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Fiscal Policy and Tax Reform in Turkey

(In Two Volumes) Volume II: Methodological and Statistical Annex

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CURRENCY EQUIVALENT

1981		TL 111.22
1982		TL 162.55
1983		TL 221.46
1984		TL 356.68
1985		TL 521.98
1986		TL 674.50
1987	First Quarter	TL 762.96
1987	May	TL 821.05

FISCAL YEAR

March 1 to February 28 - through 1981
March 1 to December 31, 1982
January 1 to December 31 - from 1983

ABBREVIATIONS

CBT	-	Central Bank of Turkey
CPI	-	Consumer Price Index
DIF	-	Defense Industry Support Fund
DSF	-	Development and Support Fund
EBF	-	Extra Budgetary Fund
EECF	-	European Economic Community Fund
EEF	-	Export Encouragement Fund
EIF	-	Export Improvement Fund
FF	-	Financing Fund
GNP	-	Gross National Product at market prices
IAF	-	Investment Acceleration Fund
IGMEF	-	Investment Goods Manufacturing Encouragement Fund
IRDF	-	Interest Rate Differential Rebate Fund
ISKI	-	Istanbul Water Supply and Sewerage General Directorate
LAF	-	Local Administration Fund
MASF	-	Mutual Assistance and Support Fund ("Poor People's Fund")
MHF	-	Mass Housing Fund
PCF	-	Petroleum Consumption Fund
PEF	-	Petroleum Exploration Fund
PPF	-	Public Participation Fund
PPSF	-	Petroleum Price Stabilization Fund
PTT	-	Postal, Telephone and Telegraph Authority
QR	-	Quantative Restrictions
RUSF	-	Resource Utilization Support Fund
SAF	-	Special Administration Fund
SCF	-	Selective Credit Fund
SEE	-	State Economic Enterprises
SIS	-	State Institute of Statistics
SPO	-	State Planning Organization
SPSF	-	Support and Price Stabilization Fund
TAF	-	Tax Administration Development Fund
TEKEL	-	State Monopoly
TFTU	-	Undersecretariat of Treasury and Foreign Trade
TZDK	-	Agricultural Supplies Agency
VAT	-	Value-Added Tax
WPI	-	Wholesale Price Index

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The analysis is based on data and tax structure until January 1987. Major changes that occurred between January and April 1987 are mentioned in footnotes.

FISCAL POLICY AND TAX REFORM IN TURKEY:

Table of Contents

Volume II: METHODOLOGICAL AND STATISTICAL ANNEX 1/

	<u>Page No.</u>
Annex II:	
INFLATION AND THE FINANCING OF GOVERNMENT EXPENDITURE	
A. Analytical Framework	1
B. Measurement of Fiscal Deficits	4
Annex III:	
PERSONAL INCOME TAX ANALYSIS:	
A. The Effect of Changes in Tax Rates and Exemption Levels	7
B. Expenditures in Categories of Consumption Eligible for the Rebate	11
C. The Calculation of Fiscal Drag	12
Table	
A 3.1 - Distribution of Taxpayers Filing Income Declarations in 1980-86	10
A 3.2 - Expenditures as a Percentage of Income on Categories of Consumption Eligible for the Rebate	11
Annex IV:	
CORPORATE INCOME TAX ANALYSIS	
A. Marginal Effective Tax Rate Calculation	13
B. Effect of Inflation on Present Discounted Value of Depreciation Allowances and Investment Incentives	21
Table	
A 4.1 - Corporate Tax Model: An Example	
(1) Parameters	17
(2) Results	18
A 4.2 - Marginal Effective Tax Rates: Inflation 0 Percent	19
A 4.3 - Marginal Effective Tax Rates: Inflation 50 Percent	20
A 4.4 - Present Discounted Value of Depreciation Allowances and Investment Incentives by Sector, Region, and Asset Type Inflation Rate - 25 Percent	21
A 4.5 Present Discounted Value of Depreciation Allowances and Investment Incentives by Sector, Region and Asset Type Inflation rate - 50 percent	22

1/ Annex numbers correspond with chapter numbers.

Annex V:	A V.1 - POTENTIAL VALUE-ADDED TAX FROM DOMESTIC BASE	
	A. Calculation for 1985	23
	B. Calculation for 1986	25
	C. Calculation of Potential VAT from Imports in 1986	26
	A V.2 - TREATMENT OF SMALL ENTERPRISES IN THE EEC AND LATIN AMERICA	
	A. Special Provisions in EEC Countries	27
	B. Special Provisions in Latin American Countries	29
Table	A 5.1 - Turkey: Percentage of 1985 GDP in VAT Base	24
Annex VI:	A MODEL FOR TAX POLICY ANALYSIS	31
Annex VII:	SOURCES AND USES OF INDIVIDUAL EXTRA BUDGETARY FUNDS	
	A. Defense Industry Support Fund (DIF)	38
	B. Development and Support Fund (DSF)	39
	C. EEC Fund (EECF)	41
	D. Export Encouragement Fund (EEF)	41
	E. Export Improvement Fund (EIF)	43
	F. Financing Fund (FF)	44
	G. Investment Goods Manufacturing Encouragement Fund (IGMEF)	44
	H. Mutual Assistance and Support Fund (MASF)	45
	I. Mass Housing Fund (MHF)	45
	J. Petroleum Consumption Fund (PCF)	48
	K. Petroleum Exploration Fund (PEF)	49
	L. Public Participation Fund (PPF)	50
	M. Petroleum Price Statilization Fund (PPSF)	52
	N. Resource Utilization Support Fund (RUSF)	52
	O. Selective Credit Fund (SCF)	55
	P. Support and Price Stabilization Fund (SPSF)	55
	Q. Tax Administration Development Fund (TAF)	57
Table	A 7.1 Sources and Uses of DIF, 1986	39
	A 7.2 Sources and Uses of the DSF, 1985-85	40
	A 7.3 Revenues and Expenditures of the EEC Fund, 1982-85	41
	A 7.4 Revenues and Expenditures of the EEF, 1980-85	42
	A 7.5 Sources & Uses of the EEF, 1985	43
	A 7.6 Revenues & Expenditures of the EIF, 1975-85	43

A 7.7	Revenues & Expenditures of the Financing Fund, 1981-85	44
A 7.8	Sources & Uses of the MHF, 1985-86	47
A 7.9	Distribution of Revenues of the PCF, 1985-86	48
A 7.10	Uses of the PCF by Type of Activity, 1985-86	49
A 7.11	Revenues & Expenditures of the PEF, 1981-86	50
A 7.12	Sources & Uses of the PPF, 1985-86	51
A 7.13	Sources & Uses of the RUSF, 1985-86	54
A 7.14	Revenues & Expenditures of the SPSF, 1980-85	56
A 7.15	Sources & Uses of the SPSF, 1985-86	57

ANNEX II - INFLATION AND THE FINANCING OF GOVERNMENT EXPENDITURE
ANALYTICAL FRAMEWORK AND MEASUREMENT ISSUES

A. Analytical Framework

A 2.1 There is no doubt that increases in cost factors, such as wages, oil prices, the exchange rate or even real interest rates, lead to increases in the price level. No oil-importing country saw prices fall after 1974. Moreover, such a price level shift can in practice not be distinguished from an increase in inflation; we live in a world where prices are not measured or, for that matter, adjusted, continuously.

A 2.2 However, prolonged inflation cannot really be traced to any of these factors. Any real wage can be sustained at any rate of inflation, especially in the presence of indexation agreements. Imported intermediate price rises (e.g. oil) would not explain sustained domestic inflation rates in excess of world levels, since world relative prices of intermediate goods obviously cannot go up for ever. Finally, continued nominal devaluation of the exchange rate of course can explain a matching excess of home inflation over world inflation. That, however, begs the question of what is behind this continued process of nominal devaluation.

A 2.3 A similar problem exists with the second empirical explanation of inflation, money growth. It is clearly true that no rate of inflation can be sustained unless matched by a corresponding rate of money growth. Moreover, equations linking inflation to real income and monetary expansion always work well, also for Turkey.

A 2.4 But tracing inflation back to money growth through what, in effect, is an inverted money demand function, runs into the same problem that mars the exchange rate explanation: it begs the question of what drives the sustained increase in money growth in excess of what would be compatible with announced inflation targets.

A 2.5 The answer to that question is more straightforward in most developing countries than in industrial countries, and points to what theory suggests is the root cause of sustained inflation: fiscal deficits in excess of what can be financed through debt issue on a sustainable basis.

A 2.6 The fiscal view of inflation posits that short term links between inflation and deficits are likely to be tenuous; but that any deficit, coupled with sustainable debt-output ratios, implies a particular inflation rate. The argument runs through what is known as the inflation tax. The concept of inflation tax is based on the very relation that makes monetarist explanations of inflation work so well ex-post: the real money stock is usually a stable function of interest rates and income within a given financial structure. If for given interest rates, level of income and structure of the financial

system, consumers wish to maintain money balances fixed in real terms, they will have to accumulate nominal balances at the rate of inflation and in proportion to their desired level of real balances, M:

$$IT = pM(i,y) \quad (1)$$

where p equals inflation, i the nominal rate of interest, y real income and IT the revenue from inflation tax. But money is an interest-free liability of the public sector, which can thus cover real expenditure through the issue of nominal liabilities: after all the private sector will run a matching surplus of income over expenditure to accumulate these money balances (pay the inflation tax).

A 2.7 By analogy with more conventional taxes, p can be considered the tax rate and M, the level of real money demand, the tax base. The fiscal authorities only make a net gain to the extent that the inflationary erosion of the money stock is not offset by inflationary gains by domestic borrowers; hence the proper tax base is not the broad money stock, say M2, but the more narrow concept of inside or base money, none of which is offset by private sector debt owed to the banking system.

A 2.8 In addition, the Government can issue money to the extent that real money balances rise with the level of real income; if this increase is one-for-one, we can define seigniorage revenue as

$$SR = nM(i,y) \quad (2)$$

where n is the growth rate of real income.

A 2.9 To link this to budget deficits, one needs to look at the government budget identity linking expenditure categories to sources of financing. Define D as the total public sector deficit exclusive of all interest payments, and deflated by the price level (we will use the CPI as the domestic deflator throughout). Also, define B (B*) as the real value of domestic (external) public sector debt expressed in terms of home (foreign) goods carrying an interest rate r (r*); and finally e as the relative price of foreign goods in terms of domestic goods or the real exchange rate. We can then write down the budget identity:

$$D + rB + r^*B^*e = \dot{B} + \dot{B}^*e + (p + n)M \quad (3)$$

Equation (3) states that the non-interest deficit D plus real interest payments on domestic and foreign debt can be covered either by new debt issue or by seigniorage and inflation tax.

A 2.10 Equation (3) does not yet give the deficit as the change in the real value of the public sector's debt, which we argue below is the appropriate measure. The missing element involves the changes in the real value of foreign debt, B*e, due to changes in the real exchange rate e. These capital losses equal:

$$(\dot{e}/e)B^*e$$

the real rate of depreciation times the real value of the debt. If we add those capital losses from both sides of the equation, we get:

$$D + rB + (r^* + \dot{e}/e) B^*e = \dot{B} + \dot{B}^*e + (B^*e) \dot{e}/e + (p + n)M \quad (4)$$

Finally $(-pM)$, minus the inflation tax, can be interpreted as the real interest payments on monetary liabilities; we can then obtain symmetric treatment of all three forms of government debt by writing (4) as:

$$\begin{aligned} D + rB + (r^* + \dot{e}/e) B^*e - pM &= \\ &= \dot{B} + \dot{B}^*e + (B^*e) \dot{e}/e + \dot{M} \\ &= \dot{L} \end{aligned} \quad (5)$$

Equation (5) tells us that the non-interest deficit D plus real interest payments on the three forms of public sector liabilities equal the change in the real value of the public sector's net indebtedness, L .

A 2.11 Equation (3) can be used to derive a value for the fiscal deficit consistent with a given set of debt/output ratios and whatever inflation target policy makers wish to reach. A few preliminary steps are needed. Target values for the ratio of domestic and foreign debt to output, $b = B/y$ and $b^* = B^*e/y$, imply that B cannot grow faster than y and B^* not faster than y/e :

$$\dot{B} = nb, \quad \dot{B}^* = (n-c)b^*$$

where n is the real growth rate \dot{y}/y and c equals \dot{e}/e , the rate of real appreciation. Also, define

$$d = D/y, \quad m = M/y$$

Inserting this in (5) yields the consistency condition we are after:

$$d + rb + (r^* + c)b^* = nb + nb^* + (p + n)m \quad (6)$$

or the non-interest deficit D plus real interest payments on foreign and domestic debt cannot exceed what can be financed through debt issue at target debt-output ratios $(n(b + b^* + m))$ plus the inflation tax pm . Consistency requires that (6) holds with pm (p, y) evaluated at the target inflation rate.

A 2.12 The deficit measure in (6), $d + rb + (r^* + c)b^*$ differs from L in that m has been brought to the other side: rather than interpreting minus pm as real interest payments on monetary liabilities, an expenditure item, it is brought to the right hand side and viewed as a source of financing, the inflation tax pm . We call this deficit measure crd , the comprehensive real deficit.

A 2.13 Two important factors will shift the relation between public sector deficits and inflation embedded in equations (5) and (6). First, a financial sector reform influencing the demand for base money. For example, lower reserve requirements or the introduction of attractive liquid alternatives to domestic money, such as the foreign deposits introduced in Turkey in 1984, all lower the base over which the inflation tax is levied. They hence require higher inflation rates to finance the same non-interest deficit at given income levels.

A 2.14 A second factor influencing the relation between public sector deficits and inflation is a different bond issue policy. In the short run, higher bond issues than necessary to maintain b , lead to less required inflation tax revenues and so, possibly, to less inflation. However, this effect will be reversed as time goes by, if at least the economy grows at a rate less than r , as one can see from equation (6). Debt-output ratios cannot be raised ad infinitum, so they will have to settle down at some higher level, say b^1 . But equation (6) then tells us that, as long as $r > n$, long run revenue requirements will in fact have increased rather than decreased! Cutting money growth through issues of interest-bearing debt will thus increase long run inflation, its potentially favourable short-term effects notwithstanding. 1/

B. Measurement of Fiscal Deficits

A 2.15 Problems with the measurement of public sector deficits involve both accounting conventions and issues of economic analysis. Most countries have several layers of government - national, provincial and local. In Turkey, this is complicated once further by the recent proliferation of Extra Budgetary Funds and by the existence of an extensive State Economic Enterprise (SEE) sector. All their accounts should be incorporated in computing the size of the public sector deficit, since all have to be financed.

