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**TURKEY'S TRANSFER PROBLEM IN THE 1980s:  
THE EXTERNAL AND THE INTERNAL  
ADJUSTMENT MECHANISMS**

by

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Dedicated to:

my father Abdullah İzmen

and

my son Ulaş İzmen Yardımcı

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## ABSTRACT

This thesis attempts an empirical interpretation of the Turkish transfer problem during the 1980's, the main cause of which is the debt service obligations.

The thesis investigates how Turkey attempted to solve the twin problems of the external and internal transfers in the 1980s. In particular, this study formulates the salient features of the transfer process and investigates the extent to which policies in this process met the requirements of the textbook transfer theory.

Using a simple macroeconomic framework, the thesis also attempts to relate the transfer problem to the growth-oriented adjustment literature.

After the introduction, the second chapter introduces the transfer debate in literature. The third chapter gives an overview of the adjustment process and sets the methodological framework for measuring transfers. The fourth chapter probes further into the external transfer problem. The fifth chapter takes up the internal transfer problem. The sixth chapter develops a simple macro-economic model inspired by the growth-oriented literature of the IMF and the World Bank and uses this model to simulate the effects of a transfer requirement and alternative ways of financing the transfer on output growth and price stability. The last chapter summarizes the main findings.

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## 1. INTRODUCTION

The observation that the trend in net transfers abroad changed with the debt crisis in 1982 constitutes the starting point of this study. Prior to the outbreak of the debt crisis, the debtor countries experienced net inward transfers. In 1982, net transfers to most of the middle income debtor countries virtually stopped and net transfers turned negative. Same patterns were also observed in Turkey. In fact, most of the heavy debtor LDCs as well as Turkey, became a net supplier of resources to the rest of the world.

In comparison with other severely indebted middle income countries, although the transfer burden on Turkey as a ratio to GNP was less severe in the period after 1982, the fact that Turkey received greater net transfers prior to 1982, rendered the shift from an inward to an outward transfer a substantial one. Net transfers from Turkey (as measured by the non-interest current account balance) reached \$ 16 billion, making 2 % of GNP on a yearly average basis.

The principal reason behind this reversal in net transfers in the LDCs as well as in Turkey was the substantial rise in debt service obligations. After the Mexican debt crisis, the panic in the banking sectors of the developed countries caused a tightening of international credit markets and a sharp rise in interest rates on credits to LDCs. Insufficiency of new foreign borrowing and high interest rates forced the LDCs to make net transfers abroad.

The change in the direction of net transfers renewed the interest in transfer theory after a long period of neglect since the debate on the German reparations of the 1920s. This thesis is an attempt at placing the Turkish transfer problem in the context of the transfer theory. In particular, this study tries to formulate the salient features of the transfer process and investigates the extent to which policies in this process meet the requirements of the textbook transfer theory.

The theoretical background of the problem goes back to Mill's writings. Basically, what is referred to as the 'transfer problem' in the literature is a two-fold problem. On the one hand, it refers to the need to generate outflows of real purchasing power in the form of foreign currency or resources such as exports and/or ownership of domestic assets (that is foreign investment) sufficient to meet debt-servicing charges. The transfer of real purchasing power and its domestic mobilisation constitute the first or primary setting of the problem. On

the other hand, it is concerned with the effects of real transfer on the terms of trade and welfare levels of both the donor and the recipient countries. These are the secondary effects of real transfers, which is generally referred to as the 'transfer paradox', because of such controversial results as recipient immiserizing transfers. This thesis attempts at analysing the adjustment process motivated by a transfer requirement, it deals with the primary burden of a transfer requirement, hence it escapes the transfer paradoxes.

The primary effects of a transfer requirement necessitates a two-fold adjustment on the domestic economy: A country which has to raise a net foreign transfer must first mobilise the resources domestically, which is known as the domestic or internal transfer problem. These resources must then be converted into foreign exchange which is named the external or foreign transfer problem.

The internal transfer, or the budgetary problem refers to difficulties in adjusting domestic spending to the foreign transfer obligation. The external or the real transfer problem on the other hand, refers to difficulties in adjusting production and trade to an accomplished reduction in domestic demand in such a way that an increase in exports and/or a reduction in imports produce the required foreign exchange.

For the people of the transferring country, the two-fold adjustment on the domestic economy caused by a net transfers abroad indicate a renunciation of the right to consume the value they created for the people of the receiving country. In other words, a transfer of real purchasing power can be defined as an amount which is foregone out of national income that can otherwise be consumed domestically. Hence, it necessitates an excess above domestic absorption.

This excess corresponds to an amount which is either foregone out of either private or public consumption, or private or public savings. The least preferred choice among these alternatives is the decrease in savings, since the reduction in investible funds denotes a reduction in potential income and damages the country's credibility while mortgaging the country's future.

This excess also corresponds to an adjustment of current account balance to yield a surplus of foreign exchange earnings over expenditures. This is achieved either by increasing exports or reducing imports. This in turn requires an increase in the production of tradeables or a reduction in the absorption of tradeables, which in general require a change in relative prices.

Studying internal transfers has a special importance in Turkey since nearly the entire medium and long-term debt is a liability of the public sector and the external transfer is realised totally by the public sector while most of the foreign exchange reserves is held and the foreign exchange revenue is earned by the private sector. Thus, the solution of the internal transfer problem in Turkey necessitates a transfer of funds from the public to the private sector, which is accomplished by reducing public expenditures, increasing public

revenues, especially taxes, domestic borrowing via bonds and bills and monetary financing. Because of the fact that these measures affect various parts of the society differently, the domestic adjustment process also involves a transfer of resources inside the private sector, from the low income earners to high income earners.

In the context of this two-fold adjustment, this thesis designates the Turkish strategy in handling the twin problems of the external and internal transfers in the 1980s, as a growth-oriented-export-based adjustment strategy with some qualifications.

This strategy however, inherited some obstacles for the sustainability of transfers in the long-run. On the side of external adjustment, the low level of investments in the tradeable sectors, and the intolerable continuation of export promotion policies such as real devaluation and real wage reductions restricted export expansion further. On the side of domestic adjustment, high real interest rates offered by the government resulted in a growing interest burden of domestic debt stock on government finance which even left no room for foreign transfers.

These basic characteristics of the domestic and external adjustment mechanisms were carried into a simple macroeconomic framework, so as to relate the transfer problem to the growth-oriented adjustment literature. The model developed is used to analyse the consequences of a transfer requirement and alternative methods of financing the transfers on economic growth and price stability in Turkey. The simulation analysis once more illustrates the dilemma between money creation and domestic borrowing: money creation to induce growth in the short-term, domestic borrowing not to accelerate inflation.

This study is organised as follows: after the introduction, the second chapter introduces the transfer debate in the literature. The third chapter gives an overview of the adjustment process and the Turkish transfer strategy in handling the external and the internal transfer problems. This chapter also sets the methodological framework for measuring transfers, and presents data regarding the absolute and relative size of the transfer burden on the Turkish economy in comparison with other major LDC debtors and historical transfer cases. The fourth chapter probes further into the external transfer problem. The fifth chapter takes up the internal transfer problem. The sixth chapter develops a simple macro-economic model inspired by the growth-oriented literature of the IMF and the World Bank and uses this model to simulate the effects of transfers of a transfer requirement and alternative ways of financing the transfer on output growth and price stability. The last chapter summarises main findings.

## 2. THE TRANSFER PROBLEM IN THE LITERATURE

The transfer problem is one of the oldest and most challenging areas of international trade theory. Chipman, an important contributor on the subject, has noted: "In the century and a half that has gone by since the science of economics began, few topics have been so vigorously and inconclusively debated as the transfer problem. Hundreds of pages have been devoted to theoretical controversy, empirical analysis, and summaries of both; and yet the outcome, in terms of positive results and basic understanding of the issues, has been astonishingly meagre." (Chipman, 1974; p.19). However, new debates and further contributions have enriched the literature on the transfer problem and numerous areas for application emerged during the last decade. The following sections will be devoted to an outline of the theoretical contributions problem and an overview of empirical applications.

### 2.1. Transfer Theory and the 'Transfer Paradox'

The renewed interest on the subject in recent years has arisen from the huge net financial transfers from debtor LDCs. Basically, what is referred to as 'the transfer problem' in the literature is a two-fold problem. On the one hand, it refers to the need to generate outflows of real purchasing power in the form of foreign currency or resources such as exports and/or ownership of domestic assets (that is foreign investment) sufficient to meet debt-servicing charges' (Grosse, 1978; p.417). The transfer of real purchasing power and its domestic mobilisation constitute the first or primary setting of the problem. On the other hand, it is concerned with the effects of real transfer on the terms of trade and welfare levels of both the donor and the recipient countries. These are the secondary effects of real transfers. For both aspects, there are real as well as monetary considerations.

The bulk of the literature, especially recent work is concentrated mainly on the second facet of the problem, which is generally referred to as the 'transfer paradox', because of such controversial results as recipient immiserizing transfers.

The theoretical background of the transfer problem goes back to Mill's writings. "Mill's flat statement that a transfer of funds from one country to another would worsen the paying country's terms of trade, thereby creating a secondary burden, was accompanied by

virtually no explanation" (Chipman, 1974; p. 19). A more explicit statement of the problem came through during Germany's reparation payments after World War I. For the first time in history, the Dawes Commission, which was formed by a group of experts appointed in 1923 by the Reparations Commission to establish reparations payments and scheduling, (headed by American financier Charles G. Dawes, and later on, by Keynes, who at that time was the British Treasury official at the Versailles peace negotiations) adopted the term in evaluating Germany's payment capacity. Keynes observed that the "Dawes Committee divided the problem of the payment of the German Reparations into two parts - the Budgetary Problem of extracting the necessary sums of money out of the pockets of the German people and paying them to the account of the Agent-General, and the Transfer Problem of converting the German money so received into foreign currency" (Keynes 1950; p. 161)

Keynes noted that "As time has gone on, opinion has become even more sharply divided than it was on the question whether this dichotomy has theoretical and political significance. The view has been widely expressed that the transfer problem is of quite secondary importance and that, so long as the Budgetary Problem is solved the Transfer Problem will in the main solve itself." (Keynes, 1950; p. 161) In his famous article, Keynes demonstrated how the transfer problem may be important and make the solution of the reparations issue impossible. Keynes based his arguments on what was later called the terms of trade or the elasticities approach. He argued that if a country tries to earn the required sums to transfer abroad by decreasing its export prices, it may end up with increased or decreased export revenues, depending on the price elasticity of demand for its export goods.

Keynes saw that, apart from price competition, the solution of the transfer problem required an augmentation and a diversification in exports. The primary condition for Germany to increase its export volume was to increase efficiency and/or reduce returns to factors of production which in turn required that either German industrialists increase their efficiency faster than industrialists elsewhere; or that the rate of interest in Germany be lower than elsewhere; or the efficiency wages be reduced compared to wages elsewhere. Since the first two conditions were unlikely to materialise it followed that the transfer problem required a reduction in efficiency wages in Germany relative to elsewhere (Keynes, 1950; pp. 164-5). Once the reduction in costs of production was achieved the existence of a solution to the transfer problem depended on the price elasticity of German export goods. If the export volume could not be raised or if the export demand elasticity were less than unity then the transfer problem would be insolvable. If the export demand elasticity were greater than unity, the transfer problem would be solvable, but the transfer cost would still be there.<sup>1</sup>

<sup>1</sup> The decreases seen in real wages and export unit prices in most of the LDCs reminds that Keynes' diagnosis in the 1920's is also relevant in the contemporary transfer problems. (Keynes, 1950; p. 162, Sarkar, 1991a; p. 85)

Keynes summarized and emphasised the interdependence of both aspects of the problem in the following paragraph: "The transfer problem consists in reducing the gold-rate of efficiency earnings of the German factors of production sufficiently to enable them to increase their exports to an adequate aggregate total; the budgetary problem consists in extracting out of these reduced money earnings a sufficient amount of reparation-taxes. The budgetary problem depends on the prosperity of German people; the transfer problem on the competitive position of her industries on the international market." (Keynes, 1950; p.165)

Keynes observed that, as a way of postponing the transfer problem, Germany had resorted to foreign borrowing. He noted that "this process of borrowing from abroad cannot go on indefinitely. When it comes to an end, it will be necessary to divert the labour which it now employs to producing for exports" (Keynes, 1950; p. 163)

The foremost important opponent of Keynes on the German reparations issue was Ohlin, who adopted the income effect approach which is also known as the absorption approach. Ohlin disagreed with Keynes' claim of a secondary burden and proclaimed that there was no presumption for the direction of terms of trade changes. He has called the Mill-Keynes approach as the "orthodox doctrine" and introduced a second dimension, namely, real income changes to the problem. Ohlin argued that in sharp contrast to Keynes' terms of trade or elasticities approach which tends to hinder the solution of the transfer problem, his income effect approach tends to help carry out the transfer. (Ohlin, 1950)

Ohlin pointed out that Germany borrowed twice as much as it paid in reparations payments and this situation created a disadvantage by swelling imports and reducing exports. He observed that "These borrowings, in so far as they have exceeded the reparation payments, have not only increased the buying power in Germany and thus its importation of foreign goods; they have also reduced the buying power in the lending countries, and, thus, their importation of German goods. It is true that the direct influence in this latter direction may not have been very great... but indirect effects cannot be ignored" (Ohlin, 1950; p.172). On the remaining part of his exposition he considers the nature of these indirect effects. These effects are said to come about when the residual part of the borrowed funds which is not used directly on imports, increases the demand for home products. The increased demand for home products would attract capital and labour, which would otherwise be employed in the export goods producing sectors. Therefore, export supply would be less than what it would be if there were no such funds. Thus, the indirect effect would lead to an import surplus, which would not exist in other cases. On the contrary, for the country making the transfer, the decrease of buying power would directly reduce imports and more importantly, the reduced demand for home products would lead to a slow down in home industries. Thus, capital and labour would turn in greater proportions to exportables resulting in an export surplus.

Apart from the polemic between Ohlin and Keynes, Leontief (1936) introduced a paradoxical case where the transferor is better off and the recipient is worse off. Leontief (1936) dealt with an example which pointed out the possibility of a terms of trade deterioration for the receiving country. Indeed, he showed that the improvement in the terms of trade of the paying country may even be so large as to render its real income bigger after the transfer. This article pioneered most of the contemporary writings. Later on, Samuelson (1947), Mundell (1960 and 1968) and Kemp (1969) have shown that such outcomes can only occur in Walrasian unstable markets.

Recently, Balasko (1978) has analyzed the stability conditions in the transfer problem in a two country two good framework. He drew attention to the distinction between local and global transfer paradoxes. He demonstrated that in a smooth and regular exchange economy, a local paradox occurs if and only if the equilibrium is locally unstable. Whereas for a global paradox to occur, it is necessary and sufficient that there be multiple equilibria. The extension of the analysis to more than two agents was left to Polemarchakis (1983) where he demonstrated that with three agents both the local and global transfer paradoxes may occur even at a unique and stable Walrasian equilibrium. However he used the fixed coefficient framework which eliminates substitution effects and was later on proven by Dixit to work in the direction of dampening the paradox effects. After these contributions to the area a new direction has been virtually opened which concentrates on the specification of the necessary conditions for the relevance of either the orthodox or the anti-orthodox results.

The pioneering works of Samuelson (1952, 1954) have shown that either the orthodox, or the anti-orthodox view may be relevant, depending on the existence of impediments to trade. In his 1952 paper, Samuelson concluded that in the absence of transport costs or impediments to trade, "there is no presumption that the terms of trade will deteriorate rather than favour the paying country." (Samuelson, 1952; p.299). With transport costs and impediments the outcome was shown to be very complex. When Samuelson handled the problem once again he tried to trace down the orthodox way of thinking to its possible intuitive origins and in a partial equilibrium model with two countries and many goods, he demonstrated that "... these papers underestimate the strength of the orthodox presumption" (350). In this later paper, he rigorously demonstrated the conditions for economists to fall into the orthodox presumption in the context of a strong model in which the conditions for partial equilibrium analysis are met.

Following Samuelson's contributions, the literature evolved mainly in two directions: the positive effect of a transfer on the terms of trade, treated by Samuelson (1971), Chipman (1974) and Jones (1970) and the welfare effect of a transfer on recipient or transferor where recent work has concentrated.

The paradoxical outcomes in this process (the impoverished recipient and enriched transferor) led to a third line of study, namely the anti-orthodox view, which was first

introduced by Leontief, and later on elaborated by Jones. Jones has demonstrated that even in the purest model, involving zero transport costs and tariffs, there is a presumption that the terms of trade move in favour of the transferor. That is, rather than a secondary burden of Keynes, there is a secondary blessing for the transferor (Jones, 1975).

The subsequent papers dealt with the possibility of immiserizing transfers despite market stability by either introducing a third agent or exogenously specified domestic distortions. An early analysis of the three-agent transfer problem by Gale (1974) uses an example in which the donor is enriched along with the recipient. On these lines, the paper by Chichilnisky (1980) started a debate with multi-contributors in the *Journal of Development Economics*. In that paper she extended the debate to aid flows from industrialised to developing countries and reached the striking conclusion that developed countries may increase their welfare by giving aid to LDCs. Chichilnisky considered the transfer problem in a context that differentiated between income groups in a country. She constructed a two-region (north and south), two-good (basic and investment/luxury) and a three-income group (two in the north, one in the south) general equilibrium exchange model to investigate the income effect of the transfer. The Chichilnisky model rejects the implicit assumption underlining the orthodox setting of the transfer problem: the donor and receiver regions are at similar levels of development and can be regarded as competitors in the market. Besides this, she rests her analysis on the fact that the recent debt problem is among unequals with the striking conclusion that if income groups are differentiated within regions then such positive effects may also occur in Walrasian stable markets so that the income effects of the transfer of luxury/investment goods from north to south on the south's terms of trade are sufficiently strong for the south to end up worse off. She also points to the existence of a trade off between more equality between the north and south and equality within the north. Every participant in this debate opposed her results, even those that adopted the anti-orthodox view. Only Geanakoplos and Heal (1983) took sides with Chichilnisky and attempted at proving her results under even a stronger transfer paradox.

Chichilnisky's courageous paper attracted much attack from writers such as Ravallion (1983), Saghafi and Nugent (1983), Srinivasan and Bhagwati (1983), and Gunning (1983). The common point in these criticism is that her results depended on specific and implausible assumptions; furthermore, her assumptions did not lead to her results. However, Chichilnisky's unorthodox position can be reached by changing the assumption on endowments.

The neglect of substitution and production severely limits the scope of the insights that can be obtained from these models. Yano (1983) extended the three-agent analysis by allowing for substitutability in both consumption and in production. The primary purpose of the paper was to show that if the total elasticity of substitution is sufficiently low, both the paradoxical and the normal results apply, whereas, the paradoxical result vanishes if the total

elasticity of substitution is sufficiently high. In this three-country setting, the only case ruled out is the simultaneous enrichment or immiserisation of all the three countries, whereas in the two-agent case, the only possible outcome is the enrichment of the recipient and the welfare loss of the donor.

In reality, we do not generally have much information on world trade patterns and on the marginal propensities to consume of the participating countries. Yano, noting that substitution effects always have normal effects on welfare, states that the simultaneous enrichment of the donor and the immiserisation of the recipient is to be expected with a probability of  $1/6$  at most and in the normal case with the probability of at least a half (286). Bhagwati, Brecher and Hatta (1983) demonstrated that the phenomenon of immiserising transfers from abroad in the presence of market stability can arise only if there are exogenously specified domestic distortions characterising the economy in question. They also argue that the three-agent case, which again produces the same paradoxical results, is indeed characterised by what Bhagwati (1971) has called a foreign distortion.

Dixit's article (1983) opened a new way of analysis into the two-good, multi-country transfer problem with production and substitution, and compatible with Walrasian stability. All previous models are reduced to special cases with this article. Dixit studies both the direction of the change in terms of trade and the effect on welfare of any one country. He also shows how his results relate to the recent work on transfer paradoxes. He points out that the possibility of substitution works in the direction of obtaining normal results and furthermore, the Bhagwati, Brecher and Hatta (1983) argument that paradoxes are caused by differential patterns of aid and trade is confirmed. He concludes that: "Noting that all substitution effects always work in the direction of the normal or non-paradoxical outcome, and that quite subtle combinations of trade and aid patterns and income effects are needed to generate the paradoxes, my empirical presumption would be that the paradoxes are indeed theoretical curiosa." (Dixit, 1983; p.53)

The most recent literature on the subject extended the analysis to include various forms of distortions. Brecher and Bhagwati (1982) demonstrated how exogenous distortions created by tax-cum subsidies in domestic production led to paradoxical results. In their analysis they demonstrate the existence of an inferior good for the world as a whole is needed for the paradoxical possibility to occur. In contrast to Dixit, they argue that inferiority at the national level cannot be automatically dismissed as implausible, and the welfare paradoxes they present are more than simple curiosa. Furthermore, they suggest that their analysis can be extended readily to any case in which the marginal rate of substitution in production and in consumption differs between countries, a point which is also noted by Dixit (1983). Since the failure to optimally exploit any monopoly power in trade is considered to be a distortion in the context of international trade, any actual trade situation therefore includes at least one distortion. Thus, in order to avoid the appearance of

paradoxical results, the donor and the recipient should apply an optimal tariff to exploit monopoly power in trade. Grinolds (1987) explores this point and shows that there is a set of tax structures including the optimal tariff rate which guarantee normal welfare response under an  $n$ -country,  $m$ -commodity setting.

The same point is also made in Kemp and Kojima (1985). They show that in a two country-two good framework, the possibility that aid is wholly or in partly tied (ie. it is financed or spent inefficiently) in the donor or in the recipient may lead to an outcome in which the recipient suffers and the donor benefits. The transfer problem has also been studied in an overlapping generations framework by Galor and Polemarchakis (1987) and by Haaparanta (1989). Galor and Polemarchakis consider the effects of permanent tax-financed transfers to the private sector. Haaparanta, on the other hand, shows that the effects of transfers depend on their method of finance and disbursements while the short and the long run effects may differ considerably.

Beladi (1990) examines the welfare effects of a transfer in the presence of unemployment generated by an exogenously specified real minimum wage rate and cites the necessary conditions for the occurrence of paradoxical as well as normal results.

Similar results are obtained by Majumdar and Mitra (1985) in an  $n \times m$  general equilibrium model. They found that 'the donor country is worse off after the transfer if (a) all goods are 'net substitutes' for the donor country; (b) all goods are 'gross substitutes' for other countries and (c) all goods are 'normal' for all countries.

## **2.2. Macroeconomic Framework of the Transfer Problem**

The preceding section attempted a discussion of the theoretical background of the problem and concentrated largely on the 'transfer paradox'. This literature relies heavily on microeconomic theory. The question at the centre of the problem is the determination of the ultimate effect of a transfer payment on the welfare levels of both the donor and the recipient countries. The question is extremely interesting and important. Moreover, it constitutes the starting point of this thesis. However, its scope for real world applications is limited. We can only infer lessons from microeconomic theory. Disputes on the specification of the necessary and sufficient conditions for the occurrence of transfer paradox persist and we are not in a position to judge about the magnitude of welfare gains or losses. Hence, in the remaining part of the thesis, we shall ignore the secondary effects of the transfer payments.

By doing so, we shall escape the transfer paradox debate and concentrate on the domestic mobilization of the funds and their transfer to abroad via foreign trade. Investigation of the mechanisms of the transfer process lies in the domain of another branch of the literature which concerns macroeconomics. In contrast to the microeconomic framework of the previous section, this one utilises macroeconomic theory and national income accounting.<sup>2</sup>

However, there are some inferences from the preceding section that we will retain throughout the thesis. These are:

1. an increase in exports accomplish the transfer process;
2. there occurs an improvement in the price of tradeables relative to non-tradeables;
3. either efficiency increase more than elsewhere or the rate of interest or real wages decrease more than elsewhere;
4. transfer process is harder if price elasticity of exports are less than unity.

In this section I will give a brief outline of the macroeconomic framework of the transfer process.<sup>3</sup>

In the context of the transfer theory, the objective of the transfer bears no importance from the standpoint of the adjustment mechanisms required (whether the transfer payments are for military expenditures, war indemnities, subsidies, foreign aid, loans or investment from developed to undeveloped nations or they are the backwards transfers from undeveloped to developed countries, of previously borrowed funds). Whatever the reason underlying the transfer, the transferor has to decrease its domestic spending by the amount it is obliged to pay to the recipient in contrast to a zero-transfer case. The donor may cut its spending by increasing taxes, restricting credits, raising interest rates and so on.

Transfer payments are either financed out of international reserves or by adjustment in the current account to yield a surplus of foreign exchange earnings over expenditures. Since depleting of international reserves is not a long term solution, the adjustment in the current account is generally called for.

Holding the foreign interest rate and foreign debt stock constant, the external transfer can be achieved by either increasing exports or reducing imports which in turn requires an increase in the production of tradeables and/or a reduction in the absorption of tradeables. This will in general require a change in the relative prices of traded and non-traded goods, i.e., a reduction in real exchange rate, and if the country has any international market power, a change in export and import prices (Buiter, 1990; p. 414).

A transfer abroad of real purchasing power can also be defined as the amount of national income foregone by the transferor to effect the transfer, i.e., national income that could otherwise be consumed domestically. Hence a transfer of real purchasing power

<sup>2</sup>For studies in this framework see: Machlup(1968); Reisen and Trotsenburg (1988), Webb(1988), Sjaastad(1983), Grosse(1988), Balogh and Graham(1979), Ortiz and Serra-Puche(1986), Simonsen(?) and Sarkar(1990, 1991a, 1991b)

<sup>3</sup> The following demonstration draws heavily on Buiter (1990, pp. 409-414).

necessitates the generation of an excess of national income above domestic absorption by the transferor.

The interrelations between the budgetary<sup>4</sup> and the transfer problems have been stated in several sources. "To realise the transfer of real purchasing power to the rest of the world an internal reallocation of real resources is required: production and productive resources must be moved from the non-traded goods sector to the traded goods sector, i.e. to the production of exports or import-competing goods. This requires a decline in the relative price of non-traded goods." (Buitter, 1990; p. 409). Such an internal reallocation of resources constitutes the core of the budgetary problem. "...the budgetary problem refers to the difficulties in adjusting domestic spending to the requirements of foreign obligations, whereas the transfer problem refers to difficulties in adjusting production and trade to an accomplished reduction in domestic demand in such a way that an increase in exports and/or a decrease in imports produce the foreign exchange for converting the accumulated funds." (Machlup, 1963, 436).

The flow of resources from the private to the public sector and from the domestic economy to abroad is induced by a change in a number of key relative prices i.e. the real wage rate and wage rates in different sectors, the profit rate, the real interest rate, the real exchange rate and so on. A decrease in the real exchange rate and the real wage rate usually stimulate exports. If the transferor has any market power, the terms of trade is also likely to deteriorate. The increase in the real interest rate arising from heavy domestic borrowings by the government stimulates private savings and reduces domestic absorption. A decrease in real wages also works to curtail domestic absorption.

To the extent that the required excess of national income over domestic absorption is achieved, transfer payments can be made with little problem. A growing and prosperous economy can make these payments from its regular tax revenues. If this is not the case, the solution of the transfer problem is necessarily harsh and will generally involve a contraction in the purchasing power of the transferor.

If the first best option (a rise in output above domestic absorption to the amount of the transfer) cannot be achieved and absorption has to be curtailed, then the domestic mobilisation of funds can be painful.<sup>5</sup> The decrease in absorption may be realized by curtailing private or public consumption, investment or both.

The situation that the problem debtors are likely to confront is described in Machlup (Machlup, 1928, p.400). "The tax haul effected in order to permit the payment of foreign

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<sup>4</sup> The amount to be raised within the budgetary problem can also be referred as internal or domestic transfers.

<sup>5</sup> Machlup (1963; p. 434) points out that all historical transfer problems were characterised by expansions of domestic output rather than contractions. But in the contemporary case most of the LDCs' growth rates attained in the transfer process were substantially lower than their historical rates. Under these unfavourable conditions it is apparent that LDCs face a much more difficult problem than all of the other historical problems.

debts is real and definite: it seizes returns wherever there are returns, it reduces incomes and purchasing power, it may destroy the profitability of many private enterprises and result in capital consumption and capital loss. At this stage, the public parks and churches, the well-lit streets and highways, the modernized and smokeless railroad trains, the sport arenas and the swimming pools would be a weak consolation to the faltering economy. Undoubtedly, the future tax payers, and indeed the entire suffering population, would find that they are paying too high a price for the public amenities and facilities."

It should be kept in mind, however, that output and absorption are not totally independent from each other and that measures to increase output may also increase absorption by stimulating private consumption and investment. Expansionist money and credit and public expenditure policies as well as tax cuts may result in deteriorating current account balance and thus aggravate the transfer problem. Similarly, an increase in foreign borrowing will have a positive effect on the current account balance if it is not totally spent on foreign goods and services. For a given level of output and absorption, a debt relief, a reduction in interest payments or an increase in foreign aid will have a positive effect on output especially if production in the receiving country is foreign exchange constrained. If the foreign exchange constraint relaxes and the additional foreign exchange resources are spent on imports of essential foreign inputs, then output will increase. However, if they give rise to an equivalent increase in public or private spending, the improvement in the current account balance will be smaller and consequently the transferable surplus will be smaller (Buiter, 1990; p.413).

There may be cases where the external transfer problem is solved smoothly before the internal transfer problem is solved. These are "soft options" which are not considered as a sacrifice on the part of the debtor and do not create any resistance. These include improvements in the efficiency of production which allows reductions in costs and prices in the transferor, and a rise in the foreign demand for its export goods. These soft options are, however, more relevant for developed rather than developing countries. In most industrial countries technology advances and along with it, efficiency of production increases so that what needs to be done is to keep the increase in wages below the increase in productivity. However, in the transfer problem of the 1980s, this option was closed for LDCs because they always follow technological improvements in DCs. The other soft option is the expansion of effective demand abroad sufficient to "pull in" goods and services from the transferring country which thereby provides it with the foreign exchange to realise the transfer payments. The effect of increasing foreign demand will not cause a reduction in domestic absorption only if the country's productive capacity increases in the long-run and if unused capacity is utilised in the short-run. This option, also, has little relevance for the present due to the current recession in the Western world.

Increased foreign aid and other current transfers and reduced interest payments are other soft options for the present low income debtors facing a transfer problem.

### 2.2.1 Budgetary Problem: The Internal Transfer

A primary task facing the government during the transfer process is to facilitate the flow of resources from non-tradeables to tradeables sectors. Furthermore, if output is not raised above domestic absorption, the internal transfer problem must be solved by reducing domestic absorption. The government also plays a central role in this regard by reducing public and private spending through fiscal and monetary policy.

Apart from a reduction in domestic absorption and the shift of resources from the non-traded to traded goods sector, a shift of resources from the private to the public sector was also necessary in the recent transfer problem of LDCs caused by debt servicing. Where the bulk of the foreign debt of a country is public debt or publicly guaranteed private debt and the bulk of the foreign exchange revenue is earned by the private sector, a transfer of the requisite funds from the private to the public sector is required prior to the external transfer. This implies either a voluntary or involuntary transfer of private savings to the public sector.

There are four alternative methods for governments to mobilise funds for debt service:

1. Reduction in non-financial expenditures;
2. Increase in taxes;
3. Increases in domestic debt by bond financing;
4. Inflationary money creation.

These four alternatives are summarised by Reisen and Trotsenburg (1988) in the following public budget limit equation:

$$G + \alpha\text{NFT} = \Delta M + \Delta D + \Delta D^* + T \quad (2.1)$$

where  $\alpha\text{NFT}$  is the transfer realised by the public sector;  $G$  is other government expenditures,  $T$  is tax revenue,  $\Delta M$  is the monetisation of the public deficit,  $\Delta D$  and  $\Delta D^*$  are the accumulation of net domestic and foreign debt, respectively.<sup>6</sup> The last two options,

<sup>6</sup> For a comprehensive analysis of budgetary problem and the methods to curtail domestic spending in various heavily debtor countries look Reisen and Trotsenburg (1988;p.27-50)

namely, the monetization of the public deficit and domestic bond financing are also called the domestic financing of the transfer.

Each of these four methods have three effects. First they reduce domestic absorption directly by reduced public spending and indirectly through the decrease in private spending arising from the financial pressure exerted by the government's bond financing, inflationary erosion of money incomes and higher taxes. Second, they channel resources toward the public sector and finally towards tradeables sectors. The reduced public and private spending will fall partly on traded goods and partly on non-traded goods. As long as the decrease in the demand for non-traded goods is larger than the decrease in the demand for traded-goods, the relative price of the former will fall vis-a-vis the latter given the price flexibility. This will cause a shift of resources from non-traded to traded goods. The change in relative prices (e.g. real interest rate, the rate of return on various assets and the real wage rate) as well as cost and availability of credits will play a central role in meeting the requirements of the real transfer.

In the following, a brief outline of the relative effectiveness of the four mechanisms in raising the internal transfer is presented.

When confronted with a budgetary problem, in the first instance, governments generally attempt at reducing non-financial public expenditures. There exist various ways to reduce public expenditures. Limiting the size of the public sector is the most common one. Others include privatizing unprofitable public firms, cutting social services expenditures, reducing public investments or changing their composition of investments. Rationalisation of public activity to supply public services at a lower real cost than before and selling real assets that are not essential in meeting public needs. (Reisen and Trotsenburg, 1988; p.27)<sup>7</sup>

In so far as the internal transfer cannot be mobilised by reducing public expenditures, governments resort to increasing taxes. A government's ability to increase tax revenue depends on the country's tax capacity which is given by its per capita income and the tax evasion rate. The smaller the per capita income, the narrower the tax base is. Furthermore, bottlenecks in assessment, levying and collection of taxes also prevent tax revenues from rising considerably. In addition, people are more likely to circumvent or avoid paying their taxes when the tax burden is greater. High inflation rates stimulate the creeping in the real value of tax revenue especially when collection lags are considerably long. Although high income countries will find it easier to increase regular public revenues as compared to developing country debtors, some countries such as Korea, Mexico, and Indonesia were able to increase their tax revenue in their effort to solve the budgetary problem.

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<sup>7</sup> But it should be reminded that expenditure ratio in most of the LDCs are lower than the one in developed countries. Yet, in their effort to mobilise transfers, most debtors achieved reductions in their public expenditures.

The governments' inability to raise revenues and cut expenditures gives way to increased budget deficits which are financed either voluntarily (by domestic borrowing) or involuntarily (by printing money).

Money finance is to a certain extent enforced: the required sources are extracted from the private sector "through money finance which compose of seigniorage (the increased real demand for base money as the economy grows) and the inflation tax (the revenue obtained from non-interest bearing asset holders during inflationary periods)."

The government will attempt at increasing the revenue from money finance by increasing the demand for money. Inflation increases the demand for nominal money balances but reduces the real demand for base money. Printing money is inflationary unless it is matched by an expanded domestic supply or increased imports. It is the involuntary method of transferring private savings to the government. Inflation leads to a decrease in real purchasing power and may therefore be regarded as a tax. Here, the tax base is real cash holdings, while the tax rate is the inflation rate. However, as with any other tax, a very high tax rate leads to an erosion of the tax base. That is, very high inflation rate results in a run-away from domestic currency and a contraction in the monetary base which lowers the revenue from the inflation tax as well that from seigniorage. Thus, there exists a maximum rate of inflation which maximizes the yield from the inflation tax. (Reisen and Trotsenburg, 1988, p. ) Define the inflation tax ( $R_t$ ) as the inflation rate ( $p_t$ ) times money holdings ( $M_t$ )

$$R_t = p_t \cdot M_t \quad (2.3)$$

where the relation between  $M_t$  and  $p_t$  is:

$$\ln M_t = bp_t \quad (2.4)$$

The maximum yield from inflation tax is achieved if:

$$R_t (\text{max!}) = p_t \cdot e^{a-bp_t} = \text{max!} \quad (2.5)$$

Other factors which influence the demand for money are interest rate differentials, output growth and the emergence of close substitutes for domestic money. The most important instrument to increase the monetary base is the minimum reserve requirements. The increase in minimum reserve requirements raises base money and thus seigniorage revenue.

Net domestic debt finance, on the other hand, composes mostly of bonds and bills, net bank credit and extra budgetary funds (EBFs).

The amount of bond financing is a function of the volume of the domestic bond market and past and expected returns on government bonds as well as the savings capacity of the private sector.

The government usually offers high interest rates in order to attract private funds. Hence, net domestic borrowing leads to an increase in the cost and a reduction in the quantity of credits available to the private sector. But, high interest rates also raises interest service payments in the following period and thus leads to increased borrowing requirements. On the other hand, if governments offer low interest rates during inflationary periods, they actually borrow at negative real interest rates which means a creeping expropriation of domestic creditors. This may reduce real domestic debt and the government deficit in the current period, but eventually, inflationary tax erosion due to collection lags reduces public revenues and exacerbates deficit. Thus along with domestic borrowing, if non-financial government spending is not cut or the tax ratio is not raised, growing domestic debt service requirements may lead to an explosion of the financial deficit.

Another source of domestic debt finance is the net bank credit used by the public sector. The decrease in the share of the private sector in Central Bank credits and the increase in the credits used by SEEs, central and local governments constitute the source of credit finance.<sup>8</sup> When calculating domestic debt finance, credits given to the private sector should be netted out in order to obtain an accurate measure of the amount of resources transferred from the private to the public sector.

The level of development of financial markets determines the extent to which the deficit may be financed without resorting to inflationary methods. If the government utilises the sources of central bank or of the banking system, then the domestic financing of the deficit is obviously inflationary. On the other hand, if it sells public bonds to the private sector, then such deficit financing will not be inflationary in the short term. Government's bond sales may lead to inflationary outcomes in two ways: First, the government offers higher interest rates on its papers, forcing other financial institutions to raise the interest rates they offer. Firms will thus confront higher interest rates on their credit demand leading to an increase in their cost of operation, cost of production and therefore prices. On the other hand, high interest rates will also discourage prospective investors. In the long-run, productive capacity decreases and supply falls short of demand, leading again to inflation. The inflationary effect of high interest rates caused by government's bond sales can be avoided if the private sector has access to foreign credits. in which case cheap foreign credit

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<sup>8</sup>Up to now we only considered cases in which the government plays a central role in making the transfer. In the case of private sector's transfers, the solution of the internal transfer problem involves a reduction in domestic outlays for plant, inventory, dividends, or wages. "In both cases the inclination to resort to borrowing new funds from the banking system is strong; but to the extent that monetary expansion helps in the 'extraction' of the domestic funds, the budgetary problem has not really been solved. Since the demand for bank credit will 'naturally' increase when taxes are raised or debts have to be paid, and since meeting this demand would imply failure to extract the money out of the income stream of the economy, the refusal of bank loans becomes part of the solution of the budgetary problem." (Machlup, 1963, 435)

will be preferred to expensive domestic credits. However, access to cheap foreign borrowing is usually limited for most LDCs.

Since the government's mobilisation of the domestic transfer through the inflation tax or domestic borrowing reduces private consumption as well as leading to the crowding out of private investment, the domestic transfer can also be regarded as financial pressure exerted by the government. In a recent study by the World Bank (World Bank 1990b; p.96) the financial pressure of the government is measured by the increase in money base adjusted for private sector credits and increase in domestic borrowing. This is the portion of the public deficit including net financial transfer abroad which is not financed by foreign borrowing. Using equation (2.1) financial pressure on domestic markets can be measured as:

$$FP = (G - T) + \alpha NFT - \Delta D^* = \Delta M + \Delta D \quad (2.2)$$

Apart from the generally acknowledged economic and social costs of inflation, the financing of net financial transfers by inflationary methods, leads to three outcomes which are important from the perspective of sustaining external transfers. At high rates of inflation, the real interest rate tends to become negative and the demand for money in domestic currency is reduced while investment in financial and other assets abroad increases. This encourages capital flight and causes real wealth loss. As a result, the rate of real devaluation increases beyond the level initially required. As long as debt service payments are fixed in foreign currency, real devaluation also increases the domestic commodity equivalent of the transfer requirement. The increased transfer burden in domestic currency in return aggravates the budgetary problem and tends to have an inflationary effect which in turn reduces the real exchange rate. On the other hand, decreased money demand limits the extent of money financing while negative real interest rates reduce domestic borrowing. Hence the solution of the internal transfer problem depends to a large extent on the government's ability to decrease the primary deficit (G-T).

The policies used by the government in mobilizing the funds for the internal transfer determines which section(s) of the society bear the burden of the transfer process. The revenue and the expenditure policies adopted may affect investment, consumption or both and in each case either the public or the private sector. The government may choose to decrease its current spending or investments or it can use policy tools such as taxes, tariffs, subsidies, credit rationing. to affect either private consumption or private investment. Increase in income taxes and indirect taxes tend to reduce private consumption while increase in the profit tax tends to reduce private investments.

Reducing public expenditures or increasing revenues is likely to have a significant impact on income distribution. Government policy also determines whether the burden is

distributed evenly among various sections of the community. In most transfer cases the burden largely falls on the low income earners. If the government does not wish to curtail investments than it may choose to decrease its spending on health, education, culture, and so forth. which will disturb the existing income distribution pattern. It may choose to increase its revenues by raising the income tax rates but not the corporate income tax rates so as to protect private investment. Privatisation, cuts in agricultural support prices, increasing the tax burden on wage and salary earners, increasing indirect taxes on basic goods, decreasing the wages of public sector employees, cuts in employment in public enterprises and so on. can lead to political unrest which renders the implementation of these measures unfeasible. The internal transfer problem is even more difficult to solve under conditions of unemployment since policies to curtail domestic demand tends to increase unemployment, if unemployed resources are not channelled towards exportables production. Hence, apart from purely economic reasons, cutting public expenditures or increasing public revenues may not be feasible due to political considerations. In this case, the failure to reduce non-financial expenditures and raise public revenues is likely to lead to a breakdown in the internal transfer, and thereby the external transfer.

Although the four ways of financing the internal transfer (expenditure cutting, taxing, borrowing and printing money) are treated as substitutes, Webb indicates that, they follow a sequence. Countries pass through the stages of taxing, borrowing and printing money in a sequential form. The transition passing from one stage to another is generally determined by political resistance, rather than macroeconomic successes of these policies. "Resistance to taxation, particularly when unemployment makes it difficult for the government to cut outlays, leads to borrowing. Resistance to borrowing pushes interest rates up until the government reduces the fiscal deficit or resorts to monetary finance. Resistance to monetary finance eventually necessitates, via falling real money balances, some degree of fiscal and monetary reform. External creditors typically provide funds to assist this reform, in return for a pledge to resume external payments after the reform is in place. IMF programs and commercial bank reschedulings have followed this pattern in the 1980s, as did the Dawes and Young Plans in the 1920s." (Webb, 1988, p.765)

At the core of the recent international transfer problem facing the developing world, lies the behaviour of governments in effecting the internal transfer. Reisen, by observing that "the governments were not really ready to raise the transfer, nor did they have enough potential for resource mobilization", stresses the important relation between the size of the transfer and government revenue. He introduces a new debt-service indicator that has not been used to date. This is the ratio of the net financial transfer of the public sector to government revenue and provides a measure of the extent to which a country is able to achieve non-inflationary foreign debt service. (Reisen and Trotsenburg, 1988, p.63)

### 2.2.2. The Real Transfers

The problem of generating the foreign exchange needed for transfer abroad is studied extensively in conventional debt literature. <sup>9</sup>

A transfer abroad requires:

i. the generation of a trade surplus ( increasing exports more than the increase in imports or by curtailing imports; or ii. a positive balance on factor and non-factor services or unrequited transfers from abroad.

It is also possible to finance the external transfer from exhausting international reserves in the short-term. Thus, the main policy options for debtor countries are increasing foreign exchange revenues from goods and services. If a reduction in imports is to be avoided, the export sector should generate the necessary foreign exchange to service the debt. The sustainability of the external transfer largely depends on sustained export expansion.

This requires, in turn, that shifts towards the tradeable sector. The government can influence such shifts by extending preferential credits and subsidies to exportable sectors, offering tax cuts and exemptions for the imported inputs used in exportables. It can also give tax rebates on a selective basis. The government can also facilitate indirectly the expansion in exportables production by undertaking infrastructure investments. The alternative policy of curtailing imports limits the growth prospects of the economy which necessitates a reduction in domestic demand.

A simple scheme introduced by Machlup in the late 1920s is still very useful to clarify the above point. Machlup (1928) has illustrated the repayment of a single loan in a sequence analysis of the processes involved in the outflow of capital. Machlup's analysis rests on three assumptions:

1. private capital movements are disregarded;
2. there are no gold or foreign exchange reserves out of which repayments can be made;
3. foreign exchange rates are fixed.

In this sequential model, (Diagram 2.1) in all but the last five columns every movement has its counter-movement. Every movement is later offset by an opposite movement. The only movement which does not have its counterpart is exports. The increase in exports is the real and ultimate result of repayment of a single loan and this change in the trade balance is the

<sup>9</sup> See for recent studies: Reisen, WB Report, Sarkar; for earlier works: Machlup

**DIAGRAM 2.1 REPAYMENT OF A SINGLE LOAN:  
SEQUENCE ANALYSIS OF THE PROCESSES INVOLVED IN OUTFLOW OF CAPITAL**

Period	Flow foreign funds	Sales and purchases of foreign exchange	Changes in domestic money circulation	Changes in domestic incomes and prices	Exports and Imports of goods and services
1		Domestic currency is accumulated to buy dollars when payment falls due			
2			this reduces domestic circulation		
3				incomes and prices decrease	
4					this stimulates exports and restrains imports
5	in payment for exports, dollar balances are received				
6		the dollars are sold to the central bank which issues domestic currency to pay for them			
7			this again increases domestic circulation		
8				incomes and prices increase again	
9		the accumulated domestic currencies are used to buy dollars for loan repayment			
10	the dollar remittances for loan repayment use up the dollar balances				

Source: Machlup, 1928, p. 405

automatic end-effect of an autonomous capital movement which reduces domestic money circulation. Thus, the movement of foreign exchange is the intermediate step, while the change in domestic money circulation is the motor-force and the movement of goods is the ultimate result of the transfer (Machlup, 1928, p.406). The movement of goods is the transfer of purchasing power from the debtor to the creditor country. In this process, a decreasing general price level and decreasing export prices stimulates exports and restrains import demand. This implies a shift of production from non-tradeables to tradeables. Under the flexible foreign exchange system, changes in the exchange rate may take the place of changes in domestic circulation. The failure to curtail domestic purchasing power (by expanding domestic credit stock, for example) prevents any pressure on incomes and prices. In this case, there will be no increase in exports, no reduction in imports and no transfer. The one-shot analysis can be extended to a multi-period one easily. In this case, prices and incomes will remain low, while the trade surplus persists.

The above analysis indicates that the solution of the real transfer problem necessitates a shift of resources from non-tradeables to tradeables and inside tradeables to export goods rather than import-competing goods. A shift of resources from non-tradeable to tradeable sectors accompany this process. Such a shift arises either if the price of tradeables increases faster (i.e. real exchange rate devaluation) or the government grants some extra incentives to exporters like tax exemption. As mentioned in the previous pages, measures to increase efficiency, such as decreases in real wages, increases the competitiveness of the export sector. In order for exports to grow faster than imports, production has to grow faster than domestic demand. Only in this case does an exportable surplus emerge.

There are also certain cases in which the real transfer problem is not easy to solve although there are no difficulties in domestic transfers. The realization of real transfer may be problematic due to structural/technological reasons. This may be caused by resource immobility. Differences in skill requirements between the sectors from which labour is released and the export sectors to where it is redirected may limit the exportables production. The solution of the real transfer may also be impeded by a mismatch between the composition of foreign demand and the composition of output of the exportables sector.

However, the transfer problem has not yet been solved as far as all developing countries trying to expand their exports. Apart from the recession and increasing protectionism tendencies in the developed world, the combined transfer attempt of the LDCs may result in a 'prisoner's dilemma' kind of situation as pointed out by Reisen (94).

Besides the literature which attempt to place country case studies inside the macroeconomic framework, there are also studies to link the adjustments that take place in the real transfer process with the microeconomic framework of the transfer problem <sup>10</sup>.

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<sup>10</sup>Since the theoretical background coincides with that of the transfer paradox studies, no detailed explanation will be attempted at in this section.

Sarkar analyses mainly the process of improving trade balance.<sup>11</sup> He observed that LDCs tried to expand their export volume to the DCs which exerted a downward pressure on their export prices. Along Keynesian lines, he noticed a secondary burden on the part of the LDCs.

The analysis of the internal (the budgetary) and the external (the transfer) problems reveals that the solution of both incorporates a reduction in domestic purchasing power either absolutely or in comparison to a no-transfer situation. This simple analysis is useful in the sense that it shows the interdependency of the budgetary and transfer problems. The failure to solve one will make the solution of the other more difficult.

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<sup>11</sup> See for example: Sarkar (1990), (1991) and Sarkar and Singer (1991).

### 3. THE TRANSFER PROBLEM FOR TURKEY DURING THE 1980s

In the last decade the Turkish economy has been transformed from a relatively closed and inward-looking economy to a relatively open and outward-looking one. This major change in the economic structure was prompted by a serious foreign exchange crisis in 1978 following a period of financial disorder towards the end of 1970s. The structural adjustment programmes adopted thereafter aimed at improving the country's balance of payments performance and international creditworthiness. Successive IMF stand-by agreements, an OECD special action support programme and the restructuring of foreign debt contributed to easing the foreign exchange constraint.

The transformation has not been an easy one, but required major shifts in the country's established trade and exchange rate policies. Turkey no longer faces a foreign exchange problem, but the consequences of the transformation on the country's economic and social structure are somewhat controversial.

A significant but generally neglected aspect of the post 1980 period<sup>12</sup>, is the reversal of net transfers.<sup>13</sup> The country ceased to enjoy a net inflow of foreign resources in this period and became a net supplier of resources to the rest of the world.

The single most important cause of the reversal of net transfers was debt service obligations which swelled with the ever increasing external debt stock. Between 1980 and 1991, total foreign debt and debt service rose 3.2 times.

Furthermore, as the bulk of the debt stock was owned by the government, the external transfer, i.e. a transfer of real purchasing power from the internal economy to the creditor countries had to be accompanied by a domestic transfer, that is, a mobilization of resources from residents to government, which, in turn, had significant distributive and welfare related implications. In fact, the adjustment of the economy to the requirements of the transfer process predominated almost every policy action in the Turkish economy in the eighties.

The basic observation period in this study extends from 1980 to 1990/91. The decision to focus on this period can be justified on grounds that the Turkish economy benefitted from net transfers in the pre-1982 period but was obliged to make net transfers abroad thereafter. Moreover, in 1980, the so-called 'January 24th Economic Measures' gave a new orientation

<sup>12</sup> Some of the exceptions are: Rodrik (1990c), World Bank (1990b), Demir (1990) and Kazgan (1988)

<sup>13</sup> However, this was not a peculiarity of the Turkish economy. Such a reversal has been observed in most of the newly industrializing heavy debtor countries.

to the economy leading to rapid and drastic changes therein. Hence, the year 1980 constitutes a natural starting point for any investigation of the recent developments in the Turkish economy. Nevertheless, there will be references to the pre-1980 period when necessary.

This chapter places the Turkish transfer process in the macroeconomic framework outlined in the previous chapter and attempts to highlight the main mechanisms of the transfer. The chapter is organised as follows: section 3.1 discusses the methodological framework for measuring transfers, and supplies the net financial and real transfer figures in the observation period. Section 3.2 attempts to highlight the transfer burden on the Turkish economy by comparing it with that of other major developing country debtors and historical transfer cases. Section 3.3 traces the developments in external indebtedness and the debt structure in the 1980s and section 3.4 discusses the salient futures of the Turkish transfer case.

### **3. 1. The Size Of Net Transfers and the Transfer Burden**

#### **3. 1. 1. Net Financial Transfers and Net Real Transfers**

The term "net transfers" is often used in a generic sense to refer to a net financial or a net real transfer of resources. The two are distinct but closely interrelated concepts.

In the context of debt-creating flows, a net financial transfer (NFT) is generally defined as net new borrowing minus interest payments. For a given country, a negative NFT normally corresponds to a trade surplus which finances that part of interest payments not covered by new net borrowing. (Reisen and Trotsenburg, 1988, p.85) A broad based definition of the NFT (i.e. the one that encompasses the entire balance of payments and not merely debt-flows) subtracts net factor payments (J) from total net capital inflows (F) to all residents, including the Central Bank. Hence, The reserve accumulation of the Central Bank is included in the definition of F.

$$\text{NFT} = \text{F} - \text{J} \quad (3.1)$$

From the balance of payments identity, the real counterpart to the NFT is the balance of goods and non-factor services (X-M):

$$\text{F} - \text{J} = \text{X} - \text{M} \quad (3.2)$$

The net transfer may thus be gauged from the capital or the current account of the balance of payments, with appropriate rearrangement of the conventional presentation of data

and statistical measurement can proceed from either side of identity (3.2). The two approaches yield the same value for net transfers at constant  $t/t$ .<sup>14</sup>

In the empirical work on the transfer problem, the definition and statistical counterparts of net real and financial transfers, show some degree of diversity. The diversity may stem from the theoretical or conceptual frame of the study, the particular aspect of the transfer theory emphasized, data availability and so on.

In the transfer theory, the transfer of real resources is defined as the excess of domestic production over domestic absorption. Then the relevant aggregate for the real transfer is the balance on goods and non-factor services. (Bacha 1992, Reisen and Trotsenburg, 1988, World Economic Outlook, 1986) "For a finance constraint economy this definition implies that a country must finance any excess of net international factor payments over net capital inflows (including unrequited transfers) by earning more from its exports of goods and services than it spends on imports." (World Economic Outlook, October 1986, p.50)

On the other hand, if the real transfer is defined as the excess of national income over domestic absorption, then an improvement in the current account yields a measure of the real transfers.

The definition and particular statistical measures of net financial transfers also show a considerable diversity from one source to another.<sup>15</sup> Here the diversity stems largely from coverage, i.e. whether only debt-related flows are computed or not and discrepancies between balance of payments and resource flow data arising from the inclusion and exclusion of certain items in the resource flow data, but not in the balance of payments data and visa versa.

Another frequent definition of the net transfer abroad, adopted by the World Bank (World Bank 1990b, 1991b, Wijnbergen et.al., 1992) and also in the present study is the non-interest current account balance (NICA)<sup>16</sup>. This is a measure proper of the external transfer but not strictly of the net real transfer in the sense of Machlup. (1968)<sup>17</sup>

When there is special emphasis on foreign debt services, interest payments are treated with a special care and NICA is widely used to this end. (Wijnbergen et.al., 1992 Rodrik, 1990c, World Bank, 1990b, World Bank, 1991b etc.) In the World Bank studies a country's transfer abroad is measured by its non-interest current account surplus and it is considered as the most fundamental measure of resource transfer.

<sup>14</sup> This presentation is largely based on Bacha (1992 p. 1184)

<sup>15</sup> (See OECD (1987) for a detailed account of the differences in the figures and presentation of NFT in statistical sources )

<sup>16</sup> In the simple case of an economy where current account transactions include only trade in goods and services and interest payments on foreign liabilities, the real transfer will be identically equal to NICA.

<sup>17</sup> Machlup argues that the real transfer proper should include only items that respond to changes in incomes and prices and relegates items representing purely financial transfers such as unilateral transfers to net financial transfers. While this distinction is crucial for the Machlup study which attempts to measure the transfer gap of the U.S. (i.e. the gap between net financial transfers and net real transfers) and the extent to which real transfers have adjusted to net financial transfers, it is less so for the present study which takes a broad based view of the external adjustments during the transfer process, while also devoting particular attention to trade balance adjustment.

NICA is the difference between the nationally generated income and total expenditure (net of interest payments on foreign debt). "If the non-interest current account is zero, the increase in debt equals interest payments, and the debt grows at the rate of interest. As long as there is a surplus on NICA, foreign borrowing is less than interest payments to foreigners; to put it another way, the growth in foreign borrowing is less than the rate of interest, and a net transfer of resource to the rest of the world takes place. The opposite happens when a deficit exists in the non-interest current account: in that case the debt grows faster than the rate of interest which eventually leads to insolvency" (Wijnbergen et al. 1992, p.59-60).

Along with the NICA measure of real transfers, we also present in this study, net financial transfer for the period 1984-1991 as reported by the Undersecretary of Trade and Treasury.

