

ANNEXES

ANNEXES Chapter 1

Annex 1.1 Policy Sustainability and the Macroeconomic Performance

The relationship between growth volatility and growth is an old and important issue, both from a theoretical and an empirical standpoint. Observing the high volatility, especially in developing countries in the recent decade led the economists to focus on the issue.

Although the relationship between the average output growth rate and its volatility attracts strong attention among macroeconomists, there has been no theoretical consensus on the relationship between growth rates and output variability. One line of argument suggests that deviations of output from its long run level are temporary. In other words, there is no relation between output growth rate and output variability. For example, some business cycle models argue that deviations of output from its natural rate are due to price level misperceptions which are triggered by monetary shocks and therefore are independent of the factors affecting the natural rate of output growth such as skills and technology (Friedman, 1968). A second line of argument dates back to Keynes (1936) and suggests that the relationship can be negative. Large output fluctuations increase the risks on returns to investment and higher risks perception reduces the demand for investment and therefore output growth rate. A third line of argument suggests that the relationship can be positive. One theory is that higher uncertainty increases savings (Sandmo, 1970) and, as Solow (1956) neo-classical model predicts, higher savings leads to higher growth rates. Another theory is that agents choose to invest in riskier technologies only if the growth rates are higher enough to compensate for the associated greater risks (Black, 1997).

Given that there emerges no conclusive result from the theoretical studies, we investigate not only the effect of output variability on output growth rate but also on factors of production in order to identify transmission channels.

The Model

We use output variability as a proxy for the sustainability of economic policies and measure output variability by the conditional variance of output growth.

The growth variable is captured with an AR process. It is plausible that growth rate is also affected by growth variability. In order to account this we include the conditional variance of ε_t as h_t here.

$$Growth_t = \beta_0 + \sum_{i=1}^n \beta_i Growth_{t-i} + \beta_{h1} h_t + \varepsilon_t \quad (1)$$

$$\varepsilon_t / \Omega_{t-1} \sim (0, h_t) \quad (2)$$

where ε_t has a zero mean and a time varying conditional variance of h_t to capture the risk/variability of growth

In order to model the time varying variance, Engle (1982) introduces the Autoregressive Conditional Heteroscedastic (ARCH) model of order (q) as:

$$h_t = \alpha_0 + \sum_{j=1}^q \alpha_{1j} \varepsilon_{t-j}^2 \quad (3)$$

Bollerslev (1986) generalized the ARCH model of Engle (1982) by including lagged values of the conditional variance h_t as an explanatory variable to the variance equation. In other words GARCH (p,q) specification he introduces is:

$$h_t = \alpha_0 + \sum_{j=1}^q \alpha_{1j} \varepsilon_{t-j}^2 + \sum_{j=1}^p \alpha_{2j} h_{t-j} \quad (4)$$

where the coefficients α_0 , α_{1j} s and α_{2j} s are non-negative and ε_t^2 is covariance stationary (i.e. $\sum \alpha_{1j} + \sum \alpha_{2j} < 1$).

Nelson (1991) proposed the following model for conditional variance by letting $\varepsilon_t = \sqrt{h_t} v_t$, where v_t is iid with zero mean and unit variance.

$$\log h_t = \zeta + \sum_{j=1}^p P_j \log h_{t-j} + \sum_{j=1}^q \theta_j \cdot \{ |v_{t-j}| - E |v_{t-j}| + \delta v_{t-j} \} \quad (5)$$

This model is referred as E-GARCH model. If θ_j is greater than 1, Nelson's model implies that a deviation of $|v_{t-j}|$ from its expected value causes the variance to be larger than otherwise, an effect similar to the idea behind GARCH specification.

The δ parameter allows this effect to be asymmetric. If $\delta=0$, then a positive surprise has the same effect on volatility as a negative surprise magnitude. If $0 < \delta < 1$, a positive surprise increases volatility less than a negative surprise. If $\delta > 1$, a positive surprise actually reduces volatility while a negative surprise increases volatility.

Nelson (1991)'s specification models the logarithm of the conditional variance rather than conditional variance, which gives us some advantages. One of the advantages of E-GARCH model is that the variance itself (h_t) will be positive regardless of whether θ_j coefficients are positive or negative. Thus, no restrictions need to be imposed for the estimation in contrast to the GARCH model. This makes numerical optimization simpler and allows a more flexible class of possible dynamics models of the variance (Hamilton, 1994 pp.668-9). Moreover, as mentioned in the previous paragraph, this specification allows measuring asymmetry through the leverage effect.

The E-GARCH model can be estimated by maximum likelihood by specifying a density for v_t . Nelson proposed using the *generalized error distribution*, normalized to have zero mean and unit variance for the distribution function of the error term:

$$f(v_t) = \frac{D \exp \left[- \frac{1}{2} |v_t / \lambda|^D \right]}{\lambda \cdot 2^{[(D+1)/D]} \Gamma(1/D)} \quad (6)$$

where $\Gamma(\cdot)$ is the gamma distribution, λ is a constant given by

$$\lambda = \left[\frac{2^{(-2/D)} \Gamma(1/D)}{\Gamma(3/D)} \right]^{1/2} \quad (7)$$

and D is a positive parameter determining the thickness of the tails. For $D=2$, the constant $\lambda=1$ and equation (7) is the standard Normal density. If $D<2$, the density has thicker tails than the normal, but for $D>2$, it has thinner tails.

Next we examine the effects of conditional variance of growth, in other words the volatility of growth that we modelled using E-GARCH specification, on other variables X_t as in Eq. (8).

$$X_t = \gamma_0 + \sum_{i=1}^n \gamma_i X_{t-i} + \gamma_{h1} h_t + \eta_t \quad (8)$$

One might find VAR methodology suitable in this setting, instead of E-GARCH approach. The critical thing in this analysis is that both TFP and investment to GDP ratio variables are generated from GDP and therefore using these two variables with the GDP growth in VAR setup would make the result sensitive to the outliers due to high correlation. By using E-GARCH methodology, we tried to avoid such problems.

The Results

The table below reports the estimate of effect of growth volatility on growth. The estimated coefficients for the growth equation ($\beta_1, \beta_2, \beta_3$ and β_4) include first four lag and conditional variance of growth (β_{h1}). Note that the estimated coefficient for the conditional variance of growth for the growth is negative and statistically significant. This means that increase in the volatility of growth decreases growth, in other words growth volatility is detrimental for growth. Therefore, our results support the views that the relationship between volatility and growth is negative (Bernanke, 1983; Pindyck, 1991; Ramey and Ramey, 1991; Aizenman and Marion, 1993; Bertola and Caballero, 1994; Ramey and Ramey, 1995; Martin and Rogers, 1997; Caballero, 2000 and Talvi and Vegh, 2000). We did not interpret the coefficients β_0 to β_4 as similar to VAR specification these are used to capture the data generating process.

