



OECD DEVELOPMENT CENTRE

Working Paper No. 36
(Formerly Technical Paper No. 36)

CAPITAL FLOWS AND THE EXTERNAL FINANCING OF TURKEY'S IMPORTS (SPECIAL SERIES ON MIXED CREDITS, IN COLLABORATION WITH ICEPS)

by

Ziya Önis and Süleyman Özmucur

Research programme on:
Financial Policies for the Global Dissemination of Economic Growth

The diagrams referred to in this paper are not reproduced due to technical reasons.
Please consult printed version.



TABLE OF CONTENTS

PREFACE	9
SUMMARY	10
ACKNOWLEDGEMENTS	14
I. INTRODUCTION	15
II. THE STRUCTURAL ADJUSTMENT PROGRAMME OF 1980	16
1. The Origins of the 1980 Programme: The Crisis of the Late 1970s	16
2. The Structural Adjustment Programme and Associated Policy Reforms	17
3. The Post-1980 Economic Performance: A Broad Assessment	18
III. FOREIGN BORROWING, STRUCTURAL CHANGE AND ACCUMULATION OF EXTERNAL DEBTS	22
1. The Origins of the External Debt Problem: The 1973-1979 Phase	22
2. The Adjustment Programme of 1980 and the Magnitude of Capital Flows	24
3. Structure and Composition of External Debts During the 1980s	28
4. The Significance of Capital Flows from the DAC Countries and Export Credits	35
IV. PROJECT SELECTION AND EXTERNAL DEBT MANAGEMENT: THE INSTITUTIONAL FRAMEWORK	39
1. The Relevance of the Institutional Dimension	39
2. Project Selection and External Finance in the Public Sector	39
3. Limitations of the Current Institutional Framework for Public Investment Projects	42
4. Attempts to Improve the Institutional Framework	49
5. Towards a Novel Institutional Framework	52
V. FINANCING SUBSIDIES RECEIVED BY TURKEY: DATA, METHODOLOGY AND ESTIMATION	55
1. Calculations of Subsidy Rates: Methodological Considerations	55
2. Data	62
3. Estimates of Subsidy Rates	63
4. Trends in Subsidy Rates	73

VI. THE MACROECONOMIC AND SECTORAL IMPACT OF SUBSIDIZED BORROWING	78
1. Introduction	78
2. Testing Procedures	78
3. Impact on External Borrowing	79
4. Impact on Imports	81
5. Impact on Value Added	84
6. Impact on Sectoral Growth Rates	85
7. Impact on Capital-Output Ratios	86
8. Impact on Fiscal Stability and Domestic Savings	88
VII. CONCLUSIONS	90
NOTES AND REFERENCES	92
APPENDIX A: CAPITAL FLOWS, EXTERNAL DEBTS, FOREIGN TRADE INDICATORS AND PUBLIC INVESTMENT	93
APPENDIX B: EXCHANGE RATES AND REFERENCE RATES	101
APPENDIX C: ESTIMATES OF CAPITAL STOCK AND CAPITAL-OUTPUT RATIOS	107
BIBLIOGRAPHICAL REFERENCES	111

PREFACE

The OECD Development Centre and the Institute for International Economic Cooperation and Development (ICEPS), with financial support from the Italian Government, have carried out a series of country case studies on "mixed credits", following a methodology developed and tested on Tunisia by Professor André Raynauld.

Some Development Assistance Committee (DAC) Member countries, and Italy in particular, were of the opinion that it was only through detailed analytical work that some of the misgivings about the use of mixed credits in development assistance could be clarified.

Following the completion of the pilot study on Tunisia, a methodological seminar was organised by ICEPS in Rome in November 1988, where it was decided to undertake four country case studies on Turkey, Indonesia, Thailand and Brazil. Each of these studies was carried out in close collaboration between the three partners: ICEPS, a national research institute in the country concerned, and the OECD Development Centre.

The present study examines the impact on Turkey of the external official aid the country receives to finance its imports. Such official aid arises when lender countries provide export credits on terms more favourable than those obtaining on the international capital market. Attention is focused in particular on those operations where the financing contains a component of public development aid in the form of grants or loans on very generous terms. These operations consist of mixed, associated, parallel or joint financing, or credits. They have long been the subject of examination and discussion within the OECD and have given rise to protocols of agreement, such as the "consensus" on export credits and the DAC "guidelines".

This study on Turkey includes a thorough and detailed examination of the subsidies received in the form of external financing. These loans have been used essentially to implement big public sector infrastructure projects. These projects have been characterised by very considerable delays, by high capital intensity and by a product that does not generate foreign currency earnings. The amount of the subsidy varies significantly according to the sector of activity, and this too has favoured infrastructure projects at the expense, for example, of the manufacturing sector. These financing subsidies have thus had a marked effect on the allocation of resources. Lastly, on the macroeconomic level, the study shows that the import of capital seems to contribute to a reduction of domestic saving and increased indebtedness of the public sector.

After directing this series of country case studies, Professor André Raynauld has undertaken a comparative analysis of the results in a synthesis study, with a view to drawing some more general conclusions and policy recommendations for the future.

Jean Bonvin
Director
OECD Development Centre

Giuseppe Bonanno di Linguaglossa
Secretary-General
ICEPS

RÉSUMÉ

Les flux de capitaux subventionnés ont puissamment contribué à la restauration de l'économie turque confrontée à une crise aiguë de la balance des paiements à la fin des années 70. L'afflux, à grande échelle, de capitaux étrangers a concouru à la croissance accélérée des importations de matières premières essentielles et de biens d'investissements qui, à leur tour, ont été à la base d'un taux de croissance économique relativement élevé.

Un bilan équilibré implique cependant la prise en considération des effets négatifs de ces crédits bonifiés. Les flux de capitaux subventionnés ont donné lieu à un surendettement et à une expansion excessive du secteur public, en particulier après 1984. Un déséquilibre structurel s'est alors développé, la majorité des importations de capitaux à long et à moyen termes bénéficiant au secteur public et, au sein de ce secteur, prioritairement aux projets d'infrastructures. Quant au secteur privé, il a emprunté surtout à court terme pour s'assurer des fonds de roulement. Si l'on doit reconnaître l'importance des infrastructures qui conditionnent l'investissement privé, on constate également les écueils d'une concentration excessive de l'emprunt extérieur dans ce domaine caractérisé par un rapport capital/production élevé, par des périodes de gestation de longue durée et par une faible contribution à la création d'échanges extérieurs. La concentration de l'endettement à moyen et à long termes sur la fabrication de biens non commercialisables transfère au secteur privé l'entière responsabilité d'assurer une croissance rapide des exportations si l'on veut éviter, dans l'avenir, une crise de la dette.

Cette analyse de l'environnement institutionnel de l'endettement extérieur repose sur l'idée que le déséquilibre structurel qui s'est creusé en Turquie résulte de l'entrée massive de crédits bonifiés. Diverses études de cas font apparaître que les projets d'infrastructure entrepris par le secteur public se caractérisent par une durée de gestation de longue durée. Ces études confirment l'incapacité du secteur public à faire pression en faveur d'un aboutissement rapide des projets, d'où des temps de gestation beaucoup plus longs qu'initialement prévus. Il s'agit d'un facteur évident d'inefficacité et de mauvaise affectation des ressources publiques en Turquie. Les innovations politiques récentes — dont le modèle "construire, rendre opérationnel, transférer" — sont une réaction contre ce phénomène.

On constate, par ailleurs, une grande segmentation de l'appareil institutionnel. Celle-ci conduit à conférer au Trésor public des responsabilités exorbitantes à l'égard des emprunts étrangers et du contrôle ultérieur des projets. Nous préconisons un modèle plus interactif qui permette à deux institutions-clés — l'Organisation nationale de planification (State Planning Organization) et la Banque centrale — de jouer un rôle plus actif.

Nos calculs sur la bonification des taux d'intérêt de la part des principaux distributeurs de crédits et dans les secteurs économiques essentiels montrent un niveau élevé de bonification tout au long du début de la décennie 1980, c'est-à-dire pendant la période initiale de l'ajustement qui a suivi la crise des années 70. Depuis 1983, cette bonification des taux d'intérêt a connu une baisse sévère, concomitante du regain de crédibilité de la Turquie et de son aptitude à emprunter aux taux du marché, ainsi que de l'évolution de la politique de prêt des pays créditeurs. L'un des résultats les plus frappants de cette étude tient à la mise en évidence de grandes différences entre pays dans la bonification des taux : au sein des pays Membres de l'OCDE, la Belgique et l'Allemagne pratiquent la bonification la plus élevée, les États-Unis et le Japon la plus faible. Globalement, les taux de bonification des pays de l'OCDE dépassent ceux des agences multilatérales, de la Banque mondiale en particulier.

D'importantes différences de bonification des taux d'intérêt apparaissent également entre les divers secteurs de l'économie. Ils sont bien plus élevés, en moyenne, pour les transports, les communications et l'énergie ou le financement général de la balance des paiements que pour le secteur manufacturier où ils se confirment remarquablement bas. A travers ces choix, les pays créditeurs ont donc lourdement pesé sur la répartition sectorielle des ressources : les crédits bonifiés ont facilité un glissement structurel de l'investissement public en faveur des infrastructures au détriment de l'activité manufacturière.

La bonification du crédit a des conséquences complexes sur la répartition des ressources et sur les performances macro-économiques. Elles sont positives sur la valeur ajoutée sectorielle et les taux de croissance. Dans ce dernier cas, elles confirment que les crédits bonifiés favorisent des taux de croissance économique plus élevés qu'ils ne l'auraient été autrement. L'étude fait apparaître l'existence d'un certain soutien — timide — à l'"emprunt lié" de la part des principaux pays de l'OCDE qui ont utilisé les prêts bonifiés comme moyen d'accroître leurs exportations vers la Turquie.

Au passif de ces prêts cependant, deux effets nettement négatifs : l'expansion de secteurs caractérisés par un rapport élevé capital/production, en parfaite conformité avec notre remarque liminaire sur la concentration de l'investissement public dans les infrastructures. Finalement, on peut en conclure que l'afflux de capitaux subventionnés dans les années 80 provient d'un relâchement de l'effort d'épargne nationale à la fois du secteur public et des acteurs du secteur privé.

SUMMARY

Subsidized capital flows have made a major contribution to the recovery of the Turkish economy from the acute balance of payments crisis of the late 1970s. The inflow of foreign capital on a substantial scale has facilitated rapid growth in imports of essential raw materials and investment goods which, in turn, has been instrumental in sustaining a comparatively high rate of economic growth.

A balanced account, however, needs to take into consideration the negative side effects associated with subsidized credits. Subsidized capital inflows have resulted in overborrowing and consequently in overexpansion of the public sector, particularly during the post-1984 phase. A structural disequilibrium has developed, in the sense that the majority of medium- and long-term capital inflows has been directed to the public sector, and within the public sector, primarily to infrastructure projects. The private sector has been able to borrow mainly on a short-term basis, to satisfy working capital requirements. While we do recognize the importance of infrastructure activities in complementing private investment, we also draw attention to the limitations of an excessive concentration of foreign borrowing on these activities, namely, high capital-output ratios, long gestation periods and lack of contribution towards the generation of foreign exchange. The concentration of medium and long-term borrowing in the manufacture of "non-tradables" implies that enormous pressures are placed on the private sector's ability to maintain rapid export growth, if a debt crisis is to be avoided in the future.

Our discussion of the institutional context of foreign borrowing supports our inference concerning the structural disequilibrium which has developed in the Turkish economy as a result of the substantial inflow of subsidized credits. We establish, on the basis of several case studies, that infrastructure projects undertaken by the public sector are characterized by lengthy gestation lags. Our case studies illustrate the fundamental point that there appear to be no inbuilt pressures within the public sector towards the rapid completion of projects, leading to much longer gestation lags than originally anticipated. Hence, we have identified an obvious source of inefficiency and misallocation of resources in the Turkish case. The recent policy innovations, involving the "build-operate-transfer" model, represent a natural response on the part of the authorities to the long gestation lags and the resultant waste of resources associated with infrastructure projects.

We have also drawn attention to the highly fragmented institutional structure, as a consequence of which disproportionate responsibilities have been assigned to the Treasury with respect to foreign borrowing and the subsequent monitoring of projects. We propose an interactive institutional framework, which assigns a more active role to two key institutions, the State Planning Organization and the Central Bank.

Our estimates of the subsidy rates by major creditors and sectors reveal the following patterns: subsidy rates are consistently high during the early 1980s, which correspond to the initial period of adjustment following the crisis of the 1970s. Subsidy rates register a sharp decline since 1983, following the restoration of Turkey's creditworthiness and corresponding ability to borrow at market rates. The decline in subsidy rates, however, also reflects the shift in the lending policies of the creditor countries. The significant intercountry variations in subsidy rates constitute another striking finding of the study. Amongst the OECD countries, the highest rates of subsidy are recorded in the cases of Belgium and West Germany, the lowest in the cases of the United States and Japan. We have also established that the rates of

subsidy for the OECD countries are higher than those reported by multilateral agencies in general and the World Bank in particular.

We have also discovered significant variations in the subsidy rates on loans directed to different sectors of the economy. Subsidy rates are, on average, significantly higher in the case of transport, communications and energy, as well as for general balance of payments financing. In contrast, remarkably low rates of subsidy are associated with loans directed to manufacturing. Hence, creditor countries have made a strong impact on the sectoral allocation of resources through their lending policies. Subsidized credits have facilitated the structural shift in public investment away from manufacturing and into infrastructural activities.

Our investigations concerning the impact of subsidized credits on resource allocation and macroeconomic performance reveal a complex pattern. A positive association is established between subsidy rates, on the one hand, and the sectoral value added and growth rates, on the other. The results in the case of growth rates are less ambiguous, confirming that subsidized credits have helped to generate higher rates of economic growth than would otherwise have been the case. We also find some mild, tentative support for the "tied borrowing" hypothesis, suggesting that the leading OECD countries have used subsidized lending as an instrument to increase their exports to Turkey.

Two negative features associated with subsidized credits in the Turkish context deserve emphasis. We demonstrate that subsidized credits have resulted in the expansion of sectors with high capital-output ratios, a finding which is perfectly consistent with our earlier observation concerning the concentration of public investment in infrastructure activities. We conclude, therefore, that subsidized borrowing has resulted in an increase in the overall capital-output ratio. Finally, we reach the tentative and qualified conclusion that subsidized capital inflows in the 1980s have resulted in the relaxation of the domestic savings effort on the part of both the government and private agents.

ACKNOWLEDGEMENTS

The study could not have emerged in its present form without assistance and support from several individuals and institutions. We gratefully acknowledge the kind help and encouragement provided by Mr. Jean Bonvin, Director of Co-ordination of the OECD Development Centre and Mr. Giuseppe Bonanno, Director of ICEPS, throughout the project. We would also like to thank Professor André Raynaud whose detailed comments and criticisms on an earlier draft of the study have been instrumental in improving the content as well as the quality of exposition of the manuscript.

Several participants at the joint OECD Development Centre-ICEPS Seminar on Mixed Credits held at the OECD Development Centre in Paris in April 1989, including Professors Glenn Jenkins, Enrico Colombatto and Supote Chunanuntathum, have made valuable comments on the preliminary sections of the study.

Several people in Turkey have been extremely generous in sharing with us their knowledge of both the relevant data and the institutional framework. Among the numerous individuals we have interviewed we would like to thank, in particular, Dr. Ercan Kumcu, Deputy Governor of the Central Bank of Turkey, Dr. Co_kun Ulusoy, Chairman of the State Agricultural Bank, Mr. Nurcan Aktürk of the Undersecretariat of Treasury and Foreign Trade; Mr. Gürol Dinç and Faik Özturan of the State Planning Organization and Mr. Erdinç Özselçuk of the Turkish Industry and Development Bank; Mustafa Akan of Garanti Bank, Selçuk Altun and Cemil Köksal of Yapi Kredi Bank, and Kadir Tanju Yürüko_lu of the World Bank. None of the individuals/institutions mentioned, however, are in any way responsible for the views expressed in the study.

Finally, several of our students at Bo_aziçi University including Cevdet Emre Alper, Barkan Öz, Burçak Latifo_lu, Çi_dem Çelikbilek, Ku_u Karabey, Zeynep Kazgan, Alpay Filiztekin, Lorans Tanatar and I_ilsu Denizalti have provided excellent research assistance in conjunction with the collection of data and computation analysis.

Ziya Ön__ -- Süleyman Özmucur
Department of Economics
Bo_aziçi University
Bebek, Istanbul, Turkey

I. INTRODUCTION*

The study starts by analyzing the nature of capital flows to the Turkish economy and Turkey's external debt position from an historical perspective. This provides the background to the principal concern of the study, namely, the estimation of subsidy rates on all forms of foreign borrowing and an investigation of the impact of subsidized borrowing on sectoral resource allocation and macroeconomic performance.

The central theme may be stated as follows: following the acute crisis experienced in the late 1970s, subsidized credits have made an important contribution to the recovery of the Turkish economy in the early 1980s. Capital inflows have facilitated rapid growth in imports of essential raw materials and capital goods which, in turn, have been instrumental in generating a higher rate of economic growth than would otherwise have been the case. A balanced assessment, however, ought to take into consideration the negative side-effects of subsidized capital inflows on the Turkish economy. We seek to demonstrate that capital inflows have distorted the public-private balance in the economy, by facilitating an overexpansion of the public sector during the post-1984 phase. Medium and long-term capital inflows have been directed namely to the public sector and, within the public sector, primarily to infrastructural activities such as transport, communications and energy. While we do recognise that infrastructural projects are complementary to private investment, we point out that the excessive concentration of subsidized credits in the production of "non-tradables" has aggravated the imbalance between the "tradables" and the "non-tradables" sectors of the economy. Hence, enormous pressures are placed on the private sector's ability to sustain rapid export expansion, if Turkey is to maintain her creditworthiness in the medium-term.

The study is organized as follows: Section II sets out the broad contours of Turkey's economic development during the past decades. The section also describes the major policy reforms initiated in 1980 and briefly outlines the consequences of these reforms. Section III is devoted to a detailed analysis of foreign borrowing as well as the nature and intensity of the current external debt position. Section IV investigates the institutional dimensions of foreign borrowing. Institutional aspects of foreign borrowing are examined by means of selected case studies of individual projects as well as through interviews conducted with a group of experts. Our interviewees are affiliated with the following institutions: Ministry of Finance, Undersecretariat of Treasury and Foreign Trade, State Planning Organization, Central Bank and TSKB (Turkish Industrial Development Bank). Industrialists and managers of commercial banks have also been interviewed.

Section V starts by outlining the data base on individual loan transactions for the period 1980-1988. Following a discussion of the methodology underlying the calculation of subsidy rates, detailed estimates are presented for major creditor countries and for the principal sectors of the economy. Section VI is devoted to analysis of the impact of subsidized credits on sectoral resource allocation and macroeconomic performance. Finally, conclusions and policy implications of the study are set out in Section VII.

II. THE STRUCTURAL ADJUSTMENT PROGRAMME OF 1980

1. The Origins of the 1980 Programme: The Crisis of the Late 1970s

During the two decades preceding the adjustment programme of 1980, Turkey had pursued an inward-oriented development strategy, combined with an extensive involvement of the public sector. Macro planning and import-substitution became synonymous, as the import-substituting industrialization (ISI) strategy was institutionalized under the First Five Year Development Plan introduced in 1963. In fact, the origins of the inward-oriented industrialization strategy could be traced back to the statist period of the 1930s. The State Economic Enterprises (SEEs) were founded during the 1930s and provided the institutional framework for the first major industrialization drive in Republican Turkey.

Judged on the basis of the growth rates of industrial production and overall output, the performance of the 1963-1977 period was impressive. The average growth rate of GNP was recorded as 7.0 per cent, while the average growth rate of industrial production was established at 9.0 per cent, both of which were clearly among the highest in the developing world. Yet a closer examination revealed certain weaknesses in Turkey's growth strategy into higher branches, namely intermediate and capital goods (State Planning Organization, 1972). In spite of the transition of the Turkish economy to the "late" stage of ISI during the 1970s, several exogenous forces have exercised a favorable influence and helped to sustain the momentum of rapid growth established during the 1960s. Three such forces deserve special emphasis. The primary commodity boom was instrumental in the rapid increase of Turkish exports during the early 1970s. Significant inflows of emigrants' remittances and short-term capital-inflows from the Eurocurrency market also performed a key role in resolving the foreign exchange problem and maintaining high rates of economic growth.