A 2.16 Accurate and internally consistent data on expenditure and revenue flows are not available; moreover what is available is not consistent with national accounts data, complicating comparisons with say private savings and investment flows. We have therefore chosen another approach to measurement of fiscal deficits, an approach that starts from the stock of indebtedness. A properly measured deficit should equal the change in net indebtedness of public sector; an alternative measure of deficits is therefore the change in indebtedness measured directly. Since much better information is available on, for example, foreign debt than on the combined profit and loss accounts of the SEEs, such an approach is an improvement over flow-based measures.

1/ This argument was first made by Sargent and Wallace (1982). See also Buiter (1984), and van Wijnbergen (1986).

A 2.17 Definitional problems also arise over the treatment of inflation. If, for example, prices are rising at 25 percent per year, a debt of TL 100 will, after a year, have a real value of only TL 75. Inflation acts as a hidden capital levy on outstanding debt. So the inflation component in nominal interest payments on government debt really represents repayment of principal rather than the real cost of borrowing. It therefore is a capital account transaction and does not belong in estimates of "above-the-line" fiscal deficits. In the deficit measure used above, this is recognized by including only real interest payments, not nominal, in the definition of expenditure. Then the deficit will in fact equal the change in the real value of the debt

A 2.18 Similar problems exist with the treatment of the capital losses arising out of exchange rate changes. Once again we use the change in the real value of net public sector indebtedness as our measure; this implies that capital losses on foreign debt due to changes in the real exchange rate should in fact be included as part of the servicing cost of that foreign debt and hence as part of a proper deficit measure. In any forward looking discussion, expected real exchange rate changes will enter as part of the real cost of foreign borrowing. However, in the reconstruction of historical time series, one will in fact use actual changes in the real exchange rate. The difference is occasionally quite large, especially after large nominal "maxi" devaluations. When projecting such historical series forward, once-off "surprise" capital losses should of course be taken out.

A 2.19 A final issue concerns the Central Bank and its foreign assets position. Since profits of the Central Bank are transferred to the Treasury, it is best considered part of the public sector for debt accounting purposes. This means that the variable B*, public sector foreign debt, should be measured net of the Net Foreign Assets position of the Central Bank.

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ANNEX III - PERSONAL INCOME TAX ANALYSIS:

A. The Effect of Changes in Tax Rates and Exemption Levels

A 3.1 The revenue implications of changes in the personal income tax system were drawn from the distribution of taxpayers over the tax brackets in the system. These distributions were available only for taxpayers who filed income declarations in 1980, 1981, 1983, and 1984 from the Ministry of Finance. Distributions for 1982, 1985, and 1986 were imputed by extrapolating from the 1983 and 1984 distributions. The actual and imputed distributions for 1980 - 1986 are given in Table A 3.1.

A 3.2 The distributions for 1982, 1985, and 1986 were obtained using a straight-line projection method. To illustrate this procedure, let N_i denote the number of taxpayers in the i th tax bracket. Consider the first bracket, N_1 , in which the number of taxpayers is declining over time. The number of taxpayers in the first tax bracket in 1985, N_1^{85} , equals the number of taxpayers in the first tax bracket in 1984, N_1^{84} , plus the difference between 1984 and 1983, $N_1^{84} - N_1^{83}$. Using the numbers given in Table A 3.1 for 1983 and 1984, the number of taxpayers in the first tax bracket for 1985 is calculated as:

$$\begin{aligned} N_1^{85} &= N_1^{84} + (N_1^{84} - N_1^{83}) \\ &= 1,014,684 + (1,014,684 - 1,047,465) \\ &= 981,903 \end{aligned}$$

For 1982 the difference between 1983 and 1984 is subtracted from 1983 as follows:

$$\begin{aligned} N_1^{82} &= N_1^{83} - (N_1^{84} - N_1^{83}) \\ &= 1,047,465 - (1,014,684 - 1,047,465) \\ &= 1,080,246 \end{aligned}$$

The number of taxpayers in other tax brackets for 1982 and 1985 were similarly derived.

A 3.3 In 1986 the personal income tax brackets were changed from what they had been for the previous five years, 1981-1985. Consequently, before applying the straight-line method for a two-year projection from 1984, the brackets that had prevailed from 1981-1985 had to be reconfigured to conform with the 1986 brackets. This was done as follows:

1981-1985 Brackets

1986 Brackets

TL 0 - 1 m	N_1	→	$N_1 + 0.5N_2$	=	N_1^1 TL 1 - 3 m
TL 1 - 3 m	N_2				
TL 3 - 5 m	N_3	→	$0.5N_2 + N_3$	=	N_2^1 TL 3 - 6 m
TL 5 - 10 m	N_4				
TL 10 - 15 m	N_5	→	$N_5 + 0.5N_6$	=	N_4^1 TL 12 - 24 m
TL 15 - 25 m	N_6				
Over TL 25 m	N_7	→	$0.5N_6 + 0.5N_7$	=	N_5^1 TL 24 - 48 m
		→	$0.5N_7$	=	N_6^1 over TL 48 m

After the brackets were reconfigured for 1986 the straight-line method was applied to make a two-year projection from 1984.

A 3.4 In the same manner that the number of taxpayers by brackets were imputed to 1982, 1985 and 1986, the tax base and tax paid were imputed as well. The effective tax rate in each bracket is simply the tax paid divided by the tax base.

A 3.5 The effective tax rates by income tax brackets in each year were used to estimate the revenue effect of the schedule changes for income declarations over the 1981-1985 period. For example, the effective tax rates in income brackets in 1982 were applied to the tax base in the same income brackets in 1983 in order to compute the hypothetical tax revenue that would have been collected in 1983 if the schedule did not change from 1982 to 1983. The difference between this hypothetical tax revenue for 1983 and actual tax revenue in 1983 provides an estimate of the effect of the schedule change for income declarations. The same calculation was done for each year in the 1981-1985 period. The estimated revenue effects of the schedule changes for income declarations were scaled up to estimates for total personal income taxes by multiplying by the rates of total personal income tax revenue for a particular year to the tax revenue collected from income declarations for that year.

A 3.6 The total number of taxpayers and average marginal tax rate were used to calculate the effect of the personal exemption on tax revenue. The average marginal tax rate is the weighted average of the statutory marginal tax rate in each bracket where the weights equal the proportion of taxpayers in each bracket. The average marginal tax rate is multiplied by the personal exemption to yield an estimate of the average revenue loss due to the personal exemption per taxpayer. This revenue loss per taxpayer is multiplied by the number of taxpayers to yield an estimate of the total revenue loss.

A 3.7 The average effective tax rate is computed in the same manner as the average marginal tax rate, i.e. it is the weighted average of the effective tax rate in each bracket where the weights equal the proportion of taxpayers in each bracket. The average effective tax rate is the flat tax rate that, if applied to the tax base without any further deductions, would yield the same amount of revenue.

A 3.8 The total revenue loss due to increases in the personal exemption, average marginal tax rate, and average effective tax rate were used to compute the increase in the (hypothetical) flat tax rate that would hold revenue constant. More specifically, the reduction in the total tax base due to the increase in the personal exemption was calculated as the product of the number of taxpayers and the increase in the personal exemption. The total tax base was reduced by this amount. This reduced tax base was divided into the total revenue loss to convert the loss into a rate as a proportion of the tax base. This rate is the amount by which the effective tax rate would have to increase in order to hold revenue constant. Because this rate is given in average effective terms, it is multiplied by the rates of the average marginal tax rate to the average effective tax rate in order to convert it into the increase in the statutory flat rate that holds revenue constant.

Table A 3.1: DISTRIBUTION OF TAXPAYERS FILING INCOME DECLARATIONS IN 1980-1986

(1) <u>Year</u>	(2) <u>Tax Bracket</u>	(3) <u>Number of Taxpayers</u>	(4) <u>Tax Base (TL millions)</u>	(5) <u>Tax Paid (TL millions)</u>	(6) <u>Effective Tax Rate (5)/ (4)</u>
1980	TL 0 - 1 m	1,376,893	144,373	56,514	39.14%
	Over TL 1 m	27,003	74,990	37,949	50.61%
1981	TL 0 - 1 m	1,136,454	178,616	65,606	36.73%
	1 - 3 m	39,811	65,887	24,458	37.12%
	3 - 5 m	6,961	26,482	9,976	37.67%
	5 - 10 m	4,058	27,735	11,256	40.58%
	10 - 15 m	974	11,707	5,146	43.95%
	15 - 25 m	549	10,344	4,987	48.21%
	Over TL 25 m	371	20,340	9,566	47.03%
1982	TL 0 - 1 m	1,080,246	212,838	78,033	36.56%
	1 - 3 m	24,631	74,296	29,058	39.11%
	3 - 5 m	3,051	28,980	11,382	39.27%
	5 - 10 m	2,192	34,129	14,485	42.44%
	10 - 15 m	501	14,634	6,577	44.94%
	15 - 25 m	381	14,786	7,181	48.57%
	Over TL 25 m	335	29,398	14,240	48.44%
1983	TL 0 - 1 m	1,047,465	237,296	78,128	32.92%
	1 - 3 m	66,903	109,351	35,913	32.84%
	3 - 5 m	12,057	46,200	15,491	33.53%
	5 - 10 m	7,791	53,188	19,818	37.26%
	10 - 15 m	1,921	23,163	9,460	40.84%
	15 - 25 m	1,163	22,117	9,996	45.20%
	Over TL 25 m	812	47,908	21,359	44.58%
1984	TL 0 - 1 m	1,014,684	286,213	78,318	27.36%
	1 - 3 m	109,175	179,461	49,624	27.65%
	3 - 5 m	21,063	80,640	23,710	29.40%
	5 - 10 m	13,390	91,306	30,484	33.39%
	10 - 15 m	3,341	40,221	15,226	37.86%
	15 - 25 m	1,945	36,779	15,626	42.49%
	Over TL 25 m	1,289	84,928	35,597	41.91%
1985	TL 0 - 1 m	981,903	335,130	78,508	23.43%
	1 - 3 m	151,447	249,571	63,335	25.38%
	3 - 5 m	30,069	115,080	31,929	27.75%
	5 - 10 m	18,989	129,424	41,150	31.79%
	10 - 15 m	4,761	57,279	20,992	36.65%
	15 - 25 m	2,727	51,441	21,256	41.32%
	Over TL 25 m	1,766	121,948	49,835	40.87%
1986	TL 0 - 3 m	1,045,982	543,888	117,221	21.55%
	3 - 6 m	135,935	309,361	78,671	25.43%
	6 - 12 m	24,588	167,542	51,816	30.93%
	12 - 24 m	7,936	107,389	40,201	37.44%
	24 - 48 m	2,876	112,536	45,480	40.41%
	Over TL 48 m	1,755	33,052	13,443	40.67%

B. Expenditures in Categories of Consumption Eligible for the Rebate

A 3.9 The Consumer Expenditure Survey (1979) data were used to determine expenditures at different income levels in categories of consumption eligible for the rebate. The survey reported expenditures at disposable income levels in 1978. This necessitated converting disposable income to gross income and bringing amounts up to their levels in 1985 lira.

A 3.10 Most individuals faced the top tax rate of 60 percent after relatively few deductions. Consequently, an effective tax rate of 50 percent was assumed for the purpose of converting disposable income to gross income. In other words, disposable income levels were doubled to yield gross income levels. Gross income was brought up to its level in 1986 lira using wage growth rates for 1978 to 1985 ^{1/}.

A 3.11 The distribution of expenditures in categories of consumption eligible for the rebate by income brackets in 1986 is given in Table A 3.2. It is useful to note that the survey results show expenditures eligible for the rebate going up with income in some cases. For example, total expenditures eligible for the rebate increase from 71.31 percent in the lowest income bracket to 79.61 percent in the next-to-lowest bracket. The impact of the rebate system depends on expenditure patterns that can, in some instances, produce results opposite to intended distributional objectives.

Table A 3.2: EXPENDITURES AS A PERCENTAGE OF INCOME ON CATEGORIES OF CONSUMPTION ELIGIBLE FOR THE REBATE

Annual Income Brackets (TL 1000s)	Household Durables and			Trans- porta- tion	Educa- tion and Culture	Housing	Total
	Food	Heat	Medical				
0.0 - 521.3	45.24	1.50	2.97	3.66	2.66	15.28	71.31
521.3 - 781.9	54.67	2.12	2.59	2.46	4.30	13.47	79.61
781.9 - 1,042.6	49.57	0.92	2.61	3.45	4.45	13.93	74.93
1,042.6 - 1,303.2	47.75	1.16	2.02	2.95	3.09	15.40	74.37
1,303.2 - 1,563.8	47.70	0.99	1.86	3.14	2.79	14.32	70.80
1,563.8 - 1,824.5	45.95	1.22	2.76	3.78	2.64	13.24	69.59
1,824.5 - 2,085.1	45.05	1.75	1.76	4.05	2.38	13.60	68.59
2,085.1 - 2,606.4	43.40	2.12	2.03	4.29	3.19	13.18	68.21
2,606.4 - 3,127.7	41.31	1.78	2.61	4.00	3.44	13.15	66.29
3,127.7 - 3,649.0	40.10	3.34	2.12	6.33	3.45	12.09	67.43
3,649.0 - 4,170.2	43.31	1.81	2.64	5.67	2.50	13.51	69.44
4,170.2 - 4,691.5	38.65	2.30	1.99	7.08	2.92	12.00	64.94
4,691.5 - 5,212.8	34.10	2.50	2.44	6.42	8.36	11.05	64.87
5,212.8 - 6,516.0	35.96	1.88	1.87	7.30	4.21	12.53	63.75
6,516.0 - 7,819.2	34.96	3.49	3.07	9.52	2.46	12.30	65.80
7,819.2 - 9,122.4	36.01	2.93	2.34	8.23	3.64	12.15	65.30
9,122.4 - 10,425.6	25.72	2.57	1.54	8.31	7.33	10.60	56.07
10,425.6 - 13,032.0	34.51	3.38	2.34	12.79	7.76	8.98	69.76
13,032.0 - 26,064.0	29.90	1.91	2.08	9.01	3.85	9.62	56.37
26,064.0 -	29.52	1.46	8.29	11.53	1.79	14.07	66.66

^{1/} Data on wages are from the Social Insurance Institute, (reported in the Turkey: Data Information System, Table 6.2).

C. The Calculation of Fiscal Drag

A 3.12 The calculation of fiscal drag is based on the distribution of taxpayers and tax base by tax brackets in 1986. The tax base in each bracket was divided by the number of taxpayers in that bracket to yield an estimate of the average taxable income in that bracket. To this was added the personal exemption and social security taxes to yield an estimate of gross income in each bracket.

