Investment	18.8	17.1
Memo item: NICA/GDP	-13.2	-6.5
<hr/>		
<b>PAKISTAN</b>	<b>1982-84</b>	<b>1985-89</b>
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	1.1	1.5
B. Public Sector	-6.9	-7.7
Gross Savings	2.6	1.2
Investment	9.4	8.9
C. Private Sector	5.8	6.2
Gross Savings	13.1	13.9
Market Determined	12.3	13.1
Inflation Tax	0.8	0.9
Investment	7.3	7.7
Memo item: NICA/GDP	-0.8	-0.6

TABLE 3: REAL SAVINGS BALANCES (Con't)  
(Percent of GDP)

PORTUGAL	1982-84	1985-89
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	6.1	0.5
B. Public Sector	-5.2	-3.4
Gross Savings	-1.5	0.4
Investment	3.8	3.8
C. Private Sector	-0.9	2.9
Gross Savings	25.5	25.7
Market Determined	20.5	23.7
Inflation Tax	5.0	2.0
Investment	26.4	22.8
Memo item: NICA/GDP	-2.9	3.9
<hr/>		
TURKEY	1982-84	1985-89
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	1.6	-0.2
B. Public Sector	-6.7	-5.4
Gross Savings	3.8	6.5
Investment	10.5	11.9
C. Private Sector	5.1	5.3
Gross Savings	12.9	16.5
Market Determined	9.9	13.6
Inflation Tax	3.0	2.9
Investment	7.9	10.9
Memo item: NICA/GDP	0.6	3.4
<hr/>		
YUGOSLAVIA	1982-84	1985-89
Total Net Savings: (=A+B+C)	0.0	0.0
A. Foreign Sector	2.8	-10.8
B. Public Sector	-6.2	-6.7
C. Private Sector	3.4	17.5
Memo item: NICA/GSP	3.9	5.1

SOURCE: See Annex.

savings. While Morocco and Portugal undertook a strong fiscal adjustment, Yugoslavia did not make a fiscal adjustment. This difference in response and the magnitude of the external transfer explains the difference in the effect on the private sector. Morocco and Portugal cushioned the effect on the private sector by reducing their fiscal deficits. But in spite of this fiscal adjustment the private sector had to transfer resources to the public sector. As explained before, in these two countries the public sector responded to the external shock by increasing its domestic PS debt. In Morocco the private sector transfer increased from 4.1 percent of GDP in 1982-84 to 6.0 in 1985-89; and in Portugal it increased from -0.9 percent to 2.9 percent. Yugoslavia exemplifies a dramatic case. The drastic fall in real net external savings had to be completely financed by an increase in private sector real net savings. This savings increased from 3.4 percent of GDP in 1982-84 to 17.5 percent in 1985-89.

Did the increasing reliance on private sector savings affect private sector activity and economic growth? The answer to this question is not straightforward. First, economic theory is ambiguous. On the one hand, there is the Keynesian Theory that states that the greater the public expenditures, the greater the rate of growth of GDP and the greater the private investment; and on the other, there is the Neoclassical Theory that emphasizes the crowding-out effect and predicts that the larger the fiscal deficits, the higher the cost of capital and thus the lower private investment. Second, available evidence is ambiguous concerning the predominant effect. Country studies indicate that:

(i) a fall in public sector expenditure affects private investment and growth; and (ii) a larger fiscal deficit that results in high real interest rates crowds out private sector investment.<sup>27</sup>

Preliminary analysis for four countries (evidence for Algeria and Yugoslavia was unavailable, see Table 3) indicates that an internal transfer performed by increasing the private sector's real net savings was associated with a fall in private investment rather than an increase in gross private savings. This is partial evidence of the crowding-out effect. Examples are the cases of Morocco and Portugal. In Morocco the private investment fell from 19 percent in 1982-84 to 17 percent in 1985-89;<sup>28</sup> and in Portugal private investment fell from 26 percent to 23 percent. However, in both countries gross private sector savings experienced a very small increase. In Pakistan the private sector experienced very little change in terms of transfer of resources and this was reflected in an unchanged private sector investment. However, the low private investment (by international standards) might be explained by the large public sector deficits and their use of domestic PS debt as the main source of finance.<sup>29</sup> Turkey is the exception to this rule because the private sector increased the resources transferred to the public sector by increasing their gross savings

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27/ See Easterly and Schmidt-Hebbel (1991).