These forces, however, helped to disguise the principal weakness of the Turkish economy, namely an excessive dependence on imports of intermediate and capital goods, with no corresponding ability to increase export earnings to finance the import bill. A pattern observed in the case of many LDCs was repeated in the Turkish context. The ISI strategy had rendered the economy more vulnerable to external shocks as a result of increased dependence on imported inputs. In contrast, the share of exports in GDP remained stagnant at around 4-5 per cent throughout the decade (Öni, 1987).

The crisis of the late 1970s was precipitated by Turkey's inability to meet her external commitments in 1977; this in turn was the combined outcome of domestic and external forces. The reaction of the policy makers to the oil shock of 1973-1974 was to press ahead with the import-substituting strategy. Public investment was conceived of as the principal mechanism for this purpose. Growing public sector deficits were financed by recourse to foreign borrowing. Consequently, Turkey's external debt jumped from \$3.0 billion in 1973 to \$15 billion by 1980.

The economic crisis of the late 1970s was essentially a balance of payments crisis, which was precipitated by fiscal disequilibrium and the weakness of the underlying structure of foreign trade. Fiscal disequilibrium itself was magnified by the operating losses of the SEEs, as a consequence of their failure to adjust their product prices.

The economic crisis which manifested itself in 1977 was accompanied by a political crisis. The elections of 1977 produced a stalemate, with no major party being in a position to secure a majority in Parliament, in the absence of a coalition. Hence, a highly unstable situation emerged with successive coalition governments finding themselves unable to cope with the deteriorating economic situation.

During the 1977-1979 crisis period, the IMF was involved as the principal external actor, with the World Bank operating very much in the background (Okyar, 1983; Wolff, 1987). Various attempts to implement stand-by agreements, in conjunction with the IMF during 1977-1979 ended in failure. In fact, major devaluations were engineered as part of the preconditions of the IMF agreements, but no change in policy could be detected in any other respect. Nominal devaluations, unaccompanied by the necessary restrictive fiscal and monetary measures, resulted in a serious over-valuation of the Turkish lira, with the inevitable negative consequences on both the current and capital accounts of the balance of payments.

The breakdown of the IMF negotiations can be attributed to the following interrelated forces. The governments in power considered external finance provided by the IMF as a short-run expedient to deal with the immediate balance of payments crisis. However, the government's underlying philosophy of development, as practiced during the 1973-1977 period, remained unchanged.

The objective was to sustain the ISI strategy through public investment and foreign borrowing, a pattern which had characterized the earlier part of the decade. This observation is supported by the fact that the Fourth Five Year Development Plan, prepared in 1978 for implementation during the 1979-1983 period, envisaged a further round of import-substitution in capital goods industries, thereby proving to be a linear progression from the Third Five Year Development Plan referred to earlier (State Planning Organization, 1978).

Two stand-by agreements were signed with the IMF. Furthermore, bilateral donors pledged substantial loans and rescheduling elements. Yet the donors' financial contributions were too short-lived, reflecting lack of faith in the Turkish government's ability, as well as commitment, to implement what they considered to be the necessary adjustment measures.

2. The Structural Adjustment Programme and Associated Policy Reforms

The Structural Adjustment Programme introduced in 1980, in collaboration with the World Bank and the IMF, involved a fundamental shift in Turkey's development strategy. The primary objective of the programme was to improve the balance of payments position and lay the foundations of sustainable growth via greater outward orientation and reliance on market incentives. The programme has concentrated on five broad areas (OECD, 1980; Wolff, 1987):

- a) Short-term stabilization involving restrictive monetary and fiscal policy plus an incomes policy.
- b) Deregulation of key relative prices, including the exchange rate, interest rates on bank deposits and the product prices of state economic enterprises (SEEs).
- c) Trade policy involving measures to promote exports and liberalize imports.
- d) Reform of the public sector and the state economic enterprises.
- e) Reform of the capital market and the financial sector.

Exchange rate policy constituted one of the central pillars of the adjustment process in Turkey. A policy of real devaluation was conceived as a central instrument for export promotion and the transition to an outward-oriented economy. The primary role attributed to the exchange rate came from an influential study which demonstrated that Turkey could have adjusted better to external shocks if she had adopted a flexible exchange rate regime during the 1970s (Dervi_ and Robinson, 1978).

Following a series of discrete large-scale devaluations during the crisis episode of 1978-1980, a crawling peg regime was instituted by early 1981. A regime of controlled exchange rate flexibility has been the norm ever since. It is commonly recognized that Turkey has been the only country which has been able to generate continuous real devaluations of the exchange rate on a sustained basis for a considerable period of time. Clearly, no deviation has occurred with respect of the exchange rate policy since 1980, following the serious over-valuation of the Turkish lira during 1978 and 1979 (Table 2.1). The success of the exchange rate policy, however, cannot be attributed solely to sound macroeconomic management. Political economic considerations, involving the nature of the labour market and notably the absence of a wage-price spiral also performed an important role in this context (Öni_ and Özmucur, 1988a).

3. The Post-1980 Economic Performance: A Broad Assessment

In retrospect, the structural adjustment programme has generated notable success in two major spheres of economic activity:

- i) Following the marked decline in growth rates during the late 1970s, culminating in an absolute decline in GNP in 1980, the growth rates of GNP and the manufacturing sector have registered a remarkable recovery during the 1980s (Table 2.2).

Table 2.1

**Evolution of the Trade Weighted Real Effective Exchange Rate
1978 I - 1987 IV (1981 (5) = 100)**

	I	II	III	IV
1978	132.8	120.4	128.3	131.6
1979	143.4	154.3	133.9	147.4
1980	109.4	101.2	98.2	105.5
1981	104.9	100.3	95.9	90.0
1982	88.6	88.4	82.6	80.5
1983	82.3	80.8	79.2	78.2
1984	74.3	75.7	75.6	77.3
1985	80.6	74.5	73.4	73.9
1986	71.8	67.2	65.9	64.6
1987	65.0	65.6	63.8	63.2

Note: A reduction means a real devaluation of the exchange rate

Source: Central Bank, Monthly Statistical and Evaluation Bulletin, various issues

- ii) Parallel to the recovery in terms of economic growth, exports have also recorded a striking response to the new set of incentives. Not only did exports grow rapidly during the period, but the structure and composition of exports underwent a major transformation. From a mere 4.0 per cent of GNP during the late 1970s, the share of exports in GNP had climbed to 20 per cent by 1987. Similarly, the share of imports in GNP has also increased by a substantial margin.

Furthermore substantial progress was achieved in the following areas:

- (a) Significant steps have been taken in the direction of reducing tariffs, lifting quantitative controls on imports and eliminating restrictions on the capital account. These measures were accompanied by the institution of a highly liberal foreign investment regime (Togan, Olgun and Akder, 1988).
- (b) A major shift has occurred in the composition of public investment toward infrastructural activities, which are considered to be complementary to private investment (Öni_ and Özmucur, 1988a).

Table 2.2

Basic Macroeconomic Indicators, 1977-1987
(Percentage Increases and Ratios)

	GNP Growth	Average Inflation	Exports (Dollar Values)	Exchange Rate (% increase) (TL/\$)	Money Supply (M2)	Monetary Base (H)	Current Account Deficit/GNP	Budget Deficit/GNP
1977	3.9	23.5	-10.6	12.1	33.9	47.8	7.0	6.1
1978	2.9	50.3	30.5	34.9	34.7	42.6	2.9	2.9
1979	-0.4	64.8	-1.2	28.0	60.9	49.8	2.4	4.0
1980	-1.1	108.6	28.7	144.7	67.1	47.9	6.3	3.9
1981	4.1	36.7	61.6	46.9	85.6	70.3	4.0	1.7
1982	4.5	27.0	22.2	45.9	56.0	45.9	2.4	2.3
1983	3.3	30.5	-0.3	39.2	28.7	32.0	4.3	3.0
1984	5.9	50.3	24.5	63.0	57.5	73.2	2.9	4.9
1985	5.1	43.2	11.6	42.1	57.3	57.4	1.9	2.3
1986	8.1	29.6	-6.3	29.1	38.8	22.5	2.6	2.7
1987	7.4	32.0	36.7	33.0	35.3	40.6	1.7	4.4

Sources: State Institute of Statistics, Central Bank, Ministry of Finance.

(c) The organic link between the state economic enterprises and the general budget has been substantially eliminated. Consequently, SEEs have gained considerable autonomy from the central government, following the deregulation of their product prices and the removal of their previously automatic ability to finance their operating losses by recourse to the central government budget (Öni_ and Özmucur, 1988b).

(d) Certain progress was achieved in terms of institutional development in the financial sector and with respect to the formation of capital markets (Öni_ and Özmucur, 1988b).

However, a number of spheres may be identified where the outcome has not been equally satisfactory:

(a) Due to pressures generated by the re-establishment of parliamentary democracy, growth of public investment has accelerated in the post-1983 period, with a corresponding increase in the fiscal deficit and the resurgence of inflation. Hence, the macroeconomic environment became progressively inconsistent with the fundamental objective of liberalization and transition to a market-oriented economy (Öni_ and Riedel, 1989).

(b) The financial system has been characterized by the presence of high real rates of interest, with negative repercussions in terms of private investment performance as well as debt-servicing difficulties (Öni_ and Özmucur, 1988b). Furthermore, both public and private enterprises in the manufacturing sector have continued to display excessive degrees of dependence on short-term bank finance due to a failure to improve their equity positions (Istanbul Chamber of Industry, various years; Ya_er et al., 1986 and 1988).

(c) There is as yet no evidence that the policy changes initiated with respect to the SEEs have resulted in an increase in their productivity performance (Esmer and Özmucur, 1988). Furthermore, only tentative steps have been taken towards privatization of SEEs.

III. FOREIGN BORROWING, STRUCTURAL CHANGE AND ACCUMULATION OF EXTERNAL DEBTS

1. The Origins of the External Debt Problem: The 1973-1979 Phase

The OPEC crisis of 1973-1974 marked the beginning of foreign borrowing on a substantial scale. The continuation of rapid growth during the post-1973 phase was facilitated by externally generated finance, with short-term borrowing from international banks and the Eurocurrency market replacing official aid, the dominant mode of transfer during the 1960s, as the major form of capital inflows. Turkey's integration into the international financial system was less complete, in comparison with other semi-industrial economies such as Brazil and Mexico, which have managed to borrow from the Eurocurrency market on a much more extensive scale.

International borrowing, however, proved to be a double-edged instrument. While it allowed the economy to expand beyond its domestic limits, it also injected a considerable degree of instability into the system. The high and variable interest rates with limited repayment periods, characterizing the loans from the Eurocurrency market, resulted in the rapid accumulation of external debts. The magnitude of the external debt burden is illustrated in Table 3.1.

Following a major increase during the 1973-1977 period, corresponding to the implementation of the Third Five Year Plan, Turkey's external debts rose from \$3.5 billion in 1973 to \$15 billion by 1980. The debt-GNP ratio also registered a major increase from 10 per cent to 22 per cent between 1973 and 1980.

An outstanding feature of the 1970s, in this respect, concerned the dramatic increase in the share of short-term debts, which rose from 12 per cent to 52 per cent during the period 1973-1978. The increase in short-term debt was closely associated with the "Convertible Turkish Lira Deposits" scheme. The CTLD scheme emerged as a major instrument as the government increasingly resorted to external borrowing on a short-term basis to cover its growing deficits. The scheme involved the payment of high interest rates under an exchange rate guarantee as a means of attracting the savings of Turkish citizens residing abroad. In retrospect, the CTLD scheme was a policy mistake and represented a major source of "disequilibrium", parallel to the serious overvaluation of the exchange rate and mounting expectations of devaluation as the economy entered the second half of the 1970s. Not surprisingly, the series of devaluations from 1977 onwards magnified the external debt burden. Furthermore, the fact that short-term debts were synonymous with private-sector debts rendered control of the situation even more problematic (Table 3.2) (Rodrik and Celasun, 1988).

Table 3.1

Outstanding External Debt, 1973-1980
(End of Period, \$ million)

	1973	1974	1975	1976	1977	1978	1979	1980
MEDIUM AND LONG-TERM	2 984	3 722	3 325	3 838	4 725	6 618	10 048	12 781
Public and Public-Guaranteed								
Private	2 869	3 526	3 179	3 590	4 305	6 353	10 980	11 940
Private	115	146	146	248	-	-	-	841
SHORT-TERM	279	223	1 155	3 051	6 093	7 176	3 556	2 480
Private	225	145	999	1 781	4 407	5 282	2 062	1 031
CTLDS	225	145	999	234	2 267	2 860	617	573
Commercial	-	-	-	1 036	2 140	2 422	1 445	481
Public	54	78	156	1 036	1 686	1 894	1 104	1 148
TOTAL	3 263	3 495	4 480	6 889	10 818	13 794	13 604	15 261

Source: Central Bank.

Note: Short-term debts refer to debts of less than three years.

Another striking feature of the period concerned the steady increase in the debt-export ratio. The rapid build-up of external debt was not accompanied by a corresponding capacity to earn foreign exchange to service the principal and interest on foreign debt. Exports could finance only a fifth of total debts in 1980 as compared with nearly 100 per cent in 1973. In retrospect, the evolution of the debt-export ratio could be identified as a clear indication of the impending crisis.

By 1977, Turkey was confronted with a severe balance of payments and debt crisis. A major rescheduling of debts occurred between 1977 and 1982. Total bank debts rescheduled during that period amounted to \$4 967 million, while total debts rescheduled between May 1977 and March 1982 reached a total of \$9 810 million (Table 3.3).

It should be recognized that a significant component of the external debt problem of the 1980s was in fact a direct legacy of the indiscriminate and unsustainable expansion pursued during the 1970s.

Table 3.2

External Debt Indicators, 1973-1980, (Percentage)

	1973	1974	1975	1976	1977	1978	1979	1980
Short-term Debt/ Total Debt	12.4	10.2	25.8	44.3	56.3	52.0	26.1	16.3
Debt/Exports	13.0	10.0	21.0	25.0	42.0	44.0	42.0	52.4
Debt/GNP	10.0	10.0	12.1	16.4	22.3	25.9	19.2	21.9

Source: Central Bank

Table 3.3

**Share of Rescheduled Debt in Total and Medium/Long-Term
Outstanding External Debt 1978-1986, (Percentage)**

	1978	1979	1980	1981	1982	1983	1984	1985	1986
Total Debt	-	20.6	22.9	19.0	16.2	14.7	11.3	7.9	5.2
Medium- and Long- Term Debt	-	28.0	27.4	21.9	18.0	16.8	13.3	9.7	6.7

Source: Central Bank

2. The Adjustment Programme of 1980 and the Magnitude of Capital Inflows

A key element in Turkey's adjustment experience, in the post-1980 period, concerns the magnitude of the capital inflows which accompanied the implementation of the stabilization programme. The programme was supported by multilateral agencies as well as the governments of the leading OECD countries. Turkey emerged as a major recipient of World Bank credits under the newly instituted "Structural Adjustment Loans" scheme. The favorable position of Turkey is also revealed with respect to the utilization of IMF credits (Öni_ and Özmucur, 1988b; Rodrik and Celasun, 1988; Wolff, 1987).

Undoubtedly, geopolitical considerations relating to Turkey's position in the Middle East, as a member of the NATO Alliance, played a critical role in determining the magnitude of the capital inflows which accompanied the introduction of the programme. The inflow of foreign capital helped to alleviate the foreign exchange constraint, which in turn facilitated the establishment of moderately high rates of economic growth in the early 1980s, as compared to a state of virtual stagnation in 1979-1980.

A comparison with Latin American experiences is highly illuminating in this context. In 1982, a number of Latin American countries, including Argentina, Brazil, Mexico and Chile, found themselves in the midst of a debt crisis, combined with a dramatic decline in new sources of external credit. In the absence of additional credit from the commercial banks, Latin American countries adjusted, notably during the 1982-1984 period, by compressing their imports and generating current account surpluses. The adjustment process, in turn, resulted in very low or negative rates of economic growth. Turkey did not experience a similar problem of adjustment via import compression.

The Turkish economy continued to generate persistent trade and current account deficits in the post-1980 phase. The trade deficit has remained around the \$3 billion mark, in spite of the rapid growth of exports (Table 3.4). Moreover the rapid growth of exports was in turn conditional upon the ability to import key inputs, facilitated by the absence of a foreign exchange constraint during the post-1980 period. Consequently capital inflows enabled Turkey to evade costly adjustment experienced by many semi-industrial economies (Table 3.5, Diagram 3.1).

It is important to point out that capital inflows, in the post-1980 period, originated primarily from official sources. Although foreign direct investment increased substantially relative to pre-1980 levels, it continued to account for only a marginal share of total foreign exchange earnings.

Table 3.4

**Critical Aspects of Turkey's Balance of Payments,
in \$ million, 1982-1987**

	1982	1983	1984	1985	1986	1987
Trade Balance	-2 628	-2 990	-2 942	-2 975	-3 081	-3 229
Current Account Balance	-835	-1 828	-1 407	-1 013	-1 528	-982
Capital Movement (Excluding Reserves)	163	690	193	1 050	2 139	2 010
Overall Balance	168	152	-66	123	786	993
Total Change in Reserves	-301	-264	207	-20	-545	-649

Source: Central Bank.

Table 3.5

Capital Inflows, Trade Balance and Growth, 1980-1985

		1980	1981	1982	1983	1984	1985
Turkey	(1)	-4.6	-3.9	-2.7	-3.0	-2.9	-3.0
	(2)	-1.1	4.1	4.5	3.4	5.8	4.3
Mexico	(1)	-2.8	-4.1	6.8	13.8	12.8	8.4
	(2)	8.3	7.9	-0.6	-5.3	3.5	-
Brazil	(1)	-2.8	1.2	0.8	6.5	13.1	12.5
	(2)	7.2	-1.6	0.9	-3.2	4.5	5.7
Argentina	(1)	-1.4	0.7	2.8	3.7	4.0	4.9
	(2)	0.9	-6.3	-4.8	3.0	2.9	-4.8
Chile	(1)	-0.8	-2.7	0.1	1.0	0.3	0.8
	(2)	7.8	5.5	-14.1	-0.7	6.3	2.4
South Korea	(1)	-4.4	-3.6	-2.6	-1.7	-1.0	-1.9
	(2)	-3.0	6.9	5.5	9.5	7.9	5.2

Note: (1) Trade Balance (\$ billion)
(2) GNP Growth Rate (%)

Source: IMF, International Financial Statistics Yearbook, 1986

3. Structure and Composition of External Debt During the 1980s

Major reschedulings of external debts and capital inflows played an instrumental role in the recovery of the Turkish economy during the early 1980s. However, the negative aspect of these developments was the aggravation of the external debt problem by the mid-1980s. Turkey's external debts increased from \$15 billion to \$38 billion during the 1980-1987 period. Data on the magnitude and composition of external debt as well as the evolution of the principal indicators of debt-servicing capacity are presented in Tables 3.6 to 3.9 and Appendix A.

How serious is Turkey's external debt problem at present? Certain favorable trends may be discerned with respect to Turkey's external debt performance during the first half of the 1980s, which lead to an optimistic assessment of future prospects. Probably the most significant trend is the marked fall in the debt-export ratio following the striking increase in exports recorded during the period. In fact, the major increase in exports, accompanied by a significant structural shift in the composition of exports in favour of manufactured products, represents the principal achievement associated with the adjustment programme in the post-1980 period. (Appendix A). Export growth, in turn, has facilitated the resumption of rapid growth in imports, whose significance to the growth process becomes evident when one considers the fact that over 90 per cent of imports consisted of raw materials, intermediate goods and capital goods (Appendix A). Hence, Turkey has regained creditworthiness in the international markets, and consequently has been able to borrow at market interest rates. The absence of any repayment difficulties during the 1983-1988 period reinforced the country's credit rating. Moreover Turkey has been the only country to re-establish creditworthiness and borrow at market rates after having experienced a major debt crisis and debt restructuring on a substantive scale (Sachs, 1986).