### 3.1.2. Net Transfers abroad

Real transfers from Turkey as measured by the non-interest current account (NICA) began in 1982, when it gave a surplus of \$ 613 million. The direction of net transfers was reversed in 1983, as indicated by a negative balance but from 1984 onwards, the NICA remained in surplus. Between 1982-91, net transfers from Turkey reached \$ 16 billion. Between 1984-1988, net transfers exhibited an increasing trend, attaining a maximum value of \$ 4.4 billion (6.2 % of GNP) in 1988. In 1990, the Gulf Crisis substantially affected the Turkish economy. That year, Turkey's trade balance, workers' remittances, and tourism revenue narrowed significantly. However, Turkey benefited from grants that compensated for losses caused by the war. Official unrequited transfers rose from \$ 0.4 million in 1989 to \$ 1.1 million in 1990 and enabled Turkey to sustain net transfers. In 1990, NICA including official unrequited transfers gave a surplus of \$ 0.7 billion, whilst it would have been in a deficit of \$ 0.4 billion without them.

Official grants continued to support transfer payments in 1991. In this year the current account gave a surplus of \$ 272 million despite declining tourism revenues and workers' remittances. However if the official grants (in compensation for the losses incurred because of Turkey's participation in the embargo against Iraq) had not risen to \$ 2.2 billion from \$ 1.1 billion in the previous year, the current account balance would have shown a sizable deficit. However, the sustainability of net transfers in 1991 did not depend on unrequited transfers, i.e. Turkey would have made \$ 1.5 billion of net transfers even if there were no unrequited official transfers.

The size of net transfers highlights the magnitude of the transfer problem. It throws light on the intensity of the necessary adjustments to raise the necessary funds domestically. On the other hand, the ratio of NICA to GNP reflects the relative burden in terms of purchasing power foregone. As the ratio rises, the probability of a political resistance to adjustments necessitated by the transfer process increases.

TABLE 3.1. NET TRANSFERS  
(million \$)

	Current Account Balance	Interest Payments	NICA	NICA/GNP (%)
1980	-3408	1138	-2270	-3.89
1981	-1936	1443	-493	-0.83
1982	-952	1565	613	1.13
1983	-1923	1511	-412	-0.8
1984	-1439	1586	147	0.29
1985	-1013	1753	740	1.38
1986	-1465	2134	669	1.14
1987	-806	2387	1581	2.31
1988	1596	2799	4395	6.21
1989	961	2907	3868	4.81
1990	-2625	3264	653	0.58
1991	272	3430	3702	3.39

Source: The Central Bank of Turkey, Balance of Payments Statistics of Turkey, May 1992.

The figures in Table 3.1 show the increasing importance of net transfers abroad from 1980 to 1991. Net transfers from Turkey rose to a peak of \$ 4395 million in 1988 which meant that Turkey had to transfer 6.21 % of its GNP abroad. Net transfers both in absolute value and as a percentage of GNP decreased from that year onwards. In 1990, net transfers constituted only 0.6 % of GNP. They rose to 3.4 % in 1991 due to increased importance of official grants as was mentioned above.

### 3.1.3. Financial Transfers

As mentioned in the preceding section, net transfers from a country can also be traced out by the difference between gross disbursements and debt service, i.e., net financial

transfers (NFT). Despite data inconsistency problems<sup>18</sup>, the NFT series presented in Table 3.2 indicates resource transfer to abroad for the entire period except for 1987, when disbursements increased by 42 % as compared to a 30 % increase in debt service from the previous year. From that year onwards Turkey's debt service obligations averaged \$ 6727 million per year, which is 44 % higher than the 1985-87 average of \$ 4671 million, while disbursements decreased steadily after 1988, speeding up the pace of the NFT.

TABLE 3.2. MEDIUM AND LONG-TERM FINANCIAL TRANSFERS  
(million \$)

	1984	1985	1986	1987	1988	1989	1990	1991
Borrowing	3200	4440	5011	7399	6724	5632	4617	6264
Disbursements	2680	3612	4047	5765	7845	5119	4611	4004
Total debt Service	3288	4289	4236	5488	7979	6861	6107	5962
Principal	1617	2670	2551	3130	4359	4263	3986	3567
Interest	1498	1619	2134	2387	2799	2907	3264	2395
Transfer Payments	-435	-677	-189	277	-134	-1742	-1496	-1958
Transfers/GNP	-0.9	-0.03	-0.32	0.40	-0.19	-2.17	-1.36	-1.80

Source: UTFT, External Debt Bulletin, various years.

Table 3.3 gives the breakdown of disbursements and repayments by the borrower in the period 1984-1991. This breakdown displays the important fact that the burden of the transfer rested chiefly on the public sector with important repercussions on public finances. The total net financial transfers from Turkey reached \$ 6355 million during that period. While the public sector made a net transfer of \$ 6520 million, the private sector received a net transfer of \$165 mn. The public sector made net transfers every year during the period 1984-91 except for 1987, the year when the borrowing by extra budgetary funds reached a record of \$ 689 mn.

<sup>18</sup> Undersecretary of Treasury and Foreign Trade publishes disbursement figures for long-term debt but takes balance of payments data for both repayments and interest payments series as prepared by the Central Bank. In the balance of payments tables only repayments of long-term debt are reported separately while interest payments on both long-term and short-term debt are shown in a single figure. The transfer measure calculated this way overestimates the actual value.

TABLE 3.3 TRANSFER PAYMENTS BY SECTORS

(Million \$)

	1984	1985	1986	1987	1988	1989	1990	1991
<b>PUBLIC SECTOR</b>	-366	-736	-143	218	-337	-1685	-1603	-1868
Consolidated Budget	51	-622	756	10	55	-1156	-644	-970
Treasury	-136	-1029	411	-552	-196	-687	-676	-128
Onlending	117	151	508	248	-7	-242	234	-329
Annexed Budget	70	256	-784	314	259	-226	-202	-513
Other Public Sector	-417	-114	-445	208	-392	-529	-959	-898
Central Bank	-215	-466	-503	-658	-776	-503	-574	-234
SEEs	-199	341	957	62	164	-118	-266	-431
EBFs	0	18	134	650	83	-74	-160	-291
Local Admin.	-2	-7	-153	154	136	166	41	58
<b>PRIVATE SECTOR</b>	-69	59	-46	59	202	-57	107	-90
<b>TOTAL</b>	-435	-677	-189	277	-135	-1742	-1496	-1958

Source: UTFT, External Debt Bulletin, various years.

The fact that transfers were realised mainly by the public sector necessitated an internal transfer of resources from the private to the public sector since foreign exchange is mainly earned by the private sector. How the internal transfer was accomplished is dealt with in Chapter 5.

### 3.1.4. Continuing Importance of Net Transfers

Net transfers from Turkey are expected to continue into the 1990s. Projected debt service payments suggest that if disbursements take place at their average rate for the last six years (\$5166 per year), then annual net financial transfers abroad will remain at around \$850 million. If global financial strains continue in the 1990s, i.e. if the variable interest rate rises or credit availability decreases, actual transfers may exceed the projected figures in Table 3.4.

TABLE 3.4. MEDIUM AND LONG-TERM DEBT SERVICE PROJECTIONS  
(million \$)

	1992	1993	1994	1995	1996	1997+
Principal	4479	3899	3756	4703	4179	19228
Interest	2634	2359	2090	1828	1462	5595
Total	7113	6258	5848	6531	5641	24823

Source: UTFT, External Debt Bulletin, 1991

### 3.2. A Comparison of the Transfer Burden with International and Historical Transfer Cases

This section compares the magnitude of the Turkish transfer burden with historical transfer cases and with those of other major LDC debtors.

Machlup (1962) calculated the ratio of foreign payments to national income in well-known historical transfer cases, including war expenditure by Britain on the British armies in Europe and subsidies to foreign states and agents during the Napoleonic wars, war indemnities paid by France to Prussia over four years after the Franco-Prussian War, reparation payments by Germany for deliveries in kind and armies of occupation, and government remittances for aid, grants, loans and military expenditures as well as private investments to allied countries after World War II by the United States. These figures overestimate the burden on debtor countries' domestic economies since they give the gross and not the net transfer. The comparison of the transfer burden on some major LDC debtors including Turkey in the 1980s with those in historical cases points to heavier burden on the former.

TABLE 3.5. RATIO OF FOREIGN PAYMENTS TO GNP IN HISTORICAL TRANSFER CASES

Country	Period	Payments/GNP
Britain	1793-1816	1.9
France	1872-1875	5.6
Germany	1924-1932	2.5
United States	1949-1961	3.0

Source: Machlup (1962), p.393

Table 3.6 shows net transfers on debt for the 1980-91 period as reported by the World Bank, World Debt Tables 1992-3.<sup>19</sup> Like most severely indebted middle income countries, net transfers from Turkey turned into negative in 1982. The table suggests that, in comparison to other middle income countries, Turkey received greater net transfers prior to 1982. In the following period Turkey made transfers to abroad but the transfer burden on Turkey was less severe compared with other severely indebted countries.

<sup>19</sup> In that study Net transfers on debt is defined as loan disbursements minus loan amortisations minus loan interest payments.

TABLE 3.6. NET TRANSFERS ON DEBT AS A RATIO OF GNP

	1980	1982	1985	1988	1991
KOREA	0.26	-2.34	-2.79	-3.50	0.75
MEXICO	0.33	-1.84	-6.23	-4.04	-1.36
ARGANTINA	0.94	4.18	-6.59	-2.46	-2.35
BRASIL	-1.36	-1.13	-4.96	-3.61	-1.38
PHILIPPINES	0.33	-2.54	-1.88	-5.55	-1.27
<b>TURKEY</b>	<b>3.06</b>	<b>-0.41</b>	<b>-1.99</b>	<b>-3.07</b>	<b>3.06</b>
SIMIC*	0.32	n.a.	-3.69	-2.42	-1.70
MIMIC**	0.55	n.a.	0.18	-0.65	-1.23

\* Severely indebted middle income countries

\*\* Moderately indebted middle income countries

Source: World Bank, World Debt Tables 1992-3

It should be noted, however, that, the shift from an inward to an outward transfer for Turkey was substantial. The country faced a drastic change in the magnitude and direction of net transfers which is comparable to other transfer cases in the 1980s.

### 3.3. Developments in External Indebtedness

As mentioned before, the single most important cause underlying the Turkish transfer problem in the 1980s was the rapid accumulation in external indebtedness from the mid 1970s onwards as a reaction to the first oil shock. In 1970, Turkey's foreign debt stock stood at \$1891 million, or 14.7 % of her GNP, a figure that may be considered moderate when compared to other middle income countries. In that year, the ratio of outstanding external debt ratio to GNP was 25.8 % in Chile, 20.3 % in Korea, 8.7 % in Mexico, and 8.2 % in Brazil. While most of Turkey's foreign debt was accumulated during the 1980s<sup>20</sup>, the country's experience with short-term borrowing immediately after the first oil shock had important repercussions on foreign indebtedness for the period after 1978, the year when Turkey confronted a severe foreign exchange crisis.

A major factor behind the crisis was the deterioration in the trade balance after the first oil shock. Along with the deterioration in the trade balance, the current account balance worsened rapidly, turning from a surplus of 2.4 % of GNP in 1973 to a deficit of 7 % of GNP in 1977. (Rodrik 1988, p.163). Another factor was a short term borrowing strategy, namely the convertible Turkish lira deposits scheme, devised in mid-1970s in order to meet the growing foreign exchange expenditures induced by the ever increasing oil import bill.

<sup>20</sup> See Erçel for the causes of debt accumulation in the 1980s.

This scheme, where the private sector played an intermediary role between the government and the foreign credit institutions, provided private borrowers of foreign currencies (especially Deutch Mark and Swiss Franc) with a protection against exchange risk whilst the exchange guarantee acted as a subsidy.<sup>21</sup>

This scheme played an important role in financing the increasing foreign exchange requirements caused by the public sector deficit. As it is well known SEE deficits and subsidies given to petroleum products to postpone the effects of oil price increases, had the effect of increasing public sector deficits. Calculations by Rodrik (1988, p.164) point out that the public sector deficit explained 92 % of the net new borrowing between 1973 and 1977, while only 8 % was explained by the decrease in private net savings. Only a minor part of the public sector foreign borrowing was realised by the official institutions, while the convertible TL deposits scheme provided the bulk of foreign financing. As a result, borrowing under this scheme reached 48.9 % of all short-term foreign debt and 21.7 % of all foreign debt by the end of 1977 from a level of practically zero at the beginning of 1975 (Rodrik 1988, p. 164).

The convertible Turkish Lira deposit scheme led to a vicious circle. The Turkish lira, already overvalued in 1975, became further overvalued as a consequence of continued borrowing by the private sector, which contributed to the deterioration in the current account. This, in turn, decreased the cost of foreign borrowing to private users and the circle continued. However, the social marginal cost of foreign funds reached at least 20 % toward the end of 1976, implying a real interest rate of 15-16 %, which was considerably higher than the real return on marginal investment (Rodrik, 1988, p.166). The growing foreign exchange problem and the worsening of international creditworthiness threw Turkey into a foreign exchange crisis in 1978.

In contrast to the highly indebted countries of Latin America, Turkey was able to continue foreign borrowing soon after it confronted a balance of payments crisis. Turkey received generous inflows from official and multilateral sources and was granted exceptionally favourable terms on its borrowing. Renewed interest in her strategical and political importance around 1979-80 was instrumental in redirecting capital flows towards Turkey. The Soviet invasion of Afghanistan in 1978 and the fall of the Shah in Iran in 1979 emphasized the strategic importance of Turkey for the Western World. Simultaneously, the

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<sup>21</sup> The scheme worked as follows: Foreign banks opened foreign exchange accounts with Turkish commercial banks and secured an interest rate which was well above the parallel rates in Euromarkets. Turkish commercial banks relent those funds to the Turkish Central Bank and received equivalent Turkish Lira credits in exchange which they used them to open credits to Turkish businessmen who played the intermediary role. The domestic banks didn't bear any exchange risk in this operation. The Turkish Central Bank supplied the necessary funds in case of the depreciation of the TL against these currencies. The exchange guarantee cost the government approximately 2 % of GNP by the end of 1977. (Rodrik, 1990c, p.3) The system turned out to be so profitable that most Turkish businessmen transferred funds abroad and then repatriated them home, as foreign exchange deposits, to benefit from the implicit subsidy.

rapidly growing domestic political turmoil became an increasing source of worry and concern for the Western World. These political considerations revived foreign assistance.

Between 1978 and 1982 Turkey rescheduled 70 % of its total outstanding foreign debt. In these rescheduling agreements, the bulk of the convertible Turkish Lira deposits were consolidated and converted into long-term liabilities. "Before 1982 debt renegotiations undertaken between Turkey and its creditors involved the largest sums ever to be rescheduled." (Rodrik, 1988, p.161). Between 1980 and 1985 Turkey used the largest part of the World Bank concessional structural adjustment credits, and together with Korea, largely exhausted IMF sources (Öniş, 1989, p.80). Furthermore, Turkey was ready to re-enter private capital markets as early as 1982.

As a result of heavy reliance on foreign borrowing during the 1980s,<sup>22</sup> Turkey's foreign debt stock doubled between 1984 and 1987, while annual debt service payments also increased, reaching its peak in 1988.

The rapid build-up of foreign debt during the 1980s contributed to the difficulties that Turkey faced in servicing its debt payments in the latter part of the decade. The shift in Turkey's sources of funding from official sources to market borrowing and the changing structure of the debt stock as a result of this shift was largely responsible for growing debt service payments. The share of private sources in disbursements increased from 30 percent in 1984 to 53 % in 1989. Between 1985 and 1989 the share of commercial banks in net flows to Turkey showed an increasing trend, while net flows from official sources were even negative for 1988 and 1989. However, commercial bank lending to Turkey decreased sharply in 1990 and 1991. The reliance on market sources also worsened the terms on the total debt stock. The average maturity decreased from 19 years in 1984 to 15 years in 1991, whereas the average interest rate increased from 5.4 % to 6.3 % in the same period.

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<sup>22</sup> However, in this period not all of the increase in the debt stock can be attributable to the effects of macroeconomic policies. It is estimated by Erçel that only 43.1 % of all the increase can be attributable to net foreign borrowings, while 35.2 % arose as a result of cross-currency effects, 14.2 % of the increase has come from debt reschedulings and renegotiations and 7.5 % is due to other causes (Erçel, 1992, p.6). The cross currency effect has caused foreign debt to increase by \$7.9 bn. between 1981 and 1990 as Turkey's foreign debt stock rose with the depreciation of the US\$ and decreased with the appreciation of the US\$. (Erçel, 1992, p.6)

TABLE 3.7 STRUCTURE OF EXTERNAL DEBT

(million \$)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total	15709	16560	17858	19238	20823	25660	32206	40326	40722	41751	49035	50489
Medium and Long term	13229	14449	16094	16957	17643	20901	25857	32703	34305	36006	39535	41372
Multilateral Agencies	3299	4038	4753	4642	5074	6295	7827	9778	9192	8740	9564	10069
Bilateral Lenders	4752	5194	5947	7700	7384	8377	9885	11759	11382	11431	12984	14587
Commercial Banks	3173	3074	3182	3502	3504	4054	4630	5722	5570	5043	4843	4309
Private Lenders	2005	2143	2212	1108	1676	2127	3298	4732	4840	5566	6267	5724
Bond Issues	-	-	-	5	5	48	217	712	3321	5226	5877	6683
Short term	2480	2111	1764	2281	3180	4759	6349	7623	6417	5745	9500	9117
Commercial Bank Credits	n.a.	n.a.	n.a.	486	1006	1495	2673	3725	2950	1841	3845	4144
Private Lender Credits	n.a.	n.a.	n.a.	1795	2174	3264	3676	3898	3467	3904	5655	4973
Memorandum items												
Short term debt/Total debt	15.79	12.75	9.88	11.86	15.27	18.55	19.71	18.90	15.76	13.76	19.37	18.06
Official sources/Total debt	51.25	55.75	59.92	64.15	59.83	57.18	55.00	53.41	50.52	48.31	45.98	48.83

Source: Undersecretary of Treasury and Foreign Trade, External Debt Bulletin, 1992

TABLE 3.8. DISBURSEMENTS BY CREDITORS

(million \$)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>Disbursements</b>										
Multilateral Agencies	720	642	836	770	938	1089	1196	703	1059	847
Bilateral Lenders	722	417	882	646	1763	2729	2321	1695	2472	2412
Commercial Banks	609	517	718	1330	1346	1947	4328	2721	1079	745
Total	2051	1576	2436	2746	4047	5765	7845	5119	4610	4004
<b>Repayments</b>										
Multilateral Agencies	115	159	157	198	678	832	855	791	841	699
Bilateral Lenders	562	573	529	781	1052	1668	3063	2214	1757	1688
Commercial Banks	478	383	441	1251	887	1097	1639	1518	1083	1180
Total	1155	1115	1127	2230	2617	3597	5557	4523	3681	3567
<b>Net flows</b>										
Multilateral Agencies	605	483	679	572	260	257	341	-88	218	148
Bilateral Lenders	160	-156	353	-135	711	1061	-742	-519	715	724
Commercial Banks	131	134	277	79	459	850	2689	1203	-4	-435
Total	896	461	1309	516	1430	2168	2288	596	929	437
<b>Share in Net Flows</b>										
Multilateral Agencies	67.5	104.8	51.9	110.9	18.2	11.9	14.9	-14.8	23.5	33.9
Bilateral Lenders	17.9	-33.8	27.0	-26.2	49.7	48.9	-32.4	-87.1	77.0	165.7
Commercial Banks	14.6	29.1	21.2	15.3	32.1	39.2	117.5	201.8	-0.4	-99.5

Source: World Bank, World Debt Tables 1990-91;  
 UTFT, External Debt Bulletin, various years.

TABLE 3.9 MATURITY AND INTEREST STRUCTURE <sup>1</sup>

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>Maturity (year)</b>											
Multilateral Agencies	16.2	16.3	15.4	27.1	24.2	21.6	19.5	17.9	17.0	16.4	16.2
Bilateral Lenders*				17.7	17.6	17.4	17.6	17.7	17.9	18.0	17.6
Commercial Banks	6.4	7.0	10.6	9.15	8.3	8.29	7.96	9.9	10.4	10.4	10.2
Average	14.0	13.0	13.6	18.8	17.8	16.9	16.0	15.4	15.0	15.0	14.8
<b>Interest rate (%)</b>											
Multilateral Agencies	9.0	8.7	8.3	5.13	5.88	6.43	6.88	7.16	7.27	7.29	7.3
Bilateral Lenders**				5.39	5.21	5.53	5.38	5.16	4.89	4.45	4.33
Commercial Banks	13.1	9.3	10.3	6.32	8.52	8.66	7.79	8.4	8.41	8.26	8.44
Average	9.9	8.9	9.1	5.38	5.71	5.99	6.11	6.44	6.56	6.35	6.35

<sup>1</sup> Only on new commitments for 1981 and 1982

\* Included in Multilateral Agencies for 1981-83

Source: Undersecretary of Treasury and Foreign Trade, External Debt Bulletin, various years;  
 World Bank, World Debt Tables 1990-91

Some of Turkey's external debt indicators which worsened rapidly in the first half of the 1980s, began to improve slightly after 1987. Total debt to GNP ratio decreased to 45 % in 1991 after having reached 59 % in 1987. The ratio of total debt to foreign exchange

revenues also improved in the same period. The decrease in net flows after 1988 was the main reason for this improvement. The cross currency effects also helped ease the debt problem in 1988 and 1989 since the majority of Turkey's external debt is denominated in non-dollar currencies. However, due to the slowdown in exports, the ratio of debt to export revenues remained above a high of 350 % and Turkey continued to pay some 55-60 % of its export revenues for debt service payments. The ratio of short-term debt in total debt rose rapidly in 1985 to a level of 19 %. In 1988 and 1989, the favourable current account developments helped avoid short term borrowing and repay a considerable amount back. However, the real appreciation of the TL and high real interest rates attracted short-term inflows in 1990 and resulted in an increase in the ratio of short-term debt to its 1985 level. The difficulty in obtaining long-term foreign credit and the inadequacy of domestic credit stock contributed to the rapid increase in short-term debt.

TABLE 3.10. EXTERNAL DEBT INDICATORS

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total debt/GNP	38.2	40.9	44.8	48.1	54.8	58.9	57.5	52.0	44.5	46.5
Total debt/Total for.exc.revenues	195.8	214.8	186.8	193.2	250.4	238.2	202.3	185.8	185.1	179.6
Total debt/Exports	343.0	354.7	302.8	308.6	424.7	390.7	341.4	354.4	376.4	369.3
External Debt Service/GNP	5.8	6.3	6.7	8.1	8.0	8.1	10.1	8.9	6.6	6.9
External Debt Service/For.Ex.Rev	29.5	33.2	27.9	32.5	36.4	32.6	35.6	31.9	27.4	26.8
External Debt Service/Exports	51.7	54.8	45.2	52.0	61.8	53.4	60.0	60.9	55.7	55.0
Variable Interest Debt/Total Debt	n.a.	n.a.	n.a.	30.4	32.0	37.2	38.2	37.3	38.1	38.7
Average Effective Interest Rate	8.4	8.8	8.5	10.2	8.4	7.4	7.0	7.1	7.8	7.0

Source: Undersecretary of Treasury and Foreign Trade, External Debt Bulletin, various years

### 3. 4. An Overview of the Adjustment Process.

Following a period of rapid debt accumulation from the mid-1970s onwards, the Turkish economy confronted a transfer problem in the 1980s. The Turkish strategy in handling the transfer problem may especially be designated as a growth-oriented export-based strategy with some qualifications. This contrasts with the Latin American strategy, where import compression (with detrimental effects on growth) has been the main tool of adjustment.

In order to identify the sources of net transfers during the observation period in a more systematic way, NICA can be decomposed into its components:

$$CA = TB + OIB + i^*D^* + UT \quad (3.3)$$

$$\text{NICA} = \text{CA} - i^*D^* = \text{TB} + \text{OIB} + \text{UT} \quad (3.4)$$

where CA refers to current account balance, TB to merchandise trade balance, OIB to balance on other goods services and income net of interest payments,  $i^*D^*$  to interest payments on foreign debt and UT to net unrequited transfers.

Table 3.11 suggests that, 1984-91 is marked by net transfers abroad. Although net transfers from Turkey took place for the first time in 1982, their ratio to GNP, increased during the period 1984-88. While transfers abroad continued during the 1989-91 period, the ratio of NICA to GNP decreased.

TABLE 3.11 DECOMPOSITION OF NICA  
(AS A RATIO TO GNP)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Trade Balance	-7.9	-6.2	-4.8	-5.8	-5.8	-5.5	-5.2	-4.7	-2.5	-5.3	-8.7	-6.7
Other Invisible Balane	0.3	1.3	1.8	1.6	2.0	3.2	3.1	3.5	5.7	5.6	5.2	5.4
Net Travel Income	0.4	0.4	0.4	0.6	0.5	1.4	1.1	1.5	2.8	2.5	2.5	1.9
Unrequited Transfers	3.7	4.1	4.2	3.4	4.1	3.7	3.3	3.5	3.0	4.4	4.1	4.7
Workers Remittances	3.6	4.0	4.0	3.0	3.7	3.3	2.9	3.1	2.6	3.9	3.0	2.7
NICA	-3.9	-0.8	1.1	-0.8	0.3	1.4	1.1	2.3	6.2	4.8	0.6	3.4

Source: The Central Bank of Turkey, Balance of Payments Statistics of Turkey, May 1992

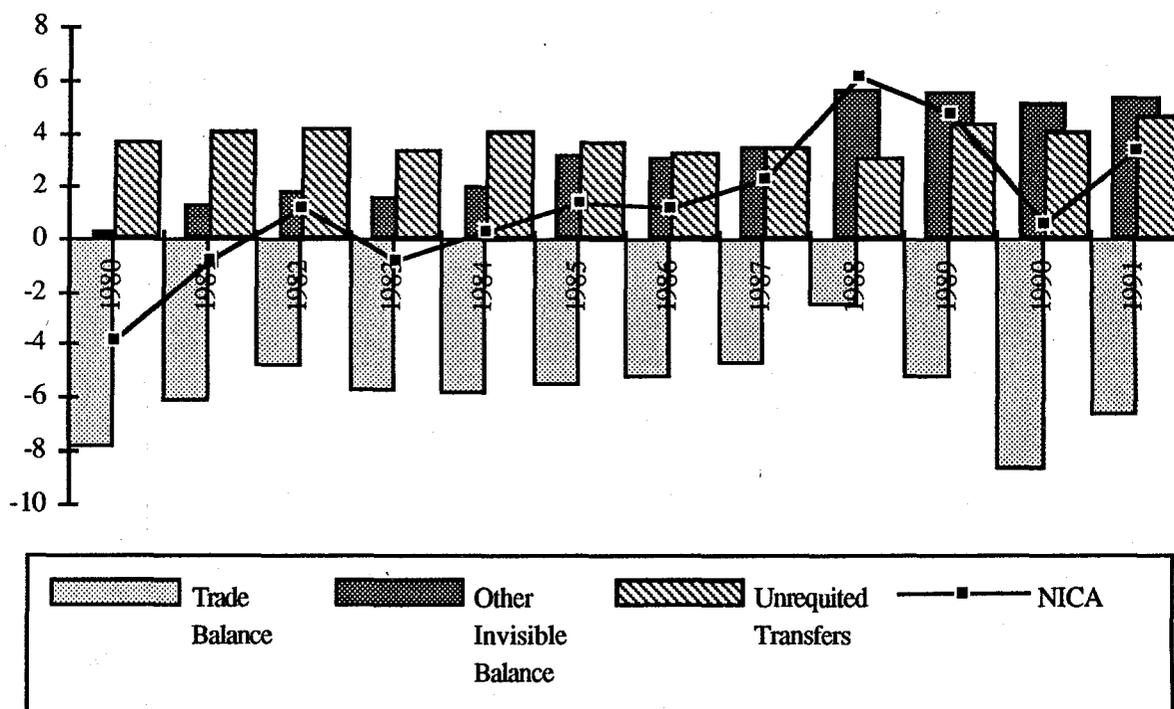
The positive effect of the trade balance on the external transfer remained limited, since expanding exports compensated only partially the high level of imports. The trade deficit as a ratio of GNP improved significantly from nearly 8 % in 1980 to 4.8 % in 1982. It deteriorated somewhat in 1983, but improved afterwards and reduced to a low of 2.5 % in 1988. The trade deficit deteriorated significantly again in 1990 to 9 % of GNP under the adverse effects of the Gulf Crisis, which continued in 1991.

Although the export boom was not adequate to generate a trade surplus, exports constituted the main source of foreign exchange revenues (an average of 58 % over the 1981-90 period) and more than quadrupled in the 1980-90 period, reaching 12 % of GNP in 1990, from a low of 3.4 % in 1979. The rapid but oscillating increase in exports continued only until 1988. The exports to GNP ratio reached a peak of 17 % in 1988 and exports began to stagnate thereafter.

The export growth was accompanied by a shift in the commodity composition of exports, together with a geographical diversification. The share of agriculture and livestock products in total exports fell from 57 % in 1980 to 18.1 % in 1990, while the share of industrial goods reached 79.3 % in 1990 from a low of 36 % in 1980. Turkey diverted its trade towards Islamic countries in the first half of the 1980s and increased its exports to

these markets by 45.5 % in the 1980-85 period. Since 1986, however, the share of Islamic countries in total exports began to fall as their purchasing power decreased, while the share of OECD countries and other countries began to rise.

**GRAPH 3.1 DECOMPOSITION OF NICA (AS A RATIO TO GNP)**



The components of NICA other than the merchandise trade balance, have counterbalanced the trade deficit and enabled net transfers. The major adjustment in NICA came from the invisibles balance net of interest payments with tourism making the most significant contribution. The share of net tourism revenues climbed to 2.5 % of GNP at the end of the period from a negligible level at the beginning. (The share of tourism revenues in total foreign exchange revenues rose to 12.2 % in 1990 as compared to 5.6 % in 1980.) The contribution of other invisibles revenue was also significant. The share of shipment and other transportation income and especially the share of investment income from the Turkish contractors working in the Middle Eastern countries in the NICA surplus increased steadily, especially in the second half of the 1980s.

The largest part of the NICA surplus, however, came from the balance on unrequited transfers which made up, on average, 3.5 % of GNP over the 1984-88 period. Workers remittances which constituted the bulk of unrequited transfers contributed around \$ 2000

million to the current account. The relative importance of workers' remittances decreased in the latter part of the decade since total foreign exchange revenues grew faster than this item.<sup>23</sup> Official grants given in compensation for the Gulf Crisis were very important in 1990 and 1991, reaching 1.1 % and 2.1 % of GNP, respectively.

On the other hand, the distribution of foreign exchange expenditures showed less variation in the period under consideration. The share of factor and non-factor services increased throughout the period reflecting the increasing importance of interest obligations and profit remittances.

To sum up, as compared to other major developing country debtors, the need to generate an export surplus on the merchandise trade balance has been less severe in the Turkish case due to access to alternative sources of foreign exchange and Turkey, in addition to the adjustment of its trade balance, has particularly benefited from factor and non-factor services in its external transfer problem.

The transfer strategy adopted was growth-oriented. The internal adjustment to transfers abroad (the NICA surplus) was largely achieved through an increase in income rather than through a reduction in absorption. Absorption (defined as consumption plus investment) decreased in real terms in only three of the years (1981, 1988 and 1991). In every year during the heavy transfer period of 1984-1988, the growth rate of GNP remained well above that of domestic absorption. The adjustment of domestic absorption was accomplished by investment growing slower than GNP in the 1980-85 period, but by the lower growth of consumption in the latter part. Total consumption as a ratio of GNP remained almost stable at around 82 % in the 1980-85 period, but reduced to 76 % in the 1986-91 period.

The private sector's net savings surplus was instrumental in the achievement of internal transfers. The source of internal transfer from the private to the public sector in the period prior to 1984 was the decline in investment. Beginning in 1986, private investment recovered but private consumption was weakened. The reverse trends were observed in the public sector. The share of the public sector in total expenditures remained low until 1985. The repressed political atmosphere provided by the 1980 coup d'etat enabled reductions in public sector expenditures in social services and in public personnel expenditures. Real wages and salaries decreased sharply in this period. While public investment began to decrease after 1986, public consumption began to rise in the second part of the decade and especially after 1988, due to high real wage contracts signed under the influence of a rising labour movement.

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<sup>23</sup> The decreasing importance of workers' remittances can be partly explained by the change in the form of foreign exchange receipts. Part of workers' remittances took the form of capital inflows under the Dresdner Bank scheme or other foreign exchange deposits while another part may have come as exports. As will be mentioned below, some part of export revenues in the period prior to 1989 are fictitious. It is widely argued that a part of workers' remittances appeared in the form of 'exports' in order to benefit from export subsidies.

TABLE 3.12 FOREIGN EXCHANGE EARNINGS & EXPENDITURES

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL REVENUES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Merchandise Exports FOB	58.1	47.1	49.7	54.8	57.7	60.7	62.3	61.5	59.0	61.0	59.3	52.4	49.2
Other Goods, Services & Inc	13.5	14.8	13.0	15.3	20.0	21.0	20.0	23.6	26.0	24.8	29.9	31.6	33.7
Travel	5.9	5.9	5.6	4.4	3.7	4.3	4.6	8.2	7.4	8.7	11.7	11.4	12.2
Private Unrequited Transfer	28.0	37.9	37.0	29.8	21.5	16.1	16.0	13.3	13.4	12.3	9.2	14.1	12.7
Workers' Remittances	25.0	35.3	35.4	29.0	21.0	15.6	15.2	12.8	12.7	11.9	8.8	13.5	12.3
Official Unrequited Transfer	0.3	0.2	0.3	0.0	0.9	2.2	1.7	1.7	1.7	1.9	1.6	1.9	4.4
Other	0.3	0.2	0.3	0.0	0.4	1.7	1.0	1.2	1.2	1.4	1.2	1.4	4.1
TOTAL EXPENDITURES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Merchandise Imports FOB	84.0	77.5	81.1	81.5	76.3	76.4	77.7	77.8	74.4	76.4	73.9	74.4	77.6
Other Goods, Services & Inc	15.7	22.2	18.8	18.5	23.7	23.5	22.2	22.1	25.5	23.5	26.0	25.5	22.3
Interest	9.4	16.3	12.3	13.7	14.0	13.0	11.9	12.1	14.9	13.5	15.1	13.5	11.2
Other	4.9	4.6	5.4	3.8	8.3	9.4	8.1	7.7	8.4	7.5	8.9	9.3	9.3
Private Unrequited Transfer	0.3	0.3	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1

Source: Central Bank, balance of Payments Statistics, May, 1992 and author's calculations.

TABLE 3.13 PRESSURE ON RESOURCES AS A RATIO OF GNP-NICA

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>PUBLIC</b>	22.9	22.6	23.2	20.2	18.7	20.6	22.9	22.9	21.0	22.4	26.1	27.4
Fixed Public Inv	10.5	11.1	11.8	10.5	9.7	11.8	13.6	13.2	12.2	10.7	9.8	10.6
Stock Changes Public	0.5	1.4	0.5	-0.4	0.0	0.2	0.1	0.4	-0.6	-0.3	2.3	0.0
Public Cons	11.8	10.1	10.9	10.1	9.0	8.6	9.1	9.3	9.3	12.0	14.0	16.8
<b>PRIVATE</b>	78.7	75.6	79.7	82.5	84.4	83.0	80.4	80.6	82.9	81.6	76.8	75.2
Fixed Private Inv	8.2	6.9	7.4	8.2	8.2	8.5	9.8	11.4	13.4	12.9	12.8	12.7
Stock Changes Private	1.3	1.0	1.0	1.5	1.4	1.1	1.3	0.9	0.4	0.2	1.3	-0.6
Private Cons	69.2	67.7	71.3	72.8	74.7	73.5	69.4	68.3	69.1	68.5	62.8	63.1
Interest Payments	1.9	2.3	2.9	2.9	3.2	3.3	3.7	3.6	4.2	3.8	3.0	3.3
<b>NICA</b>	-3.7	-0.8	1.1	-0.8	0.3	1.4	1.2	2.4	6.6	5.1	0.6	3.5
<b>GNP-NICA</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Central Bank of Turkey, Balance of Payments Statistics of Turkey, May 1992; SPO, Annual Programmes various years.

The public sector resorted to each of the four known methods of mobilizing the funds for the internal transfer. Public expenditures were reduced until 1986 and public revenues were raised from that year onwards. In addition to this, domestic borrowing and monetary financing were also used in varying amounts. Domestic borrowing which was used heavily in the latter part of the decade raised interest rates and became detrimental for investments. Monetary financing, on the other hand, caused inflation and inflationary erosion of nominal wages.

Relative prices were in accordance with the transfer requirements. In the 1980-88 period, a repressive real wage policy together with a policy of real depreciation and extensive subsidisation of the export sector contributed in an essential way to improving the price competitiveness of Turkish exports. Reduced wages also helped restrict domestic absorption and kept public expenditures at a lower level. The price deflator for tradeables as a ratio of GDP deflator, rose above that for non-tradeables which facilitated the flow of resources into tradeables. The price of tradeables rose relative to that of non-tradeables until 1986.

As mentioned in the second chapter, the transferring country may face a deterioration in its terms of trade, especially if it has some international market power. Since Turkey has no such power, there was no persistent deterioration in the terms of trade during the transfer process. Turkey faced decreasing export and import prices up to 1987 and increasing prices in 1987 and 1988. The differential growth in the two indices resulted in a deterioration of the terms of trade between 1981-83 and an improvement in 1984-87 and again a slight deterioration in 1988-90.

The depreciation of the TL in real terms, and the sharp decline in real wages was instrumental in redirecting the production capacity inherited from the 1970s into exports in the short-run. In fact, during the period under consideration, Turkey could expand its tradeables production even in the absence of investment in tradeables sectors, besides, it achieved a very significant increase in the ratio of export to production without curtailing domestic absorption (it should be noted that, during 1982-1991, domestic absorption has decreased only in two years [1988 and 1991]).

However, insufficient investment in tradeables sectors will present some problems for the sustainability of transfer in the long-run. After 1988, we also observe developments which run counter to the requirements of the real transfer including a real appreciation of the exchange rate, increases in the real wage rate, the suspension of tax rebates on exports, and faster growth in domestic absorption as compared with GNP and GDP growth.

The insufficiency of investment in tradeables sectors has seriously impaired the country's transfer capacity in the long-run. During the 1980s both public and private investments in tradeables sectors (the manufacturing sector in particular) stagnated. The share of tradeables in total fixed investments decreased from 53.1 % in 1980 to 40% in 1991. While the share of the public sector in total fixed investments decreased in the second part of the decade, the bulk of public investments was concentrated in infrastructure (in energy and transportation and communications). The manufacturing investments as a ratio of total public sector investments decreased sharply to 4.5 % in 1990 from 28.7 % in 1980. On the other hand, the private sector remained reluctant in filling in this gap. Manufacturing investments of the private sector as a share of total private investments fluctuated down to a low of 21.1 % in 1989 from 31.4% in 1980. This ratio was 41% in 1976.

The lack of sufficient investment in the tradeables sectors constitutes the major problem for the long-run sustainability of the real transfer from Turkey. Since capacity utilisation has reached near full-employment level, no substantial increase in domestic output is possible unless investments are directed to tradeables sectors. Under these conditions, either transfer payments may have to be postponed or domestic absorption may have to be curtailed.

Consequently, the above mentioned developments caused real transfers as measured by the NICA balance to decrease after 1988, in tandem with the deterioration of the trade balance, although net financial transfers from Turkey continued at a high level. The real transfer from Turkey would even have turned into negative in 1990 if the grants associated with the Gulf Crisis had not supplied additional foreign exchange resources. However, the 1989-91 period is not long enough to determine whether a true reversal has taken place in the transfer strategy. Furthermore, this period carries the marks of various political developments which affected economic life to a large extent.

In the remaining part of this overview, we shall attempt to point out the salient features of the Turkish transfer process in three sub-periods of the 1980s distinguished on the basis

of the trends in the NICA and also shifts in policy: the 1980-83 period which may be denoted as the pre-transfer period, the 1984-88 period during which the external transfer proceeded in line with the requirements of the transfer theory, and the 1989-91 period, in which the conditions for the external transfer were severely undermined.

### 3.4.1. The 1980-83 period

The 1980-83 period was marked by attempts at restructuring the Turkish economy. The January 24, 1980 measures were intended to give the economy an outward orientation, liberalise the financial and trade sectors and prepare the economy for the period of net transfers abroad. The 1980 coup-d'etat helped this transformation by regulating the political life in accordance with the requirements of severe economic measures. The salient characteristics of the period are set forth below:

After it had been hit by a debt crisis in 1979, Turkey rescheduled most of its debt and obtained credits from international institutions on favourable terms until 1982. In 1982, Turkey made a net resource transfer to abroad for the first time since 1972-73. In 1983, the NICA gave a negative value indicating that resources were flowing inside. The direction of net transfers was once more reversed in 1984, this time to continue up to today. But the net transfer to abroad in 1982 was small in magnitude so that the period 1980-83 can be depicted as the pre-transfer period.

The results of the above mentioned measures were a slowdown in the growth rate of income and absorption. The slowdown can be explained by the stagnation in investments and especially in the private sector fixed capital investments. Total consumption as a ratio of GNP remained almost stable, while the ratio of public consumption to GNP decreased in 1980 and stayed at that level afterwards.

In accordance with the dictates of the transfer process, resources began to flow from non-tradeables sectors to tradeables sectors as the price of tradeables increased relative to non-tradeables. The TL was devalued by a drastic 49 % in real terms beginning from early 1980 to the end of 1983. Price deflators as a ratio of GNP deflator rose relatively faster for the tradeables sector. The external terms of trade deteriorated by 15 % from 106.6 in 1980 to 91.1 in 1983. These developments resulted in boosted exports. The annual compound growth rate of exports reached 26.2 % while the growth in imports was 16.2 %.

Several other factors contributed to the export boom, including simplification of export procedures at large and induced cooperation of bureaucracy for export success, export subsidies, and real wage erosion. Exports were supported by various incentives such as subsidised credits, tax rebates, and subsidies on imports to be used in the production of

exportables. The decrease in real wages had a two-fold effect on exports. On the one hand, it increased the price competitiveness of exports by lowering the variable costs of the goods of Turkish manufacturing industries; on the other hand, the deterioration in real wages led to a decline in domestic demand for tradeables. Hence, there occurred an excess supply of exportables which was directed to foreign markets.

During this period, Turkey not only succeeded in expanding its exports, but it also changed its export composition and diversified its markets. The share of agricultural goods in total exports fell from 57 % in 1980 to 32.8 % in 1983, while the share of industrial goods in total exports rose from 36 % in 1980 to 63.9 % in 1983. The change in commodity composition coincided with the shift in major export markets. Turkey redirected its exports from OECD countries to Middle Eastern and North African countries at a time when the import demand of the latter had grown in tandem with the increase in petroleum prices. Thus the country transformed its export sector from exporting agricultural goods to industrialised countries to exporting manufactured goods to neighbouring countries.

Consequently, we can conclude that Turkey prepared its economy to the requirements of the transfer problem in the following period. The only troublesome point for the medium run was the insufficiency of investment in the export sector. In addition to the decrease in the ratio of both private and public investment to GNP, the most worrying aspect was the decrease in the share of investment in tradeables sectors vis-a-vis the increased share of investment in non-tradeables. The public sector's investments were concentrated in infrastructure and they had an indirect positive effect on increasing private investment in the second half of the 1980s. Given the inadequacy of manufacturing investments, the export boom in this and in the following period largely relied upon the existing capacities. Had the excess capacities created during the 1960s and 1970s not been available, it would not have been possible to achieve such a great success in expanding exports. The reluctance to undertake the necessary investments in exportables has been a serious deterrent to further export expansion.

### **3.4.2. The 1984-1988 Period**

This period is marked by the increasing importance of external transfers from Turkey. The main characteristics of the period are the following:

During 1984-1988, while Turkey continued excessive foreign borrowing, it also began to make debt service in large amounts. Net transfers rose throughout the period, reaching 6.2 % of GNP in 1988. During this period, net financial transfers on long and medium term

debt also became sizeable (\$ 1158 millions during the period). New borrowings financed the amortisation of the existing debt stock and also part of the interest payments.

In every year, the growth of absorption lagged behind the growth of GNP, suggesting that the country transferred abroad a part of her resources which could otherwise be used domestically. Furthermore, the growth rate of absorption in 1988 was negative in real terms. GNP growth rate increased in this period, relative to the previous period, reaching 6.1 % on average. This is a high growth rate compared with the historical average of 7.1 % in the golden years of 1964-76 and the average growth performance in other transferor countries. A slow down in private and public consumption constituted the major source for the excess of domestic production over domestic absorption, while fixed capital investments both in the private and in the public sector recovered. The share of public investment in GNP increased relative to the previous period and remained relatively high over the period (12 % during 1984-88 as compared to 11 % during 1980-83). Recovery in private investment came later, in 1987. However, the investment effort did not conform to the requirements of the transfer process: fixed capital formation concentrated heavily in infrastructure and housing. In 1988, the share of manufacturing investment in total fixed capital formation declined to a half of its 1980 value and even well below its 1983 level. The only sector among tradeables whose share in total investment increased, turned out to be tourism.

In order to free resources for both external and internal debt service, the government also tried to increase its revenues and decrease its expenditures on items other than fixed capital investment. The tax burden remained largely on low income earners as a result of increased indirect taxes and the erosion of the income tax brackets due to accelerating inflation. On the other hand, the decrease in government expenditures largely manifested itself in a reduction of expenditures in social services which again primarily influenced the lower income groups. The inflation tax and domestic borrowing which accelerated particularly after 1988, however, constituted the main mechanism in mobilising net private savings to the public sector.

Turkey's success in maintaining a high growth rate, while making net transfers abroad was supported by a continuing shift of resources from non-tradeables to tradeables. The growth rate of production of tradeables was satisfactory with an annual compound rate of 6.1 % (above that of non-tradeables production of 5.3%). The growth of industrial production remained well above the growth of GNP. Relative prices stimulated the flow towards tradeables and fed the export expansion: real wages and the real exchange rate continued to decrease. Prices of tradeables relative to non-tradeables, as measured by the ratio of sectoral GDP deflators to the overall GDP deflator, improved significantly in 1985 and remained strongly in favour of the former. Manufacturing sector's prices, in particular, stayed relatively high. Real wages decreased by at least 13 % in every year except 1987 in

the public sector and somewhat less in the private sector. The real exchange rate depreciated by an additional 22 %.

The realisation of real transfers in this period depended largely on the continuing expansion in exports. Although exports grew by a compound rate of 15.3 % annually, this rate nevertheless remained below the elaborate expansion in exports of 26.2 % attained in the previous sub-period. Import expansion, although satisfactory, lagged behind the growth in exports. While imports had grown steadily in 1980 and 1981, they declined in 1982 and grew only slightly in 1983. Imports grew at an annual compound rate of 9.2 % in the 1984-88 period. The strength in imports was correlated with the high GNP growth rates. But the jump in tourism revenues, coupled with the increase in other invisibles earnings counterbalanced the still negative trade balances and contributed to a large extent to the formation of a positive NICA balance. The share of net tourism revenues in GNP increased more than three times, rising to 1.7 % in 1985-88 from 0.46 % in 1980-84. Similarly, the share of other invisibles balance climbed to 2.15% in 1985-88 from 0.94% in the previous period. The share of workers' remittances showed a slight decrease but they remained around 2.9% of GNP during 1985-88.

During this period, Turkey succeeded in attaining high growth rates and channelling resources into tradeables sectors while sustaining net transfers without resorting to excessive cuts in domestic absorption. But the rapid build-up of domestic debt and the failure to undertake necessary investments in tradeables sectors were two problem areas restraining the overall success. They constituted the major bottlenecks which led to the unfavourable developments in the following period.

### **3.4.3. The 1989-91 Period**

Net transfers continued as suggested by both the NICA balance and by the financial transfers (measured as new net borrowing minus interest payments). A surplus of \$ 8.2 billion was attained in the NICA balance.

The year 1988 can be considered as a cornerstone for most of the policies related to economic and political life. The most restrictive aspects of the social and political framework of the 1980 coup d'etat dissipated during this year. The regulations and prohibitions on labour relations were modified or lifted. As a result, Turkish labouring classes regained the right to strike, and the ability to negotiate effectively for collective agreements. This episode prompted a general increase in real wage rates in 1989. The Ozal-ANAP administration lost its popularity after the general elections in 1989. The erosion in ANAP votes was generally interpreted as the public's dissatisfaction with the government's inflation and incomes

policy. On the other hand, the escalating military struggle against Kurdish guerillas in the South-Eastern provinces put extra strains on Turkish political life and also on the budget. As a result of the above mentioned developments, the share of personnel expenditures and social services expenditures rose rapidly after 1988. Real wages rose both in the public and the private sector.

The improvement in the trade balance was reversed in this period, however. The compound annual growth rate of exports decreased to 5.2 % while imports continued to grow by a compound annual rate of 13.7 % . As a result, the trade deficit increased, hampering the conditions for real transfers. Nevertheless, official grants helped compensate for the decrease in foreign exchange revenues. Due to increasing grants, the ratio of official unrequited transfers to GNP rose from a level of approximately 0.5% throughout the 1980-89 period to 1.1% and 2.1% in 1990 and 1991 respectively. Consequently, Turkey continued to have a surplus on NICA in both 1990 and 1991.

The slow down in export growth can be explained, on the one hand, by the inadequate expansion of productive capacity in the exportables sector due to insufficient investments in manufacturing industries throughout the 1980s, and by the curtailment of export incentives on the other. Developments in the world economy and domestic politics were also influential in both trade performance and the public sector balances. Economic crises in developed countries reduced their import demand, part of which fell on exports from Turkey. The Gulf crisis had a substantial adverse effect on the foreign sector by causing drops in export and tourism revenues along with workers' remittances, but the grants given to compensate its adverse effects narrowed down the public sector borrowing requirement. The abandonment of the policy of rapid real depreciation of the TL in this period was also responsible for the slow down of exports.

The composition of foreign capital flows underwent a drastic change during the 1989-91 period. Along with the liberalisation of the capital account in 1989, net long-term capital inflows decreased, while portfolio investments rose considerably. The real appreciation of the TL, and rising domestic interest rates as a result of extensive domestic borrowing<sup>24</sup> by the government made short-term investment in Turkey attractive for foreigners. Short-term capital which flowed in, to benefit from the positive real interest earned on TL funds, helped postpone the real transfer.

The increasing importance of domestic borrowing coincided with the decreasing role of foreign borrowing which led to the replacement of foreign debt with domestic debt. However, while decreasing reliance on foreign borrowing is necessary in the transfer

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<sup>24</sup> The interrelations between real transfers, domestic transfers, real exchange rate and interest rates will be the subject matter of the following chapter.

process, an imprudent domestic debt strategy can become self-defeating and can lead to a bottleneck in the transfer process in the medium-term. High real interest rates offered by the government with the objective of channelling private funds towards the public sector precisely led to this result in the Turkish case. High interest service coupled with the short-term structure of debt resulted in a growing interest burden of domestic debt on government finance.

## 4. REAL TRANSFERS

This chapter examines how Turkey handled the real transfer problem, i.e. the conversion of TL funds raised through the internal transfer into foreign exchange for debt service in the 1980s. An attempt is made to assess the salient features of the adjustment process and to evaluate the adequacy of the transfer strategy in meeting the requirements for a successful real transfer.

Section 4.1 sets out the conditions for a successful real transfer. Section 4.2 presents an overview of the trade balance adjustment. Section 4.3 explores further into the export adjustment process. Section 4.4 investigates the determinants of export-based adjustment. The chapter concludes with an assessment of the extent to which the requirements for a successful real transfer have been met in the Turkish case.

### 4.1 The Conditions For A Real Transfer

The real transfer refers to the transfer of resources (i.e. goods and services) that precede, accompany or follow a financial transfer between countries. In a two-country world, this requires adjustments in the real income and/or absorption and also the trade balance of both the paying country (the transferor) and the receiving country (the transferee). Specifically, the transferor must generate an excess of real output over real absorption which must then be transferred to the transferee. The real transfer is thus accomplished when the transferor has generated an export surplus (and the transferee a corresponding import surplus) to the amount of the transfer.

The primary measure for the external transfer, adopted in this study, the non-interest current account (NICA) is defined as follows:

$$\text{NICA} = (X-M)+U \quad (4.1)$$

where  $(X-M)$  is net exports of goods and non-factor services and  $U$  is net factor income, which includes grants and all factor incomes except interest payments on foreign debt. The NICA identity states that in order to make a real transfer abroad, an improvement on the

balance on goods and non-factor services is necessary for a constant level of net factor income.<sup>25</sup> On the other hand, with stagnant exports, the burden of adjustment falls on imports, i.e., the export surplus must be generated by import compression. With a dynamic export sector, increased real transfers may be sustained with exports growing faster than imports.

The relationship between the net real transfer and national income and absorption can be obtained<sup>26</sup> from the national income identity for an open economy:

$$Q = C+I+(X-M) \quad (4.2)$$

where Q is GDP, C is consumption and I is investment. GNP, Y, is obtained by adding net factor income from abroad to GDP.

$$Y = Q+U-iD \quad (4.3)$$

where, iD is interest payments on foreign debt. Rearranging terms, we can rewrite (4.1) in order to establish the relationship between NICA, GNP and absorption:

$$NICA = Y-(I+C-iD) \quad (4.4)$$

The last equation states that the excess of GNP over absorption corrected for interest payments on foreign debt (I+C+iD) is identically equal to NICA. Hence, the generation of a transfer abroad requires an increase in income, a decrease in absorption or both, i.e. either production of tradeables increases or absorption of tradeables decreases or both.

In a static economy an excess of real income over real absorption must be achieved by a cut in domestic absorption. If domestic absorption is to be cut, then the question arises as to whether the burden of adjustment falls on consumption or on investment and in either case whether it falls on the private or on the public sector. In this chapter, we will only handle the question of curtailing absorption vs. increasing the growth rate. The reflection of real transfers on absorption and its sectoral distribution between the public and the private sectors as well as between consumption and investment will be dealt with in the following chapter.

In a growing economy, increased net resource transfers to abroad can be sustained by income growing faster than absorption net of interest payments on foreign debt.

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<sup>25</sup> In the Turkish case workers' remittances and grants facilitated the transfers. In this case, the required improvement on X-M is relatively smaller.

<sup>26</sup> The exposition is based on Buitier (1990, p.410-412)

Along with changes in the level (or growth) of real income and absorption, the generation (or maintenance) of an export surplus generally requires changes in the structure of production, consumption and trade. A shift in the structure of production toward tradeables and a shift in the pattern of consumption away from tradeables facilitates the transfer. A shift of resources from production of non-tradeables to tradeables creates a surplus capacity which is either used to produce additional exportables or to produce import substitutes, leading to a larger export surplus. In a market economy such shifts are induced by changes in the relative prices of tradeables vis-a-vis non-tradeables, i.e. the price of tradeables must rise relative to non-tradeables during the transfer process to accomplish the reallocation of resources towards the former. Such a change in relative prices is indicated by a depreciation of the real exchange rate.

Obviously, increasing the output of tradeables is a better alternative than curtailing absorption from the standpoint of social welfare and the sustainability of real transfers. In the long run, the solution of the transfer problem requires increased availability of resources to the tradeable sectors.

#### **4.2. Trade Balance Adjustment**

Trade balance adjustment in the 1980s was accomplished by maintaining a growth rate of exports above the growth rate of imports. This contrasts with the Latin American case where trade balance adjustment generally occurred via a sharp curtailment of imports. In the period under consideration, the balance on goods and non-factor services improved remarkably and turned into a surplus of 1.5 billion dollars in 1988 from a deficit of 4.5 billion dollars in 1980. The improvement in non-factor services income and especially in the tourism revenue played an important role in the adjustment, especially in the second part of the 1980s. On the other hand, while exports grew faster than imports, Turkey did not record a surplus on its merchandise trade balance but only succeeded in reducing the trade deficit sharply during 1980-82 and then keeping it at around 3 billion dollars. The merchandise trade deficit decreased in absolute terms from five billion dollars in 1980 to two billion dollars in 1988. This pattern of adjustment may be designated as "export-based adjustment" with some qualifications.