A 3.13 In order to examine the effect of a change in the price level on tax liability, gross income levels were changed and taxes recomputed at an individual level. For example, if the price were assumed to be 10 percent higher, gross income in each tax bracket was increased by 10 percent. Personal income taxes were recomputed at the higher income level. Also, 10 percent of the taxpayers in each bracket were assumed to move up to the next bracket (individuals in the highest bracket, of course, did not move up). The higher tax levels in each bracket were multiplied by the new number of taxpayers in each bracket to yield an estimate of the total tax liability in each bracket at the higher price level.

A 3.14 Total tax liabilities for income declarations at different levels were scaled up to totals for the entire personal income tax based on the ratio of total personal income tax revenue to computed tax liability for income declarations.

ANNEX IV - CORPORATE INCOME TAX ANALYSIS:

A. The Marginal Effective Tax Rate Calculation

A 4.1 The marginal effective tax rate (METR) calculation uses tax, financing, and economic factors to compute the cash flows that can be expected from an investment project. The cash flows combine the individual streams for each asset (credits, depreciation, replacement investment) with the income generated by the project and other project-wide flows (e.g. debt service payments) to yield a single before-tax cash flow and single after-tax cash flow for the entire project. These two cash flows are used to compute the real before-tax rate of return, r_{BT} , and real after-tax rate of return, r_{AT} . The METR is defined as the difference between r_{BT} and r_{AT} as a percentage of the real before-tax rate of return r_{BT} . The METR is useful for measurement and comparative purposes because it converts all types of taxes to a common value, and accounts for variations in timing of tax payments and in tax bases. Fully and properly calculated, the METR summarizes all of the direct tax consequences for investments.

A 4.2 By assumption, the investment project incurs all its investment costs in the year before the project generates income, year 0. The project generates a stream of operating income that grows at a constant rate from its initial level in year 1 until the operating period of the project ends. The projects analyzed here are investments in a single asset (either buildings or machinery and equipment) and the operating period is set equal to the depreciation period of the asset allowed under the tax system. The initial level of operating income is chosen so that the project generates a real before-tax rate of return of 10 percent on the equity invested in the project.

A 4.3 The before-tax (BTCF) and after-tax (ATCF) cash flows can be summarized as follows:

$$(1) \quad BTCF_i = - E_i - dK_i + R_i - Int_i - Prin_i + NetSales_i$$

$$(2) \quad ATCF_i = BTCF_i - t(1+s) (R_i + InvCred_i - Dep_i - InvDed_i - Carryover_i + CapGain_i + InvCred_i)$$

where

E_i = amount of equity used to finance the investment in year i

d = economic depreciation rate for capital stock

K_i = capital stock in year i

R_i = investment income in year i

Int_i = interest payment in year i

$Prin_i$ = principal payment in year i

$NetSales_i$ = net sales proceeds in year i

t = statutory tax rate

s = surtax rate

$InvCred_i$ = investment credit in year i

Dep_i = depreciation allowance taken in year i

$IntDed_i$ = interest deductions in year i

$Carryover_i$ = carryover losses in year i

$CapGain_i$ = capital gains in year i

A 4.4 Equity issue used to finance the investment is positive in year 0, i.e. $E_0 > 0$, and is zero afterwards. The project may be financed with any level of debt between zero and 100 percent of the project's investment cost. In the analysis here, projects are either all equity financed or 50 percent debt financed.

A 4.5 In the debt financed cases, the interest rate equals the before-tax rate of return for all equity finance. As a result, the use of debt financing does not alter the before-tax rate of return. There are, nonetheless, significant changes in the before-tax cash flow. The amount of equity put up for the investment goes down by the amount borrowed. The cash flow in each period of operation is reduced by the debt service payment (interest and principal) in that period. However, because the amount borrowed equals the present value of the debt service payments discounted at the interest rate, and the interest rate equals the before-tax rate of return, there is no change in the present value of the before-tax cash flow. Consequently, the before-tax rate of return and the level of first period operating income that yield that rate of return do not change. The rate of return underlying the METR calculation is a return to equity.

A 4.6 Replacement investment is undertaken, which reduces the before-tax cash flow. Replacement investment in each year equals the rate of economic depreciation for the asset times its capital stock at the beginning of that year.

A 4.7 The investment project starts generating income in year 1. Investment income is the increase in revenue, net of wages and costs for intermediate goods and services, that results from the investment project. Investment income keeps pace with inflation because replacement investment preserves the productive capacity of the project.

A 4.8 Interest and principal payments on debt used to finance the investment are subtracted from the before-tax cash flow. When the investment is sold, the proceeds are added to the before-tax cash flow. Net sale proceeds equal the sale price minus the payoff of the balance of a loan. However, because the term of the loan in debt financed cases is set equal to the operating period the balance of the loan is zero when the investment is sold. Therefore, net sale proceeds equal the sale price.

A 4.9 The after-tax cash flow equals the before-tax cash flow minus taxes paid and plus credits. The statutory tax rate, t , plus any surtax rate, s , are multiplied by taxable income to yield the regular tax liability. In Turkey, the statutory rate on income from business investment is 46 percent and there is a 3 percent surtax for the Defence Industry Support Fund. Taxable income is given by the term in brackets. Taxable income, in its most basic form, equals investment income plus investment credits, which are taxable in Turkey, minus depreciation allowances, investment deductions, and interest deductions. Investment deductions, if given, are given in addition to depreciation allowances and are intended to serve as an incentive for investment. They may be given for the project as a whole or on an asset-specific basis. A positive taxable income may be reduced by losses being carried forward. If taxable income is negative and full loss offset is not assumed then the loss is carried forward. When the asset is sold, capital gains or losses are included in taxable income.

A 4.10 Investment credits refer to payments to the investor from the Resource Utilization Support Fund. Payments for the original investment and the tax liability for these payments occur in year 0. The amount of these payments as a percentage of investments in selected industries and regions are reported in Chapter IV. Payments for replacement investment and their associated tax liability are included in the after-tax cash flow each year based on the amount of replacement investment for that year.

A 4.11 The basis for depreciation allowances is indexed at a rate equal to inflation minus 10 percentage points. The original investment enters the balance sheet in year 1 and the depreciation allowance in year 1 is based on original cost, i.e. there is no adjustment for inflation before first-year depreciation. Inflation adjustment, i.e. revaluation of asset values on the balance sheet, takes place in year 2 and every year thereafter.

A 4.12 The Turkish tax system uses the double declining balance method of depreciation. The depreciable life for buildings is 20 years and machinery and equipment, 8 years.

A 4.13 The Turkish tax system grants investment incentive allowances designed to encourage investment in selected regions and industries. These incentives take the form of additional first-year deductions given as a percentage of the cost of the investment. Such deductions, if applicable, for the original investment are taken in year 1. Deductions for replacement investment are taken each year based on replacement investment for that year.

A 4.14 Investment can take place in machinery and equipment that is either produced domestically or imported. Investment in domestic machinery and equipment receives a 15 percent credit from the Resource Utilization Support Fund. A 5 percent tax is levied on imported machinery and equipment.

A 4.15 The printed output from the model used to compute the METR for an investment is presented in Table A 4.1. The parameter values used to describe the investment are given on the first page of Table A 4.1 and the cash flow generated by these parameters is given on the second page of this table. The table specifies an investment in domestic machinery and equipment.

A 4.16 The first set of cash flow lines defines the before-tax cash flow for the investment. The "+" and "-" signs indicate how these lines are added and subtracted to produce the before-tax cash flow. Operating income and net sales proceeds are the positive items in this cash flow. Investment expenditures are the amount of equity put up for the investment in year 0 and the amounts for replacement investment in subsequent years that are subtracted from the before-tax cash flow. Payments for debt service, wages, and materials are subtracted to yield the before-tax cash flow. (The model has the option to include wage and materials costs for tax systems in which deductions or credits are granted for these costs. Because there are no such deductions or credits in Turkey, the lines for these costs are not used.)

A 4.17 The before-tax cash flow is used to compute the before-tax rate of return. The internal rate of return for this cash flow is the nominal before-tax rate of return. This rate is adjusted for inflation to yield the real before-tax rate of return. Under the column headed "Results" on the first page of Table A 4.1, the nominal before-tax rate of return is shown to be 37.5 percent. The real before-tax rate of return is 10 percent. As mentioned, the level of investment income in the first year was chosen to yield this result.

A 4.18 The next set of lines after the before-tax cash flow define taxable income, given in line 34. The tax in line 36 is the 46 percent statutory rate times taxable income. The surtax for the Defence Industry Support Fund, given in line 37, is a 3 percent surcharge on the regular corporate tax liability.

A 4.19 The after-tax cash flow equals the before-tax cash flow minus taxes at the corporate level plus any credits. In this example there are two credits (i.e. payments) from the Export Encouragement Fund and Resource Utilization Support Fund. A 15 percent payment is made for investment in domestic machinery and equipment from the former and a 4 percent payment is made from the latter as a general investment incentive. This yields a total payment of 19 percent that appears in line 47. The nominal after-tax rate of return is the internal rate of return for the after-tax cash flow. This rate is then adjusted for inflation to yield the real after-tax rate of return. For the example presented in Table A 4.1, the nominal and real after-tax rates of return are 33.2 percent and 6.5 percent respectively. The marginal effective tax rate is calculated from the real before-tax and after-tax rates of return. The marginal effective tax rate METR then becomes:

$$\text{METR} = (r_{BT} - r_{AT})/r_{BT}$$

In this example, the marginal effective tax rate is 34.8 percent, as shown on page 1 of Table A 4.1. The same calculation is performed for different regions and sectors, at zero, 25 and 50 percent inflation; the 25 percent inflation table is in Chapter IV (Table 4.5), the other two are given here as Tables A 4.2 and A 4.3.

Table A 4.1: CORPORATE TAX MODEL: AN EXAMPLE
(1) PARAMETERS

SPECIFY INVESTMENT AND TAX TREATMENT:				RESULTS:				IMPORT TAXES:			
Original Investment	100	Tax Rate	46.0%	Rates of Return(ROR)				Building			
		Tax Exempt Years	0	Nominal Before-Tax ROR	37.5%	% Imported	0.0%	% Imported	0.0%	Import Tax Rate	0.0%
Land	0%	Exemption Rate	0.0%	Real Before-Tax ROR	10.0%	Import Tax Rate	0.0%	Exemption Rate	0.0%	Exemption Rate	0.0%
Building	0%	Surtax Rate	3.0%	Nominal After-Tax ROR	33.2%	Exemption Rate	0.0%	Exemption Period	0	M & E	
M & E	100%	Surtax Years	30.0	Real After-Tax ROR	6.5%	Exemption Period	0	% Imported	0.0%	Import Tax Rate	0.0%
Vehicles	0%	MinTax (% of rev)	0.0%	Effective Tax Rate	34.8%	% Imported	0.0%	Import Tax Rate	0.0%	Exemption Rate	0.0%
		Cap Gains Option	4.0	Target =	10.0%	Exemption Rate	0.0%	Exemption Period	0	Exemption Period	0
		Cap Gains Excl Rate	0.0%	Start =	23.3%	Vehicles		% Imported	0.0%	Import Tax Rate	0.0%
Replacement Inv.?	1 Yes=1	Balancing Adj Option	0.0	Disc Rate	0.41	% Imported	0.0%	Import Tax Rate	0.0%	Exemption Rate	0.0%
		Tax Rate on Lender	10.0%	Refinance	0.0	Exemption Period	0	Exemption Rate	0.0%	Exemption Period	0
		TaxRate on Dividends	0.0%			% Imported	0.0%	Import Tax Rate	0.0%	Exemption Rate	0.0%
		Corp Tax Offset	0.0%			Exemption Rate	0.0%	Exemption Period	0		
		TaxRate on R.E.	0.0%								
		Excess Profits Tax	0.0%								
		Wealth Tax	0.0%								
OPERATION:		Deduct Depreciation?	1 Yes=1								
1st yr. Inv Income	27.81	Index Depreciation?	1 Yes=1								
Wages as % of "	0%	Dep. Index Diff.	10.0% 1.2								
Materials as % of "	0%										
Re % of After Tax Inc	0%										
Inflation Rate	25%										
Infl. Factor	1.25										
Operating Period	8	Deduct Interest?	1 Yes=1								
		Index Interest?	0 Yes=1								
FINANCING:		Int. Index Diff.	0.0% 0.0								
Debt Ratio	0%										
Amount Borrowed	0%	Carry-Over Losses	1 Yes=1								
Interest Rate	37.50%	Tax Int Limit	0.0								
Years Interest Only	0	Eligible Years	30.0 35.0								
Loan Term	8	Forward Years	5.0 5.0								
Loan Payment	0	Exempt Years	0.0								
		Yes=1									
		Carry-Over Credits	1 Yes=1								
		Eligible Years	30 60								
		Forward Years	30 30								
Invest Deductions:	Across the Board	Eligible Years	Asset Specific	Eligible Years	Adj Basis?	Inv Credits:	Across the Board	Eligible Years	Asset Specific	Eligible Yrs	Adj Basis?
	0.0%	0	Land 0.0%	0 0	0		4.0%	0	Land 0.0%	0 0	0
		0	Bld 0.0%	0 0	Yes=1			0	Bld 0.0%	0 0	Yes=1
		thru	M&E 0.0%	0 0				thru	M&E 15.0%	0 30	
		0	Veh 0.0%	0 0				30	Veh 0.0%	0 0	
			0.0%	0 0					0.0%	0 0	
Depreciation:	Initial Allow	Eligible Yrs	Adj Basis?	Dep.Life	SLD Rate	DB Depr?	DB Rate	Switchover 1-DB Rate	ECR Rate	1-ECR	DP/P
Building	0.0%	0 0	0	20.0	5.0%	0	0.0	0 1.0	3.60%	1.0	20.5%
M & E	0.0%	0 0	0	8.0	12.5%	1	2.0	1 0.8	12.3%	0.9	9.7%
Vehicles	0.0%	0 0	0	5.0	20.0%	0	0.0	0 1.0	30.0%	0.7	-12.5%
	0.0%	0 0	0	0.0	0.0%	0	0.0	0 1.0	0.0%	1.0	25.0%
										0.9	
										1.3	