Our favorable assessment of export growth, however, ought to be qualified in a number of important respects. Certain special conditions made a significant contribution to export growth in the early 1980s. Stagnant internal demand in the aftermath of stabilization measures plus the extraordinary situation in the Middle East market emerged as crucial determinants of export performance, amplifying the impact of policy changes involving trade liberalization and exchange rate incentives. Hence, Turkey was able to expand exports during the early 1980s by diverting existing capacity from domestic to external sources of demand. This, in turn, explains the paradoxical situation that Turkey's exports could expand at a record rate of 62 per cent in 1981, at a time of acute global recession (Öni_ and Özmucur, 1988a).

Rates of capacity utilization in manufacturing industry improved by a substantial margin following the economic recovery of the 1980s. In fact, available evidence indicates that capacity utilization has reached its limits in many sectors of the manufacturing industry (Istanbul Chamber of Industry, 1988a). This implies that the sustainability of export growth depends crucially on the ability to generate new investment in export-oriented activities. The sustainability of export growth is of key importance, considering the dependence of the Turkish economy on complementary imports. The degree of dependence on imports is clearly illustrated by the composition of imports (Appendix A) as well as by the fact that the trade deficit has remained broadly constant in spite of rapid export growth during the period (Table 3.4).

Table 3.6

Turkey's Outstanding External Debt
\$ million, 1980-1988

	Total	Short-term	Medium- and Long-Term	Effective Interest Rate*
1980	16 277	2 505	13 712	7.0
1981	16 861	2 194	14 667	8.6
1982	17 619	1 764	15 855	8.9
1983	18 385	2 281	16 104	8.4
1984	21 258	3 180	18 078	7.5
1985	25 349	4 759	20 590	6.9
1986	31 228	6 911	24 317	6.8
1987	40 228	8 692	29 612	5.9
1988*	40 722	6 417	34 305	6.9

* Effective interest rate is calculated as the ratio of interest outstanding on external debt to total outstanding debt for a particular year.

Source: Undersecretariat of Treasury and Foreign Trade and Central Bank

Table 3.7

Distribution of Turkey's Medium and Long-Term External Debt
by Country and Lending Agency
1982-1987, (Percentage)

	1982	1983	1984	1985	1986	1987
A. <u>Multilateral Institutions</u>	28.6	30.4	32.3	30.0	27.1	26.3
(World Bank)	13.3	15.4	16.8	17.0	15.0	15.0
B. <u>Bilateral Agreements</u>	44.9	40.8	39.9	38.7	41.8	41.7
(OECD Countries)	38.8	34.8	33.2	31.8	34.0	34.9
(OPEC Countries)	3.7	3.3	3.3	3.1	4.2	3.8
C. <u>Commercial Banks</u>	20.3	20.2	20.5	21.2	19.9	19.3
D. <u>Private Lenders</u>	6.2	8.6	7.3	10.1	11.2	12.7
	100	100	100	100	100	100

Source: Undersecretariat of Treasury and Foreign Trade

Table 3.8

**Composition of Turkey's External Debt,
as a Percentage of the Total, 1980-1988**

	Short-Term Debt	Medium- and Long-Term Debt
1980	15.4	84.6
1981	14.1	85.9
1982	13.4	86.6
1983	18.1	81.9
1984	23.3	76.7
1985	29.6	70.4
1986	22.1	77.9
1987	22.7	77.3
1988 [*]	20.7	79.3

* Provisional

Source: Undersecretariat of Treasury and Foreign Trade, Central Bank

Table 3.9

**Principal External Debt Indicators,
Ratios, (Percentage) 1980-1987**

	1980	1981	1982	1983	1984	1985	1986	1987
Debt/GNP	25.7	28.4	32.4	35.6	42.4	47.1	54.0	56.1
Debt/Exports of Goods & Services	443	280	223	231	218	219	288	265
Debt Service Ratio	35.6	30.5	30.5	31.7	31.7	31.7	39.5	35.8
Debt Service/GNP	2.1	3.0	4.7	4.9	6.2	6.8	7.3	7.6

Source: Central Bank, State Institute of Statistics

At a more fundamental level, the composition of Turkey's external debt reveals the following tendency towards disequilibrium. Tables 3.10 and 3.11 show that the vast majority of medium and long-term loans has been directed towards the public sector, while the private sector has been able to borrow essentially on a short-term basis. Yet, in the post-1980 period, public fixed investment has shifted decisively away from manufacturing towards transport, communications and energy. Within the public sector, the major component of external borrowing has been undertaken by the central government and has been allocated to infrastructural projects (Appendix A). From the point of view of servicing external debt, this is a cause of some concern, since the sector which is producing essentially non-tradables has emerged as the principal borrower, while the private sector which is producing tradables borrows only on a short-term basis (Table 3.10, Diagram 3.2).

Interest rate policies adopted during the 1980s also contributed to the growth of external debt. In October 1988, the annual bank deposit rate was 85 per cent; with 25 per cent legal reserve ratio and taxes, the lending rate came up to 140 per cent¹. On the other hand, during the same period, the depreciation rate of the TL/\$ exchange rate was about 45 per cent. Assuming a credit rate of 10 per cent in international markets, the cost of borrowing in foreign markets was about 50 per cent. It was therefore advantageous to borrow in international markets.

Table 3.10

**Sectoral Distribution of Turkey's Short-Term External Debt,
Percentage of the Total, 1981-1988**

	Public Sector (including SEEs)	Central Bank	Private Sector
1981	2.1	40.1	57.8
1982	4.1	35.8	60.1
1983	8.5	34.4	57.1
1984	6.8	35.2	58.0
1985	4.8	35.1	60.1
1986	8.6	33.7	57.7
1987	5.6	41.8	52.6
1988*	3.1	40.9	56.0

* Provisional

Source: Undersecretariat of Treasury and Foreign Trade; Central Bank

Table 3.11

**Sectoral Distribution of Turkey's Medium
and Long-Term External Debt,
Percentage of the Total, 1981-1988**

	Public Sector (including SEEs)	Central Bank	Private Sector
1981	70.0	22.0	8.0
1982	72.5	21.8	5.7
1983	71.0	23.8	5.2
1984	70.8	24.6	4.6
1985	71.3	25.5	3.2
1986	74.4	21.7	3.9
1987	75.0	20.9	4.1
1988*	76.8	18.9	4.3

* Provisional

Source: Undersecretariat of Treasury and Foreign Trade and Central Bank

Finally, an ultimate test of a country's solvency is determined by how productively the external resources are utilized. Hence, a country will benefit from foreign borrowing as long as the rate of return on investment exceeds the cost of borrowing. The Domar-Avramovic criterion constitutes a crude, yet useful, test in this regard. According to the Domar-Avramovic test, the debt-GNP ratio can be stabilized if the growth rate in GNP exceeds the relevant interest rate. In the reverse situation, where the growth rate falls short of the interest rate, however, the debt-GNP ratio becomes explosive (Nowzad and Williams, 1981).

The results of the Domar-Avramovic test as applied to the Turkish case for the 1980-1988 period depend specifically on the definition of the interest variable on the basis of the "real interest rate", defined as the ratio of interest payments on external debt to GNP, the test points towards a favourable pattern (Table 3.12). However, we need to qualify this result by the fact that the method of calculation injects a downward bias to the real interest rate variable which, in turn, influences the outcome of the test.

Simple tests of debt-servicing capacity embody a number of serious shortcomings. The right-hand side and left-hand side variables in the relevant inequalities are not exogenous and clearly exert a significant impact on each other. Furthermore, the variables involved are significantly influenced by global trends and therefore do not present an adequate test of domestic performance in relation to the external debt problem.

Table 3.12

**Tests of Debt-Servicing Capacity on the Basis of
Domar-Avramovic and Dornbusch Criteria, 1980-1988
(\$ billion, percentage)**

	Interest Payments on External Debt	Real Interest Rate ¹	Effective Interest Rate ²	Growth in Export Volume ²	Real GNP Growth
1980	1 138	1.9	7.0	12.7	-1.1
1981	1 443	2.5	8.6	48.2	4.1
1982	1 565	2.9	8.9	19.8	4.6
1983	1 511	3.0	8.4	-1.5	3.3
1984	1 586	3.2	7.5	12.6	5.9
1985	1 753	3.3	6.9	8.6	5.1
1986	2 134	3.7	6.8	-3.5	8.1
1987	2 387	3.5	5.9	33.2	7.4
1988	2 799	4.0	6.9	4.9	3.7
1980-1988 Period Average		3.1	7.4	15.0	4.6

1. Real interest rate is calculated as the ratio of interest payments on external debt to GNP.

2. Exports have been expressed in real terms by deflating export values in dollars with the US wholesale price index.

Source: Undersecretariat of Treasury and Foreign Trade and Central Bank.

In the more recent literature, a key conceptual distinction is introduced between the ability and the willingness to service debts (Eaton, Gersovitz and Stiglitz, 1986). The key proposition is that incentives for default exist well before a country reaches its limits in terms of ability to service external debt. The bargaining power of the country vis-à-vis creditor countries is enhanced by its position in the international debt rankings; consequently, the severity of a country's debt burden is necessarily a relative phenomenon. The likelihood of a potential crisis may only be adequately assessed in relation to the position of other countries experiencing a serious debt problem.

In comparative terms, Turkey is currently in a favorable situation. It is currently not included among the fifteen heavily indebted countries to which the Baker Plan is directed. A key advantage for Turkey is the comparatively small share of commercial bank debt in total debt. This helps to limit the country's vulnerability to a potential debt crisis, considering that commercial bank debt is associated with a high and volatile interest burden.

Yet certain key dimensions of Turkey's external debt approximate rather closely the pattern displayed by the heavily indebted countries. Turkey's debt-GNP ratio is comparable to the corresponding averages of Baker Plan countries. In terms of other indicators, Turkey appears to be on the borderline between "countries experiencing debt-servicing difficulties" and "countries with acute debt-servicing problems", on the basis of the classification scheme proposed by the IMF (Tables 3.16, 3.17, 3.18).

It might be instructive to compare Turkey's external debt position with the two extreme cases of Latin American and East Asian countries identified in the literature. The first group of countries experienced acute debt-servicing difficulties in the early 1980s and were compelled to adjust via a severe contraction of imports. The Latin American group, in close parallel to the Turkish case, may be distinguished by the fact that they all experienced a prolonged second phase of import-substitution.

The second group of countries consist of "outward-oriented" East-Asian countries, which managed to avoid a debt crisis and maintained high rates of economic growth during the early 1980s. Export performance may be identified as the key difference between the two sets of countries. Indeed, the distinguishing characteristics of Latin American countries in crisis are not only high absolute levels of external debt but also extremely high debt-export ratios. Turkey's position compares favorably with the major Latin American countries both in terms of the magnitude of the debt burden and the debt-export ratio. Nevertheless, from a comparative perspective, Turkey's position is significantly closer to that of the Latin American countries.

4. The Significance of Capital Flows from the DAC Countries and Export Credits

DAC Countries have consistently been the primary source of capital flows to Turkey during both the 1970s and the 1980s. Yet the share of multilateral agencies has been increasing in recent years. The composition of capital flows from the DAC countries reveals the following pattern.

The share of export credits in the total for DAC countries increased steadily during the 1970s up to the crisis period of 1978-1980. During the initial years of the adjustment programme, export credits were insignificant; ODA grants and loans constituted the major portion of capital flows. However, as the economy recovered from the crisis, the contribution of export credits has recorded a progressive increase, parallel to the decline in the share of the ODA component (Table 3.13 and Appendix A).

Data on the contributions of the leading OECD nations to total (gross) official disbursements reveal an interesting pattern (Table 3.14). Germany and the United States emerge as the principal creditors, followed by Japan and Canada, during the 1980-1987 period. However, a steady decline can be observed in the relative share of the US during the period. The German contribution, in contrast, displays a cyclical pattern. Germany re-established its position as the principal lender in 1985, following a marked decline in its relative position during the 1982-1984 phase. Another striking trend concerns the recent increase in the contribution of Japan. The relative contributions of Italy and France are, on the whole, of marginal significance. Finally, attention is drawn to the decline in the relative shares of the leading OECD nations as a whole in recent years relative to the early 1980s.

Table 3.13

**DAC Country Financial Flows to Turkey, by Category
and as a Percentage of the Annual Total, 1972-1985**

	ODA Grants	ODA Loans	ODA Total	Export Credits	Other Financial Flows
1972	5.9	68.2	74.1	19.5	6.4
1975	2.3	13.1	15.4	66.4	19.2
1978	2.1	14.2	16.3	68.4	15.3
1980	12.3	36.7	49.0	28.9	22.1
1981	6.8	33.9	40.7	16.9	42.4
1982	23.4	24.6	48.0	14.6	36.0
1983	7.8	20.3	28.1	53.2	18.7
1984	9.3	23.1	32.4	48.6	19.0
1985	10.2	15.9	26.1	87.2	-13.3

Source: OECD Data Files.

Table 3.14

**The Relative Shares of the Leading OECD Countries in Total
Official Disbursements (Gross) to Turkey, 1980-1987, Percentage**

	1980	1981	1982	1983	1984	1985	1986	1987
U.S.A.	22.5	13.0	30.8	20.0	16.3	7.5	5.9	1.9
West Germany	26.9	28.5	8.8	8.3	7.0	5.3	12.2	20.7
Japan	1.8	6.6	3.9	6.8	4.0	3.3	5.6	13.2
Canada	2.4	2.3	2.3	2.4	4.4	4.4	4.3	3.9
Italy	0.03	0.02	6.4	0.4	1.4	2.6	3.0	0.1
France	3.9	4.6	4.2	7.2	0.8	0.8	0.6	0.7
Rest of the World ¹	42.5	45.0	43.6	54.9	66.1	76.1	68.4	59.5

1. Including Multilateral Agencies

Source: OECD, *Geographical Distribution of Financial Flows to Developing Countries*, Various Issues.

Table 3.15

Debt Indicators by Selected Country Groups, 1986 (Percentage)

	Interest Debt/ Service GNP	Debt/ Exports of Goods and Services*	Debt Service Ratio**	Ratio
Developing Countries	39.8	167.5	22.4	11.3
Non-Oil Developing Countries	42.6	176.3	22.8	11.7
Countries with Debt-Servicing Problems	54.8	302.4	37.6	21.3
Countries Without Debt-Servicing Problems	32.5	114.0	17.2	7.3
Fifteen Heavily Indebted Countries	48.4	337.9	43.9	27.3
Turkey	54.0	288.0	39.5	17.3

* Ratio of total debt at the end of the year to exports of goods and services in that year.

** All interest payments plus amortization payments on long-term debt.

Source: IMF, *World Economic Outlook*, 1987, Central Bank.

Table 3.16

**Characteristics of Fifteen Heavily Indebted Countries
and the Turkish Case, 1985
(\$ billion, percentage)**

Service	Total Debt	Commercial Debt/Total Debt	Total Debt/ GNP	Debt Ratio
Argentina	50.8	86.8	71.9	20.4
Bolivia	4.0	39.3	121.1	1.6
Brazil	107.3	84.2	49.7	39.7
Chile	21.0	87.2	126.9	9.2
Colombia	11.3	57.5	36.8	6.4
Côte d'Ivoire	8.0	64.1	135.4	4.0
Ecuador	8.5	73.8	91.5	3.4
Mexico	99.0	89.1	60.9	44.4
Morocco	14.0	39.1	111.4	6.0
Nigeria	19.3	88.2	22.9	9.1
Peru	13.4	60.7	97.9	5.2
Philippines	24.8	67.8	76.1	9.5
Uruguay	3.6	82.1	72.7	1.4
Venezuela	33.6	99.5	73.3	17.8
Yugoslavia	19.6	64.0	44.1	13.6
Turkey	25.3	23.0	47.1	31.7

Source: World Bank, *World Debt Tables*, 1985-1986, Central Bank

Table 3.17

**Composition of Debt Outstanding in a Comparative Perspective
as Percentage of the Total, 1986**

	Debt from Official Sources	Debt from Private Sources	Debt at Floating Rates
Turkey	60.8	39.2	27.2
Argentina	11.4	88.6	74.4
Brazil	20.6	79.4	58.4
Mexico	12.6	87.4	66.0
Chile	16.4	83.6	38.1
Indonesia	50.9	49.1	24.2
S. Korea	32.3	67.7	37.5
Malaysia	19.5	80.5	44.1
Thailand	48.6	51.4	25.1
Philippines	38.0	62.0	48.8

Source: World Bank, World Development Report, 1988

Table 3.18

**Debt Indicators by Selected Countries, 1985
(\$ billion, percentage)**

	Total External Debt			Public External Debt		
	(Billion Dollars)	Debt/ Exports ^(a)	Debt/ GNP	Debt Service Ratio ^(b)	Debt Service/ GNP	Average Interest Rate
Turkey	26.1	231(288) ^(b)	53.5	30.8	6.8	8.7
Argentina	48.4	495	73.5	41.8	6.1	9.9
Brazil	106.7	405	56.7	26.5	3.7	9.6
Mexico	97.4	343	54.9	37.0	6.5	9.3
Chile	20.2	435	126.3	26.2	8.7	9.4
Indonesia	35.8	180	41.4	19.9	4.8	8.1
S. Korea	48.0	155	55.7	15.2	6.1	8.6
Malaysia	18.1 ^(c)	105	57.9	22.3	13.7	8.5
Thailand	17.5	166	45.7	14.7	4.1	8.4

Note: (a) Exports of Goods and Services
(b) 1986 figure is Indicated in brackets
(c) 1984 Figure

Source: World Bank, World Development Report, 1987.

IV. PROJECT SELECTION AND EXTERNAL DEBT MANAGEMENT: THE INSTITUTIONAL FRAMEWORK

1. Relevance of the Institutional Dimension

We have already drawn attention to a major stylized feature of the Turkish experience in the 1980s, namely, that medium and long-term foreign borrowing has been undertaken predominantly by the public sector, while the private sector had to borrow mainly on a short-term basis (Tables 3.13-3.14). Yet another important stylized fact of the decade concerns the changing nature of public sector activity as part of the broader programme of liberalization and structural adjustment. Public investment has progressively shifted away from manufacturing into infrastructural activities directly complementary to private investment, namely, transport, communications and energy (Appendix A). Hence the majority of foreign loans in the 1980s has been directed to the public sector, and within the public sector they have been used essentially for infrastructure.

Data on the sectoral distribution of credits from the OECD countries clearly portray the overwhelming contribution of infrastructural projects as well as the relative insignificance of manufacturing (Table 4.1).

An appraisal of the institutional framework within which projects to be financed by recourse to external resources are selected and monitored appears to be of special significance, considering that medium and long-term borrowing is concentrated in the public sector and essentially in "non-tradable" infrastructural activities.

2. Project Selection and External Finance in the Public Sector

Three principal institutions have been involved in the project selection and debt management process during the 1980s: (a) The Undersecretariat of Treasury and Foreign Trade, (b) The State Planning Organization, (c) The Central Bank. The interviews which we have conducted with public officials point to a common pattern and a fairly specific division of responsibilities among the institutions concerned. The following schematic outline illustrates in a concise manner the mechanisms and the breakdown of responsibilities involved (Diagram 4.1).

In fact, the process appears to be highly linear and starts at the level of the individual enterprise. The state economic enterprise or the local administration concerned draws up its own investment project, prepares the feasibility reports and subsequently applies to the State Planning Organization for the "investment incentive certificate".

Approval of the project by the State Planning Organization is a prerequisite for proceeding to the next stage involving the Treasury. In fact, the Treasury is undoubtedly the key institution in the debt management process. The Treasury decides on the appropriate mix of domestic and external borrowing for a particular project. Furthermore, all the major decisions involving the type of foreign borrowing and the choice of specific instruments fall within the purview of the Treasury.

Table 4.1

**Sectoral Distribution of Project Credits from OECD Countries, 1980-1988
(As a Percentage of the Total)**

	Infrastructure (1)	Manufacturing	Other
1980	58.0	10.0	32.0
1981	45.2	47.6	7.2
1982	96.9	3.1	-
1983	48.0	-	52.0
1984	85.7	5.5	8.8
1985	65.2	16.3	18.5
1986	83.0	8.5	8.5
1987	89.4	5.9	4.7
1988	58.4	17.0	24.6

1. Including Energy, Transport and Communications
Source: Undersecretariat of Treasury and Foreign Trade

Once the appropriate mix of finance is determined by the Treasury, the Central Bank assumes responsibility for the actual disbursements. Our general impression is that, in relation to the other two institutions, the Central Bank is an essentially passive actor in the process. Following initiation of the project and the disbursement of external resources under explicit guarantee by the State, both the Treasury and SPO are assigned responsibilities in monitoring project performance on a regular basis, usually quarterly.