28/ In Morocco this has become an important concern in terms of long-term sustainability because the 1980s adjustment resulted in a considerable fall in total investment (public and private).

29/ It is interesting to note, in passing, that the debt-neutrality hypothesis would predict a high private savings rate for Pakistan because of the large size of the domestic PS debt, but this is not confirmed by the available evidence. Evidence on gross savings indicate a low savings rate. However, this would require further analysis.

rather than by cutting private investment. Gross savings increased from 12.9 percent in 1982-84 to 16.5 percent in 1985-89 and this also resulted in an increase in private investment from 8 percent to 11 percent.

However, Turkey's experience differs from that of the other three countries in two main aspects. First, the public sector devoted large amounts of resources to subsidizing the private sector investment and, in particular, investment in tradeables. These subsidies, in turn, explained the fast growth in private investment and the dynamism of the tradeable sector during the 1980s. Second, Turkey is the only country that reformed and liberalized its financial system. Although this did not mean that the crowding-out effect disappeared because the fiscal deficit was large, it reduced the crowding-out effect by making the system more transparent. Since in Turkey the interest rates were market-determined, the crowding-out effect was transmitted through an increase in interest rates and it affected both private savings and investment. This was not the case of Morocco and Portugal that kept their financial systems repressed until the late-1980s. Both countries had controls on the interest rates and used bank reserves and forced investments as mechanisms to transfer resources from the public to the private sector. In these countries the crowding-out effect was transmitted through a credit rationing: The larger the financing requirements of the public sector the greater the credit rationing on the private sector and thus the lower the private investment. However, since the excess demand for credit was not reflected in a higher real interest rate, private sector savings were not encouraged.

## B. Effects on the Domestic Financial System

A problem that requires further analysis is the effect on the private sector of the PS debt strategy and real deficits policies. Evidence for these six countries indicates that the larger the transfer of resources from the private to the public sectors, the greater the negative effect on the private sector development. This is because less volume of resources can be allocated (credit rationing) by the financial system to the private sector or because these resources become more expensive or both. Although the real net savings estimates provided us an idea of this effect, this might be an inaccurate estimate because not all private savings are deposited in the financial system. A more accurate way of assessing this effect is by measuring the portion of the financial resources claimed by the public sector relative to the private sector supply of financial savings. This can be measured by: (i) the ratio of the stock of nominal domestic PS debt to nominal M2; and (ii) the ratio of money finance plus nominal domestic PS debt to financial savings (in Table 4 this is the ratio of total fiscal pressure to total private financial savings).<sup>30</sup> The higher these two ratios, the greater the PS deficit pressure on the financial system and the greater the credit rationing or the real interest rates or both (see Figure 7).

The evidence for five countries (data was unavailable for Yugoslavia) indicates that a result of their debt strategy and deficit policies was an

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30/ These ratios use nominal domestic PS debt because this measure the PS demand for resources. In every period the PS has to issue sufficient domestic debt to finance the deficit and the erosion effect of inflation. Also, asset holders decide their investments in nominal terms and they have to determine in every period whether they want to re-invest the compensation for the erosion of inflation or not. Using real domestic PS debt would have presumed that asset holders always re-invest the compensation for the erosion of inflation, which is not necessarily true.

increase in the fiscal pressure on the financial system. However, the differences can be explained by the differences in domestic financial policies. Countries can be grouped into: (i) those that experienced an increase in the transfer of resources from the private to the public sectors (Morocco, Portugal and Turkey); and (ii) those that did not experience such an increase (Algeria and Pakistan).

In the first group, Morocco and Portugal are cases that experienced a moderate increase. This is in spite of the fact that these two countries performed a fiscal adjustment. In both cases the increase in the ratio of domestic PS debt to M2 was more apparent and resulted from their greater reliance on domestic debt.<sup>31</sup> This increase in the pressure on the financial system led to a very sharp increase in the real interest rate on Government securities (see Figure 7) and this is despite the fact that both countries controlled their interest rates. The authorities had to adjust these interest rates in order to make the domestic debt more attractive to asset holders. However, as we noted before, this resulted in the fall of private investment and both effects, the real interest rate and the credit rationing, might have played a role. However, Morocco and Portugal kept the pressure at moderate levels by combining a low-inflation policy (limited reliance on money finance) and a policy to adjust their real interest rates. These policies encouraged the supply of financial assets by making domestic assets attractive to asset holders.