During the 1980-91 period Turkey achieved a compound annual growth rate of merchandise exports of 17.4 percent which is slightly lower than the compound annual growth rate of 17.1 percent realized during 1970-79, while the compound annual growth rate of imports declined from 22.6 percent over the period 1970-79 to 13.9 percent over

TABLE 4.1 TRADE BALANCE ON GOODS AND NON-FACTOR SERVICES

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Balance on goods and non-factor ser	-1924	-2247	-4461	-3068	-1741	-2217	-2081	-1690	-1813	-1404	1474	-852	-5350	-2885
Trade Balance on Merchandise go	-2081	-2554	-4603	-3864	-2628	-2990	-2942	-2975	-3081	-3229	-1777	-4219	-9554	-7326
Exports	2288	2261	2910	4703	5890	5905	7389	8255	7583	10322	11929	11780	13026	13672
Imports	-4369	-4815	-7513	-8567	-8518	-8895	-10331	-11230	-10664	-13551	-13706	-15999	-22580	-20998
Trade Balance on Services	157	307	142	796	887	773	861	1285	1268	1825	3251	3367	4204	4441
Turism	163	198	222	277	224	292	271	770	637	1028	1997	1992	2705	2062
Revenue	234	281	326	380	373	420	548	1094	950	1476	2355	2557	3225	2654
Expenditures	-71	-83	-104	-103	-149	-128	-277	-324	-313	-448	-358	-565	-520	-592
Other Services	-6	109	-80	519	663	481	590	515	631	797	1254	1375	1499	2379
Revenue	233	393	385	884	1545	1519	1609	1524	1746	2044	2821	3275	4050	5005
Expenditures	-239	-284	-465	-365	-882	-1038	-1019	-1009	-1115	-1247	-1567	-1900	-2551	-2626

Source: The Central Bank of Turkey, Balance of Payments Statistics of Turkey, May 1992

1980-91. As a result, the ratio of exports to imports rose from 47.3 % to 64.1 % and the ratio of exports to GNP rose to 12.3 % from 4.4 %. A comparison of the 1970s with the post 1980 period would seem to suggest that trade balance adjustment in the latter period was the result of cutting down the import growth rate to a half of that of the previous period, while maintaining the export growth rate of the 1970s. This interpretation which neglects the trends in world trade in the two periods would understate the Turkish export success in the 1980s.

TABLE 4.2 MAIN FOREIGN TRADE INDICATORS

	import growth rate	export growth rate	exports/ imports	exports/ GNP
1960-69	6.31	4.52	62.1	4.9
1970-79	22.6	17.1	47.3	4.4
1980-91	13.9	17.4	64.1	12.3

Source: SIS

The 1970-79 period was a period of expanding world trade. Turkey's success in expanding exports is much more apparent if the severe contraction in world trade in the 1980-90 period is taken into account. During the 1970-79 period, when global trade expanded rapidly, Turkey increased its imports faster than the world import growth rate, but could not catch up with the world rate for exports. However, in the 1980-90 period, when world trade was shrinking, Turkey expanded its exports faster than the world export growth rate. Thus, the share of Turkish exports in world exports nearly doubled from 0.2 % over 1970-79 to 0.36 percent in the following period.

TABLE 4.3 EXPORT GROWTH - TURKEY AND WORLD

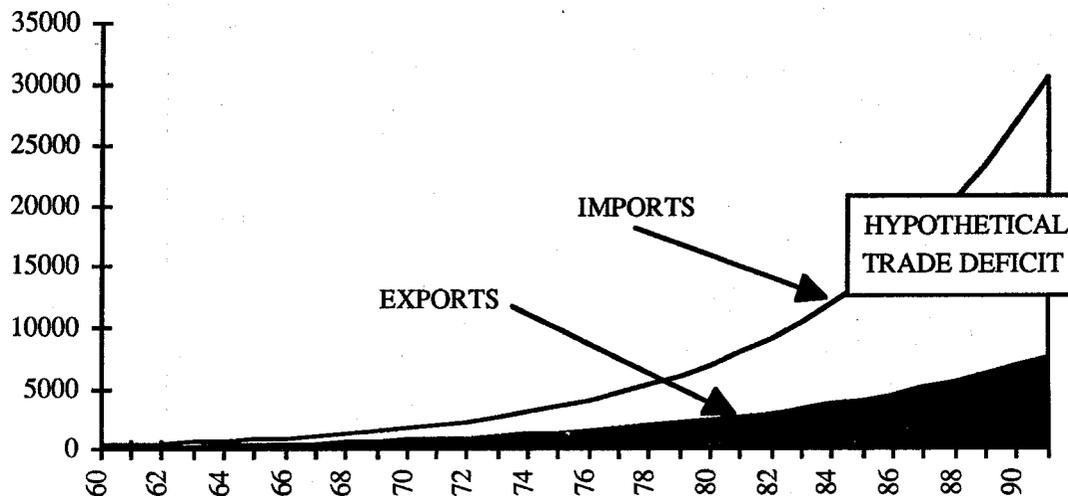
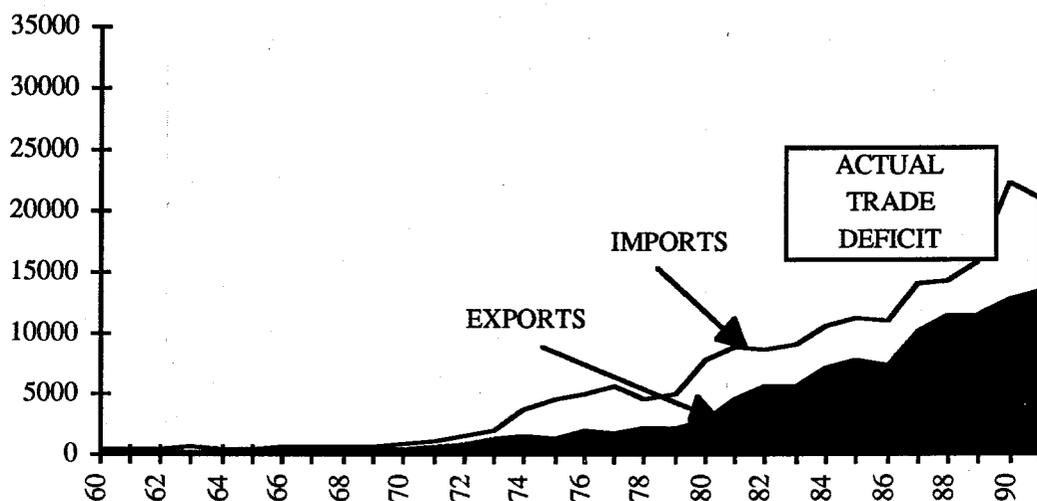
	1970 -79		1980 -90	
	Turkey	World	Turkey	World
export growth rate	17.1	20.8	18.6	7.3
import growth rate	22.6	20.2	15.7	7.6

Source: SIS; IFS, 1990 Yearbook

Furthermore, a comparison of the actual trade gap over 1980-91 with the hypothetical one obtained by extrapolating the annual compound growth rates of exports and imports in

the 1970-79 period reveals that imports were growing at an unsustainable rate and the policy after 1980 was to restrain import growth at a more reasonable rate.

GRAPH 4.1 TRADE DEFICIT-ACTUAL AND HYPOTHETICAL



#### 4.2.1 Trade Balance With Main Partners

During the 1980-90 period, Turkey's trade deficit vis-a-vis the European Countries decreased up to 1984 but increased again from 1985 onwards. The trade balance with OECD Countries deteriorated in the latter part of the decade and constituted the main source

of the overall trade deficit throughout the 1980s. The most favourable development in the trade balance with main partners occurred in the trade balance with Islamic Countries. The trade deficit with Islamic Countries recorded a steady reduction during 1980-85. Trade surpluses were recorded in two years, 1986 and 1988. The deficit in the remaining years were minor except in 1990.

Trade balance adjustment with OECD Countries has special importance for the Turkish transfer problem. In order to accomplish the requirements of the transfer theory, Turkey should improve its trade balance with OECD Countries as the bulk of the foreign debt is owed to them. However, Turkey's trade deficit with OECD Countries remained at around 1.9 billion dollars until 1984, but deteriorated from 1985 onwards. Nevertheless, in the period under consideration both imports from and exports to this area increased faster than total exports and total imports, with imports growing at a compound rate of 15 % per annum and exports at 18 %. Since Turkey did not choose to curtail its imports, it attempted to close its trade gap with the OECD mainly by increasing its exports faster than its imports. However, in the 1980-84 period Turkey turned towards Middle Eastern markets and exports to OECD Countries grew at a compound rate of 22 %, while total exports, by 25 %. The share of exports to OECD Countries declined from a level of 58 % in 1980, to a low of 44 % in 1982, but subsequently increased with the revival of demand in these countries to reach 68 % in 1990. On the other hand, imports from OECD markets showed a steep rise throughout the 1984-87 period. Their share in total imports increased from 45 % in 1980 to 52 % in 1984 and to 64 % in 1987 and remained at that level since then.

Turkey has been more successful in improving its trade deficit with the European Community. Share of imports from the EC was a stable 28 % until 1985. However, in the 1986-1990 period it rose to 40 % on average. On the other hand, exports to these countries rose from 43 % in 1980 to 53 % in 1990. Amongst the EC Countries, trade with Germany (Turkey's major trade partner) generally contributed towards maintaining the balance. Since around one third of Turkey's outstanding long-term debt is in Deutsch Marks, the positive trade balance with Germany coincided with the requirements of the transfer process.

The trade balance with Other OECD Countries in general deteriorated over the period. The main contributors to the trade deficit were Japan and the USA, the other two suppliers of foreign credit to Turkey.

Turkey's attempts at reducing its trade deficit has been most successful in its trade with Islamic Countries. The apparent improvement in the trade balance, from a deficit to a surplus, marks a real transfer to this area. The foreign loans from these countries constitute only a small part of Turkey's foreign debt commitments. It follows that Turkey used the improvements in the trade balance with Islamic Countries to support the financial transfers to the OECD area.

	TABLE 4.4 TRADE BALANCE BY COUNTRIES (Million Dollars)										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
GENERAL TOTAL	-4999	-4231	-3097	-3507	-3623	-3385	-3706	-3968	-2673	-4167	-9343
A. OECD COUNTRIES	-1904	-2016	-1878	-1721	-1818	-2256	-3012	-2588	-2531	-2738	-5415
1. EUROPEAN COUNTRIES	-961	-1017	-710	-586	-245	-691	-1302	-798	-797	-647	-2436
Federal republic of Germany	-234	-297	-302	-214	107	22	-328	76	95	-29	-433
2. OTHER OECD COUNTRIES	-943	-999	-1167	-1135	-1573	-1565	-1710	-1790	-1734	-2091	-2980
USA	-315	-322	-562	-463	-705	-644	-628	-653	-759	-1123	-1314
Japan	-76	-171	-314	-312	-369	-464	-585	-704	-346	-297	-881
B. ISLAMIC COUNTRIES	-2498	-1627	-1127	-1068	-905	-337	411	-56	600	-51	-1364
1. GULF COUNTRIES	-1882	-1509	-913	-724	-607	-20	36	-295	-258	-562	-1292
Iraq	-1103	-1005	-807	-627	8	-176	-216	-209	-451	-1205	-832
Iran	-718	-281	43	-134	-815	-186	343	-508	-114	328	3
Saudi Arabia	-62	-223	-149	96	162	204	182	240	130	152	-385
2. OTHER ISLAMIC COUNTRY	-616	-118	-215	-344	-298	-317	375	239	858	511	-72
Libya	-718	-348	-655	-608	-516	-562	-156	-165	139	-59	-267
C. SOCIALIST COUNTRIES	-198	-420	-38	-544	-640	-350	-536	-708	-386	-498	-1436
D. OTHER COUNTRIES	-400	-167	-54	-174	-260	-442	-569	-616	-356	-880	-1128

Source: SIS, Foreign Trade Statistics, 1989

During the 1980s, Turkey's exports to Islamic Countries grew at an average annual compound rate of 16 % while imports grew at 2 %. In the first half of the 1980s, the country intensified its export efforts towards the Middle East. The Iran-Iraq war and the decrease in US's exports to Iran were effective in this effort. The share of Islamic Countries in total exports rose from 18 % in 1980 to 46 % in 1983 implying a substantial regional shift in the direction of exports. However, exports to these markets began to decrease in the second half of the decade due to a downward trend in world petroleum prices and the resulting contraction in demand by these countries. As a result their share in total exports declined to 19 % in 1990. In the second half of the decade, imports from this area stagnated also. Consequently, trade balance performance turned out to be favourable in the 1986-89 period and especially in 1988, when a substantial trade surplus was recorded.

Turkey has been particularly successful in its trade with Saudi Arabia. This country continued to affect Turkey's trade balance positively until 1990. While in the most recent years the decrease in the crude oil import bill affected the trade balance with the Gulf Countries favourably, the Gulf crisis brought a cut in exports to Kuwait and Iraq. However, exports to Iraq had begun to slow down prior to the crisis due to payments problems with this country.

Turkey has limited trade relations with other countries as well as with its Socialist neighbours. Their minor importance continued throughout the period. Exports to ex-Socialist Countries grew significantly less than imports while export growth to Other Countries was the same as import growth. Although in the recent years, exports to Socialist as well as to Other Countries showed a remarkable increase, the trade balance adjustment with these groups did not make any contribution to Turkey's transfer problem in the period under consideration.

#### **4.2.2 Trade Balance According to Commodity Groups**

The improvement in the trade balance in the 1980-88 period can also be analyzed by sectoral break down of the trade balance.

Although the share of agricultural goods in total exports has shown a remarkable decrease over the period, Turkey continued to enjoy trade balance surpluses in those goods. The trade balance was always in surplus for food and live animals (SITC 0) and beverages and tobacco (SITC 1) throughout the period.

TABLE 4.5 TRADE BALANCE BY COMMODITY GROUPS (According to SITC Categories)

(million dollars)

SITC Categories	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL	-4906	-4162	-3048	-3452	-3502	-3317	-3564	-3903	-2604	-4061	-8944
0 FOOD AND LIVE ANIMALS	1084.8	1530.8	1723.6	1767.8	1599.8	1304.3	1602.6	1795.7	2304.3	1320.2	1129.5
4 Cereals and cereal preparations	101.7	99.9	85.8	230.9	-95.3	-48.57	-100.6	2.2	275.4	-391.2	-484.5
5 Fruits and vegetables	937	1090.3	942	872.2	927.46	924.4	1221.3	1420.6	1575.8	1279	1680.2
1 BEVERAGES AND TOBACCO	237	399.1	351	238.3	194.17	279.4	153.6	137.2	89.4	267.7	110
12 Tobacco and tobacco manufactures	233.7	395.1	348.4	237.8	190.37	274.6	155.5	137.8	95.9	258.8	105.2
2 CRUDE MATERIALS, INEDIBLE, EXCEPT FUELS	289.75	225.6	266.75	85.76	51.46	-22.99	-230.3	-804.7	-574.7	-768.2	-933.4
26 Textile fabrics	298.9	339.4	297.35	158.7	145.59	142.4	68.6	-211.1	-27.9	-52.8	-211.6
3 MINERAL FUELS, LUBRICANTS & RELATED MATERIALS	-3868	-3812	-3505	-3513	-3385	-3409	-2007	-2932	-2722	-2989	-4057
4 ANIMAL AND VEGETABLE OILS, FATS & WAXES	-110.7	-25.8	-61.9	-0.61	-186.1	-146.3	-60.9	-61.9	-140.3	-155	-158.6
5 CHEMICALS & RELATED PRODUCTS	-1142	-1217	-858.7	-1129	-1352	-1174	-1175	-1469	-1263	-1391	-2100
6 MANUFACTURING GOODS CLASSIFIED CHIEFLY BY MATERIALS	-199.2	179	691.6	601.3	726.8	1109.4	694.25	337.5	1073.9	616.87	490.9
65 Textile yarn, fabrics	263	491.1	663.9	743.5	887.2	901.7	776.7	1006.9	1116.9	1041.1	875.2
7 MACHINERY & TRANSPORT EQUIPMENT	-1288	-1742	-2013	-2062	-2340	-2410	-3621	-2925	-3434	-3433	-6083
8 MISCELLANEOUS MANUFACTURED ARTICLES	91.15	303.95	358.19	559.6	1189	1138.4	1073.3	1996.9	2060.6	2473	2657.2
84 Articles of apparel & clothing accessories	131	313.6	398.4	647.6	1266.5	1206.5	1242.9	2193.6	2317.7	2734.7	3314.7
9 COMMODITIES & TRANSACTIONS NOT CLASSIFIED ELSEWHERE	-0.7	-2.8	-0.057	-0.03	0.03	14.3	6.3	23	2.16	-3	0

Source: SIS, Foreign Trade Statistics, various years and author's calculations

Crude materials except for fuel (SITC 2) became an important determinant of the total trade deficit after 1984. The change in the direction of the trade balance on textile fabrics constituted the major source of the deficit. Other major contributors to the overall trade deficit were mineral fuels (SITC 3), animal and vegetable oils (SITC 4), and chemicals (SITC 5).

A determined effort at increasing manufactured exports resulted in a significant improvement in the net export position of manufactured goods classified chiefly by materials (SITC 6). The trade balance in this category shifted from a deficit of 199 million dollars in 1980 to a small surplus immediately in 1981. The surplus increased substantially, reaching a peak of 1109 million dollars in 1985. Although Turkey enjoyed favourable developments in manufacturing exports classified mainly by materials, the trade balance on machinery and transport equipment (SITC 7) deteriorated largely throughout the period under consideration. On the other hand, trade balance on miscellaneous manufactured goods (SITC 8) in general was in surplus, and the surplus grew substantially from 91 million dollars in 1980 to 2657 million dollars in 1991.

One may conclude that while Turkey achieved a diversification in its exports and increased the share of industrial goods in total exports considerably, in the observation period it succeeded chiefly in improving the trade balance on low and medium technology goods. A similar success could not be attained in high technology products. An analysis of Turkey's trade balance by broad commodity groups in the last three decades (OECD, 1991) suggests that Turkey's trade deficit was attributable mainly to high net imports of medium and high technology products.<sup>27</sup> The main findings of this study can be summarised as follows: traditionally Turkey enjoyed a comparative advantage and a surplus on food and raw materials, even though there occurred some exceptions in recent years. Turkey's efforts at increasing the share of manufactured goods in total exports after 1980, were reflected mainly in an improvement of the trade balance in low technology goods, which shifted from a deficit to a sizeable surplus. The country was less successful in increasing its exports of medium and high technology products. Imports of intermediate and investment goods of medium and high technology continued after 1980 along with growing imports of sophisticated consumer goods. The following table supports the findings of the OECD study for the 1980-91 period.

Table 4.6 shows the change in the trade balance by main sectors in 1984, 1988 and 1991<sup>28</sup>. In the 1984-88 period, which is marked by net transfers to abroad in each year at

<sup>27</sup> see: OECD (1991) p.37-38 for the full evaluation and comparison of Turkey with OECD countries. The study looks at the trade balance in four broad categories: high, medium and low technology goods, and food and raw materials.

<sup>28</sup> Although most of the acceleration in manufacturing exports took place in the first half of the 1980s, data availability permits to carry on the analysis from 1984 onwards.

**TABLE 4.6. TRADE BALANCE BY SECTORS**  
(1988 prices, billion TL)

SECTORS	1984	1988	1991
AGRICULTURE	587	1236	651
Vegetable products	202	1170	914
Livestock and animal products	361	219	-25
Forestry products	-20	-221	-241
Fishery products	45	68	-246
MINING AND QUARRYING	-2488	-3649	-3488
MANUFACTURING INDUSTRY	-1458	-1372	-8980
1. Consumer products'	4798	6641	
Food	1816	1384	1265
Beverages	16	13	14
Tobacco	272	121	220
Weaving	1505	2835	2803
Textiles	687	1542	1792
Leather	451	692	816
Wooden Furtinure	42	15	-1
Footwear	8	34	24
2. Intermediary Goods'	-2332	-2064	-5403
Ginning	204	154	80
Wood-products	34	2	-6
Paper	-112	-283	-462
Printing	8	-15	-43
Lether and Fur Processing	-2	-37	-93
Rubber	28	34	-10
Plastics	12	-28	-199
Chemistry	-942	-1437	-2449
Petrochemicals	-837	-365	-654
Petroluem products	418	108	-314
Fertilizers	-530	-358	-529
Cement	82	-62	105
Baked Clay	-117	-106	-69
Ceramics	-21	22	49
Glasswear	144	189	71
Iron-steel	-460	-190	-550
Non-ferrous metals	-239	-233	-331
3. Investment Goods	-3924	-5410	-10511
Metal goods	-171	-317	-583
Non electrical machinary	-2066	-2559	-4854
Agricultural machinary	-9	-2	-56
Professional and Measuring equipment	-150	-351	-742
Electrical machinary	-265	-340	-925
Electronics	-498	-826	-1181
Highway vehicles	-576	-525	-1338
Railway vehicles	-25	-26	-19
Shipbuilding	-119	-69	-218
Aircraft Manufacturing	-27	-398	-459
Other manufacturing	-18	1	-135
ELECTRICITY GAS AND WATER	-	-	-
TOTAL	-3359	-3786	-11817

Source: SPO, Annual Programs, various years, Altıncı Beş Yıllık Kalkınma Planı Öncesinde Gerçekleşmeler (1984-1988)

an increasing scale, the deterioration in the trade balance was substantially small as compared with the 1988-91 period.

In the 1984-88 period, the improvement in the net export position of agricultural goods, led by vegetable products, has been substantial. The trade balance on mining and quarrying has deteriorated between 1984-88 and improved slightly between 1988-91 due to the decreasing trend of oil prices in this period. The trade deficit for the manufacturing sector as a whole improved slightly between 1984-88 and deteriorated considerably between 1988-91, possibly due to the decreasing weight given to export promotion policies.

The reduction in the trade deficit in the 1984-88 period can be largely attributed to improvements in the net export position of consumer goods. The motor force behind this improvement came from the textiles, weaving and leather sub-sectors. The trade balance on intermediary and investment goods deteriorated in 1984 to 1988 period, but less than in the 1988-91 period. Certain sub-sectors of the intermediary goods sector (petrochemicals, fertilizers, ceramics and iron-steel) and the investment goods sector (highway vehicles, ship building and other manufacturing goods) registered slight improvements.

A comparison of the net export position of main sectors in 1988 and 1991 shows that the trade surplus in agricultural goods decreased, while the trade deficit in manufacturing goods worsened. The trade balance on consumer products continued to improve slightly. The overall deterioration in the net export position of the manufacturing sector was due to the deterioration in the trade balance on intermediary and on investment goods, since the net export position in consumer goods continued to improve albeit slightly. In the investment goods sector, the trade balance deteriorated for every subcategory. Amongst intermediary goods, cement, baked clay and ceramics resumed their net export positions, wood and cork products, petroleum products and rubber switched from a surplus to a deficit, and the trade balance on all other sub-categories worsened.

#### **4.2.3 Decomposition of the Trade Balance: Increasing Production vs. Curtailing Domestic Absorption**

As explored above, the realization of a net transfer abroad requires adjustments in production, consumption and trade. Here we investigate whether the improvement in the trade balance was generated as a result of curtailing domestic absorption or increasing production.

The decomposition of the change in the trade balance into increase in production and decrease in absorption<sup>29</sup> by main sectors is shown in Table 4.7 which clearly signifies the role of increasing production in the Turkish transfer case.

In the 1984-88 period, both production and absorption increased for each sector, while the trade balance improved for agricultural goods, mining, and consumer products and deteriorated for intermediary goods and investment goods. In consumer products, the improvement in the trade balance came from the weaving and textiles sectors. In both cases, the increase in production was strong, but there was also a slight decline in absorption in textiles. Among the intermediary goods, the improvement came mainly from petro-chemicals, fertilisers and iron-steel. All three sectors enjoyed increasing production, but there was also a decline in domestic consumption for fertilizers. Among investment goods, there were decreases in domestic demand for agricultural machinery, railway vehicles, and ship-building. Since there also occurred decreases in the output of these sectors, there were no significant improvements in trade balances. In ship-building, the decrease in absorption overweighed the increase in production, resulting in a slight improvement in the trade balance. In highway vehicles and other manufacturing industry, the improvement in trade balance resulted from an increase in production rather than a decrease in absorption.

In the 1988-91 period, sectoral trade balances deteriorated in general, improving only for mining and consumer products. The increasing trend in production also continued in this sub-period. However, the improvement in the trade balance for consumer products was significantly lower when compared with the previous period. The decrease in domestic consumption for weaving was not sufficient for an improvement in the trade balance. On the other hand, increases in production of tobacco, textiles and leather resulted in trade balance improvements in these sectors. Domestic demand was high for intermediary goods. There were some improvements in the trade balance for cement, baked clay and ceramics due to high production. The decline in domestic demand for railway vehicles also persisted in this period resulting in a slight improvement in the trade balance. All other groups, especially non electrical machinery, enjoyed high domestic demands.

As a result, it may be concluded that the improvement in the sectoral trade balance which prepared the conditions for the real transfer arose mainly from increased domestic production, with textiles as the only important exception.

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<sup>29</sup> Absorption is calculated as apparent consumption, i.e. production plus exports minus imports.

TABLE 4.7 DECOMPOSITION OF THE TRADE BALANCE

(1988 prices, billion TL)

	1984-88			1988-91		
	Change in Trade Balance	Change in Production	Decline in Dom Absorption	Change in Trade Balance	Change in Production	Decline in Dom Absorption
AGRICULTURE	648	3769	-3121	-585	492	-1077
Vegetable products	968	2272	-1303	-256	252	-508
Livestock and animal products	-142	1303	-1445	-243	903	-1147
Forestry products	-201	8	-208	-21	-121	100
Fishery Products	23	187	-164	-314	-542	228
MINING AND QUARRYING	-1161	848	-2010	161	447	-286
MANUFACTURING INDUSTRY	86	17120	-17034	-7608	12066	-19673
1. Consumer products'	1844	5461	-3617	292	2800	-2507
Food	-433	1701	-2134	-119	2247	-2366
Beverages	-3	249	-252	1	340	-339
Tobacco	-151	10	-160	99	354	-255
Weaving	1330	2040	-710	-32	-1150	1117
Textiles	855	831	24	250	624	-374
Leather	242	284	-42	124	244	-120
Wooden Furniture	-27	207	-235	-16	82	-98
Footwear	26	139	-113	-10	58	-68
2. Intermediary Goods'	-272	9738	-10009	-2799	3101	-5900
Ginning	-50	88	-138	-74	1	-75
Wood and Cork products	-31	567	-599	-8	423	-431
Paper	-171	164	-335	-179	-464	285
Printing	-23	80	-103	-28	126	-154
Lether and fur processing	-34	287	-321	-57	221	-278
Rubber	6	216	-210	-44	419	-463
Plastics	-40	679	-720	-171	677	-848
Chemistry	-495	1241	-1735	-1013	343	-1356
Petrochemicals	472	1659	-1187	-288	332	-620
Petroleum products	-310	1784	-2094	-422	-198	-224
Fertilizers	172	59	113	-171	-173	2
Cement	-144	430	-574	167	222	-55
Baked Clay	11	341	-330	37	89	-53
Ceramics	44	101	-57	27	190	-163
Glasswear	45	267	-222	-118	41	-159
Iron-steel	270	1648	-1377	-360	812	-1172
Non-ferrous Metals	6	128	-122	-97	39	-136
3. Investment Goods	-1486	1921	-3407	-5101	6166	-11266
Metal goods	-146	463	-609	-266	80	-346
Non electrical Machinery	-493	306	-799	-2295	306	-2602
Agricultural Machinery	7	-195	202	-54	-34	-20
Professional Measuring Equipment	-201	55	-257	-391	88	-480
Electrical Machinery	-75	391	-465	-585	317	-902
Electronics	-328	544	-872	-356	1210	-1565
highway Vehicles	51	346	-295	-813	1491	-2304
Railway vehicles	-1	-55	54	7	-23	30
Shipbuilding	51	-78	128	-150	56	-206
Aircraft Manufacturing	-371	4	-375	-61	9	-69
Other manufacturing	19	139	-120	-136	2665	-2801
ELECTRICITY GAS AND WATER	0	0	0	0	0	0
TOTAL	-427	23254	-23681	-8031	12908	-20939

\* 1980 values are in 1981 prices

source: SPO, Annual Programs, Sixth Five Year Development Plan 1990-1994 and author's calculations

### 4.3 Export-Based Adjustment

Turkey attained a significant expansion in its exports between 1980 and 1988. The level of exports quadrupled from 1980 to 1988, reaching 17 % of GNP in 1988 from a low of 3 % in 1979. In the same period Turkey's share of world exports rose from 0.14 % to 0.43 %.

The sources of Turkish export success has recently been investigated by OECD (OECD, 1991) using constant market share analysis (CMSA). The CMSA breaks down the increase in merchandise exports above the increase in world merchandise exports into two structural factors, commodity composition and market distribution, and a competitive effect.

The commodity composition effect measures the degree to which a country exports mostly the goods which grow faster or slower than the world average. If a country is successful in concentrating on goods for which world trade expands more than the average, then this measure assumes a positive value. The regional distribution effect, on the other hand, measures the degree to which a country is successful in the choice of its markets. This effect assumes a positive value if the markets in which the country operates enjoy relatively more rapid growth than the world average. The competitive effect is a residual which indicates whether or not the country has competed effectively in the international market.

The commodity composition effect for Turkey was generally negative until 1982, improved after this year, but again turned strongly into negative in 1988. This development can again be explained by the renewed interest in OECD markets. As Turkish exports to OECD Countries began to rise again after 1987, the regional effect improved while the commodity effect deteriorated. Hence, we may conclude that the commodity composition of Turkish export goods did not coincide with the foreign demand profile of OECD Countries.

The regional effect was negative for Turkey from 1983 and remained relatively unfavourable, although it improved somewhat after 1987. This suggests that Turkey was successful in directing towards Middle Eastern markets at the right time but remained late in redirecting its trade back to OECD Countries when foreign demand in the Middle Eastern markets began to stagnate.

The competitive effect played a positive role except for 1986-87, the only years when Turkey's exports grew less than world merchandise exports. This effect, which includes all kinds of export subsidies as well as the effect of real exchange rate depreciation, explains the bulk of the export growth which is above the world average.

TABLE 4.8 CONSTANT MARKET SHARE ANALYSIS<sup>1</sup>

(Percent)

	Growth of Turkish merchandise exports	Growth of world merchandise exports	Difference	Regional composition effect(2)	Product mix effect(3)	Residual
1980-81/1978-79	29.4	14.8	14.6	11.3	-5.4	10.5
1981-82/1979-80	42.1	1.2	42.5	9.6	-0.9	34.6
1982-83/1980-81	22.8	-4.7	27.5	0.5	0.8	25.5
1983-84/1981-82	11.0	-1.5	12.5	-0.9	0.4	12.7
1984-85/1982-83	14.7	3.7	11.3	-4.1	-0.1	15.3
1985-86/1983-84	9.5	6.8	2.9	-4.0	0.1	6.6
1986-87/1984-85	8.1	11.6	-4.2	-4.2	1.4	-1.4
1987-88/1985-86	19.1	12.9	6.9	-4.4	-0.7	11.5
1987/1986	36.7	18.4	18.2	-3.5	0.0	21.7
1988/1987	14.4	3.1	11.3	-1.7	-3.2	16.2

1. Data refer to annual growth rates in value of exports. Statistical discrepancies are due to rounding.
2. The regional composition effect measures the differential in export growth rates resulting from the geographical pattern of Turkish export markets
3. The product mix effect measures the differential in export growth rates resulting from the product mix of Turkish exports.

Source: OECD, 1991, p.36

In the remaining part of this section we take a closer look into the determinants of Turkish export success in the 1980-90 period.

### 4.3.1 Competitiveness of Exports

Export promotion policies, real exchange rate devaluation, labor cost advantage, and increases in labor productivity contributed to the competitiveness of Turkish exports in the 1980s.

Turkey's competitiveness is considered to be weak when compared with developed countries but, may be considered stronger in several respects when compared with its competitors.

In comparison to its competitors, Turkey enjoys certain advantages as regards its geographical location, labour cost, history and traditions. In a study by TUSIAD, industrial experience and infrastructure were evaluated as improving from moderate to

good. However, technological base and technological advantages were considered as poor. (TUSIAD, 1991, v.2, p.2.7)

Compared with developed countries, however, Turkey's competitiveness is extremely poor. The competitiveness scoreboard reported by the World Economic Forum (World Competitiveness Report, 1990) ranks Turkey as the 21st among 23 developed countries. This ranking is based on 326 criteria, grouped into 10 factors, of which 200 are quantitative and 126 are qualitative. The ranking is calculated according to standard deviation values. Among the 10 factors, included in the report, Turkey scores highest on the factor called "the impact of the state", ranking as the ninth country and lowest on such factors as future orientation and human resources (World Competitiveness Report, 1990, p.12-30).

In the same report, export competitiveness of 33 countries was also evaluated for the 1984-88 period on the basis of 71 industrial categories that correspond to major industries in which countries trade. The 23 developed countries are grouped into three. Turkey is placed in the third group, 'the catching up category'. This category, characterised by a weak competitive position because of low market share and/or low market growth, consists of 12 industrialised nations. According to the ranking, the relative attractiveness of Turkish industries, as measured by the rate of growth of world markets that it serves, is one of the lowest. On the other hand, the relative competitive position, as measured by the weighted average market share is around the average (World Competitiveness Report, 1990, p.236-238).

According to the same study, the most competitive sectors of Turkey are hosiery and knitwear, manufactured clothes, carpets and textiles, yarn and cloth, footwear and fur. These are determined on the basis of the relative attractiveness of the industry as measured by the rate of growth of world markets and by the relative competitive position of Turkey in that industry as measured by its market share: these sectors grow faster than the rate of growth of world markets and their share in total world exports are greater than Turkey's overall market share (ibid, p.238).

#### **4.3.2 Export Market Diversification**

During the 1980s, the most rapidly expanding and stable export market was OECD Countries. Exports to Islamic Countries also grew rapidly but with an unstable pattern. The rapid expansion in the first half of the decade in exports to this market did not continue in the latter part of the 1980s. Exports to Socialist Countries and Other Countries expanded rather moderately with considerable peaks and troughs from year to year.

Exports to OECD Countries increased by 18 % at a compound annual basis with a low coefficient of variation (0.81). Their share in total exports rose from 58 % in 1980 to 68 % in 1990. The growth in exports to EC Countries was much more solid. The compound annual growth rate was 18.7 % and coefficient of variation was 0.71. Exports to these countries grew more than the average except for 1981, 1982, and 1988. In 1990, Turkish export growth depended exclusively on exports to this market. The EC market in total exports rose from a low of 31 % in 1982 to 53 % in 1990. Exports to Other OECD Countries rose by 16 % at a compound annual rate and with a higher coefficient of variation (1.42). The share of the OECD market in total exports decreased from 15 % in 1980 to a low of 11 % in 1985 and then increased again to 15 % in 1990.

Amongst the EC Countries, the fastest growing markets were the countries with which Turkey had relatively limited trade relations. Exports to both Germany and Italy, Turkey's two biggest export markets, grew by an annual compound rate of 17.6 %. Exports to Greece increased fastest, by a compound annual rate of 31.7.

USA, Switzerland, and Japan are the biggest markets amongst other OECD Countries. Exports to USA and Japan rose by annual compound rates of 22.5 % and 20.6 % respectively. However, Turkey was not as equally successful in the Swiss market. As a result, the share of Switzerland in total exports decreased to 1 % in 1989 after having risen to 6 % in 1981-1982 from 4 % in 1980.

Exports to Islamic Countries grew by a compound rate of 17 % annually. However, exports to this market showed an unstable pattern when compared with OECD Countries: it increased by seven times reaching \$ 3,400 million in 1985 from \$ 522 million in 1980. Consequently, the share of Islamic Countries in total exports rose to 43 % in 1985 from 18 % in 1980. The increasing trend was reversed from 1985 onwards and the share fell to 19 % in 1990. Iraq, Iran and Saudi Arabia, the biggest markets amongst Islamic Countries, constituted almost all of the exports to the Gulf Countries. They were the major contributors to the Turkish export miracle during 1980-85. However, after 1985, exports to the Gulf market increased less than the average increase in total exports.

Exports to Socialist Countries and Other Countries, which constituted at most 14 % of Turkish export markets in the 1980s, grew less than total exports. Exports to Socialist Countries increased at a compound annual rate of 8.3 % and its share in total exports fell from 16 % in 1980 to 4 % in 1987. However exports to this area performed better towards the end of this period, rising to 9 % of total exports in 1989. Amongst them, Turkey was most successful in the Chinese market. Exports to China rose ten times, from \$ 2 million to \$ 216 million between 1980 and 1988, but decreased to \$ 37 million in 1990.

TABLE 4.9 EXPORTS BY COUNTRIES 1980-1990

	(million dollars)				GROWTH RATE			
	1980	1984	1988	1990	comp.	aver.	st.dev	coef.var
GENERAL TOTAL	2910	7134	11662	12959	16.11	17.55	19.15	1.09
A. OECD COUNTRIES	1680	3740	6707	8810	18.02	18.96	15.34	0.81
1. EC COUNTRIES *	1242	2732	5098	6893	18.69	19.46	13.87	0.71
Federal republic of Germany	604	1280	2149	3064	17.63	19.19	19.93	1.04
Belgium and Luxemburg	56	190	265	312	18.84	23.20	33.45	1.44
Denmark	7	20	57	87	28.06	29.81	21.20	0.71
France	164	201	498	737	16.22	18.21	22.38	1.23
Netherlands	84	181	351	435	17.83	18.22	9.67	0.53
United Kingdom	105	260	576	745	21.70	27.09	36.69	1.35
Ireland	4	5	19	25	19.72	24.80	33.89	1.37
Spain	29	27	107	199	21.46	30.12	44.39	1.47
Italy	219	501	955	1106	17.59	18.33	13.46	0.73
Portugal	20	21	25	44	8.17	51.98	76.91	1.48
Greece	9	94	96	139	31.67	67.59	135.58	2.01
2. OTHER OECD COUNTRIES	438	1008	1609	1917	15.92	18.58	26.34	1.42
Austria	54	127	180	179	12.72	17.52	34.64	1.98
USA	127	368	761	968	22.48	26.49	34.45	1.30
Sweden	19	36	76	80	15.69	26.00	50.19	1.93
Switzerland	125	358	265	293	8.85	23.76	58.00	2.44
Japan	37	37	209	239	20.61	25.63	39.98	1.56
Canada	7	18	59	64	24.42	27.55	29.94	1.09
Australia	2	6	21	23	25.52	36.12	49.22	1.36
Others	17	10	38	71	15.29	27.01	51.40	1.90
B. ISLAMIC COUNTRIES	522	2996	3525	2490	16.91	29.19	73.17	2.51
1. GULF COUNTRIES	263	2202	2162	1226	16.63	34.07	85.60	2.51
Iraq	135	934	986	215	4.75	39.72	116.17	2.92
Iran	85	751	546	496	19.31	40.98	88.71	2.16
Saudi Arabia	44	378	359	338	22.74	41.97	100.16	2.39
Kuwait **	-	105	199	92	0.41	8.54	44.27	5.18
UAE **	-	3	22	57	20.44	68.89	101.71	1.48
Others **	-	31	50	28	0.83	32.82	105.94	3.23
2. OTHER ISLAMIC COUNTRIES	259	794	1363	1265	17.18	26.92	63.49	2.36
Algeria	9	128	219	201	37.21	64.61	113.36	1.75
Libya	60	142	218	221	13.84	67.25	195.21	2.90
Lebanon **	-	103	89	51	-5.85	-7.22	30.70	-4.25
Egypt	20	141	185	160	22.94	42.78	84.80	1.98
Jordan	48	108	130	81	5.36	12.13	39.32	3.24
Syria	103	62	143	195	6.57	14.05	45.08	3.21
TRNC **	-	63	128	155	35.60	450.68	1061.29	2.35
Pakistan	6	21	63	48	23.43	41.89	77.60	1.85
Tunisia	13	11	62	40	11.67	47.50	143.17	3.01
Others **	-	15	126	115	13.83	43.76	63.47	1.45
C. SOCIALIST COUNTRIES	475	324	831	1050	8.27	12.03	31.23	2.59
People's Republic of China	2	40	216	37	33.95	112.49	239.60	2.13
Romania	71	57	76	83	1.61	5.23	28.90	5.53
USSR	169	139	271	531	12.13	23.32	56.86	2.44
Czechoslovakya	72	11	35	64	-1.11	17.00	50.13	2.95
Poland	94	17	78	103	0.96	22.30	75.71	3.39
Yugoslavia	26	22	61	145	18.95	32.83	71.10	2.17
Hungary	41	9	25	31	-2.91	38.09	107.46	2.82
Others **	-	29	69	55	6.62	31.37	69.05	2.20
D. OTHER COUNTRIES	234	74	599	609	10.05	28.97	63.42	2.19

\* For the years 1980-1984, data for Spain and Portugal are excluded from the aggregate data for EC countries

\*\* Averages and other statistical calculations carried on from data for 1983-90

SOURCE: SIS, Foreign Trade Statistics, various years and author's calculations

Exports to Other Countries grew at a compound annual rate of 10 %, while its share in total exports decreased to 1 % in 1983 from 8 % in 1980. A partial recovery occurred in the second half of the decade, reaching 5 % in 1990.

To recapitulate, we may conclude that Turkey engaged in an effort to adjust its trade balance in order to raise the necessary foreign exchange for real transfers. It profited from the expanding markets of Islamic Countries at the right time. Nonetheless, exports to these markets showed a considerable degree of variability as can be observed by the high standard deviations of export growth to these markets. The high income OECD Countries generally provided more stable markets for Turkish exports with the exception of Greece and Sweden.

The protectionist tendencies and global recession in recent years have limited Turkish exports to OECD Countries. When growth resumes and world trade expands, Turkey may enjoy increasing export revenues from these markets. On the other hand, the share of exports to developing countries in total exports is still small although it has shown a remarkable increase in the last few years. These markets are not as strong as the OECD markets and are not as reliable for the smooth functioning of the transfer process. Also, although Turkish exports to the new republics of ex-USSR and Eastern Europe are growing rapidly, these markets cannot supply the hard currency that Turkey needs to service its foreign debt. Furthermore, Turkey faces competition from both its neighbours and the developed countries in these markets.

#### **4.3.3 Commodity Composition of Exports**

An important determinant of Turkish export success in the eighties was the shift from primary goods (mostly agricultural based) to manufactured goods. In this period the economy has been transformed from an agricultural goods exporter to industrialised countries to an industrial goods exporter to developing neighbouring countries. The share of agricultural and livestock products in total exports fell from 57 % in 1980 to 18.1 % in 1990 while the share of industrial exports rose to 79.3 % from 36 % in 1980. By shifting from primary goods which are mostly agriculture based to industrialised products, Turkey enjoyed a price advantage and also found a larger market in the neighbouring countries. Furthermore, earnings from manufactured exports were much more stable compared to earnings from agricultural exports.

Table 4.10 shows the annual compound growth rate of exports by one and two-digit SITC categories over the 1980-90 period and the coefficients of variation. As the table would suggest, disparate growth rates led to a substantial shift in export composition between 1980 and 1990.

The change in the commodity composition of exports resulting from differential growth rates of commodity groups, illustrates two characteristics: the decrease in the ratio of primary goods in total exports and the introduction of new commodities.

**4.3.3.1. Differential Growth Rates:** Food and live animals (SITC 0), beverages and tobacco (SITC 1) and inedible crude materials except fuel (SITC 2) exports recorded growth rates (6.4%, 6.7% and 3.8%, respectively) which were well beyond the growth rate of total exports (15.4%). Consequently, the shares of the above categories in total exports decreased from 42.3%, 8.2% and 20%, respectively in 1980 to 18.9%, 3.7% and 6% in 1990. In the food and live animals category, fruits and vegetables (SITC 05) which comprised 32% of total exports in 1980, made up only 14% in 1990 and in the inedible crude materials except fuel, the share of textile fabrics (SITC 26), which comprised 12% of all exports in early 1980s, decreased to a low of 2% in 1990. Exports of SITC 0 - SITC 2 showed a relatively high degree of variability in addition to slack growth.

Exports of all other commodity groups have increased faster than the average. While exports of animal and vegetable oils and fats (SITC 4) showed the greatest increase (35.6%) on a yearly compound rate (with a high standard deviation) the share of this category nevertheless remained as low as 1% by 1990. Manufactured exports (SITC categories 5 to 8 less 68) showed a stable growth rate of 27.3% annually on a compound basis over the 1980-1990 period, their share in total exports rising from 27% in 1980 to 72% 1990. Textiles (SITC 65), iron and steel (SITC 67) and clothing (SITC 84), all grew quickly and in a stable way and made up the bulk of manufactured exports. Among manufactured goods exports, manufactured goods classified chiefly by materials (SITC 6) showed a remarkable increase of 22.8% annually and nearly doubled their share from 1980 to 1990. In this category, iron and steel exports grew by 46.6% yearly and increased their share in total exports by nearly 1% in 1980 to more than 12%. Exports of machinery and transport equipment (SITC 7) showed a solid rise of a compound 26%, while miscellaneous manufactured articles (SITC 8) rose by 38%. Among them, articles of apparel and clothing accessories (SITC 84) increased their share from 4.5% to 27%.

TABLE 4.10 EXPORTS BY COMMODITY GROUPS (According to SITC)

	(million dollars)				GROWTH RATE			
	1980	1984	1988	1990	comp.	aver.	st.dev	coef.var
TOTAL	2909.0	7160.8	11662.2	12210.2	15.4	16.9	19.5	1.2
0 FOOD AND LIVE ANIMALS	1235.5	1946.5	2483.8	2304.1	6.4	7.6	15.7	2.1
0 Live animals	98.8	237.9	249.5	204.0	7.5	14.7	46.5	3.2
4 Cereals and cereal preparations	104.2	190.5	335.9	74.5	-3.3	24.6	100.9	4.1
5 Fruits and vegetables	937.5	931.0	1585.3	1735.1	6.3	7.7	17.0	2.2
1 BEVERAGES AND TOBACCO	237.2	221.5	278.2	455.5	6.7	12.3	37.2	3.0
12 Tobacco and tobacco manufactures	233.7	217.0	269.2	442.4	6.6	12.3	37.7	3.1
CRUDE MATERIALS, INEDIBLE, EXCEPT FUELS	589.3	616.1	777.3	749.9	2.4	3.8	17.8	4.7
26 Textile fabrics	353.3	294.0	259.6	276.6	-2.4	0.9	27.3	29.9
27 Crude fertilizer	153.3	199.1	279.1	241.4	4.6	5.4	12.7	2.4
MINERAL FUELS, LUBRICANTS & RELATED MATERIALS	41.6	409.2	335.3	296.3	21.7	42.5	82.8	1.9
33 Petroleum, petroleum products	38.7	409.1	335.2	272.5	21.6	43.7	86.0	2.0
ANIMAL AND VEGETABLE OILS, FATS & WAXES	6.6	45.1	86.4	138.9	35.6	126.2	325.2	2.6
CHEMICALS & RELATED PRODUCTS	76.5	199.7	950.1	747.3	25.6	28.8	27.5	1.0
51 Organic chemicals	47.6	70.4	186.9	167.7	13.4	22.8	45.1	2.0
Medicinal & pharmaceutical products	2.9	8.9	51.8	74.2	38.3	50.5	56.1	1.1
54 Essential oils & resinoids & perfume materials	5.1	41.4	45.4	117.3	36.8	61.2	91.0	1.5
55								
6 MANUFACTURING GOODS CLASSIFIED CHIEFLY BY MATERIALS	490.6	1984.0	3502.9	3833.2	22.8	26.9	35.2	1.3
65 Textile yarn, fabrics	342.5	1004.0	1374.9	1440.4	15.4	17.2	20.9	1.2
66 manufactures	73.4	195.2	216.5	359.8	17.2	35.0	93.1	2.7
67 Iron & steel	27.6	531.3	1339.9	1489.7	49.0	69.3	99.3	1.4
68 Non-ferrous metals	16.6	75.5	217.0	231.3	30.1	33.4	30.7	0.9
7 MACHINERY & TRANSPORT EQUIPMENT	83.6	353.1	747.8	854.8	26.2	41.3	67.4	1.6
8 MISCELLANEOUS MANUFACTURED ARTICLES	147.7	1385.7	2496.7	3579.2	37.5	44.6	49.6	1.1

Source: SIS, Trade Statistics Yearbook, various years and author's calculations

**4.3.3.2. The Decreasing Role of Primary Goods Exports:** Turkey switched to exporting industrial goods at a time when world prices of primary goods were steadily decreasing. An analysis of exports according to a two-digit SITC classification shows that the seven largest primary goods<sup>30</sup> had a low and unstable export growth. As a result their share in total exports declined from 66 % in 1980 to only 26 % in 1990.

The increased share of manufactured goods in total exports was also reflected in the relative ranking of the main export goods. In 1980 the first four largest items (fruits and vegetables(SITC 5); textile fibres(SITC 26); textile yarn and fabrics(SITC 65) and tobacco(SITC 12) in that order) constituted 64.2 % of all exports. All are agricultural based products and all are primary goods except for textile yarn and fabrics. By 1990, the first four important items were apparel and clothing accessories (SITC 84); fruits and vegetables(SITC 5); iron and steel(SITC 67) and textile yarn and fabrics (SITC 26) in that order and their combined share in total exports amounted to 65.5 %. Amongst the four main export goods only fruits and vegetables is included in the primary goods category. In 1990, the share of agricultural based products in main export goods decreased to 31.9 %. Fruits and vegetables and textile yarn and fabrics, which were among the four largest commodity groups in 1980 and also in 1990, grew less than the average during 1980-90.

**4.3.3.3. Introduction of New Commodities:** Along with the shift in commodity composition of exports from agricultural to manufacturing goods, there was also a tendency towards diversifying the export structure. A determined attempt to export a wide range of new commodities reinforced the export success. The relatively less important export sectors of the pre-1980 period generally grew fastest during the 1980s, while traditional exports grew the least in the 1980-90 period. The fastest growing export sectors' shares were relatively minor in total exports, comprising approximately 1 % in 1990.

#### 4.3.4 Change in the Production Structure

Having identified the primary source of sectoral export growth as output expansion in the previous section, we proceed in this section by analyzing the changes in production structure stimulated by real transfers. We expect a rise in the ratio of exports to production

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<sup>30</sup> These are: live animals other than fish(00), cereals and cereal preparations (04), fruits and vegetables (05), tobacco and tobacco manufactures (12), textile fibres and their wastes (26), crude fertilizer and crude minerals (27) and petroleum, petroleum products (33)

with the shift away from domestic to international markets. The sectoral export ratios presented in Table 4.11 provide a measure of the flow of resources from non-tradeables to tradeables in selected years during the period 1980-1991.

In general, Table 4.11 shows that export ratios exhibited an upward shift during 1980-91, although they dropped in some sectors after 1988. The greater part of the adjustment in the export ratios occurred in the 1980-84 period. The share of international markets in total production increased from 5.5 % in 1980 to 11.8 % in 1984 and to 14.56 % in 1988. A slight decrease occurred in 1991 due to the stagnation of exports in the post 1988 period.

The strong orientation toward international markets in the manufacturing sector vis-a-vis the agricultural sector is consistent with the previous findings on sectoral export performance. The export ratio of the manufacturing sector rose to 17.8 % in 1988 from a low of 5.4 % in 1980. Within the manufacturing sector, intermediary goods exhibited an outstanding increase, rising from 2.4 % in 1980 to 14.6 % in 1988. The export ratio for investment goods rose to 10 % from 2.6 % in the same years. The shift in the export ratio for consumers products was also remarkable: the ratio rose from a low of 8.7 in 1980 to 21.1 % in 1984 and it continued to increase from 25 % in 1988 to 28.3 % in 1991.

As a result of the increased share of foreign markets in total production, the number of sectors with export ratios greater than 25 % reached eight in 1991 from a level of zero in 1980. The highest export ratio, 80 %, was achieved in the leather sector in 1988. The sectors where export ratios exceeded 25 % in both 1988 and 1991 were: tobacco, weaving, textiles, leather, iron-steel, and non-ferrous metals.

The sectoral export and production data for the 1984-1991 period exhibit a clear picture. We observe that export and production moved in a parallel way: in those sectors where exports grew rapidly, production also grew rapidly and vice versa. In this study we will confine ourselves to expose the correlation between the two without an econometric analysis to determine the direction of causality. However, appraisal of the economic policies and sectoral developments in the 1980-91 period, permit us to infer that export growth determined production growth to a large extent. The importance attached to export growth and various incentives in this period introduced a specific dynamism to the economy. Exports increased rapidly for these sectors where exporters made good use of export incentives and flourishing exports stimulated output growth in these sectors.

Furthermore, we argue that in the 1984-91 period, transfer requirements shaped the economic situation to a large extent. The commitment to growth and transfer requirements pressed for improvement in the trade balance via export growth and the pressure to expand exports necessitated output expansion.

TABLE 4.11 EXPORTS/PRODUCTION RATIOS

(1988 prices, billion TL)

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SECTORS	1980*	1984	1988	1991
AGRICULTURE	4.9	5.3	6.9	5.7
Vegetable products	6.3	4.7	8.7	7.8
Livestock and animal products	2.1	7.1	4.9	2.7
Forestry products	1.4	2.5	2.1	1.6
Fishery Products	7.8	4.5	5.9	8.1
MINING AND QUARRYING	-	19.4	15.1	10.8
MANUFACTURING INDUSTRY	5.4	14.3	17.8	17.5
1. Consumer products'	8.7	21.1	25.0	28.3
Food	6.7	15.7	12.7	14.5
Beverages	0.8	1.6	2.8	2.0
Tobacco	17.7	23.9	26.4	38.0
Weaving	14.1	29.9	40.5	55.2
Textiles	-	39.7	60.1	56.9
Leather	-	77.3	79.8	73.6
Wooden Furniture	-	8.2	2.8	2.4
Footwear	-	1.3	4.3	6.1
2. Intermediary Goods'	2.4	11.7	14.6	12.9
Ginning	-	21.6	21.5	18.9
Wood and Cork products	0.6	2.6	1.9	1.3
Paper	0.6	6.1	6.3	7.6
Printing	0.1	5.3	2.2	1.6
Lether and fur processing	7.1	0.9	3.6	4.6
Rubber	3.4	11.4	12.0	18.2
Plastics	1.6	3.1	2.6	3.6
Chemistry	3.7	9.3	14.1	11.6
Petrochemicals	3.2	13.2	22.3	20.5
Petroleum products	1.2	9.7	5.8	4.1
Fertilizers	0.0	7.8	30.7	8.1
Cement	8.0	8.4	0.7	7.9
Baked Clay	0.4	3.1	5.0	6.8
Ceramics	3.7	9.3	10.0	15.8
Glassware	17.4	22.5	24.2	24.2
Iron-steel	1.0	25.8	36.3	29.3
Non-ferrous Metals	6.0	16.6	26.7	27.5
3. Investment Goods	2.6	5.6	10.0	8.4
Metal goods	1.9	2.9	6.2	6.2
Non electrical Machinery	1.5	8.6	23.2	12.0
Agricultural Machinery	-	11.0	8.8	4.1
Professional Measuring Equipment	0.8	2.5	17.8	11.8
Electrical Machinery	1.6	10.2	16.7	16.9
Electronics	2.1	2.3	8.9	13.6
highway Vehicles	4.9	5.7	5.8	5.3
Railway vehicles	0.0	0.1	0.5	3.9
Shipbuilding	8.1	13.3	4.7	74.2
Aircraft Manufacturing	1.9	4.8	7.7	0.0
Other manufacturing	-	1.4	3.4	0.9
ELECTRICITY GAS AND WATER	-	-	-	-
TOTAL	5.5	11.8	14.6	14.2

\* 1980 values are in 1981 prices

source: SPO, Annual Programs, Sixth Five Year Development Plan 1990-1994  
and author's calculations

The relations between sectoral export growth and output growth may be analyzed by contingency tables. Diagram 1 is organised as follows: 41 "main sectors" as classified by SPO were grouped into 25 categories according to their export and production performance. Export and production performance were evaluated in five categories, namely: sectors with negative, low, average, high and very high growth rates. The average growth rate was 7.8 % yearly or 70 % in the 1984-91 period for exports, and 4.9 % and 60 %, respectively for output.

As was expected, the 41 sectors were included in Diagram 4.1 on the diagonal of the table running from the upper left corner to the bottom right corner. The cross-tabulation results support the view that in the rapidly expanding export sectors output growth was also high. Contingency table statistics are also plausible. Chi-square with 16 degrees of freedom is 29.2 for the table, which gives a significance level of 2.3 %.

Three sub-groups emerge from the table:

1. poor performers: these are the sectors where export growth was below the average and output growth was either below or equal to average.
2. moderate performers: these are the sectors where export growth was average to high while production growth was neither negative nor very high.
3. booming sectors: where export growth was extremely high while output growth was either high or very high.