A number of elements of the system described in the context of the public sector also apply to the private sector. A project drawn up by a private company also needs to be approved by the SPO prior to becoming eligible for external finance. Hence, an "investment incentive certificate" granted by the SPO is a prerequisite for access to external resources. Similarly, the Treasury plays a crucial role in the context of private sector as well. All borrowing, whether public or private, is initially directed to the Treasury. Up to 1984, private investors have borne the foreign exchange risk. Since 1984, however, it has been borne entirely by the State.

In respect to the private sector, a contrasting feature concerns the role performed by the Turkish Industrial and Development Bank, which can borrow from international banks and multilateral agencies under explicit State guarantees and undertake the critical function of selecting and subsequently monitoring projects financed by external resources. An additional dimension present in the case of private sector projects and absent in the context of the public sector concerns the encouragement of export-oriented investment projects. The Industrial and Development Bank is a major recipient of World Bank credits. During the last couple of years, credits obtained from the World Bank have included the explicit condition that projects approved should export at least 20 per cent of their output.

3. Limitations of the Current Institutional Framework for Public Investment Projects

The central problem associated with the existing institutional framework is the lack of sufficient monitoring of project performance once the investment incentive certificate has been granted and finance from both external and domestic sources has been secured for the project. The absence of any built-in pressure toward completing the project within the allocated time constitutes a fundamental weakness in the Turkish context. "Governments under political pressure attempt to work on too many projects without proper project financing. This causes prolongation of investment projects consequently resulting in inevitable cost-overruns" (Dinç, 1989).

The lack of correspondence between the original and revised estimates concerning the duration of the project appears to be a pervasive problem. Data presented in Table 4.2 relating to a small subset of projects clearly illustrate the large discrepancy between the original and final estimates of a project's timespan. However, we are not suggesting that this is a typical feature of all the projects undertaken in the public sector. Indeed, a large number of projects initiated in the 1980s have been completed on schedule or nearly so.

Yet the published data on major investment projects reveal an equally significant number of cases where the original estimate of the project's lifespan has proved to be a gross underestimate (State Planning Organization, 1988) (Appendix B).

We have selected four case studies to illustrate some of the specific problems relating to the utilization of foreign loans, in public sector projects. Our first two case studies, "Bursa Kele_ Project" and "Beypazari Modernisation Project" are projects undertaken under the auspices of the Turkish Coal Board. The objective of both was to increase the production of lignites. The details of the two projects are presented in Tables 4.3 and 4.4. A cursory examination of the evidence presented in the two tables reveals a common pattern.

- i) There appears to be the inevitable gap between the original and final estimates of the projects' lifespan. The gap seems to be particularly acute in the case of the Beypazari Modernization Project.
- ii) Parallel to the delay in the realization of the project, a large discrepancy may be detected with respect to the original and revised estimates of both the total cost of the project and the cost of external inputs.

Table 4.2

**Duration of Projects: Discrepancies between Original
and Revised Dates of Completion**

Project	Sector	Duration of the project	
		Original Estimate	Revised Estimate
Bursa Orhaneli Project	Mining	1975-1982	1975-1989
Sivas Kangal Project	Mining	1976-1982	1976-1989
Car_amba Sugar Refinery Factory Project	Manufacturing	1976-1981	1976-1989
Izmir Oil Refinery Project	Manufacturing	1978-1981	1978-1988
Denizli Cement Factory Project	Manufacturing	1976-1981	1976-1988
Edirne Cement Factory Project	Manufacturing	1976-1981	1976-1991
Altinkaya Project (Hydroelectric Power)	Energy	1975-1981	1975-1988
Ye_ilirmak Second Phase Project (Hydroelectric Power)	Energy	1973-1979	1973-1989
Kelkit-Kuta_ Dam	Energy	1976-1982	1976-1991
Karakaya Project (Hydroelectric Power)	Energy	1971-1976	1971-1989
Extension and Modernization of the Izmit Harbor	Transport	1975-1981	1975-1990

Source: State Planning Organization (1988), Report on Major Investment Projects (in Turkish)

- iii) In both cases, there seems to be a distinct lack of correspondence between the flow of financial resources allocated to the projects and the pattern of subsequent expenditures. In the context of the Bursa Kele_ Project (Table 4.3), it is interesting to observe that external finance made available to the project has not been utilized for a number of years. In fact, only five years after the inception of the project do we observe a significant utilization of available resources. Although the project was initiated in 1980, it appears to have gathered momentum only by 1985. Between 1985 and 1987, however, expenditures surpassed available resources by a considerable margin and thereby compensated for the lack of activity in the early 1980s.

A somewhat different pattern can be identified in the case of the Beytepe Modernization Project. In this particular case, there seems to be pronounced underutilization of available resources throughout the 1980s. Only during a single year, 1987, have expenditures on the project actually exceeded resources allocated for that year. Rather paradoxically, there seems to be little or no utilization of the available external resources during the first half of the 1980s (Table 4.4).

The existence of considerable delays in the implementation of projects is an issue which deserves serious investigation. Our interviews have indicated that lack of adequate domestic resources often prevents the full utilization of external funds

allocated to the project. The observed delay might therefore be explained by the fact that insufficient attention has been paid to the problem of generating domestic resources to complement the foreign resources. We may also conjecture that insufficient finance was made available to get the project off the ground, which might be a reflection of the fact that too many projects are undertaken simultaneously. In other words, the amount of resources allocated might not have been sufficient to cover the initial expenditures required.

The two remaining case studies concern thermal power plant projects which fall within the domain of the Turkish Electricity Administration. As in the case of our previous examples, a significant discrepancy can be detected between the original and final estimates concerning the cost and lifespan of the projects. Yet the two projects are revealing in the sense that they point toward the presence of a different set of problems (Tables 4.5 and 4.6).

In both the "Af_in-Elbistan" and "Çayirhan" projects, expenditures appear to have consistently exceeded available resources by a rather wide margin. This should be interpreted as a sign of disequilibrium. However, we would need more detailed information on the individual projects before passing judgement on whether the discrepancy is due to inefficient use of external resources or extremely ambitious investment plans on the part of the enterprise concerned relative to the original scale of the project.

Table 4.3

CASE STUDY 1: BURSA KELE_ PROJECT

Institution: Turkish Coal Board
 Project No.: 80B0300050
 Sector: Mining

Nature of the project:

Initial Estimate: 1 800 000 tons of lignite production per annum
 Revised Estimate: 1 800 000 tons of lignite production per annum

Cost of the Project:

(Million TL)
 Initial Estimate: External Inputs: 4 748
 Total Inputs: 10 056
 Revised Estimate: External Inputs: 19 884
 Total Inputs: 46 130

Duration of the project:

Original Estimate: 1980-1984
 Revised Estimate: 1980-1989

	Financial Resources Available		Actual Expenditures (Million TL)		Degree of Utilization of Available Resources (%)	
	(1) External	(2) Total	(3) External	(4) Total	(3/1) External	(4/2) Total
1980	0	80	0	54	0	68
1981	800	850	0	59	0	7
1982	128	265	0	82	0	31
1983	260	450	0	33	0	7
1984	500	700	0	93	0	13
1985	1 000	2 119	2 031	2 124	203	100
1986	10 900	13 800	20 503	24 643	188	179
1987	6 825	7 000	18 120	19 343	993	276
1988	1 340	5 000	0	132	0	3
TOTAL	16 753	30 264	40 654	46 563	243	154

Source: State Planning Organization (1988), Major Investment Projects (in Turkish)

Table 4.4

Case Study 2: BEYPAZARI MODERNIZATION PROJECT

Institution:	Turkish Coal Board	
Project No.:	74BO30170	
Sector:	Mining	
Nature of the project:		
Initial Estimate:	1 080 000 tons of lignite production per annum	
Revised Estimate:	3 000 000 tons of lignite production per annum	
Cost of the Project:	(Million TL)	
Initial Estimate:	External Inputs:	115
	Total Inputs:	476
Revised Estimate:	External Inputs:	78 583
	Total Inputs:	117 784
Duration of the project:		
Original Estimate:	1974-1978	
Revised Estimate :	1974-1989	

	Financial Resources Available		Actual Expenditures (Million TL)		Degree of Utilization of Available Resources (%)	
	(1) External	(2) Total	(3) External	(4) Total	(3/1) External	(4/2) Total
1974/1980	104	873	89	706	86	81
1981	2 064	2 500	247	819	12	33
1982	2 150	4 400	193	859	9	20
1983	3 300	4 000	0	476	0	12
1984	231	1 986	0	1 256	0	63
1985	7 213	9 879	6 169	10 851	86	110
1986	11 635	19 907	7 898	13 367	68	67
1987	26 748	36 771	36 485	38 305	136	104
1988	6 000	16 790	2 774	5 671	46	34
TOTAL	59 445	97 106	53 855	72 310	91	74

Source: State Planning Organization (1988), Major Investment Projects (in Turkish)

Table 4.5

Case Study 3: AF_IN-ELB_STAN THERMAL POWER PLANT PROJECT

Institution: Turkish Electricity Administration
 Project No.: 72DO10050
 Sector: Energy

Nature of the project: Electricity Production
 Initial Estimate: 4 x 340 MW power
 Revised Estimate: 4 x 340 MW power

Cost of the Project: (Million TL)
 Initial Estimate: External Inputs: 4 216
 Total Inputs: 6 224
 Revised Estimate: External Inputs: 348 543
 Total Inputs: 521 452

Duration of the project:
 Original Estimate: 1972-1980
 Revised Estimate : 1972-1988

	Financial Resources Available		Actual Expenditures (Million TL)		Degree of Utilization of Available Resources (%)	
	(1) External	(2) Total	(3) External	(4) Total	(3/1) External	4/2) Total
1972/1980	32 236	49 009	32 236	49 009	100	100
1981	10 000	25 000	18 184	32 074	182	128
1982	21 539	21 799	27 111	45 180	126	207
1983	15 286	29 000	28 033	49 609	183	171
1984	15 598	30 000	48 437	75 719	311	252
1985	10 640	29 500	86 622	112 653	314	382
1986	12 000	35 000	75 078	85 507	626	244
1987	3 611	18 000	69 943	101 013	1 937	561
1988	8 450	21 260	4 389	7 459	52	35
TOTAL	129 360	258 568	390 033	558 223	302	216

Source: State Planning Organization (1988), Major Investment Projects (in Turkish)

Table 4.6

Case Study 4: ÇAYIRHAN THERMAL POWER PLANT PROJECT

Institution: Turkish Electricity Administration
 Project No.: 74D011570
 Sector: Energy

Nature of the project: Electricity Production
 Initial Estimate: 1 x 150 MW power
 Revised Estimate: 2 x 150 MW power

Cost of the Project: (Million TL)
 Initial Estimate: External Inputs: 500
 Total Inputs: 825
 Revised Estimate: External Inputs: 277 412
 Total Inputs: 461 841

Duration of the project:
 Original Estimate: 1974-1977
 Revised Estimate : 1974-1990

	Financial Resources Available		Actual Expenditures (Million TL)		Degree of Utilization of Available Resources (%)	
	(1) External	(2) Total	(3) External	(4) Total	(3/1) External	4/2) Total
1974/1980	3 100	4 289	6 722	9 164	217	214
1981	3 500	6 000	3 944	6 560	113	109
1982	3 010	7 335	6 338	10 214	221	139
1983	6 500	15 000	1 282	11 943	20	80
1984	6 700	10 000	8 647	21 435	129	214
1985	8 080	14 000	15 601	31 479	193	225
1986	8 000	17 500	53 970	56 378	675	322
1987	8 088	21 000	9 508	83 203	118	396
1988	5 370	14 500	7 146	9 596	133	66
TOTAL	52 343	109 624	113 158	239 972	216	219

Source: State Planning Organization (1988), Major Investment Projects (in Turkish)

A recent report on the current position and problems of the state enterprise sector is highly instructive in this context (Higher Supervisory Council, 1989). The Report indicates that due to poor project planning, a number of state economic enterprises have become highly dependent on external finance and are now confronted with a major interest burden which seriously distorts their financial position. The Report also draws attention to the fact that institutions such as the Turkish Electricity Administration (case studies 3 and 4) have pursued ambitious investment

programmes, incommensurate with their internal resources or equity capital. The available evidence unambiguously demonstrates that projects falling within the scope of the Turkish Electricity Administration had to rely heavily on external borrowing. The result has been overborrowing with the associated debt and interest burden, resulting in negative profitability in 1987 (Table 4.7).

Table 4.7

**Turkish Electricity Administration: Principal
Financial Indicators, 1987, (Million TL)**

Sales Revenues	1 751.8
Value Added (Gross)	988.0
Equity Capital	2 012.1
Total Assets (Net)	6 202.4
Current Profits	-31.1

Source: Istanbul Chamber of Industry (1988), Turkey's 500 Largest Industrial Establishments (in Turkish)

Our interviews have suggested the presence of much stronger pressures on the part of institutions such as the Industry and Development Bank for project completion and a closer monitoring of project performance in the private sector. Yet, private firms also suffer from similar problems of inadequate equity capital and high debt-equity ratios, as a result of which they also rely disproportionately on domestic and foreign borrowing, especially on a short-term basis (Istanbul Chamber of Industry, 1988; Ya_er et al. 1986, 1988).

4. Attempts to Improve the Institutional Framework

Several steps have been taken recently to overcome the limitations imposed by the existing institutional arrangements which we have tried to highlight through several case studies.

Borrowing on an Autonomous Basis

A decisive shift occurred in 1988 as part of the stabilization measures announced on 4th February. The new strategy with respect to external debt management reflected a new philosophy, namely, that enterprises should borrow directly from international banks or multilateral agencies on an individual basis without an explicit guarantee by the government. The new approach to debt management aimed to break the link between enterprises and the Treasury and to force the enterprises to seek new avenues of external finance on the basis of individual merit. Encouraging the enterprises to borrow autonomously was conceived as a way of lifting the protective mechanisms implicit in the previous regime and providing enterprises with an obvious incentive to reduce costs and minimize the duration of the project. The new approach has also encouraged individual institutions to design novel instruments for obtaining external finance. For example, a number of enterprises have been able to raise external funds by issuing bonds in international markets (Central Bank, 1988).

The Shift from Project to Programme Credits

The shift from project to programme credits constitutes yet another striking by-product of the 1988 measures. An examination of data on the composition of OECD credits reveals a steady increase, in the post-1980 era, in the share of project credits which reached a peak during the 1984-1986 phase (Table 4.8). In 1988, however, a profound transformation seems to have occurred, involving a substantial expansion in the contribution of programme credits. The recent emphasis on programme credits illustrates the fact that policy makers are seeking greater flexibility in external borrowing and attempting to avoid tying external resources rigidly to particular projects.

Table 4.8

Composition of Credits from OECD Countries, 1980-1988 (as a Percentage of the Total)

	Programme Credits	Project Credits
1980	60.0	40.0
1981	58.0	42.0
1982	35.0	65.0
1983	50.0	50.0
1984	9.0	91.0
1985	8.0	92.0
1986	6.0	94.0
1987	15.0	85.0
1988	47.0	53.0

Source: Undersecretariat of Treasury and Foreign Trade.

The Build-Operate-Transfer Model

The "Build-Operate-Transfer" or alternatively "Build-Own-Transfer" (BOT) model arguably constitutes a major institutional innovation in the fields of foreign investment and debt management during the post-1983 period. The BOT Scheme is based on the following set of principles. An international or national consortium is permitted to design, construct and finance an infrastructure project. On completion of the project, the consortium is entitled to ownership rights, under government guarantee, to operate the project for a mutually agreed fixed period, such as fifteen years.

The prices of products or services during the operation period are structured in such a way that they are sufficient to cover debt-service obligations, operation and maintenance costs and a return on equity attractive to investors. Sufficient price flexibility is allowed to encourage operators to manage their projects more efficiently for additional profit. Payments for the products or services are realized in foreign currency, using the same basket of currencies with which the project was originally financed.

If requested, an appropriate government agency can become a shareholder (up to a certain percentage limit) in the joint venture company to be formed by the consortium responsible for the project. Furthermore, the government assumes the risks of accidents or other unforeseen events which might occur during the construction stage of the project.

The final stage involves the transfer of ownership rights from the consortium to the government, once the agreed period of operation is over. When the project loans are paid back and equity capital (not less than 15 per cent of total investment cost) is repatriated, the ownership rights of the project are transferred to the host government without any additional charge (Dinç, 1989).

In retrospect, the BOT model was a response to the endemic problems of prolonged investment projects and the amplification of costs, especially in the context of infrastructural projects. The underlying motive for introducing BOT was to try to transfer as much as possible the burden of undertaking infrastructural projects from the public sector to the private sector and hence release scarce public resources for utilization in other vital fields such as education and health.

The proponents of the BOT model claim that it has several distinct advantages over other means of financing infrastructure projects. The principal advantage of the scheme derives from the fact that the consortium has an obvious built-in incentive to complete the project as rapidly as possible so that it can reap the benefits of operating it. Furthermore, the scheme constitutes a vehicle whereby foreign capital is injected into the economy which, in turn, facilitates the transfer of new and advanced technology. It is anticipated that significant economies in costs could be realized as companies seek to obtain their inputs directly from the cheapest source possible. In addition to gains in efficiency, another major advantage of the BOT scheme is that it constitutes an additional source of finance for priority projects. The availability of additional financial resources would be expected to exert a positive influence on the budget and the public sector's debt burden (Dinç, 1989).

In spite of the advantages associated with the BOT model, the scheme is still at an experimental stage and it is too early to judge whether it has been a success or failure. The first BOT project proposed by the Turkish Government involved the construction and operation of a nuclear power plant at Akkuyu, near Mersin, in 1984. The German Kraftwerk Union (KWU) was invited to participate on a BOT basis. The negotiations ended in failure due to the Turkish government's refusal to grant sovereign guarantees to the loans required for the project. The negotiations with the subsequent candidate, the Atomic Energy Agency of Canada (AECL) also ended in failure for the identical reason in 1985.

Following these early failures, the BOT scheme gathered momentum as of 1987. Dinç (1989) argues that a major breakthrough occurred when Export Credit Agencies and the Turkish government reached an agreement on the principles of limited recourse financing, whereby the Turkish government financially backs up the projects against the occurrence of certain types of events during both the construction and operation of the project.

The construction of several coastal coal-fired thermal power plants has been under way since 1988. Projects involving the construction of fourteen small to medium size dams and associated hydroelectric power plants have already been signed. More recently, proposals have been received for the Istanbul Atatürk Airport Terminal and Cargo Facilities Expansion as well as the Istanbul World Trade Center projects. These have been followed by discussions surrounding the Ankara Metro and the

Ankara-Istanbul fast train projects (Dinç, 1989).

Hence, we may conclude that after a slow start in 1985 and 1986, the BOT scheme has picked up momentum following a major breakthrough in 1987. Negotiations are currently in progress in such diverse fields as airports, harbours, energy transportation and distribution networks, distribution of water and natural gas, sewage treatment, real estate development, as well as bridge and tube crossing projects. However, the fact that many of these projects are still at an experimental stage prevents us from undertaking an appraisal of the scheme. Nevertheless, the widespread interest in the BOT scheme clearly demonstrates that it has emerged as a serious alternative to the standard manner of undertaking infrastructural projects via public investment.

One major limitation of the BOT scheme relates to the interest bias in favor of projects which can be completed within a limited time period. It could be argued that the type of projects which foreign investors favor under the BOT scheme are those which can be completed within a short time and whose subsequent benefits are reaped within the public sector.

5. Towards a Novel Institutional Framework

The framework which we would like to propose is not an alternative to the recent changes in institutional arrangements which we have already described in some detail. Rather, it is an alternative to the institutional framework involving public sector projects financed, in part, by external sources under an explicit Treasury guarantee. We offer the following schematic outline (Diagram 4.2), which deviates in certain critical respects from the existing scheme outlined earlier (Diagram 4.1).