Also in the first group, Turkey is a case that experienced a rapid increase in the pressure of the PS deficits. This increase explained the rapid

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31/ In 1987-89, Portugal also experienced an increase in the ratio of total fiscal pressure to private financial savings, but this was explained by the expansion in base money (re-monetization) used to finance the increase in net foreign assets.



increase in the real interest rate on Government securities. In particular, the increase in interest rates is closely associated with the increase in the ratio of domestic PS debt to M2. Both showed a rapid increase in the mid-1980s, when Turkey was trying to increase its reliance on domestic debt finance. But Turkey also showed a fast increase in the other ratio (total fiscal pressure to private financial savings), which increased from close to nothing in 1981 to 80 percent in 1989. This is explained by Turkey's reliance on money finance and by the high inflation rates that resulted. Since the inflation rates were very high and unanticipated by asset-holders, it led to a fall in the supply of financial assets. This was in spite of the fact that real interest rates were very high. Therefore, in Turkey the large fiscal deficits combined with the fall in the supply of financial assets made the pressure of the fiscal deficit much worse. Although its effect on the private sector investment was off-set through a subsidy policy. The high pressure, the high real interest rates and the high inflation might indicate that this deficit policy can not be sustained in the medium term.

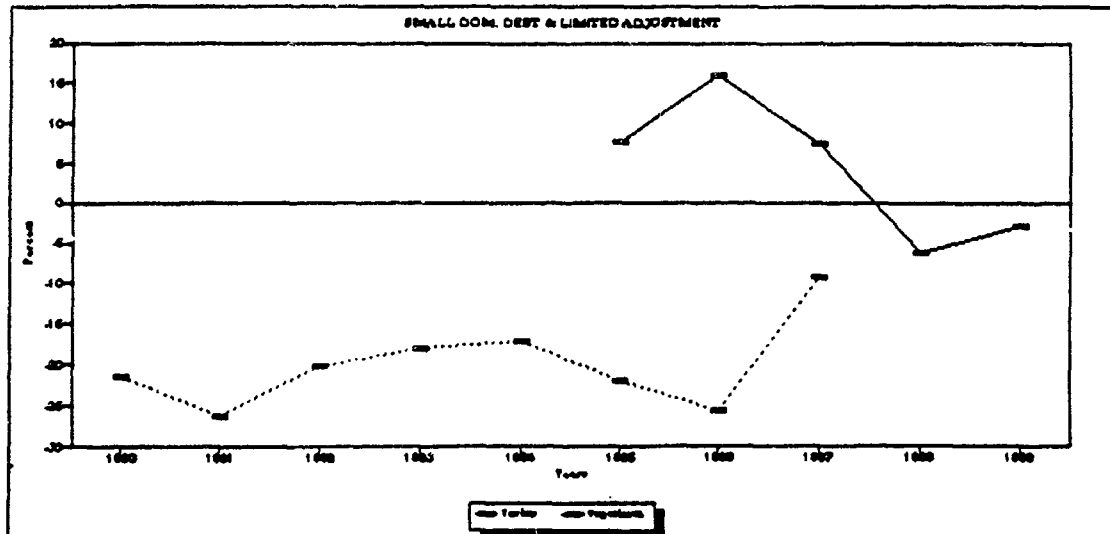
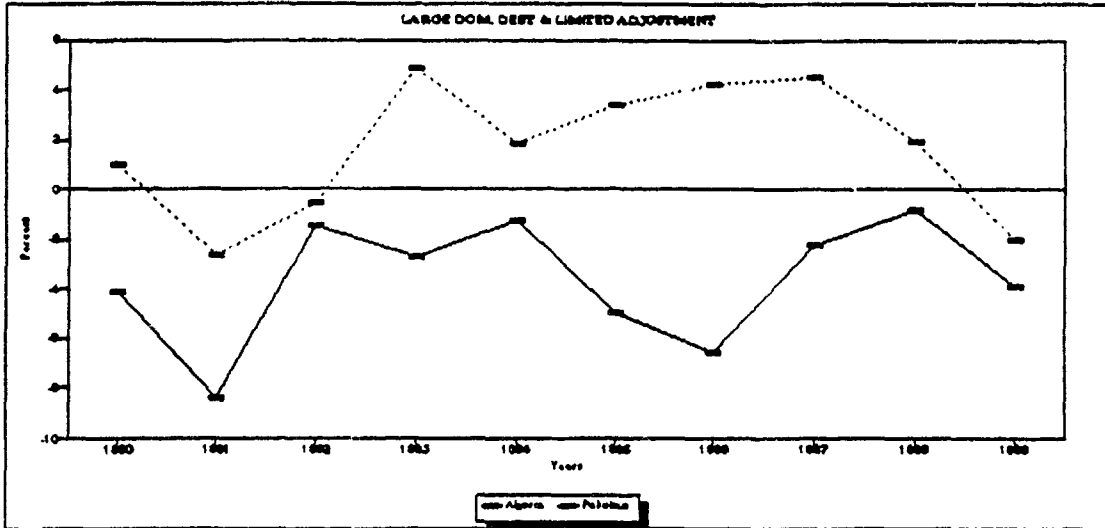
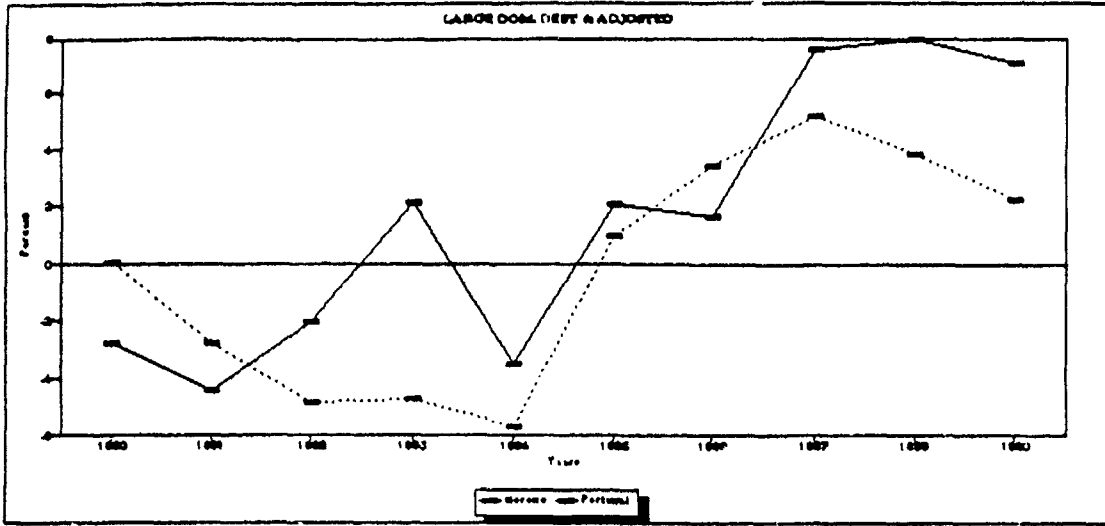
The second group of countries are Algeria and Pakistan. Although these two countries experienced very little change in the transfer of resources from the private to the public sector between 1982-84 and 1985-89, the ratios of pressure of the fiscal deficit on the financial system showed a very rapid increase. This is the case of both ratios. In the case of Algeria the pressure resulted from its reliance on both domestic PS debt and money finance, while in Pakistan it resulted from its reliance on domestic PS debt finance. Although both countries had controls on their interest rates, only Pakistan kept real