Table: Effect of Growth Volatility on Growth

Variable	Coefficient	Significance
Panel A: Conditional Mean		
B_0	0.7967	0.0066
B_1	0.7468	0.0000
B_2	0.1378	0.0009
B_3	0.0464	0.6233
B_4	-0.0014	0.9876
β_{h1}	-2.5304	0.0570
Panel B: Conditional Variance		
θ_1	-0.9113	0.1695
θ_2	-0.9866	0.0798
P_1	0.2673	0.0300
L1	0.4163	0.0367
D	211.1770	0.9093

Column I of the next table below reports the estimates between GDP growth and TFP. The estimated coefficients for the growth equation (β_1 , β_2 and β_3) include first 3 lags of growth and conditional variance of growth (β_{h1}). Note that the estimated coefficient for the conditional variance of growth for the growth is negative and statistically significant. This means that increase in the volatility of growth decreases growth, in other words growth volatility is detrimental for growth. As in the previous case, we did not interpret the coefficients β_0 to β_3 as similar to VAR specification these are used to capture the data generating process.

Table: Effect of Growth Volatility on TFP, Investment, Exchange Rate and Employment*

	I	II	III	IV
Panel A: Conditional Mean				
	<i>Growth</i>	<i>Growth</i>	<i>Growth</i>	<i>Growth</i>
β_0	1.5075 (0.00)	2.4974 (0.00)	2.0717 (0.00)	2.0832 (0.00)
β_1	0.1364 (0.00)	0.0342 (0.75)	0.0876 (0.00)	0.0296 (0.73)
β_2	-0.1272 (0.10)	-0.1631 (0.14)	-0.0029 (0.97)	-0.0493 (0.52)
β_3	-0.1475 (0.06)	-0.1214 (0.02)	-0.1002 (0.00)	
β_4		-0.1787 (0.00)		
β_{h1}	-0.0511 (0.00)	-0.1410 (0.00)	-0.1138 (0.00)	-0.1087 (0.00)
		<i>TFP</i>	<i>Investment</i>	<i>Depreciation</i>
γ_0		0.0858 (0.00)	1.3751 (0.00)	3.7734 (0.00)
γ_1		0.8413 (0.00)	0.9299 (0.00)	0.0027 (0.9700)
γ_2		-0.0434 (0.00)		-0.1532 (0.05)
γ_3				-0.2332 (0.00)
γ_{h1}		-0.0005 (0.00)	-0.0261 (0.04)	-0.2349 (0.00)
				<i>Employment</i>
				0.2186 (0.10)
				-0.0233 (0.83)
				-0.0145 (0.92)
				0.0138 (0.25)
Panel B: Conditional Variance				
ζ	0.9089 (0.00)	1.3398 (0.00)	1.3421 (0.00)	1.9107 (0.00)
P_1	0.5225 (0.00)	0.1913 (0.18)	0.3924 (0.00)	-0.1144 (0.28)
θ_1	-0.0487 (0.01)	0.3627 (0.03)	-0.0570 (0.00)	0.2688 (0.05)
θ_2	0.0379 (0.57)	0.6687 (0.02)	0.3821 (0.00)	0.5605 (0.00)
Δ	0.6556 (0.00)	0.7444 (0.02)	0.1564 (0.00)	1.0432 (0.00)
N	0.0268 (0.00)	-0.1300 (0.74)	11.2403 (0.00)	-0.0994 (0.81)
M	0.0001 (0.00)	1.3750 (0.00)	39.1383 (0.00)	2.4540 (0.00)

* P-values are reported in parentheses under the corresponding estimated coefficients.

The next set of coefficients for the TFP is reported. γ_0 is for the constant term for the TFP specification. The coefficients γ_1 to γ_3 are for the first 3 lags of TFP and γ_{h1} is the estimated coefficient for the conditional variance of growth in the TFP specification. The estimated coefficient for γ_{h1} is negative and statistically significant. Therefore, uncertainty in growth decreases the TFP which is consistent with the theory supporting

the negative relationship between volatility and growth suggesting TFP as the transmission mechanism (see Martin and Rogers, 1997; and Talvi and Vegh, 2000). However, the coefficient of volatility in the TFP equation is significant but very small and this suggests that the effect of volatility on TFP is small.

Next, we reported the estimated coefficient of conditional variance specification. The estimated coefficient for the lag value of logarithmic conditional variance (P_1) is positive and statistically significant. Observing coefficient of less than 1 satisfies the non-explosiveness condition of conditional variance (Hamilton, 1994).

The second column of the Table is for the analysis on the relationship between growth and investment. The first equation is for explaining growth. β_{h1} is the conditional variance of growth and it is a statistically significant explanatory variable for the growth estimation. The coefficient is negative implying that growth volatility decreases growth (this is parallel with the first column).

The next equation in Column 2 is for investment and includes a constant term, first lag of investment and the output volatility with coefficients γ_0 , γ_1 and γ_{h1} respectively. The coefficient for lag investment is significant and positive, which means that higher investment this period implies higher investment next period. This is due to persistency of investment. On the other hand, γ_{h1} is significantly negative, i.e. output volatility decreases investment, suggesting that output volatility is decreasing output via investment supporting the irreversible investment argument of Bernanke, 1983 and Pindyck, 1991 and the empirical study by Aizenman and Marion (1999).

In Column 3, a rarely discussed issue in the literature, the relation between output volatility and exchange rate appreciation, is discussed. The growth equation is in the first part of the column where β_0 is for the constant and β_1 to β_3 are the coefficients of the lagged values of growth. The coefficient β_{h1} , which is significantly negative, shows the explanatory power of the output volatility in the growth equation.

The appreciation equation in column 3 is formed by its lags and the growth volatility. The coefficient of growth volatility γ_{h1} is negative in a statistically significant manner. Therefore, we suggest that growth volatility increases exchange rate depreciation in Turkey.

Finally, the last column of the Table is for examining the effects of output volatility on employment. The growth equation is estimated and the explanatory variables are a constant term, two lags of growth and the volatility of growth (Their coefficients are β_0 , β_1 , β_2 and β_{h1} respectively). The output volatility decreases output significantly, as in the other estimations.