First, we argue that the original project proposal ought to be a two-way process rather than to a linear process from the individual institution to the State Planning Organization (SPO). While individual enterprises should continue to design and submit projects to the SPO, as in the existing set-up, our recommendation is that the SPO should be actively involved in the formulation of projects which are consistent with the overall development strategy. In our view, the feedback process will lead to an improvement in performance at the initial stage of project selection.

The project proposal which emerges from this interactive process should then be submitted to a consortium involving Treasury, Central Bank and SPO. The consortium should assume responsibility for (a) evaluating the feasibility of the project, (b) deciding on the combination of domestic and external finance and selecting the appropriate mode of external finance, and (c) subsequent monitoring of performance once the project has been approved.

Hence, our scheme assigns a much more active role to the Central Bank in the context of debt management. Furthermore, it establishes control mechanisms whereby the decisions made by one of the principal institutions, such as the Treasury, are closely scrutinized by the Central Bank and the SPO. We conjecture that these cross-institutional checks will lead to an intensive monitoring of project performance, thereby minimizing the duration of the project and improving efficiency.

V. FINANCING SUBSIDIES RECEIVED BY TURKEY: DATA, METHODOLOGY AND ESTIMATION

1. Calculation of Subsidy Rates: Methodological Considerations

The calculation of subsidy rates is based on Raynauld (1988). The rate of subsidy is defined as the difference between the actual interest rate and the reference rate (in this case the annual return on medium and long-term government bonds) representing the alternative cost for the debtor country. This rate is expressed as a percentage of the amount of the loan on a present value basis (assuming no delays in disbursement).

1)

$$\Sigma = 100 \left(\frac{r - d}{d} \right) \frac{1 - \frac{1}{(1+d)^T}}{\delta(1 - \frac{1}{(1+d)^g})}$$

≡ ↓

Where,

- s = subsidy rate
- r = annual rate of interest adopted
- d = the reference rate
- g = the grace period
- T = the nominal due date

If there is no grace period (i.e. g=0) the formula is:

2)

$$\Sigma = 100 \left(\frac{r - d}{d} \right) \frac{1 - \frac{1}{(1+d)^T}}{\delta T}$$

≡ ↓

In both of these formulas, it is assumed that interest and principal reimbursements are payable once a year.

If repayments are made in equal amounts n times a year, the subsidy rate can be calculated as (Raynauld, 1988):

3)

$$\Sigma = 100 \frac{-(\delta - p/v)}{\delta} \downarrow \frac{1 - \frac{1}{(1+\delta)^{vT}}}{1 - \frac{1}{\delta v T}} \downarrow$$

An example is given to show these calculations, and problems associated with them.

Example

Debtor Turkish Government
 Creditor Federal Republic of Germany (OECD)

Foreign currency: DM
 Amount of the loan: 430 mill. DM
 Interest rate: 2 per cent
 Maturity: 30 years
 Grace period: 10 years
 Date of agreement: July 31, 1980
 F.R. of Germany reference rate: 8.50 per cent

(d-r)/d = (0.085-0.02)/0.085 = 0.7647
 dT = (0.085) (30) = 2.55
 d(T-g) = 0.085 (30-10) = 1.70
 1/(1+d)^T = 0.08651827
 1/(1+d)^g = 0.44228541

$$\Sigma_1 = (100)(0.7647) \frac{1 - \frac{0.355767}{1.7}}{1 - \frac{1}{1.7}} = 60.47\%$$

$$\Sigma_2 = (100)(0.7647) \frac{1 - \frac{0.91348}{2.55}}{1 - \frac{1}{2.55}} = 49.08\%$$

Subsidy rates are calculated for individual projects and for major creditor countries.

4)

$$\Sigma_i(\tau) = \sum_{\varphi=1}^{\mu} \alpha_{i\varphi}(\tau) v_i(\tau), t = 1, 2, \dots, \mu$$

- $S_i(t)$ = subsidy rate for country i at time t
 $S_{ij}(t)$ = subsidy rate for country i, project j at time t
 $a_{ij}(t)$ = share of country i project j in total for country i at time t
 $n_i(t)$ = number of projects for country i at time t
 m = number of countries

5)

$$\Sigma(\tau) = \sum_{i=1}^{\mu} \Sigma_i(\tau) * \beta_i(\tau)$$

Where

- $S(t)$ = subsidy rate at time t
 $\bar{S}(t)$ = average subsidy rate at time t
 $b_i(t)$ = share of country i at time t

$$\beta_i(\tau) = \frac{\sum_{i=1}^{\mu} \zeta_i(\tau) \varepsilon_i(\tau)}{\sum_{i=1}^{\mu} \zeta_i(\tau) \varepsilon_i(\tau)}$$

Where,

- $V_i(t)$ = value of credit in local currency
 $e_i(t)$ = exchange rate (Local/US\$) (annual average) at time t

Implications of Incorporating the Grace Period

It is clear from cases 1 and 2 that there is a significant difference between equations (1) and (2). Grace period, if available, should be included in calculations.

Table 5.1 gives S_2/S_1 ratios for $T = 20$. Since figures are less than one if grace period is greater than zero, equation (2) underestimates subsidy rates². S_2/S_1 ratio decreases as grace period or reference rate increases. For example, if the reference rate is 0.10, the maturity is 20 years and the grace period is 7 years the S_2/S_1 ratio is 0.80, indicating a 20 per cent underestimation. Percentage differences can easily be obtained by subtracting these ratios from one and multiplying by 100, i.e.

$$\text{Percentage difference} = (1 - S_2/S_1) * 100$$

Currency Composition of Foreign Borrowing and the Debt Burden

Another issue that we have to deal with is the effect of exchange rate on foreign borrowing. Original currency can be of great importance in a world of floating exchange rates. An example can clarify this point. Suppose a country can borrow in US Dollars or Japanese yen. If borrowing is done in US dollars ($X_0^{\$}$ amount of the loan).

$$X_0^{\$} (1 + \delta_x)^t$$

is the amount to be paid after t years if the rate of interest on this loan is d_x .

Table 5.1

Significance of the Grace Period (S2/S1 Ratios)

T=20		Reference Rates (d)										
g	g/T	0.01	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
0	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	0.05	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
2	0.10	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93
3	0.15	0.88	0.88	0.88	0.88	0.89	0.89	0.89	0.89	0.89	0.90	0.90
4	0.20	0.84	0.85	0.85	0.65	0.86	0.86	0.86	0.86	0.87	0.87	0.88
5	0.25	0.81	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.84	0.85	0.86
6	0.30	0.78	0.79	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.83	0.84
7	0.35	0.75	0.76	0.77	0.78	0.78	0.79	0.79	0.80	0.81	0.82	0.83
8	0.40	0.73	0.74	0.75	0.76	0.76	0.77	0.78	0.78	0.79	0.81	0.82
9	0.45	0.71	0.72	0.73	0.74	0.75	0.75	0.76	0.77	0.78	0.79	0.81
10	0.50	0.69	0.70	0.72	0.72	0.73	0.74	0.75	0.75	0.77	0.78	0.80
11	0.55	0.67	0.68	0.70	0.71	0.72	0.72	0.73	0.74	0.76	0.78	0.79
12	0.60	0.65	0.67	0.69	0.69	0.70	0.71	0.72	0.73	0.75	0.77	0.79
13	0.65	0.63	0.65	0.67	0.68	0.69	0.70	0.71	0.72	0.74	0.76	0.78
14	0.70	0.61	0.64	0.66	0.67	0.68	0.69	0.70	0.71	0.73	0.75	0.78
15	0.75	0.60	0.62	0.65	0.66	0.67	0.68	0.69	0.70	0.72	0.75	0.77
16	0.80	0.58	0.61	0.63	0.65	0.66	0.67	0.68	0.69	0.72	0.74	0.77
17	0.85	0.57	0.60	0.62	0.64	0.65	0.66	0.68	0.69	0.71	0.74	0.77
18	0.90	0.55	0.58	0.61	0.63	0.64	0.66	0.67	0.68	0.70	0.74	0.76
19	0.95	0.54	0.57	0.60	0.62	0.63	0.65	0.66	0.67	0.70	0.73	0.76
20	1.00											

If the same amount is borrowed in Japanese yen with an interest d_y ,

$$\Xi_o^{\exists} \varepsilon_o (1 + \delta_\psi)^\tau$$

is the amount to be paid in year t (ε_o is the yen/\$ exchange rate in year o , at the time of borrowing).

$$\Xi_o^{\exists} \varepsilon_o (1 + \delta_\psi)^\tau / \varepsilon_\tau$$

is the same amount in US Dollars.

or

$$\Xi_o^{\exists} (1 + \delta_\psi)^\tau / (\varepsilon_\tau / \varepsilon_o)$$

One should compare

$$\begin{array}{c} ? \\ \Xi_o^{\exists} (1 + \delta_{\psi})^{\tau} < \\ = \Xi_o^{\exists} (1 + \delta_{\psi})^{\tau} / (\varepsilon_{\tau} / \varepsilon_o) \\ > \end{array}$$

or

$$\begin{array}{c} ? \\ (1 + \delta_{\xi})^{\tau} < \\ = (1 + \delta_{\psi})^{\tau} / (\varepsilon_{\tau} / \varepsilon_o) \\ > \end{array}$$

$$(1 + 0.1139)^7 = 2.1278$$

$$(1 + 0.0922)^7 = 1.8540$$

$$(1 + 0.0922)^7 / (144.60 / 226.63) = 1.854 / 0.638 = 2.906$$

$$2.1278 \leq 2.906$$

Although the rate of interest on US dollar loans is greater than that of Japanese yen, the burden of the former is lower than the latter. This is due to the high rate of depreciation of the dollar against the Japanese yen during 1980-87. This example shows the importance of exchange rate predictions in international borrowing (Table 5.2). Since Turkey is a small country, it has to take exchange rate developments in the world as given.

Table 5.2

Currency Composition and the Debt Burden

	1980	1987
Reference Rates (%)		
USA, (d_x)	11.39	8.38
Japan, (d_y)	9.22	4.21
Exchange Rate (yen/\$),(e)	226.63	144.60
Future Value of a \$ Loan		
in US dollars, $(1 + d_x)^t$	1.0	2.127 76
in Japanese yen, $(1 + d_y)^t e$	226.63	420.177 3
in Japanese yen converted to dollars, $(1 + d_y)^t / (e_t/e_0)$	1.0	2.905 8

Table 5.3 indicates the significance of exchange rate developments. The figures in the table are calculated as:

$$\frac{(1 + \delta_\xi)^\tau}{(1 + \delta_\psi)^\tau / (\varepsilon_\tau / \varepsilon_0)}$$

It is also assumed that the exchange rate depreciates at a constant rate, i.e.

$$\varepsilon_\tau = \varepsilon_0 (1 + \beta)^\tau$$

For example, d_x for country A is 0.8, d_y for country B is 0.10. Exchange rate (currency of B/currency of A) increases at a rate of 0.05. After 6 years, the burden of debt from country A (with a lower reference rate) is going to be 20 per cent higher (1.20) than that from country B (because of depreciation of the currency of that country).

Table 5.3

Significance of Exchange Rate Developments

DX	0.08	0.08	0.08	0.08	0.08	0.05	0.05	0.05	0.05	0.05
DY	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ET/ED PER	0.05	0.08	0.10	0.15	0.20	0.05	0.06	0.10	0.15	0.20
t										
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	1.03	1.06	1.08	1.13	1.18	1.00	1.03	1.05	1.10	1.15
2	1.06	1.12	1.17	1.27	1.39	1.00	1.06	1.10	1.21	1.31
3	1.10	1.19	1.26	1.44	1.64	1.01	1.10	1.16	1.32	1.50
4	1.13	1.26	1.36	1.63	1.93	1.01	1.13	1.22	1.45	1.72
5	1.16	1.34	1.47	1.84	2.27	1.01	1.16	1.28	1.59	1.97
6	1.20	1.42	1.59	2.07	2.67	1.01	1.20	1.34	1.75	2.26
7	1.24	1.51	1.71	2.34	3.15	1.02	1.24	1.41	1.92	2.59
8	1.28	1.60	1.85	2.64	3.71	1.02	1.28	1.48	2.11	2.96
9	1.32	1.69	2.00	2.98	4.37	1.02	1.32	1.55	2.31	3.39
10	1.36	1.80	2.16	3.37	5.15	1.02	1.36	1.63	2.54	3.89
11	1.40	1.91	2.33	3.80	6.07	1.03	1.40	1.71	2.79	4.45
12	1.44	2.02	2.52	4.29	7.15	1.03	1.44	1.80	3.06	5.10
13	1.49	2.14	2.72	4.85	8.43	1.03	1.49	1.89	3.36	5.84
14	1.53	2.27	2.94	5.47	9.93	1.03	1.53	1.98	3.69	6.69
15	1.59	2.41	3.17	6.18	11.70	1.03	1.58	2.08	4.05	7.67
16	1.63	2.55	3.43	6.98	13.78	1.04	1.63	2.18	4.45	8.78
17	1.68	2.71	3.70	7.88	16.24	1.04	1.68	2.29	4.88	10.06
18	1.73	2.87	4.00	8.89	19.13	1.04	1.73	2.41	5.36	11.52
19	1.78	3.05	4.32	10.04	22.54	1.04	1.78	2.53	5.88	13.20
20	1.84	3.23	4.66	11.34	26.56	1.05	1.84	2.65	6.45	15.12
30	2.49	5.80	10.06	38.18	136.89	1.07	2.49	4.32	16.40	58.79
40	3.38	10.43	21.72	128.57	705.49	1.10	3.38	7.04	41.67	228.62
50	4.58	18.74	46.90	432.96	3 635.93	1.12	4.58	11.47	105.86	889.98

2. Data*Data on Foreign Borrowing*

Data on foreign borrowing are obtained from the Annual Economic Reports of the Ministry of Finance and reports of the Undersecretariat of Treasury and Foreign Trade. Some unpublished data have also been provided by the Treasury.

The following information is provided in the publications mentioned above:

1. The recipient body in Turkey
2. The project
3. The creditor (Institution and/or Country)
4. The amount of the loan
5. The original currency
6. The rate of interest

7. The nature of the financing (OECD, international organizations etc.)
8. Maturity and grace period
9. Date of agreement

Sectoral classifications are not provided.

Exchange Rates and Reference Rates

Exchange rates (rf) and reference rates are obtained from International Financial Statistics. Annual averages are used in our calculations (Appendix B). Government bond-yield (IFS, row 61) is taken as the reference rate, as suggested by Raynauld (1988). If this is not available, the discount rate (IFS, row 60) or the deposit rate (IFS, row 601) is employed. The arithmetic average of reference rates for France, Germany, United Kingdom, United States and Japan is used as the reference rate for multilateral organizations such as the World Bank (IBRD).

Country Risk Premium

The country risk premium is calculated by using the margins over Libor. A simple average of these margins on borrowings based on Libor + is used as the risk premium (Appendix B).

3. Estimates of Subsidy Rates (Without The Grace Period)³

Subsidy Rates by Creditors

Subsidy rates are estimated for over 600 projects. Our data set incorporates a total of 804 projects, but in our analysis pure grants and appropriations are excluded. Annual averages of these rates are presented in Tables 5.4 and 5.5.

The subsidy rates presented reveal the following pattern: subsidy rates, in general, appear to be high during the early 1980s, corresponding to the initial period of adjustment following the crisis of the late 1970s. The rates decline thereafter, following the restoration of Turkey's creditworthiness and its ability to borrow at market rates after 1983. The steady decline in the rates of subsidies during the 1980s may also be attributed, in part, to the lending policies of creditor countries.

The average rate of subsidy reported in Table 5.4 is the average rate on all loan transactions, which include loans from the smaller countries on the European periphery, Middle Eastern and Eastern European countries, as well as a number of multilateral agencies such as the Islamic Development Bank. The average rate of subsidy for the 1980-1988 period is 10.4 per cent, the highest figure having been attained in 1980 (26.54 per cent) and the lowest in 1988 (1.50 per cent).

Figures 4.1 to 4.6 display the subsidy rates for major creditors. Estimated trend lines and the relevant statistics are also provided. Trend coefficients are negative and significant at the 5 per cent level, with the notable exceptions of France, Italy and Austria. There are only four countries with nine observations. In order to derive trend coefficients for other countries with a smaller number of observations, we utilize LSDV (least squares with dummy variables). This model is also employed to test whether significant intercountry differences exist with respect to the subsidy rates. The test was conducted for the OECD countries as well as for multilateral organizations.

From a comparative perspective, two aspects of the Turkish experience deserve emphasis. First, we observe pronounced variations among the subsidy rates of the OECD countries. The subsidy rates on US and Japanese loans are considerably lower than the rates of subsidies reported for the leading EEC countries. Second, the subsidy rates on loans provided by the multilateral agencies, in general, and the World Bank in particular, are significantly lower than the OECD averages.

Subsidy Rates by Sectors

Average subsidy rates are relatively high for the energy, transport and communication sectors. The average subsidy rate is highest for "general borrowing". Furthermore, there is a significant downward trend in all the sectors, excluding agriculture and energy (Table 5.5 and Figure 5.7). These figures suggest that the lending policies of creditor countries was not neutral and embodied a strong sectoral bias. The low rates of subsidies reported for manufacturing are particularly striking. Hence, the policies of the creditor countries encouraged the structural shift away from manufacturing into infrastructural activities such as transport, energy and communications, to which we have already drawn attention in an earlier context (Section III).

Table 5.4

Subsidy Rates by Major Creditors, (Percentage)

Creditor	1980 Aver.	1981	1982	1983	1984	1985	1986	1987	1988	
USA	25.98	12.80	-0.20	18.14	9.96	6.01	1.36	2.42	0.60	8.6
Germany	53.36	57.33	46.31	47.99	6.80	0.27	8.97	6.84	3.37	25.7
France	10.54	36.70	18.59	56.94	8.39	4.82	7.08	3.74	10.23	17.4
Belgium	30.09	54.24	59.44	63.88	11.10	17.46	3.08	7.86	19.89	29.7
Japan		25.93	33.08	8.56		-1.26	-5.05	0.64	-6.66	7.9
Canada	42.83	50.09	8.97		5.72	13.26	5.58		7.66	19.2
Italy	25.79	28.28	25.29			12.60	39.83	3.79		22.6
UK	44.46	44.60		34.79		7.94	8.12	5.36		24.2
Austria	14.07	9.07			6.15		14.05	-1.20	2.82	7.5
OECD	32.37	39.38	9.6	27.95	3.88	5.08	2.57	3.27	0.39	13.8
IBRD	19.72	20.05	11.09	3.15	7.48	5.37	3.22	2.45	3.00	8.4
Multilateral	23.59	24.42	11.56	5.69	8.12	6.52	4.71	3.82	6.98	10.6
Average	26.54	26.29	7.74	15.24	4.27	5.31	3.59	3.49	1.50	10.4

Table 5.5

Subsidy Rates by Major Sectors, (Percentage)

Sector	1980 Aver.	1981	1982	1983	1984	1985	1986	1987	1988	
Agriculture	20.8	19.8	-10.2	2.5	6.2	5.4	1.7	3.3	1.5	5.7
Mining	15.0	1.2	0.8	3.2	-2.6	2.7	0.7	-3.9	-4.4	1.4
Manufacturing	15.9	16.0	5.3	2.5	6.2	4.5	1.9	5.5	2.6	6.7
Energy	37.7	5.4	30.2	17.9	-8.8	3.7	8.6	1.0	12.4	12.0
Trans & Comm	18.8	50.4	6.7	5.2	6.7	5.5	-1.1	3.5	4.6	11.2
Services	16.1	25.4	6.8	6.7	7.0	4.2	4.1	5.9	1.1	8.6
General	28.0	33.2	15.4	24.5	18.1	6.4	7.4	5.9	8.2	16.3
Average	26.54	26.29	7.74	15.24	4.27	5.31	3.59	3.49	1.50	10.4

The following figures are not reproduced due to technical reasons. Please consult printed version.