**TABLE 4: PRESSURE OF CONSOLIDATED PUBLIC SECTOR DEFICIT ON THE  
DOMESTIC FINANCIAL MARKET  
(In Percent)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<b>ALGERIA</b>										
Ratio of Stock of net Domestic Pub. Debt to M2	25.1	25.8	27.8	28.2	28.4	29.3	31.4	32.0	32.0	40.3
Ratio of Total Fiscal Pressure to Private Financial Savings	81.7	-5.5	26.8	84.5	44.6	82.7	548.1	97.1	67.2	165.1
<b>MOROCCO</b>										
Ratio of Stock of net Domestic Pub. Debt to M2	43.5	42.5	52.3	50.4	57.7	60.8	70.6	73.4	67.9	68.7
Ratio of Total Fiscal Pressure to Private Financial Savings	103.4	48.8	130.1	82.2	114.2	85.5	107.9	100.6	51.9	88.4
<b>PAKISTAN</b>										
Ratio of Stock of net Domestic Pub. Debt to M2	58.7	49.3	52.6	50.8	62.0	69.1	85.5	92.7	106.3	113.4
Ratio of Total Fiscal Pressure to Private Financial Savings	77.3	4.2	81.1	88.6	360.7	125.3	182.4	144.8	285.6	272.4
<b>PORTUGAL</b>										
Ratio of Stock of Net Domestic Pub. Debt to M2	35.8	34.0	31.4	31.7	31.8	33.8	39.0	45.5	49.1	46.1
Ratio of Total Fiscal Pressure to Private Financial Savings	62.5	57.3	42.8	56.3	30.0	42.9	75.2	141.2	108.3	134.7
<b>TURKEY</b>										
Ratio of Stock of Net Domestic Pub. Debt to M2	22.5	18.5	23.5	21.0	32.3	29.1	25.7	23.5	27.4	29.7
Ratio of Total Fiscal Pressure to Private Financial Savings	38.4	6.6	44.6	10.0	59.2	52.0	30.7	71.1	83.5	79.5
<b>YUGOSLAVIA</b>										
Ratio of Total Fiscal Pressure to Private Financial Savings	83.1	152.7	148.8	80.2	177.2	152.7	158.8	147.6		

SOURCE: See Annex.

FIGURE 7  
REAL INTEREST RATE ON DOMESTIC PUBLIC DEBT



interest rates positive. This is explained by the difference in sources of finance used. In general, large deficits financed with domestic PS debt require positive interest rates to make Government securities attractive to asset-holders.

The high ratios of pressure of the fiscal deficits in both countries indicate that the private sector was being affected through the credit rationing effect. In the past and until the mid-1980s, Algeria's supply of financial asset was strong because of the money overhang,<sup>32</sup> but this changed in 1985 when the supply of financial savings started to fall. Also, in the past Pakistan sustained its domestic PS debt policy by following a low-inflation policy and positive real interest rates on Government securities (as Morocco and Portugal). However, this changed in the late-1980s and the pressure of the fiscal deficits and the inflation rates started to increase very fast (see Figure 6). Therefore, the fast increase in the ratios for fiscal pressure on the financial system indicate that the fiscal policy of these two countries is unsustainable because it is pre-empting the development of the private sector.

## V. CONCLUSIONS

In this paper we described how six EMENA countries responded to the external shock of the 1980s. We focused on the differences among them and also emphasized their differences with the highly-indebted Latin American countries. The analysis started with the stocks of debt and how the external shock induced these countries to develop a domestic and external debt strategy. We then proceeded to the analysis of the role of fiscal deficits and how deficit policy

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32/ This is the involuntary demand for money that results when a price control policy and shortages in the goods markets are combined. See Khadr and Parks (1991).

was used to cushion the negative effects while minimizing the effects on the macroeconomy. And finally we relate the public debt strategy and deficits policies to the private sector development and economic growth.

From our analysis it is impossible to identify a country that was completely successful in their debt strategies. Each country faced different conditions and responded in a different way. The most successful countries were those that: (i) minimized the effects of the external shocks by combining an external and domestic debt strategy; (ii) adjusted their fiscal deficits; (iii) experienced a positive external shock; and (iv) fostered growth by minimizing the effects on the private sector and by developing and liberalizing their financial system. Although no single country fully implemented this strategy, the most successful ones were Portugal, Morocco and Turkey. This contrast with the strategy pursued by some Latin American countries, which although experiencing a similar external shock, failed to undertake a fiscal adjustment and financed most of their deficit through money finance, thus resulting in high-inflation levels and in overburdening their private sector. Yugoslavia reveals very similar features.

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