Output volatility has a positive coefficient in the employment equation (γ_{h1}). This result supports the Schumpeterian view that output volatility increases output because of the creative destruction. However, the coefficient is not significant in our estimations. The discussion behind this view is that all the idea is related to the developed countries. Since the recent discussion is about a developing country, Turkey, it would be expected that the theory would not hold. Moreover, some of the discussions suggest human capital as a transmission mechanism but the employment data we use in the estimates would not carry the same characteristics.

Annex 1.2 Estimating sources of labor productivity growth in Turkey

The source of TFP growth in Turkey is analyzed by estimating a Cobb-Douglas production function with constant returns to scale of the form: $Y = AK^\alpha(L*H)^{1-\alpha}$. The reason for employing this type of a production function in our analysis is that it represents a rich set of technology choices in terms of substitutability and complementarity of inputs that producers have and thus it is the widely used formulation in the literature of growth theory.

In this specification we use augmented labor (L*H) together with capital stock (K) and Solow residual (A) as Total Factor Productivity. We relate human capital (H) to average years of schooling (S) and assume a seven percent return each year, thus $H = (1.07)^S$. Human capital is assumed to have its effect on output growth via affecting labor. This way we can account for the interaction between labor and education in our model of TFP growth.²⁷¹ The results of the estimation for the entire economy and three sub-sectors are given below:

Economy:

$$\ln(Y/L) = 0.33*\ln(K/L) + 0.67*\ln(H) - 0.07*Dummy, R^2 = 0.97, DW = 0.75$$

(3.65) (3.76) (-4.19)

Agriculture:

$$\ln(Y_{agr}/L_{agr}) = 1.2 + 0.45*\ln(K_{agr}/L_{agr}) - 0.20*Dummy, R^2 = 0.87, DW = 1.04$$

(19.29) (13.72) (-0.88)

Industry:

$$\ln(Y_{ind}/L_{ind}) = 0.72 + 0.57*\ln(K_{ind}/L_{ind}) - 0.03*Dummy, R^2 = 0.10, DW = 0.05$$

(0.50) (1.83) (-0.28)

Services:

$$\ln(Y_{ser}/L_{ser}) = 1.99 + 0.31*\ln(K_{ser}/L_{ser}) - 0.06*Dummy, R^2 = 0.83, DW = 0.88$$

(17.21) (11.69) (-3.89)

Sample: 1972-2003 and t-ratios are in parenthesis.

²⁷¹ Many studies in growth theory indicated that Human capital expressed alone in the production function yields insignificant estimates together with a negative sign. e.g. Caselli et al. (1996), Islam (1995).

Annex 1.3 Panel Study on Determinants of Private Saving Behavior

Empirically, panel techniques have been utilized to obtain robust estimation results. Our sample consists of a large number of countries, which range from developing to industrial economies. Countries with GDP per capita below US\$ 1,700 in 2002 are excluded in order to get a more comparable pool of countries. Overall, the panel is comprised of 70 countries and spans the years 1980 to 2002 with a total of 1160 observations. Evidence from previous works suggests an endogenous relationship between savings and growth. Parallel to the work of Loayza and et al.²⁷² instrumental variables were used to correct for this simultaneity. Country heterogeneity is taken into account by adopting fixed-effects approach.

Following existing literature, regressors include two income-related variables: the GDP per capita and the rate of growth of GDP per capita. The expected sign of income effect on savings is positive as all previous studies support this hypothesis. As for the growth rate of income, there are two conflicting views: life cycle approach and permanent income hypothesis. According to the former, aggregate savings should increase through an increase in the savings of active workers, whereas, the latter suggests savings will fall in anticipation of higher income in future. Terms of trade captures the transitory component of income fluctuation. Hence, its sign should be positive as income gains (losses) resulting from positive (negative) terms-of-trade shocks should be saved (dissaved). The demographic variables are urbanization, young age and old age dependencies. Income of urban population generally fluctuates much less than that of the rural population, who tend to save more as a precaution. Young and old population dissave against future and previously accumulated earnings respectively. Money stock in the economy is a common variable used as a proxy for financial depth with an expected positive sign. Credit constraint is an important factor in determining private savings and is measured by domestic credit flow to private sector. The higher the credit flow is the lower savings are. More recently in the work of Loayza and et al. the dynamic nature of saving was captured using the lagged private saving rate on the basis that it has long-term effects. Due to Ricardian equivalence, public saving and private savings should fully offset each other. However, the regression will determine the degree of this negative correlation. The macroeconomic stability of the economy is measured by inflation rate. Reflecting heightened uncertainty, private savings tend to rise in more unstable economies signaled by higher inflation rates. Obviously, this is not meant to say that high inflation is good for savings. High inflation distorts relative prices while the associated macroeconomic instability weakens the investment climate. This leads to slower GDP growth that is detrimental to private savings.

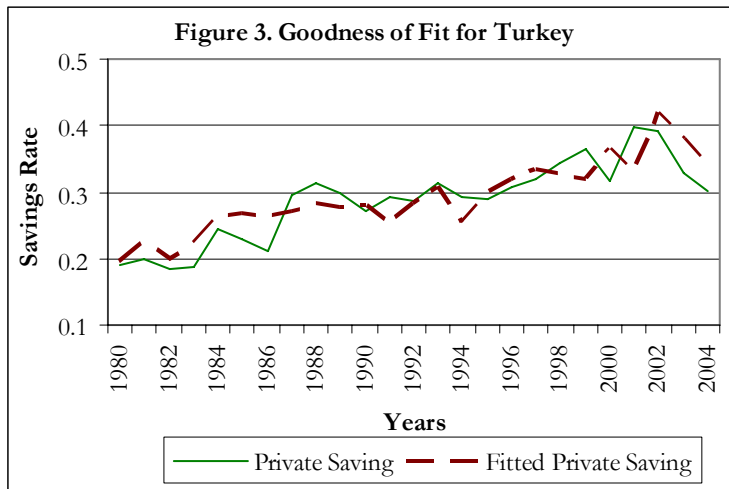
²⁷² Loayza, N., Lopez, H., Schmidt-Hebbel, K. and Serven, L. 2000. "What Drives Private Saving Across the World?" *The Review of Economics and Statistics* 82(2):165-181.