Figure 5.1

SUBSIDY RATES BY MAJOR CREDITORS (%)
USA

Figure 5.2

SUBSIDY RATES BY MAJOR CREDITORS (%)
GERMANY

Figure 5.3

SUBSIDY RATES BY MAJOR CREDITORS (%)
IBRD

Figure 5.4

SUBSIDY RATES BY MAJOR CREDITORS (%)
(MULTILATERAL ORGANISATIONS)

Figure 5.5

SUBSIDY RATES BY MAJOR CREDITORS (%)
(OECD COUNTRIES)

Figure 5.6

SUBSIDY RATES BY MAJOR CREDITORS (%)
AVERAGE

Figure 5.7

SUBSIDY RATES BY MAJOR CREDITORS (%)
GENERAL

4. Trends in Subsidy Rates

Three models are considered:

Model I

Common intercept and common slope for all

$$\text{SUBSID}_{it} = \alpha + \beta\tau + u_{it}$$

Model II

Common slope, varying intercept

$$\text{SUBSID}_{it} = \alpha + \beta\tau + \gamma D_i + u_{it}$$

Model III

Varying intercept and varying slope

$$\text{SUBSID}_{it} = \alpha + \beta\tau + \gamma D_i + \delta D_i\tau + u_{it}$$

where:

SUBSID_{it} = subsidy rate for country (group or sector) i at time t

t = time (year)

D_i = Dummy variable [=1 for country (group or sector) i , and = 0 for others]

u_{it} = disturbance term

$\alpha, \beta, \gamma, \delta$ = parameters to be estimated

The following tests were done:

a)

$$H_0: \gamma_1 = \gamma_2 \dots = 0$$

$$H_1: \gamma_1, \gamma_2 \dots \neq 0$$

If H_0 cannot be rejected, the varying intercept hypothesis is rejected. One can conclude that there is no difference among countries (groups or sectors). This test can be done by comparing residual sums of squares in models I and II.

$$\Phi_{(\kappa_2 - \kappa_1, v - \kappa_2)} = \frac{(P\Sigma\Sigma_1 - P\Sigma\Sigma_2) / (\kappa_2 - \kappa_1)}{P\Sigma\Sigma_2 / (v - \kappa_2)}$$

Where:

RSS = residual sum of squares
 k = number of parameters to be estimated
 n = number of observations

(subscript refer to the model used)

The test can be done using determination coefficients also.

$$P_1^2 = 1 - \frac{P\Sigma\Sigma_1}{T\Sigma\Sigma_1} \Rightarrow P\Sigma\Sigma_1 = (1 - P_1^2) T\Sigma\Sigma_1$$

Where

R_1^2 = determination coefficient
 $T\Sigma\Sigma_1$ = Total sum of squares (variance of the dependent variable times n)

$$\Phi_{(\kappa_2 - \kappa_1, v - \kappa_2)} = \frac{(P_2^2 - P_1^2) / (\kappa_2 - \kappa_1)}{(1 - P_2^2) / (v - \kappa_2)}$$

b)

$$H_0 : \delta_1 = \delta_2 = \dots = 0$$

$$H_1 : \delta_1, \delta_2 = \dots \neq 0$$

If H_0 cannot be rejected, the varying slope hypothesis is rejected. This test can be done by comparing residual sums of squares in models II and III.

$$\Phi_{(\kappa_3 - \kappa_2, v - \kappa_3)} = \frac{(P\Sigma\Sigma_2 - P\Sigma\Sigma_3) / (\kappa_3 - \kappa_2)}{P\Sigma\Sigma_3 / (v - \kappa_3)}$$

c)

$$H_0 : \delta_1 = \delta_2 = \dots = \gamma_1 = \gamma_2 \dots = 0$$

$$H_1 : \delta_1, \delta_2 = \dots = \gamma_1, \gamma_2 \dots \neq 0$$

If H_0 cannot be rejected, then the varying slope and intercept hypothesis is rejected. One can conclude that there are no differences among countries (groups or sectors). This test can be done by comparing residual sums of squares in models I and III.

$$\Phi_{(k_3-k_1, v-k_3)} = \frac{(P\Sigma\Sigma_1 - P\Sigma\Sigma_3) / (k_3 - k_1)}{P\Sigma\Sigma_3 / (v - k_3)}$$

There are 90 observations on 17 OECD countries. Since there are two or less observations on Ireland, Denmark and Norway, these three countries are treated as a single unit (Table 5.6)

LSVD (least squares with dummy variables), with 14 country dummies are used to test for inter-country differences. The results reveal that slope and intercept dummies are significant at the 1 per cent level, confirming the presence of marked differences in subsidy rates themselves as well as the trends of subsidy rates.

Using Model III, we can derive regression functions for individual countries. Intercepts, slopes and estimates for 1980-1988 are provided in Tables 5.6 and 5.7. Germany has the highest subsidy rate in 1980 (the largest intercept) and the highest rate of decline (the largest slope coefficient). Regression results confirm that these differences are significant, which allows us to reach the conclusion that inter-country variations exist in the rates of subsidies reported.

Table 5.6

Intercept and Slope Calculated Using Regression with Dummy Variables*

	Constant	slope	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Aver												
USA	4 693.1	-2.361	18.01	15.65	13.29	10.92	8.56	6.2	3.84	1.48	-0.88	8.56
Germany	15 693.7	-7.897	57.28	49.38	41.49	33.59	25.69	17.8	9.90	2.00	-5.90	25.69
France	5 812.7	-2.921	29.13	26.21	23.29	20.37	17.45	14.53	11.61	8.68	5.76	17.45
Belgium	11 241.9	-5.651	52.28	46.63	40.97	35.32	29.67	24.02	18.37	12.72	7.07	29.67
Japan	10 481.9	-5.278	32.02	26.74	21.46	16.19	10.91	5.63	0.35	-4.93	-10.20	10.91
Canada	9 898.0	-4.980	37.66	32.68	27.70	22.72	17.74	12.76	7.78	2.80	-2.18	17.74
Italy	3 232.5	-1.618	28.26	26.64	25.02	23.41	21.79	20.17	18.55	16.93	15.31	21.79
UK	13 022.9	-6.553	48.24	41.69	35.13	28.58	22.03	15.47	8.92	2.37	-4.18	22.03
Austria	2 340.2	-1.176	12.59	11.41	10.24	9.06	7.89	6.71	5.53	4.36	3.18	7.89

* Varying slope and intercept hypothesis is accepted at the 5 per cent level of significance.

Table 5.7

Trend Estimates for Various Groups*

	Interc.	Slope	1980	1981	1982	1983	1984	1985	1986	1987	1988	Aver.
Governments	13 254.4	-6.660	67.61	60.95	54.29	47.63	40.97	34.31	27.65	20.99	14.33	40.97
Bilateral	6 336.6	-3.187	27.01	23.83	20.64	17.45	14.27	11.08	7.89	4.71	1.52	14.27
Multilateral	3 832.1	-1.925	21.07	19.15	17.23	15.30	13.38	11.45	9.53	7.60	5.68	13.38
International	3 377.5	-1.700	11.54	9.84	8.14	6.44	4.74	3.04	1.34	-0.36	-2.06	4.74

Trend Estimates for Multilateral Organizations (39 Observations)**

	Interc.	Slope	1980	1981	1982	1983	1984	1985	1986	1987	1988	Aver.
IBRD	3 898.4	-1.961	16.11	14.15	12.19	10.23	8.27	6.31	4.34	2.38	0.42	8.27
IFC	3 898.4	-1.961	16.11	14.15	12.19	10.23	8.27	6.31	4.34	2.38	0.42	8.27
IFAD	3 898.4	-1.961	16.11	14.15	12.19	10.23	8.27	6.31	4.34	2.38	0.42	8.27
ERF	1 155.2	-0.574	18.98	18.40	17.83	17.25	16.68	16.11	15.53	14.96	14.39	16.68
EIB	2 625.5	-1.298	55.55	54.25	52.95	51.65	50.35	49.06	47.76	46.46	45.16	50.35
IDB	1 633.6	-0.824	2.77	1.95	1.13	0.30	-0.52	-1.34	-2.17	-2.99	-3.81	-0.52
IDBKUW	-3 101.9	1.560	-13.11	-11.55	-9.99	-8.43	-6.87	-5.31	-3.75	-2.19	-0.63	-6.87
SAUDIF	-4 361.9	2.214	21.83	24.05	26.26	28.48	30.69	32.90	35.12	37.33	39.55	30.69

Trend Estimates for Major Sectors (63 Observations)**

	Interc.	Slope	1980	1981	1982	1983	1984	1985	1986	1987	1988	Aver.
General	6 471.0	-3.253	29.36	26.10	22.85	19.60	16.34	13.09	9.84	6.58	3.33	16.34
Agriculture	3 312.3	-1.667	12.33	10.67	9.00	7.33	5.67	4.00	2.33	0.67	-1.00	5.67
Mining	3 096.5	-1.560	7.65	6.09	4.53	2.97	1.41	-0.15	-1.71	-3.27	-4.83	1.41
Manufacturing	2 966.2	-1.492	12.68	11.19	9.69	8.20	6.71	5.22	3.73	2.24	0.74	6.71
Energy	5 692.9	-2.863	23.46	20.60	17.74	14.87	12.01	9.15	6.28	3.42	0.56	12.01
Trans.& Comm.	7 047.7	-3.547	25.33	21.78	18.24	14.69	11.14	7.60	4.05	0.50	-3.04	11.14
Services	4 188.2	-2.107	17.02	14.91	12.80	10.70	8.59	6.48	4.38	2.27	0.16	8.59

* Varying slope and intercept hypothesis is rejected at the 5 per cent level of significance.

** Varying slope hypothesis is rejected at the 5 per cent level of significance

VI. THE MACROECONOMIC AND SECTORAL IMPACT OF SUBSIDIZED BORROWING

1. Introduction

What are the impacts of subsidy rates on the Turkish economy? Impacts on the following variables will be explored in this section:

- a. external borrowing
- b. imports
- c. value added
- d. growth rate
- e. capital/output ratio

2. Testing Procedures

To test the hypothesis that there are differences in responses to subsidy rates, four (in some cases three) models are used.

Model I (I)⁴

$$\begin{aligned}\Xi_{it} &= \beta_1 + \beta_2 \Sigma YB\Sigma I\Delta_{it} + \beta_3 \tau \\ &+ \beta_4 \Sigma YB\Sigma I\Delta_{it} * \tau + v_{it}\end{aligned}$$

Model II

$$\begin{aligned}\Xi_{it} &= \beta_1 + \beta_2 \Sigma YB\Sigma I\Delta_{it} + \beta_3 \tau \\ &+ \beta_4 \Sigma YB\Sigma I\Delta_{it} * \tau + \\ &+ \mathfrak{R} \gamma_{it} \Delta_{it} + v_{it}\end{aligned}$$

Model III(II)

$$\begin{aligned}\Xi_{it} &= \beta_1 + \beta_2 \Sigma YB\Sigma IT_{it} + \beta_3 \tau \\ &+ \beta_4 \Sigma YB\Sigma IT_{it} * \tau + \\ &+ \mathfrak{R} \Delta_{it} \delta_{it} \Sigma YB\Sigma I\Delta_{it} + v_{it}\end{aligned}$$

Model IV (III)

$$\begin{aligned}\Xi_{it} &= \beta_1 + \beta_2 \Sigma YB\Sigma I\Delta_{it} + \beta_3 \tau \\ &+ \beta_4 \Sigma YB\Sigma I\Delta_{it} * \tau + \\ &+ \mathfrak{R} \Delta_{it} (\gamma_{it} + \delta_{it} \Sigma YB\Sigma I\Delta_{it}) + v_{it}\end{aligned}$$

where,

X = dependent variable (external borrowing, employment, value added etc.)

$SUBSID$ = subsidy rate

t = year

D_i = Country (or sector) dummy variable (= 1 for country i , = 0 for others)

β 's, δ 's, τ 's, are parameters to be estimated.

As in section four the following hypotheses are tested,

a)

$$H_0 : \gamma_1 = \gamma_2 = \dots = 0$$

$$H_1 : \gamma_1, \gamma_2 = \dots \neq 0$$

b)

$$H_0 : \delta_1 = \delta_2 = \dots = 0$$

$$H_1 : \delta_1 = \delta_2 = \dots \neq 0$$

c)

$$H_0 : \gamma_1 = \gamma_2 = \dots = \delta_1 = \delta_2 = \dots = 0$$

$$H_1 : \gamma_1, \gamma_2 = \dots = \delta_1, \delta_2 \neq 0$$

In almost all cases, differences exist among countries or sectors. Indeed, this constitutes a common pattern in studies in which cross-section time-series data are utilized. Hence, the model with slope and intercept dummies represents the appropriate model in this context. The results reported in this chapter are based on the least squares with dummy variables (LSVD) model.

3. Impact on External Borrowing

The dependent variable LOAN is the share of the country concerned in total external borrowings in a given year. we would expect the share of a country to increase as a result of an increase in the subsidy rate. If this expectation is confirmed, then the "overborrowing" hypothesis is supported.

$$\Delta \text{LOAN} = \phi(\Sigma \text{YB} \Sigma \text{I} \Delta)^{(+)}$$

where LOAN = share of the country in total external borrowing.

Regression results are summarized in Table 6.1. Intercept and slope coefficients for the OECD countries are derived from the LSVD models.

The impact of subsidy rates on external borrowing is, in general, positive for the majority of the countries in our sample. It appears, therefore, that the policy-makers have responded in a systematic manner to the opportunities provided by the international financial markets. We conclude, therefore, that subsidized credits have resulted in a higher level of foreign borrowing than would have been the case if the country had been compelled to borrow at normal, market rates of interest.

Table 6.1

Impacts of Subsidy Rates on Foreign Borrowing *
(Coefficients Derived from the Regression with Dummy Variables)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
INTERCEPT									
USA	18.068	18.448	18.828	19.208	19.588	19.968	20.348	20.728	21.108
Germany	7.225	7.605	7.985	8.365	8.745	9.125	9.505	9.885	10.265
France	2.328	2.708	3.088	3.468	3.848	4.228	4.608	4.988	5.368
Belgium	-1.451	-1.071	-0.691	-0.311	0.069	0.449	0.829	1.209	1.589
Japan	7.565	7.945	8.325	8.705	9.085	9.465	9.845	10.225	10.605
Canada	-0.461	-0.081	0.299	0.679	1.059	1.439	1.819	2.199	2.579
Italy	-1.535	-1.155	-0.775	-0.395	-0.015	0.365	0.745	1.125	1.505
Finland	-2.052	-1.672	-1.292	-0.912	-0.532	-0.151	0.229	0.609	0.989
Spain	-2.415	-2.035	-1.655	-1.275	-0.895	-0.515	-0.135	0.245	0.625
Sweden	-1.696	-1.316	-0.936	-0.556	-0.176	0.204	0.584	0.964	1.344
Switzerland	4.536	4.916	5.296	5.676	6.056	6.436	6.816	7.196	7.576
Netherlands	-0.857	-0.477	-0.097	0.283	0.663	1.043	1.423	1.803	2.183
Austria	-2.092	-1.712	-1.332	-0.952	-0.572	-0.192	0.188	0.568	0.948
UK, Irel., Nor., Denmark	-0.487	-0.107	0.273	0.653	1.033	1.413	1.793	2.173	2.553
SLOPE									
USA	-0.251	-0.257	-0.264	-0.271	-0.277	-0.284	-0.290	-0.297	-0.303
Germany	0.064	0.058	0.051	0.045	0.038	0.031	0.025	0.018	0.012
France	-0.035	-0.042	-0.048	-0.055	-0.061	-0.068	-0.075	0.081	-0.088
Belgium	0.050	0.043	0.037	0.030	0.024	0.017	0.010	0.004	-0.003
Japan	-0.033	-0.040	-0.047	-0.053	-0.060	-0.066	-0.073	-0.080	-0.086
Canada	0.068	0.062	0.055	0.048	0.042	0.035	0.029	0.022	0.015
Italy	0.053	0.046	0.040	0.033	0.026	0.020	0.013	0.007	0.000
Finland	0.195	0.189	0.182	0.175	0.169	0.162	0.156	0.149	0.143
Spain	0.152	0.145	0.139	0.132	0.126	0.119	0.113	0.106	0.099
Sweden	0.059	0.052	0.046	0.039	0.033	0.026	0.019	0.013	0.006
Switzerland	0.243	0.237	0.230	0.224	0.217	0.210	0.204	0.197	0.191
Netherlands	0.051	0.044	0.038	0.031	0.025	0.018	0.011	0.005	-0.002
Austria	0.202	0.196	0.189	0.183	0.176	0.169	0.163	0.156	0.150
UK, Irel., Nor., Denmark	0.025	0.019	0.012	0.005	-0.001	-0.008	-0.014	-0.021	-0.027

* Varying slope and intercept hypothesis is accepted at the 5 per cent level of significance

4. Impact on Imports

The next stage of our analysis involves the impact of subsidy rates on imports. The dependent variable is the share of imports from a given country in total imports. We would expect a positive relationship between import shares and subsidy rates, other things being constant. Our results, based on OECD country data, are presented in Table 6.2.

$$M = \phi(\sum YB\Sigma I\Delta)^{(+)}$$

where M = share of imports of the country concerned in total imports.

The results are inconclusive. Coefficients are positive for Spain, the Netherlands and Austria, but negative for others. Hence, a one-to-one relationship cannot be established between subsidy rates on foreign borrowing and the share of imports from a given country. The relationship between the two variables is more complex and cannot be captured by a single independent variable. The rapid growth in trade with the Middle East during the first half of the 1980s distorts the relationship that we would otherwise expect between subsidy rates and the share of imports from a given OECD country. The share of imports from an OECD country may decline, in spite of a high subsidy rate on foreign borrowing, due to an increase in imports from other sources, notably the Middle East.

To be able to throw further light on this issue, we approach the problem from a different perspective. Table 6.3, presents correlation coefficients of 4 variables.

LOAN = share of external borrowing
M = share of imports
X = share of exports
XM = share of foreign trade (share of exports plus share of imports)

Correlation coefficients of LOAN and M is 0.566, LOAN and XM is 0.473 and LOAN and X is 0.378. What is interesting for our purposes is that the correlation between LOAN and imports (LOAN and M) is higher than the correlation between LOAN and XM. This result provides tentative support for the "tied borrowing" hypothesis, namely, that the OECD countries have utilized subsidized credits as an instrument for augmenting their exports to Turkey.

Table 6.2

Impacts of Subsidy Rates on Imports *
(Coefficients Derived from the Regression with Dummy Variables)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
INTERCEPT									
USA	9.078	9.239	9.399	9.559	9.720	9.880	10.441	10.201	10.361
Germany	13.125	13.286	13.446	13.607	13.767	13.927	14.088	14.248	14.409
France	3.029	3.189	3.349	3.510	3.670	3.831	3.991	4.151	4.312
Belgium	1.181	1.342	1.502	1.663	1.823	1.983	2.144	2.304	2.464
Japan	3.583	3.744	3.904	4.064	4.225	4.385	4.545	4.706	4.866
Canada	0.225	0.385	0.545	0.706	0.866	1.027	1.187	1.347	1.508
Italy	5.364	5.525	5.685	5.846	6.006	6.166	6.327	6.487	6.647
Finland	-0.450	-0.289	-0.129	0.031	0.192	0.352	0.513	0.673	0.833
Spain	0.771	0.931	1.091	1.252	1.412	1.572	1.733	1.893	2.054
Sweden	0.238	0.398	0.559	0.719	0.879	1.040	1.200	1.360	1.521
Switzerland	1.908	2.068	2.229	2.389	2.549	2.710	2.870	3.031	3.191
Netherlands	1.057	1.218	1.378	1.539	1.699	1.859	2.020	2.180	2.340
Austria	0.007	0.167	0.327	0.488	0.648	0.809	0.969	1.129	1.290
UK, Irel., Nor. Denmark	2.476	2.636	2.797	2.957	3.117	3.278	3.438	3.598	3.759
SLOPE									
USA	-0.1132	-0.1207	-0.1282	-0.1357	-0.1432	-0.1506	-0.1581	-0.1656	-0.1731
Germany	-0.0336	-0.0411	-0.0486	-0.0561	-0.0636	-0.0711	-0.0785	-0.0860	-0.0935
France	0.0421	0.0347	0.0272	0.0197	0.0122	0.0047	-0.0028	-0.0102	-0.0177
Belgium	0.0262	0.0188	0.0113	0.0038	-0.0037	-0.0112	-0.0187	-0.0262	-0.0336
Japan	-0.0104	-0.0179	-0.0254	-0.0329	-0.0404	-0.0478	-0.0553	-0.0628	-0.0703
Canada	0.0180	0.0105	0.0030	-0.0044	-0.0119	-0.0194	-0.0269	-0.0344	-0.0419
Italy	0.0069	-0.0006	-0.0081	-0.0155	-0.0230	-0.0305	-0.0380	-0.0455	-0.0530
Finland	0.0350	0.0275	0.0200	0.0125	0.0050	-0.0024	-0.0099	-0.0174	-0.0249
Spain	0.0310	0.0235	0.0160	0.0086	0.0011	-0.0064	-0.0139	-0.0214	-0.0289
Sweden	0.0194	0.0119	0.0044	-0.0030	-0.0105	-0.0180	-0.0255	-0.0330	-0.0405
Switzerland	0.0187	0.0112	0.0037	-0.0038	-0.0112	-0.0187	-0.0262	-0.0337	-0.0412
Netherlands	0.0457	0.0382	0.0307	0.0232	0.0157	0.0083	0.0008	-0.0067	-0.0142
Austria	0.0973	0.0898	0.0824	0.0749	0.0674	0.0599	0.0524	0.0449	0.0375
UK, Irel., Nor. Denmark	-0.0018	-0.0093	-0.0168	-0.0243	-0.0318	-0.0393	-0.0467	-0.0542	-0.0617

* Varying slope and intercept hypothesis is accepted at the 5 per cent level of significance.