However, certain sectors displayed contrasting export and production performance. In railway vehicles, ship building, and footwear sectors export growth and output growth performances did not coincide. In fact, although exports were booming in these sectors, production growth was low (footwear) or even negative (railway vehicles and shipbuilding). In the footwear industry, increasing imports replaced domestic demand and the goods that were no longer sold in the domestic market were channelled towards foreign markets. In the railway vehicles sector, the increase in exports came about as a result of declining domestic demand. The shipbuilding industry also benefitted from shrinking domestic demand in the 1984-88 period. However, in the 1988-91 period, imports increased considerably while production recovered only slightly. In this subperiod imports compensated for the cut in domestic demand and the increase in output fed the increase in exports .

On the other hand, aircraft manufacturing was a sector in which output growth was remarkable. An increase in the production capacity led to high growth rates in output because of economies of scale in this sector (there is only one firm operating). Imports also expanded rapidly in this sector, while export performance was unstable.

DIAGRAM 4.1

		1984-91 EXPORT GROWTH					
		Declining Less than -10	Low to negative -10 to 50%	Average 50 to 100%	High 100 to 200%	Booming More than 200%	Row Total
GROWTH	Negative Less than 0	-Forestry -Agricultural -machinery 2 0.1	-Fishery -Paper -Fertilizer 68 0.1	0	2 1.5	-Railway vehicles -Ship-building 7 0.1	7 8.5
	Low 0 to 30%	-Petroleum -products 1 0.5	-Food -Cotton gin 2 0.7	-Vegetable products -Nonferrous metals 2 0	-Tobacco -Weaving -Metal goods 3 0.9	-Footwear 1 0.7	9 2.8
PRODUCTION	Average 30 to 60%	-Livestock -Wooden furniture -Wood products -Printing -Mining, quarrying 5 4.6	0	-Beverages -Ceramics -Non electrical -machinery 3 1.1	-Electrical -machinery 1 0.3	0	9 8.8
	High 60 to 90%	0	0	-Cement -Iron-steel -Highway vehicles 3 1.1	-Textile -Rubber -Chemistry 3 0.5	-Leather and fur -Baked clay -Ceramics 3 0.3	9 4.8
1984-91	Booming More than 90%	-Aircraft -manufacturing 1 0.5	0	-Leather 1 0.2	-Plastics 1 0.1	-Petrochemicals -Professional and -measuring equip. -Electronics -Other -manufacturing 4 3.1	7 4.4
Column	Total	9	5	9	8	10	43
		7.4	7.4	2.8	3.6	6.3	29.2

■ Poor performing sectors

■ Moderate

■ Booming sectors

Note: Numbers on left denote the number of sectors in each box, while numbers on right give the contribution to chi-square values.

The unusual performance of aircraft manufacturing and railway vehicles can be explained by the peculiar characteristic of these sectors, each consisting of one state enterprise with very low base year output and export volumes (0.1 to 0.005% of total volumes), leading to an overstatement in percent changes. The omission of these sectors further ameliorates contingency statistics, eg. Chi-square statistics for the contingency table becomes 33.0116, yielding a significance level of 0.74% <sup>31</sup>

#### 4.3.5. Changes in Relative Prices

It has been noted above that to facilitate the external transfer, prices of tradeables must increase relative to price of non-tradeables during the transfer process. In fact, relative prices moved in favour of tradeables during the 1980-90 period as suggested by the ratio of sectoral gdp deflators to the overall gdp deflator in Table 4.12. Prices of tradeables rose faster than prices of non-tradeables in every year during the 1980-85 period except 1982.

The rise in the relative price of tradeables vis-a-vis non-tradeables made this sector more attractive than non-tradeables and channelled resources into tradeables. Furthermore, these relative price changes restricted domestic demand for traded goods and thereby helped the generation of an exportable surplus.

To sum up, the statistical analysis above suggests that transfer requirements in the 1984-91 period necessitated an expansion in exports. Since domestic absorption was not curtailed to a significant degree, the generation of an exportable surplus depended on increased production in tradeables sectors. Aided by the change in relative price structure, resources shifted from non-tradeables towards tradeables sectors, production increased, and exports expanded. That the greater part of increased production was devoted to exports rather than domestic consumption can be observed from the increase in sectoral export ratios.

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<sup>31</sup> The relationship between changes in production and changes in exports has also been tested by the following regression using the cross-sectional data for 39 sectors :

$$P_g = 41.1 + 0.12 X_g + e \quad R^2 = 0.16 \\ (2.71)$$

where  $P_g$  is the production growth rate and  $X_g$  is the export growth rate in the transfer period 1984-91.  $X_g$  explains the changes in  $P_g$  only weakly. This is not surprising since production is affected by numerous factors besides the growth in exports. On the other hand the coefficient of  $X_g$  is significant at a 1 % level and the correlation between  $X_g$  and  $P_g$  is high (41 %).

**TABLE 4.12 SECTORAL GDP DEFLATORS AS A RATIO OF TOTAL GDP DEFLATOR**

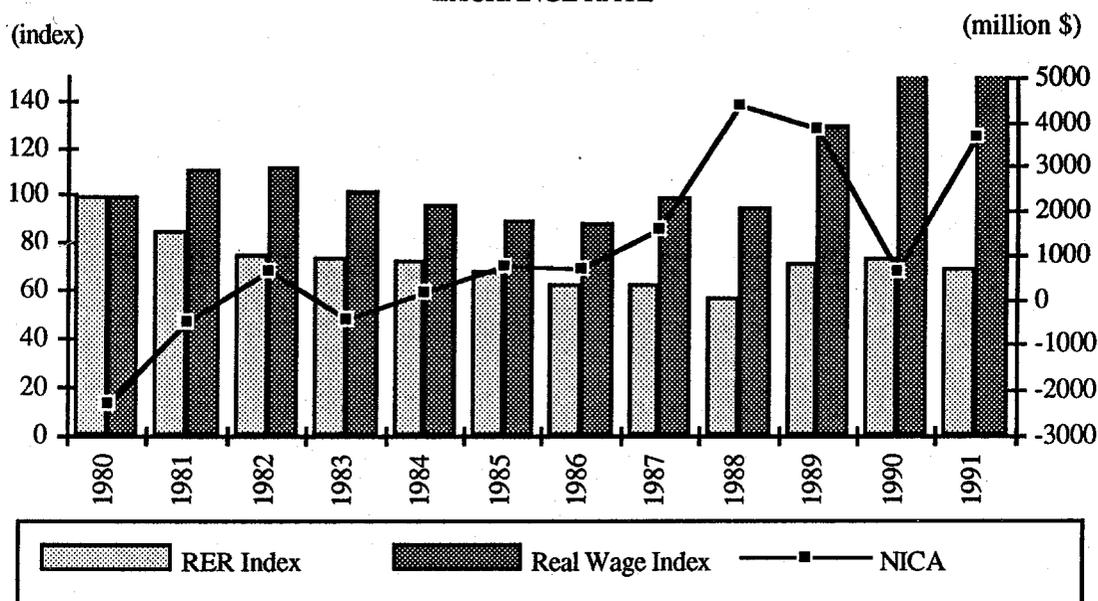
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Agriculture	98.5	94.0	94.9	88.0	86.3	88.4	86.2	84.4	85.8	80.5	87.1	91.3
Mining	62.1	76.5	103.9	110.6	118.2	109.3	117.0	111.2	107.2	103.8	110.8	106.0
Manufacturing	112.3	121.8	119.0	121.4	123.8	120.8	123.5	121.7	120.0	124.9	118.1	108.1
Energy	77.7	104.9	104.0	119.3	113.3	133.6	170.2	182.0	160.5	161.1	143.8	139.5
<b>Total tradeables</b>	<b>101.1</b>	<b>104.1</b>	<b>105.4</b>	<b>103.8</b>	<b>104.6</b>	<b>105.5</b>	<b>108.1</b>	<b>107.0</b>	<b>106.4</b>	<b>105.7</b>	<b>106.3</b>	<b>102.7</b>
Construction	76.4	76.0	71.8	69.4	67.0	67.9	63.7	66.8	68.4	67.2	68.2	73.6
Trade	105.9	114.3	116.8	117.7	119.0	120.0	113.6	110.6	110.4	111.3	106.8	101.8
Transport and communication	101.0	104.8	108.2	111.3	113.0	109.1	112.0	111.4	109.0	111.5	111.3	115.6
Public Services	114.1	84.8	72.9	77.1	71.8	56.8	53.1	56.7	60.3	56.7	58.8	61.7
Other Services	90.2	92.1	93.6	93.1	92.2	100.8	101.1	103.3	103.1	106.8	111.1	120.7
<b>Total non-tradeables</b>	<b>99.0</b>	<b>96.6</b>	<b>95.5</b>	<b>96.8</b>	<b>96.1</b>	<b>95.2</b>	<b>93.0</b>	<b>93.7</b>	<b>94.4</b>	<b>94.9</b>	<b>94.8</b>	<b>97.6</b>
GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source:SPO Annual Programs

#### 4.4 Determinants of Export-Based Adjustment and Net Transfers

The export drive during the 1980s was stimulated by intense export promotion policies. The measures taken in the 1980-91 period included <sup>32</sup> institutional and bureaucratic measures, tax rebates, subsidised credits to exporters, subsidies on imports used in the production of exports, abolishment of price controls and quantitative controls and the real depreciation of the TL. In particular, keeping export prices internationally competitive via real exchange rate devaluation provided an important stimulus to Turkish export growth. The decrease in real wages also contributed to the export success by restraining production costs. Graph 4.2 highlights the importance of the real devaluation policy and the decrease in real wages in rising external transfers.

GRAPH 4.2 DEVELOPMENTS IN NICA, REAL WAGES AND REAL EXCHANGE RATE



In the 1983-88 period real transfers as measured by NICA (left axis) increased along with the decrease in real wages and real exchange rate indices (right axis). After 1988, the policy of real devaluation was abandoned and real wages increased substantially while transfers showed a decreasing trend except in 1991, which bears the positive effect of official transfers from abroad.

<sup>32</sup> See Aktan (1992) and Celebi (1991) for an overview of export promotion policies in Turkey.

#### 4.4.1 Export Promotion Policies in the 1980s

Various incentives caused external markets to be much more profitable than the domestic market for domestic producers. These incentives included, among others, a real depreciation of the TL, tax rebates, preferential credits, exemption from various taxes and duties. Tax rebates and the real depreciation of the exchange rate are the most widely cited factors in explaining the Turkish export boom in the 1980s.

The government's determination in encouraging exports was reflected, in the first place, in simplified export procedures and cooperation of bureaucracy for export success. Measures in this direction were taken successively after the January 24th Measures.

The application of tax rebates to exports dates back to the 1960s.<sup>33</sup> This policy was initially applied selectively by offering a greater tax rebate ratio to non-traditional exports (such as manufactured goods and construction services) compared to traditional agricultural goods. The policy favoured large trading companies, in particular, and encouraged consolidation of small exporting firms. In the first half of the 1980s, direct export subsidies in the form of tax rebates and lower credit rates were extensively used and were directed towards the Middle-Eastern and North-African Countries. Eventually, the subsidies were extended indiscriminately to all exporters. The average tax rebate rate rose to its peak of 22.3 % in 1983 from 8.9 % in 1980, but from 1984 decreased steadily only to be abolished during 1989. However, the average tax rebate declined less than the decrease in the tax rebate rate which can be explained by the shift of exports to higher rebate categories. It is widely argued that tax rebates resulted in over-invoicing of exports and hence fictitious export figures. The declaration of the abolishment of the tax rebate system in 1989 may help explain the acceleration of exports in 1989 and their stagnation in 1990.<sup>34</sup>

Another important export incentive scheme was preferential credits to exporters. The Central Bank allocated preferential credits with negative real interest rates through the banking system, in an economic environment of high real interest rates. The differential

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<sup>33</sup> The tax rebate method consists of the return of taxes, duties and fees collected in the production process to the exporter, conditional upon the exportation of the product.

<sup>34</sup> It is also claimed that the Turkish 'export miracle' loses its weight when export figures are adjusted for overvaluation. See Rodrik (1988) for the overestimation of export value caused by tax rebates. The overvaluation in exports to OECD countries (the difference between export values declared by Turkish authorities over the import values from Turkey as declared by foreign countries' authorities) reaches some 53 % in 1987. Nevertheless, after adjusting for the overvaluation effect, the rate of export growth still remains high.

between the short term credits and export credits declined from 30 % in 1981 to 18 % by the end of 1983 and disappeared entirely in 1985.

Furthermore, exporters were granted tariff exemptions for their imported inputs used in the production of exports. They were also given the right to hold their foreign exchange revenues abroad for a period ranging from 10 days to 3 months. This measure ceased to be an incentive in 1989 with the introduction of the convertibility of the TL. The lifting of price controls and licensing on exports and the policy of real devaluation were other important export incentive measures.

#### 4.4.2. Developments in the Real Exchange Rate

Several studies on the Turkish export success in the 1980s reveal the importance of the real devaluation of the TL in expanding exports.<sup>35</sup> In the Turkish transfer case, changes in the real value of the TL have generally followed the trend in external transfers.

After a period of fixed exchange rates, during 1980, the government introduced the liberalisation of foreign exchange policy and adopted the crawling peg system by declaring daily foreign exchange rates beginning in May 1981. On January 24, 1980, the TL was devalued by 48.6 % vis-a-vis the dollar, and the the TL/\$ exchange rate was raised to 70.0 from 47.1 At the end of 1980, the TL/\$ rate had already risen to 89.25. The TL has been frequently devalued since then. The real devaluation rate reached 51.9 % over the 1980-91 period.

Until mid 1984, the government paid little attention to policies of holding the inflation rate down via small devaluations and let the real value of the TL decrease. In the 1981-83 period, the exchange rate was devalued three times and the real devaluation as measured by the Central Bank of Turkey amounted to 26.5 %. The rapid real devaluation policy in this period accelerated exports which enabled Turkey to begin making net transfers to abroad. The real devaluation policy continued in the 1984-88 period. When real transfers reached 2.26 % of GNP on average, the real devaluation rate was 22.4 %. In the 1989-91 period, when the country confronted difficulties in effecting transfers, the TL appreciated by 21.1 % in real terms.

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<sup>35</sup> See for example Öniş (1989), Rodrik (1988), Conway (1988). The statistical significance of a dummy variable inserted to capture the effects of variables other than tax rebates and real depreciation in regression models explaining export performance suggest that export performance does not depend on only real devaluation and tax rebate policies but also on factors such as export credits, stagnating domestic demand, and political conditions.

TABLE 4.13 EXCHANGE RATES

	Trade Weighted Real Exchange Rate (1981 May=100)	TL/\$
1978	134.3	25.0
1979	152.6	35.0
1980	106.2	88.9
1981	89.6	129.6
1982	79.2	185.1
1983	78.1	274.0
1984	77.6	432.5
1985	72.8	567.9
1986	66.8	755.2
1987	66.3	991.2
1988	60.6	1794.8
1989	75.4	2309.7
1990	78.5	2871.1
1991	73.4	5049.3

Source: Central Bank, Monthly Statistical Bulletin, various issues

The devaluation policy was instrumental in directing resources from non-tradeables to tradeables sectors which, in turn, facilitated the external transfer during 1984-88. However, as discussed in the second chapter, real devaluations tend to speed up the inflation rate and thereby aggravate the solution of the domestic transfer problem. Hence, after the momentum given to exports and the real transfer, the government abandoned the rapid real devaluation policy in 1989.

Due to fears of accelerating inflation, the TL was revalued in real terms for a short period at the beginning of 1985. The real exchange rate oscillated in the course of 1985 with small ups and downs. After 1986, when inflation slowed down, there was a reversal in the policy of real devaluation of the the TL which continued until early 1989.

#### 4.4.3. Real Wages and Labour Productivity

Deterioration in the real wage rate was another element in the transfer process. Developments in real wages and labour productivity affected transfers via three channels:

1. Increases in labour productivity exceeded the rise in wages resulting in a cost advantage for the producer. As a result, the return to labour from total value added diminished throughout the period.

2. Decreases in real wages made export goods cheaper and hence raised their international market potential.

3. The decrease in real wages might have reduced domestic private consumption, leading to an increase in the exportable surplus.

The political environment in the 1980s largely ruled out the activities of labour unions, strikes, lock-outs and collective bargaining, and thereby facilitated the solution of the transfer problem by enabling significant decreases in real wages. The legal frame regulating working life instigated real wage decreases up to 1988. Wages and salaries both in the private and in the public sectors began to decrease from 1983 onwards. As a result the share of labour cost in total value added decreased from 30.7 % in 1980 to 15.4 % in 1988 in manufacturing enterprises employing 25 people or more.

TABLE 4.14. REAL WAGES

	Public Sector				Private Sector	
	Average Salary		Average Wage		Average Wage	
	(TL/month)	(% change)	(TL/day)	(% change)	(TL/day)	(% change)
1980	12107.0		1161.1		1154.2	
1981	12911.3	6.6	1250.0	7.7	1270.3	10.1
1982	14601.4	13.1	1165.4	-6.8	1285.3	1.2
1983	14053.8	-3.8	1123.8	-3.6	1179.3	-8.3
1984	12595.3	-10.4	971.7	-13.5	1110.7	-5.8
1985	12518.0	-0.6	814.3	-16.2	1034.5	-6.9
1986	12717.7	1.6	705.7	-13.3	1014.4	-1.9
1987	13217.4	3.9	778.7	10.3	1141.9	12.6
1988	12170.5	-7.9	615.9	-20.9	1096.4	-4.0
1989	15459.4	27.0	887.2	44.0	1495.6	36.4
1990	17784.8	15.0	1136.2	28.1	1738.6	16.2
1991*	19195.5	7.9	1495.3	31.6	2601.8	49.6

wages include social benefits to workers

Real wages are calculated from CPI indexes 1963=100, 1968=100, 1978-79=100, 1987=100

\* estimate for the public sector

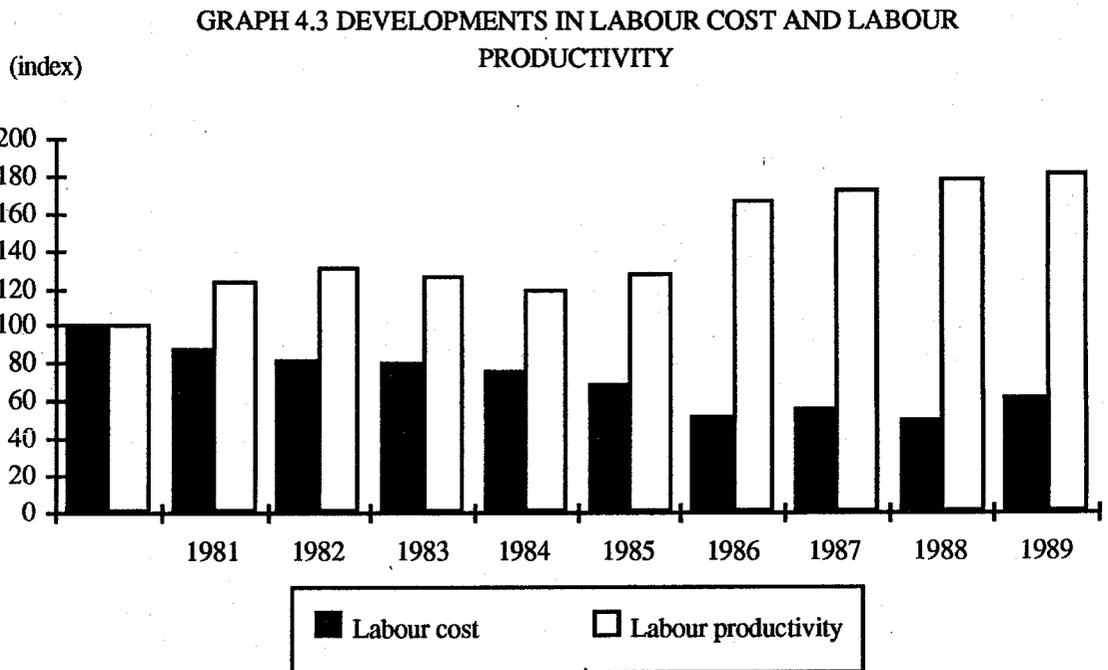
Source: SPO Annual Programs, SIS Statistical Indicators, 1923-1990

Increases in labour productivity also contributed to the competitiveness of Turkish exports. Although labor productivity is significantly lower in some sectors when compared with its competitors, it nevertheless is increasing rapidly. For the period 1979-87, increases in labor productivity were above the OECD average. (TÜSIAD, v2, p.2.33).

During the 1980-91 period, Turkey benefitted both from rising labour productivity and decreasing labour costs. Value of output per wage unit (i.e. annual output value per worker

divided by hourly wages) summarizes the labor cost and the productivity advantages into a single measure. This measure suggests that Turkey has comparative advantage in a number of sectors including food, articles of apparel, iron and steel, leather products, non-electrical machinery, chemicals, glass, paper and furniture when compared with its competitors. (TÜSIAD, v2, p.2.36)

During 1980-89, Turkish manufacturers experienced a double advantage on labour input: while labour productivity was rising, the share of labour cost in total value added showed a steady decline until 1988. Productivity as measured by value added per employee at constant prices, rose by 79 % in the 1980-89 period while the share of labour costs in total value added decreased by 50 %.



The role of price competitiveness in export success is clearly reflected in the lower labour costs of the export sectors as compared with the average for the manufacturing sector as a whole. In the rapidly expanding export sectors (such as wearing apparel, petroleum and coal, plastic product, chemicals and wearing apparel sectors) the share of labour cost in total value added remained well below the manufacturing sector average.

TABLE 4.15 LABOR COSTS ACCORDING TO SECTORS

	1981	1984	1989
Food	27.69	25.75	21.48
Food products	35.63	38.86	24.58
Beverages	15.22	13.23	9.30
Tobacco	42.58	16.63	14.50
Textiles	35.64	31.06	27.43
Wearing apparel	24.91	18.25	22.54
Leather and leather pr.	34.52	24.52	16.67
Footwear	56.26	38.88	37.86
Wood products and furniture	46.15	34.86	28.00
Paper and paper products	20.71	27.82	21.67
Printing and publishing	48.53	32.95	24.42
Basic chemicals	28.02	22.02	30.93
Other chemicals	26.17	22.23	14.48
Petroleum refineries	23.17	23.51	17.68
Petroleum and coal	1.53	1.42	1.66
Rubber products	12.98	11.34	11.88
Plastic products	26.83	21.58	21.34
Other plastic pr.	33.30	28.53	25.26
Pottery	43.17	29.80	19.23
Glass and glass products	36.31	29.28	25.78
Cement	20.74	31.05	19.99
Iron and steel	46.37	30.40	21.95
Non-ferrous metal	48.55	32.34	20.83
Metal products	36.67	31.77	22.78
Machinery	41.78	34.34	27.04
Electrical machinery	30.47	23.36	22.49
Transport equipment	41.41	30.29	27.10
Professional and scientific equipment	47.01	35.83	28.46
Other manufacturing	36.40	27.36	23.77
Total manufacturing	25.33	23.45	18.94
Average	33.40	26.53	21.76
Standart Deviation	12.36	8.47	7.02

source: SIS Manufacturing Industry Statistics, 1981, 1984, 1989

#### 4.5. Sustainability of Export Performance

The basic premises of the transfer theory were generally satisfied during the 1984-1988 period. The growth rates of both GNP and GDP exceeded the growth rate of domestic absorption. The external transfer was accomplished by an export-based adjustment strategy, supported by real exchange rate depreciation, real wage rate decreases, and a

generous scheme of export incentives. In the period after 1988, the rate of growth of national income exhibited a good deal of instability, fluctuating from negative growth to around 10 % and the growth rate of domestic absorption rose above the growth rate of GNP and GDP in 1989 and 1990. From 1989, the real wage rate began to rise, the real exchange rate appreciated until 1991, and export incentives were reduced.

In fact, after 1988, although private consumption as a share of GNP continued to decrease, the decrease did not come from decreased absorption of wage earners. Real wages had reached a threshold beyond which the continuation of the repressive wage policy and its dampening effects on consumption would have confronted political resistance. On the other hand, a growth-oriented transfer policy based on expanding production must be supported by an appropriate investment programme. As is shown below, the investment program adopted has not been compatible with increased real transfers.

#### **4.5.1. Policy Changes**

The years 1988-89 witnessed some changes in economic policy, which influenced main economic aggregates as well as the conditions for net transfers from Turkey. The abolishment of the real devaluation policy, relaxation of export incentive measures and higher real wages had a significant impact on real transfer abroad in the 1989-91 period.

From 1989 to 1991, the real exchange rate moved in tandem with reduced net transfer abroad. The rate of depreciation of the TL lagged behind the rate of inflation. The real exchange rate started to appreciate beginning in 1989 and continued until the beginning of 1991. The rate of appreciation reached a high of 33.4 % between the end of 1988-February 1991.

In 1987, the "Wage Negotiation Coordination Board" was abolished and liberal wage setting procedures were established. Hence, in 1989, average real wages in the private and public sectors rose by 36.4 percent and 44 percent, respectively, and continued to increase in every successive year thereafter. The increasing trend in real wages during 1989-91 coincides with decreasing net transfers from Turkey. Nevertheless, even with the rise in real wages, the share of labour cost in total value added still remained below its 1980 level.

The deceleration of the devaluation policy between 1989-91 combined with the abolishment of various export incentives, resulted in a slow down of exports, a rise in the trade deficit, and a decrease in external transfers. On the other hand, the real appreciation, together with the high level of real domestic interest rates, caused domestic financial assets to become more profitable for foreign investors. The gap between the real returns on

domestic and foreign assets led to an inflow of short-term capital which enabled financial transfers on long-term debt to continue on in this period.

#### **4.5.2. Investment in Tradeables**

The solution of the transfer problem requires that resources be made available to tradeables sectors. In the short-run, utilizing limited substitutability of existing productive capacity within the sectors is the only choice. In the long-run investments should support an increase in the productive capacity of the tradeable sectors (World Bank, 1990b, p. 11).

In this period, the structure of investment did not totally support external transfers. The ratio of total fixed investments to GNP increased markedly from 19 % in 1980 to 24.1 in 1987. After 1987, growing public deficits forced the government to withdraw from public investments. The share of public investments in total investments decreased from 62.2 % in 1981 to 45.9 % in 1991. The private sector was reluctant in completely filling the gap left by the public sector. Consequently, the share of investments in GNP decreased to 22.6 in 1991.

The way the domestic transfer problem was handled in Turkey has surely affected the investment performance. As will be analyzed in the following chapter, the increasing public sector deficit led to an acceleration of domestic borrowing and high real interest rates, with the result that investible funds have flown into financial speculation rather than productive investment. Furthermore, investment incentives were adversely affected as the government resorted to inflation tax as a means of financing its borrowing requirements.

The sectoral distribution of investments did not conform to the long-run smooth functioning of the transfer process. The increase in investments was moderate while investment in tradeables sectors was insufficient. The share of tradeable sectors in total investments decreased significantly during the 1980s. Both public and private sector investments were concentrated in non-tradeable sectors (transportation, housing, health, education and other services) in 1991 in contrast to early 1980s. In accordance with the increasing weight of the private sector in society, the public sector withdrew from the manufacturing sector and limited its investment programme to infrastructure. Infrastructure investments in energy and transportation has constituted the bulk of total public sector investments in recent years. Together with a parallel decline in private sector manufacturing investments, the sector's share in total investments decreased to 17.3 % in 1991 from 27.1 % in 1980 ( and from 32.7 % in 1976)

TABLE 4.16 SECTORAL DISTRIBUTION OF INVESTMENTS

	1980	1985	1988	1991
<b>Tradeables</b>	53.1	45.9	41.8	40.1
Agriculture	7.5	8.4	7.1	7.3
Mining	4.5	5.4	2.9	2.3
Manufacturing	27.1	18.2	15.1	16.7
Energy	13.9	13.8	13.5	9.8
Tourism	0.1	0.1	3.2	4.0
<b>Non-tradeables</b>	45.7	52.6	58.2	59.8
Transportation	15.5	25.1	19.7	24.1
housing	22.8	14.1	26.3	22.8
Education	2.1	2.1	2.9	2.9
Health	0.1	0.1	1.1	2.0
Other Sercives	5.2	11.2	8.2	8.0

Source:SPO, Annual Programs

The low level of investment in the manufacturing sector surely is not compatible with the exceptionally high growth rates of production and exports in the manufacturing sector both of which are well above the GNP growth rate. This seemingly contradictory observation may be explained partly by the export promotion strategy of the 1980s which supported exports at the sales level, but not at the production level. Hence, the export expansion during the 1980s was achieved by using the excess productive capacity inherited from the 1970s.

The import substitution policy of the 1960-80 period created an industrial structure dominated by large scale production units operating at under capacity. The expansion of manufacturing output in the 1980s relied heavily on the existing capacity rather than on capacity created by new investments. As a result the capacity utilisation ratio in the manufacturing industry increased from 51.1 % in 1980 to 74.1 % in 1991.

In short, the investment program adopted during the 1980s did not conform to the requirements of the transfer process. Furthermore, the methods used in mobilising the domestic transfer (high interest rates and inflation) were detrimental to the investment program.

The solution of the real transfer problem in the long-term necessitates a permanent change in resource allocation which has important implications for the choice of an appropriate strategy for domestic transfers: the government has to avoid domestic transfer policies which will hamper sufficient investment in tradeables sectors.

## 5. THE BUDGETARY PROBLEM AND THE INTERNAL TRANSFER

The repayment of foreign debt belongs to the realm of international economics since this transaction takes place in foreign exchange. However, it has also very serious repercussions on the domestic economy because it necessitates the internal mobilization of the required resources prior to an external transfer. Obviously, it is possible to accomplish an external transfer without an accompanying internal transfer by utilizing the existing foreign exchange stocks, as stated in the second chapter. This method does not pose a claim over the current foreign exchange income stream, but uses the accumulated funds of the previous years. However, this is rather a one-shot option and it is obvious that the government cannot rely on depleting its foreign exchange reserves forever. As might be expected, the Turkish government, has not in general used its reserves to meet its current account deficits except in some exceptional years such as those immediately after World War II, or in the post-oil crisis years of the mid 1970s. Consequently, in the period under consideration, the Turkish government had to raise the Turkish lira equivalent of debt service payments first, which were then converted into the required foreign exchange composition to service its debt payments denominated in mostly the dollar, the DM and the Yen.

Domestic adjustment proceeds through monetary and fiscal measures which may be collectively referred to as "domestic (or internal) transfer mechanisms".

A transfer process triggered by the private sector's transfer requirements would generate different domestic adjustment mechanisms than one which is activated by the public sector's transfer requirements. In the first case, analysis must concentrate on the private sector's budget constraint and alternative ways of funding the private sector's transfer obligations such as modification of the saving-investment behaviour, new short-term borrowing strategies, and so on. Determination of the transfer burden and its distributional implications for various sectors of the economy, such as producers of tradeables and non-tradeables, would become indispensable. However, in the second case, where the public sector is the chief agent of the transfer process as in the Turkish case, policy-induced macroeconomic adjustment becomes the critical area for investigation. In this instance, monetary and fiscal policies of the government, as well as the public sector's budget constraint should be brought under the spotlight.

In this study we shall concentrate on those aspects of the transfer process related to the public sector's indebtedness and attempt to pinpoint the policies directed at realizing the

domestic transfer and to assess their relative importance of each. This is because nearly the entire medium and long term foreign liabilities of Turkey belongs to the public sector. Furthermore, the private sector's access to foreign private credit sources was limited in the 1980-88 period. The inflow of short-term foreign capital following the liberalisation of the capital account in 1989 did not reach an amount sufficient to reverse the direction of net financial transfers (defined as new borrowings minus repayments), even though it may have slowed down its pace. Finally, the external transfer is realised by the public sector whilst most of the foreign exchange reserves is held and the foreign exchange revenue is earned by the private sector. The ultimate transfer (i.e. debt service payments in excess of new borrowings) can thus only take place if such an internal transfer from the private to the public sector is realised. Hence, the study of the domestic transfer problem is both important and interesting. In this chapter, we will attempt to determine the basic features of the internal transfer process in Turkey in the 1980s.

### 5.1. The Conditions for an Internal Transfer

In allocating the Turkish Lira equivalent of annual debt service, the government relies on its own means by reallocation of its conventional budgetary funds, uses the private sector's funds, or both. In other words, in order to solve the internal transfer problem, the government must implement fiscal policy tools to increase its revenues, to decrease its expenditures and to borrow from the private sector, or monetary policy tools, or a mix of them. The public sector budget equation given below (similar to the one given in Winjbergen et al., 1992, p. 29) indicates the four ways to achieve an internal transfer of resources from the private to the public sector: decreasing the primary deficit (the non-interest public deficit), domestic borrowing, foreign borrowing and monetary financing.

$$PD + iD + i^*D^*E = \Delta D + \Delta D^*E + M \quad (5.1)$$

PD is the primary deficit;  $i$  and  $i^*$  are the domestic and international interest rates, respectively;  $D$  and  $D^*$  are domestic and foreign debt, respectively;  $E$  is the nominal exchange rate and  $M$  is Central Bank advances to the government. The left hand side of the equation denotes the total public deficit: primary deficit plus interest expenses on both domestic and foreign debt. Given interest expenses, the government should try to reduce its non-interest deficit either by reducing its expenditures or by increasing its revenues. The ultimate total deficit is financed by domestic or foreign debt and/or from Central Bank advances as the right hand side of the equation suggests.

We observe that the Turkish government(s) in office actually utilised all the options available. In the first half of the 1980s, due to the relatively repressed political environment of post-1980-coup d'etat period, the government found more space for decreasing its expenditures without facing much resistance. Up to 1984, it also utilised foreign borrowing to finance its deficits. But, after 1984, with the increasing burden of external transfers, the pressure on the private sector savings increased.

The following sections investigate the various methods employed by the Turkish government in solving the internal transfer problem. We will first try to assess the relative importance of each way of financing the deficit during the period 1980-91 for the consolidated public sector. We will proceed by investigating how far the increase in public revenues and the decrease in public expenditures contributed to raising the TL equivalent of the transfer payments. We will see, however, that although there had been efforts in this direction, the funds raised by these methods, have fallen short of the necessary amount. Monetary and fiscal policies will be the subject matter of the following section. We will argue that the distributive characteristic of the internal transfer process was the burden it placed on the private sector and especially on wage-income earners. The section will end with a brief interpretation on the conditions of sustainability of internal transfers.

## **5.2. A Consolidated Public Sector Approach**

In order to assess the dimensions and the structure of the public sector deficit, we need to consolidate the public sector into a single representative agent in full command of public funds, assets, and liabilities. This is partly done in the officially published consolidated budget and public sector borrowing requirement (PSBR) data. However these aggregates would leave a major loophole because the Central Bank's accounts are not covered at all. This is a serious draw back, because "(t)he government could easily shift a substantial part of its deficit into the central bank's accounts merely by changing its bookkeeping practices." (Wijnbergen et al.,1992; p.30). The fact that the Central Bank must be brought into the definition of the public sector, is stressed in many studies, from those more theoretically oriented (e.g. Buiters, 1990; Wijnbergen, 1992) to case studies on the Turkish adjustment experience (e.g. World Bank, 1990; World Bank, 1991).

The necessity of this approach cannot be overstressed too much in the Turkish case. "(The Central Bank of the Turkish Republic) has been involved in activities that go beyond the usual scope for a central bank. It provided credit to targeted sectors at preferential rates. It assumed foreign exchange risk of private external debt during the rescheduling of the nation's external debt in 1978-82. It incurred foreign exchange liabilities on behalf of the

Treasury (...)" (World Bank, 1991). Furthermore, "(i)n Turkey, a substantial part of the interest payments on the central government is handled by the central bank and not recorded in the central government's budget." (Wijnbergen et al., 1992)

The official definition of the public sector covers general budget and annexed budget administrations of the central government, local administrations, financial and non-financial state economic enterprises, extrabudgetary funds, social security institutions, and the revolving funds associated with government institutions. PSBR data excludes the financial institutions, and the remaining entities mentioned above are considered as constituting the public sector. We will use the PSBR definition of the public sector as a starting point and will proceed by incorporating the central bank in it to obtain what we shall call the consolidated public sector.

According to the PSBR framework, the public sector balance can be summarized as follows:

$$\text{PSBR} = \Delta\text{C\&B} + \text{FB} + \text{DBR} \quad (5.2)$$

where  $\Delta\text{C\&B}$  is the change in cash and bank accounts; FB is foreign borrowing and DBR is net domestic borrowing/receivables.  $\Delta\text{C\&B}$  and DBR may be summed up to obtain  $\Delta\text{Dg}$ , the change in public sector's net domestic liabilities. We can denote FB as  $\Delta\text{D}^*\text{g}$ , the change in net foreign liabilities of the public sector. After the substitution, we obtain:

$$\text{PSBR} = \Delta\text{Dg} + \Delta\text{D}^*\text{g} \quad (5.3)$$

This is the equation for the public sector balance that we will combine with that of the Central Bank. In order to estimate Central Bank's financing requirement we rely upon the Central Bank's analytical balance sheets. We will consolidate accounts and rearrange them, such that two sources of financing (i.e. base money creation and foreign financing) and the two main uses of funds (i.e. net credit to the rest of the public sector and net credit to the private sector) are singled out.

Our estimation of the financing requirement of the Central Bank is somewhat similar to the measures used in various World Bank studies (World Bank, 1987; 1990; 1991). Although, our method of estimation is different from the one Wijnbergen et al. (1990) proposes, it yields the same results, assuming the change in the net worth of the Central Bank is negligible.

The Central Bank's analytical balance sheet may be summarized as follows:

**ASSETS:**

Foreign Assets (FA)  
 Cash Credit to the Public Sector (CPS)  
 Cash Credit to the Banking Sector (CBS)  
 Other Items (OI)  
 Evaluation Account (EA)

**LIABILITIES:**

Total FE Liabilities (FL)  
 Currency Issued (CI)  
 Banking Sector Deposits (BSD)  
 Deposits of Public Funds (DPF)  
 Deposits of Non-Bank Private Sector (DNB)  
 Open Market Operations (net) (OMO)  
 Public sector Deposits (PSD)

The condensed balance sheet for the Central Bank that we will utilize is as follows:

**ASSETS:**

Net Credit to Public Sector (NCPS)  
 Net Credit to Private Sector (NCPrS)

**LIABILITIES:**

Net Foreign Liabilities (NFL)  
 Base Money (BM)

We obtain this representation of the Central Bank balance sheet from the following definitional identities:

$$\text{NCPS} = \text{CPS} - (\text{DPF} + \text{PSD}) \quad (5.4)$$

$$\text{NCPrS} = \text{CBS} + \text{OI} - \text{DNB} \quad (5.5)$$

$$\text{NFL} = \text{FL} - \text{FA} - \text{EA} \quad (5.6)$$

$$\text{BM} = \text{CI} + \text{BSD} + \text{OMO} \quad (5.7)$$

In the first two identities the deposits of the public and the private sectors are netted out from Central Bank credits lent to them. The third identity, gives the net foreign exchange

position of the Central Bank. The last one is the conventional definition of the base money adopted by the Central Bank.

Considering the changes between two end-of-the-year balance sheets, we can write the following equation:

$$\Delta\text{NFL} + \Delta\text{BM} = \Delta\text{NCPS} + \Delta\text{NCPrS} \quad (5.8)$$

which restates that the Central Bank has two sources of funds: foreign borrowing by increasing its net foreign liabilities and base money creation; and uses these funds by lending to either the public or the private sector.

We can now undertake the consolidation of the public sector and the Central Bank, and to construct what we will call the Consolidated Public Sector. Combining equations (5.3) and (5.8), and collecting the terms corresponding to sources of funds on the right hand side we obtain:

$$\text{PSBR} + \Delta\text{NCPS} + \Delta\text{NCPrS} = \Delta\text{Dg} + \Delta\text{D}^*\text{g} + \Delta\text{NFL} + \Delta\text{BM} \quad (5.9)$$

Now, to use this equation, we must first eliminate the double counting arising from transactions between the Central Bank and central and local government agencies and the SEE's. We assume that the entire amount of  $\Delta\text{NCPS}$  is already taken care of in PSBR data, and hence should be subtracted from  $\text{Dg}$ . Secondly, since our problem is to determine the total flow of funds between the consolidated public sector and the private sector,  $\Delta\text{NCPrS}$  must also be subtracted from  $\Delta\text{Dg}$  to obtain the amount borrowed from the domestic private sector net of the amount lent it by the Central Bank.

These modifications imply that, the Central Bank does not have its own uses of funds, does not incur losses or gains, and that its net worth remains constant. We end up with but a new partition of sources of financing PSBR, now including financing through money creation:

$$\text{PSBR} = \Delta\text{BM} + (\Delta\text{Dg} - \Delta\text{NCPS} - \Delta\text{NCPrS}) + (\Delta\text{D}^*\text{g} + \Delta\text{NFL}) \quad (5.10)$$

Here the first term corresponds to financing through money creation; the second term in parentheses, to net domestic borrowing; and the last term in parentheses to net foreign borrowing. The net foreign financing component is the sum of net foreign borrowing by the non-financial public sector and the change in the net foreign exchange position of the Central Bank. Domestic financing is the sum of net domestic borrowing by the non-financial public sector corrected for net credit to the public and private sectors. On the other hand, monetary financing is base money creation by the Central Bank.

Table 5.1 presents a partition of the PSBR according to equation (5.10) above.

TABLE 5.1 STRUCTURE OF THE CONSOLIDATED PUBLIC SECTOR DEFICIT AND ITS FINANCING

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
PSBR	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Primary deficit	93.2	77.6	52.9	54.3	53.5	23.8	-0.3	25.9	-6.6	15.5	40.5	49.2
Interest payments	6.8	22.4	47.1	45.7	46.5	76.2	100.3	74.1	106.6	84.5	59.5	50.8
Base money creation	30.7	80.7	72.2	44.1	54.8	60.9	43.8	40.3	80.2	48.0	18.4	29.1
Net domestic borrowing	9.9	-36.9	-52.7	-43.6	-60.4	101.4	40.8	23.1	31.1	89.6	90.0	72.5
Domestic borrowing	26.5	-6.7	-57.7	-6.2	-55.7	100.9	45.8	48.6	37.7	84.0	95.3	71.5
CB credit to priv	16.6	30.2	-5.0	37.4	4.8	-0.5	5.0	25.5	6.6	-5.6	5.3	-1.1
Net foreign borrowing	59.2	56.5	80.6	99.4	105.7	-62.3	15.4	36.5	-11.3	-37.6	-8.4	-1.6
Public sector	34.1	78.1	65.0	39.0	54.3	1.7	15.6	18.4	43.3	15.1	11.9	3.8
CB	25.2	-21.7	15.6	60.5	51.4	-64.0	-0.2	18.1	-54.7	-52.7	-20.3	-5.4

After a high of 10.5 % in 1980, the ratio of public sector borrowing requirement (PSBR) to GNP, remained relatively small until 1987. Under the increasing burden of domestic and foreign interest payments PSBR ratio rose to 14.4 % in 1991.

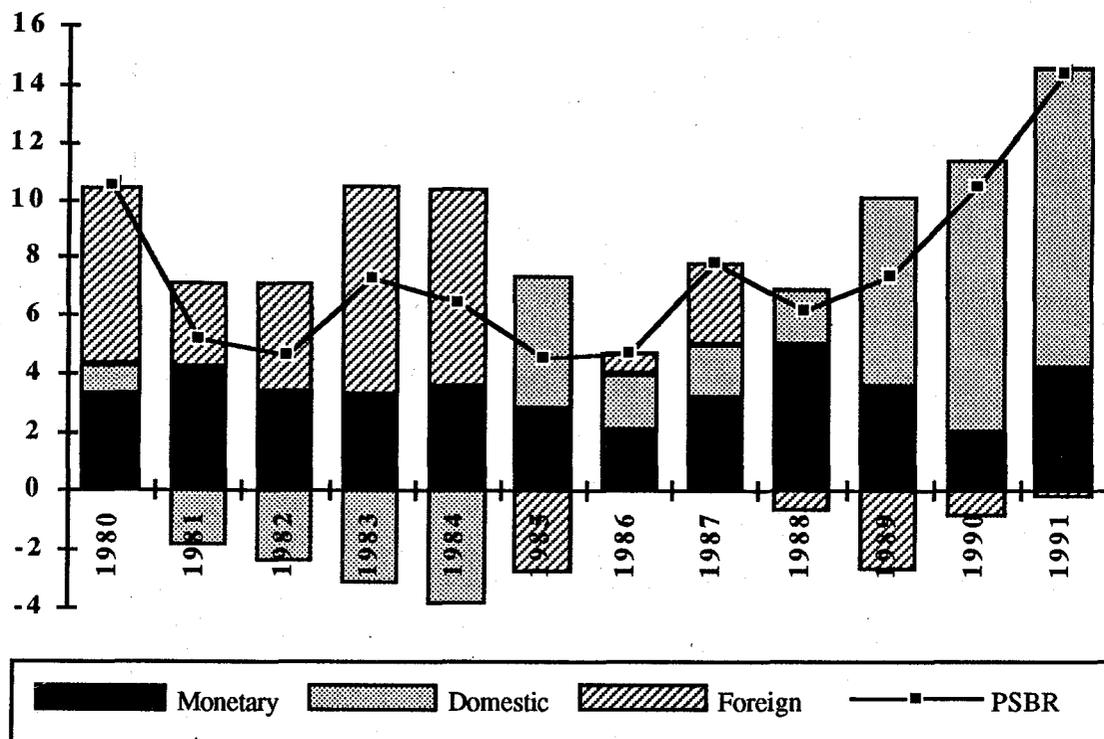
Primary deficit improved in the 1980-1988 period with the exception of 1987, while the interest burden increased throughout the 1980-1991 period. The former decreased from 9.8 % of GNP in 1980 to a negative of 0.4 % of GNP in 1988, while the latter rose from 0.7 % of GNP in 1980 to 7.3 % in 1991. The larger part of the PSBR in the period after 1984 came from interest burden on domestic as well as on foreign debt. The deficit was financed by foreign currency and by base money creation in the 1980-84 period, while net domestic borrowing became a major source of finance together with the decreasing importance of base money creation in the following period.

With the rise in transfers abroad, foreign borrowing turned into negative in the period of 1985-1991 with the exception of 1986 and 1987. In 1986 and 1987 Turkey's total debt stock rose by 6.6 and 8.1 billion dollars, respectively. However, 3.7 and 4.9 billion dollars of the total increase in the debt stock in 1986 and 1987, respectively, was attributable to cross currency effect. Both the Central Bank and other public sector reduced their foreign borrowing after 1985, but the decrease in foreign borrowing by the Central Bank was much more significant.

Base money creation was an important source of deficit financing throughout the period, although its importance decreased relatively after 1988. Base money creation as a ratio to GNP varied between 3.2 % and 4.2 % in the 1980-1984 period. This ratio showed greater variation in the remaining part of the decade. It remained relatively small during 1985-87 but reached 5 % in 1988 when the rate of inflation rose to a high of 75.2 %.

Net domestic borrowing remained negative between 1981 and 1984, but turned out to be an important source of finance in the 1985-1991 period and especially after 1988. After that year at least 70 % of the PSBR was met by net domestic borrowing.

**GRAPH 5.1 FINANCING OF PSBR (%)**



### 5.3. Public Finance Adjustment

When governments confront a transfer obligation, they generally first try to decrease expenditures and increase revenues in order to narrow the primary deficit. The revenue and expenditure statistics of the public sector and of the consolidated budget, supply the relevant data for analyzing the adjustment in the primary deficit. However only consolidated budget statistics allow a detailed study.

PSBR tables indicate that attempts at both increasing revenues and decreasing expenditures resulted in an improvement in the deficit ratio up to 1985. However, the main correction came from decreasing expenditures rather than increasing revenues. In fact,

expenditures as a share of GNP remained relatively low until 1986 and increased rapidly thereafter.

TABLE 5.2 PUBLIC SECTOR REVENUES AND EXPENDITURES  
(AS A RATIO OF GNP)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
REVENUES*	22.5	22.2	23.0	21.9	22.2	24.6	29.1	28.6	28.3	28.2	27.6	26.9
EXPENDITURES**	28.2	28.6	26.0	25.8	24.6	26.2	31.9	33.4	30.4	31.8	35.0	35.0
DEFICIT	5.7	6.3	3.0	4.0	2.4	1.6	2.8	4.7	2.1	3.6	7.5	8.1

\* Excludes wealth tax and other capital flows

\*\* Excludes capital transfers

Source: SPO

As can be seen from Table 5.2, both revenues and expenditures rose rapidly in 1985 and 1986. Although there was an improvement in the public sector deficit in the first half of the 1980s, this trend was reversed in the second half of the decade as expenditures could not be systematically lowered. As the government found it more difficult to increase its revenues further without having to resort to a comprehensive tax reform, the budget deficit increased to even higher levels. In 1990 and 1991, while expenditures continued to grow, the public deficit as a ratio of GNP rose to endangering levels as a result of a decrease in revenues.

Consolidated budget expenditures which constitutes the bulk of public sector expenditures decreased rapidly in 1981 and 1982 from a high of 24.2 % of GNP in 1980, and remained at 20 % of GNP on average during 1982-1986. In the period 1987-1991, the ratio of expenditures to GNP rose to 23.7 %. Since the adjustment in revenues was less remarkable, the revenue-expenditure ratio fell from an average of 85.3 in the 1982-86 period to 80.1 in the latter five years. The ratio of consolidated budget deficit to GNP has risen more than three fold since 1985.

TABLE 5.3 CONSOLIDATED BUDGET BALANCES  
(AS A RATIO OF GNP)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Revenues	18.9	20.3	16.3	18.7	15.2	16.9	18.3	17.8	17.5	18.4	19.7	21.3
Expenditures	24.2	22.9	18.0	21.9	20.2	19.1	21.0	22.3	21.3	22.8	23.9	28.4
Revenue/Expenditures	78.1	88.6	90.4	85.2	75.4	88.3	87.0	80.1	82.0	80.7	82.6	75.0
Budget Balance	-5.3	-2.7	-1.7	-3.3	-5.0	-2.2	-2.7	-4.4	-3.8	-4.4	-4.2	-7.1
Primary Balance/GNP	-4.7	-1.6	-0.7	-1.4	-2.6	0.2	0.7	-0.6	1.1	0.4	0.7	-1.8
Primary Dom. Balance/GNP	-4.9	-2.2	-1.3	-2.6	-4.0	-1.3	-1.1	-2.3	-0.7	-1.4	-0.8	-3.4
PSBR	10.5	5.2	4.7	7.3	7.6	4.6	5.5	8.2	6.2	7.3	10.5	12.6

Source: SPO, UTFT

The strain that the transfer process puts on public balances can be traced out more clearly if we use the concept of "the consolidated budget primary deficit". Primary deficit refers to the non-interest budget deficit. A review of the information contained in the above table suggests that the primary source for the consolidated budget deficits after 1980 is the interest service payments, both domestic and foreign. Between 1981-1991 the primary deficit was small relatively to GNP and it was even in surplus between 1985 and 1990, except for 1987. A positive or a small negative primary balance indicates that the government's expenditures and revenues are in balance in the current year. However the commitments from the previous years appears in the form of domestic and foreign interest payments in the current year and they cause the consolidated budget account to turn into a deficit. Primary surplus permits the government to meet current and investment expenditures from its tax and non-tax revenues.

On the other hand, if we only exclude domestic interest payments from the consolidated budget balance, then the primary balance turns negative for every year. In this case, the ratio of the primary balance to GNP reveals the pressure exerted by domestic interest services alone. This means, in turn, that the government's current account revenues are insufficient even to meet the interest payments on domestic debt. The interest burden on foreign debt further increases the public deficit. Hence, total public revenues fall short of total public expenditures (i.e. all the current and investment expenditures as well as interest payments and other transfers) and the government needs to borrow from domestic or foreign markets or utilise the Central Bank's resources to fulfil its commitments.

### **5.3.1 Decreasing Public Expenditures**

Decreasing public expenditures is the most straightforward way of adjusting to the requirements of the internal transfer. However, since the public expenditure to GNP ratio is lower in LDCs as compared to DCs, and that there are certain expenditures (such as military expenditures, personnel expenditures, health and education expenditures and so on) which are impossible to avoid, there is a lower limit beyond which the ratio cannot be decreased. Indeed, Turkey succeeded in reducing its public expenditures during the eighties. The ratio of public expenditures to GNP decreased from 24 % in the 1971-80 period to 21 % in the 1981-89 (Atac, p.12). The repressed political environment of the early 1980s has surely played a role in this outcome.

Government's expenditure policy in this period was shaped under the limitation posed by interest expenditures on foreign as well as on domestic debt. This extra burden was balanced by reductions in the personnel and investment expenditures. In fact, throughout

the 1980s, the only item whose share in total consolidated budget expenditures increased was interest payments, while other transfer payments and current expenditures as well as investments compensated for the increase in interest expenses. The share of current expenditures in total public expenditures decreased from an average of 44.2 % in the 1971-80 period to 38.4 % in the 1981-89, whereas the share of transfer payments increased from 35 % to 42 %. (Atac Table 2) Nevertheless, the ratio of consolidated budget expenditures to GNP began to rise after 1989, under the pressure of the increasing personnel expenditures and interest payments on domestic debt.

TABLE 5.4 DISTRIBUTION OF CONSOLIDATED BUDGET EXPENDITURES  
(AS A RATIO OF GNP)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Current	11.2	9.8	8.2	9.2	8.0	7.5	7.5	7.7	7.4	9.8	11.6	13.4
Personnel	7.2	6.0	5.0	5.8	4.8	4.6	4.6	5.1	5.0	7.4	9.2	10.8
Other curr.	4.0	3.9	3.2	3.4	3.2	2.9	2.9	2.6	2.4	2.4	2.4	2.6
Investment	3.8	4.7	3.9	4.0	3.7	4.0	4.6	4.5	3.5	3.4	3.5	3.6
Transfers	9.2	8.4	6.0	8.8	8.5	7.6	8.9	10.0	10.4	9.6	8.7	11.4
Interest payments on	0.6	1.0	1.0	1.8	2.4	2.4	3.4	3.9	4.9	4.8	4.9	5.3
Foreign Debt	0.2	0.5	0.6	1.1	1.4	1.5	1.7	1.7	1.8	1.8	1.5	1.6
Domestic Debt	0.4	0.5	0.4	0.7	1.0	0.9	1.6	2.2	3.1	3.0	3.3	3.7
Other Transfers	8.5	7.3	5.0	7.0	6.1	5.2	5.5	6.1	5.4	4.8	3.8	6.1
Total Expenditures	24.2	22.9	18.0	21.9	20.2	19.1	21.0	22.3	21.3	22.8	23.9	28.4

Source: DPT Annual Programs, Central Bank Annual Reports, UTFT

The share of current expenditures in GNP decreased to a low of 7.4 % in 1988 as compared to 11.2 % in 1980. The decrease in personnel expenditures was instrumental in cutting down current expenditures. While other current expenditures remained below 3 % after an adjustment in the 1980-84 period, the increase in personnel expenditures caused a shift in current expenditures in the period after 1988. In 1991, the share of current expenditures in GNP rose to 13.4 %.

Investment expenditures was less adversely affected from the reduction in expenditures as the burden of reduction fell mainly on the current expenditures which was cut down sufficiently to offset the rise in interest payments in total consolidated budget expenditures. Consequently, investment expenditures to GNP remained nearly stagnant until 1987, but fell significantly afterwards. The continuous increase in interest payments as well as the galloping wage increases caused a sharp fall in investment expenditures, as a share of consolidated budget expenditures, to 16.6 % in 1988 from 20.3 % in the previous year. Investment expenditures further declined to 14.7 % and 12.8 % in 1990 and 1991, respectively.

The increase in transfer payments came totally from the increasing interest burden. Interest payments in total consolidated budget expenditures rose to 23.7 % in 1988 from 11.6 % in 1984 and 2.9 % in 1980. Under the pressure of external transfers, interest payments on foreign debt rose sharply till 1987. After that year however, interest payments on domestic debt increased much faster. This is a reflection of the replacement of long-term foreign debt with short-term domestic debt.

The above analysis on the government's expenditure policy under the requirements of the internal transfer points to an important feature of the Turkish experience. The reliance on domestic debt with high interest rates began to pose serious obstacles in fiscal management. The interest burden works in the direction of increasing public expenditures and thus aggravates the internal transfer problem.

**5.3.1.1. The Social Cost of Decreasing Public Expenditures:** In order to compensate for the increase in interest payments, other transfer expenditures and especially social transfers showed a remarkable decrease. The share of social transfer allowances in total transfers declined threefold from 14.7% in 1984 to 5.3% in 1991, while the share of interest payments rose threefold from 14.5 % to 43.1 %, respectively.