Table A 4.1: CORPORATE TAX MODEL: AN EXAMPLE
(2) RESULTS

CASH FLOWS	Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
-Investment Expenditures		100.0	15.3	19.1	23.9	29.9	37.4	46.7	58.4	73.0	91.3	114.1	142.6	178.3	222.8	278.5	348.2
+Investment Income		0.0	27.8	34.8	43.5	54.3	67.9	84.9	106.1	132.6	165.8	207.2	259.0	323.8	404.7	505.9	632.3
-Wages		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Materials		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Interest Paid on Debt		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Payments on Principal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+Net Sales Proceeds		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	596.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
=BEFORE-TAX CASH FLOW		-100.0	12.5	15.6	19.5	24.4	30.5	38.1	47.7	655.6	74.5	93.1	116.4	145.5	181.9	227.3	284.2
+Inv Inc net of Wages & Mat		0.0	27.8	34.8	43.5	54.3	67.9	84.9	106.1	132.6	165.8	207.2	259.0	323.8	404.7	505.9	632.3
+Int on Retained Earnings		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+Taxable Capital Gain		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	435.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+Balancing Adjustment		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Deductible Interest		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-Investment Deduction		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
-Asset-Specific Inv Ded		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Building		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M & E		0.0	28.8	29.7	31.6	34.7	39.3	50.1	63.9	81.3	75.3	94.1	117.6	147.0	183.7	229.7	287.1
Vehicles		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-TOTAL DEPRECIATION		0.0	28.8	29.7	31.6	34.7	39.3	50.1	63.9	81.3	75.3	94.1	117.6	147.0	183.7	229.7	287.1
+Other Additions		19.0	2.9	3.6	4.6	5.7	7.1	8.9	11.1	13.9	17.3	21.7	27.1	33.9	42.3	52.9	66.2
-Other Deductions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
=Ord. Taxable Inc (T.I.)		19.0	1.9	8.8	16.5	25.3	35.7	43.6	53.3	501.2	107.9	134.8	168.5	210.6	263.3	329.1	411.4
COL Increment		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carry-over Losses (COL)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deductible Proposed Div.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Actual T.I.		19.0	1.9	8.8	16.5	25.3	35.7	43.6	53.3	501.2	107.9	134.8	168.5	210.6	263.3	329.1	411.4
Corp Tax=Rate X Tax Inc		8.7	0.9	4.0	7.6	11.6	16.4	20.1	24.5	230.5	49.6	62.0	77.5	96.9	121.1	151.4	189.2
Surtax + Minimum Tax		0.3	0.0	0.1	0.2	0.4	0.5	0.6	0.7	6.9	1.5	1.9	2.3	2.9	3.6	4.5	5.7
Excess Profits Tax		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wealth Tax		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tax on Lender		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Import Taxes		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL Taxes Before Div.		9.0	0.9	4.2	7.8	12.0	16.9	20.7	25.3	237.4	51.1	63.9	79.8	99.8	124.8	155.9	194.9
Investment Tax Credit		4.0	0.6	0.8	1.0	1.2	1.5	1.9	2.3	2.9	3.7	4.6	5.7	7.1	8.9	11.1	13.9
Asset-Specific Inv Tax Cr		15.0	2.3	2.9	3.6	4.5	5.6	7.0	8.8	11.0	13.7	17.1	21.4	26.7	33.4	41.8	52.2
TOTAL Available Tax Cred		19.0	2.9	3.6	4.6	5.7	7.1	8.9	11.1	13.9	17.3	21.7	27.1	33.9	42.3	52.9	66.2
Net Cash Flow Before Div		-90.0	14.5	15.1	16.3	18.1	20.7	26.4	33.5	432.1	40.7	50.9	63.7	79.6	99.5	124.3	155.4
+Purchases of Equity		-90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+Dividends Gross of Tax		0.0	14.5	15.1	16.3	18.1	20.7	26.4	33.5	432.1	40.7	50.9	63.7	79.6	99.5	124.3	155.4
-Tax on Div at Grp Level		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
+Cred Used for Tax on Div		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AFTER-TAX CASH FLOW		-90.0	14.5	15.1	16.3	18.1	20.7	26.4	33.5	432.1	40.7	50.9	63.7	79.6	99.5	124.3	155.4

Table A 4.2: MARGINAL EFFECTIVE TAX RATES (IN PERCENT)

INFLATION RATE: 0 PERCENT

Type of Region and Asset	Type of Industry		
	Negative List	Normal Industries	Incentive Industries
Developed			
Machinery & equipment			
Domestic	2.3	-39.1	-57.2
Foreign	31.4	17.0	-5.6
Buildings	36.6	18.7	8.6
Normal			
Machinery & equipment			
Domestic	-4.0	-53.4	-69.4
Foreign	25.8	4.9	-14.8
Buildings	34.5	10.1	3.9
Second priority development			
Machinery & equipment			
Domestic	-95.1	-95.1	-106.2
Foreign	-29.2	-29.2	-42.0
Buildings	-6.1	-6.1	-10.0
First priority development			
Machinery & equipment			
Domestic	-133.1	-133.1	-133.1
Foreign	-61.1	-61.1	-61.1
Buildings	-20.1	-20.1	-20.1

Table A 4.3: MARGINAL EFFECTIVE TAX RATES (IN PERCENT)

INFLATION RATE: 50 PERCENT 1/

Type of Region and Asset	Type of Industry		
	Negative List	Normal Industries	Incentive Industries
Developed			
Machinery & equipment			
Domestic	41.8	21.1	-33.3
Foreign	60.7	42.2	-7.6
Buildings	47.4	39.5	17.2
Normal			
Machinery & equipment			
Domestic	38.9	10.7	-37.2
Foreign	57.3	31.8	-12.2
Buildings	46.3	35.3	15.6
Second priority development			
Machinery & equipment			
Domestic	-13.8	-13.8	-47.7
Foreign	9.2	9.2	-21.9
Buildings	25.4	25.4	11.0
First Priority Development:			
Machinery & Equipment			
Domestic	-54.5	-54.5	-54.5
Foreign	-28.2	-28.2	-28.2
Buildings	8.0	8.0	8.0

1/ This and the following tables in this Annex do not incorporate the provision of the March 1987 law allowing complete inflation adjustment of depreciation allowances.

B. The Effect of Inflation on the Present Discounted Value of Depreciation Allowances and Investment Incentives

The present discounted value of investment allowances by sector, region and asset type at inflation rates of 25 and 50 percent are given in Tables A 4.4 and A 4.5. The corresponding 0 percent inflation table is in Chapter IV (Table 4.4).

Table A 4.4: PRESENT DISCOUNTED VALUE OF DEPRECIATION ALLOWANCES AND INVESTMENT INCENTIVES BY SECTOR, REGION, AND ASSET TYPE

INFLATION RATE: 25 PERCENT

(per TL 100 invested)

Type of Region and Asset	Type of Industry		
	Negative List	Normal Industries	Incentive Industries
Developed			
Machinery & equipment			
Domestic	73.7	95.6	146.5
Foreign	56.7	78.5	129.4
Buildings	32.7	54.5	105.5
Normal			
Machinery & equipment			
Domestic	76.3	105.4	149.0
Foreign	59.2	88.3	132.0
Buildings	35.3	64.4	108.0
Second priority development			
Machinery & equipment			
Domestic	126.8	126.8	155.9
Foreign	109.7	109.7	138.8
Buildings	85.8	85.8	114.8
First priority development			
Machinery & equipment			
Domestic	160.1	160.1	160.1
Foreign	143.1	143.1	143.1
Buildings	119.1	119.1	119.1

Table A 4.5: PRESENT DISCOUNTED VALUE OF DEPRECIATION ALLOWANCES AND INVESTMENT INCENTIVES BY SECTOR, REGION AND ASSET TYPE

INFLATION RATE: 50 PERCENT

(per TL 100 invested)

Type of Region and Asset	Type of Industry		
	Negative List	Normal Industries	Incentive Industries
Developed			
Machinery & equipment			
Domestic	73.3	91.5	134.0
Foreign	59.1	77.3	119.7
Buildings	34.2	52.3	94.8
Normal			
Machinery & equipment			
Domestic	75.5	99.7	136.1
Foreign	61.3	85.5	121.9
Buildings	36.3	60.5	96.9
Second priority development:			
Machinery & equipment			
Domestic	117.5	117.5	141.8
Foreign	103.3	103.3	127.6
Buildings	78.3	78.3	102.6
First priority development:			
Machinery & equipment			
Domestic	145.3	145.3	145.3
Foreign	131.1	131.1	131.1
Buildings	106.1	106.1	106.1

ANNEX V.1 - POTENTIAL VALUE-ADDED TAX FROM DOMESTIC BASE

A. Calculations for 1985

A 5.1.1 Table A 5.1 shows that of the TL 26,674.3 billion GDP for 1985, 1/ approximately TL 16,177 billion or just over 60 percent could be said to have been within the VAT base in 1985. Various simplifying assumptions regarding sectoral value added within the VAT base were made in consultation with the authorities. It should be noted that the quality of the figures obtained can only be as good as that of the national accounts. It would be advisable, therefore, to consider these estimates as orders of magnitude rather than accurate measurements.

A 5.1.2 In agriculture, for all practical purposes, almost all falls outside the base except possibly parts of forestry and fishing, thus about a third of these categories, TL 67 billion, was included in the base. 2/ In industry, the only exempted portions are military shipyards (Article 17.3(a)), and irrigation water (Article 17.3(h)). Thus, almost all of the base, TL 8,800 billion was included. In construction, approximately a third (33 percent) of the base, TL 332 billion, was included because of the fact that all construction of apartments below 150 square meters is exempted and the mission was told that much of construction has focused on this market since the policy went into force. By law, all of wholesale and retail is covered, except the delivery of weapons to the armed forces (Article 17.3(b)). It should be pointed out that small retailers who do not have establishments, are out of the VAT net; given that they are probably out of the income tax net, they are likely not to appear in the GDP figures. For these reasons, almost all of the GDP of this sector is included in the VAT base, i.e. TL 4,700 billion.

A 5.1.3 Coming to transport and communication, Article 1.3(a) exempts across-the-border transport. Taking out transit trade from the balance of payments figures leaves TL 900 billion in the base. Financial institutions are covered by the Banking and Insurance Tax and are, therefore, entirely out of the base. Only about a third of ownership of dwelling, TL 378 billion, is included in the base since all except the private commercial component is exempted (Article 17.4(d)). About two thirds of business and personal services are included, keeping in mind Article 172 which exempts some business services rendered for social purposes--even though this component should be small--as well as the fact that some personal services can probably not be captured effectively in the tax base. Finally, government services fall outside the purview of the base, as do imputed banking services.

1/ This refers to the second estimate of GDP for 1985. All calculations of the VAT base and potential revenue for 1985 are based on this second round estimate. The actual GDP in 1985 at factor cost was TL 25,526 billion. Thus, the VAT base and potential revenue were actually probably somewhat higher than estimated in this Annex. Accordingly, the actual VAT collection to potential ratio would be slightly lower.

2/ Small farmers and businesses (vendors, shoe-shine boys, etc.) who, under the Income Tax Law, are exempt from taxation are also exempt from VAT (Articles 17.4(a) and 17.4(b)). Goods exempt from customs duty are also exempt from VAT (Article 16(b)).

Table A 5.1: TURKEY : PERCENTAGE OF 1985 GDP IN VAT BASE

(TL billion)

	GDP <u>a/</u>	Coverage <u>b/</u>
Agriculture	4,592.7	67.0
Agriculture and livestock	(4,381.5)	
Forestry	(133.7)	
Fishing	(77.4)	
Industry	8,948.0	8,800.0
Mining and quarrying	(652.7)	
Manufacturing	(6,968.1)	
Electricity, gas, and water	(1,327.2)	
Construction	1,008.5	332.0
Wholesale and retail trade	4,742.6	4,700.0
Transport and communication	2,738.7	900.0
Financial institutions	831.0	
Ownership of dwelling	1,144.5	378.0
Business and personal services	1,514.9	1,000.0
Government services	1,567.9	
Imputed banking services	-414.5	
Total	26,674.3	16,177.0

a/ This is the second estimation of the State Institute of Statistics.

b/ The actual base for the VAT would have to net out exports and investment from the coverage.

Source: State Institute of Statistics, and staff estimates.

A 5.1.4 From the gross domestic VAT base of TL 16,177 billion, nonagricultural exports 1/ and investment have to be netted out. Nonagricultural exports amounted to TL 3,308 billion. 2/ Thus, the base net of the export factor is the difference, TL 12,869 billion. Therefore, the potential revenue after account is taken of exports is TL 1,287 billion.

1/ Agricultural exports have already been netted out with agriculture in general. See Table A 5.1.

2/ They were US\$6.3 billion. An average exchange rate of TL 525 for the US\$ was used for the currency conversion.

A 5.1.5 The investment factor is more complicated to adjust because of the differential treatment of investment in encouraged and nonencouraged industries. In 1985, public fixed investment amounted to TL 3,289 billion. The authorities indicated that it could be safely assumed that none of this was encouraged. Private fixed investment amounted to TL 2,075 billion. It is assumed that 80 percent of this, i.e., TL 1,660 billion was encouraged. 1/ Under these assumptions, the public sector would get only 20 percent of TL 328.9 billion in the form of tax credit, i.e., TL 65.8 billion, in 1985. For the private sector, there would be a 100 percent tax credit for the encouraged part, i.e., TL 166 billion, while the tax credit for the nonencouraged part would be TL 83 billion. 2/ Therefore, the 1985 potential tax credit for investment would be TL 314.8 billion. 3/ Netting out this amount from TL 1,287 billion (which is the potential revenue net of exports) yields TL 972 billion, the final potential revenue calculation from the VAT base.

A 5.1.6 The actual 1985 collection from the domestic base was TL 402 billion which as a proportion of the potential revenue of TL 972 billion, forms only around 41 percent. If one accounts for the fact that the 1985 collection was for 11 months, being the first year of implementation, then collection forms around 45 percent of potential. There is no doubt that there was room for increasing VAT collection in 1985.

B. Calculation for 1986

A 5.1.7 For 1986, the domestic VAT base of TL 21,592.8 billion was obtained by multiplying the 1985 base by a rate of inflation of 27 percent and a real rate of growth of 5.1 percent, as per Government's 1986 economic program. Netting out nonagricultural exports of TL 4,290 billion 4/ yields TL 17,812.9 billion for the base and TL 1,781.3 billion for the tax yield prior to adjustment for investment. The same assumptions as in 1985 are used for adjustment of the investment factor: of TL 4,353.9 billion public fixed investment, none is encouraged, while of TL 2,840.5 billion in private fixed investment, 80 percent is encouraged. The potential tax credit for investment under these assumptions turns out to be TL 576.7 billion. Netting out this amount from TL 1,781.3 billion yields TL 1,204.6 billion as the tax yield net of the export and investment factors.