Regression Results

Table 1. Fixed Effects IV Regression						
<i>Private Saving</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t</i>	<i>p > |t|</i>	<i>95% Confidence Interval</i>	
<i>Lag.Private Saving</i>	.3958887	.0434351	9.11	0.000	.3107574	.48102
<i>Growth</i>	.3921484	.1144061	3.43	0.001	.1679166	.6163802
<i>GDP Per Capita</i>	.0739968	.0123155	6.01	0.000	.0498596	.0981341
<i>Money</i>	.0130215	.0053884	2.42	0.016	.0024604	.0235826
<i>TOT</i>	.0974209	.0143777	6.78	0.000	.0692411	.1256007
<i>Urbanization</i>	-.1917596	.0363362	-5.28	0.000	-.2629771	-.120542
<i>Young Dependency</i>	-.0897943	.0273332	-3.29	0.001	-.1433663	-.0362223
<i>Old Dependency</i>	-.5774540	.1326124	-4.35	0.000	-.8373696	-.3175384
<i>Public Saving</i>	-.5436394	.0299932	-18.13	0.000	-.6024251	-.4848537
<i>Private Credit</i>	-.0205883	.0088199	-2.33	0.020	-.037875	-.0033016
<i>Inflation</i>	.0245837	.0049869	4.93	0.000	.0148096	.0343579
<i>Constant</i>	-.2764501	.0856758	-3.23	0.001	-.4443716	-.1085285
<i>Wald test that all slope coefficients = 0</i>			<i>F</i>	72301.15	<i>Prob > F</i>	0.0000
<i>F test that all fixed effects = 0</i>			<i>F</i>	4.16	<i>Prob > F</i>	0.0000
<i>R-squared within</i>			0.5789			
<i>Number of observations</i>			1160			
<i>Number of countries</i>			70			

Table 1 reports the results on the private saving rate regression on the full sample. Remarkably, all the dependent variables are significant in explaining private saving behavior. Moreover, the regression produced a within R-squared of 0.58, indicating a good fit for our sample.

As the Figure below illustrates, the model predicts private saving reasonably well for Turkey. On this basis, future behavior of private saving has been simulated using projections of determinant variables.



Annex 1.4 Assumptions of per Capita Income Convergence Scenarios for Turkey

Three different scenarios were constructed for the analysis of per capita income convergence between Turkey and the EU25, namely base case, high case and low case scenarios. The base case scenario lays the ground for the analysis and combines the assumptions and features that are most likely to be realized under the current economic policies and reform agenda. The high case scenario presents what Turkey can achieve with a stronger reform agenda, while the low case scenario analyzes a situation where Turkey fails to continue ongoing reform efforts. Key indicators under each scenario are given in the tables below.

Table 1: Key Indicators for Turkey

	(Annual Growth Rates, %)					(percent)	
	GDP (Y)	Capital (K)	Labor (L)	TFP	Population	$\varepsilon_L = (\Delta L / \Delta Y) * (Y/L)^{(1)}$	$I / Y^{(1)}$
Actual							
1973-1980	3.5	8.4	1.8	-0.5	2.26	0.48	
1981-1990	5.2	4.1	1.6	2.7	2.36	0.26	
1991-2000	3.6	5.0	1.5	0.9	1.85	0.39	26.8
1973-2000	4.1	5.6	1.6	1.1	2.15	0.27	
1973-2004	4.1	5.1	1.5	1.3	2.07	0.23	
1990-2004	3.6	4.1	1.2	1.4	1.80	0.28	24.4
2002	7.9	1.2	-0.8	8.1	1.60	-0.10	16.8
2003	5.8	1.3	-1.0	6.0	1.56	-0.17	17.4
2004	8.9	3.2	3.0	5.7	1.45	0.34	21.2
2002-2004	7.5	1.9	0.4	6.6	1.54	0.05	18.4
Forecast for 2005-2015							
Base case	5.1	4.9	2.0	2.1	1.21	0.39	24.6
High case	6.7	5.9	3.0	2.6	1.21	0.44	25.7
Low case	3.9	4.2	1.3	1.5	1.21	0.34	24.0

⁽¹⁾: $\varepsilon_L = (\Delta L / \Delta Y) * (Y/L) =$ Output elasticity of labor, $I / Y =$ Total investment over GDP ratio.

Table 2: GDP and Population in the EU25

(Annual Growth Rates, %)		
	GDP	Population⁽¹⁾
	Actual	
2002	1.1	0.76
2003	1.0	0.50
2004	2.3	0.41
2002-2004	1.5	0.56
	Forecast for 2005-2015	
Base case	2.5	0.10
High case	2.5	0.10
Low case	2.5	0.10

⁽¹⁾: Population forecasts are taken from UN

Annex 1.5: Duration of EU Acquis chapter negotiations for new EU members

Table 1: Number of Months for Negotiations

	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Slovakia	Slovenia
Small and medium-sized enterprises	8	8	8	3	3	8	3	8
Science and research	8	8	8	3	3	8	3	8
Education and training	8	8	8	3	3	8	3	8
Fisheries	13	25	14	20	16	51	8	14
Statistics	13	14	13	3	3	13	3	13
Telecommunications	13	13	13	26	13	14	15	13
Consumers and health protection	14	14	14	8	13	14	8	14
Industrial policy	15	13	13	8	8	14	8	13
Free movement of goods	21	33	36	13	15	36	13	36
Economic and monetary union	21	21	21	9	13	21	13	21
Common foreign and security policy	25	25	25	3	3	25	3	25
Customs union	27	48	38	20	21	36	15	43
External relations	27	25	31	9	8	20	3	37
Freedom to provide services	36	36	35	13	16	32	15	32
Company law	36	25	36	15	15	45	15	25
Free movement of capital	38	26	38	15	13	48	14	36
Social policy and employment	38	31	32	16	13	36	15	33
Culture and audio-visual policy	39	32	36	13	13	33	9	38
Environment	39	39	39	21	16	43	22	36
Freedom of movement for persons	43	48	39	16	9	45	16	45
Energy	43	52	31	22	28	43	20	36
Financial control	43	36	27	21	22	27	21	27
Taxation	45	51	39	28	25	48	25	45
Justice and home affairs	45	48	44	28	26	52	28	45
Regional policy and coordination of structural instruments	49	51	52	28	28	55	29	52
Competition policy	55	44	57	9	9	57	34	44
Agriculture	57	57	57	34	34	57	34	57
Transport policy	57	48	45	22	22	51	26	45
Financial and budgetary provisions	57	57	57	34	34	57	34	57

ANNEXES Chapter 2

Annex 2.1 Data and Methodology for Consolidated General Government Classification of Expenditures

1. Economic Classification:

1. In this analysis, the State Planning Organization (SPO) data produced for the Pre-Accession Economic Program (PEP) has been used for the consolidated budget, social security institutions, local administrations, revolving funds, extra-budgetary funds and unemployment insurance fund. With the implementation of the PFMC law in 2006, the institutional coverage will be changed to be more in line with the international definitions and to increase the scope of the general government institutions, however, since the last year covered in this study is 2004, the terminology used here and the coverage are still not consistent with the PFMC law.