TABLE 5.5 DISTRIBUTION OF TRANSFER EXPENDITURES

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Social Services *	22.07	18.38	18.12	18.7	18.2	15.9	15.1	14.7	17.7	19.9	21.8	20.5
Interest Payments	8.3	7.78	5.04	4.5	4.5	13.6	17.4	20.5	26.1	28.2	22.7	18.1
Other Services	69.63	73.84	76.84	76.8	77.3	70.5	67.5	64.8	56.2	51.9	55.5	61.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\* Diyanet İşleri Müdürlüğü, which was included under Social Services till 1982, appears under Other Services from 1983 onwards.

Source: Bütçe Gerekçeleri, 1985, 1988, 1992

The social cost of the pressure posed by debt servicing requirements on the consolidated budget expenditure is even more apparent if one considers the distribution of expenditures according to administrative-functional distribution of consolidated budget allowances.

TABLE 5.6 DISTRIBUTION OF TRANSFER ALLOWANCES

	1983	1984	1985	1986	1987	1988	1989	1990	1991
Interest Payments	14.5	14.5	37.1	43.5	45.3	52.5	56.7	53.8	43.1
Social Transfers	10.6	14.7	12.1	11.1	10	8	8.6	7.1	5.3
Others	74.9	70.8	50.8	45.4	44.7	39.5	34.7	39.1	51.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bütçe Gerekçeleri, 1985, 1988, 1992

The interest burden on the consolidated budget was compensated by decreasing allowances for social services including education, culture and health, until 1987 and by decreasing allowances of other services during the period 1985-1989. This policy choice implied adverse social effects. Since the government adopted a more or less prudent behaviour in reducing public investments, the expenditure items that could be readily reduced appeared to be those that place the pressure on civil servants and low income groups. This can be easily seen in the decreasing ratios of personnel expenditures and social transfer payments in total expenditures. The share of personnel expenditures showed a rapid fall until 1988. With the relaxation of restrictions on union activities and the regaining of the right of collective bargaining, wage bills began to rise fast in the public as well as in the private sector that year. Real wages in the public sector increased by 38.1 % and 25.9 % in 1989 and 1990, respectively, while real civil servant earnings increased by 22.3% and 15% in those years. But despite the fact that there had been a remarkable improvement in real wages in 1990, they still lagged behind their 1977 level. These sharp increases resulted in a shift in the relative magnitude of personnel expenditures. While the ratio of personnel expenditures to consolidated budget expenditures was 23.3 % in the 1984-1988 period, the average increased to 36.3% during 1989-91. Since personnel expenditures constitute more than two thirds of current expenditures, the latter showed a parallel increase in 1989-91.

**5.3.1.2. The SEEs Role in Reducing Public Deficits:** It is a generally accepted view that SEEs are one of the important sources of public deficits in Turkey. It is argued that these enterprises are inefficient and drain a great deal of public revenues. Their privatisation is regarded as a long-term solution to their financing requirements.

In the 1980s, the pricing rule of the SEEs were changed to a system of market pricing. In the preceding period, the main objective of the SEEs was considered to supply subsidies to the private sector. Following this policy change, the SEEs began to contribute to the improvements in PSBR, rather than to cause extra burdens on government finance. Reductions in SEE deficits contributed 70 % of the improvement in the PSBR and reduced the ratio from 10.5 % of GNP in 1980 to 4.7 % in 1986. The financing requirement of SEEs decreased further to 1.3 % in 1990 from 2.9 % in 1986, but PSBR rose to 10.5 %. The rise in personnel expenditures arising from wage increases in collective bargainings, however, caused a deterioration in the financing requirement to 3.1 % of GNP in 1991. The share of personnel expenditures in total production value of SEEs, which had fallen to the lowest level of 19.3 % in 1986 from 33.8 % in 1980, rose again to 22.4 % and 30.0 % in 1990 and 1991, respectively, while net profit turned into a negative in 1990.

TABLE 5.7 CONTRIBUTION TO BUDGET DEFICITS OF NON-FINANCIAL  
SEEs

	1980	1983	1985	1988	1989	1990	1991
Financing Requirements of SEE's	305.5	594.7	1004.9	2695.5	2799.0	3592.0	13887.0
Net Profit/Loss	-22.0	-34.0	834.0	926.0	498.0	-1838.0	-23320.0
Value Added/GDP	8.8	9.2	11.7	10.5	10.6	10.1	5.6
Financing Requirement/GNP	6.9	5.1	3.6	2.6	1.6	1.3	3.1
Personnel exp./Production Value	33.8	20.6	21.1	19.9	19.8	22.4	30.0
PSBR/GNP	10.5	6.0	4.6	6.2	7.1	10.5	14.4

Source: UTFT, Treasury, Monthly Indicators, SPO, 1950-1992

### 5.3.2. Increasing Public Revenues

Since the reduction in public expenditures was not sufficient to compensate for the increasing transfer requirements, public revenues had to increase to fill the gap. Despite various attempts at increasing public revenues from 1981 onwards, including the introduction of the value added tax in 1985, changes in the individual and corporate income tax systems, taxation of foreign trade, and the personnel of various funds, there occurred only a limited increase in the ratio of public revenues to GNP up to 1986. Although the ratio of tax revenue to GNP recovered from its lowest level in 1984, it remained significantly lower than the average for the OECD countries and it is even lower if the new GNP series is used.

Two points characterized the role of increased public revenue in mobilizing domestic transfers. First, the contribution of increased public revenues to internal transfers, largely resulted from the increased tax burden on wage earners. Second, the low tax revenue to GNP ratio points out an important potential for a comprehensive tax reform in order to establish a fair tax system by distributing the tax burden to other segments of the society as well.

Attempts at adjusting public revenues to the requirements of the transfer resulted in a restructuring of public revenues. Tax revenues, which constituted the main component of public revenues, remained relatively low in the transfer period of 1983-88. Factor incomes and social funds revenues compensated for the decrease in tax revenues. The latter decreased to a low of 13 % of GNP in 1984 from a level of 19 % in 1979 and increased to 18 % in 1988 and to 24 % in 1991. A low tax collection performance coupled with a deterioration in the tax structure, as indicated by the increasing share of indirect taxes in total tax revenue. The share of direct taxes in total public revenues decreased from 47 % in 1980, to 34 % in 1984 and further to 25 % in 1988, while that of indirect taxes increased

throughout the period, and especially after 1985 with the introduction of the value-added tax. The ratio of indirect taxes in total public revenues rose to 51 % in 1991 from 28 % in 1980. Factor revenues and social funds contributed to public revenue at around 26 % during the transfer period of 1984-88. Increasing financial difficulties of non-financial SEEs, however, caused a sharp decrease in this revenue category from 1988 onwards.

TABLE 5.8 RATIO OF PUBLIC REVENUES TO GNP

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Taxes	17.1	18.7	18.1	17.0	13.5	15.1	18.1	18.7	18.2	19.8	21.3	23.6
Direct taxes	10.6	11.3	10.6	9.0	7.3	6.1	7.4	7.4	7.0	8.6	9.1	9.8
Indirect taxes	6.5	7.3	7.4	7.9	6.1	9.0	10.7	11.3	11.2	11.2	12.3	13.8
Other revenue	3.0	0.7	1.6	1.6	2.6	2.2	4.3	2.7	2.2	1.9	1.8	1.8
Factor revenues and social funds	2.4	2.8	3.3	3.2	5.7	6.4	6.9	7.2	7.8	6.5	4.5	1.5
Total Income	22.5	22.2	23.0	21.7	21.8	23.7	29.2	28.5	28.3	28.2	27.6	26.9

\* Realisation estimate

Source: DPT Annual Programmes

The government's attempts at increasing public revenues had negative implications for low income earners. First, the increasing importance of indirect taxes meant an extra burden on low income groups and distorted the income distribution. Second, historically, the personal income tax has been the main component of both direct taxes and public revenues in Turkey and as a source of increasing income tax revenues, the government relied more heavily on wage earners rather than other income groups. The adjustment of income brackets of the progressive income tax scheme lagged behind the chronic inflation which led to an increasing tax burden on wage earners, the only part of society that cannot resort to tax evasion.

**5.3.2.1. Transfer Requirements and the Tax Policy:** The tax policy during the 1980s was marked by transfer requirements. For the proper functioning of the transfer process, the government needed to raise its revenues, but on the other hand, it also had to offer sufficient incentives (including tax exemptions and rebates) to motivate the private sector to expand private savings and undertake investment in the manufacturing sector. The public sector, withdrawing rapidly from the manufacturing sector, was to be replaced by the private sector. This policy was coherent with the private sector oriented strategy which dominated the whole period.

Adjustments in the tax system had different implications for the different segments of the private sector. Tax policy measures favoured high income earners, whose marginal propensity to save is assumed to be higher, by placing the greater part of the tax burden on low income earners. Hence, the domestic transfer process also witnessed a transfer from low and middle to high income earners.

Wide investment incentives were provided in the 1980s to encourage investments in specific sectors and regions. These incentives included investment allowances on income and corporate taxes, subsidies from various funds, other tax exemptions on imports, exemption of taxes and fees on medium and long-term credits, exemption from construction fees. This vast system of incentives prevented a severe recession that might have otherwise accompanied the transfer process.

The main tool of extending tax incentives to the private sector was a systematically lowered direct tax burden on capital. Before 1981, private business was subject to a 43 % profit tax. Through the consolidation of various taxes, the corporate profit tax rate was increased to 50 % in 1981, but cut to 40 % during the following four years. The tax rate was raised again to 46 % in 1986 and has remained so since then. As a result of these adjustments, the share of corporate income taxes in total tax revenues in the consolidated budget rose to 16 % in 1986 from a level of 11.5 % in 1984, but decreased to 9 % in 1991. (Vergi İstatistikleri Yıllığı 1982-1991, p.75). This ratio is below the maximum marginal tax rate. Also, in 1986 dividends were exempted from personal income tax.

The revenue forgone by the government in order to support private investments imposed a constraint on further expansion of public revenue. It may be argued that these incentives cost more in terms of revenue forgone than the new investments they generated: the ratio of tax loss arising due to tax incentives, to tax base of corporate taxes increased to 92 % in 1988 from 45 % in 1985 (Oyan, 1992, p.13). Moreover, it is estimated that only 50-60 % of the projects receiving investment certificates have materialised (OECD, 1991, pp.36-8)

Apart from losses from tax incentives, tax evasions and lags in tax collection also reduced public revenue potentials. For a period of over a decade marked by high rates of inflation, the time lapse between the accrual of the tax liability and its payment caused significant real revenue loss for the government.

There was an attempt at compensating for the tax revenue loss arising from the "voluntary savings" model by levying income taxes on small entrepreneurs whose direct tax burden is very low. (Oyan, 1992, p.6). An attempt to combat against revenue erosion arising from collection lags was the introduction of an "advance tax collection scheme" in 1986, by which firms were required to make advance quarterly tax payments to the government. This system worked against small, labour intensive firms until December 1988 when the system underwent a thorough modification. Various fiscal instruments put in force in order to increase the efficiency of tax collection were not really successful. Consequently, attempts were directed at supporting government revenues by speedy increases in indirect revenues from 1985 onwards.

As the financing requirement of the public sector increased with increasing interest payments on domestic as well as on foreign debt, the rise in indirect taxes did not

compensate for the decrease in the share of corporate income taxes. Increasing the tax burden on wage income by means of inflationary erosion turned out to be an effective way of increasing tax revenue.

Since tax brackets, rates, and exemptions were not adjusted during the 1970s, the personal income tax system had become distorted and inequitable. As inflation pushed earnings upwards in the tax schedule, more than half of the incomes disappeared in tax. In order to adjust the income tax schedules in the face of the distorting effects of creeping inflation, marginal tax rates and income brackets were changed several times since 1981. There were also adjustments to restore the personal exemption levels which were severely eroded by ongoing inflation. If these adjustments had not taken place, the tax burden on wage earners would have been even greater.

Although marginal tax rates and income brackets were changed several times in order to keep pace with inflation, the adjustments began to lose their effect especially after 1987 and wage earners were more heavily taxed as their money income fell on higher income tax brackets, while their real income stagnated. As a result, with tax subsidies taken into account, the share of taxes paid by wage earners in total income taxes rose to 47 % in 1990 from 19 % in 1987. The same ratios increase to 55 % from 35 %, respectively when tax subsidies are excluded. The ratio of taxes on wage income to total tax revenues was 20.3 % in 1990, which indicates the burden on wage earners.

However, the measures directed towards relieving the tax burden on profit incomes were not effective in increasing the savings potential of high income earners especially in the first five years of the 1980s. The tax revenue which was forgone by the government went to luxury consumption in lieu of financing investment expenditures through increased savings of the private sector. Private savings ratios lagged behind their 1980 level during the period of 1981-85 and private investments could not catch up to their 1978 level until 1987, despite all the tax incentives granted. The inadequacy of investments, especially in the manufacturing sector, turns out to be a binding factor in the growth of potential output and hence exportables and creates a serious problem for the sustainability of transfers.

**5.3.2.2. Revenues From Extra-Budgetary Funds:** Another important source of public revenue in recent years has been the extra-budgetary funds whose number and volume increased continuously throughout the 1980s and especially after 1984. The majority of the existing 104 funds were introduced during the 1980s. Moreover, the funds established in the 1980s controlled the major part of the revenue sources of funds.

TABLE 5.9 ESTABLISHMENT OF EXTRA BUDGETARY FUNDS

	1941-79	1980-83	1984-90	Total
Number of funds	33	24	47	104
Volume (1989) (%)	4	10	86	100

Source: Oyan Table 2 and Table 3

The increasing importance of funds in public finance is apparent from the table below. At end-1991, fund revenues reached 25 % of public disposable income. Furthermore, the ratio of fund revenues to GNP rose to 5.6 % in 1988 and further to 6.8 % in 1991 from a level of 2.3 % in 1985.

TABLE 5.10 ROLE OF EXTRA BUDGETARY FUNDS

	1985	1988	1990	1991
Fund Revenues/ Public Disposable Income	9.6	19.5	23.0	25.0
Fund Revenues/GNP	2.3	5.6	6.4	6.8

Source: SPO, Annual Program, 1992, 1990

Two-thirds of the revenue from these funds were in the form of taxes and 95 % of these taxes were in the form of indirect taxes. For this reason, the funds were the chief mechanism in increasing the ratio of indirect taxes and hence contributed to the deterioration in income distribution (Oyan, 1992, p.6-7). Furthermore, direct tax revenue from the funds also implied an increasing tax burden on wage income. The Housing Fund and Employees' Savings Support Fund served as employment taxation and widened the gap between gross and net wages.

#### 5.4 Domestic Transfer and Fiscal and Monetary Policies

Several policies influenced the deficit financing procedures of the government in this period. This section attempts at exploring deficit financing methods (foreign borrowing, domestic borrowing, and monetary financing) followed by a discussion of the effects of each method on the domestic economy and on the transfer process.

Both domestic borrowing and inflationary financing are claims on private savings, with the important difference that the former is voluntary while the latter is compulsory. While,

the inflation tax is a transfer from non-interest bearing asset holders to the government, domestic borrowing is a transfer from high saving sections of the community (the high income groups) to the government. To the extent that these groups obtain real interest returns on their purchases of government bonds and bills they are not effected negatively by inflationary financing. In fact, the governments had to offer high nominal interest rates in the past, so that the real return turned out to be positive. On the other hand, the transfer of funds via the inflation tax is a one way transaction and means a net real income loss for society as a whole.

#### 5.4.1 Monetary Financing

Base money creation finances all credits given to the Treasury, SEEs and to the banking sector and thus all resources transferred by the Central Bank to the public sector net of public sector deposits. It also finances the net credit given to the private sector and the change in net foreign liabilities.

TABLE 5. 11 BASE MONEY CREATION AND ITS USES  
(TL Billion)

	Change in Base Money	Change in Net Foreign Assets *	Change in Net Government Credits	Change in Net Private Credits
1980	143	-117	183	77
1981	273	73	97	102
1982	294	-63	378	-20
1983	373	-512	569	316
1984	654	-614	1,210	57
1985	771	810	-33	-6
1986	817	3	721	93
1987	1,850	-832	1,513	1,169
1988	4,994	3,405	1,181	409
1989	6,011	6,594	115	-699
1990	5,561	6,147	-2,184	1,598
1991	18,999	3,528	16,182	-711

\* Includes evaluation account

Source: Calculations from Cental Bank Analytical Balance Sheets in Cental Bank Monthly Statistical Bulletins, various issues

Table 5.11 highlights the importance of net credit given to public and private sectors and the decrease in net foreign assets of the Central Bank in the 1980-84 period, which

means that the Central Bank used its own sources (base money) and foreign sources to back public and private financing requirements. In 1985 and in the 1985-90 period, on the other hand, base money creation mainly financed net foreign asset accumulation. The share of net credit used by the private sector and by the public sector in base money creation remained relatively low in this period. In 1991 base money creation expanded very quickly by (19 trillion TL), most of which (16 trillion TL) financed net credits to the public sector.

Base money creation can also be broken down into seigniorage and inflation tax. Inflation tax refers to that part of money finance which corresponds to the increasing money demand of non-interest bearing asset holders during inflationary periods. The source of inflationary financing is that the government pays no interest on the net cash balances held by the public. In inflationary periods, individuals need to hold more nominal money balances in order to meet the same level of desired real expenditure. This increased demand for money does not reflect an increase in the propensity to save but a decrease in the money invested in interest-bearing assets. The higher the inflation rate, the higher the loss on the part of the individuals and the greater the gain on the part of the government (WB 1991, p.35). In other words, the revenue from the inflation tax gets bigger at periods of high inflation.

Seigniorage, on the other hand refers to the increase in the real demand for base money as the economy grows. The size of seigniorage revenue depends on the reserve requirement regime, and "the portfolio behaviour of asset holders which is influenced by inflation, interest rates, output growth, and the emergence of close substitutes for domestic money" (Wijnbergen, et.a. 1992, p.82). Particularly, high inflation rates reduce the real demand for base money and thus generates lower seigniorage revenue. Moreover, as this is equivalent to reducing the inflation tax base, it also bears an adverse effect on inflation tax revenues. Therefore, there is a maximum yield for the inflation tax at a particular inflation rate. If this point is surpassed, the yield drops as the money demand falls. This point has not yet been reached in Turkey.

The inflation tax constituted the most important component of monetary finance throughout the 1980-91 period. It directed sources from the private to the public sector at around 3.4 % of GNP. The inflation tax decreased in 1985 and 1986 in accordance with the decline in the rate of inflation. It rose again in the 1987-88 period and decreased in the 1989-90 period, in line with the parallel developments in the rate of inflation.

As might be expected from the acceleration of the inflation rate after 1983, seigniorage revenue as a ratio of GNP, decreased and assumed negative values in every year but two. The lower than expected seigniorage revenue in 1985-86 and in 1989-90 can be explained by factors affecting the real monetary base, other than the rate of inflation. The creation of a market for agreements to repurchase government securities in 1984 allowed firms and commercial banks to reduce their need to maintain real stocks of sight deposits for use in

transactions since most of these agreements were short term (less than a month) and hence could be used for cash management (Wijnbergen et al. 1992, p. 90). Furthermore, Turkish citizens were allowed to hold foreign exchange deposits in banks in 1984 and these became an important saving instrument after 1986 (Atiyas, p.6). The ratio of foreign exchange deposits to TL deposits rose from 6.2 % in 1984 to 48.1 % in 1991. These developments reduced the demand for sight deposits significantly, the result of which was lower required reserves and hence lower base money.

TABLE 5.12 MONEY FINANCE

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Change in money base (%)	48.6	62.6	41.5	37.1	47.5	38.0	29.2	51.1	91.3	57.5	33.8	86.2
Inflation rate (%)	89.6	28.3	26.3	37.1	49.7	44.2	30.7	55.1	75.2	68.8	60.6	71.1
Monetary finance (% of GNP)	3.2	4.2	3.4	3.2	3.6	2.8	2.1	3.2	5.0	3.5	1.9	4.2
Seigniorage *	-2.3	2.1	1.1	0.0	-0.1	-0.4	-0.1	-0.2	0.7	-0.5	-1.2	0.6
Inflation tax **	5.9	1.9	2.1	3.2	3.7	3.2	2.2	3.4	4.1	4.2	3.5	3.5

\* change in "real" money base / real gnp

\*\* money base (t-1) \* Inflation rate (t) / gnp (t)

Source: Central Bank Monthly Statistics Bulletins

The systematic decrease in the reserve requirement ratio beginning in January 1983 was also instrumental in the decrease in real base money. The reserve requirement ratio on both sight and time deposits was reduced to 25 % in 1983 from 35 % and 30 %, respectively. It was decreased to a further 12 % in September of 1987. The reserve requirement ratio was increased temporarily in 1988 ( to be effective between February and September of that year), which explains the higher than expected seigniorage revenue in contrast to accelerating inflation in that year. In October 1988 the reserve requirement ratio was increased to 25 % on sight deposits and to 14 % on time deposits. Both ratios were reduced systematically afterwards.

#### 5.4.2 Domestic Debt Financing

Together with the increasing external transfer requirements after 1983, the Turkish government began to use domestic funds as a way of financing its primary deficit. The intention to prevent the inflation rate from rising further was instrumental in the enhancement of the domestic borrowing policy, instead of base money creation in public deficit financing.

Although money finance is to a certain extent enforced, domestic debt finance is voluntary. The extent of domestic borrowing by the public sector depends on the

willingness of the private sector to lend to government and on the size of the private sector funds. The former is a function of the return on government debt relative to other financial assets and the latter on the net savings of the private sector.

Domestic borrowing by the public sector was realized through three channels: bonds and bills borrowing of the Treasury, net bank credit used by the central government and especially by the SEEs and net borrowing by Extra Budgetary Funds (EBFs) in the form of revenue sharing certificates. Amongst them the most important source was borrowing by bonds and bills.

Problems in the availability of relevant data concerning Extra Budgetary Funds prevents powerful assessment of the pressure exerted by these funds on the financial markets during the 1980-91 period. However, studies by World Bank analysts point out that net domestic borrowing by Extra Budgetary Funds have always been negative, implying that the direction of the flow of funds was from the public sector towards the private sector (See Tables 5-6 and 5A-7 in Wijnbergen, et al., 1992).

Net borrowing by State Enterprises, central and local governments showed great variations in the 1980-87 period; net credit usage was positive in only four of the eight years (See Table 5-6 in Wijnbergen, et al., 1992). Figures on total credit stock in Table 5.13 do not show a credit rationing for the private sector throughout the 1980s. Moreover, the share of the public sector in total credits remained relatively lower in the 1983-91 period as compared to 1980-82. This ratio even declined significantly in 1989 and 1990.

Domestic debt borrowing by bonds and bills increased significantly after 1984. In May 1985 the government began to sell public securities regularly through public auctions (Wijnbergen et al, 1992).

Table 5.14 gives outstanding domestic debt (excluding consolidated debts) as a ratio of GNP. It should be noted first that outstanding domestic debt, including Central Bank advances, show a sharp increase in 1991. New borrowings by bonds and bills accelerated after 1984. The ratio of new borrowings by bonds and bills to GNP increased nearly three times from 3.8 % to 10.2 % between 1983 and 1991. At the same time, principal and interest repayments also rose after 1985 and 1986, causing net borrowings to rise to a smaller extent than new borrowings. Treasury bills borrowing turned out to be significantly lower than bonds borrowing except for 1991. On the other hand, Central bank advances, net of repayments, showed a decreasing trend in the 1984-90 period. Their share in GNP decreased to 0.1 % in 1990 from 1 % in 1984 but rose sharply again to 2.4 % in 1991.

TABLE 5.13 TOTAL CREDIT STOCK  
(TL Billion)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Central Bank Credits	655	926	911	1234	880	1300	1828	3439	5142	6699	8294	22976
Public	367	495	523	589	565	917	1265	2170	3164	3887	5112	18454
Private	288	430	388	645	315	383	563	1269	1978	2813	3183	4522
Banking Sector	959	1564	2146	2837	3667	6198	11090	17490	25504	40056	70190	112342
Public	270	333	407	498	502	1022	2084	3526	5266	6390	10648	15916
Private	689	1231	1739	2339	3164	5176	9006	13964	20238	33666	59542	96426
Total Credits (1)	1614	2489	3056	4071	4547	7497	12918	20928	30646	46755	78484	135318
Public (2)	637	828	929	1087	1068	1939	3349	5696	8430	10276	15759	34370
Private (3)	978	1662	2127	2984	3479	5559	9569	15233	22216	36479	62725	100948
(2)/(1)	39.5	49.8	43.7	36.4	30.7	34.9	35.0	37.4	37.9	28.2	25.1	34.0
(3)/(1)	60.5	66.7	69.6	73.3	76.5	74.1	74.1	72.8	72.5	78.0	79.9	74.6
Real Interest Rate	3.4	7.4	-1.0	1.4	13.7	19.3	-5.6	-10.7	5.0	5.0	-3.9	-3.9

Source: Central Bank, Quarterly Bulletin, various issues

TABLE 5.14 DOMESTIC DEBT STOCK  
SHARES IN GNP (%)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Repayments	1.1	3.0	3.0	10.6	2.2	5.4	7.7	10.7	8.4	9.1	8.6	11.1
Principal	0.6	2.3	2.6	9.6	1.3	4.5	5.9	7.9	5.9	6.2	5.1	7.3
Bonds	0.1	0.1	0.4	0.2	0.2	0.6	2.0	2.0	1.3	1.8	1.6	1.4
Treasury Bills	0.5	1.9	2.2	1.5	1.2	3.8	3.7	4.9	4.5	3.9	2.3	4.7
Central Bank Advances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Consolidated Debts	0.0	0.3	0.0	7.9	0.0	0.0	0.1	1.0	0.0	0.6	1.3	1.2
Interest	0.5	0.6	0.4	1.0	0.9	0.9	1.8	2.9	2.5	2.8	3.5	3.8
Bonds	0.4	0.5	0.3	0.4	0.6	0.6	1.0	1.4	1.3	1.8	2.2	2.2
Treasury Bills	0.0	0.1	0.1	0.2	0.2	0.3	0.6	0.8	1.1	0.9	0.6	1.1
Central Bank Advances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Consolidated Debts	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.6	0.0	0.0	0.7	0.3
Borrowings	9.6	6.5	6.6	25.5	9.3	12.9	73.0	19.4	17.1	14.1	10.4	14.6
Bonds	1.1	0.4	0.7	1.7	1.1	2.4	3.2	3.5	3.8	5.3	4.3	2.7
Treasury Bills	1.4	2.5	2.9	0.7	2.7	4.4	4.6	6.8	5.1	4.5	2.9	7.5
Central Bank Advances	2.3	0.6	0.4	0.6	1.0	1.0	0.7	0.6	0.7	0.3	0.1	2.4
Consolidated Debts	4.8	2.9	2.6	22.5	4.5	5.1	64.5	8.5	7.5	4.1	3.0	2.0
Net Borrowing	4.2	1.5	1.4	1.3	3.5	3.3	2.7	4.0	3.8	4.4	3.6	6.5
Bonds	1.0	0.3	0.3	1.5	0.9	1.8	1.2	1.5	2.5	3.5	2.8	1.3
Treasury Bills	0.9	0.6	0.7	-0.8	1.5	0.5	0.8	1.9	0.6	0.6	0.7	2.8
Central Bank Advances	2.3	0.6	0.4	0.6	1.0	1.0	0.7	0.6	0.7	0.3	0.1	2.4
Consolidated Debts												
Outstanding Domestic Debt (Consolidated Debts excluded)	8.7	7.4	6.9	6.5	7.6	8.3	8.6	9.8	9.5	9.9	9.4	12.4

\* Central Bank Advances are of Net Values

Source: UTFT, SPO

The ratio of outstanding domestic debt rose from a low of 6.5 % in 1983 to a high of 12.4 % in 1991. It is interesting to note that the 3 percentage points rise in the ratio came in the last year. The figures once more show the decreasing importance of monetary financing after 1984. The ratio of Central Bank advances to GNP showed a decreasing trend up to 1991. However, it rose from a low of 1 % in 1990 to 3% in 1991.

The figures on real domestic debt also imply similar trends. Outstanding domestic debt including Central Bank advances more than doubled and rose from 120 billion TL in 1983 to 208 billion TL in 1987 at 1978-79 constant prices. Debt on bonds and bills increased even faster. Total debt stock stagnated in the 1988-90 period in real terms after it reached a peak in 1987 but further jumped to 251.5 billion TL in 1991.

In order to attract the funds of the private sector, the government offered high real interest rates on securities and especially on revenue sharing certificates. However, the rise in interest rates on government bonds and bills exerted an upward pressure on deposit and loan interest rates for the banking sector. "Interest rates on government securities usually set the floor for the spectrum of interest rates on securities with the same maturity" (Wijnbergen, 1992, p.105). As a result, government securities began to compete with bank loans not deposits. Interest rates offered by the government rose substantially above that of deposits especially for short-term (3 and 6 months) assets. When comparing interest return on government paper and on time deposits, it should be noted that the interest rate on government paper is net, whilst it is gross on deposits. Hence, government paper, which is the least risky and the most liquid asset, offered substantially higher returns when compared with the after-tax return on comparable time-deposits.

TABLE 5.15 MATURITIES AND INTEREST STRUCTURE

	on Government Securities			on Deposits		
	3 months	6 months	1 year	3 months	6 months	1 year
1984	-	-	42.98	53.00	52.00	45.00
1985	-	-	50.60	45.00	50.00	55.00
1986	51.21	55.80	51.02	36.00	41.00	48.00
1987	50.28	50.28	47.04	35.00	38.00	-
1988	68.07	66.26	62.36	66.10	70.80	83.90
1989	59.84	60.10	58.29	49.00	51.50	58.90
1990	56.90	54.98	51.94	50.70	52.00	59.40
1991	88.03	80.88	72.07	69.60	64.82	72.70

Source: Central Bank, UTFT and author's calculations

"The net cost of debt was even higher than the high real rate on the Treasury bills suggests. This is because the government maintains substantial deposits in the banking

system at interest rates far below the rates which it borrows."(Wijnbergen et.al., 1992, p.103).

Besides high real interest rates, the short maturity structure of public borrowing also increased the attractiveness of government paper. During the 1986-91 period, more than 40 % of domestic borrowing had maturity of less than 1 year. Although average maturity of domestic debt rose from 10 months in 1986 to 16 months in 1990, it sharply decreased to less than 8 months in 1991.

The short maturity-high real interest rates indicates the high cost of new borrowings. The short maturity structure of the debt stock necessitated a faster refinancing of the existing debt stock. High cost and short maturity debt imply that most of new borrowings were used in repayments of principal and interest. In fact, between 1984 and 1991, repayments on bonds and bills rose by 4.6 times while new borrowings by 2.8 times at constant prices and the ratio of repayments to new borrowings rose from 56.5 % to 91.8 %.

The high real interest policy directed private funds towards government, reducing the availability of funds for the private sector. Such a policy was most detrimental for the tradeables sector since manufacturing enterprises choose to divert their funds to financial speculation rather than to investment in productive areas.

#### **5.4.3 Economic Consequences and Sustainability of External Transfers**

The source of domestic borrowing is private savings. The sizable increase in private net savings in the second part of the decade enabled the government to rely on domestic borrowing as a source of financing the public deficit. The private savings/GNP ratio which averaged 11 % in the 1970-79 period decreased to 9.4 % in the 1980-1985 period. The private savings ratio began to rise sharply after 1986 and reached 17 % in the 1986-91 period and 21 % in 1991. During 1980-1991, private investment lagged behind private savings. Private net savings showed a decrease between 1983-1985 along with the decrease in private savings, but began to rise rapidly as private investment stagnated and reached 8.4 % of GNP in 1991.

Table 5.16 highlights the magnitude of inflationary finance in Turkey over the period 1980-91. An important part of private savings was channelled to the public sector with the help of the inflation tax. The role of forced savings was most important in 1983-85 when it constituted nearly 35 % of private savings. In 1989, the inflation tax was able to direct more than 25 % of private savings to the government, but its role decreased after 1989.

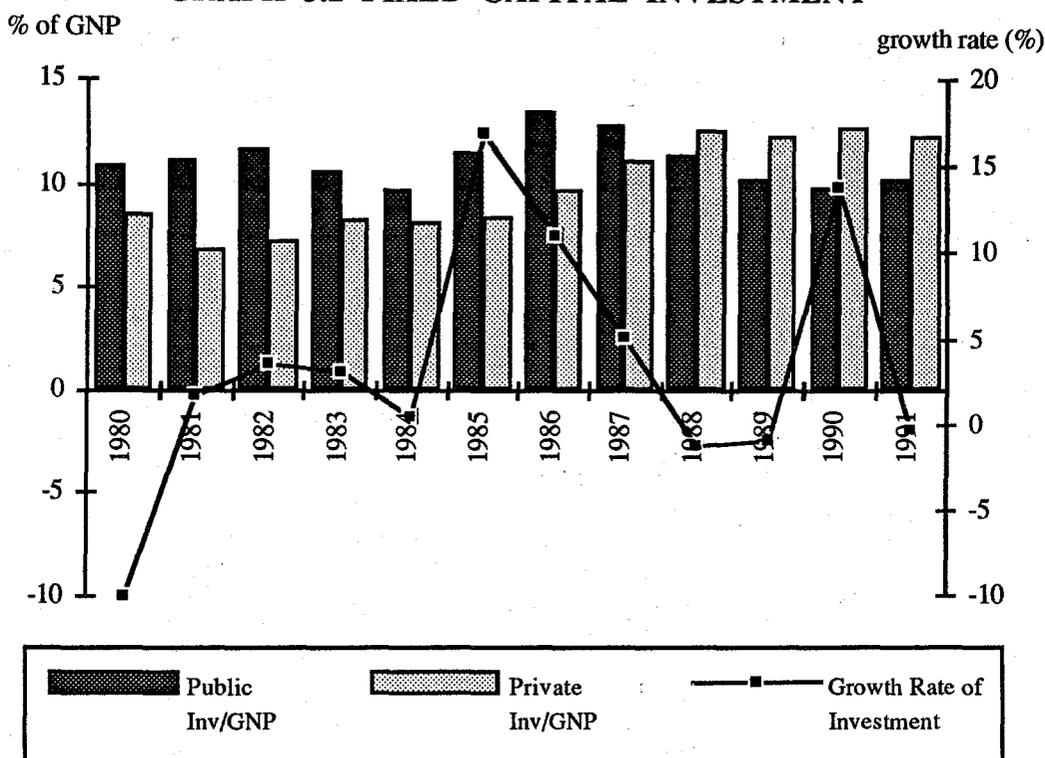
TABLE 5.16 SAVINGS-INVESTMENT RATES

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
private savings	15.7	11.9	9.2	9.2	9.2	9.1	11.3	15.4	18.0	17.2	19.1	20.7
market determined	9.8	10.0	7.1	6.0	5.5	5.9	9.1	12.0	13.9	13.0	15.6	17.2
inflation tax	5.9	1.9	2.1	3.2	3.7	3.2	2.2	3.4	4.1	4.2	3.5	3.5
private investment	8.5	7.5	7.3	7.5	8.2	8.4	9.8	11.2	12.7	12.3	12.7	12.3
net private savings	7.2	4.4	1.9	1.7	1.0	0.7	1.4	4.2	5.3	4.9	6.4	8.4

source: SPO, Annual Programs and author's calculations.

The way the transfer problem was handled in Turkey, namely through the transfer of private savings to the public sector via the help of high interest rates and inflationary financing, foreshadows a dilemma which the country is likely to face in the short term. The transfer strategy adopted is blocking fixed capital investments in the manufacturing sector as shown in Graph 5.2.

GRAPH 5.2 FIXED CAPITAL INVESTMENT



Without sizable fixed investments in the tradeables sector, exports are not likely to expand any further. Further real depreciation of the TL alone will not suffice to sustain exports in any significant amount. Moreover, it aggravates the solution of the problem by causing important capital losses on the foreign debt stock. In fact the negative counter effects of the strategy adopted began to be felt in the last years of the 1980-91 period. The increase in of foreign debt arising from exchange rate losses amounted to 24 % of the

increase in the total debt stock during 1981-90 . (Ercel, p. 15, Table 3) Export growth in the last few years have been achieved under stagnating domestic demand. Further efforts at sustaining foreign transfers by repressing domestic demand is bound to hit the physical limits on productive capacity. The Turkish manufacturing industry has been working at near full capacity level since 1987. Without increasing production capacity no sizable increase in exports can be expected. This dilemma can be shown explicitly by the following public sector identity:

$$d + d^{*'} + m' = pd + (r - g) d + (r^{*} - g) d^{*} \quad (5.11)$$

Here  $d'$ ,  $d^{*'}$  and  $m'$  are the ratios of the partial derivatives of net domestic public debt, net foreign public debt and base money to GNP,  $d$ ,  $d^{*}$  and  $pd$  are the ratios of net domestic public debt, net foreign public debt and primary deficit to GNP;  $g$  is the growth rate of the economy and  $r$  and  $r^{*}$  are the real interest rates on domestic and foreign debt, respectively (World Bank, 1990b, p.89). The equation shows the deadlock that Turkey faces. The growth rate is below the real interest rate on both domestic and foreign debt. Hence the debt burden is continuing. Furthermore, the primary deficit is also rising. Foreign and domestic debt financing under these conditions will just aggravate the problem in the following periods. Monetary financing, on the other hand, will escalate inflation, dragging the country towards hyperinflation. Rising inflation would have adverse effects on foreign balance as well . Given these constraints, the only way out of this dilemma is to cut down the primary deficit, presumably by the help of a comprehensive tax reform.

## 5.6. THE TRANSFER PROCESS AND ITS DISTRIBUTIONAL EFFECTS

Policies directed at solving the external transfer problem in Turkey had important distributive implications. A domestic transfer of resources from the private to the public sector, and within the private sector, a transfer from low income earners to high income earners accompanied external transfers. In particular, the curtailment of domestic demand in order to support export expansion, supply-side policies and policies to promote exports and domestic savings changed the relative price structure and distorted income equality even more than before. The low growth rate of the eighties, when compared with historical averages, turned the relative income inequality into an absolute one, whose negative effects are perceived by a broader section of the society.

Lack of consistent studies at the end of the 1970s and at the beginning of the 1980s, which determines income distribution patterns prevents an assessment of the change in income distribution in the period under investigation (1980-91). Nevertheless, other indicators point out dramatic distortions during the 1980s.

Changes in income distribution patterns will be considered briefly from two aspects: those which help materialise real transfers abroad and those which are facilitated by domestic transfers from the private to the public sector. The former can also be regrouped into two: those which restrain domestic absorption (through real wage decreases and deterioration in real agricultural income) and those which augment export competitiveness (real wage decreases and increased real incomes of the industrial exporters). On the other hand, domestic transfer mechanisms i.e., public budget adjustment (tax and expenditure policies) and public deficit financing (through money creation and domestic borrowing) also changed income distribution patterns.

A study by Yeldan (1992) which investigates the changing patterns in production, accumulation and distribution in the 1980s, has similar findings on income distribution patterns to those that are stated below.

Functional income distribution changed against wage income, especially until 1988. The decreasing share of wage income in total value-added was replaced by interest and profit income. After 1988, the share of wage income and interest income expanded at the expense the share of profit income, which indicates the decreasing importance of productive activity. The rise in real wages in both the private and the public sector since 1988 brought a decrease in the share of profit in total value-added. Furthermore, the high real interest rate on government papers as well as new financial methods such as repurchasing agreements made speculative activity much more profitable than productive activity. Consequently the share of profit income in net value added declined substantially after 1988 and even turned into negative in 1991.

TABLE 5.17 NET VALUE ADDED BY FACTOR INCOME (ISO 500 BIG FIRMS)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Wages and Salaries	52.6	55.5	46.4	40.4	37.9	34.4	33.5	46.6	59.9	82.3
Interest Payments	27.6	28.9	22.2	24.6	37.9	38.2	43.9	35.0	30.5	44.0
Rents	0.4	0.4	0.4	0.5	0.5	0.4	0.3	0.4	0.4	0.8
Profit	19.4	15.2	31.0	34.5	23.7	27.0	22.3	18.0	9.2	-27.1
Net Value Added	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: ISO Dergisi, 306, 330

Another important change in functional incomes distribution was the real income loss experienced by the agricultural sector. Due to a weakening of agricultural price support policies and a drastic deterioration internal terms of trade against agriculture, the decline in the income of this sector induced an increase in the exportable surplus via a decrease in domestic demand, especially for non- tradeable goods.

Besides a relative improvement in industrial incomes vis-a-vis agricultural incomes manufacturers of exportables also found it easier to increase their incomes as compared with manufacturers producing for the domestic market. Real devaluation policy and various export incentive measures were responsible for this change in income redistribution.

The transfer burden on the government budget, especially in the second part of the decade, did not permit the use of public expenditure and revenue policies to reduce income inequality. Furthermore, fiscal policy during the 1980s aggravated the inequality problem. Swelling internal and external interest payments raised the public sector borrowing requirement. The increasing public sector deficit decreased investment expenditures in social services such as health and education, limited public expenditures for social transfers and led to only nominal wage increases in the public sector that remained below the rate of inflation. The tax policies aggravated the income distribution problem by favouring high income earners. They enabled higher taxation of low income earners by inflationary creeping of income tax brackets and by increased indirect taxes while reducing the tax burden on high income earners by numerous tax exemptions on corporate income taxes.

The public deficit continued growing despite the adjustment efforts, and the way the public sector deficit was financed further aggravated income inequalities: domestic debt policy based on high real interest rates offered high returns to those who could buy public bonds and bills; inflationary financing working through the inflation tax resulted in a transfer of funds from those who did not own assets that resist the inflationary erosion of money balances to the government. Inflationary erosion of nominal money balances affects those who do not own assets which bring in a return that is equal to or higher than the inflation rate. Those are mostly the wage and salary earners together with other low income earners. The burden of the inflation tax was most severely felt by holders of currency, holders of demand deposits and bank borrowers. The inflation tax burden was negligible for time deposit holders. Hence, inflationary financing is the method with the most adverse social effects.

The erosion of real wages and of agricultural income along with increased incomes of manufacturers of exportables turned out to be those changes in income distribution that facilitated the external transfer. On the other hand, the method adopted in solving the domestic transfer problem caused an improvement in the position of the rentier class against other sections of the society.

## 6. MODELLING THE TRANSFER PROCESS

### 6.1. Introduction

In order to illuminate the impact of the transfer process on output growth and price stability, we will develop a simple macroeconomic model in this chapter and apply it to the Turkish transfer problem.

Our model is inspired by the growth-oriented-adjustment literature (IMF (1987), Khan and Montiel (1989), Khan et al (1990), etc.) which combines the analytical approaches of the IMF and the World Bank.

The two approaches differ in their main concerns. The Fund's approach centers on the balance of payments adjustment mechanism, while that of the Bank is growth oriented. Since the Fund is to finance temporary balance of payments disequilibria, and formulate measures to implement them if they are not inherently temporary, models based on its approach link "(...) policy instrument controlled by the authorities to the balance of payments. The Fund's approach to balance of payments adjustment, which evolved out of staff work in the 1950s and 1960s on the Latin American countries, has been formalized and articulated in a number of papers, principally by Polak (1957) and Robichek (1967). The more recent work on the subject has also tended to stay within the Polak-Robichek tradition." (Khan et al., 1990, p. 158).

In contrast to the Fund's approach, the Bank's mandate is to finance the growth and development in the middle run. "The basic approach that the Bank uses for its macroeconomic projections and policy work, therefore emphasizes the relationships among savings, foreign capital inflows, investment, and growth. This approach is reflected in the Revised Minimum Standard Model (RMSM) (.)" (ibid, p. 164-5).

The merging of the two models, one pertinent in assessing the balance of payments and inflation targets, and the other in assessing the growth performance, is a suitable starting point for our own aim of determining the consequences of the transfer process on adjustment and growth efforts. Such a merging is used as the core of the analytical framework in many studies, and a more refined exposition can be found in Khan et al. (1990).

Like these models, ours combines a growth component, a monetary component, and a balance of payments component, in addition to a set of budget constraints for economic units. However various modifications were made in order to restructure the model according to our own problem.

First, net financial transfers and the non-interest current account were introduced explicitly. This required a rewriting of the budget constraints, and consequently they reappeared in reduced form to be used as predetermined variables or as policy targets.

Second, in order to lay bare the possible mechanisms of the internal transfer, the budget constraints were rewritten in a more detailed way than usual. Furthermore a consolidation of the government's budget constraint and the Central Bank accounts was performed in order to establish the true dimensions of the internal transfer in a less developed country.

Third, the balance of payments component was constructed in a way suitable to analyze the determinants of the real transfer.

## 6.2. Exposition of the Model

### 6.2.1. Budget Constraints

**6.2.1.1. Public Sector Budget Constraint:** The government's budget constraint may be written as:

$$E_g - T = \Delta D_g + e\Delta D_g^* \quad (6.1)$$

where  $E_g$  is government expenditures;  $T$  is government revenue;  $\Delta D_g$  is the change in government's domestic debt stock;  $e\Delta D_g^*$  is the change in government's foreign debt stock. This equation states that the government must finance its current deficit by increasing its debt stock, i.e. by borrowing from either domestic or foreign creditors.

Government expenditure can be decomposed as:

$$E_g = C_g + I_g + iD_{g-1} + e_i^* D_{g-1}^* \quad (6.2)$$

where  $C_g$  is government consumption;  $I_g$  is government investment;  $iD_{g-1}$  and  $ei^* D_{g-1}^*$  are interest payments on domestic debt and foreign debt respectively. Interest payments may be considered as the product of the previous period's debt stocks ( $D_{g-1}$  and  $D_{g-1}^*$ ) and imputed effective interest rates ( $i$  and  $i^*$ ).

Government revenue denoted by  $T$  includes all tax and non-tax revenue, factor incomes and foreign grants. No finer disaggregation is necessary for our analysis. Hence the government's budget constraint can be rewritten at a level of disaggregation suitable for our analysis as follows:

$$(C_g + I_g - T) + iD_{g-1} + ei^* D_{g-1}^* = \Delta D_g + e\Delta D_g^* \quad (6.3)$$

The sum within the parentheses is referred to as the primary deficit (PD). We will use PD whenever there is no interest in stating its components, as will be the case most of the time. Hence, in general, we will use the following equation:

$$PD + iD_{g-1} + ei^* D_{g-1}^* = \Delta D_g + e\Delta D_g^* \quad (6.4)$$

However, it must be stressed that an important fraction of  $\Delta D_g$  consists of Central Bank advances to the government, and furthermore, the Central Bank performs various quasi-fiscal activities. Hence, as argued in section 4.2, we must bring the Central Bank into the picture, and perform a consolidation. To do that, we reproduce here the equation relating the Central Bank's sources and uses of funds:

$$\Delta NFL + \Delta BM = \Delta NCPS + \Delta NCPrS \quad (6.5)$$

where as before,  $\Delta NFL$  is the change in Central Bank's net foreign liabilities;  $\Delta BM$ , is base money creation;  $\Delta NCPS$  is net credit to public sector; and  $\Delta NCPrS$  is net credit to the private sector.

Performing consolidation as in section 4.2, and introducing the following notations:

$$\Delta D = \Delta D_g - \Delta NCPS - \Delta NCPrS \quad (6.6)$$

$$e\Delta D_{cp}^* = e\Delta D_g^* + \Delta NFL \quad (6.7)$$

$$iD_{-1} = iD_{g-1} \quad (6.8)$$

$$e_i^* D_{cp}^* -1 = e_i^* D_g^* -1 \quad (6.9)$$

Although equations (6.8) and (6.9) hold only approximately and are seemingly objectionable, since we did not take interest payments by the Central Bank into account, lack of data and the need to avoid excessive complication constrained us to be satisfied with them.

Hence, we end up with the following equation for the consolidated public sector budget constraint:

$$PD + iD_{-1} + e_i^* D_{cp}^* -1 = e\Delta D_{cp}^* + \Delta D + \Delta BM \quad (6.10)$$

**6.2.1.2. Private Sector Budget Constraint:** Private sector's disposable income is defined here, as the sum of the income from current productive activities, unrequited private transfers from abroad, the interest income on the government's domestic borrowing, transfer payments from the government minus taxes. As gross national product includes the first two items plus interest payments abroad and official transfers, and since we aggregated the government's tax and non-tax income into a single entity,  $T$ , we can write the private sector disposable income,  $YD$ , as:

$$YD = (Y + e_i^* D^*) + iD_{-1} - T + R \quad (6.11)$$

where  $Y$  is gross national product;  $e$ , is the nominal exchange rate; and  $R$  is government transfers to the private sector.

The private sector uses its disposable income in consumption ( $C_p$ ), in investment ( $I_p$ ), in lending to the public sector, in increasing its money balances to absorb base money created by the Central Bank, in paying its foreign interest payments ( $i^* D_p^*$ ), or in reducing its foreign liabilities ( $\Delta D_p^*$ ).

$$YD = C_p + I_p + \Delta D + \Delta BM + e\Delta D_p^* + e_i^* D_p^* \quad (6.12)$$

Aggregating equations (6.11) and (6.12) we obtain the private sector's budget constraint:

$$(Y + e_i^* D^*) + iD_{-1} - T + R = C_p + I_p + \Delta D + \Delta BM + e\Delta D_p^* + e_i^* D_p^* \quad (6.13)$$

**6.2.1.3. Rest-of-the-World Budget Constraint:** The budget constraint for transactions with the rest of the world is the same as the balance of payments. The balance of payments identity aggregated in a suitable way can be written as follows:

$$X - M + A_g^* + A_p^* = -\Delta D_{cp}^* - \Delta D_p^* + i^* D_{cp}^* - i^* D_p^* \quad (6.14)$$

where  $X$  is exports;  $M$  is imports;  $A_g^*$ ,  $A_p^*$  are official and private unrequited transfers respectively and the others as before. In this equation, the left hand side is non-interest current account, and the right hand side, net financial transfers abroad.

The budget constraints of the three economic agents in our model, namely, the private sector, the consolidated public sector, and the rest-of-the-world, can be summarized using the following table of flow of funds (Diagram 6.1). In this diagram, the columns are the revenues and the rows are the expenditures of the economic agents; hence, equating the sum of the column entries with the sum of the row entries we obtain the budget constraints of the economic agents. By equating the sum of the entries of the production account with the sum of the expenditure account entries and noting that  $Y + e_i^* D_{p-1}^* - e A_p^* + e_i^* D_{cp-1}^* - e A_{cp}^*$  is gross domestic product, we end up with the national income identity.

DIAGRAM 6.1 FLOW OF FUNDS

From :	To : Private Sector	Consolidated Public Sector	Rest of the World	Expenditure Account
Private Sector		$(T - e A_g^*)$ $+\Delta D + \Delta B M$	$e_i^* D_{p-1}^*$	$C_p + I_p$
Consolidated Public Sector	$i D_{-1} + R$		$e_i^* D_{cp-1}^*$	$(C_g - R) + I_g$
Rest of the World	$+e \Delta D_p^* + e A_p^*$	$e \Delta D_{cp}^* + e A_g^*$		
Production Account	$Y + e_i^* D_{p-1}^* - e A_p^* +$ $e_i^* D_{cp-1}^* - e A_g^*$		$(M - X)$	

### 6.2.2. Growth Component of the Model

The growth rate of the economy, measured by the growth of the real output depends on increases in factor productivities and increases in the size of the labor force and in the capital stock. We assume the first two to be exogenous and formulate the expansion in real output as a linear function of real investment.

$$\Delta Y/P = \alpha_0 + \alpha_1 \cdot (I/P) \quad (6.15)$$

where  $P$  is the yearly average price level; hence,  $\Delta Y/P$  is the change in real output and  $I/P$  the real investment.

Using the identity relating total savings to total investment;

$$I_p + I_g = S_p + S_g + S_f \quad (6.16)$$

where  $S_p$  is private savings;  $S_g$ , public sector savings and  $S_f$ , foreign savings. We can rewrite equation (6.15):

$$\Delta Y/P = \alpha_0 + \alpha_1 \cdot (1/P) \cdot (S_p + S_g + S_f) \quad (6.17)$$

Private savings is assumed to be determined endogenously by a linear relationship between private disposable income and private savings:

$$S_p = s \cdot [(Y + e_i \cdot D_{-1}^* + iD_{-1} - T + R)] \quad (6.18)$$

The savings of the consolidated public sector is written as the difference between its revenues and its current expenditures:

$$S_g = T - (C_g + iD_{-1} + e_i \cdot D_{cp}^*_{-1}) \quad (6.19)$$

Foreign savings is simply net foreign borrowing from rest of the world:

$$S_f = e\Delta D_{cp}^* + e\Delta D_p^* \quad (6.20)$$

Inserting (6.18), (6.19) and (6.20) in (6.17), we obtain:

$$\Delta Y/P = \alpha_0 + \alpha_1 \cdot (1/P) \cdot \{ s \cdot [(Y + ei^* D_{-1}^*) + iD_{-1} - T + R] + T - C_g - iD_{-1} - ei^* D_{cp}^* + e\Delta D_{cp}^* + e\Delta D_p^* \} \quad (6.21)$$

Noting that  $Y/P$  is equal to  $y_{-1} + \Delta Y/P$ , and the real GNP growth  $g$  is  $(\Delta Y/P)/y_{-1}$ , where  $y_{-1}$  is the real GNP of the previous period, we obtain the following equation for the real growth of output:

$$g = \{ 1/[y_{-1} \cdot (1 - s\alpha_1)] \} \cdot \{ \alpha_0 + \alpha_1 s y_{-1} + \alpha_1 \cdot (1/P) \cdot [s(R - T) + se(i^* D_{cp}^* + i^* D_p^*) + (T - C_g) - (1 - s)iD_{-1} - ei^* D_{cp}^* + e\Delta D_{cp}^* + e\Delta D_p^*] \} \quad (6.22)$$

Or, rewritten in a slightly different form,

$$g = \{ 1/[y_{-1} \cdot (1 - s\alpha_1)] \} \cdot \{ \alpha_0 + \alpha_1 s y_{-1} + \{ 1/[y_{-1} \cdot (1 - s\alpha_1)] \} \cdot \alpha_1 \cdot [s(R - T) + (T - C_g) - (1 - s)iD_{-1}] \cdot (1/P) + \{ 1/[y_{-1} \cdot (1 - s\alpha_1)] \} \cdot \alpha_1 \cdot [si^* D_p^* - (1 - s)i^* D_{cp}^* + \Delta D_{cp}^* + \Delta D_p^*] \cdot (e/P) \} \quad (6.23)$$

This is one of the basic equations of our model relating the GNP growth rate,  $g$ , the price level  $P$ , and the price level deflated nominal exchange rate defined as  $e/P$  which is a proxy index for the real exchange rate. It may serve as a starting point in any application of our model to a concrete case study. In the application of the model to the Turkish case we have to use a corrective factor in order to obtain a better fit. The need for this correction arises from some structural properties of the Turkish economy.

First, high and persistent inflation distorts the investment-output relation. World Bank (1991; p.32) suggests that "the marginal efficiency of capital is adversely affected by the rate of inflation independent of its impact on the volume of investment; (...) the inflation rate has a separate significantly negative impact on growth indicative of a backward-sloped, long-run Phillips curve." Our regression analysis confirmed this proposition, which is in line with the findings of a large cross-country study by Kormendi and Meguire (1985).

Second, high levels of government investment maintained regardless of the economic conjuncture and the marginal efficiency of investment that changed from year to year rendered the simple ICOR approach very crude. Extensive regression analysis suggested that (6.15) might be modified by the introduction of the change in the level of the investment as an additional explanatory variable (see Appendix 2.)

Hence, with the introduction of two new variables,  $\pi_{-1}$ , inflation of the previous period as a proxy for expected inflation and  $(I/P - I_{-1}/P_{-1})$ , increase in the real investment level, equation (6.15) was transformed as follows:

$$\Delta Y/P = \alpha_0 + \alpha_1 \cdot (I/P) + \alpha_2 \cdot (I/P - I_{-1}/P_{-1}) + \alpha_3 \cdot \pi_{-1} \quad (6.24)$$

With the above modification, equation (6.23) becomes,

$$g = \left\{ \frac{1}{[y_{-1} \cdot (1 - s(\alpha_1 + \alpha_2))]} \right\} \cdot \left\{ [\alpha_0 + (\alpha_1 + \alpha_2) s y_{-1} - \alpha_2 \cdot I_{-1}/P_{-1} + \alpha_3 \cdot \pi_{-1}] + (\alpha_1 + \alpha_2) \cdot [s(R - T) + (T - C_g) - (1 - s)iD_{-1}] \cdot (1/P) + (\alpha_1 + \alpha_2) \cdot [s i^* D_p^* - (1 - s)i^* D_{cp}^* - 1) + \Delta D_{cp}^* + \Delta D_p^*] \cdot (e/P) \right\} \quad (6.25)$$

The final point concerns the parameters. The private sector saving's ratio (as defined in our model) increases from a value of 0.16 in 1980 to 0.29 in 1991. Hence, instead of treating  $s$  as a constant parameter, we used the following simple linear relationship obtained from regression analysis (see Appendix 2):

$$s = s_0 \cdot s_{-1} + s_1 \cdot t + s_2 \cdot \pi_{-1} \quad (6.26)$$

where  $t$  is the time trend variable  $s_{-1}$  is the lagged private savings ratio, and  $s_0, s_1, s_2$  are constant coefficients. This equation will be used in testing the performance of the model. However, we will treat the private savings ratio as a parameter in the simulation analysis.