-
- 1/ Estimates given by the authorities as well as the private sector ranged from 70 percent to 90 percent. An average of 80 percent is, therefore, used.
 - 2/ TL 83 billion is 20 percent of the difference between TL 2,075 billion and TL 1,660 billion.
 - 3/ 314.8 (potential tax credit for investment) = 65.8 (public) + 166 (private encouraged) + 83 (private nonencouraged).
 - 4/ Nonagricultural exports of US\$6.5 billion are projected on which an average exchange rate of TL 660 to US\$1 is used, i.e., a 25 percent devaluation from 1985.

A 5.1.8 The total 1986 potential VAT revenue is, therefore, TL 1,204.6 billion. The 1986 VAT projection is TL 725 billion. 1/ Thus, the projection forms about 60 percent of potential which itself is an improvement over 1985 performance. 2/ On the other hand, if we assume that in 1986, instead of 60 percent, TL 843 billion, i.e., 70 percent of the potential domestic VAT of TL 1,204.6 billion is targeted to be collected, this would imply an extra TL 118 billion over the projected TL 725 billion for 1986. The actual result would depend, of course, on administrative improvements.

C. Calculation of Potential VAT from Imports in 1986

A 5.1.9 In 1985, the c.i.f. value of imports was TL 6,090 billion (US\$11.6 billion at an average exchange rate of TL 525 to US\$1). The 1985 collection of TL 385.45 billion in VAT, therefore, implies a collection rate of 6.33 percent. 3/

A 5.1.10 In 1986, the collection of VAT is projected to be TL 450 billion. Using the same collection rate as of 1985, and defining the underlying import base as x, we can stipulate

$$\frac{450}{x} = 0.0633,$$

or, $x = 7,109.9$

(1)

However, this underlying import assumption of TL 7,109.9 billion is somewhat different from the import projection for 1986 which is TL 7 392 billion (US\$11.2 billion at an average exchange rate of TL 660 to US\$1). Again, using the same collection rate as of 1985, and defining potential collection as y, we can stipulate

$$\frac{y}{7,392} = 0.0633$$

or, $y = 468$

(2)

It is possible, therefore, to obtain slightly more revenue from imports than projected for 1986, the amount being around TL 18 billion, i.e., the difference between TL 468 billion, the calculation above, and TL 450 billion, the current projection made by the authorities.

-
- 1/ This is equal to TL 875 billion in collection net of TL 150 billion in VAT rebate to exporters, etc.
- 2/ The estimated VAT collection (net of rebates) in 1986 is TL 846 billion. However, since GDP in 1986 was also much higher than projected, potential VAT revenue should also have been higher.
- 3/ This figure is less than 10 percent due to imports of basic foodstuffs as well as customs-free imports which are not subject to the VAT.

ANNEX V.2 - TREATMENT OF SMALL ENTERPRISES IN THE EEC AND LATIN AMERICA

FOR VAT PURPOSES 1/

A. Special Provisions in EEC Countries

A 5.2.1 The following is a summary of the special provisions in VAT systems of EEC countries for small enterprises.

Country (1)	Limit up to which no tax is payable (2)	Limits above those in column (2) for which reduction in tax liability applies (3)	Other Provisions (4)
Belgium	--	--	Small traders with annual purchases not exceeding BF 2.5 million (BF 3.5 million in the case of food retailers) do not pay tax themselves to the tax authorities but bear an "equalization" tax collected through their suppliers. Where the turnover does not exceed BF 15 million, an individual or partnership qualifies for assessment on a notional basis which does not involve the keeping of detailed accounts
Denmark	Annual sales of not more than DKr 10,000.	--	Tax authorities supply small traders free of charge with simplified accounts book.
France	No tax where liability is less than F 1,350 a year.	Relief is given where tax does not exceed F 5,400 a year for traders and F 13,500 a year for craftsmen.	A "forfait" basis is available to traders with turnovers not exceeding F 500,000 a year and to providers of services with turnover up to F 150,000 a year. Simplified declaration forms available for traders with turnover up to F 1 million a year and for providers of services up to F 300,000 a year.
Germany	No liability where turnover does not exceed DM 20,000.	Relief is given where turnover exceeds DM 20,000 but does not exceed DM 60,000.	"Average rate" system of determining purchases of capital and expense items where turnover not exceeding DM 100,000.

1/ International Monetary Fund documents.

Country (1)	Limit up to which no tax is payable (2)	Limits above those in column (2) for which reduction in tax liability applies (3)	Other Provisions (4)
Ireland	No tax payable (a) for turnover up to Lir 30,000 a year for trader where sales consist up to 90 percent goods; (b) for turnover up to Lir 15,000 a year for all other taxable persons.	--	Simplified account books made available to certain traders.
Italy	--	--	Where annual turnover is Lit 2 million or less, Lit 20,000 is payable on filing of annual return. For retailers with sales up to Lit 6 million a year, simplified system of accounts applies. Taxpayers with sales of less than Lit 480 million a year may file return on quarterly, rather than monthly basis.
Luxembourg	No tax is payable where turnover does not exceed Lux F 5,000	Measure of tax relief is given for turnovers between Lux F 100,000 Lux F 5,000 but does not exceed Lux F 15,000.	--
Netherlands	No tax is charged if the liability for the year does not exceed f. 2,050.	Relief is given where tax for the year is between f. 2,050 and f. 4,150	
United Kingdom	No liability where annual sales do not exceed L 15,000.	--	--

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B. Special provision in Latin American countries

A 5.2.2 Latin American countries that impose a VAT use a variety of systems for dealing with small enterprises. A number of them, including Bolivia, Costa Rica, Honduras, and Nicaragua, attempt to solve the problem by establishing a fairly high exemption level for VAT, based on annual turnover, which in practice eliminates small enterprises from the scope of the tax. Schemes applied in a few other Latin American countries are described below.

(i) Argentina

A 5.2.3 VAT legislation empowers the Executive to establish an annual turnover figure below which enterprises are not required to register for VAT. Enterprises whose turnover is below this limit are not required to register, file returns nor make monthly payments. They bear a tax similar to the "equalization" tax applied in Belgium, which is collected through their suppliers. Thus, when a registered VAT taxpayer sells goods to an unregistered trader, he must apply the regular VAT to the sale price and, in addition, a separate amount which represents the tax that the unregistered trader should pay on his sales. The VAT regulations determine the percentage which suppliers must add to the sale price when they sell to unregistered traders.

(ii) Brazil

A 5.2.4 VAT is levied at the state level. There are therefore as many special treatments for small enterprises as there are states in the Brazilian Federation. In some states taxpayers are not required to keep books and records, but in most states taxpayers must at least keep a register of purchases. In a number of states small taxpayers must only file a VAT return once a year, containing a summary of the year's purchases and sales.

A 5.2.5 The state of Sao Paulo has developed one of the more sophisticated systems for dealing with small taxpayers. The basic elements of this system are the following:

- (a) The administration is empowered to determine which classes or groups of traders shall be treated as special taxpayers. The law does not establish a rigid ceiling for this purpose;
- (b) Special taxpayers must file a yearly information return containing total purchases, sales, and input taxes paid;
- (c) The return mentioned in (b) is used for determining the estimated VAT payable by the special taxpayer the following year;
- (d) The administration calculates, every two or three years, the value added ratios by types of economic activity. This calculation is based on the relationship between input credits and taxes on gross output for both general and special taxpayers. These ratios are applied, in the case of special taxpayers, to the information they submit in their yearly return, in order to calculate their estimated VAT payment for the following year;

- (e) The taxpayer receives 12 payment vouchers preprinted by computer (one for each month of the year), and pays the estimated tax shown on these vouchers;
- (f) If the tax resulting from the subsequent yearly return is higher than the estimated tax paid the previous year, the taxpayer must pay the difference. If it is lower, he can apply for a refund; and
- (g) No credit is given to special taxpayers for input tax paid.

(iii) Chile

A 5.2.6 The tax administration is empowered to determine which VAT taxpayers will be treated as special taxpayers. The law establishes, however, that in order to qualify as a special taxpayer an enterprise must: (a) be an individual proprietorship; and (b) deal only with final consumers.

A 5.2.7 When this system was introduced (1977), special taxpayers were required to submit a return including information about their sales for the past 12 months and other data deemed necessary by the administration. Taxpayers were then classified in one of five groups, according to their monthly sales average. For each of the five classifications, a fixed monthly payment was established. This monthly payment is equivalent to 20 percent (the Chilean VAT rate) of the highest amount in the respective bracket. Thus, for example, if a taxpayer's monthly average sales are equivalent to 100, he is classified in the sales bracket ranging from 0 - 200 and his fixed monthly payment is fixed at 40 (20 percent of 200).

A 5.2.8 Taxpayers are entitled to credit the tax paid on their inputs against the fixed monthly installment. If the credit exceeds the amount payable, taxpayers are not allowed to claim a refund.

ANNEX VI - A MODEL FOR TAX POLICY ANALYSIS

A 6.1 The model presented here is designed to assess revenue effects and welfare costs of changes in the tax structure. A particular effort is made to capture interactions between different taxes; an example of such an interaction is the impact of a cut in agricultural export taxes on VAT revenues through the higher domestic prices for agricultural goods such a tax cut would cause.

A 6.2 The model has been kept as simple as we thought possible without losing the essentials of the problems under consideration. 1/ There are five traded goods sectors (indexed IT):

- (i) food crops, forestry and fishing;
- (ii) intermediate goods;
- (iii) food;
- (iv) consumer goods;
- (v) capital goods;

and one non-traded sector (indexed IN):

- (vi) services.

An index IT refers to the traded sectors 1-5; IN to the non-traded sector 6; and an index I to all 6 sectors.

A 6.3 In each sector, goods produced in Turkey are imperfect substitutes for goods produced in the same sector abroad. We assume the same substitution elasticity for all expenditure categories, although this elasticity is not necessarily the same in each sector.

Production, Wages and Prices

A 6.4 Output in each sector is characterized by fixed coefficients between gross output in sector I and intermediate inputs from sector J: that coefficient equals $IO(I, J)$. Labor and capital are however (imperfectly) substitutable with substitution elasticity one:

$$XD(I) = AD(I) \cdot L(I)^{\text{ALPHA}(I)} K(I)^{1 - \text{ALPHA}(I)} \quad (1)$$

1/ This Annex draws on van Wijnbergen (1986).

Labor demand is derived from the requirement that the marginal value added per worker equals the real product wage:

$$\text{ALPHA}(I) \cdot (\text{XD}(I)/L(I)) = W(I)/\text{PVA}(I) \quad (2)$$

$W(I)$ is the wage in terms of the numeraire commodity, foreign consumer goods; $\text{PVA}(I)$ is value added in sector I .

A 6.5 The assumption about substitutability between foreign and domestic goods from the same sector is modeled by assuming consumers and intermediate users in fact consume a composite commodity, $X(I)$, made up of foreign and domestic goods in sector IT (clearly there is no home consumption of foreign non-traded goods, hence the index IT rather than I):

$$\begin{aligned} X(IT) = & \text{AC}(IT) \cdot (\text{DELTA}(IT) \cdot M(IT)^{-\text{RHO}(IT)} \\ & + (1-\text{DELTA}(IT)) \cdot \text{XXD}(IT)^{-\text{RHO}(IT)})^{-1/\text{RHO}(IT)} \end{aligned} \quad (3)$$

where $\text{XXD}(IT)$ is the part of home output actually sold at home rather than exported:

$$\text{XXD}(IT) = \text{XD}(IT) - E(IT) \quad (4a)$$

with obvious definition of $E(IT)$. Clearly, for sector 6, the services sector, 4 b holds:

$$\text{XXD}(6) = \text{XD}(6) \quad (4b)$$

Use of imports versus home goods from each sector is determined by their relative price:

$$M(IT)/\text{XXD}(IT) = \left(\frac{\text{DELTA}(IT) \cdot \text{PD}(IT)}{(1-\text{DELTA}(IT)) \cdot \text{PM}(IT)} \right)^{1/(1 + \text{RHO}(IT))} \quad (5)$$

$\text{PD}(IT)$ is the home price of home goods and $\text{PM}(IT)$ the home price of imports in sector IT . Home prices of exports and imports equal the corresponding world prices corrected for export taxes/subsidies and import tariffs:

$$\text{PE}(IT) \cdot (1 + \text{TE}(IT)) = \text{PWE}(IT) \quad (6a)$$

and

$$\text{PM}(IT) = (1 + \text{TM}(IT)) \cdot \text{PWM}(IT) \quad (6b)$$

$\text{PWM}(IT)$ and $\text{PWE}(IT)$ are world prices, $\text{TE}(IT)$ is the export tax rate in sector IT (a negative $\text{TE}(IT)$ is a subsidy) and $\text{TM}(IT)$ the tariff rate.

A 6.6 Firms allocate output over home sales and exports until prices are equalized (i.e. they do not have or do not exert monopoly power in either market):

$$PD(IT) = PE(IT) \quad (7)$$

This means that the average price of home output, $PX(I)$, also equals $PD(IT)$. Clearly,

$$PX(I) = PVA(I) + \text{SUM}(J, IO(J, I) \cdot P(J)) \quad (8)$$

with $IO(J, I)$ the relevant entry in the input-output matrix, and $P(J)$ the price of the composite good $X(J)$. $P(J)$ is defined as:

$$P(J) = PD(J) \cdot XXD(J)/X(J) + PM(J) \cdot M(J)/X(J) \quad (9)$$

Finally, consumer prices for the composite goods $X(I)$ equal:

$$PC(I) = P(I) \cdot (1 + CTAX(I)) \quad (10)$$

with $CTAX(I)$ the effective VAT rate in Sector I. Import tariffs are already incorporated in $P(I)$.

A 6.7 In the labor market we assume strict separation between rural and urban areas. Sector 1 uses only agricultural labor, and sectors 2-6 use only rural labor. Hence there are only two different wage rates:

$$WA = W(1), WU = W(2) = \dots = W(6)$$

and labor market clearing requires:

$$LA = L(1), LU = L(2) + \dots + L(6) \quad (11)$$

LA and LU represent labor supply in rural and urban areas respectively, both assumed exogenous and fixed.

Aggregate Demand

A 6.8 Intermediate demand for good J is related to output through the I/O matrix:

$$INT(J) = \text{SUM}(J, IO(J, I) \cdot XD(I)) \quad (12)$$

Investment demand for good J , $ID(J)$ is exogenous, the model is static, so there is no adequate way of endogenizing investment. An intertemporal version of this model, which would enable evaluation of savings and investment incentives, is under preparation.

A 6.9 Consumer demand is more complicated. We assume three groups in society: rural, urban poor and urban rich. Each group allocates total consumption expenditure over the different consumer goods according to a LES demand system. Only the sectors agriculture, food, consumer goods and services sell to consumers. We use index R rural and UP and UR for urban poor and rich respectively: the class index IH thus equals R , UP or UR .