2. The SPO is the only public institution which estimates the size of the general government for Turkey. In generating consolidated general government data the SPO is following the GFS manual. The IMF is another source for the general government data in Turkey. However, the purpose of their data is not to measure the overall size of the revenues and expenditures of the general government, but to monitor the performance criteria set in terms of the primary surplus of the public sector.²⁷³

3. The definition of general government used in this report includes: consolidated budget (CB), local administrations, revolving funds, social security institutions (SSI), Revolving Funds and a common subset of budgetary and extra budgetary funds (EBFs)

- a. *Consolidated Budget Institutions*: All of the general and annex budget institutions. As of 2004 the total number of the institutions was 98.
- b. *Local Administrations*: 3225 municipalities, 81 special provincial administrations, Iller Bank, 16 water and sewerage companies of metropolitan municipalities and 10 natural gas and public transportation companies.
- c. *Revolving funds*: 1,450 (in 2004) enterprises established under the consolidated budget institutions and TRT (Turkish Radio and Television), DG of Dormitory and Student Credits, National Lottery and AOC (Ataturk Forestry Farm).
- d. *Social Security Institutions*: SSK, BagKur, Emekli Sandigi and Unemployment Insurance Funds. The UI was included into the balance since year 2000.

²⁷³ For the comparison and methodological differences, please see an internal discussion note on the “Estimation of the Size of the Government in Turkey”, prepared by R. Chaves and M. Agar, October 2004.

- e. *Extra Budgetary Funds*: The total number of the funds included in the general government balance decreased from 12 in 1999 to 4 in 2004.

4. It should also be noted that the analysis does not include the expenditures of the Central Bank and other public depository institutions, 45 non-financial state economic enterprises (SOEs), nine regulatory and supervisory agencies, and 45 out of a total of 50 special budget institutions listed in the Public Financial Management and Control Law (PFMC).²⁷⁴ The analysis includes the net subsidies and transfers between these institutions and the consolidated budget.

5. Although the SPO is in general in line with the GFS methodology three adjustments were made to their general government data for the following reasons;

- To eliminate the double counting:
 - a. Invoiced payments which are social assistance type of payments made by the Emekli Sandigi through transfers from the consolidated budget were deducted from the social security institutions balance.
 - b. Spending on common retirement from BagKur has been netted of in the SSK balance because the same amount of spending is already reported in the BagKur's expenditures.
- To transfer cash –based accounting into accrual accounting;
 - c. Interest payments realized in 2001 but reported in 2002 were deducted from 2002 expenditures and added to 2001.
- Moreover, in order to be in line with the primary surplus definition of the GFS 2001 manual, interest revenues of the institutions were deducted. In their current definition of primary surplus, the SPO has been deducting only the interest expenditures but not interest revenues.

²⁷⁴ Special budget institutions refer to 50 public entities established as affiliated or related to a ministry to provide certain public services. These special budget institutions receive revenues and are authorized to spend them. The complete list of these institutions is presented in the Public Financial Management and Control Law.

2. Functional Classification:

7. In this study a cross classification of general government expenditures -- functional vs economic -- for 2003 and 2004 by combining the expenditures of the institutional coverage defined in the economic classification was used. Regulatory and Supervisory Institutions and some of the special budget institutions which were recently brought under the definition of general government by law 5018 were not included because of the data problem.

8. Main data sources for the study are as follows.

- SPO economic classification of the general government data
- Ministry of Finance, consolidated budget and revolving funds
- SSK, Bağkur, Emekli Sandığı
- High Audit Board (YDK) on the accounts of SSK, Bağkur and TRT (Turkish Radio and Television Board) , AOÇ (Atatürk's Farm) , General Directorate of Credit and Dormitories.
- National Lottery Directorate
- IMF fiscal tables of May 2005
- Ministry of Internal Affairs, General Directorate of Local Authorities

9. As a general principle the GFS consolidation methodology has been used while producing the functional classification of the general government. A detailed analysis on the methodology and assumptions for producing the cross classification is available in Ferhat Emil, 2005, Turkey-Economic and Functional Classification of General Government Expenditures, Draft background analysis note for the CEM. Table 1 below shows the first result of this study. The work is being refined for the upcoming Public Expenditure Review.

Table A.2.1: Cross Functional Classification of the General Government, 2003-2004, in percent of GDP ²⁷⁵

(% of GDP)	Personnel Expenditures		SSI Premium Payments		Goods and Service Purchase		Interest Payments		Current Transfers		Capital Payments		Capital Transfers		Lending		Contingency		Total	
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
General Public Services	0.9	0.9	0.1	0.1	0.5	0.5	16.6	13.3	0.6	0.6	0.4	0.5	0.2	0.2	0.4	0.2	0.0	0.0	19.8	16.4
Defense	0.8	0.8	0.1	0.1	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	-	-	-	-	-	2.5	2.2
Public Order and Safety	1.2	1.1	0.2	0.2	0.6	0.6	-	-	0.0	0.0	0.2	0.2	-	-	-	-	-	-	2.1	2.0
Economic Affairs	1.1	1.1	0.2	0.2	0.5	0.5	0.2	0.1	1.1	1.0	1.5	1.4	0.1	0.1	0.3	0.3	-	-	4.9	4.7
Environmental Protection	0.1	0.1	0.0	0.0	0.0	0.1	-	-	0.0	0.0	0.1	0.1	0.0	0.0	-	-	-	-	0.2	0.2
Housing and Community Amenities	0.3	0.2	0.0	0.0	0.2	0.1	-	-	0.0	0.0	0.6	0.4	0.0	0.0	0.0	0.0	-	-	1.1	0.7
Health	1.3	1.5	0.1	0.1	3.4	3.8	0.0	0.0	0.2	0.3	0.2	0.3	-	-	-	-	-	-	5.4	5.9
Recreation, Culture and Religion	0.2	0.3	0.0	0.0	0.1	0.1	-	-	0.1	0.1	0.1	0.1	0.0	0.0	-	-	-	-	0.5	0.6
Education	2.6	2.5	0.3	0.3	0.6	0.6	-	-	0.5	0.5	0.7	0.5	0.0	0.0	-	-	-	-	4.6	4.5
Social Protection	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	8.5	8.5	0.1	0.1	0.0	0.0	-	0.0	-	-	8.8	8.9
Total	8.6	8.5	1.1	1.1	7.5	7.6	16.8	13.5	11.1	11.0	3.8	3.6	0.3	0.4	0.7	0.5	0.0	0.0	50.0	46.2

²⁷⁵ The adjustment with the economic classification data of the SPO will be prepared for the final report.