### 6.2.3. Monetary Component of the Model

The monetary component of the model is as straightforward as the growth component. We simply use a variant of the quantity theory of money. Hence money demand,  $M_d$  is given by:

$$M_d = (1/v) \cdot P \cdot y \quad (6.27)$$

where  $v$  is the income velocity of money;  $y$  is real gross national product and  $P$  is yearly average price level as before.

We assume that the money supply is determined by  $BM_{avg}$ , the yearly average level of the base money supply, through a multiplier effect:

$$M_s = k \cdot BM_{avg} \quad (6.28)$$

Equating money supply and money demand we obtain:

$$k \cdot BM_{avg} = (1/v) \cdot P \cdot y \quad (6.29)$$

Noting that  $y$  is equal to  $(1+g) \cdot y_{-1}$ , and denoting  $k \cdot v$  as  $v_{BM}$ , we rearrange the above equation as:

$$P \cdot (1+g) = v_{BM} \cdot BM_{avg} \cdot (1/y_{-1}) \quad (6.30)$$

where  $v_{BM}$  is the "income velocity of base money", or a coefficient reflecting the combined effect of the money multiplier and the income velocity of money. We will treat the parameter  $v_{BM}$  as a variable since it fluctuates considerably from year to year and displays an increasing trend. Econometric analysis suggests the following specification: (see Appendix 2):

$$v_{BM} = v_0 + v_1 \cdot t + v_2 \cdot \pi_{-1} + v_3 \cdot ERIR \quad (6.31)$$

where  $t$  is the time trend variable as before;  $\pi_{-1}$  is the inflation rate of the previous period;  $ERIR$  is the expected real interest rate; and  $v_0$ ,  $v_1$ ,  $v_2$  and  $v_3$  are constant parameters to be obtained from econometric estimation.

Equation (6.30) is the second basic equation of our model relating the growth rate and inflation.

#### 6.2.4. NICA-NFT Component of the Model

The third basic equation of our model is obtained from the foreign balance equations. An expression for NICA or NFT which contains the dependent variables of our model, i.e.,  $g$ ,  $P$  and/or  $e/P$  will furnish the required equation. We proceed by specifying imports,  $M$ , as a function of time trend,  $t$ , the GNP growth rate,  $g$ , and the price level deflated nominal exchange rate,  $e/P$ :

$$M = m_0 + m_1.t + m_2.g + m_3. e/P \quad (6.32)$$

Exports,  $X$ , is assumed to be a function of  $t$ :

$$X = x_0 + x_1.t \quad (6.33)$$

Equations (6.32) and (6.33) follow from the econometric work reproduced in Appendix 2. In the application of our model to other case studies, exports may be related to the price level deflated nominal exchange rate,  $e/P$  and to the world income without complicating the model solution. However in our case, the Turkish economy in the 1980-91, equation (6.33) is more appropriate.

In the framework of our model the relationships between the non-interest current account (NICA), net financial transfer (NFT) and other relevant items of balance of payments takes the following form:

$$NICA = X - M + A_p^* + A_g^* \quad (6.34)$$

$$NFT = NFT_{cp} + NFT_p = (-\Delta D_{cp}^* + i^* D_{-1cp}^*) + (-\Delta D_p^* + i^* D_{-1p}^*) \quad (6.35)$$

and it follows from equation (6.14) that:

$$NICA = NFT \quad (6.36)$$

Denoting  $(A_p^* + A_g^*)$  as  $A^*$  and using equations (6.32) through (6.36) it may be easily shown that:

$$g = (1/m_2).[A^* - NICA + (x_0 - m_0) + (x_1 - m_1).t] - (m_3/m_2).(e/P) \quad (6.37)$$

If one prefers to work with net financial transfer concept and discriminate between the transfer realized by private and consolidated public sectors, an equivalent form may be used:

$$g = (1/m_2).[A^* - NFT_{cp} - NFT_p + (x_0 - m_0) + (x_1 - m_1).t] - (m_3/m_2).(e/P) \quad (6.38)$$

Equation (6.37) or (6.38) is the third and the last basic equation of our model.

### 6.3. Performance of the model

In its reduced form our model consist of three equations. The growth component yields equation (6.25) the monetary component, equation (6.30) and the NICA-NFT component, equation (6.38). These three equations constitute a nonlinear but analytically solvable system for the three endogenous variables: the growth rate,  $g$ , the price level,  $P$ , and the price level deflated nominal exchange rate  $e/P$  (see Appendix 1). Once the values for these variables are obtained, other endogenous variables, such as gross national product, GNP, the inflation rate,  $\pi$ , or the nominal exchange rate,  $e$ , may be derived easily. The variables of the model may be classified as follows:

Main endogenous variables:

- $g$ : GNP growth rate
- $P$ : Yearly average price level
- $e/P$ : Yearly average price level deflated nominal exchange rate which is a proxy index for the real exchange rate

Derived endogenous variables:

- $y$ : Real gross national product
- $Y$ : Gross national product
- $\Delta y$ : Real gross national product increase
- $\pi$ : Inflation rate
- $e$ : Yearly average nominal exchange rate
- $I$ : Total investment
- $M$ : Imports of goods and non financial services
- $X$ : Exports of goods and non financial services
- $D$ : Consolidated public sector domestic debt stock
- $D^*$ : Consolidated public sector foreign debt stock

Parameters:

- $\alpha_0$ : Regression coefficient of  $\Delta y$  with respect to a constant term
- $\alpha_1$ : Regression coefficient of  $\Delta y$  with respect to real investment,  $I/P$
- $\alpha_2$ : Regression coefficient of  $\Delta y$  with respect to increase in  $I/P$

- $\alpha_3$ : Regression coefficient of  $\Delta y$  with respect to  $\pi_{-1}$
- s: Private sector savings ratio
- $s_0$ : Regression coefficient of s with respect to  $s_{-1}$
- $s_1$ : Regression coefficient of s with respect to time trend variable
- $s_2$ : Regression coefficient of s with respect to  $\pi_{-1}$
- $v_{BM}$ : Income velocity of base money
- $v_0$ : Regression coefficient of  $v_{BM}$  with respect to a constant term
- $v_1$ : Regression coefficient of  $v_{BM}$  with respect to time trend variable
- $v_2$ : Regression coefficient of  $v_{BM}$  with respect to  $\pi_{-1}$
- $v_3$ : Regression coefficient of  $v_{BM}$  with respect to ERIR
- $m_0$ : Regression coefficient of M with respect to a constant term
- $m_1$ : Regression coefficient of M with respect to time trend variable
- $m_2$ : Regression coefficient of M with respect to GNP growth rate
- $m_3$ : Regression coefficient of M with respect to  $e/P$
- $x_0$ : Regression coefficient of X with respect to a constant term
- $x_1$ : Regression coefficient of X with respect to time trend variable

Exogenous variables:

- i: Public sector domestic borrowing interest rate
- $i_{cp}^*$ : Public sector foreign borrowing interest rate
- $i_p^*$ : Private sector foreign borrowing interest rate
- ERIR: Expected real domestic interest rate
- NICA: Non-interest current account
- $NFT_{cp}$ : Net financial transfers of consolidated public sector

Policy variables:

- T: Government revenues
- $C_g$ : Government consumption
- $I_g$ : Government investment
- R: Government transfers to the private sector
- $\Delta D$ : Consolidated public net new domestic borrowing
- $\Delta BM$ : Base money creation

Using actual values for the policy variables and 1980 as the base year, we obtained the following results for the 1981-92 period:<sup>36</sup>

TABLE 6.1 REAL GROSS NATIONAL PRODUCT GROWTH RATE

	Model estimation	Actual Value	% Error
1981	0.047	0.041	13.3
1982	0.011	0.045	-75.1
1983	0.049	0.033	48.7
1984	0.053	0.059	-11.0
1985	0.067	0.051	30.4
1986	0.079	0.081	-2.9
1987	0.039	0.075	-47.7
1988	0.034	0.036	-6.9
1989	0.043	0.019	132.0
1990	0.085	0.092	-7.8
1991	0.004	0.005	-27.4

TABLE 6.2 YEARLY AVERAGE PRICE LEVEL

	Model estimation	Actual Value	% Error
1981	0.091	0.094	-3.4
1982	0.125	0.120	3.6
1983	0.161	0.154	4.8
1984	0.228	0.231	-1.2
1985	0.338	0.333	1.5
1986	0.443	0.436	1.6
1987	0.576	0.603	-4.5
1988	0.987	1.000	-1.3
1989	1.719	1.663	3.4
1990	2.533	2.568	-1.3
1991	4.069	4.031	0.9

<sup>36</sup> Details of the model solution are in Appendix 1, while data sources may be found in Appendix 3.

TABLE 6.3 YEARLY AVERAGE PRICE LEVEL DEFLATED NOMINAL EXCHANGE RATE

	Model estimation	Actual Value	% Error
1981	0.960	0.820	17.0
1982	0.976	0.942	3.6
1983	0.977	1.024	-4.6
1984	0.973	1.111	-12.4
1985	1.011	1.095	-7.7
1986	1.003	1.080	-7.1
1987	0.950	0.998	-4.8
1988	1.142	1.000	14.2
1989	0.971	0.897	8.2
1990	0.693	0.715	-3.1
1991	0.724	0.728	-0.6

TABLE 6.4 INFLATION RATE

	Model estimation	Actual Value	% Error
1981	0.371	0.419	-11.4
1982	0.367	0.275	33.5
1983	0.295	0.280	5.3
1984	0.416	0.501	-17.1
1985	0.478	0.439	8.8
1986	0.312	0.310	0.5
1987	0.301	0.384	-21.6
1988	0.712	0.657	8.4
1989	0.742	0.663	11.9
1990	0.474	0.544	-12.9
1991	0.606	0.570	6.4

The test run of the model for the period 1981-91 suggests that the performance of the model is very satisfying. Mean absolute percent errors of the growth rate, the price level, the price level deflated nominal exchange rate and the inflation rate estimations are 34.4%, 3.4%, 7.1% and 14.1%, respectively. The goodness of the fit is even more manifest in graphs 6.1, 6.2 and 6.3.

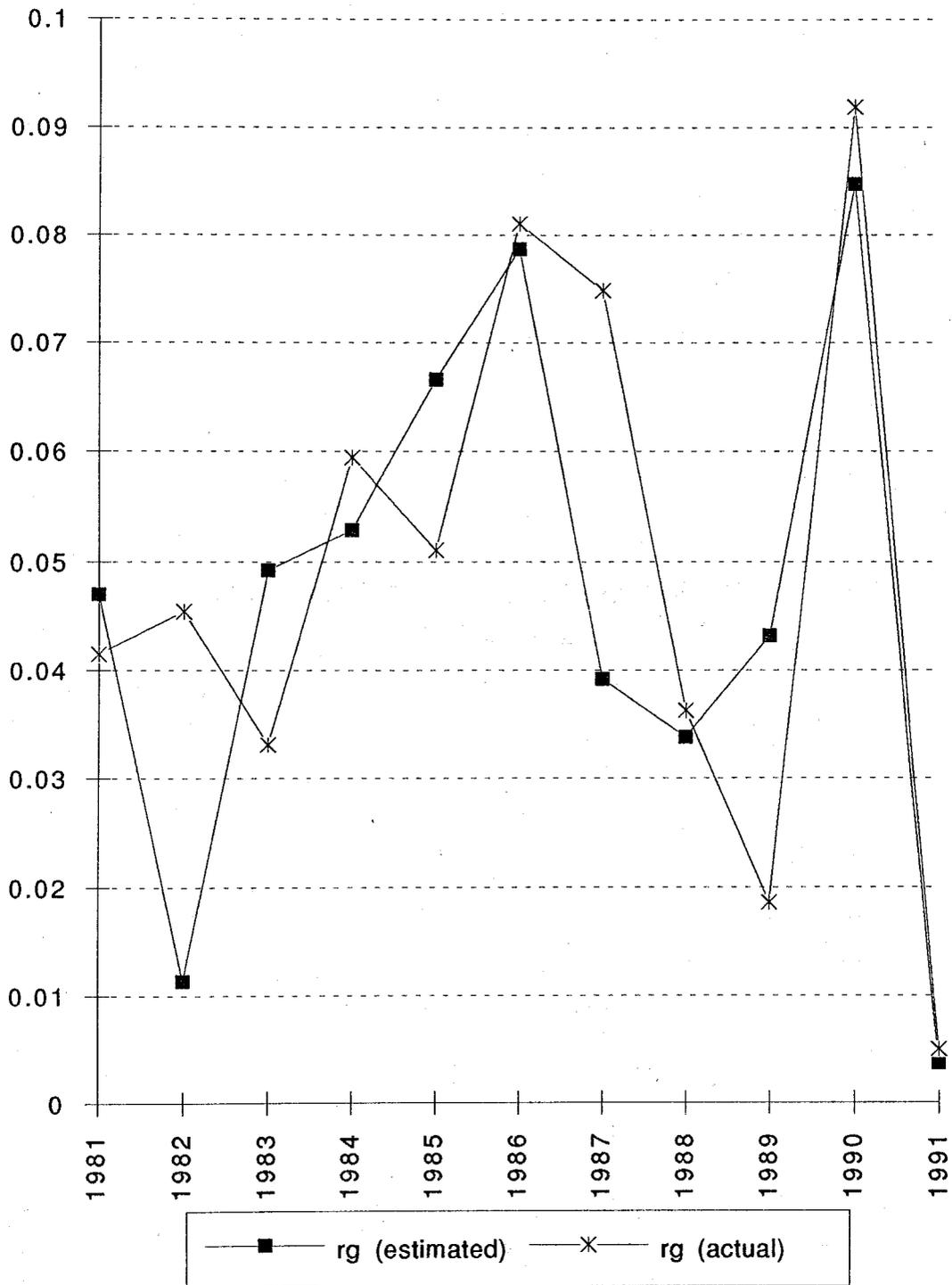
The estimated values of the growth rate of gross national product growth rate display the greatest mean absolute percent error. However, graph 6.1 shows that except for a few years, the estimated values follow the fluctuation in the actual growth rate closely. Furthermore, despite yearly deviations from actual values, medium term trends are perfectly reflected by the estimation results. Hence the model captures the increasing trend of the growth rate of GNP during the first half of eighties, the slow down in the second half, the 1990 boom and the following swings in growth rate.

Graph 6.2 which shows the actual and the estimated values of the price level deflated nominal exchange rate suggests that although the model fails to display the depreciation of TL during 1981-84, it performs much better thereafter. We may detect the rapid appreciation of the TL during 1988-90, and the subsequent slow depreciation clearly.

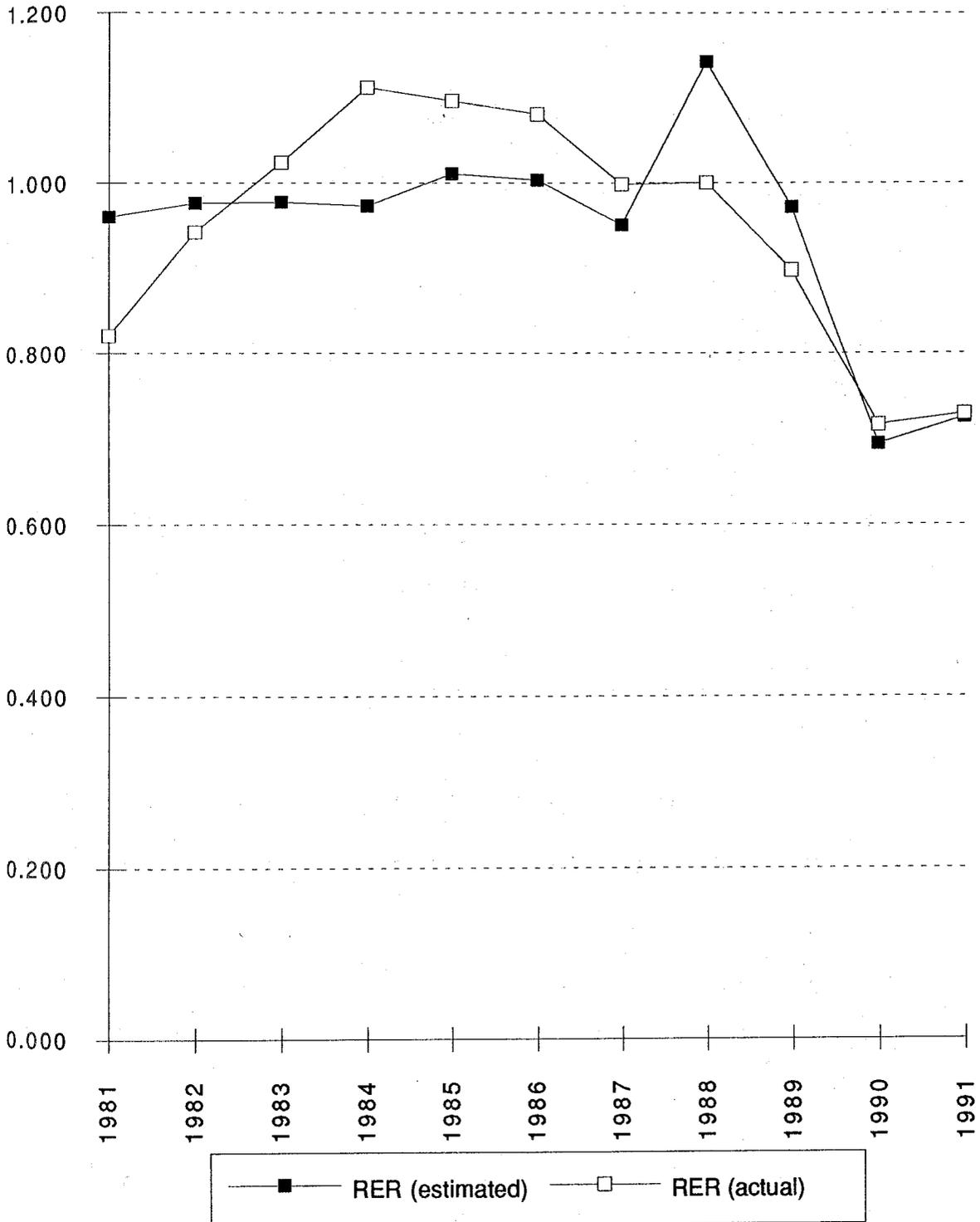
The steady rapid increase in both the actual and the estimated price level renders little of interest in the graph of price level. The graph concerning the inflation rate (Graph 6.3) reveals more about the performance of the model. The estimated value deviates from the actual value about 30% at most. However, almost always, the model correctly estimates the direction of the change in the inflation rate. As for the estimation of the growth rate, medium term trends are reflected remarkably well.

As a general evaluation, we may state that the performance of the model is satisfactory. Especially medium term trends are adequately reflected which is of primary importance for the applicability of the model to simulation analysis.

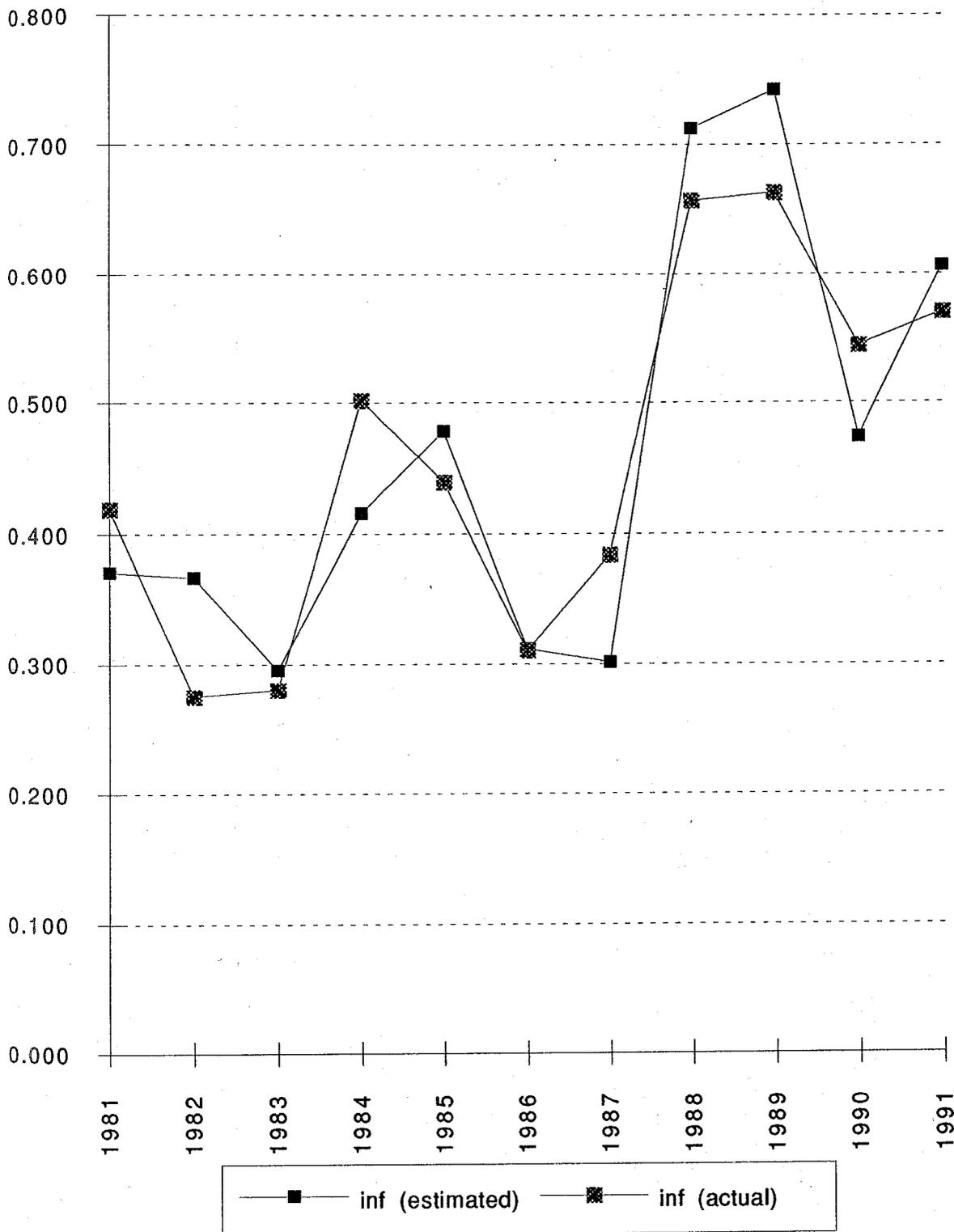
**GRAPH 6.1 GROWTH RATES (ESTIMATED AND ACTUAL)**



**GRAPH 6.2 PRICE LEVEL DEFLATED NOMINAL EXCHANGE RATE (ESTIMATED AND ACTUAL)**



**GRAPH 6.3 INFLATION RATES (ESTIMATED AND ACTUAL**



#### 6.4. Simulation Analysis

In order to perform the simulation analysis we make assumptions as to the behaviour of such policy variables as government revenues  $T$ , government consumption,  $C_g$ , government investment  $I_g$ , and so on. We shall first, evaluate the effect of net financial transfers and changes in the changes in the non-interest current account on the endogenous variables, and then the effects of various government policies to meet the transfer requirements. In order to obtain comparable simulations, the structural properties of the model and policy variables other than the ones under inspection must be kept fixed. For this purpose, instead of using the absolute levels of policy variables, we express them as a ratio of gross national product. Hence, we will use the following definitions:

$$t = T/Y \quad (6.39)$$

$$c_g = C_g/Y \quad (6.40)$$

$$r = R/Y \quad (6.41)$$

$$pd = PD/Y \quad (6.42)$$

The above definitions are used to obtain a slightly modified expression for the growth component equation (6.25):

$$g = \left\{ \frac{1}{[y_{-1} \cdot [1 - s(\alpha_1 + \alpha_2)(1 - t + r) + (\alpha_1 + \alpha_2)(t - c_g)]]} \right\} \cdot \\ \left\{ [\alpha_0 + (\alpha_1 + \alpha_2)sy_{-1}(1 - t + r) + (\alpha_1 + \alpha_2)y_{-1}(t - c_g) - \alpha_2 \cdot I_{-1}/P_{-1} + \alpha_3 \cdot \pi_{-1}] + \right. \\ (\alpha_1 + \alpha_2) \cdot (s - 1)iD_{-1} \cdot (1/P) + \\ \left. (\alpha_1 + \alpha_2) \cdot [si^*D_p^*_{-1} - (1 - s)i^*D_{cp}^*_{-1} + \Delta D_{cp}^* + \Delta D_p^*] \cdot (e/P) \right\} \quad (6.43)$$

To undertake the simulation analysis the following assumptions are also required. First, the flow of official and private unrequited transfers must be specified. We assume that

net private unrequited transfers (dominated by the workers remittances) will be sustained at \$3 billion, the level they attained at the end of the eighties. However, the official unrequited transfers, inflated by the grants given in compensation for the Gulf War was assumed to return gradually to their historical level of \$250 million. Hence we assumed that inflow of official transfers will be \$1 billion in the year following the base year and decrease each year \$250 million, and once it is reduced to \$250 million, it will be sustained at this level.

Secondly, the private sector savings ratio was assumed to remain constant at the base year level throughout the simulation period.

Thirdly, the non-interest current account balance and the consolidated public sector net financial transfer, were expressed in dollars or as a percentage of the gross national product. Various simulations in order to distinguish high, low, or zero transfer cases.

Finally we made assumptions about the level and the different ways of domestically financing the consolidated public sector budget deficit, net of financial transfers abroad. Various levels of primary deficit, government consumption, and government investment, government transfer to the private sector, (all expressed as a ratio of gross national product), were assumed. In each case the assumption of monetary finance of the consolidated public sector budget deficit was expressed as the ratio of base money creation to the consolidated public sector budget deficit net of net financial transfer abroad. The rest of the deficit was assumed to be financed by domestic borrowing. Hence we assumed,

$$\Delta BM = h.(PD+iD_{-1}+ei^*D_{cp}^* -1-e\Delta D_{cp}^*) \quad (6.44)$$

where  $h$  is the above mentioned ratio of base money creation to the consolidated public sector budget deficit net of net financial transfer abroad. Using the definition (6.42) we may rewrite this equation as:

$$\Delta BM = h.pd.P.(1+g)y_{-1} + h.(iD_{-1}+ei^*D_{cp}^* -1-e\Delta D_{cp}^*) \quad (6.45)$$

Since  $BM_{avg}$  may be approximated by  $BM_{-1} + \Delta BM/2$  where  $BM_{-1}$  is the end of last period base money stock, the monetary component equation (6.30) becomes:

$$P.(1+g) = [v_{BM}/(1-v_{BM} \cdot h/2)].(BM_{-1}+iD_{-1}+ei^*D_{cp}^* -1-\Delta D_{cp}^*).(1/y_{-1}) \quad (6.46)$$

Using the above model, various scenarios were developed in order to investigate the effects of a transfer abroad on the growth rate and on the inflation rate. As our model does not treat the determination of the price level deflated nominal exchange rate in a detailed and

accurate framework, the results concerning it are not of interest. The price level deflated nominal exchange rate was used in order to obtain the real TL equivalent of the items denominated in foreign currency and has a separate and explicit influence only in the import equation. This scheme determines the movement of the price level deflated nominal exchange rate to a large extent. Hence, the movement in price level deflated nominal exchange rate is similar in each of the scenarios: a higher level of NICA necessitate a larger depreciation in the price level deflated nominal exchange rate in the first year. However, adjustment in the foreign sector is almost totally completed in the first year and price level deflated nominal exchange rate begins to appreciate thereafter. As we did not find this movement in the price level deflated nominal exchange rate of interest, we preferred not to report the simulation results in every scenario. However they may be easily calculated from equation A1.16.

In the following analysis, first a base scenario will be formulated on the assumption that the economy will continue to make foreign transfers abroad in the 1992-2000 period just as in the 1984-90 period. Second, the amount to be transferred abroad will let to alter giving the opportunity of analyzing the effect of an heavier transfer as well as a zero transfer burden. How the economic performance changes with the change in the distribution of transfer burden between the public and private sector is also compared. Lastly, relative effectiveness of the alternative ways of financing the transfer (by decreasing the primary deficit via a cut in investment outlays, current expenditures or an increase in government revenues; by money creation or by domestic borrowing) is investigated. In the simulation studies the three basic equations of the model, equation (6.43), (6.46) and (6.38) are used. The solution procedure is straightforward and may be found in Appendix 1.

#### **6.4.1 Base Scenario**

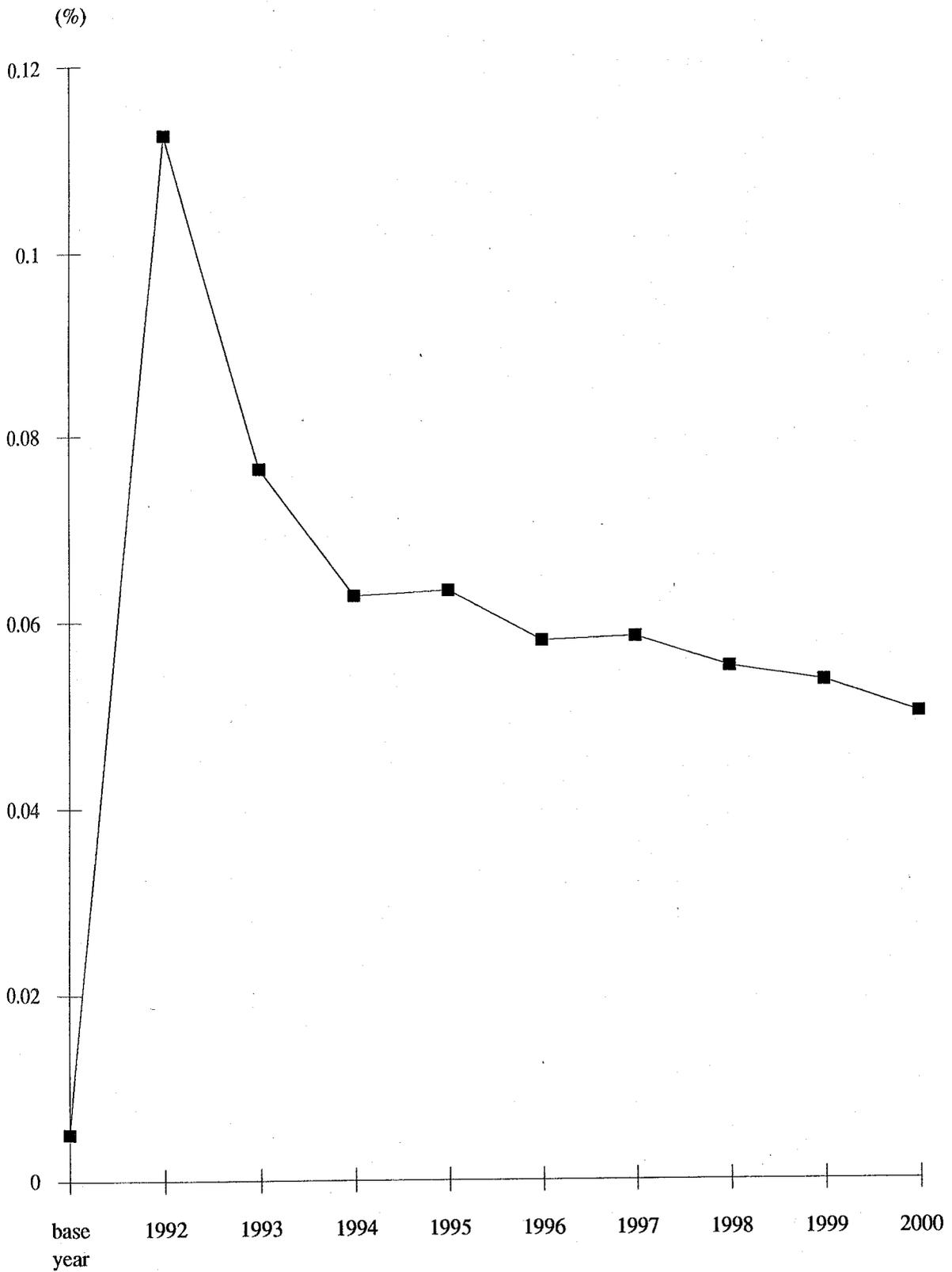
The base scenario is formulated on the assumption that the general economic conditions and public finance parameters which prevailed in the 1984-90 period will persist throughout the 1990s. It is assumed that the economy will continue to make net transfers abroad equal to \$ 2000 million per year. The ratio of the external transfer by the government to GNP is 2 % which indicates that the public sector realises 99 % of total transfers in 1992. The tax ratio (tax revenue to GNP) is 27 % while transfers to the private sector is 7 %. The ratio of government fixed capital investment to GNP is 11 %. These ratios give a primary deficit of 2 % of GNP. It is assumed that 50 % of the primary deficit is financed by money creation and 50 % by domestic borrowing. All other parameters and predetermined variables are assumed to be equal to their base year (1991) values.

The simulation results under this scenario, indicate that, Turkey will continue to grow at reasonable rates although with a decreasing trend. The price level deflated nominal exchange rate will depreciate in order to generate a positive NICA in the first year. Since neither a tax reform which will increase public revenues, nor a sizeable cut in non-financial expenditures is assumed, the primary deficit will persist and will be financed by money creation as well as by domestic borrowing. This will aggravate inflation and will also lead to higher interest rates which will restrain private sector investment and thus GNP growth rate.

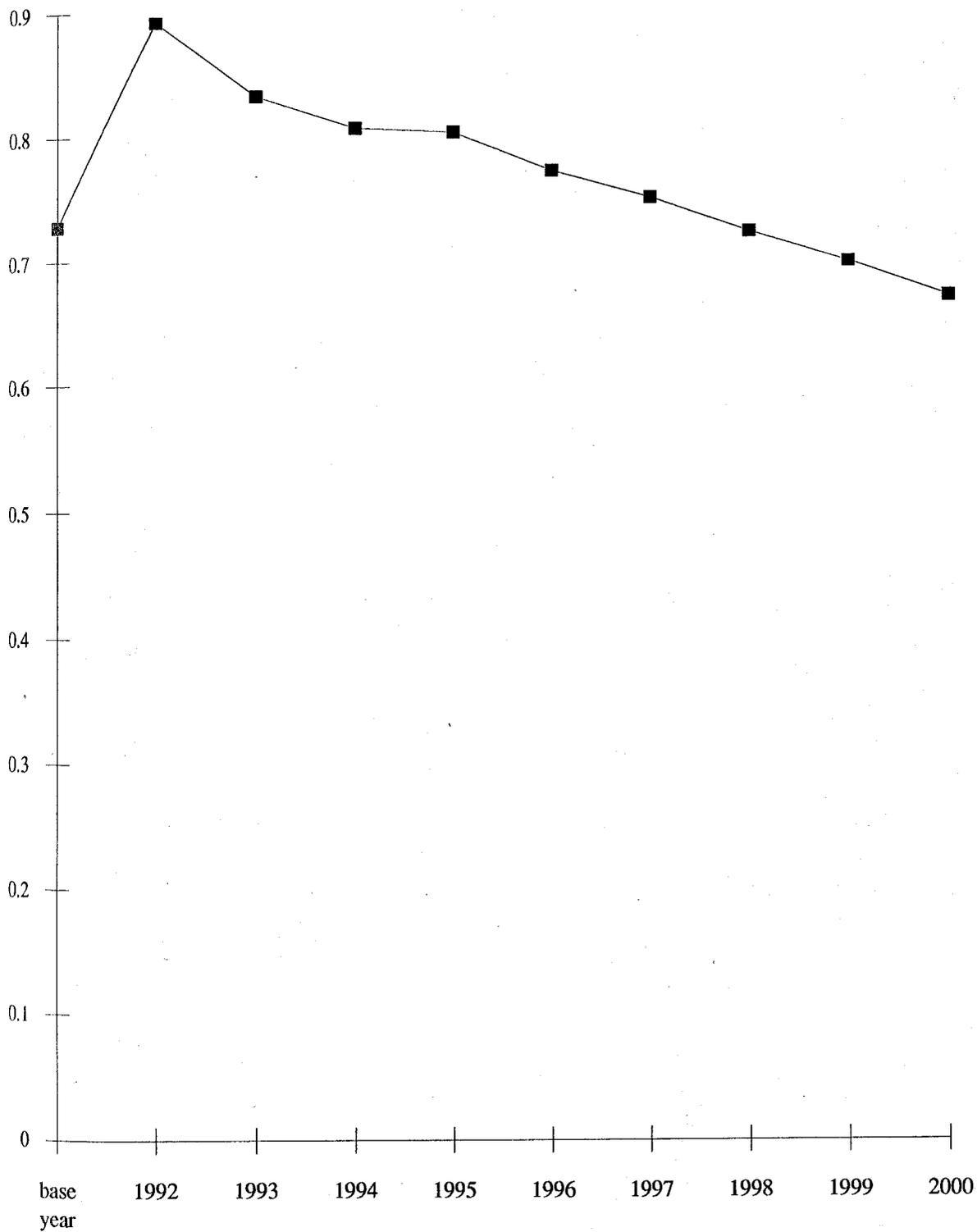
The growth rate attains a high value of 11.2% in 1992. It decreases rapidly in 1993 to 7.6 %. It continues to decrease in the remaining part of the decade but with a bi-annual oscillation. In the year 2000, it falls to 5 % which is a moderate growth rate.

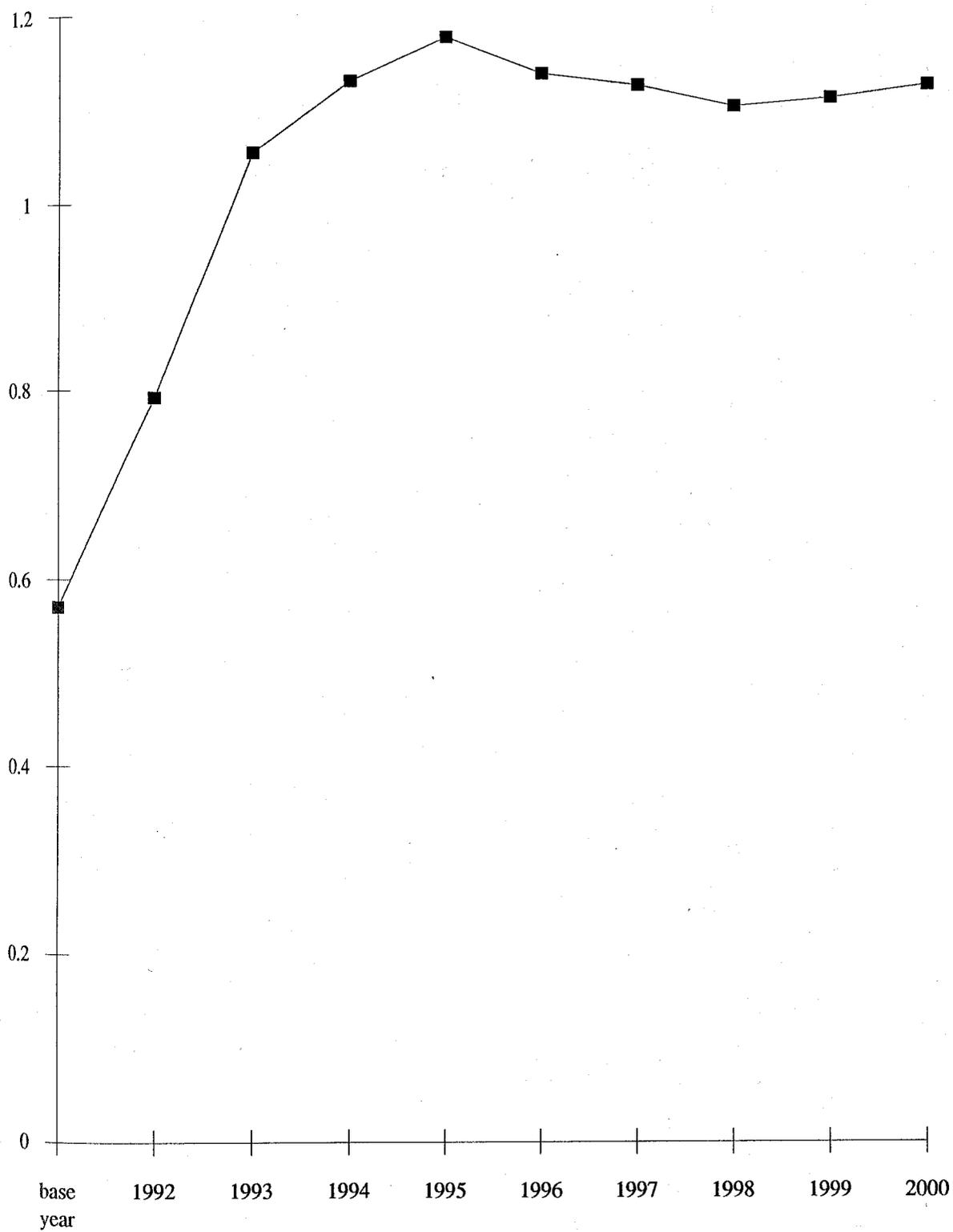
The price level deflated nominal exchange rate will depreciate in 1992, but will appreciate continuously thereafter.

The inflation rate will increase rapidly from a level of 57 % in 1991 to 179 % in 1995. It will slow down in the following three years but not by a significant amount. Inflation will continue to increase thereafter to reach 130 % in 2000.

**GRAPH 6.4 GROWTH RATE (BASE SCENARIO)**

**GRAPH 6.5 PRICE LEVEL DEFLATED NOMINAL EXCHANGE RATE (BASE SCENARIO)**



**GRAPH 6.6 INFLATION RATE (BASE SCENARIO)**

## 6.4.2 The Effect of a Foreign Transfer Burden

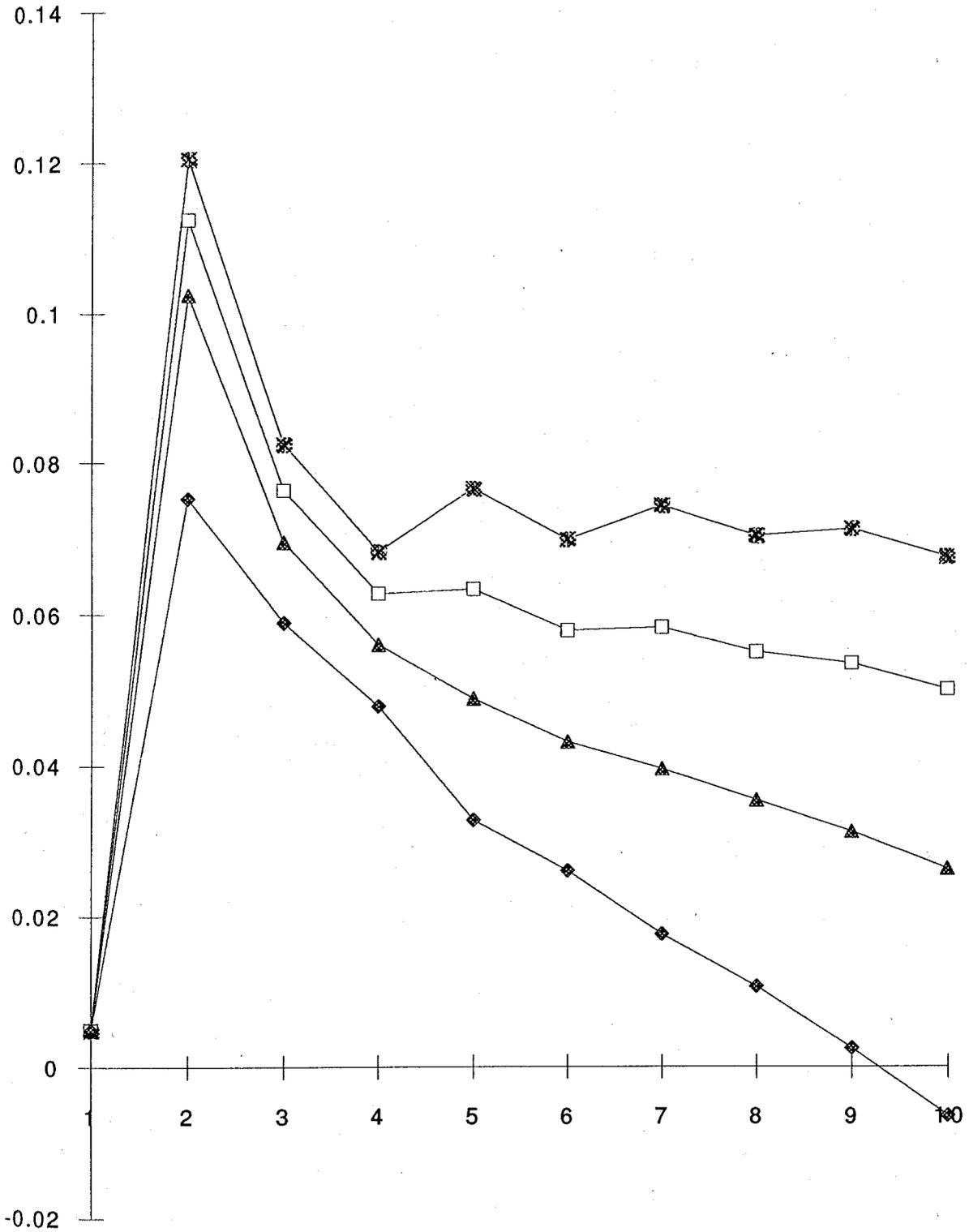
The need to generate a surplus of national income which will be transferred abroad (as measured by the non-interest current account deficit) will negatively affect the growth performance and price stability. However, our simulation results suggest that the negative effect is more severe as the share of the public sector in the transfer burden increases. In other words, the economy grows faster and the inflation rate is lower if the burden on the government (the ratio of net financial transfer by the government to GNP) is lower, even with a higher total transfer requirement (NICA).

**6.4.2.1. The Effect of Various Levels of Non-Interest Current Account and Net Financial Transfer by the Government:** The effect of a growing level of net transfers abroad on basic parameters is negative: growth slows down and inflation accelerates.

First we investigate the effect of an increase in NICA and an increase in net foreign transfer abroad realized by the government, other assumptions being the same. The low transfer case corresponds to a NICA of \$ 1000 million per year while the government makes a foreign transfer of 1 % of GNP every year. In this case, after attaining a high rate of growth of 12 % in 1992 from a level of nearly zero in the base year, the economy slows down. The growth rate almost stabilizes in the third year and remains at around 7 % with bi-annual cycles. However, higher levels of NICA restrains the output growth. After relatively higher levels of growth in the initial years, the growth rate slows down in every subsequent year. When NICA reaches \$ 5000 million per year, the growth rate decreases drastically and eventually attains negative values in the year 2000.

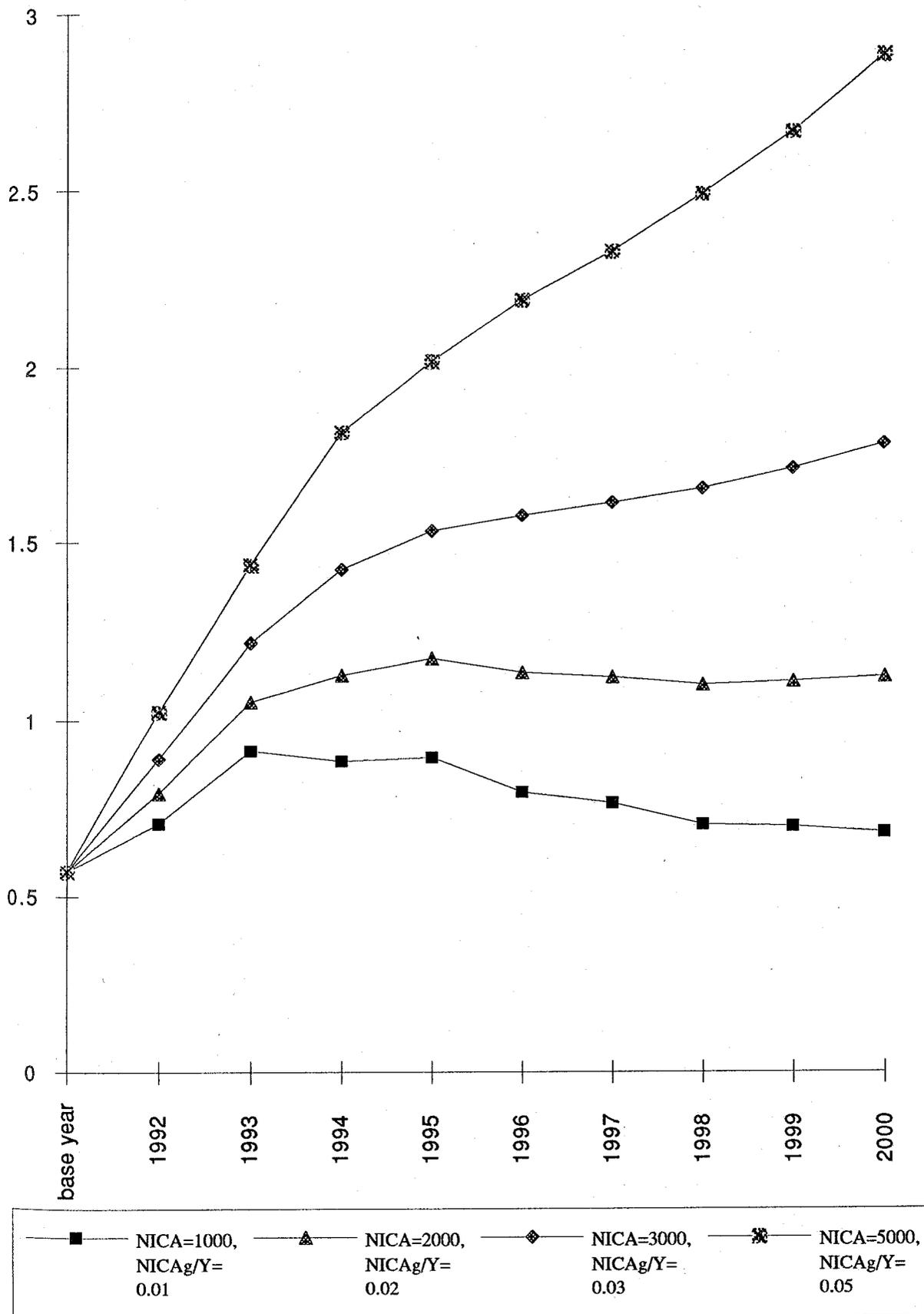
The price level is more sensitive to levels of net foreign transfer. The rate of inflation increases in the first two years at each level of NICA. For a level of NICA equal to \$ 1000 million, inflation proceeds at a decreasing rate after the second year when it hits a maximum of 91.3 %. Inflation slows down only after the fourth year for a yearly net foreign transfer of \$2000 million. For higher values of NICA, the inflation rate continues to increase indefinitely and at an increasing rate indicating that transfers abroad, without appropriate public finance measures may lead to hyper inflation. It hits nearly 300 % in the year 2000 with a net foreign transfer of \$ 5000 million per year.

**GRAPH 6.7 GROWTH RATES (cBM=% 50.0, cD=% 50.0)**



\* NICA=1000, NICAg/Y=0.01      □ NICA=2000, NICAg/Y=0.02      ▲ NICA=3000, NICAg/Y=0.03      ◆ NICA=5000, NICAg/Y=0.05

**GRAPH 6.8 INFLATION RATES (cBM=% 50.0, cD=% 50.0)**



**6.4.2.2. The Effect of Various Levels of Net Financial Transfers by the Government** In this scenario, it is assumed that economy as a whole makes a zero transfer to abroad i.e., the sum of the foreign transfer by the public sector ( $NFT_g$ ) and by the private sector is zero. The effect of a positive foreign transfer by the public sector which is compensated by a reciprocal negative transfer by the private sector is analyzed. Again under this scenario, higher levels of  $NFT_g$  disturbs growth and inflation.

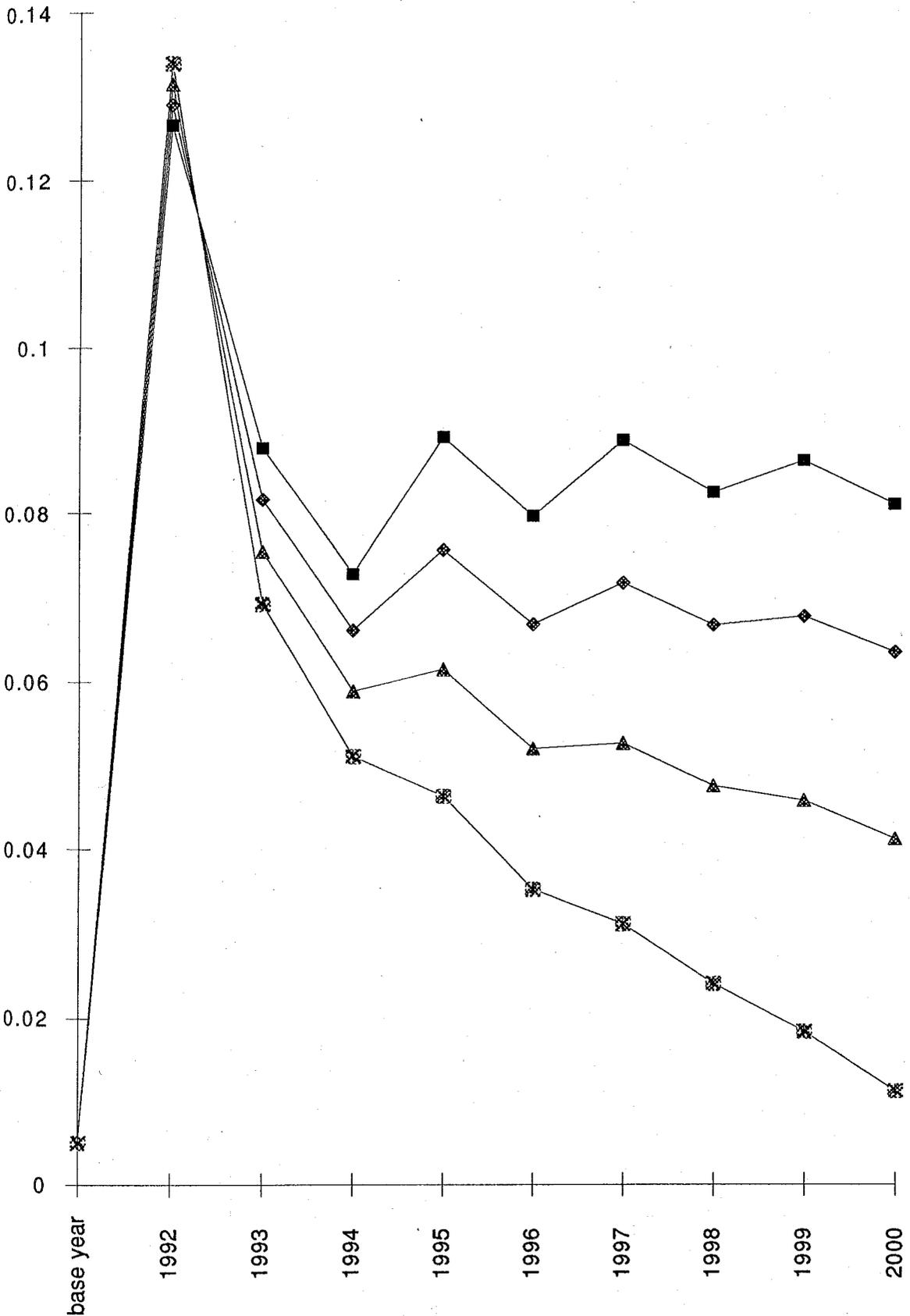
As the ratio of  $NFT_g$  to GNP rises, the growth rate increases in the first year but slows down in the remaining years. For a level of  $NFT_g/Y$  equal zero, the growth rate oscillates at around 8 %. As  $NFT_g/Y$  rises above two percent, the growth rate reaches a high of 13.4 % in the first year but decreases continuously to 1.1 % in the year 2000.