A 6.10 Consumer demand for each composite good by each income class thus equals:

$$CD(I, IH) = GAM(I, IH) + \frac{CLES(I, IH)}{PC(I)} \cdot (CTOT(IH) - \text{SUM}(J, PC(J) \cdot GAM(J, IH)) \quad (13)$$

for $I = 1, 3, 4$ and 6
 $IH = R, UP, UR.$

$GAM(I, IH)$ and $CLES(I, IH)$ are minimum consumption levels and marginal income propensities for good I and income class IH . Total consumption of good I equals:

$$CDT(I) = CD(I, R) + CD(I, UP) + CD(I, UR) \quad (14)$$

Total consumption (of all goods) by income class IH is related to the disposable income of that class, $YD(IH)$:

$$CTOT(IH) = (1 - MPS(IH) \cdot MPS) YD(IH) \quad (15)$$

The $MPS(IH)$ are exogenous, so the relative savings propensity of one class compared with any other does not change across experiments; MPS is endogenous, so the aggregate savings propensity may change.

A 6.11 Private consumption (and hence MPS) is considered the residual in this model; since it is static, no satisfactory way of modelling savings behavior can be implemented. The current account is exogenous in terms of world prices, the physical quantities of investment and government expenditure are fixed, as are all relevant tax parameters; Private savings (MPS) adjusts to achieve equilibrium.

A 6.12 Disposable income in the rural sector equals:

$$YD(R) = REMR + (1 - ITAXA) \cdot PVA(1) \cdot XD(1) \quad (16)$$

$REMR$ are remittances flowing to the rural sector; $ITAXA$ is the effective average income tax rate for agricultural households.

A 6.13 Disposable income expressions for urban classes are more complex, because of the expenditure rebate system and because each group (rich and poor) in fact receive both labor and capital income. Consider them in turn:

$$YD(UP) = REMUP + SLIP \cdot WRBATE + (1 - ITAXW) \cdot SLUP \cdot (\text{SUM}(I = 2-6, ALPHA(I) \cdot PVA(I) \cdot XD(I)) + (1 - ITAXC) \cdot SCUP \cdot (\text{SUM}(I = 2-6, (1 - ALPHA(I)) \cdot (PVA(I) \cdot XD(I)) \quad (17)$$

$SLUP$ is the share of urban labor income going to the urban poor; $SCUP$ is the share of urban capital income going to the urban poor. $REMUP$ is remittance income of the urban poor. $ITAXW$ and $ITAXC$ are the effective average income

tax rates on labor and capital income. ITAXC reflects both the personal and the corporate income tax. SLUP . WRBATE is the share of the expenditure rebate going to the urban poor. Since that was available to wage earners only in 1985 (the base year), it is proportional to SLUP.

A 6.14 Disposable income for the urban rich is defined similarly:

$$\begin{aligned}
 YD(UR) = & REMUR + (1-SLUP) . WRBATE + (1-SLUP) . (1-ITAXW) . \\
 & (SUM (I = 2-6, ALPHA(I) . PVA(I) . XD(I)) \\
 & + (1-ITAXC) . (SUM(I = 2-6, (1-ALPHA(I)) . \\
 & PVA(I) . XD(I)) - FDEBTSUR
 \end{aligned}
 \tag{18}$$

(18) defines urban rich disposable income as the sum of their remittance income (assumed zero), their after tax labor and capital income and minus servicing of private foreign debt, FDEBTSUR. The latter is exogenous.

A 6.15 We can now define SWUP and SWUR as the share of labor income in total disposable income for both urban classes.

$$\begin{aligned}
 SWUP = & [SLUP . (1 - ITAXW) . (SUM (I = 2-6, ALPHA(I) . \\
 & PVA(I) . XD(I))) + SLUP . WRBATE] / YD(UP)
 \end{aligned}
 \tag{19}$$

SWUR is similarly defined. These variables are needed in the definition of WRBATE. Total private savings equal:

$$HNSAV = MPS . (MPSR . YD(R) + MPDUR . YD(UR) + MPSUP . YD(UP)) \tag{20}$$

A 6.16 Consider now the government sector. It has revenues from tariffs, export taxes (minus export subsidies), VAT and income taxes; it pays out on expenditure on goods and services, debt service on public foreign debt, and on expenditure rebates. Consider these items in turn. First tariff revenues:

$$TARIFF = SUM(IT, TM(IT) . PWM(IT) . M(IT)) \tag{21}$$

Revenues from export duties equals:

$$DUTY = SUM(IT, TE(IT) . PWE(IT) . E(IT)) \tag{22}$$

VAT revenues 1/ equal:

$$CONTAX = SUM(I, CTAX(I) . P(I) . CDT(I)) \tag{23}$$

1/ Equation(23) models VAT as a pure consumption tax. In practice not all VAT payments on goods used for investment are rebated (see Chapter V). This introduces an investment tax element in the VAT. The investment tax element has been integrated in ITAXC rather than in the VAT.

Income taxes from rural income, urban wage and urban capital income equals:

$$\begin{aligned} \text{INCTAX} &= \text{ITAXA} \cdot \text{PVA}(1) \cdot \text{XD}(1) \\ &+ \text{ITAXW} \cdot (\text{SUM}(I = 2-6, \text{ALPHA}(I) \cdot \text{PVA}(I) \cdot \text{XD}(I))) \\ &+ \text{ITAXC} \cdot (\text{SUM}(I = 2-6, (1-\text{ALPHA}(I)) \cdot \text{PVA}(I) \cdot \text{XD}(I))) \end{aligned} \quad (24)$$

A 6.17 Finally, expenditure on the expenditure rebate equals:

$$\begin{aligned} \text{WRBATE} &= \text{SUM}(I, \text{WRB}(I) \cdot \text{PC}(I) \cdot \\ &(\text{SWUP} \cdot \text{CD}(I, \text{UP}) + \text{SWUR} \cdot \text{CD}(I, \text{UR}))) \end{aligned} \quad (25)$$

Government revenue net of transfers, GR, equals:

$$\text{GR} = \text{TARIFF} + \text{DUTY} + \text{CONTAX} + \text{INCTAX} - \text{WRBATE} - \text{FDEBTSG} \quad (26)$$

with FDEBTSG service of public sector foreign debt.

A 6.18 Public sector savings are defined as revenue net of transfers minus the value of expenditure:

$$\text{GSAV} = \text{GR} - \text{SUM}(I, \text{P}(I) \cdot \text{GD}(I)) \quad (27)$$

The expenditure components GD(I) are exogenous.

A 6.19 The model is closed by requiring equality between aggregate investment and savings from all sources, and by commodity market clearing equations:

$$\text{SUM}(I, \text{P}(I) \cdot \text{ID}(I)) = \text{HNSAV} + \text{GSAV} + \text{FSAV} \quad (28)$$

FSAV is the exogenously imposed current account deficit. This equation in effect determines MPS. Commodity market clearing requires:

$$\text{X}(I) = \text{INT}(I) + \text{CD}(I) + \text{GD}(I) + \text{ID}(I) \quad (29)$$

A 6.20 Finally, the welfare indicator used in the tax reform experiments equals total private consumption:

$$\text{WELF} = \text{CTOT}(R) + \text{CTOT}(UP) + \text{CTOT}(UR) \quad (30)$$

A 6.21 The model solutions of the base run and of the various tax reform experiments have been obtained using GAMS, a modelling language developed by A. Drud and A. Meeraus of the Development Research Department in the World Bank.

References

S. van Wijnbergen (1987), "Tax Reform in Turkey: A General Equilibrium Analysis", mimeo, World Bank.

ANNEX VII - SOURCES AND USES OF INDIVIDUAL EXTRA BUDGETARY FUNDS

DIF	-	Defense Industry Support Fund
DSF	-	Development and Support Fund
EECF	-	EEC Fund
EEF	-	Export Encouragement Fund
EIF	-	Export Improvement Fund
FF	-	Financing Fund
IRDF	-	Interest Rate Difference Rebate Fund
IGMEF	-	Investment Goods Manufacturing Encouragement Fund
MASF	-	Mutual Assistance and Support Fund ("Poor People's Fund")
MHF	-	Mass Housing Fund
PCF	-	Petroleum Consumption Fund
PEF	-	Petroleum Exploration Fund
PPF	-	Public Participation Fund
PPSF	-	Petroleum Price Stabilization Fund
RUSF	-	Resource Utilization Support Fund
SCF	-	Selective Credit Fund
SPSF	-	Support and Price Stabilization Fund
TAF	-	Tax Administration Development Fund

ANNEX VII - SOURCES AND USES OF INDIVIDUAL EXTRA BUDGETARY FUNDS

A. Defense Industry Support Fund (DIF)

A 7.1 The DIF was created in November 1985 and became operative from January 1, 1986. 1/ The purpose of this fund is to develop the defense industry and to modernize the Turkish armed forces. The following revenue sources are specified for the Fund: 2/

Non-Tax Revenues

- (i) An allocation to be made each year in the budget for this purpose;
- (ii) Proceeds from the National Lottery;
- (iii) Part of (the percentage to be determined by the Council of Ministers) the net proceeds of all types of parimutuels;
- (iv) 15 percent of the gross revenues of casinos and gambling houses (another 15 percent of the revenues going to the Mass Housing Fund);
- (v) Transfers from other funds established by law and from foundations related to Turkish armed forces;
- (vi) Contribution from the budget of the Ministry of National Defense;
- (vii) Payments made towards exoneration of military service; and
- (viii) Other non-tax revenue such as donations and income from the assets of the Fund.

Tax Revenues

- (i) An additional levy of TL 10 to TL 150 on sales of domestic and imported tobacco, cigarettes, wines and spirits;
- (ii) An additional 3 percent tax on petroleum consumption; and
- (iii) An additional 2.5 percent tax on corporate income and on all types of personal income except for wage income. (The Council of Ministers is authorized to raise this rate to 7.5 percent or to determine different rates for each of the revenue sources subject to withholding.)

1/ Law No. 3238 of 11.7.1985, O.G. No. 18927 of 11.13.1985 as integrated later by Decrees No. 85/10037, O.G. No. 18928 of 11.14.1985 and No. 85/10182, O.G. No. 18970 of 12.26.1985.

2/ Article 12 of Law No. 3238 and Decree No. 85/10037.

A 7.2 The DIF is one of the principal Funds in terms of size. The following table provides a breakdown of expected revenues and expenditures of the Fund in 1986:

Table A 7.1: SOURCES AND USES OF DIF, 1986 (Projections)
(TL billion)

Sources		Uses	
Total tax revenues	160.9 (82%)	- Current (personnel) expenditure	1.0
- Levies on tobacco (*) wines and spirits	46.5	- Fixed investment	96.8
- Additional tax on petroleum consumption	75.2	- Capital transfers	67.7
- Additional tax on corporate and personal income	39.2	Appropriations	(29.0)
		Other transfers	(38.7)
		- Cash and deposit	29.0
		TOTAL	194.6
Non-tax revenues	33.7 (18%)		
- Revenue from the State Lottery	7.5		
- Revenue from casinos and gambling houses	5.0		
- Military service exoneration fee	18.2		
- Other	3.0		
TOTAL	194.6		

(*) This item is classified as non-tax revenue by the SPO.

Source: SPO.

B. Development and Support Fund (DSF)

A 7.3 The DSF was established at the end of 1984. 1/ The Fund has multiple functions, primarily social. These are as follows:

- (i) to support agriculture and livestock projects;
- (ii) to construct, purchase and lease school dormitories;
- (iii) to provide food aid (in schools);
- (iv) to provide financial assistance to municipalities for land acquisition and infrastructure for mass housing;

1/ Decree No. 84/8800 of 11.27.1984, O.G. No. 18598 of 12.7.1984.

- (v) to support artisans; and
- (vi) to provide subsidized credit for the tourism sector.

A 7.4 The Fund receives a share (40 percent) of the revenues from levies on luxury imports; the remaining share accrues to the MHF. The DSF also receives large transfers from other funds. In 1985 the contributing funds were the EECF and the MHF. Table A 7.2 indicates the breakdown of revenues and expenditures of the Fund in 1985 and 1986 (projections). As may be noticed from the Table, the size of the Fund is projected to almost double over one year.

Table A 7.2: SOURCES AND USES OF THE DSF, 1985-86
(TL billion)

Sources		Uses	
	<u>1985</u>		
- 40 percent of levies on luxury goods imports	33.7	- Price support of animal feed-stock	17.5
- Transfers from other funds	28.5	- Construction of dormitories	16.8
Transfers from EECF	20.0	- Credit to municipalities for land acquisition	7.3
Transfers from MHF	<u>8.5</u>	- Student food program	3.5
TOTAL	62.2	- Aid to organized industrial areas	6.5
		- Other payments	2.6
		- Balance carried forward	<u>8.0</u>
		TOTAL	62.2
	<u>1986</u>		
- 50 percent of levies on luxury imports	54.0	- Price support for animal feed-stock	56.9
- Transfer from other funds	42.0	- Construction of dormitories	8.3
Transfers from MHF	10.0	- Credit to municipalities for land acquisition	26.5
Transfers from others	32.0	- Balance	<u>21.4</u>
- Domestic borrowing	9.1		
- Balance from 1985	<u>8.0</u>		
TOTAL	113.1	TOTAL	113.1

Source: SPO and TFTU.

C. EEC Fund (EECF)

A 7.5 The EEC Fund, or more precisely the Fund receiving tax revenues from imports originating in the EEC, was established in December 1982. 1/ The Fund was apparently introduced as a retaliatory measure against EEC restrictions on Turkish textile exports. Its revenues accrue from a 5 percent tax on (the cif value of) Turkey's imports of some chemicals and iron and steel products from EEC countries. 2/ Initially the tax rate was as high as 15 percent of the value of the above products and only in 1984 was the rate reduced to 5 percent. 3/ This tax was abolished in July 1986.

A 7.6 The EECF does not undertake an autonomous expenditure program. Its revenues are partly transferred to the Development and Support Fund, and the balance is maintained at the Central Bank. Table A 7.3 shows the revenues and expenditures of the EECF since its establishment in 1982.

Table A 7.3: REVENUES AND EXPENDITURES OF THE EEC FUND, 1982-85
(TL billion)

	Revenue	Expenditures
1982	0.9	-
1983	3.9	-
1984	4.1	0.8
1985	13.0	13.0 <u>a/</u>

a/ Provisional. The DSF accounts indicate TL 20 billion as receipt from EECF.

Source: SPO and the Central Bank.