Annex 2.2 Structure of Tax Revenues in Turkey—Recent Trends and International Comparison

Table A.2.2: Revenues and Expenditures of the General Government, 1999-2004 ^{1/}

(% of GDP)	1999	2000	2001	2002	2003	2004
Taxes	21.8	24.4	25.6	22.2	23.6	23.6
Direct	9.7	9.7	10.4	7.8	7.6	7.3
Indirect	11.7	14.3	14.9	14.0	15.1	15.7
Wealth	0.4	0.4	0.3	0.4	0.9	0.6
Non-Tax Revenues	2.6	3.0	2.5	3.1	3.0	2.8
Factor Incomes	4.8	4.9	6.3	7.4	6.4	6.9
Interest revenues	0.7	0.8	1.1	1.4	1.3	1.6
Social Funds	5.3	5.8	6.4	6.1	6.6	7.0
Total Revenues	34.5	38.1	40.7	38.8	39.6	40.2
-Privatization	0.1	1.5	0.9	0.2	0.1	0.4
Total Revenues	34.5	38.1	40.7	38.8	39.6	40.2
Primary Revenues	33.8	37.4	39.7	37.4	38.3	38.6

Table A.2.3. Revenue Breakdown for OECD Countries

General Government (in percent of GDP)	2003								
	Taxes & SS	Taxes	Income Tax	PIT	CIT	VAT	Excises	Imp Duty	SS
Australia	...	...	...	...	...	...	...	...	...
Austria	43.0	28.3	12.9	10.4	2.3	9.5	2.7	0.0	14.7
Belgium	45.2	30.6	16.5	13.4	3.0	12.2	2.2	0.3	14.6
Canada	33.6	28.6	15.6	...	...	11.8	0.3	0.2	4.9
Czech Republic	36.5	21.3	9.6	4.9	4.7	8.4	2.5	1.3	15.2
Denmark	48.7	47.1	28.8	26.0	2.8	17.8	4.0	...	1.7
Finland	44.8	32.6	17.5	14.0	3.5	14.0	4.3	0.0	12.2
France	43.4	26.8	10.3	8.1	2.2	14.2	2.5	0.0	16.6
Germany	40.3	22.8	10.3	...	...	7.7	2.6	0.7	17.5
Greece	36.1	23.2	8.3	4.9	3.3	11.9	3.2	0.0	12.9
Hungary	39.1	26.4	9.3	7.1	2.2	13.2	3.3	1.1	12.7
Iceland	...	...	...	...	...	16.8	...	...	...
Ireland	29.6	25.0	11.9	7.0	3.8	9.1	2.0	1.4	4.6
Italy	42.6	29.8	13.2	10.8	2.3	11.7	2.5	0.0	12.9
Japan	...	...	...	...	...	...	...	...	...
Korea	...	...	...	...	...	6.7	...	...	...
Luxembourg	41.9	30.2	15.3	...	...	9.2	0.0	4.8	11.7
Mexico	...	...	...	...	...	...	...	...	...
Netherlands	38.7	24.2	10.1	6.9	3.2	10.7	1.3	1.3	14.5
New Zealand	...	...	...	...	...	...	...	...	...
Norway	43.4	33.4	19.3	11.2	4.3	14.4	1.7	0.1	9.9
Poland	36.6	22.5	6.3	4.1	2.2	12.8	3.9	1.0	14.1
Portugal	36.9	25.1	9.1	5.9	3.2	14.8	3.3	0.2	11.8
Slovak Republic	31.2	18.8	7.0	3.4	2.8	9.3	...	1.4	12.4
Spain	35.8	23.0	10.2	6.9	3.3	10.3	2.6	0.0	12.8
Sweden	50.2	35.8	18.1	16.0	2.1	17.1	3.3	0.0	14.4
Switzerland	...	...	...	...	...	...	...	...	...
United Kingdom	36.1	28.9	13.2	10.4	2.8	10.5	3.5	0.0	7.3
United States	25.5	18.5	10.8	8.9	2.0	10.0	1.6	0.2	7.0
Turkey (2004)	...	...	6.8	4.6	2.2	8.0	7.0	0.3	6.8
OECD average:	39.1	27.4	12.9	9.5	2.9	11.8	2.5	0.7	11.7

Source: OECD; and Turkish authorities.

Annex 2.3 Specific business incentives in Turkey

Turkey has provided various tax incentives since the mid-1960s:

- The first tax incentive package for economic development was introduced in 1964. It included an investment allowance, postponement of import duty on machinery and equipment, an allowance for accelerated depreciation, a longer loss carry forward period, and a lump-sum tax rebate on exports. Many of these benefits were granted on a discretionary basis by the State Planning Organization, which issued investment certificates.
- In the early 1980s other export-oriented tax incentives were introduced. These included export subsidies in the form of input tax rebates, a tax exemption on export credits, and a 20 percent deduction from corporate earnings on exports of manufactured and agricultural products and from the foreign currency proceeds of freight and tourism services.
- In the 1980s, the central bank granted generous lump-sum tax rebates to exports on the provision of evidence that export earnings were transferred to Turkish banks. This subsidy induced fraudulent and overstated export claims, and the system was phased out in 1989.
- In 1988, the authorities established a five-year tax holiday (ten years in the poorest regions) from both corporate and personal income taxes for investments in educational, health, and sports facilities.
- The 1995 investment incentives decree reintroduced a subsidized credit program but only for investments in research and development, environmental protection, regional handicrafts and small and medium-size industries.
- Specific regional-based incentives were provided from 1998 to the end of 2002: an exemption from employers' social security contributions in respect of newly created jobs and 5-year regional corporate income tax holiday.
- By 2000, ITAs were available at differentiated rates from 100 to 200 percent, but with a 15 percent withholding tax to claw back some of the revenue.
- By 2003, Turkey offered two main types of tax incentive: (1) The 40 percent investment tax allowance, which is still in effect; (2) Extensive tax benefits in the FTZ, which are currently as described in Box 4.2.
- Regional incentives were again offered in 2004 and expanded in 2005.