When appropriate public finance measures are not taken, the financial transfer abroad by the government necessitates that the internal transfer be mediated by money creation or by domestic borrowing. In each case, the inflation rate rises because of the heavier foreign transfer burden on the government. For the zero transfer case, inflation rises in the first two years. After 1993, the decrease in the ratio of foreign debt service to GNP reduces the internal transfer burden on public sector balances which works to reduce the rate of inflation. On the contrary, the rate of inflation tends to rise with a rise in  $NFT_g/Y$ . When  $NFT_g/Y$  equals 2 %, the inflation rate stabilizes at around 115 % after a high of 118 % in 1995. When  $NFT_g/Y$  equals 3 %, the inflation rate rises very fast in the beginning reaching 153 % in 1995 and continues to rise in the remaining years. Under this scenario the rate of inflation hits 187 % in the year 2000.

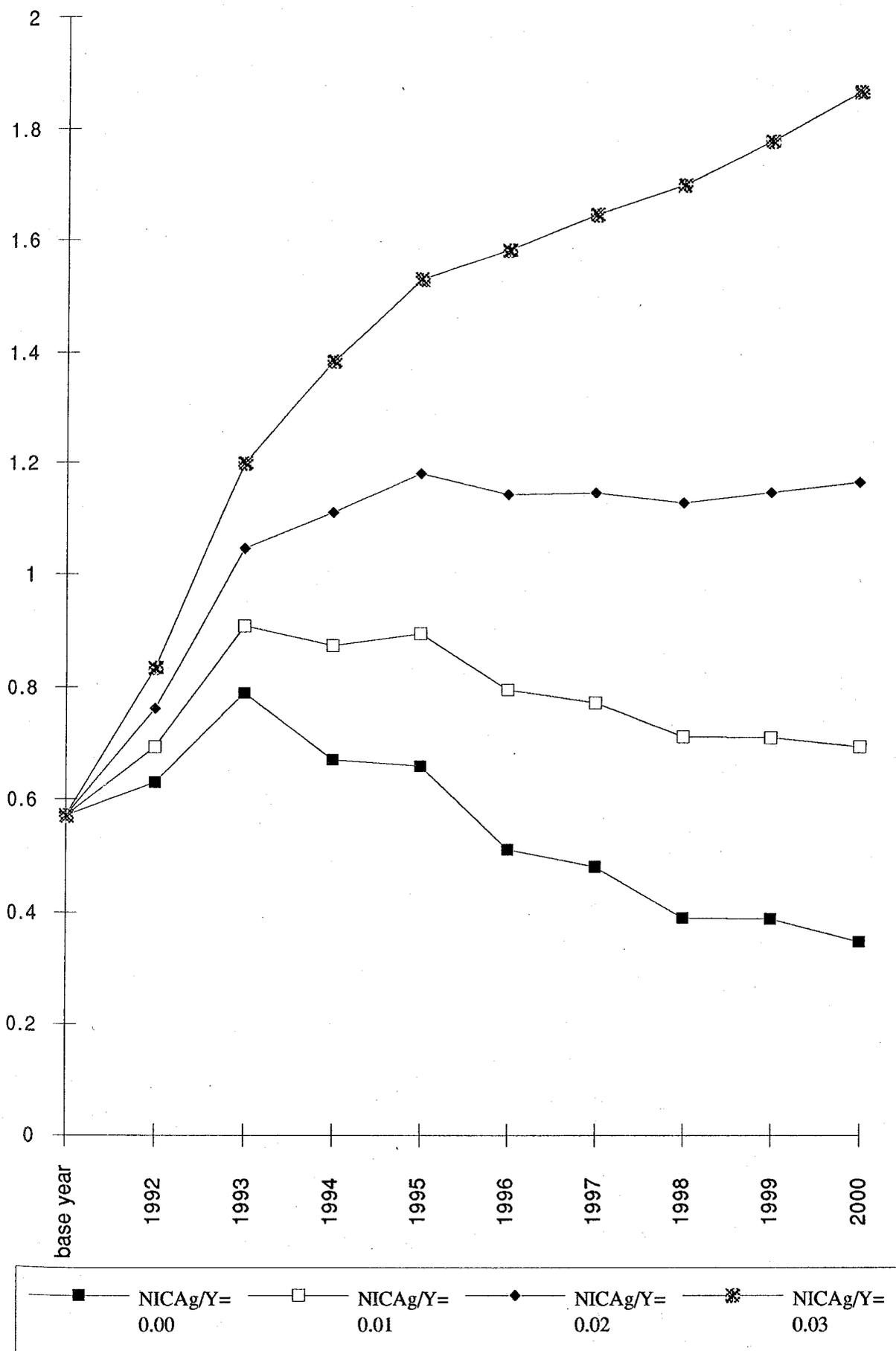
**6.4.2.3. The Effect of Various Levels of Net Foreign Transfers:** Under this scenario, the ratio of foreign transfers by the government to GNP is set to equal to 2 %, while the level of NICA is allowed to change. Under these conditions, as NICA rises, the basic parameters of the economy deteriorate in the first two years but improve thereafter. These results are in contrast with the results of the previous two scenarios, where the ratio of foreign transfers by the government to GNP is allowed to vary. In this trial, the share of the public sector in total foreign transfers ( $NFT_g/NICA$ ) is lower for higher levels of NICA. In fact this ratio is 43 % for a NICA of \$ 5000 million as against 200 % for a NICA of \$ 1000 million. Holding  $NFT_g/Y$  constant,  $NFT_g/NICA$  decreases throughout the period and we find out that higher levels of NICA yields preferable growth and inflation rates in the long-term.

The ratio of  $NFT_g$  to GNP remaining constant, higher NICA levels produce lower growth rates in the short term but a much better growth performance in the longer term. To illustrate this, we may compare the growth rates corresponding to NICA values of \$ 1000 million and \$ 5000 million. In the low NICA case, the 1992 growth rate is 12.3 % while it is merely 8.6 % for the high NICA case. However, in the long run, growth rates

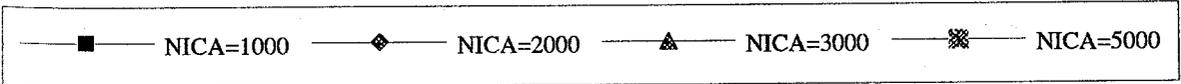
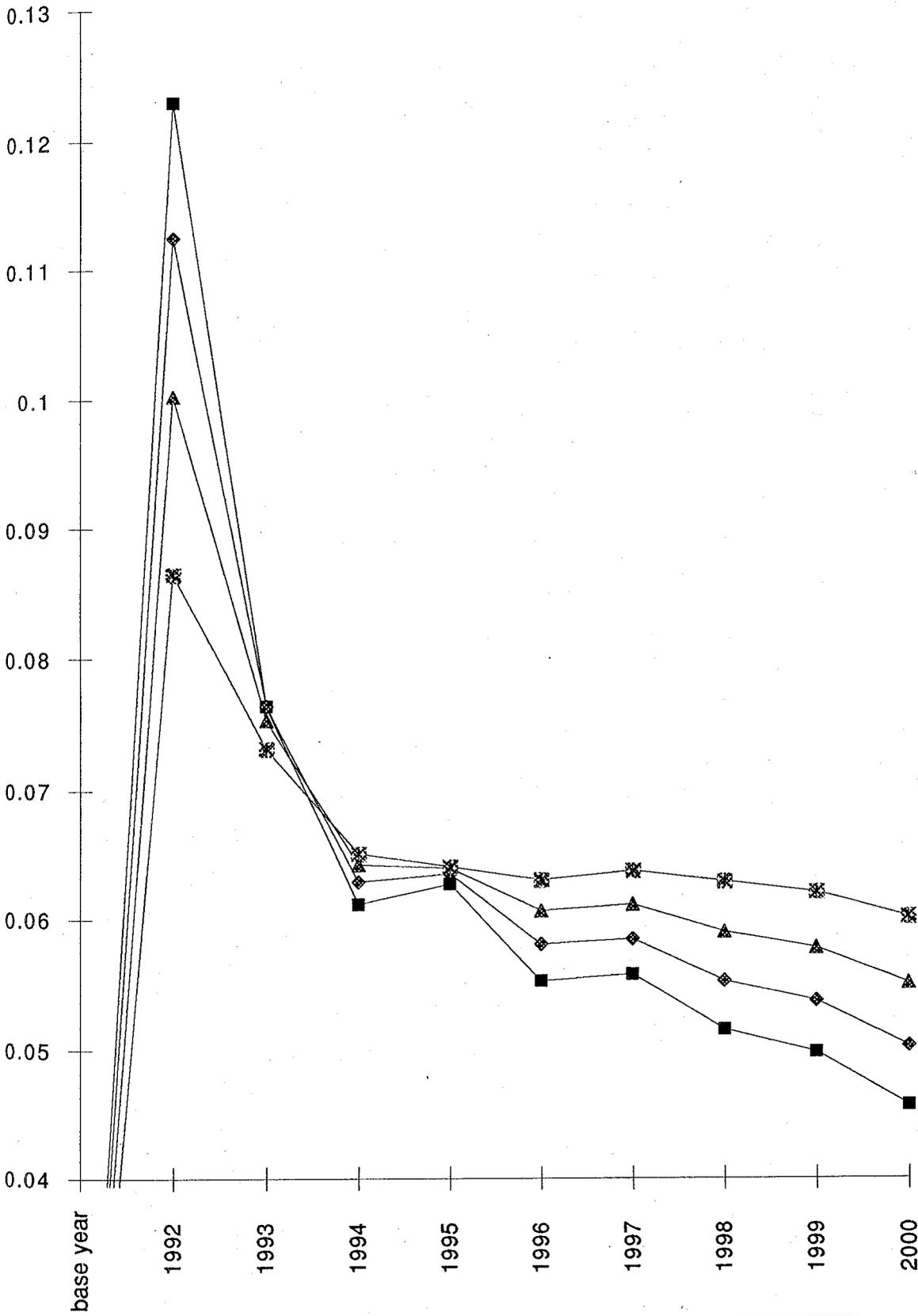
GRAPH 6.9 GROWTH RATES (NICA=0, cBM=% 50.0, cD=% 50.0)



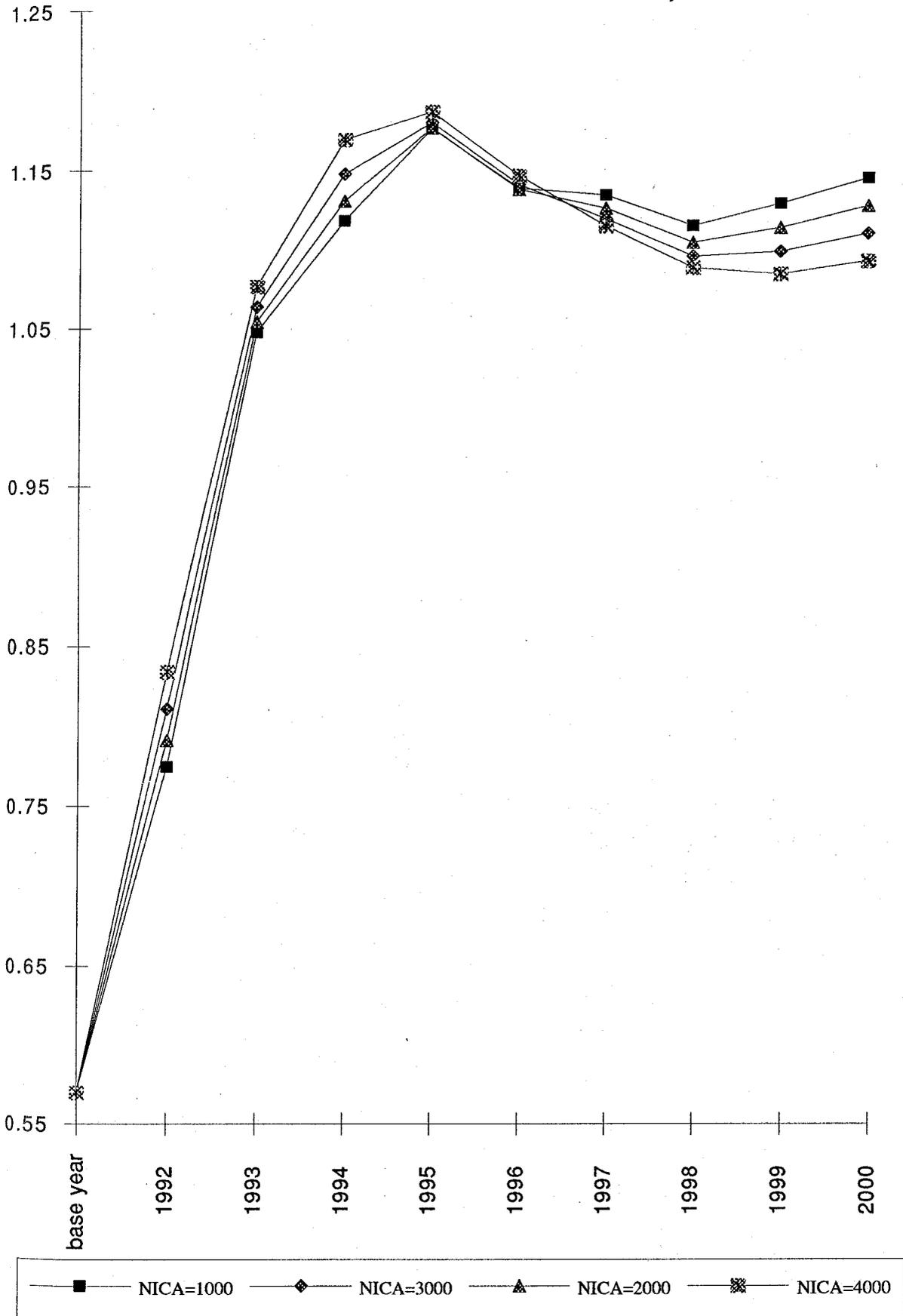
NICAg/Y= 0.00    
  NICAg/Y= 0.01    
  NICAg/Y= 0.02    
  NICAg/Y= 0.03

**GRAPH 6.10 INFLATION RATES (NICA=0, cBM=% 50.0, cD=% 50.0)**


GRAPH 6.11 GROWTH RATES (NICA<sub>g</sub>/Y=0.02,  
cBM=% 50.0, cD=% 50.0)



**GRAPH 6.12 INFLATION RATES (NICAg/Y=0.02,  
cBM=% 50.0, cD=% 50.0)**



corresponding to the low NICA value decrease continuously to 4.8 %; while those corresponding to high NICA value do not fall below 6.0 % level.

Inflation increases rapidly at similar rates in the first four years to reach around 180 % in 1995. In the first five years the inflation rate is higher for higher foreign transfer requirements, but it is lower from 1997 onwards. The need to generate a higher external transfer stimulates money creation which accelerates inflation in the short term. In the long term foreign transfers by the government as a ratio of total foreign transfers decreases which lowers the amount of money creation.

This result illustrates an important difference between net financial transfers realized by the government and by the private sector. Net financial transfer realized by the private sector has much less severe impact on the economy. The borrowing and repayment strategy of the private sector reflects its time preference and does not disturb the basic equilibria of the economy. However net financial transfer of the public sector, through its impact on the monetary and domestic financial system, may have a devastating effect on the economy as the previous scenario has shown.

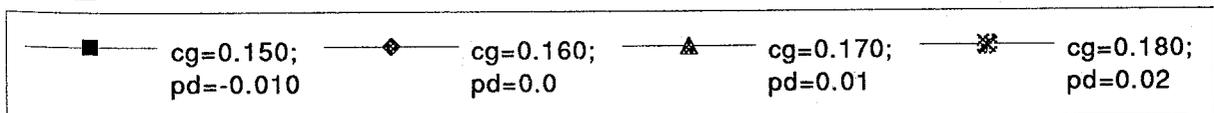
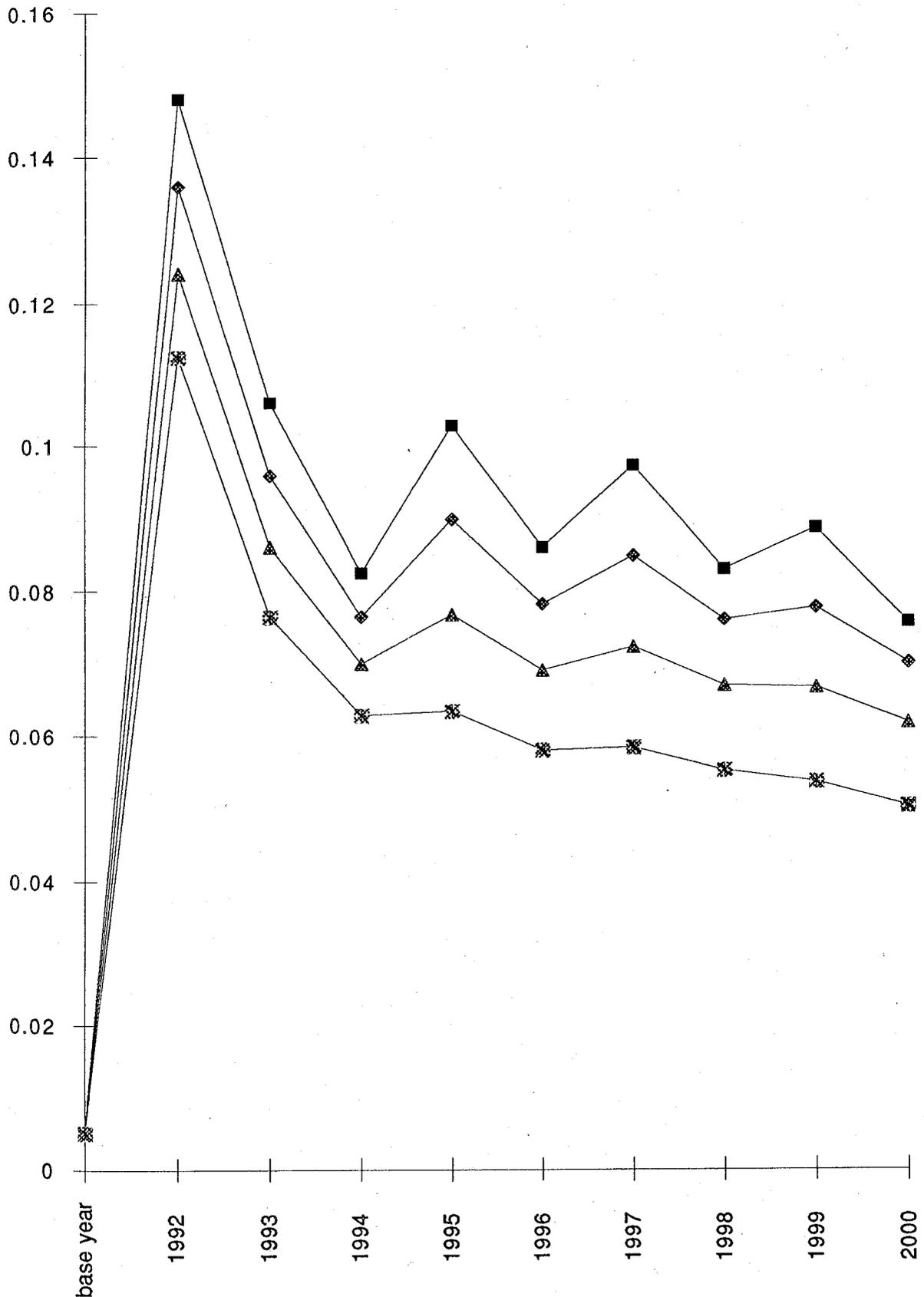
#### **6.4.3. The Effect of Decreasing the Primary Deficit**

This section attempts at analyzing the effect of an adjustment in the primary deficit in order to generate the internal transfer corresponding to a given level of foreign transfer. First, the three ways of adjusting the primary deficit, namely, decreasing government current consumption, decreasing government fixed capital investment and increasing government revenues, are analyzed separately. A comparison between the three methods is then undertaken to assess their relative effectiveness. The comparison shows that the most effective way is the expenditure cuts policy, followed by the tax policy and finally a cut in investment outlays.

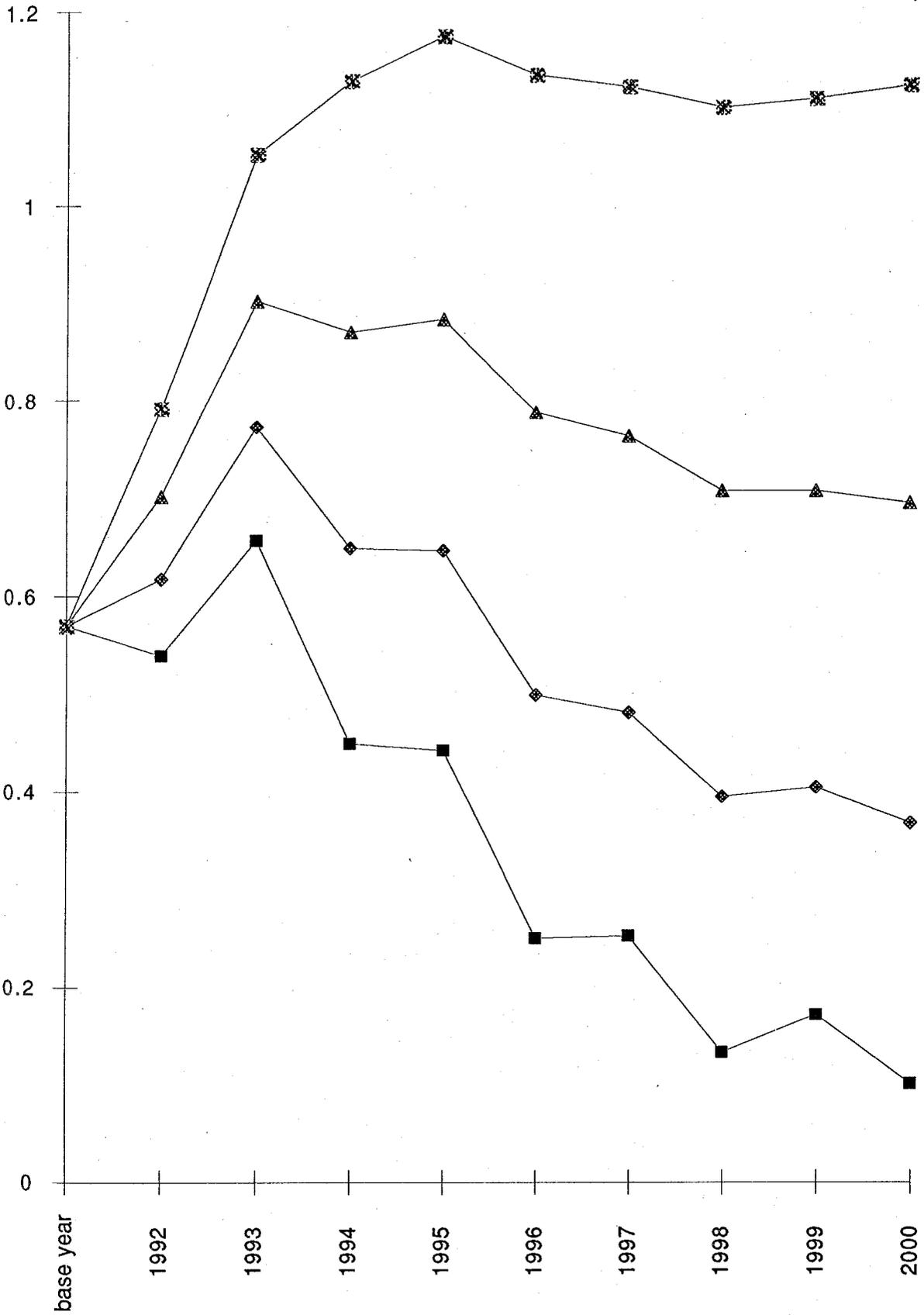
**6.4.3.1. The Role of Decreasing Government Current Consumption:** A decrease in the ratio of government current consumption to GNP ( $C_g/Y$ ) improves the growth and inflation rates. In these simulations, the transfer abroad is assumed to be the same as in the base scenario (\$ 2000 million), but the improvement in growth and inflation is more visible for larger values of foreign transfers.

The decrease in  $C_g/Y$  from 18 % in the base scenario to 15 % lowers the ratio of primary deficit to GNP ( $pd/Y$ ) from 2 % to a primary surplus of 1 %. The improvement in

GRAPH 6.13 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



**GRAPH 6.14 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50**



cg=0.150; pd=-0.010    
  cg=0.160; pd=0.0    
  cg=0.170; pd=0.01    
  cg=0.180; pd=0.02

the primary deficit reduces the volume of the internal transfer from the private to the public sector which reduces the pressure on inflation and private sector's investable funds.

The growth rate yields a similar pattern in the first three years for every level of  $C_g/Y$  (relatively higher in the first year which is followed by lower rates in the following two years). From 1994 onwards, the growth rate shows a decreasing pattern. As the consumption rate decreases the bi-annual oscillation in the growth rate becomes steeper.

As expected, the inflation rate slows down with the decrease in the  $C_g$ . For  $C_g/Y$  equal to 18 % (as in the base scenario) inflation rate first increases rapidly, then slows down, but starts to rise again in the last two years. It shows a decreasing trend after the second year with  $C_g/Y$  equal to 17 % and 16 %. As  $C_g/Y$  falls to 15 %, the rate of inflation decreases slightly in the first year, rises to 65 % in 1993 only to fall to a low of 10 % in the year 2000.

**6.4.3.2. The Role of Tax Policy:** As in the previous scenario, the growth rate increases and the inflation rate decreases together with the increase in the tax ratio for every level of NICA. Again basic parameters improve more under larger values of NICA.

A tax rate of 27 % gives a primary deficit of 2 % (base scenario) while primary surplus equals to 1 % for a tax rate of 30 %.

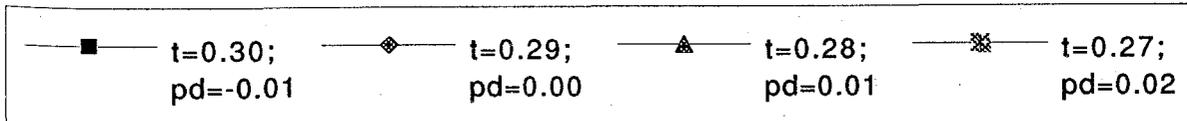
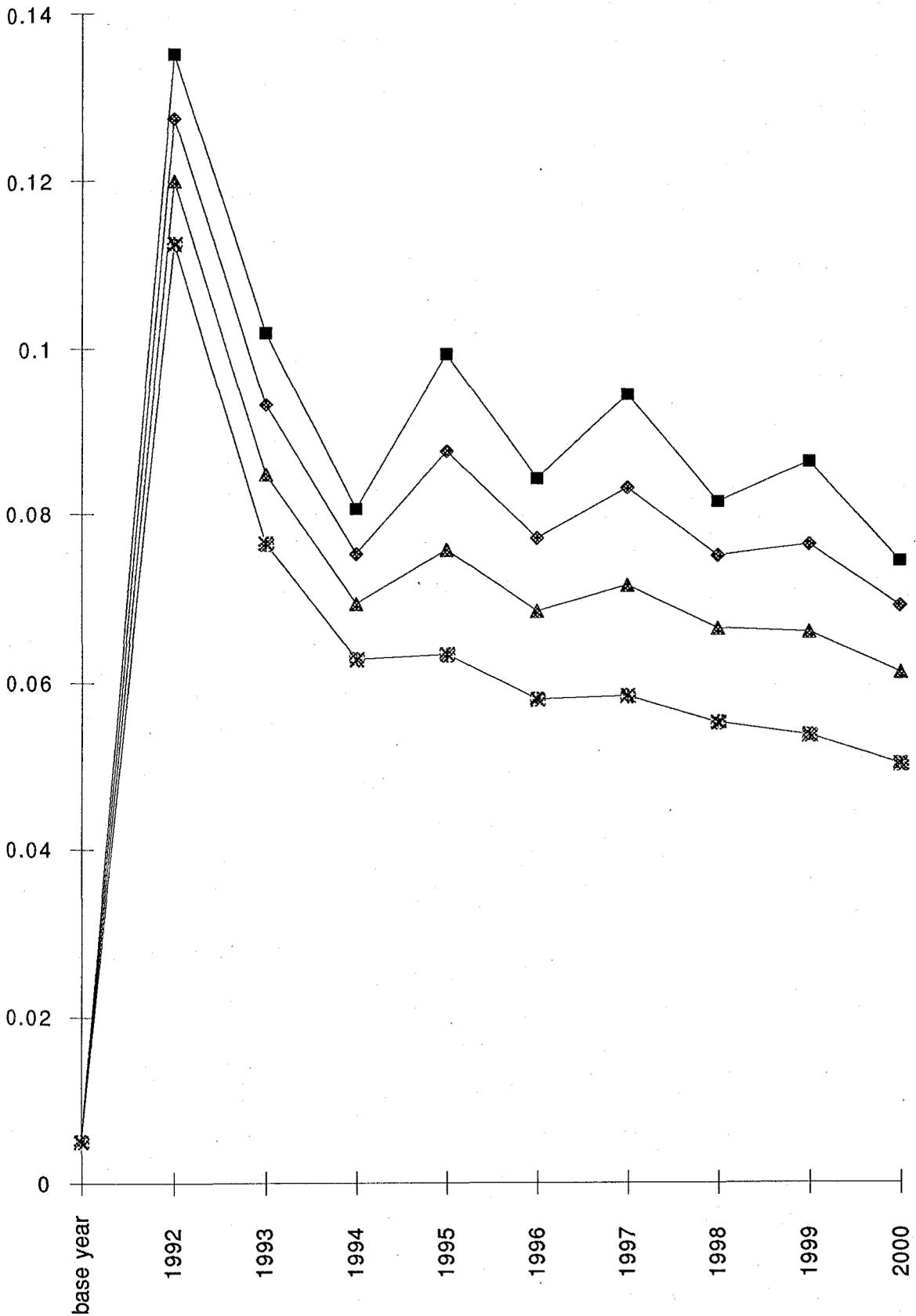
The patterns for growth and inflation rates are similar to those in the previous scenario where the effect of a decrease in government current consumption was analyzed.

**6.4.3.3. The Role of Government Investment:** From the second year onwards, the growth rate, the price level deflated nominal exchange rate and the inflation rate assumes similar patterns as in the previous two scenarios. The growth rate increases and the inflation rate decreases with the decrease in the investment ratio for every level of NICA. Again the basic parameters improve more under larger values of NICA.

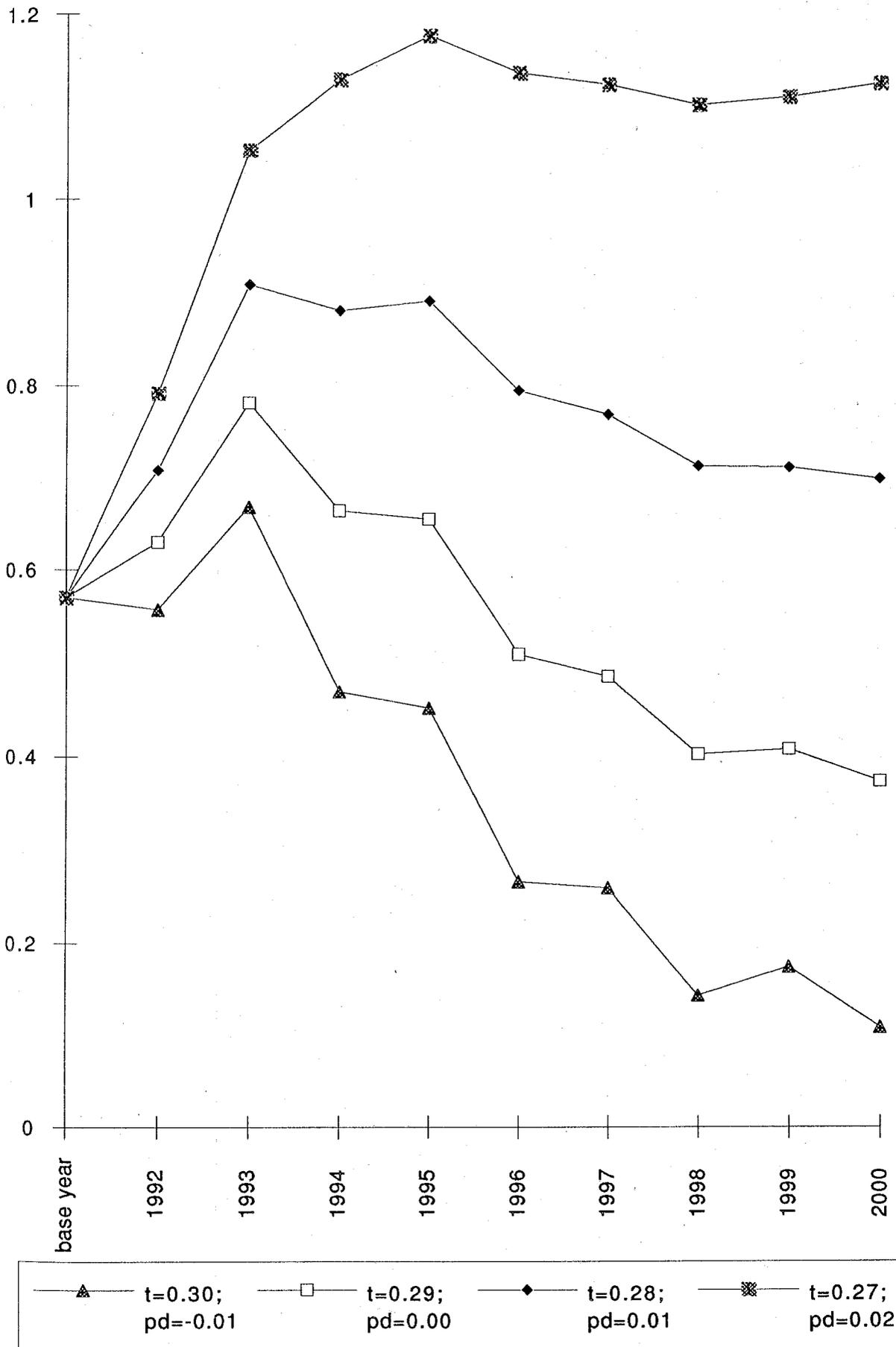
The increase in the ratio of government investment to GNP does not stimulate output since the primary deficit widens, the effect of which is to reduce private sector's investable funds. On the contrary, the increase in money creation in order to finance a larger primary deficit, fuels the inflation rate. Hence, under the stimulating impact of higher values of government investment, growth rate increases in the first year, but with the increasing public deficit, the growth rate decreases for higher government investment in the remaining years.

**6.4.3.4. The Relative Effects on Growth and Inflation of Adjustments in Government Consumption, Tax Rate and Government Investment for a Given Decrease in Primary Deficit:** For a given level of NICA,  $NFT_g$  and primary deficit, an adjustment in public finances has a positive effect on all parameters under

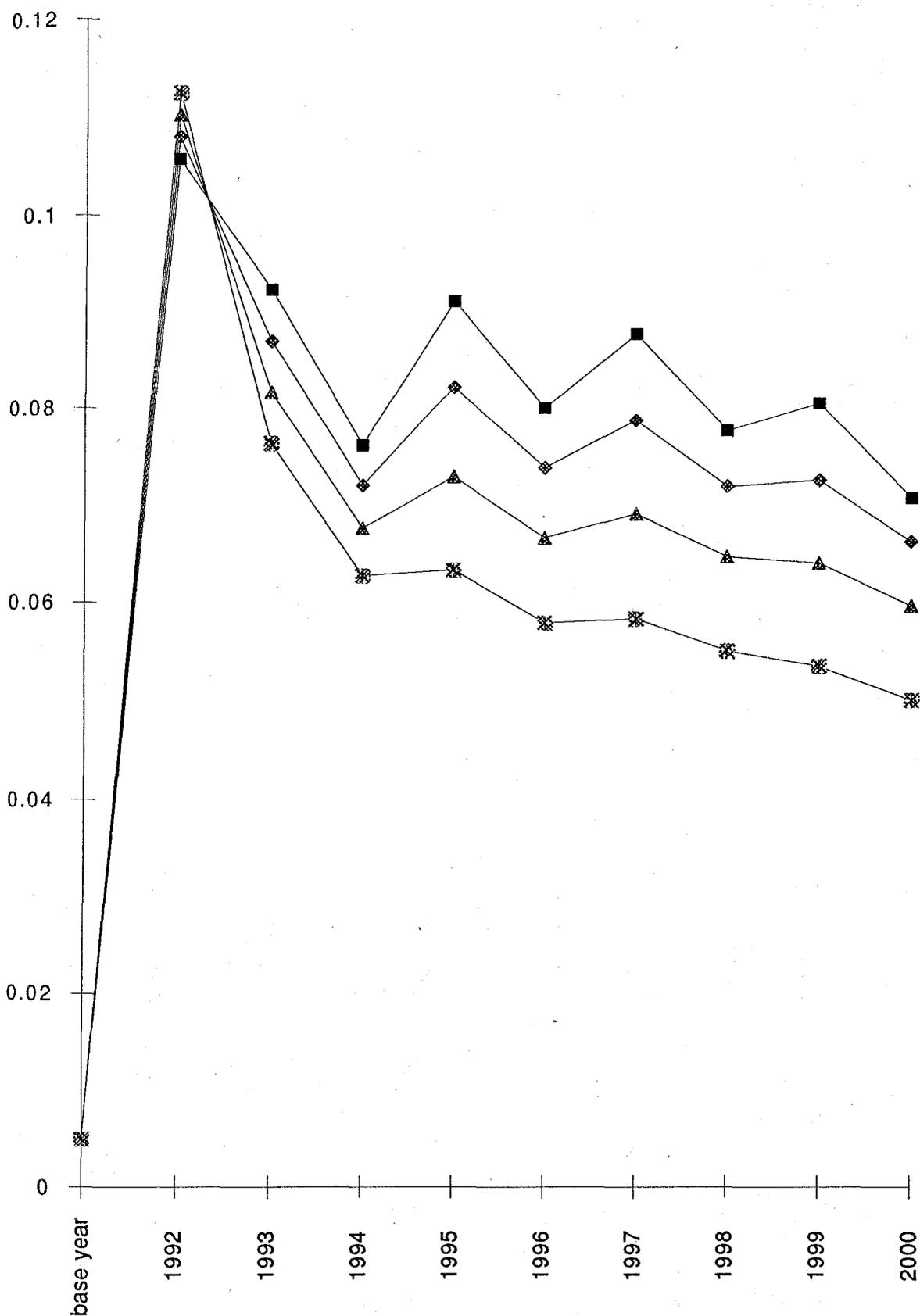
**GRAPH 6.15 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)**



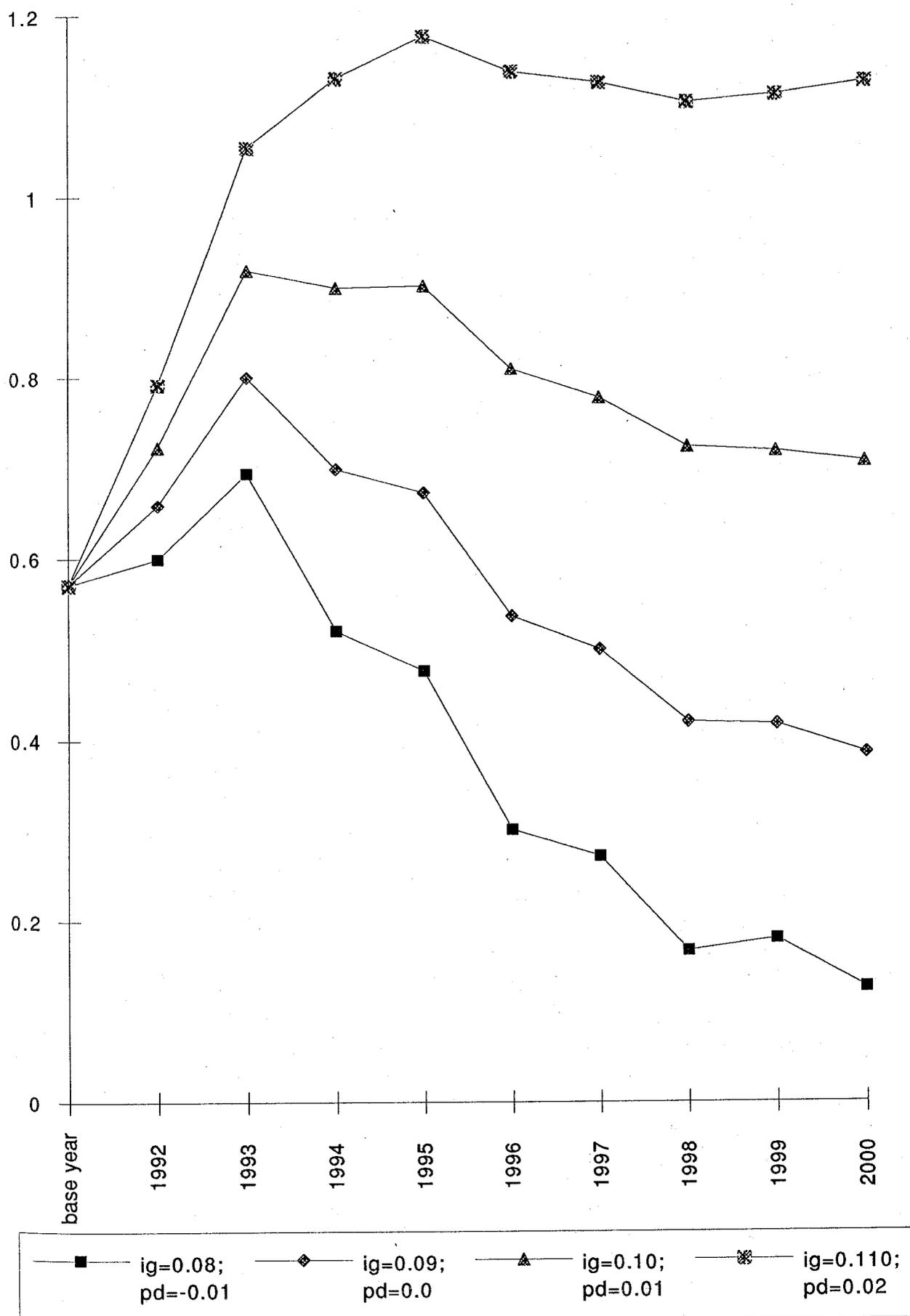
GRAPH 6. 16 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



GRAPH 6.17 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



ig=0.08; pd=-0.01
  ig=0.09; pd=0.0
  ig=0.10; pd=0.01
  ig=0.110; pd=0.02

**GRAPH 6.18 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)**


consideration whether it is through an increase in public sector revenues, a decrease in expenditures, or a decrease in government investment. Our simulations further illustrate that this positive effect is strongest when the adjustment is made through an expenditure cut. Moreover, the improvement obtained by an expenditure cut as against the other two options, gets bigger as the primary deficit improves. On the other hand, when the primary deficit reaches 2 % of GNP as in the base scenario, all the three options yield the same results for the growth rate, inflation rate and the price level deflated nominal exchange rate, implying that when a sizable primary deficit exists, its reduction is a much more important issue than the particular policy selected to achieve this reduction. Once the primary deficit shrinks to a reasonable level, however, it is wise to lower it further by preferring a cut in expenditures rather than a cut in investment or an increase in taxes.

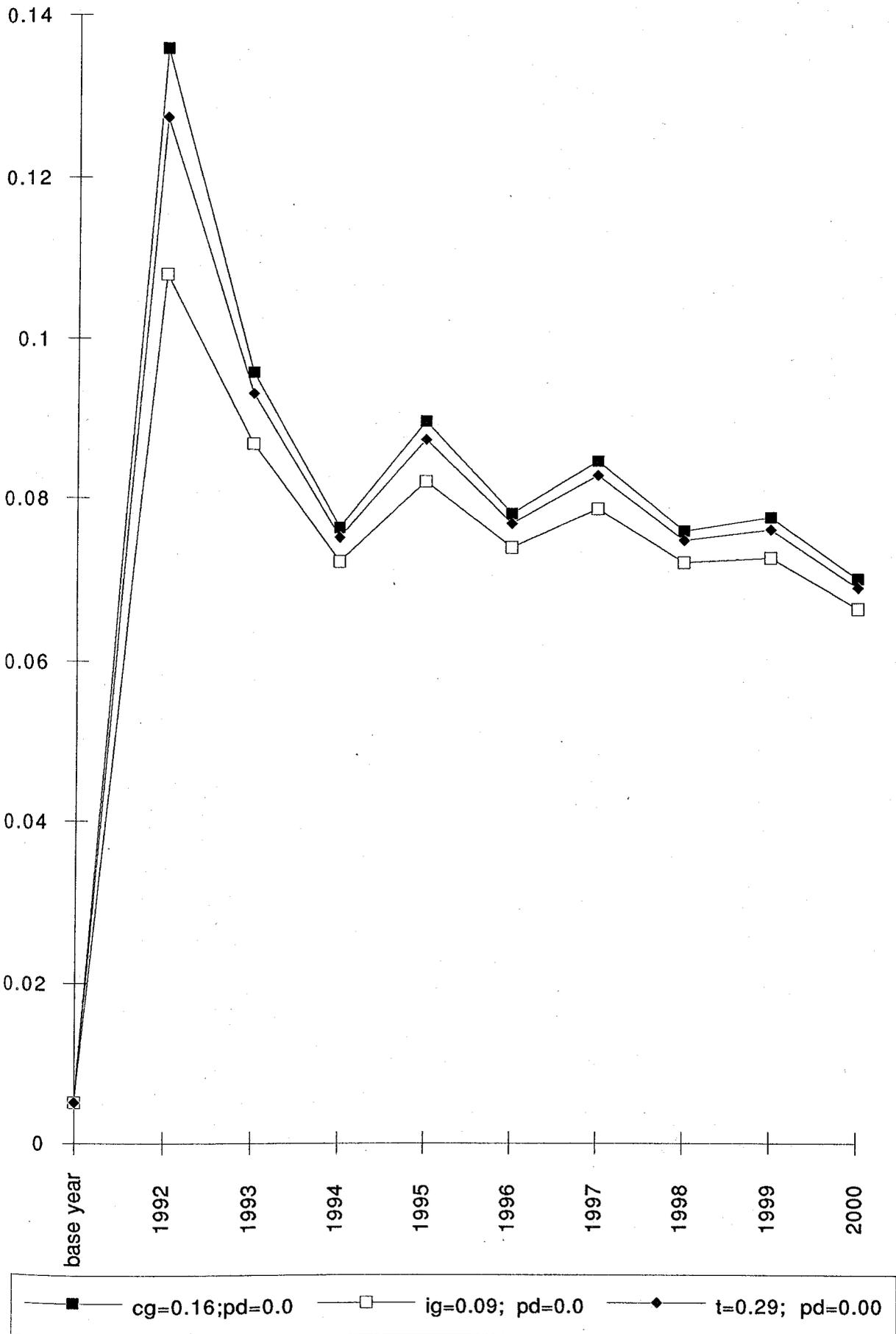
While it may be politically the most difficult option, cutting public expenditures leaves private investable funds intact and permits the partial positive effect of government investment to operate. When this option is not available, a revenue adjustment appears as the second best option. While a tax increase reduces the disposable income and hence the investible funds of the private sector, if it is used to reduce the primary deficit, the tax increase enhances growth and reduces the inflation rate. Finally, although it is not as effective as the other two previous policies, decreasing government investment has a comparable positive effect on the model variables. This may appear counter-intuitive because our model does not assume different efficiencies for private or public sector investments. It seems that the best investment for the government is to reduce the primary deficit from the point of reinforcing growth.

For a primary deficit of 2 %, the growth rate is 11.2 % and inflation rate is 79.2 % in 1992 for all of the cases. As the primary deficit improves, the effect of expenditure reduction on the growth and inflation rates become apparent.

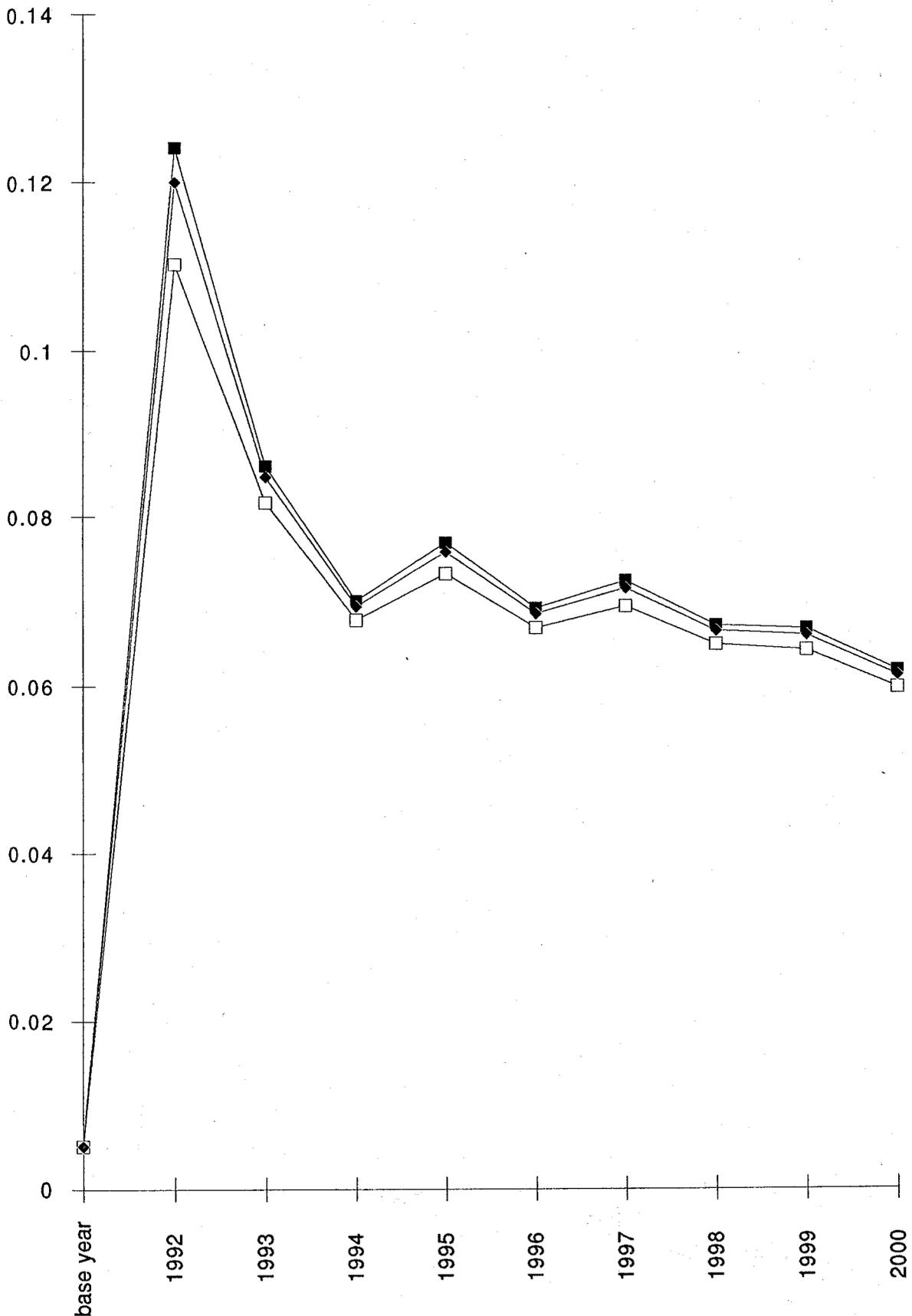
In the case of a balanced primary budget which is attained by decreasing the investment rate to 9 %, raising the tax rate to 29 %, and reducing the consumption rate to 16 %, the growth rate rises to 10.8 %, 12.8 % and 13.6 %, respectively, in 1992. These figures reduce to 6.7 %, 6.9 % and 7.0 %, respectively, in the year 2000. In 1992, the inflation rate of 61.7 % attained by reducing government expenditure, is lower than that attained under other options which are 62.9 % for raising taxes and 65.8 % for reducing the investment rate. These figures are 36.9 %, 73.4 %, and 38.7 %, respectively in the year 2000.

As the primary deficit rises to a surplus of 1 %, the growth rate is 10.6 % for a decrease in investments, 13.5 % for a tax increase, and 14.8 % for a reduction in government consumption in 1992. These figures are 7.1 %, 7.4 %, and 7.6 %, respectively in the year 2000. In 1992, the inflation rate is 54 % if the reduction in the primary deficit is due to a decrease in government expenditure, 55.7 % for raising taxes and 59.9 % for

**GRAPH 6.19 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)**

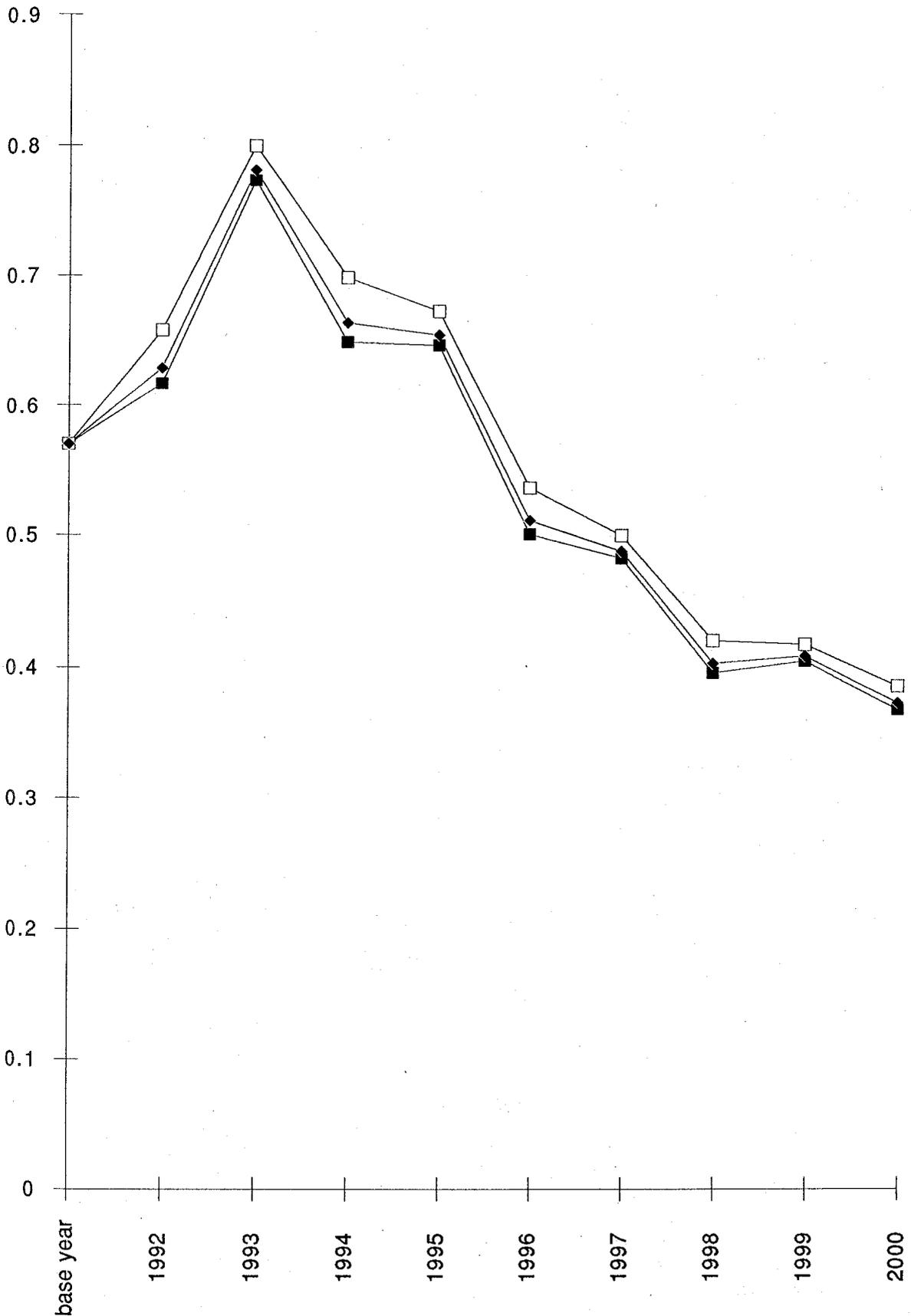


GRAPH 6.20 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



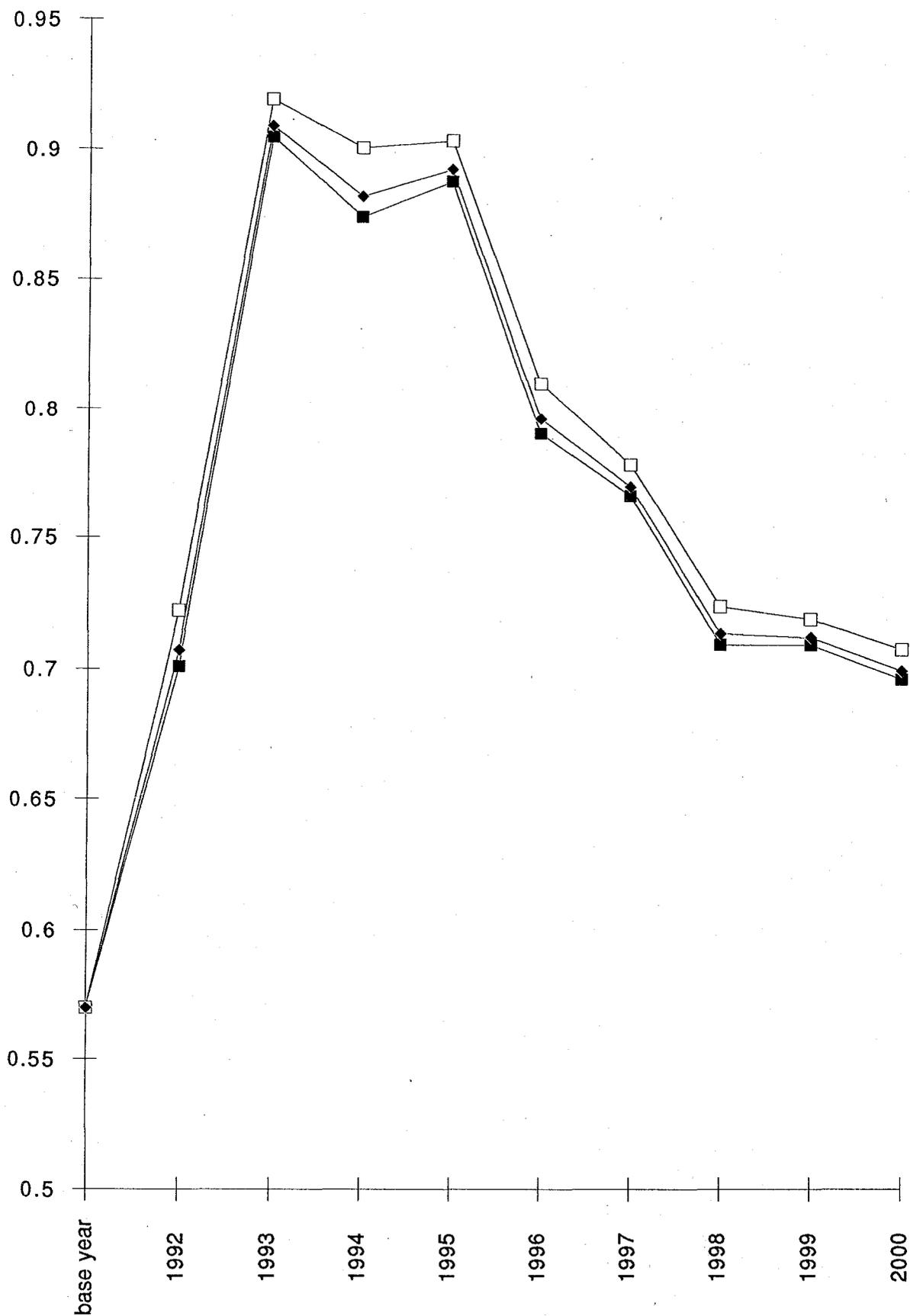
cg=0.17; pd=0.01
 
 ig=0.10; pd=0.01
 
 t=0.28; pd=0.01

GRAPH 6.21 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



cg=0.16; pd=0.0
 
 ig=0.09; pd=0.0
 
 t=0.29; pd=0.00

GRAPH 6.22 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02, cBM=%50, cD=%50)



cg=0.17;pd=0.01
 
 ig=0.10; pd=0.01
 
 t=0.28; pd=0.01

reducing the investment rate. These figures fall to 10.1 %, 10.9 %, and 12.7 %, respectively, in the year 2000.