D. Export Encouragement Fund (EEF)

A 7.7 The EEF was created in 1980 but has become more important since 1984. 4/ Although the law establishing the Fund states that the objective of the Fund is to promote exports, its support to exports is now mainly indirect, through its transfers to other funds, in particular to the Resource Utilization Support Fund. 5/ Directly, however, the Fund taxes exports. It also taxes imports and provides a subsidy on the purchase of domestic capital goods.

A 7.8 The Fund imposes a tax at the rate of 2 percent on the (f.o.b.) value of agricultural exports. In 1985, almost 25 percent of the Fund's revenues were from this source. In addition, a firm with an "investment incentive

1/ Money and Credit Board Circular No. 63, O.G. No. 17896 of 12.12.1982.

2/ For the specification of the products (according to the Brussels Nomenclature) see the O.G. No. 17896.

3/ Decree No. 97 of 5.1.1984.

4/ O.G. No. 16880 of January 25, 1980; Article 3 of Appendix to Decree No. 8/3891, O.G. No. 17530 of November 30, 1981 and O.G. No. 18553 of October 22, 1984, O.G. No. 18910 of October 20, 1985; and O.G. No. 18949 of December 5, 1985.

5/ In November 1986 the provision of export subsidies from the RUSF was also discontinued.

certificate" from the SPO is also subject to two types of contribution towards the EEF. First, the firm must deposit 0.1 percent of the value of the project with the Central Bank as a contribution toward the Fund, which is refunded at the time of project completion. Second, all imports to the project are taxed, at the rate of 10 percent on raw materials and 5 percent (2 percent until end-1985) on machinery and equipment. These import taxes (together with some less important items) amounted to over 50 percent of the Fund's revenues in 1985.

A 7.9 On the expenditure side, a small part of the Fund's budget is spent on subsidizing investment projects. This subsidy is equal to 15 percent (6 percent before 1986) of the value of domestic machinery and equipment purchases of the project. 1/ The bulk of its outflows are now transfers to other funds; specifically, the DSF and RUSF in 1985. Table A 7.4 indicates the annual revenues and expenditures of the Fund since it was established.

Table A 7.4: REVENUES AND EXPENDITURES OF THE EEF, 1980-85
(TL billion)

	Revenues	Expenditures
1980	0.3	0.2
1981	1.5	0.6
1982	3.6	2.8
1983	7.5	11.7
1984	10.4	0.2
1985 *	22.9	21.2

* Provisional.

Source: SPO.

Table A 7.5 provides a more detailed breakdown of the sources and uses of the EEF in 1985.

1/ This subsidy was raised to 20 percent on October 14, 1986.

Table A 7.5: SOURCES AND USES OF THE EEF, 1985
(TL million)

Sources		Uses	
- Tax on imports, credit and interest repayment	11,978	- Transfer to DSF	9,000
- Tax on exports	5,389	- Transfer to RUSF	12,000
- Payments for extension of import permit period	4,869	- Investment Incentive	187
- Investment application deposit (0.1% of the investment project value)	5	- Balance carried forward	<u>1,731</u>
- Penalties related to foreign exchange transactions	556		
Other	<u>121</u>		
		TOTAL	22,918
TOTAL	22,918		

Source: SPO.

E. Export Improvement Fund (EIF)

A 7.10 The EIF was established in 1960 with the objective of promoting Turkish exports through dissemination of information, marketing and advertising. ^{1/}

A 7.11 The Fund's budget is relatively small (TL 584 million in 1985) and is mainly financed by industrialists and exporters (exporters union, union of commerce and industry). The Export Promotion Centre or IGEME (Ihracati Gelistirme Etud Merkezi), by selling some of its services (such as its publications) also contributes to the budget of the Fund.

A 7.12 The EIF's expenses are entirely on advertisement and marketing activities carried out by IGEME for exporters. The Table A 7.6 shows the revenues and expenditures of the Fund between 1975 and 1985.

Table A 7.6: REVENUES AND EXPENDITURES OF THE EIF, 1975-85
(TL million)

Year	Total Revenues	Total Expenditure
1975	6.8	4.4
1978	15.8	12.7
1980	40.2	37.0
1981	82.2	61.6
1982	104.9	96.9
1983	125.0	106.6
1984	282.3	224.6
1985	583.8	459.0

Source: SPO.

^{1/} (Law No. 118 on exports, O.G. No. 10644 of 2.11.1960)

F. Financing Fund (FF)

A 7.13 The FF was established in 1980 with the objective of providing support to private sector investment. 1/ The FF is used to increase the funds available to firms for investment purposes by enabling them to postpone part of their corporate tax liability. An enterprise with an investment incentive certificate is entitled to reduce its tax liability by setting aside upto 25 percent of taxable income or the value of the investment project (whichever is smaller) in the FF. The amount must be deposited with the Central Bank where it earns interest at the rate paid on government bonds and may be withdrawn by firms to meet their investment expenditure. Such funds are added to taxable income in the following year.

A 7.14 Table A 7.7 shows the revenues and expenditures of the Fund since its foundation in 1980. The Fund's expenditures represent withdrawals by firms for financing their investment projects.

Table A 7.7: REVENUES AND EXPENDITURES OF THE FINANCING FUND, 1981-85
(TL million)

Year	Revenue	Expenditure
1981	16	16
1982	8630	8630
1983	7673	7673
1984	14407	14407
1985	22409	20160

Source: SPO

G. Investment Goods Manufacturing Encouragement Fund (IGMEF)

A 7.15 The IGMEF was set up in October 1985 at the Central Bank. 2/ Until the beginning of July 1986, the Fund had not yet started functioning. The Fund is to provide medium or long-term domestic or foreign credit to investment goods manufacturing firms or to client-importers of these firms abroad. These firms may also receive credit from the rediscount facility of the Central Bank. In addition, the firms would be entitled to a foreign exchange allocation (for their import requirements) upto 25 percent of their production cost of investment goods. Other privileges granted to these firms are exemptions from customs duties and "Fund" levies on their imports.

A 7.16 The sources of revenue decreed to the Fund are foreign credits and transfers from other extra-budgetary funds. Projections of revenues and expenditures are not yet available.

1/ Corporate Tax Law No. 2362, O.G. of 12.27.1980.

2/ Decree No. 58/9967 of O.G. No. 18910 dated October 26, 1985.

H. Mutual Assistance and Support Fund (MASF)

A 7.17 The MASF, more popularly known as the "Poor People's Fund", was established on June 5, 1986, and will be administered by the Office of the Prime Minister. 1/ The purpose of the Fund is to improve income distribution by providing financial assistance to those persons who do not receive social security benefits.

A 7.18 The sources of revenue for this Fund are:

- (i) appropriations from the budget;
- (ii) a supplemental 1 percent of corporate or income tax liabilities from those who file annual tax declarations;
- (iii) half of the revenues from traffic fines;
- (iv) 5 percent of the revenues from sales of forestry assets;
- (v) 30 percent of the advertisement revenues from TRT;
- (vi) a fee of TL 1 per kg. on the sales of all types of petroleum products; 2/
- (vii) all types of donation and aid;
- (viii) upto 10 percent of transfers from other extra-budgetary funds; and
- (ix) other revenues.

A 7.19 As yet details are not available of the specific uses of the Fund. However, Mutual Assistance and Support Encouragement Foundations are to be established in every province for the purpose of distributing, in cash or kind, the proceeds of the Fund to needy citizens. These Foundations will receive contributions from the MASF as well as a transfer of 2 percent of the budgets of local administrations (excluding villages), alms and donations and other revenues.

I. Mass Housing Fund (MHF)

A 7.20 The MHF was established early in 1984 and, together with the PPF and DSF, is administered by the Mass Housing and Public Partnership Board. 3/ Its basic objective is to accelerate housing construction by providing concessional credit to individuals, cooperatives and contractors. Such credits amounted to over 83 percent of the Fund's budget in 1985. The MHF also finances the construction of tourism infrastructure and other public facilities.

1/ Law No. 3294 published in O.G. No. 19134.

2/ The Council of Ministers is authorized to raise this amount upto five-fold.

3/ Law. No. 2985 of 3.2.1984, Decree No. 84/8058 of May 2, 1984; Decree No. 8212 of June 16, 1984 and Decree No. 85/9674 of July 10, 1985.

A 7.21 The MHF's revenues are almost entirely from the following indirect taxes:

- (i) share of tax receipts from supplementary VAT on tobacco, alcoholic and non-alcoholic beverages (previously it was a share of the production tax on the same items);
- (ii) tax on petroleum products at the rate of 10 percent on the ex-refinery price of gasoline (raised from 5 percent in July 1985) and 5 percent on the ex-refinery price of diesel oil, kerosene and fuel oil (3 percent prior to July 1985). These are collected by the Petroleum Price Stabilization Fund and subsequently transferred to the MHF;
- (iii) 50 percent of the revenues from levies on luxury goods imports (60 percent prior to 1986); and
- (iv) \$100 tax on individuals travelling abroad.

A 7.22 Table A 7.8 shows the sources and uses of the Fund in 1985 and 1986 (projections).

Table A 7.8: SOURCES AND USES OF THE MHF, 1985-86
(TL billion)

Sources		Uses	
	<u>1985</u>		
- Share of supplementary VAT on tobacco, alcoholic & non-alcoholic beverages	66.1	- Housing credit to cooperatives	178.7 (123.1)
		- Housing credit to individuals	(55.1)
- Petroleum product taxes (transferred from PPSF)	65.4	- Transfers to DSF	8.5
		- Other expenditures	1.4
- 60 percent of levies on luxury goods imports	42.3	- Balance carried forward	<u>24.7</u>
- Tax on travel	13.9	TOTAL	212.4
- Premium payment from imports without waiver	5.0		
- Others	2.2		
- Balance from 1984	<u>17.5</u>		
TOTAL	212.4		
	<u>1986</u>		
- Share of supplementary VAT on tobacco, alcoholic non-alcoholic beverages	88.0	- Housing credit to cooperatives	284.0 (231.7)
		- Housing credit to individuals	(52.3)
- Petroleum product taxes (from PPSF)	111.0	- Transfers to DSF	10.0
- 50 percent of levies on luxury good imports	32.0	- Tourism infrastructure	5.6
- Tax on travel	18.0	- Land acquisition	11.0
- Premium payment from imports without waiver	21.8	- Others	1.4
- Others	20.2	- Balance carried forward	<u>3.7</u>
- Balance from 1984	<u>24.7</u>	TOTAL	315.7
TOTAL	315.7		

Source: SPO.

J. Petroleum Consumption Fund (PCF)

A 7.23 The PCF was established in 1984 with the aim of encouraging investment activities of local governments and some public agencies. 1/

A 7.24 The revenues of the Fund are entirely from taxes on sales of petroleum products. The tax rate in 1985 was 6 percent of the ex-refinery value of various petroleum products (gas, kerosene, engine and fuel oil). The tax revenue collected was divided between the PCF (55 percent of the total) and the Treasury (45 percent of the total). Since the beginning of 1986 the tax rate has been increased to 9 percent and the distribution of the total tax revenues is as follows: 48.25 percent to the PCF; 29.75 percent to Treasury; and the remaining 22 percent to the Public Participation Fund.

A 7.25 Total revenues of the PCF were TL 52 billion in 1985 and are projected to increase to TL 108.8 billion in 1986. The Fund's revenues are then distributed according to a predetermined formula as indicated in Table A 7.9 below.

Table A 7.9: DISTRIBUTION OF REVENUES OF THE PCF, 1985-86
(percent)

Recipient	Share in Total Revenues of PCF	
	<u>1985</u> (%)	<u>1986</u> (%)
Municipalities	30	12.44
Municipalities Fund		10.36
Highways Directorate	30	45.60
Rural Affairs Directorate	30	22.80
Physical Training Directorate	8	7.25
Sport Promotion Fund	2	1.55
TOTAL	<u>100</u>	<u>100.00</u>

Source: SPO.

1/ Law No. 8074 of 7.11.1984, O.G. No. 18581 of 20.11.1984 as modified by Law No. 3239 of 4.12.1985, O.G. No. 18955 of 11.12.1985.

A 7.26 The recipients are legally obliged to spend the amount received exclusively for investment purposes. The following table shows the break-down of expenditure by the recipients in 1985 and 1986 (projections):

Table A 7.10: USES OF THE PCF BY TYPE OF ACTIVITY, 1985-86
(TL billion)

Type of Activity	1985	1986*
Investment	35.0	104.8
- By highway administration	12.6	49.6
- By rural administrations	9.5	24.8
- By municipalities	10.9	20.7
- For sport activities	1.9	9.6
Capital transfers	4.7	4.0
- By municipalities	4.7	4.0
Balance carried over	12.4	-
TOTAL	52.0	108.8

(*) Projections.

Source: SPO.

K. Petroleum Exploration Fund (PEF)

A 7.27 The PEF, or more precisely the Fund for Regulating the Exploration of Petroleum and Related Activities, was established in 1973 after the first oil price shock in order "to prevent the adverse effects of developments in the international oil market on the balance of payments and to finance activities related to exploration, development and utilization of the country's petroleum resources". 1/

A 7.28 The Fund's revenues originate exclusively from levies on domestically produced petroleum products. The levies in principle correspond to the difference between the international price of petroleum products and the domestic cost of production and are collected at the production, refining and distribution stages according to predetermined formulae, depending on when the wells were exploited. For wells exploited after January 1, 1980, there are no levies at the production and refining stages; at the distribution stage the levy is equal to the difference between the current warehouse entry price and the current ex-refinery price.

1/ Last amended by Decree No. 20 of 11.3.1983, O.G. No. 18241 of 12.4.1983.

A 7.29 Only a small part of the Fund's expenses are towards the development and exploitation of new petroleum resources. The Fund is apparently mainly used now to provide transfers to the Support and Price Stabilization Fund. The following table shows the income and expenditure of the PEF since 1981.

Table A 7.11: REVENUES AND EXPENDITURES OF THE PEF, 1981-86
(TL billion)

Year	Revenue	Expenditure	
		Total	Of which Transfer to SPSF
1981	42.5	42.7	41.1
1982	50.7	50.4	51.8
1983	58.0	59.2	59.2
1984	61.6	42.4	42.4
1985	75.3	55.8	55.8
1986*	90.0	60.0	60.0

* Projection.

Source: SPO.

L. Public Participation Fund (PPF)

A 7.30 The PPF was created in 1984 ^{1/} and together with the MHF is administered by Mass Housing and Public Partnership Board. The purpose of the PPF is to promote private savings through the issuance of revenue-sharing certificates ^{2/} and other means and to use these resources to accelerate the completion of priority public infrastructural investments. The Fund also collects revenues from the infrastructure facilities it has financed and beginning in 1986, from a share of the petroleum consumption tax. The proceeds from all these sources are used to meet operating and maintenance expenses of the facilities as well as investment in new facilities. By law, not less than 10 percent of the Fund's resources are to be used for investments in regions with development priority.