Currently, there are incentives for investment and business activity in specific regions, sectors or activities:

- Software development and R&D activities in the *technological development zones* (established by the Council of Ministers) are exempt from CIT, and the salaries of R&D personnel in these companies are PIT-exempt, until the end of 2013.
- Under the new Law 5084 (which succeeds Law 4324) companies establishing themselves before the end of 2008 in regions with a per-capita income below 1,500 USD are granted free land and energy subsidies. If they operate within an organized industrial zone, they may retain the tax withheld on their wage bill to the tax office for five years. Companies outside an industrial zone retain 80 percent of withheld wage taxes. (In calculating the taxes to be

withheld, it is assumed that all employees are paid the official minimum wage). For the same five-year period, the Treasury pays the employer's social security contribution.

- This scheme was extended to an additional 13 provinces, and made more generous, in 2005: firms of at least 30 employees, which add at least 10 new jobs, attract SSK, PIT subsidies for 'one new and two old' employees. An additional energy subsidy free land is also available.
- Companies established in the former Turkish free-trade zones (now called *customs free zones*) before 6 February 2004 are exempt from CIT until expiry of their license to operate. The wages and salaries of these companies are PIT-exempt until the end of 2008, and their transactions are exempt from all other taxes, duties and fees until then. New entrants may also enjoy CIT exemption until EU accession. Regardless of the expiry date of the original license, profits from the sale of goods produced in the zones can be exempt from tax only while Turkey remains outside the EU.
- Business income derived operating ships registered with the Turkish International Shipping Registry is exempt from CIT (including on capital gains from the transfer of such ships) and PIT withholding. The wages of those working on such ships are PIT-exempt.
- Companies investing in 'cultural activities' (constructing and operating museums, cinemas, theatres, or cultural centres, and so are free land and subsidized energy. For the first three years, they may retain half the income tax withheld from their wage bill), and for the next seven years they may retain 25 percent. Moreover, for 10 years the Treasury pays the employer's social security tax for these companies. To qualify for these benefits, firms have to obtain a 'cultural investment document' from the Ministry of Tourism and Culture.

Several incentives have been removed for new investments, but grandfathered for old:

- Operators of the *organized industrial zones* who received their licenses before 6 February 2004 are exempt from CIT until their license expires, and from PIT until the end of 2008.
- Companies established in *first priority regions* between the start of 1998 and the end of 2000 and employing more than 10 employees are granted a five-year exemption from CIT and a subsequent reduction of CIT until the end of 2007. Until then, the employer's social security contribution is paid by the Treasury.

ANNEXES Chapter 4

Annex Table A 4.1: Labor Code (Law 4857) compliance with EU employment directives

EU directive	Assessment of Labor Code		
	Conforms	Does not conform	Not well-defined or still some differences
Organization of working time	<ul style="list-style-type: none"> • Normal work week • Minimum rest time • Shift work • Night work 	<ul style="list-style-type: none"> • Maximum week time • Minimum annual leave • Patterns of work 	
Framework agreement on fixed-term work	<ul style="list-style-type: none"> • Definition of fixed-term work • Fixed-term workers rights 	<ul style="list-style-type: none"> • Information/training 	<ul style="list-style-type: none"> • Definition of “comparable permanent worker” • Abuse of successive contracts
Framework agreement on part-time work	<ul style="list-style-type: none"> • Definition of fixed-time work • No shift from full-time to part-time without consent • Part-time workers rights 		<ul style="list-style-type: none"> • Definition of “comparable full-time worker” • Information/training
Collective redundancies	<ul style="list-style-type: none"> • Definition of collective redundancy • Information and consultation • Procedure 		
Employees’ rights in the event of transfers	<ul style="list-style-type: none"> • Employees’ rights • Employers’ liabilities 	<ul style="list-style-type: none"> • Information and consultation 	
Protection of employees in the event of insolvency	<ul style="list-style-type: none"> • Claims • Guarantees • Coverage 		
Protection of young people at work	<ul style="list-style-type: none"> • Definition of “young” • Employers’ obligations • Restrictions 		
Information for employees	<ul style="list-style-type: none"> • Time limits • Enforcement 		<ul style="list-style-type: none"> • Information content
Consultation and employee representation			<ul style="list-style-type: none"> • Information content • Coverage • Procedures

Source: Taymaz and Ozler (2005)

ANNEXES Chapter 6
Annex 6.1

EU Strategic Documents on Innovation, Technology and Skills

Year	Reference Document	Key Messages
1973	Directorate General for Research established by European Commission.	
1980s	ESPIRIT – European Strategic Program for R&D in IT	Large technology program to support R&D in IT, which serves as a role model for several EC technology programs.
1984-87	FP1 - First Framework Program	Since 1984 European Community research and technological development activities have been defined and implemented through a series of multi-annual framework programs that last 5 years, with the last year of one and first year of the next program overlapping. FP1 with a budget of EUR 3.75 billion on Research and Technology Development and Demonstration (RTDD) covers 8 strategic areas, with a significant focus on energy issues. Introduces the concept on an “EU approach to R&D” to coordinate national policies.
1987	SEA - Single European Act of 1987	First real codification of European technology policy initiates with the SEA transferring competences for common research and technology policy from national states to the European Commission. Common regional elements and issues covered by FPs, domestic issues still covered by national policies.
1987-1991	FP2 - Second Framework Program	FP2 with a budget of EUR 5.4 billion focused on ICT research.
1991-1994	FP3 - Third Framework Program	FP3 with a budget of EUR 6.6 billion focused on environmental and biotech research.
1994-1998	FP4 - Fourth Framework Program	FP4 with a budget of EUR 12.3 billion united all Community research under one umbrella. Innovation covered specifically for the first time. Technology foresight introduced with FP 4 as a new policy instrument to identify common technology/ sector policy areas to be focused on in the EU. Establishment of Institute of Prospective Studies (IPTS) in Seville, Spain in 1994, comprising a network of 25 national foresight institutes.
1995	Green Paper on Innovation – COM(95)688	Innovation is placed at the core of EU economic policymaking and as a source for economic growth. The business sector is given a special role as catalyst for innovation.
1996	First Action Plan for Innovation in Europe, Innovation for Growth and Employment	First generation “linear” innovation policy: from science to innovation.
2000	The Lisbon Agenda	The Lisbon European Council Summit held in March 2000 set an objective to ‘make the European Union the most competitive and dynamic knowledge-based economy in the world by 2010’. Technology, innovation and labor skills are key measures to achieve this target.