#### 6.4.4. Relative Effects of Domestic Borrowing and Money Creation

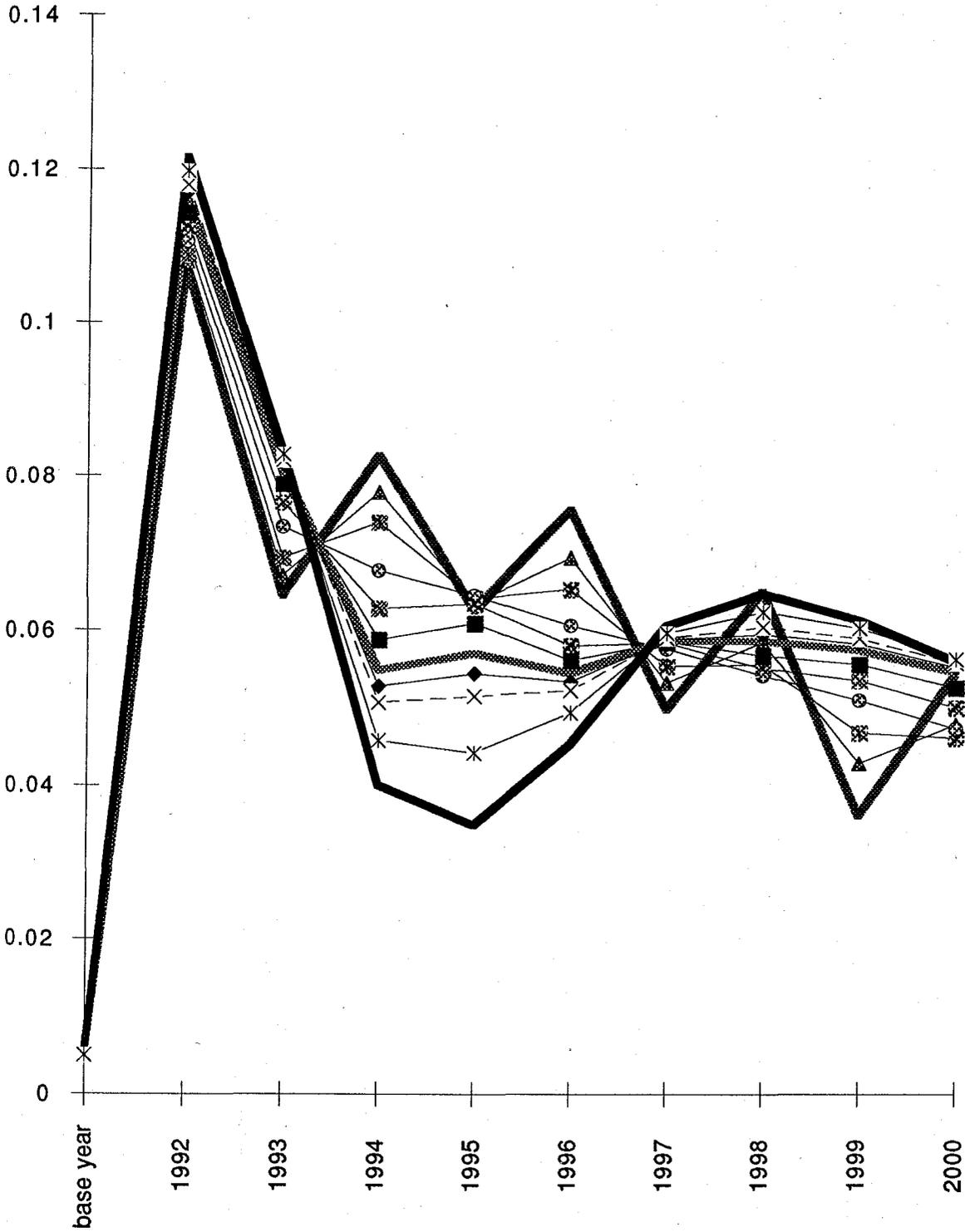
In the previous scenario we investigated the relative effects of the three policies of reducing the primary deficit (expenditure cut, tax rate increase and decrease in government investment) on growth and inflation performance. Here we assume that the government is not able to reduce the primary deficit to a level less than 2 % of GNP. Then the relevant problem is the choice of the optimum combination of monetary and fiscal policies to finance the primary deficit. Again we assume that the economy generates \$ 2000 million to transfer abroad and that the ratio of  $NFT_g$  to GNP is 2%.

The policies of financing a deficit solely by money creation or solely by domestic borrowing set the upper and lower boundaries for the inflation and growth rates. We observe that in the short-term both the growth and inflation rates are higher under a full money finance policy. In the medium-term, growth begins to rise while the inflation tends to decrease. In the long-term both the inflation rate and the growth rate are higher when compared with other combinations of money creation and domestic borrowing. Furthermore, the oscillation in the growth rate is severe for lower levels of money creation; the growth rate hyperbola becomes smoother as the ratio of money creation increases.

Growth accelerates in the first year and decelerates in the following year for every combination of money creation and domestic borrowing policies. In the first two years the maximum growth rate is attained under a 100 % money creation policy which releases the private sector's funds for investments. Domestic borrowing, besides reducing the private investible funds in the current year, will also destroy public balances by inflating interest payments in the following years. In the medium-term, high levels of inflation will reduce growth rates in comparison to an excessive domestic borrowing strategy. In the 1994-1996 period, the growth rate decreases for increasing levels of money creation. From that year onwards the maximum growth rate will again be attained under a 100 % money creation policy.

As to the inflation rate, it rises drastically in the 1992-94 period with higher levels of money creation. If the greater part of the deficit is financed by domestic borrowing, the pressure on the inflation rate in the medium term will be considerably less. The rate of inflation falls below the level of the base year with an 80 % domestic borrowing policy. A deficit, 40 % or more of which is financed by money creation, causes the inflation rate to tend to decrease after attaining a maximum in 1994 or in 1995 but tend to rise after 2-3

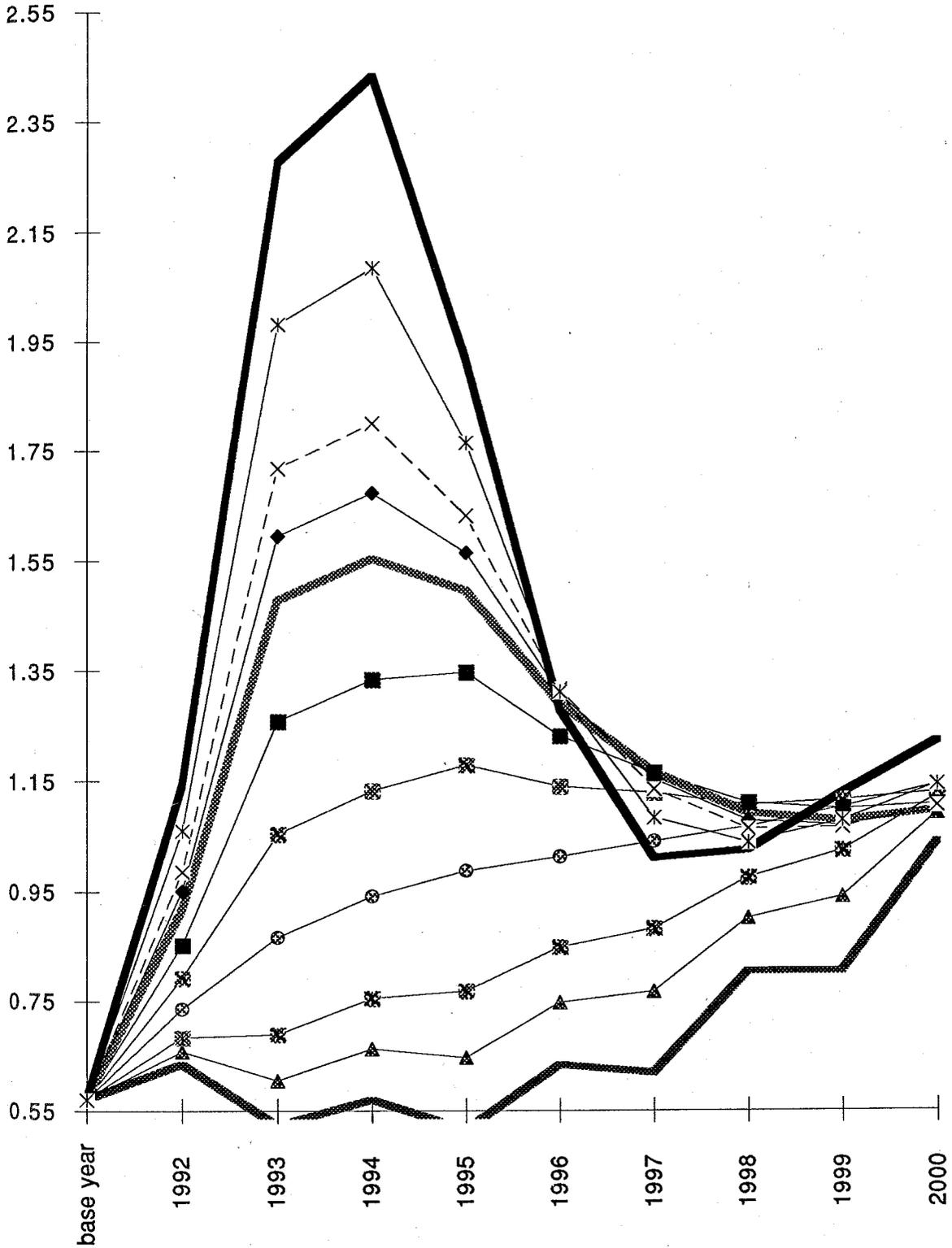
**GRAPH 6.23 GROWTH RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02)**



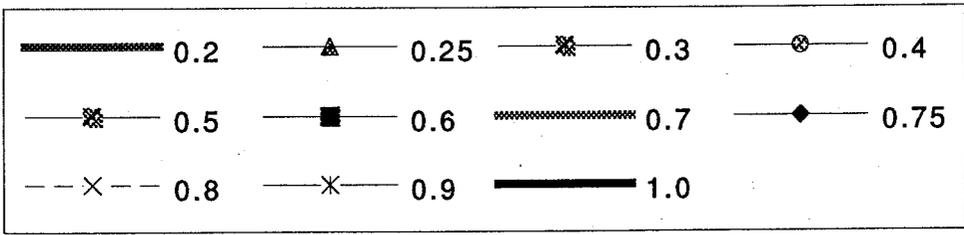
The share of money finance:

0.2	0.25	0.3	0.4
0.5	0.6	0.7	0.75
0.8	0.9	1.0	

**GRAPH 6.24 INFLATION RATES (NICA=2000, NICA<sub>g</sub>/Y=0.02)**



The share of money finance:



years. Since the primary deficit persists and at least some part of it is financed by money creation, inflation will continue to be a problem for the Turkish economy in the long-run.

## 6.5 Main Findings

The model developed in this section and the simulation analysis which follows illustrates the fact that a foreign transfer burden impedes growth and aggravates inflation in the short and in the long term. As the transfer burden rises above the historical levels in Turkey, e.g. \$ 5000 million, the economy runs into a depression-hyper inflation period.

Our results reveal an important point in analyzing the transfer process, that is, net financial transfer by the public sector ( $NFT_g$ ) and by the private sector ( $NFT_{priv}$ ) does not make the same impact. Foreign borrowing and then the corresponding foreign transfer by the private sector reflects a time preference and does not disturb the basic equilibria of the economy. However, net financial transfer by the public sector, through their impact on the monetary and domestic financial system has an extended impact on growth and inflation which may be devastating.

Nevertheless, when the government has to make a net financial transfer abroad, the best policy is to reduce the primary deficit. For high levels of primary deficit, each method of adjustment yields the same result. As the primary deficit falls to reasonable levels, expenditure reduction is the most effective tool in stimulating growth and reducing inflation, followed by tax increases and cut in investment outlays.

In cases where the government cannot decrease the primary deficit further, our simulation results suggest that monetary financing of the deficit yields higher growth rates in the short-term although it will also fuel inflation. Domestic borrowing on the other hand will be more successful in combating inflation in the long-term. Hence, our results once again illustrate the dilemma between money creation and domestic borrowing. Money creation may be used to induce growth in the short-term, and domestic borrowing used in order not to accelerate inflation.

## 7. CONCLUSION

The analysis of the transfer process in Turkey during the 1980-91 period illuminates the importance of internal transfers accompanying a foreign transfer requirement. When the foreign transfer is a requirement of the public sector while foreign exchange is earned by the private sector as is the case in Turkey, the corresponding internal transfer of an external transfer obligation necessitates a macroeconomic adjustment strategy incorporating monetary, fiscal and incentive policies to restructure the economy.

In this study the non-interest current account balance is used as a measure of the real external transfer. Using this measure, Turkey realized a net transfer abroad of \$ 16 billion between 1982-91. Net financial transfers, measured as the difference between new borrowings and repayments of principal and interest, reached \$ 6355 million during the period 1984-1991. This measure allows us to distinguish between the financial transfers undertaken by the public and the private sectors: while the public sector made a net financial transfer of \$ 6520 million the private sector received a net financial transfer of \$ 165 million. These figures display the important fact that the burden of the transfer rested chiefly on the public sector with important repercussions on public finances.

The transfer strategy adopted may be designated as growth-oriented export based adjustment. In order to accomplish the external transfer, trade balance adjustment was largely carried out by maintaining a growth rate of exports above the growth rate of imports. The export growth was accompanied by a shift in the commodity composition of exports, together with a geographical diversification of exports. Turkey transformed its economy from an agricultural goods exporter to neighboring countries, to an industrial goods exporter to a wide range of countries. The positive effect of the trade balance on the external transfer remained limited since expanding exports compensated only partially for the high level of imports. Hence, the adjustment in the non-interest current account was supported by an improvement in factor and non-factor services income from abroad. As compared to other major LDC debtors, the need to generate an export surplus on the merchandise trade balance has been less severe in the Turkish case.

A detailed analysis of sectoral trade balances illustrates that the trade balance improved for agricultural goods, mining and consumer products, but deteriorated for intermediary and investment goods. The improvement in the trade balance arose mainly from an increase in production rather than a decrease in domestic absorption. Furthermore, we observe that sectoral exports and output moved in a parallel way, i.e. in the rapidly

growing sectors, exports also grew fast. Flourishing exports by inducing output increases in the sectors where exporters made good use of export promotion policies, introduced a dynamism to the economy.

Relative prices were in accordance with transfer requirements. In the 1980-88 period, a repressive real wage policy, together with a policy of real depreciation and extensive subsidization of the export sector, contributed in an essential way to improving the price competitiveness of Turkish exports. The internal terms of trade also moved in favor of tradeables, directing resources towards these sectors.

The internal adjustment to foreign transfers was achieved through an increase in income rather than through a reduction in absorption. This was accomplished by investment growing slower than GNP in the 1980-85 period, and by the lower rate of growth of consumption in the latter part of the decade. The private sector's net savings surplus was channelled towards the public sector through domestic borrowing and the inflation tax.

The public sector resorted to each of the four known methods of raising the funds for the internal transfer i.e. reduction of public expenditure, increase in public revenues, domestic borrowing, and monetary financing. Until 1986, expenditure reduction was one of the methods used; from that year onwards, efforts aiming at expanding public revenues became more visible. However throughout the period, domestic borrowing and monetary financing were also used in varying amounts. As fiscal discipline was not a successful aspect of the adjustment process, both domestic borrowing and monetary financing created predictable complications: domestic borrowing, which was heavily used in the latter part of the decade raised interest rates and became detrimental for investment. Monetary financing, on the other hand, caused inflation and instability.

Furthermore, the specific way that Turkey chose to solve the external transfer problem, created some obstacles for the sustainability of transfers in the long-run: The adjustment of the foreign sector to the requirements of external transfers was partly accomplished by increasing exports of goods and services and partly by utilizing factor income from abroad. Exports were backed by an incentive scheme which motivated sales rather than production. This scheme was costly for the government. However, following its abolishment in 1988, Turkish exports lost competitiveness in international markets. In the domestic sphere, the government failed to reduce the primary deficit consistently. Hence the internal mobilization of resources were accomplished by monetary financing which led to mounting inflationary pressure and by domestic borrowing, which augmented the interest burden on public balances.

After 1988, political developments such as the decrease in the votes of the Özal administration and the abolishment of restrictions on labor had a profound effect on economic life. In this period, we observe developments which run counter to the

requirements of the real transfer: a real appreciation of the exchange rate, increases in the real wage rate, the suspension of tax rebates on exports, growth of the domestic absorption faster than GNP and GDP growth, the insufficiency of investment in tradeables sectors.

Consequently, these counter developments caused real transfers (as measured by the NICA balance) to decrease after 1988 in tandem with the deterioration of the trade balance, although net financial transfers from Turkey continued at a high level. Real transfers from Turkey would even have turned into negative in 1990 if the grants associated with the Gulf Crisis had not supplied additional foreign exchange resources.

Policies directed at solving the external transfer problem also had redistributive effects: resources were transferred from the private to the public sector and within the private sector, from low income earners to high income earners. The decreasing share of wage income in total value added was replaced by interest and profit income.

The Turkish transfer process in the 1980s can be divided into three sub-periods on the basis of the trends in the NICA and also shifts in economic policy: the 1980-83 period which may be denoted as the pre-transfer period, the 1984-88 period during which the external transfer proceeded in line with the requirements of the transfer theory and the 1989-1991 period, in which the conditions for the external transfer were severely undermined.

The 1980-83 period was marked by attempts at restructuring the Turkish economy. The January 24, 1980 measures were intended to give the economy an outward orientation, to liberalize the financial and trade sectors and to prepare the economy for the period of net transfers abroad. The 1980 coup-d'état helped this transformation by regulating the political life in accordance with the requirements of severe economic measures.

The results of the above mentioned measures were a slow down in the growth rate of income and absorption, a shift of resources from non-tradeables sectors to tradeables sectors and an improvement in the trade balance.

The 1984-88 period is marked by the increasing importance of net transfers which rose to 6.2 % of GNP in 1988. The growth of absorption lagged behind the growth of GNP in every year, suggesting that the country transferred abroad a part of her resources which could otherwise have been used domestically. However, high growth rates and flow of resources into tradeables sectors enabled the accomplishment of net transfers without resorting to excessive cuts in domestic absorption. The realization of real transfers in this period depended largely on the continuing expansion in exports. Internal transfers, on the other hand, relied mostly on domestic borrowing, while increases in tax revenue and the inflation tax also stimulated the internal mobilization of resources from the private to the public sector. But the rapid build-up of domestic debt via offering high real interest rates and the failure to undertake the necessary investments in tradeables sectors constituted the major bottlenecks which led to the unfavorable developments in the following period.

The year 1988 can be considered as a cornerstone for most of the policies relating to economic and political life. The most restrictive aspects of the social and political framework of the 1980 coup d'état dissipated during this year.

In the 1989-91 period, although net transfers continued as suggested by both the NICA balance and by financial transfers, the conditions for the sustainability of external transfers were largely hampered. The improvement in the trade balance was reversed in this period. The slow down in export growth can be attributed to a large extent to the curtailment of export incentives. The increase in real wages and the abandonment of the policy of rapid real depreciation of the TL reduced the price advantage of Turkish exporters. Developments in the world economy and politics were also influential in both the trade performance and the public sector balances. Economic crises in developed countries reduced their import demand, part of which fell on exports from Turkey. The Gulf crisis had a substantial adverse effect on the foreign sector by causing drops in export and tourism revenues along with workers' remittances, but the grants given to compensate its adverse effects narrowed the public sector borrowing requirement.

The public sector deficit increased to ever higher amounts as personnel expenditures and social services expenditures rose rapidly after 1988 under the pressure of political developments. The importance of net domestic borrowing increased while inflationary financing persisted. Since the growth rate fell below the real interest rate on domestic and foreign debt, the debt problem that Turkey faces will be aggravated as long as domestic and foreign borrowing continues. Monetary financing as an alternative to deficit financing by borrowing is not a long-term solution since it leads to hyper inflation and reduces growth in the following period. Thus the only viable option is to decrease the primary deficit.

Simulation analysis carried with a model developed to capture the basic features of the Turkish economy during the transfer process revealed similar conclusions.

A foreign transfer burden impedes growth and aggravates the inflationary problem both in the short and in the long term. As the transfer burden rises further, the economy runs into a depression-hyper inflation period.

Net financial transfers by the public sector ( $NFT_g$ ) and by the private sector ( $NFT_{priv}$ ) do not make the same impact on the economy. Foreign borrowing and the subsequent foreign transfer by the private sector is a reflection of the time preferences of economic agents and do not disturb the basic equilibria of the economy. However, net financial transfers by the public sector, through its impact on the monetary and domestic financial system, has an extended impact on growth and inflation which may be devastating.

When the government has to make a net financial transfer abroad, the best policy option is to cut down the primary deficit. For high levels of primary deficit, all measures

for deficit reduction yield similar results. As the primary deficit falls to reasonable levels, expenditure reduction is the most effective tool in stimulating growth and preventing inflationary pressures, followed by increasing taxes and cutting investment outlays .

In cases when governments cannot decrease the primary deficit further, our simulation results suggest that monetary financing of the deficit yields higher growth rates in the short-term although it will fuel inflation. Domestic borrowing, on the other hand, will be more successful in combatting inflation in the long-term. Hence, our results once more illustrate the dilemma between money creation and domestic borrowing. Money creation may be used to induce growth in the short-term, and domestic borrowing, in order not to accelerate inflation.

## APPENDIX 1. THE SOLUTION PROCEDURE OF THE MODEL

We reproduce here the three basic equations of the model, namely the growth component equation (6.25), the monetary component equation (6.30); and the NICA-NFT component equation (6.38):

$$g = \left\{ \frac{1}{[y_{-1} \cdot (1-s(\alpha_1+\alpha_2))]} \right\} \cdot \left\{ [\alpha_0+(\alpha_1+\alpha_2)sy_{-1}-\alpha_2 \cdot I_{-1}/P_{-1}+\alpha_3 \cdot \pi_{-1}] + (\alpha_1+\alpha_2) \cdot [s(R-T)+(T-C_g)-(1-s)iD_{-1}] \cdot (1/P) + (\alpha_1+\alpha_2) \cdot [si^*D_p^*_{-1}-(1-s)i^*D_{cp}^*_{-1}]+\Delta D_{cp}^*+\Delta D_p^* \right\} \cdot (e/P) \quad (A1.1)$$

$$P \cdot (1+g) = v_{BM} \cdot BM_{avg} \cdot (1/y_{-1}) \quad (A1.2)$$

$$g = (1/m_2) \cdot [A^* - NFT_{cp} - NFT_p + (x_0 - m_0) + (x_1 - m_1) \cdot t] - (m_3/m_2) \cdot (e/P) \quad (A1.3)$$

In order to obtain a more tractable form for our equation system, we will use the following definitions:

$$G1 = \left\{ \frac{1}{[y_{-1} \cdot (1-s(\alpha_1+\alpha_2))]} \right\} \cdot [\alpha_0+(\alpha_1+\alpha_2)sy_{-1}-\alpha_2 \cdot I_{-1}/P_{-1}+\alpha_3 \cdot \pi_{-1}] \quad (A1.4)$$

$$G2 = \left\{ \frac{1}{[y_{-1} \cdot (1-s(\alpha_1+\alpha_2))]} \right\} \cdot (\alpha_1+\alpha_2) \cdot [s(R-T)+(T-C_g)-(1-s)iD_{-1}] \quad (A1.5)$$

$$G3 = \left\{ \frac{1}{[y_{-1} \cdot (1-s(\alpha_1+\alpha_2))]} \right\} \cdot (\alpha_1+\alpha_2) \cdot [si^*D_p^*_{-1}-(1-s)i^*D_{cp}^*_{-1}]+\Delta D_{cp}^*+\Delta D_p^* \quad (A1.6)$$

$$K = v_{BM} \cdot BM_{avg} \cdot (1/y_{-1}) \quad (A1.7)$$

$$Z1 = (1/m_2) \cdot [NFT_{cp} - NFT_p + (x_0 - m_0) + (x_1 - m_1) \cdot t] \quad (A1.8)$$

$$Z2 = m_3/m_2 \quad (A1.9)$$

With relevant substitutions the equation system becomes:

$$g = G1 + G2 \cdot (1/P) + G3 \cdot (e/P) \quad (A1.10)$$

$$P \cdot (1+g) = K \quad (A1.11)$$

$$g = Z1 + Z2 \cdot (e/P) \quad (A1.12)$$

This equation system is nonlinear but analytically solvable. Inserting the expression for  $1/P$  from equation (A1.11), and expression for  $e/P$  from equation (A1.12) in the equation (A1.10), we obtain:

$$g = G1 + G2 \cdot (1+g)/K + G3 \cdot [(-Z1/Z2) + (g/Z2)] \quad (A1.13)$$

which may be reduced to:

$$g = \{G1 + G2/K - G3 \cdot (Z1/Z2)\} / \{1 - G2/K - G3/Z2\} \quad (A1.14)$$

The last expression may be substituted in place of the variable  $g$  in equations (A1.11) and (A1.12). which yield with straightforward manipulations:

$$P = \{K \cdot [1 - (G3/Z2)] - G2\} / \{1 + G1 - G3 \cdot (Z1/Z2) - G3/Z2\} \quad (A1.15)$$

$$e/P = \{G1 + (Z1+1) \cdot (G2/K) - Z2\} / \{Z2 - Z2 \cdot (G2/K) - G3\} \quad (A1.16)$$

Equations (A1.14), (A1.15) and (A1.16) give the values of  $g$ ,  $P$  and  $e/P$  in terms of  $G1$ ,  $G2$ ,  $G3$ ,  $K$ ,  $Z1$  and  $Z2$  which are expressions in terms of model parameters, predetermined, exogenous and policy variables. Hence these equations provide us the model solution. The variables which influence  $G1$ ,  $G2$ ,  $G3$ ,  $K$ ,  $Z1$  and  $Z2$  are given in Table A1.1, below.

TABLE A1.1

	Parameters	Predetermined variables	exogenous variables	policy variables
$G_1$	$\alpha_1$ $\alpha_2$ $\alpha_3$ $\alpha_4$ $s (s_0, s_1, s_2)$	$I_{-1}$ $\pi_{-1}$ $y_{-1}$ $s_{-1}$		
$G_2$	$\alpha_1$ $\alpha_2$ $s (s_0, s_1, s_2)$	$y_{-1}$ $s_{-1}$ $D_{-1}$	$i$	$T$ $R$ $C_g$
$G_3$	$\alpha_1$ $\alpha_2$ $s (s_0, s_1, s_2)$	$y_{-1}$ $s_{-1}$ $D_{-1}$ $D_{cp}^*{}_{-1}$ $D^*{}_{p-1}$ $\Delta D_{cp}$ $\Delta D_p^*$	$i$ $i^*_p$ $i^*_{cp}$	$T$ $R$ $C_g$
$K$	$v_{BM} (v_0, v_1, v_2, v_3)$	$BM_{-1}$ $y_{-1}$ $\pi_{-1}$	$t$ $ERIR$	$BM_{avg} (\Delta D, \Delta BM)$
$Z_1$	$m_0$ $m_1$ $m_2$ $x_0$ $x_1$		$t$ $A^*$	$NICA$ $NFT_{cp}$
$Z_2$	$m_2$ $m_3$			

The modifications required for the simulation analysis creates no difficulties. Instead of equation (A1.1) and (A1.2) we have to use equations (6.43) and (6.46), respectively, which are reproduced below:

$$g = \left\{ \frac{1}{[y_{-1} \cdot [1 - s(\alpha_1 + \alpha_2)(1 - t + r) + (\alpha_1 + \alpha_2)(t - c_g)]]} \right\} \cdot \left\{ [\alpha_0 + (\alpha_1 + \alpha_2)sy_{-1}(1 - t + r) + (\alpha_1 + \alpha_2)y_{-1}(t - c_g) - \alpha_2 \cdot I_{-1}/P_{-1} + \alpha_3 \cdot \pi_{-1}] + (\alpha_1 + \alpha_2) \cdot (s - 1)iD_{-1} \cdot (1/P) + (\alpha_1 + \alpha_2) \cdot [si^*D_p^*_{-1} - (1 - s)i^*D_{cp}^*_{-1} + \Delta D_{cp}^* + \Delta D_p^*] \cdot (e/P) \right\} \quad (A1.17)$$

$$P \cdot (1 + g) = [v_{BM}/(1 - v_{BM} \cdot h/2)] \cdot (BM_{-1} + iD_{-1} + i^*D_{cp}^*_{-1} - \Delta D_{cp}^*) \cdot (1/y_{-1}) \quad (A1.18)$$

Redefining G1, G2, G3, and K conveniently as:

$$G1 = \left\{ \frac{1}{[y_{-1} \cdot [1 - s(\alpha_1 + \alpha_2)(1 - t + r) + (\alpha_1 + \alpha_2)(t - c_g)]]} \right\} \cdot \left\{ [\alpha_0 + (\alpha_1 + \alpha_2)sy_{-1}(1 - t + r) + (\alpha_1 + \alpha_2)y_{-1}(t - c_g) - \alpha_2 \cdot I_{-1}/P_{-1} + \alpha_3 \cdot \pi_{-1}] \right\} \quad (A1.19)$$

$$G2 = \left\{ \frac{1}{[y_{-1} \cdot [1 - s(\alpha_1 + \alpha_2)(1 - t + r) + (\alpha_1 + \alpha_2)(t - c_g)]]} \right\} \cdot (\alpha_1 + \alpha_2) \cdot (s - 1)iD_{-1} \quad (A1.20)$$

$$G3 = \left\{ \frac{1}{[y_{-1} \cdot [1 - s(\alpha_1 + \alpha_2)(1 - t + r) + (\alpha_1 + \alpha_2)(t - c_g)]]} \right\} \cdot \left\{ (\alpha_1 + \alpha_2) \cdot [si^*D_p^*_{-1} - (1 - s)i^*D_{cp}^*_{-1} + \Delta D_{cp}^* + \Delta D_p^*] \right\} \quad (A1.21)$$

$$K = [v_{BM}/(1 - v_{BM} \cdot h/2)] \cdot (BM_{-1} + iD_{-1} + i^*D_{cp}^*_{-1} - \Delta D_{cp}^*) \cdot (1/y_{-1}) \quad (A1.22)$$

we may use the solutions given by equations (A1.14), (A1.15) and (A1.16).

## APPENDIX 2 REGRESSION RESULTS

LS // Dependent Variable is  $\Delta y$   
 Date: 1-01-1980 / Time: 0:37  
 SMPL range: 1980 - 1991  
 Number of observations: 12

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	3571.0478	1060.2613	3.3680829	0.007
I	0.0078138	0.0272045	0.2872226	0.780
R-squared	0.008182	Mean of dependent var	3752.436	
Adjusted R-squared	-0.091000	S.D. of dependent var	2824.534	
S.E. of regression	2950.251	Sum of squared resid	87039839	
Durbin-Watson stat	1.990661	F-statistic	0.082497	
Log likelihood	-111.8091			

LS // Dependent Variable is  $\Delta y$   
 Date: 1-01-1980 / Time: 0:38  
 SMPL range: 1980 - 1991  
 Number of observations: 12

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-2201.9127	3075.6045	-0.7159284	0.490
(I/P)	0.2962944	0.1487493	1.9919037	0.074
R-squared	0.284062	Mean of dependent var	3752.436	
Adjusted R-squared	0.212468	S.D. of dependent var	2824.534	
S.E. of regression	2506.576	Sum of squared resid	62829250	
Durbin-Watson stat	1.917349	F-statistic	3.967681	
Log likelihood	109.8534			

LS // Dependent Variable is  $\Delta y$   
 Date: 1-01-1980 / Time: 0:39  
 SMPL range: 1980 - 1991  
 Number of observations: 11

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	2298.4427	1657.6184	1.3865933	0.208
(I/P)	0.1261307	0.0726826	1.7353618	0.126
$\Delta(I/P)$	0.7517642	0.1243104	6.0474772	0.001
$\pi_{-1}$	-2992.7290	1572.0421	-1.9037206	0.099
R-squared	0.872229	Mean of dependent var	4158.915	
Adjusted R-squared	0.817470	S.D. of dependent var	2568.037	
S.E. of regression	1097.157	Sum of squared resid	8426273.	
F-statistic	15.92848	Log likelihood	-90.12766	

LS // Dependent Variable is s  
 Date: 1-01-1980 / Time: 0:41  
 SMPL range: 1980 - 1991  
 Number of observations: 11

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
$s_{-1}$	1.0961593	0.2121602	5.1666597	0.001
t	0.0037093	0.0037932	0.9778776	0.357
$\pi_{-1}$	-0.0586633	0.0355718	1.6491516	0.138
R-squared	0.932054	Mean of dependent var	0.192867	
Adjusted R-squared	0.915067	S.D. of dependent var	0.059865	
S.E. of regression	0.017447	Sum of squared resid	0.002435	
F-statistic	54.86988	Log likelihood	30.67784	

LS // Dependent Variable is s  
 Date: 1-01-1980 / Time: 0:41  
 SMPL range: 1980 - 1991  
 Number of observations: 11

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	0.0820487	0.0205090	4.0006165	0.004
t	0.0171552	0.0020018	8.5697886	0.000
$\pi_{-1}$	0.0157419	0.0296387	0.5311277	0.610
R-squared	0.901797	Mean of dependent var	0.192867	
Adjusted R-squared	0.877246	S.D. of dependent var	0.059865	
S.E. of regression	0.020975	Sum of squared resid	0.003519	
F-statistic	36.73190	Log likelihood	28.65209	

LS // Dependent Variable is s  
 Date: 1-01-1980 / Time: 0:42  
 SMPL range: 1980 - 1991  
 Number of observations: 11

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
s <sub>-1</sub>	1.2908758	0.0730512	17.670839	0.000
$\pi_{-1}$	-0.0832453	0.0251067	-3.3156611	0.009
R-squared	0.923932	Mean of dependent var	0.192867	
Adjusted R-squared	0.915480	S.D. of dependent var	0.059865	
S.E. of regression	0.017404	Sum of squared resid	0.002726	
F-statistic	109.3150	Log likelihood	30.05684	

LS // Dependent Variable is v<sub>BM</sub>  
 Date: 1-01-1980 / Time: 0:43  
 SMPL range: 1980 - 1991  
 Number of observations: 11

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	7.9303798	0.6652396	11.921088	0.000
t	0.4962553	0.0604558	8.2085588	0.000
$\pi_{-1}$	2.5193182	0.8363503	3.0122763	0.020
ERIR	0.0375689	0.0314869	1.1931600	0.272
R-squared	0.917589	Mean of dependent var	12.41641	
Adjusted R-squared	0.882269	S.D. of dependent var	1.724666	
S.E. of regression	0.591765	Sum of squared resid	2.451303	
F-statistic	25.97992	Log likelihood	-7.351309	

LS // Dependent Variable is M  
 Date: 1-01-1980 / Time: 0:44  
 SMPL range: 1980 - 1991  
 Number of observations: 12

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
	18597.693	2281.0638	8.1530788	0.000
t	1096.2446	89.528293	12.244673	0.000
g	1015.296	10906.625	1.9268377	0.090
e/P	-13737.875	2378.0131	-5.7770394	0.000
R-squared	0.970852	Mean of dependent var	12712.67	
Adjusted R-squared	0.959922	S.D. of dependent var	4926.377	
S.E. of regression	986.2361	Sum of squared resid	7781293.	
Durbin-Watson stat	1.538701	F-statistic	88.82149	
Log likelihood	-97.32122			

LS // Dependent Variable is X  
 Date: 1-01-1980 / Time: 0:44  
 SMPL range: 1980 - 1991  
 Number of observations: 12

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	6887.2618	2076.3220	3.3170489	0.009
t	1365.9273	79.714140	17.135320	0.000
e/P	-3904.7565	2047.1927	-1.9073713	0.089
R-squared	0.973443	Mean of dependent var	10750.75	
Adjusted R-squared	0.967542	S.D. of dependent var	5148.297	
S.E. of regression	927.5293	Sum of squared resid	7742796.	
Durbin-Watson stat	2.119436	F-statistic	164.9473	
Log likelihood	-97.29146			

LS // Dependent Variable is X  
 Date: 1-01-1980 / Time: 0:44  
 SMPL range: 1980 - 1991  
 Number of observations: 12

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	3045.2308	566.21917	5.3781838	0.000
t	1401.0035	87.196676	16.067166	0.000
R-squared	0.962708	Mean of dependent var	10750.75	
Adjusted R-squared	0.958979	S.D. of dependent var	5148.297	
S.E. of regression	1042.721	Sum of squared resid	10872662	
Durbin-Watson stat	1.569495	F-statistic	258.1538	
Log likelihood	-99.32840			

### APPENDIX 3 DATA BASE OF THE MODEL

Main data sources for the variables of the model are various statistical publications of The State Institute of Statistics (SIS), State Planning Organization (SPO), Central Bank of the Republic of Turkey, and unpublished data obtained from these sources. For certain variables we had to use our own estimations and derived some of them by simple computation. Consistency in the data used in the budget constraints of economic agents played an important role in the selection of data sources. Hence, we relied primarily on SPO figures, even when they presented no superior availability and reliability for certain variables as compared to other sources. Here we supply the data relating to the model variables, and report their sources.

#### National income identity variables:

	Y	I <sub>p</sub>	C <sub>p</sub>	I <sub>g</sub>	C <sub>cur,g</sub>	eΔD*
1980	4435.2	439.0	3187.0	493.3	545.6	259.0
1981	6553.6	544.0	4676.0	977.9	700.1	213.0
1982	8735.0	730.0	6154.0	1044.6	939.4	153.3
1983	11551.9	1131.0	8478.0	1298.2	1167.3	430.8
1984	18374.8	1771.0	13691.0	1779.1	1651.1	525.2
1985	27796.8	2615.0	20150.0	3167.0	2375.2	524.7
1986	39369.5	4312.0	26993.0	5262.4	3490.1	980.1
1987	58564.8	7033.0	39085.0	7785.0	5313.8	689.9
1988	100582.2	13057.0	65164.0	10973.7	8799.3	-2267.9
1989	170412.4	21250.0	111052.0	16962.6	19471.2	-2038.3
1990	287254.2	40207.0	179219.0	34676.3	39962.1	6809.5
1991	453206.5	53356.0	277048.0	47702.0	72175.0	-1134.2

## Government budget constraint variables:

	$\Delta D$	$e\Delta D^*_{cp}$	$\Delta BM$	PD	$iD_{-1}$	$eiD^*_{cp,-1}$
1980	46.0	275.4	142.7	421.4	30.2	12.5
1981	-124.8	191.2	273.1	237.4	55.8	46.2
1982	-214.7	328.6	294.2	289.6	46.5	72.0
1983	-368.3	840.9	372.6	558.7	108.4	178.1
1984	-721.8	1262.1	653.9	639.1	252.4	302.7
1985	1284.1	-788.5	771.0	301.5	446.5	518.6
1986	761.3	287.8	817.0	-6.3	1020.1	852.3
1987	1061.2	1674.4	1850.0	1188.3	2151.2	1246.1
1988	1937.0	-706.3	4994.0	-411.7	4292.0	2344.4
1989	11221.3	-4709.3	6011.0	1948.0	6798.9	3776.1
1990	27230.1	-2551.9	5561.0	12238.5	12534.1	5466.6
1991	47423.0	-1051.0	18999.0	32133.1	24104.5	9133.4

	$C_g$	$I_g$	T
1980	917.3	493.3	989.2
1981	688.2	977.9	1428.7
1982	1242.6	1044.6	1997.6
1983	1766.9	1298.2	2506.4
1984	2940.0	1779.1	4080.0
1985	4001.8	3167.0	6867.3
1986	6280.8	5262.4	11549.5
1987	9958.0	7785.0	16554.7
1988	17387.7	10973.7	28773.1
1989	33292.4	16962.6	48307.0
1990	56418.9	34676.3	78856.7
1991	100210.1	47702.0	115779.0

## Foreign budget constraint variables:

	X	M	A <sub>p</sub>	A <sub>g</sub>	$\Delta D_{cp}^*$	$i^*D_{cp}^*_{-1}$
1980	3072.0	-7513.0	2153.0	18.0	3623.7	-164.1
1981	5516.0	-8567.0	2559.0	-1.0	1738.2	-420.2
1982	6744.0	-8518.0	2189.0	88.0	2041.0	-447.0
1983	6642.0	-8895.0	1549.0	211.0	3754.0	-795.1
1984	8250.0	-10331.0	1885.0	197.0	3457.8	-829.3
1985	9688.0	-11230.0	1762.0	222.0	-1522.2	-1001.2
1986	9068.0	-10664.0	1703.0	221.0	430.2	-1274.0
1987	12360.0	-13551.0	2066.0	324.0	1956.1	-1455.7
1988	15568.0	-13706.0	1827.0	332.0	-497.0	-1649.8
1989	15625.0	-15999.0	3135.0	423.0	-2220.3	-1780.3
1990	17810.0	-22580.0	3349.0	1157.0	-978.5	-2096.1
1991	18666.0	-20998.0	2854.0	2245.0	-252.0	-2190.3

	D <sub>p</sub> *	$i^*D_{p}^*_{-1}$	NICA	NFT <sub>cp</sub>
1980	-215.7	-973.9	2270.0	3459.6
1981	197.8	-1022.8	493.0	1318.0
1982	-1089.0	-1008.0	-503.0	1594.0
1983	-1831.0	-634.9	493.0	2959.0
1984	-2018.8	-610.7	-1.0	2628.5
1985	2535.2	-453.8	-442.0	-2523.4
1986	1034.8	-519.0	-328.0	-843.8
1987	-1150.1	-549.3	-1199.0	500.4
1988	-1099.0	-775.2	-4021.0	-2146.9
1989	1259.3	-442.7	-3184.0	-4000.7
1990	3589.5	-250.9	264.0	-3074.6
1991	-20.0	-304.7	-2767.0	-2442.3

## Other variables:

	Y/P	P	$\pi$	e	t	BM
1980	66682.4	0.0665	1.038	76	0	436.2
1981	69448.8	0.0944	0.419	110	1	709.3
1982	72605.9	0.1203	0.275	161	2	1003.5
1983	75010.3	0.1540	0.280	224	3	1376.1
1984	79469.2	0.2312	0.501	365	4	2030.0
1985	83527.0	0.3328	0.439	518	5	2801.0
1986	90298.7	0.4360	0.310	669	6	3618.0
1987	97057.9	0.6034	0.384	856	7	5468.0
1988	100582.2	1.0000	0.657	1421	8	10462.0
1989	102454.0	1.6633	0.663	2121	9	16473.0
1990	111871.1	2.5677	0.544	2608	10	22034.0
1991	112430.5	4.0310	0.570	4170	11	41033.0

	BM <sub>avg</sub>	g	RER	$\Delta(Y/P)$	$\Delta(I/P)$
1980	358.1	-0.011	0.8041	-719	14017
1981	556.2	0.041	0.8203	2766	16128
1982	843.7	0.045	0.9418	3157	14751
1983	1175.1	0.033	1.0236	2404	15774
1984	1671.4	0.059	1.1109	4459	15354
1985	2384.5	0.051	1.0954	4058	17374
1986	3183.4	0.081	1.0798	6772	21960
1987	4447.8	0.075	0.9983	6759	24557
1988	7563.5	0.036	1.0000	3524	24031
1989	13127.9	0.019	0.8974	1872	22974
1990	19051.7	0.092	0.7148	9417	29163
1991	30068.6	0.005	0.7280	559	25070

	ERIR	V <sub>BM</sub>	s
1980	-31.1	12.4	0.16
1981	10.7	11.8	0.13
1982	10.6	10.4	0.13
1983	9.4	9.8	0.15
1984	4.7	11.0	0.15
1985	8.7	11.7	0.14
1986	13.9	12.4	0.16
1987	-0.8	13.2	0.22
1988	5.9	13.3	0.24
1989	-8.3	13.0	0.24
1990	5.7	15.1	0.26
1991	11.6	15.1	0.29

Y: Gross national product, expressed in billions TL; from SPO,

I<sub>p</sub>: Private sector investment, expressed in billions TL; from SPO, Annual Program, various years.

C<sub>p</sub>: Private sector consumption, expressed in billions TL; from SPO, Annual Program, various years.

I<sub>g</sub>: Consolidated public sector (government) investment, expressed in billions TL; from SPO, Annual Program, various years.

C<sub>cur,g</sub>: Consolidated public sector (government) current expenditure, expressed in billions TL; as defined in Public Sector General Equilibrium tables in SPO, Annual Program, various years.

eΔD<sup>\*</sup>: Net foreign borrowing, expressed in billions TL; calculated from the identity  $e\Delta D^* = e\Delta D_p^* + e\Delta D_{cp}^*$ ; where e, ΔD<sub>p</sub><sup>\*</sup>, and eΔD<sub>cp</sub><sup>\*</sup> are as defined below.

e: Yearly average foreign exchange rate, expressed in TL/\$; from SPO 1950-1990

$e\Delta D_{cp}^*$ : Consolidated public sector net foreign borrowing, expressed in billions TL; calculated from the identity  $e\Delta D = e\Delta D_g^* + e\Delta NFL$  where  $e\Delta D_g^*$  and  $e\Delta NFL$  are as defined below.

$e\Delta D_g^*$ : Public sector (government) net foreign borrowing, expressed in billions TL; as defined in Public Sector General Equilibrium tables in SPO , Annual Program, various years.

$e\Delta NFL$ : Change in Central Bank net foreign liabilities, expressed in billions TL; as defined in section 4.2; calculated from the figures in Central Bank Analytical Balance Sheets, in Monthly Statistical Bulletin of Central Bank of the Republic of Turkey.

$\Delta D_p^*$ : Private sector net foreign borrowing, expressed in millions \$; calculated as Capital Account + Reserve Movements -  $(e\Delta D_{cp}^* / e)$ ; Capital Account, and Reserve Movements figures as reported by the Central Bank, Balance of Payments Statistics of Turkey.

$\Delta D$ : Consolidated public sector net domestic borrowing, expressed in billions TL; calculated from the identity  $\Delta D = \Delta D_g - \Delta NCPS - \Delta NCPrS$ , where  $\Delta D_g$ ,  $\Delta NCPS$  and  $\Delta NCPrS$  are as defined below.

$\Delta D_g$ : Public sector (government) net domestic borrowing, expressed in billions TL; as defined in Public Sector General Equilibrium tables in SPO , Annual Program, various years.

$\Delta NCPS$ : Central Bank net credit to public sector, expressed in billions TL; as defined in section 4.2; calculated from the figures in Central Bank Analytical Balance Sheets, in Monthly Statistical Bulletin of Central Bank of the Republic of Turkey.

$\Delta NCPrS$ : Central Bank's net credit to private sector, expressed in billions TL; as defined in section 4.2; calculated from the figures in Central Bank Analytical Balance Sheets, in Monthly Statistical Bulletin of Central Bank of the Republic of Turkey.

$\Delta$ BM: Yearly base money creation, expressed in billions TL; calculated from the figures in Central Bank Analytical Balance Sheets, in Monthly Statistical Bulletin of Central Bank of the Republic of Turkey.

PD: Primary deficit of the consolidated public sector, expressed in billions TL; calculated from the identity  $PD = PSBR - iD_{-1} - eiD_{cp}^*_{-1}$ , where PSBR,  $iD_{-1}$  and  $eiD_{cp}^*_{-1}$  are as defined below.

PSBR: Public sector borrowing requirement, expressed in billions TL; as defined in Public Sector General Equilibrium tables in SPO , Annual Program, various years.

$iD_{-1}$ : Consolidated public sector interest payments on domestic debt, expressed in billions TL; unpublished data obtained from SPO.

$eiD_{cp}^*_{-1}$ : Consolidated public sector interest payments on foreign debt, expressed in billions TL; unpublished data obtained from SPO.

T: Total revenues of the consolidated public sector (government), expressed in billions TL; calculated as the sum of tax and non tax income and factor income of public sector, all as defined in Public Sector General Equilibrium tables in SPO, Annual Program, various years.

$C_g$ : Consolidated public sector (government) non interest expenditure, expressed in billions TL; calculated as  $T - I_g - iD_{-1} - i^*D_{cp}^*_{-1}$ ; T,  $I_g$ ,  $iD_{-1}$  and  $i^*D_{cp}^*_{-1}$  being as defined above.

R: Consolidated public sector (government) transfers to the private sector, expressed in billions TL; calculated as  $C_g - C_{cur,g}$ ;  $C_g$  and  $C_{cur,g}$  as defined above.

$i^*D_p^*_{-1}$ : private sector interest payments on foreign debt, expressed in millions \$; calculated as net interest payments abroad -  $(eiD_{cp}^*_{-1} / e)$  with a sign correction; data on net interest payments abroad as reported in the Central Bank, Balance of Payments Statistics of Turkey.

$Y_d$ : Private sector disposable income, expressed in billions TL; calculated from the equation  $Y_d = Y + ei^*D_{cp}^*_{-1} + ei^*D_p^*_{-1} - T + R + iD_{-1}$  as defined in section 5.2.1.2, Y,  $ei^*D_{cp}^*_{-1}$ ,  $ei^*D_p^*_{-1}$ , T, R and  $iD_{-1}$  as defined above.

s: Private sector savings ratio, calculated as  $(I + \Delta D + \Delta D_p^* + \Delta BM) / Y_d$ ; I,  $\Delta D$ ,  $\Delta D_p^*$ ,  $\Delta BM$  and  $Y_d$  as defined above.

X: Export of goods and non-financial services, expressed in millions \$; calculated from the relevant items reported in the Central Bank, Balance of Payments Statistics of Turkey.

M: Import of goods and non-financial services, expressed in millions \$; calculated as the sum of relevant items in the Central Bank, Balance of Payments Statistics of Turkey.

$A_p^*$ : Foreign transfer to the private sector, expressed in millions \$; corresponds to the private unrequited transfer reported in the Central Bank, Balance of Payments Statistics of Turkey.

$A_g^*$ : Foreign transfer to the public sector, expressed in millions \$; corresponds the official unrequited transfer reported in the Central Bank, Balance of Payments Statistics of Turkey.

NICA: Non-interest current account, expressed in millions \$; calculated from the sum of relevant items reported in the Central Bank, Balance of Payments Statistics of Turkey.

$NFT_{cp}$ : Consolidated public sector net financial transfer abroad, expressed in millions \$; calculated as  $(eiD_{cp}^* - eiD_{cp}^*_{-1}) / e$ ;

Y/P: Real gross national product, expressed in billions TL; from SPO, 1950-1990, with the base year shifted to 1988.

P: Gross national product deflator; from SPO, 1950-1990, with the base year shifted to 1988.

$\pi$ : Inflation rate; calculated as  $(P/P_{-1}) - 1$ ; P, as defined above and  $P_{-1}$ , is the value of P lagged one year.

t: Time trend with  $t_{1980} = 0$  and a yearly increase of 1

**BM:** End-of-year base money stock, expressed in billions TL; from the Central Bank Analytical Balance Sheets, in Monthly Statistical Bulletin of Central Bank of the Republic of Turkey.

**BM<sub>avg</sub>:** Yearly average base money stock, expressed in billions TL; calculated as the geometric average of BM and BM<sub>-1</sub>; BM, as defined above and BM<sub>-1</sub> is the value of BM with a one year lag.

**g:** Real gross national product growth; calculated as  $[(Y/P)/(Y/P)_{-1}]-1$ ; Y/P being as defined above and (Y/P)<sub>-1</sub> is the value of Y/P with a one year lag.

**RER:** Real exchange rate index, with 1988 as the base year, calculated as  $(e/P)/e_{1988}$ ; e and P, as defined above.

**$\Delta(Y/P)$ :** Yearly increase of real gross national product growth, expressed in billions TL; calculated as  $(Y/P)-(Y/P)_{-1}$ ; Y/P being as defined above and (Y/P)<sub>-1</sub> is the value of Y/P with a one year lag.

**$\Delta(I/P)$ :** Yearly increase of real investment, expressed in billions TL; calculated as  $(I/P)-(I/P)_{-1}$ ; I and P as defined above and I<sub>-1</sub> and P<sub>-1</sub> are the values of I and P, respectively with a one year lag.

**ERIR:** Expected real interest rate; from Monthly Statistical Bulletin of the Central Bank of the Republic of Turkey.

**v<sub>BM</sub>:** Base money velocity as defined in 5.2.3; calculated as  $Y/BM_{avg}$ ; Y and BM<sub>avg</sub> as defined above.

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