Table 6.3

SMPL range: 1-90
 number of observations: 90

Series	Mean	S.D.	Maxiaus	Miniaus
Loan	4.5341111	6.9793691	37.370000	0.0000000
M	4.2043333	3.8315767	17.390000	0.0000000
XM	8.4278889	8.5873087	38.820000	0.0000000
X	4.2238889	5.0012091	21.430000	0.0000000

	Covariance	Correlation
LOAN,LOAN	48.170354	1.0000000
LOAN,M	14.978938	0.5664216
LOAN,XM	28.042810	0.4731521
LOAN,X	13.069244	0.3786272
M,M	14.517858	1.0000000
M,XM	31.357299	0.9637326
M,X	16.843197	0.8888418
XM,XM	72.922517	1.0000000
XM,X	41.573162	0.9788891
X,X	24.734180	1.0000000

5. Impact on Value Added

We hypothesize a positive association between the subsidy rate on foreign borrowing and value added in a given sector.

$$\text{OUTPUT} = \phi(\Sigma\text{YB}\Sigma\text{I}\Delta)^{(+)}$$

Where OUTPUT = share of the sector in total value added (GNP).

Regression results provide only partial support for our initial hypothesis (Table 6.4). The expected positive signs are obtained in the cases of agriculture, transport and communications, and services. Yet, rather paradoxically, a negative association is established in the context of manufacturing and energy. None the less, the positive association between the subsidy rates and value added by transport and communications is in conformity with our original observation that subsidized credits have made a disproportionate contribution towards the realization of infrastructural projects, activities which clearly fall within the domain of the public sector.

Table 6.4

Impacts of Subsidy Rates on Value Added*
(Coefficients Derived from the Regression with Dummy Variables)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	Average
Agriculture	21.01	20.97	20.92	20.87	20.82	20.78	20.73	20.68	20.63	20.82
Mining	2.01	1.97	1.92	1.87	1.82	1.78	1.73	1.68	1.63	1.82
Manufacture	24.32	24.28	24.23	24.18	24.13	24.09	24.04	23.99	23.94	24.13
Energy	2.60	2.55	2.50	2.45	2.41	2.36	2.31	2.26	2.22	2.41
Trans.& Com.	8.83	8.79	8.74	8.69	8.64	8.60	8.55	8.50	8.45	8.64
Services	43.25	43.20	43.15	43.11	43.06	43.01	42.96	42.92	42.87	43.06
SLOPE										
Agriculture	0.030	0.033	0.036	0.039	0.041	0.044	0.047	0.050	0.053	0.041
Mining	-0.016	-0.013	-0.010	-0.007	-0.005	-0.002	0.001	0.004	0.007	-0.005
Manufacture	-0.222	-0.219	-0.216	-0.214	-0.211	-0.208	-0.205	-0.202	-0.200	-0.211
Energy	-0.014	-0.011	-0.009	-0.006	-0.003	0.000	0.003	0.006	0.008	-0.003
Trans.& Com	0.000	0.003	0.006	0.009	0.011	0.014	0.017	0.020	0.023	0.011
Services	0.042	0.044	0.047	0.050	0.053	0.056	0.058	0.061	0.064	0.053

* The varying slope and intercept hypothesis is accepted at the 5 per cent level of significance

6. Impact on Sectoral Growth Rates

A crucial component of any attempt to measure the effects of subsidized credits on economic welfare is the impact on economic growth. We would expect a positive association between the rates of subsidy and sectoral growth rates.

$$\Gamma_{\text{GROWTH}} = \phi^{(+)}(\Sigma \text{YB}\Sigma \Delta)$$

where GROWTH = sectoral growth rates in value added.

The results unambiguously point to the existence of a positive relationship between the subsidy rates and sectoral growth rates (Table 6.5). Although the F value for the regression is small (1.97), it is none the less significant at the 5 per cent level. Hence, we may conclude that subsidized borrowing has facilitated higher rates of economic growth than would otherwise have been the case.

Table 6.5

Impacts of Subsidy Rates on Sectoral Growth Rates*
(Coefficients Derived from the Regression With Dummy Variables)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	Average
INTERCEPT										
Agriculture	2.75	3.01	3.27	3.53	3.79	4.06	4.32	4.58	4.84	3.79
Mining	2.97	3.24	3.50	3.76	4.02	4.28	4.54	4.80	5.07	4.02
Manufacture	5.62	5.88	6.14	6.40	6.66	6.92	7.19	7.45	7.71	6.66
Energy	7.74	8.01	8.27	8.53	8.79	9.05	9.31	9.58	9.84	8.79
Trans. & Com.	2.27	2.54	2.80	3.06	3.32	3.58	3.84	4.11	4.37	3.32
Services	2.56	2.82	3.08	3.35	3.61	3.87	4.13	4.39	4.65	3.61
General	2.36	2.62	2.88	3.14	3.40	3.66	3.93	4.19	4.45	3.40
SLOPE										
Agriculture	-0.179	-0.125	-0.071	-0.017	0.037	0.091	0.145	0.199	0.254	0.037
Mining	0.095	0.149	0.203	0.257	0.311	0.365	0.419	0.473	0.527	0.311
Manufacture	-0.190	-0.136	-0.082	-0.027	0.027	0.081	0.135	0.189	0.243	0.027
Energy	-0.137	-0.083	-0.029	0.025	0.079	0.133	0.187	0.241	0.295	0.079
Trans. & Com.	-0.071	-0.017	0.037	0.091	0.145	0.199	0.253	0.307	0.362	0.145
Services	-0.056	-0.002	0.052	0.106	0.160	0.214	0.268	0.322	0.376	0.160
General	-0.075	-0.021	0.033	0.087	0.141	0.195	0.249	0.303	0.357	0.141

* The varying slope and intercept hypothesis is rejected at the 5 per cent level of significance

7. Impact on Capital-Output Ratios

Since data on public and private value added are not available, capital stock figures can only be estimated on the basis of data on total value added and total investment. We adopt the following procedure for estimating the capital stock. Our first step involves the calculation of marginal capital-output ratios (ICOR). The average ICOR for the 1984-1988 period is utilized in our subsequent estimates. 1980 constitutes the base year in our estimates. Base-year capital stock is derived by taking the product of the average value of ICOR and total value added for 1980.

$$K_{80} = \alpha \psi_{80}$$

where

- K = capital stock
- y = value added
- a = average ICOR for 1984-1988.

Capital stock figures for the subsequent years are generated by adding investment (excluding depreciation) to the base year's capital stock.

$$K_{\tau} = K_{\tau-1} + I_{\tau}$$

Regression results are presented in Table 6.6.

$$\text{ΧΑΠΙΤΑ} = \phi(\Sigma\text{ΥΒΣΙΔ})^{(+)}$$

where

CAPITA = capital/output ratio.

With the exception of mining and energy, the coefficients display the predicted positive signs. We might conclude, therefore, that subsidized credits have contributed to the expansion of sectors with high capital-output ratios. The increase in the overall capital-output ratio, in a capital-scarce economy, might be interpreted as a negative side-effect of subsidized foreign borrowing.

Table 6.6

Impacts of Subsidy Rates on Capital/Output Ratios*
(Coefficients Derived from the Regression Equation with Dummy Variables)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	Average
INTERCEPT										
General	4.213	4.205	4.198	4.190	4.182	4.174	4.166	4.159	4.151	4.182
Agriculture	2.644	2.636	2.628	2.620	2.613	2.605	2.597	2.589	2.582	2.613
Mining	8.274	8.266	8.258	8.250	8.242	8.235	8.227	8.219	8.211	8.242
Manufacture	3.210	3.202	3.195	3.187	3.179	3.171	3.163	3.156	3.148	3.179
Energy	14.270	14.262	14.254	14.246	14.239	14.231	14.223	14.215	14.208	14.239
Trans. & Com.	11.463	11.455	11.448	11.440	11.432	11.424	11.416	11.409	11.401	11.432
Services	3.439	3.431	3.423	3.416	3.408	3.392	3.384	3.377	3.408	
SLOPE										
General	0.0028	0.0038	0.0048	0.0057	0.0067	0.0077	0.0086	0.0096	0.0106	0.0067
Agriculture	-0.0017	-0.0007	0.0003	0.0012	0.0022	0.0032	0.0042	0.0051	0.0061	0.0022
Mining	-0.0757	-0.0748	-0.0738	-0.0728	-0.0718	-0.0709	-0.0699	-0.0689	-0.0680	-0.0718
Manufacture	0.0171	0.0181	0.0190	0.0200	0.0210	0.0219	0.0229	0.0239	0.0249	0.0210
Energy	-0.0306	-0.0297	-0.0287	-0.0277	-0.0268	-0.0258	-0.0248	-0.0239	-0.0229	-0.0268
Trans. & Com.	-0.0024	-0.0015	-0.0005	0.0005	0.0015	0.0024	0.0034	0.0044	0.0053	0.0015
Services	0.0051	0.0060	0.0070	0.0080	0.0089	0.0099	0.0109	0.0118	0.0128	0.0089

* The varying slope and intercept hypothesis is rejected at the 5 per cent level of significance

8. Impact on Fiscal Stability and Domestic Savings

High subsidy rates may lead to overborrowing which, in turn, emerges as a major source of macroeconomic disequilibrium. The link between "overborrowing" and macroeconomic instability may be elaborated as follows (Diagram 5.1): overborrowing results in an increase in the public sector borrowing requirement (PSBR), which can be satisfied through external or domestic markets. There will be a further round of increases in domestic or external debts if borrowed funds are allocated to projects with long gestation periods. Since no income is generated in the short term, the authorities are compelled to expand money supply in order to pay the interest on the debt. The outcome of this process is a higher rate of inflation as well as an increase in the PSBR, due to the differential response of government expenditures and revenues to inflation (Özmuçur, 1987). The increase in the PSBR places upward pressures on domestic interest rates which, in turn, exert a negative influence on private investment. "Crowding-out" of private investment, combined with the emphasis on export-oriented production, leads to a decline in the domestic supply of goods and services, which represents yet another inflationary shock in the economy.

In the present context, we focus on one key aspect of the connection between subsidized borrowing and macroeconomic disequilibrium. We hypothesize that subsidized borrowing acts as a source of disequilibrium by leading to a relaxation of the domestic savings efforts, on the part of both the government and private agents. We estimate a savings function of the following form for the period 1972-1988.

$$S = 21.11 - 0.73 F$$

(30.75) (-3.36)

$$R^2 = 0.311, \quad SEE = 2.32$$
$$D.W = 0.88 \quad F = 11.32$$

(t ratios are given in parentheses).

where S = domestic savings rate (Domestic savings/GNP)

F = Foreign savings rate (foreign savings/GNP).

The coefficient of the foreign savings variable is negative and statistically significant. Thus the equation provides tentative support to the hypothesis that the inflow of subsidized credits has exerted a negative impact on domestic savings effort. Our inference should be qualified by the fact that the overall explanatory power of the equation is rather low, which suggests the presence of omitted variables in the analysis. Furthermore, the D.W. statistic indicates the presence of autocorrelation, which again raises questions concerning the appropriate specification of the savings function. At a more fundamental level, the presence of a strong relationship between domestic and foreign savings does not necessarily establish the direction of causation between the two variables. Indeed, the results are perfectly consistent with an alternative hypothesis that inadequate domestic savings performance causes overborrowing.

VII. CONCLUSIONS

Subsidized capital flows have made a major contribution to the recovery of the Turkish economy from the acute balance of payments crisis of the late 1970s. The inflow of foreign capital on a substantial scale has facilitated rapid growth in essential imports of raw materials and investment goods which, in turn, has been instrumental in sustaining a comparatively high rate of economic growth.

A balanced account, however, needs to take into account the negative side effects associated with subsidized credits. Subsidized capital inflows have resulted in overborrowing and consequently in the overexpansion of the public sector, particularly during the post-1984 phase. A structural disequilibrium has developed, in the sense that the majority of medium- and long-term capital inflows has been directed to the public sector, and within the public sector, primarily to infrastructural projects. The private sector has been able to borrow mainly on a short-term basis, to satisfy working capital requirements. While we do recognize the importance of infrastructural activities in complementing private investment, we also draw attention to the limitations of an excessive concentration of foreign borrowing on infrastructural activities, namely, high capital-output ratios, long gestation periods and lack of contribution to the generation of foreign exchange. The concentration of medium and long-term borrowing in the manufacture of "non tradables" implies that if a debt crisis is to be avoided in the future, enormous pressures are placed on the private sector to maintain rapid export growth.

Our discussion of the institutional context of foreign borrowing supports our inference concerning the structural disequilibrium which has developed in the Turkish economy as a result of the substantial inflow of subsidized credits. We establish, on the basis of several case studies, that infrastructural projects undertaken by the public sector are characterised by lengthy gestation lags. Our case studies illustrate the fundamental point that there appear to be no built-in pressures within the public sector towards the rapid completion of projects, leading to much longer gestation lags than originally anticipated. Hence, we have identified an obvious source of inefficiency and misallocation of resources in the Turkish case. The recent policy innovations, involving the "build-operate-transfer" model, represent the natural response on the part of the authorities to the long gestation lags and the resultant waste of resources associated with infrastructural projects.

We have also drawn attention to the highly fragmented institutional structure, as a consequence of which disproportionate responsibilities have been assigned to the Treasury with respect to foreign borrowing and the subsequent monitoring of projects. We propose an interactive institutional framework which assigns a more active role to two key institutions, the State Planning Organization and the Central Bank.

Our estimate of the subsidy rates by major creditors and sectors reveal the following pattern: subsidy rates are consistently high during the early 1980s, which correspond to the initial period of adjustment following the crisis of the 1970s. Subsidy rates have registered a sharp decline since 1983, following the restoration of Turkey's creditworthiness and associated ability to borrow at market rates. The decline in subsidy rates, however, also reflects a shift in the lending policies of the creditor countries.

The significant intercountry variations in subsidy rates constitute another striking finding of the study. Among the OECD countries, the highest subsidy rates are recorded in the cases of Belgium and Germany, the lowest rates, in the cases of

the United States and Japan. We also establish that the rates of subsidy in the OECD countries are higher than those reported by multilateral agencies in general, and the World Bank in particular.

We have also discovered significant variations in the subsidy rates on loans directed to different sectors of the economy. Subsidy rates are, on average, significantly higher in the case of transport, communications and energy, as well as for general balance of payments financing. In contrast, remarkably low rates of subsidy are associated with loans directed to manufacturing. Hence, creditor countries have made a strong impact on the sectoral allocation of resources through their lending policies. Subsidized credits have facilitated the structural shift in public investment away from manufacturing into infrastructural activities.

Our investigations concerning the impact of subsidized credits on resource allocation and macroeconomic performance reveal a complex pattern. A positive association is established between subsidy rates, on the one hand, and sectoral value added and growth rates, on the other. The results in the case of growth rates are less ambiguous, confirming that subsidized credits have helped to generate higher rates of economic growth than would otherwise have been the case. We also find some mild, tentative support for the "tied borrowing" hypothesis, suggesting that the leading OECD countries have utilized subsidized lending as an instrument for augmenting their exports to Turkey.

Two negative features associated with subsidized credits in the Turkish context deserve emphasis. We demonstrate that subsidized credits have resulted in the expansion of sectors with high capital-output ratios, a finding which is perfectly consistent with our earlier observation concerning the concentration of public investment in infrastructural activities. We conclude, therefore, that subsidized borrowing has resulted in an increase in the overall capital-output ratio. Finally, we reach the tentative and qualified conclusion that subsidized capital inflows in the 1980s have resulted in the relaxation of the domestic savings effort on the part of both the government and private agents.

NOTES AND REFERENCES

1. Approximate figures are used to make the point.
2. Assuming no delays in disbursement. Differences between S_1 and S_2 is lower if there are laps in disbursement. S_2 is equal to S_1 if the lap in disbursement is equal to the grace period.
3. Subsidy rates (with and without the grace period) for over 600 projects are available on request.
4. Equation numbers in parentheses refer to cases where model II is not estimated.

APPENDIX A

CAPITAL FLOWS, EXTERNAL DEBTS, FOREIGN TRADE INDICATORS, AND PUBLIC INVESTMENT

Table A.1.1

**Structural Shift in Turkey's Foreign Trade,
1980-1987, (Percentage)**

	Export Growth	Share of Exports in GNP	Share of Imports in GNP	Share of Foreign Trade in GNP
1980	12.7	5.0	13.8	18.8
1981	48.2	8.1	15.3	23.4
1982	19.8	10.7	16.7	27.4
1983	-1.5	11.2	18.4	29.6
1984	12.6	14.8	20.7	35.5
1985	8.6	16.1	21.3	37.4
1986	-3.5	12.8	19.4	32.2
1987	13.8	14.9	20.7	35.6

Source: State Planning Organization, State Institute of Statistics

Table A.1.2

**Sectoral Distribution of Exports,
1980-1988, (Percentage)**

	Agriculture	Mining	Manufacturing
1980	57.5	6.5	36.0
1981	42.2	4.1	53.7
1982	37.3	3.1	59.6
1983	32.8	3.3	63.9
1984	24.5	3.4	72.1
1985	21.6	3.1	75.3
1986	25.3	3.3	71.4
1987	18.2	2.7	79.1
1988*	19.3	3.3	77.4

* January - November

Source: State Planning Organization

Table A.1.3.