A 7.31 Table A 7.12 shows the sources and use of the PPF in 1985 and the projections for 1986. As may be seen from the Table, the Fund's budget is projected to increase by 85 percent over one year.

^{1/} Law No. 2983 of February 29, O.G. No. 18344 of 3.17.84.

^{2/} The revenues to the holder of the certificates are totally exempt from income taxation for the first five years, and 50 percent tax exempt for the following three years.

Table A 7.12: SOURCES AND USES OF THE PPF, 1985-86
(TL billion)

Sources		Uses	
<u>1985</u>			
- Sale of revenue-sharing certificates	150.0	- Maintenance expenditure	7.2
Bosphorus bridge <u>a/</u>	(10.0)	Bosphorus bridge	(1.6)
Keban dam	(40.0)	Keban dam	(5.6)
Oymapinar dam	(100.0)	- Infrastructure investment	142.3
- Operating income	69.0	Construction of dams	(82.9)
Bosphorus bridge	(12.5)	Construction of highways	(11.8)
Keban dam	(56.5)	Priority regions	(47.6)
- Interest from Treasury bills	8.2	- Repayment of revenue - sharing certificates	12.6
- Other interest income	<u>1.5</u>	- Advance payments for DSI	4.9
		- Purchase of Treasury bonds	25.0
		- Other payments	2.6
		- Deposit with Ziraat Bankasi	33.0
		- Balance carried forward	<u>1.1</u>
TOTAL	228.7	TOTAL	228.7
<u>1986</u>			
- Sale of revenue-sharing certificates	80.0	- Maintenance expenditure	15.7
- Operating income	153.7	- Investment expenditure	314.0
Bosphorus bridge	(18.0)	Construction of dams	140.0
Keban dam	(113.5)	Karakaya dam	(64.0)
Oymapinar dam	(22.2)	Ataturk dam	(38.0)
- Interest income	12.0	Altinkaya dam	(15.0)
- Sales of Treasury bonds	25.0	Construction of highways	38.0
- Foreign borrowing <u>b/</u>	71.0	Potable water works	16.0
- Petroleum consumption tax	50.0	Second Bosphorus bridge	77.0
- Balance at Ziraat Bankasi	<u>30.0</u>	Free-trade zones	4.5
		Priority regions	38.5
		- Repayment of revenue-sharing certificates	<u>92.0</u>
TOTAL	421.7		
		TOTAL	421.7

a/ Carried over from 1984.

b/ For the second Bosphorus bridge.

Source: SPO and TFTU.

A 7.32 Investment expenditure (including that in priority regions) by the Fund constituted over 62 percent of its total expenditure in 1985 and is projected to grow to over 74 percent in 1986. The increase in investment is largely due to the construction of the second Bosphorus bridge. Investment in priority regions represents credit and capital participation to TEK. These credits are used for rural electrification and are shown as SEE sector investments.

A 7.33 Also, the PPF invested TL 25 billion in Treasury bonds in 1985. Such transactions amount to financing the Central Government budget deficit by resources of the funds.

A 7.34 On the revenue side, whereas sales of revenue-sharing certificates represented nearly 66 percent of the total revenue in 1985, their share is projected to drop to about 19 percent in 1986. On the other hand, the share of operating income is expected to rise somewhat (from 30 percent in 1985 to 36 percent in 1986). Other important sources of revenue in 1986 are represented by a foreign loan (TL 70 billion) and by 22 percent of taxes collected on petroleum consumption (TL 50 billion).

M. Petroleum Price Stabilization Fund (PPSF)

A 7.35 The PPSF was established in 1979. The revenues of the Fund are principally derived from the difference between the domestic price of imported oil (i.e. the price at which imported fuel is sold to the Ministry of Energy) and the ex-custom price (inclusive of custom duties) of oil, after taking into account the stockage and refining cost. In 1984 total revenues of the PPSF were TL 67.8 billion. The figure for 1985 is not available.

A 7.36 On the expenditure side, the PPSF transfers the revenues it collects to other funds. The untransferred surplus accrues to the consolidated budget. The Mass Housing Fund received TL 21.7 billion from the PPSF in 1984, TL 65.4 billion in 1985 and is expected to receive about TL 110 billion in 1986.

N. Resource Utilization Support Fund (RUSF)

A 7.37 The RUSF was created in December 1984 replacing the Interest Rate Difference Fund (IRDF), and became operative from January 1, 1985. 1/ The objective of the Fund is "to direct commercial banks' resources towards exports and investment and to lower the cost of specialized credit in conformity with the objectives of the Development Plans and Annual Programs".

A 7.38 The following are the sources of revenue and areas of expenditure established by decree:

Sources

- (i) Surcharge of 10 percent (7.5 percent prior to April 1985) on the rate of interest applicable to loans advanced by commercial banks to the private sector; 2/

1/ Decree No. 84/8860, O.G. No. 18606 of 12.15.1984.

2/ From January 22, 1987 the surtax is not applied on export credit nor on medium and long-term investment credit and operational credit (for investment purposes) on those projects with encouragement certificates.

- (ii) a 7.5 percent surcharge on the rate of interest applicable to loans advanced by the Central Bank to public enterprises;
- (iii) penalty interest payments to the Central Bank by commercial banks on their unmet reserve requirements; and
- (iv) transfer from other funds, namely SCF, EEF, IRDF and SPSF.

Some types of credit are exempt from the surcharge. Amongst these are specialized credits from T.C. Turizm Bankasi, T.C. Ziraat Bankasi, T. Halk Bankasi (except for medium and long-term credit to agro-industry projects without an investment incentive certificate) and Emlak Bankasi (only credit for housing and building).

Expenditures

A 7.39 The main use of this Fund is to subsidize exports and investments which have been granted encouragement certificates (from SPO). In particular, the Fund provides:

- (i) a subsidy equal to 2 percent of the value of exports (reduced from 4 percent for non-agricultural exports in March 1986); 1/
- (ii) an investment subsidy equal to:
 - 20 percent of the realized investment in first priority development regions;
 - 15 percent of the value of realized investment in second priority development regions;
 - 7 percent of the realized investment in normal regions if the project is over TL 1 billion; and
 - 15 percent of the value of investment in the case of compulsory relocation outside priority development regions (raised from 10 percent in April 1986).
- (iii) a subsidy of 7 percent on the debt-financed portion of small investment projects (below TL 1 billion), and 4 percent on specialized credit;
- (iv) a subsidy of 20 percent for ship-building and for tourism accommodations in priority tourism regions; and
- (v) transfers to other funds and the unmet commitments of the IRDF.

1/ Prior to March 1986 it also provided a subsidy equal to 2 percent of the value of agricultural exports but this subsidy was eliminated by a decree in March 1986. In April 1986, however, there was another decree which specified that the Fund would provide a subsidy of 2 percent for all exports. In November 1986, however, the provision of export subsidies from the RUSF was discontinued.

Table A 7.13 shows the sources and uses of the RUSF in 1985 and 1986 (projections).

Table A 7.13: SOURCES AND USES OF RUSF, 1985-86
(TL billion)

Sources		Uses	
<u>1985</u>			
- Tax on commercial banks' loans to private sector	86.7	- Export subsidy	45.0
- Tax on Central Bank loans to SEEs	0.4	- Investment subsidy (all projects)	1.0
- Transfer from SPSF <u>a/</u>	7.3	- Expenditure towards meeting the obligations of IRDF	51.9
- Transfer from EEF	5.2	- Transfer to FCERDF <u>b/</u>	2.5
- Balance from IRDF	12.0	- Other	3.2
- Other	0.7	- Balance (end 1985)	8.7
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TOTAL	112.3	TOTAL	112.3
<u>1986</u>			
		<u>(A)</u>	<u>(B)</u>
- Surcharge on commercial banks' loans to private sector	86.2	- Export subsidy	141.0
		- Investment subsidy	14.0
- Surcharge on Central Bank's loans to SEEs	5.0	- Specialized credit subsidy	25.0
- Transfer from EEF	12.0	- Obligation of the IRDF	70.0
- Tax on foreign credit	69.0	- Transfers to FCERDF	3.5
		- Foreign exchange subsidy for emigrant workers	3.0
		- Refund to exporters <u>c/</u>	23.0
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TOTAL	172.2	TOTAL	279.0
			194.0

(A) & (B): These are two different scenarios formulated by the Central Bank that project the expenditures of the Fund on different resource availability assumptions.

a/ This figure does not appear as an expenditure by SPSF.

b/ FCERDF = Foreign Credit Exchange Rate Difference Fund.

c/ Refers to refund of tax on foreign credit to exporters.
This tax was abolished in November 1986.

Source: SPO and the Central Bank.

A 7.40 It is estimated that in 1985 the Fund's programmed expenditures exceeded its revenues by TL 64.8 billion (not indicated in the Table). This deficit was met by postponing the actual payment of some commitments to 1986. As a result, the rates of subsidy for exports have been reduced to 2 percent and the surcharge on loans has been increased to 10 percent. 1/ Despite these measures, however, under both scenarios (A) and (B) it is forecast that the Fund will continue to have a deficit between TL 22 and TL 107 billion in 1986.

O. Selective Credit Fund (SCF)

A 7.41 The SCF, a budget-based Fund, was established in 1970 "to direct bank credit for purposes of economic development and exports". 2/ The Fund was to be used in alleviating the cost of credit for export, encouraged industrial investment, agricultural investment, shipbuilding and tourism investment as well as for other users such as tradesmen and artisans. The Fund was to make "interest difference" payments to banks and borrowers at specified rates depending on the type of credit and activity.

A 7.42 The SCF, which is financed by transfers from the Central Government consolidated budget, now apparently only allocates resources to other extra-budgetary funds set up for the same purpose. In 1984, its only expenditure was a transfer of TL 35 billion to the Interest Rate Difference Fund. In 1985 the Fund made no transfer payments. For 1986 a transfer payment of TL 5 billion to the RUSF is programmed.

P. Support and Price Stabilization Fund (SPSF)

A 7.43 The SPSF, established in 1980, is amongst the largest extra budgetary funds in terms of revenues. 3/ The objective of the Fund is to provide support to the agricultural sector, by protecting farmers from price movements, subsidizing agricultural inputs, financing export-oriented investments and insuring exports. 4/ Until now, support has been given mainly by subsidizing the cost of fertilizers to agricultural users; the Fund has covered the "duty-losses" 5/ of TZDK, the agricultural supplies agency, to the extent that they have not been covered by budgetary transfers. In 1985 fertilizer subsidies amounted to over 94 percent of the Fund's entire budget. The Fund also subsidizes exports of some iron and steel products at the rate of \$25 per ton. 6/

1/ See O.G. No. 19049 of 16.3.1986 and O.G. No. 19066 of April 2, 1986. From November 1986, however, the subsidy to exports has been discontinued. Furthermore, from January 1987 the surcharge is no longer applied on export credit nor on credit to projects with encouragement certificates.

2/ Consolidated Budget Law of 3.9.1970 and Decree No. 7/1198, O.G. No. 13598 of 31.8.1970.

3/ Last amended by Decree No. 84/8224, O.G. No. 18451 of 7.7.1984.

4/ Other functions decreed to this Fund are: financing the activities of the housing sector and infrastructure construction in shanty towns.

5/ Non-operational losses of SEEs subsidized by the Government. These losses result from price controls retained for social reasons.

6/ Based on Money and Credit Committee decree 41.

A 7.44 The bulk of the Fund's revenues come from taxes on foreign trade. These include levies on specific agricultural exports as well as an additional 2 percent duty on imports (cif value), including duty-free imported goods. 1/ Certain imports are, however, exempt from the additional duty. 2/ The other major revenue source of the Fund is transfers from the Petroleum Exploration Fund.

A 7.45 Table A 7.14 below indicates the revenues and expenditures of the SPSF since 1980.

Table A 7.14: REVENUES AND EXPENDITURES OF THE SPSF, 1980-85

(TL billion)

Year	Revenues			Expenditures		
	Own Sources	Transfers from PEF	Total	Fertilizer Subsidy	Other	Total
1980	26.7	9.0	35.7	31.0	3.8	34.8
1981	35.1	41.1	76.2	73.8	0.6	74.4
1982	39.4	51.8	91.2	75.6	12.2	87.8
1983	79.7	59.2	138.9	108.4	8.6	117.1
1984	141.3	42.4	183.7	167.7	7.1	174.8
1985	212.0	55.7	267.7	238.0	13.8	251.8

Source: TFTU.

1/ From January 1987, the SPSF has started providing export subsidies to several commodities. The specific subsidy rates are based on export volume.

2/ These are: imports of capital goods by government agencies and SEEs for projects included in the annual investment programs; imports of capital goods for private sector projects with an incentive certificate; imports of weapons, amunitions and capital goods for national defence; imports of oil products; transit imports and imports of raw materials used for exports.

A 7.46 Table A 7.15 gives a more detailed breakdown of the revenue sources and uses of the Fund in 1985 and projections for 1986:

Table A 7.15: SOURCES AND USES OF THE SPSF, 1985-1986
(TL billion)

Sources		Uses	
<u>1985</u>			
- Export duties	117.7	- Fertilizer subsidy	238.0
- Import duties	76.6	- Export subsidy for iron & steel products	6.3
- Exchange rate difference in exporting	6.9	- IGSAS	6.0
- Premium on imports without waiver	6.6	- Other payments	1.5
- Transfer from PEF	55.7	- Balance carried forward	<u>15.9</u>
- Balance from 1984	3.0		
- Other	<u>1.2</u>		
TOTAL	267.7	TOTAL	267.7
<u>1986</u>			
- Export duties, import duties, other	220.0	- Fertilizer subsidy	240.0
- Transfer from PEF	<u>60.0</u>	- Other	<u>15.0</u>
TOTAL	280.0	TOTAL	255.0

Source: SPO and TFTU.

Q. Tax Administration Development Fund (TAF)

A 7.47 The Tax Administration Development Fund was created at the end of 1985 and became operative from the beginning of 1986 under the responsibility of the Ministry of Finance and Customs. 1/

A 7.48 The Fund is financed from the central government consolidated budget on the basis of a 0.5 percent share of the previous year's tax collections and 1 percent of the current year's additional tax revenues.

A 7.49 The resources of the Fund, projected to be about TL 50 billion in 1986, are to be used for improving the efficiency of tax administration. More specifically, the Fund would cover expenses related to computerization, training, new office space, tax audits and inspections and bonuses to employees.

1/ Tax Law Number 213, O.G. No. 18955 of November 11, 1985.