**Distribution of Imports by Major Sectors,
1980-1988, (Percentage)**

	Capital Goods	Intermediate Goods	Consumer Goods
1980			
1981			
1982	26.3	71.7	2.0
1983	25.1	72.3	2.6
1984	24.7	70.9	4.4
1985	22.9	69.1	8.0
1986	31.3	60.1	8.6
1987	27.0	65.0	8.0
1988*	26.0	66.0	8.0

* January-November

Source: State Planning Organization

Table A.1.4

**Sectoral Breakdown of the Public Sector's Medium and Long-Term
External Debt, 1982-1987, (Percentage)**

	1982	1983	1984	1985	1986	1987
Consolidated Budget	61.3	61.0	61.3	60.2	59.4	60.0
Central Bank	21.8	23.7	24.6	24.5	19.1	20.8
State Economic Enterprises	11.2	9.9	9.4	11.0	14.2	15.1
Local Authorities	5.7	5.4	4.7	4.3	7.3	4.1
Public Sector Total	78.2	76.3	75.4	75.5	80.9	79.2

Source: Undersecretariat of Treasury and Foreign Trade

Table A.1.5

**Sectoral Breakdown of Public Fixed Capital Formation
1980-1987, (Percentage)**

	Transport and Communications	Energy	Manufacturing	Miscellaneous
1980	18.1	24.6	28.8	28.5
1981	17.5	23.7	24.2	34.6
1982	19.7	25.8	20.4	34.1
1983	20.4	28.1	19.4	32.1
1984	25.9	22.6	18.7	32.8
1985	29.8	23.6	12.0	34.6
1986	33.2	22.2	8.3	36.3
1987	32.7	24.3	6.3	36.7

Source: State Planning Organization

Table A.1.6

**Capital Flows to Turkey from DAC Countries and Multilateral
Agencies, Million US Dollars, 1970-1986**

	DAC Countries	Multilateral Agencies	Total
1970	236.2	68.9	305.0
1971	291.4	91.3	382.7
1972	366.2	64.7	430.9
1973	343.9	121.2	465.1
1974	489.3	133.7	623.0
1975	453.6	189.7	643.3
1976	675.7	258.7	934.4
1977	993.4	227.5	1 221.0
1978	1 196.0	210.2	1 406.1
1979	2 017.7	432.8	2 450.5
1980	1 679.3	388.9	2 068.2
1981	1 869.6	536.4	2 406
1982	1 394.3	562.2	1 956.5
1983	873.0	546.4	1 424.4
1984	1 274.1	679.9	1 953.9
1985	1 082.7	857.2	1 939.9
1986	1 889.4	976.1	2 865.6

Source: OECD Data Files

Table A.1.7

**Composition of Capital Flows to Turkey from DAC Countries
and Multilateral Agencies, as percentage shares, 1970-1986**

	DAC Countries	Multilateral Agencies
1970	77.4	22.6
1971	76.1	23.9
1972	85.0	15.0
1973	73.9	26.1
1974	78.5	21.5
1975	70.5	29.5
1976	72.3	27.7
1977	81.4	18.6
1978	85.1	14.9
1979	82.3	17.7
1980	81.2	18.8
1981	77.7	22.3
1982	71.3	28.7
1983	61.3	38.7
1984	65.2	34.8
1985	55.8	44.2
1986	65.9	34.1

Source: OECD Data Files

Table A.1.8

**Composition of Export Credits by DAC Countries to Turkey,
\$ million, 1970-1986**

	Private Export Credits	Official Export Credits	Total
1970	26.1	10.5	36.6
1971	39.0	16.0	55.0
1972	60.9	10.3	71.2
1973	159.6	72.0	231.6
1974	336.2	51.3	387.5
1975	209.5	55.8	265.3
1976	454.5	62.8	517.3
1977	769.3	53.0	822.3
1978	760.6	50.7	811.3
1979	548.6	53.0	601.6
1980	416.0	30.6	446.6
1981	191.1	93.3	284.4
1982	118.3	73.4	191.7
1983	584.3	130.8	715.1
1984	326.1	166.7	492.8
1985	745.8	118.4	864.2
1986	n.a	161.8	-

Source: OECD Data Files

Table A.1.9

**Composition of Export Credits by DAC Countries to Turkey
as percentages of the Total, 1970-1986**

	Private Export Credits	Official Export Credits
1970	71.3	28.7
1971	70.9	29.1
1972	85.5	14.5
1973	68.9	31.1
1974	86.8	13.2
1975	79.0	21.0
1976	87.9	12.1
1977	93.6	6.4
1978	93.8	6.2
1979	91.2	8.8
1980	93.1	6.9
1981	67.2	32.8
1982	61.7	38.3
1983	81.7	18.3
1984	66.2	33.8
1985	86.3	13.7
1986	n.a	-

Source: OECD Data Files

APPENDIX B

EXCHANGE RATES AND REFERENCE RATES

Exchange Rates (Local/US\$) and Interest Rates, (Percentage)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	
<u>Country Risk Premium (%)</u>	1.46	1.50	1.16	1.31	1.14	1.02	0.75	0.85	0.94	
<u>LIBOR and Prime Rates (%)</u>										
LIBOR	14.03	16.72	13.60	9.93	11.29	8.64	6.85	7.30	8.13	
Prime Rate	15.27	18.87	14.86	10.79	12.04	9.93	8.35	8.21	9.32	
<u>SDR and Ecu per US\$</u>										
SDR (SD)	0.76833	0.84806	0.90579	0.93545	0.97560	0.98489	0.85239	0.77335	0.74409	
Ecu	1.39101	1.11763	0.98121	0.89128	0.78899	0.76219	0.98119	1.15432	1.18337	
<u>Exchange Rate (Local/US\$)</u>										
Austria	EXC.RATE(RF)	12.94	15.93	17.06	17.96	20.01	20.69	15.27	12.64	12.35
Bahrain	EXC.RATE(RF)	2.65	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66
Belgium	EXC.RATE(RF)	29.24	37.13	45.69	51.13	57.78	59.38	44.67	37.33	36.77
Canada	EXC.RATE(RF)	1.17	1.20	1.23	1.23	1.30	1.37	1.39	1.33	1.23
Denmark	EXC.RATE(RF)	5.64	7.12	8.33	9.15	10.36	10.60	8.09	6.84	6.73
Finland	EXC.RATE(RF)	3.73	4.32	4.82	5.57	6.01	6.20	5.07	4.40	4.18
France	EXC.RATE(RF)	4.23	5.43	6.57	7.62	8.74	8.99	6.93	6.01	5.96
Germany	EXC.RATE(RF)	1.82	2.26	2.43	2.55	2.85	2.94	2.17	1.80	1.76
Hungary	EXC.RATE(RF)	32.53	34.31	36.63	42.67	48.04	50.12	45.83	46.97	50.41
Iraq	EXC.RATE(RF)		3.39	3.39	3.35	3.22	3.22	3.22	3.22	3.22
Ireland	EXC.RATE(RF)	2.06	1.62	1.42	1.25	1.09	1.07	1.34	1.49	1.53
Italy	EXC.RATE(RF)	856.40	1 136.80	1 352.50	1 518.80	1 757.00	1 909.40	1 490.80	1 296.10	1 301.60
Japan	EXC.RATE(RF)	226.74	220.54	249.08	237.51	237.52	238.54	168.52	144.64	128.15
Kuwait	EXC.RATE(RF)	3.70	3.59	3.47	3.43	3.38	3.33	3.43	3.59	3.58
Netherlands	EXC.RATE(RF)	1.99	2.50	2.67	2.85	3.21	3.32	2.45	2.03	1.98
Norway	EXC.RATE(RF)	4.94	5.74	6.45	7.30	8.16	8.60	7.39	6.74	6.52
Poland	EXC.RATE(RF)	44.22	51.15	84.82	91.55	113.24	147.14	175.29	265.08	430.55
Saudi Arabia	EXC.RATE(RF)	3.33	3.38	3.43	3.45	3.52	3.62	3.70	3.75	3.75
South Africa	EXC.RATE(RF)	1.29	1.15	0.92	0.90	0.70	0.46	0.44	0.49	0.44
Spain	EXC.RATE(RF)	71.70	92.32	109.86	143.43	160.76	170.04	140.05	123.48	116.49
Sweden	EXC.RATE(RF)	4.23	5.06	6.28	7.67	8.27	8.60	7.12	6.34	6.13
Switzerland	EXC.RATE(RF)	1.68	1.96	2.03	2.10	2.35	2.46	1.80	1.49	1.46
Turkey	EXC.RATE(RF)	76.04	111.22	162.55	225.46	366.68	521.98	674.51	857.20	1 422.30
UK	EXC.RATE(RF)	0.4299	0.4931	0.5713	0.6592	0.7483	0.7714	0.6817	0.6102	0.5614
United Sates	EXC.RATE(RF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yugoslavia	EXC.RATE(RF)	24.64	34.97	50.28	92.84	152.82	270.16	379.22	737.00	2 522.60

Exchange Rates (Local/US\$) and Interest Rates, (Percentage) (continued)

		1980	1981	1982	1983	1984	1985	1986	1987	1988
<u>Government Bond Yield (%)</u>										
Austria	GOV.BOND(61)	9.24	10.61	9.92	8.17	8.02	7.77	7.33	6.91	6.67
Belgium	GOV.BOND(61)	12.04	13.71	13.56	11.86	11.98	10.61	7.93	7.83	7.85
Canada	GOV.BOND(61)	12.48	15.22	14.26	11.79	12.75	11.04	9.52	9.95	10.22
Denmark	GOV.BOND(61)	17.66	18.92	20.39	14.46	13.93	12.01	10.76	11.19	11.19
France	GOV.BOND(61)	13.03	15.79	15.69	13.63	12.54	10.94	8.44	9.43	9.06
Germany	GOV.BOND(61)	8.50	10.40	9.00	7.90	7.80	6.90	5.90	5.80	6.10
Ireland	GOV.BOND(61)	15.35	17.26	17.06	13.90	14.62	12.64	11.07	11.27	
Italy	GOV.BOND(61)	16.11	20.58	20.90	18.02	14.95	13.00	10.52	9.65	10.16
Japan	GOV.BOND(61)	9.22	8.66	8.06	7.42	6.81	6.34	4.94	4.21	4.28
Netherlands	GOV.BOND(61)	10.21	11.55	10.10	8.61	8.33	7.34	6.35	6.38	6.29
Norway	GOV.BOND(61)	10.27	12.31	13.20	12.86	12.16	12.58	13.47	13.56	12.97
South Africa	GOV.BOND(61)	10.09	12.99	13.51	12.67	15.23	16.79	16.37	15.30	16.37
Sweden	GOV.BOND(61)	11.74	13.49	13.04	12.30	12.28	13.09	10.26		
Switzerland	GOV.BOND(61)	4.77	5.57	4.83	4.52	4.70	4.78	4.29	4.12	
UK	GOV.BOND(61)	13.79	14.74	12.88	10.81	10.69	10.62	9.87	9.48	9.36
United States	GOV.BOND(61)	11.46	13.91	13.00	11.11	12.52	10.62	7.68	8.38	8.85
<u>Deposit or Discount Rates (%)</u>										
Bahrain	DEP.RATE(60M)	7.90	9.00	8.60	7.00	7.00	6.70	5.60	5.00	
Hungary	DEP.RATE(60I)	3.00	3.00	5.00	5.00	5.00	5.00	4.00	4.00	9.00
Kuwait	DEP.RATE(60I)	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	
Poland	DEP.RATE(60I)	3.00	4.00	6.00	6.00	6.00	6.00	6.00	6.00	
Spain	DEP.RATE(60I)	13.05	11.41	12.26	12.31	12.30	10.53	9.05	8.97	9.06
Turkey	DEP.RATE(60I)	10.00	28.50	45.00	51.90	54.30	49.20	41.90	35.40	
Yugoslavia	DEP.RATE(60I)	5.88	7.42	12.00	12.00	30.75	60.50	55.67	79.30	
Austria	DISC.RATE(60)	6.75	6.75	4.75	3.75	4.50	4.00	4.00	3.00	4.00
Finland	DISC.RATE(60)	9.25	9.25	8.50	9.50	15.07	9.00	7.00		

Exchange Rates (Local/US\$) and Interest Rates, (Percentage)

		1980	1981	1982	1983	1984	1985	1986	1987	1988
<u>Lending Rates (%)</u>										
Belgium	LEND.RATE(60P)		18.00	15.50	13.75	14.00	12.54	10.44	9.33	8.92
Canada	LEND.RATE(60P)	18.25	17.25	15.81	11.17	12.06	10.58	10.52	9.52	
Denmark	LEND.RATE(60P)	17.20	17.70	18.60	14.50	13.40	14.70	13.00	13.80	
Finland	LEND.RATE(60P)	9.77	9.84	9.32	9.56	10.49	10.41	9.08	8.91	9.72
France	LEND.RATE(60P)	18.73	20.77	20.33	18.95	18.85	17.77	16.38	15.82	15.65
Germany	LEND.RATE(60P)	12.04	14.69	13.50	10.05	9.82	9.53	8.75	8.36	8.33
Hungary	LEND.RATE(60P)	9.00	11.00	14.00	13.00	132.00	12.00	11.00	11.50	13.00
Ireland	LEND.RATE(60P)	15.96	15.50	17.04	14.13	12.92	12.44	12.23	11.15	
Italy	LEND.RATE(60P)	19.03	18.36	17.37	22.27	22.23	18.15	14.64	13.57	13.57
Japan	LEND.RATE(60P)	0.32	7.79	7.23	7.05	6.66	6.52	5.91	5.09	
Kuwait	LEND.RATE(60P)	6.80	6.80	6.80	6.80	6.80	6.80	6.80	6.80	
Netherlands	LEND.RATE(60P)	13.50	14.25	11.17	8.46	8.88	9.25	8.63	8.15	7.77
Norway	LEND.RATE(60P)	12.63	13.90	14.33	14.35	13.69	13.46			
Poland	LEND.RATE(60P)	8.00	8.00	9.00	9.00	9.00	12.00	12.00	12.00	
South Africa	LEND.RATE(60P)	9.50	14.00	19.30	16.67	22.33	21.50	14.33	12.50	15.33
Spain	LEND.RATE(60P)	16.85	15.26	14.98	15.00	16.58	13.52	12.19	16.36	12.43
Sweden	LEND.RATE(60P)	15.12	17.50	16.09	15.07	15.53	16.72	14.18	12.99	
Switzerland	LEND.RATE(60P)		5.56	5.98	5.49	5.49	5.43	5.46	5.24	
Turkey	LEND.RATE(60P)	25.67	35.58	36.00	35.50	52.33	53.50	52.63	50.00	
UK	LEND.RATE(60P)	16.17	13.25	11.79	9.79	9.65	12.29	10.83	9.63	
United States	LEND.RATE(60P)	15.27	18.87	14.86	10.79	12.04	9.93	8.35	8.21	9.32
Yugoslavia	LEND.RATE(60P)	11.50	12.00	16.30	34.00	44.50	71.50	82.00	111.30_	

Source: IMF, *International Financial Statistics*, January 1988 (vol. XLI, no. 1)

IMF, *International Financial Statistics*, March 1989 (vol. XLII, no. 3).

APPENDIX C

ESTIMATES OF CAPITAL STOCK AND CAPITAL OUTPUT RATIOS

Estimates of Capital Stock (1968 Prices, Billion TL)

Sector	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Agriculture				118.7	123.3	128.4	133.2	138.0	141.9	146.1	151.8	157.1
Mining				27.0	29.5	31.7	34.2	36.6	39.4	42.2	44.3	46.0
Manufacturing				147.0	157.6	167.6	177.5	187.5	198.1	210.8	222.0	233.5
Energy				53.4	59.5	66.3	73.8	81.0	87.9	97.2	106.9	116.1
Transport & Commun.				210.1	217.2	225.4	234.1	243.9	256.3	271.7	288.6	303.6
Services				326.9	336.6	346.8	357.0	367.9	381.9	402.3	429.0	461.8
Total				883.1	923.8	966.1	1 009.8	1 054.9	1 105.4	1 170.2	1 242.5	1 318.2

Capital/Output Ratios

Sector	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Agriculture				2.537	2.634	2.583	2.682	2.684	2.685	2.569	2.615	2.535
Mining				7.149	7.264	7.759	8.557	8.856	8.522	7.987	8.173	8.910
Manufacturing				3.532	3.460	3.457	3.407	3.295	3.293	3.171	3.035	3.135
Energy				12.880	13.435	13.475	14.635	14.861	14.461	13.911	13.723	13.696
Transport & Commun.				11.388	11.361	11.567	11.690	11.407	11.386	11.301	11.250	11.467
Services				3.578	3.555	3.548	3.534	3.459	3.411	3.370	3.308	3.467
Total				4.284	4.303	4.305	4.355	4.294	4.282	4.194	4.146	4.255

BIBLIOGRAPHY

- Central Bank, *Annual Report*, Various Years, (in Turkish).
- DERVI, K., and R. SHERMAN, "The Foreign Exchange Gap, Growth and Industrial Strategy in Turkey, 1979-1983" *World Bank Staff Working Paper*, No. 306, Washington, D.C, IBRD, 1978.
- DINÇ, G., "The Turkish Experience with the Build-Own-Transfer Model", Paper presented to the International Conference on New Forms of Financing Infrastructural Projects, Rabat, Morocco, 1989.
- DORNBUSCH, R., "Policy and Performance Links Between LDC Debtors and Industrial Nations", *Brooking Papers on Economic Activity*, 1985.
- ESMER, Y., and S. ÖZMUCUR, "Total Factor Productivity in Turkey: A Longitudinal and Comparative Analysis of Total Factor Productivity Growth in Turkish Manufacturing Industries, 1970-1985", Mimeographed, Department of Economics, Bo_aziçi University, 1988.
- HANSEN, G., "Associated Financing (Mixed Credits) and Tied Aid for Developing Countries." Paper presented to the joint ICEPS-OECD Development Centre Seminar, Rome, 1988.
- Higher Supervisory Board, *State Economic Enterprises, 1987*, Ankara, The Prime Ministry Higher Supervisory Council, (in Turkish), 1989.
- Ministry of Finance, *Annual Report*, Various Years, (in Turkish).
- NOWZAD, B., and R. WILLIAMS, "External Indebtedness of Developing Countries", *International Monetary Fund Occasional Paper*, No. 3, 1981.
- Istanbul Chamber of Industry, *Industrial Production and Rates of Capacity Utilization in Manufacturing Industry*, Istanbul, (in Turkish), 1988a.
- Istanbul Chamber of Industry, *Turkey's 500 Largest Industrial Establishments*, 1987, Istanbul, (in Turkish), 1988b.
- OECD, Annual Country Economic Surveys, Turkey, Organisation for Economic Co-operation and Development, Paris, 1980.
- OHLIN, G., *Reappraisals of Foreign Aid Policies*, OECD Development Centre, Paris, 1964.
- OKYAR, O., "Turkey and the IMF: A review of Relations, 1978-1982" in John Williamson (ed.), *IMF Conditionality*, Washington, D.C., Institute for International Economics, 1983.
- ÖNI, Z., "Inflation and Import Substituting Industrialization: An Interpretation of the Turkish Case", *Journal of Economics and Administrative Studies*, Vol. 1, No. 1, 1987.

- ÖNI_, Z., and S. ÖZMUCUR, "Supply-side Origins of Macroeconomic Crisis in Turkey", Paper presented to the World Bank Conference on Macroeconomic Policies, Crisis and Growth in the Long-run, Madrid, 1988a.
- ÖNI_, Z., and S. ÖZMUCUR, "The Role of the Financial System in the Creation and Resolution of Macroeconomic Crisis in Turkey", Paper presented to the World Bank Conference on Macroeconomic Policies, Crisis and Growth in the Long-run, Madrid, 1988b.
- ÖNI_, Z., and J. RIEDEL, "The Political Economy of Macroeconomic Policy, Crisis and Growth in Turkey", Paper presented to the World Bank Conference on Macroeconomic Policies, Crisis and Growth in the Long-run, (Part III), Mexico City, 1989.
- ÖZMUCUR, S., *Quarterly Econometric Model of the Turkish Economy*, (in Turkish), Istanbul, TÜSIAD, 1987.
- RAYNAULD, A., *The External Financing of Tunisia's Imports*, OECD Development Centre Papers, Paris, Organisation for Economic Co-operation and Development, 1988.
- RODRIK, D., and M. CELASUN, *Debt, Adjustment and Growth in Turkey*, Chicago University Press for NBER, (forthcoming) 1987.
- SACHS, J.D., "Managing the LDC Debt Crisis" *Brooking Papers on Economic Activity*, 1986.
- State Institute of Statistics, *Statistical Yearbook of Turkey*, Ankara, SIS, various years,
- State Institute of Statistics, *Foreign Trade Statistics*, Ankara SIS, various years
- State Planning Organization, *The New Strategy and the Third Five Year Development Plan*, Ankara, State Planning Organization, (in Turkish), 1972.
- State Planning Organization, *The Fourth Five Year Development Plan*, Ankara, State Planning Organization (in Turkish), 1978.
- State Planning Organization, *Major Investment Projects*, Ankara, State Planning Organization, (in Turkish), 1988.
- TOGAN, S., H. OLGUN, and H. AKDER, *External Economic Relations of Turkey* Istanbul, Turktrade Publication, 1988.
- Undersecretariat of Treasury and Foreign Trade, *External Debt Bulletin, 1987*, Ankara (in Turkish), 1988.
- WOLFF, P., *Stabilization Policies and Structural Adjustment: The Case of Turkey, 1980-1985*, Berlin, German Development Institute, 1987.
- YA_AR, B., et al., *A Comparison of Financial Ratios in Turkish and U.S. Private Manufacturing Industries, 1981 and 1982*, Istanbul, Istanbul Chamber of Industry Publication, 1986.

YA_AR, B., et al., *A Comparison of Financial Ratios in Turkish and US Private Manufacturing Industries, 1983 and 1984*, Istanbul, Istanbul Chamber of Industry Publication, 1988.