Year	Reference Document	Key Messages
1998-2002	FP5 – Fifth Framework Program	<p>FP5 with a budget of EUR 13.8 billion (without EURATOM) focuses on 4 thematic priority areas. FP5 introduces a strategic shift in Commission research policy from funding of research and development towards more comprehensive innovation policy stimulated by the 1995 Green Paper.</p> <p>4 thematic priority areas: 3 horizontal measures:</p> <ul style="list-style-type: none"> - promotion of innovation and encouragement of SME participation - international role of Community research - improving the human research potential and socio-economic knowledge base
2002-2006	FP6 – Sixth Framework Program	<p>FP6 with a budget of EUR 16.2 billion (without EURATOM) defined as the main policy instrument to establish a European Research Area (ERA) to coordinate fragmented nature of research in Europe.</p> <p>7 thematic priority areas</p>
2002-2006	FP6 – Sixth Framework Program (follows)	<p>4 horizontal measures focus on EU weakness in the “knowledge” area:</p> <ul style="list-style-type: none"> - Research and innovation - Human resources and mobility - Research infrastructure - Skills and society
2002	Turkey becomes an associate member of FP6.	Turkey pays EUR 245 million, plus receives EUR 40 million in grants from EC. TUBITAK appointed national coordinator for FP6.
2003	Innovation Tomorrow	<p>To meet Lisbon goals, EU focuses on the transition to third-generation innovation policy, away from a “linear” view of developing innovation (from science to innovation) to innovation as a key element of several policy areas. It also defines innovation in broad terms (e.g. technological and organizational). The essential role of the business sector as a catalyst of innovation is reiterated.</p> <p>Key Issues Addressed: IPRs:</p> <ul style="list-style-type: none"> - Proposes European patent and shorter patent cycles, IPR & competition policy need joint

consideration

Access to Financial Instruments:

- early stage innovation finance for SME
- for licensing, patent investigations

Taxation:

- Recommends Tax incentives for R&D & non-RD inputs such as continued improvement in innovation performance

Infrastructure (HEIs):

- promote technology and innovation management training
- incentives for individuals with entrepreneurial and intrapreneurial experience to engage in HEI teaching

Trade: Provide incentives for trade in K intensive business services

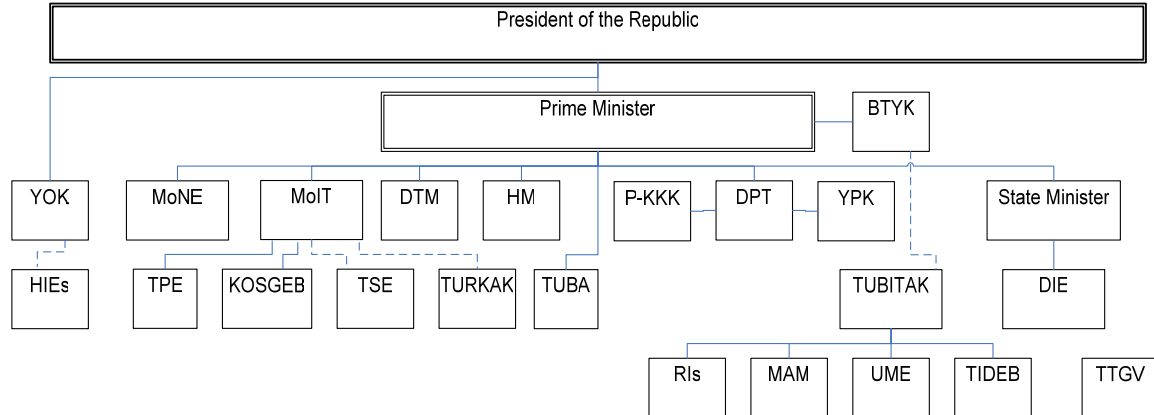
Year	Reference Document	Key Messages
2004	“Innovate for a Competitive Europe” New Action Plan for Innovation	<ul style="list-style-type: none">- Innovate Everywhere – Innovation at the heart of enterprises. Pull research & entrepreneurship together to create value-added sustainable growth. Promote excellence and benchmarking- Innovation to Market – flexible regulations and standards that promote innovation, support consumer confidence in innovative products- Knowledge Everywhere – Remove barriers for knowledge transfer and absorption between industry-science and within industry, promote identification, licensing and absorption of existing international IP by SMEs and creation of IP by European firms. Innovation and SMEs to be center of future Framework Programs.- Invest in Innovation- Mobilize European Financial Instruments to promote start-ups and young European companies, Structural Funds to support Innovation to internationalize regional clusters and foster absorption by SMEs, proactive State Aid policies that do not impact competition adversely.- Skills for Innovation – promoting e-skills, innovation management techniques, import labor and improve skills mobility.-Efficient Innovation Governance – improve governance by member states buy in.
2005	CIP - Competitiveness and Innovation Framework Program (CIP)	EC adopts CIP as a new framework program. It will group actions in the area of innovation and competitiveness to fully meet the goals set in the Lisbon agenda.
2007-2013	CIP	Implementation period of the CIP. Innovation-related activities in the RTDD framework programs will be covered under the CIP.

Source: Kapil, N., World Bank, 2005.

Annex 6.2 Key Actors of the Turkey National Innovation System

The two main institutions of the Turkish NIS are the Supreme Council of Science and Technology (BTYK) and the Scientific and Technological Research Council of Turkey (TUBITAK). BTYK is the highest-level science and technology policy making and coordination body. It is chaired by the Prime Minister. BTYK is responsible for approving the policies proposed by TUBITAK, for identifying the responsible bodies and coordinators for each policy measure, and for following up and coordinating implementation of policy actions. TUBITAK is the secretary of BTYK and the implementing agency for science, technology and innovation support programs. It comprises institutions carrying out research in several areas, provides grants for industrial R&D and supports creation of university-industry research programs. Other relevant NIS institutions include the State Planning Organization (SPO), the Technology Development Foundation of Turkey (TTGV), and various Ministries. Figure 1 shows the organizational framework of the Turkish NIS, and Box 1 provides a summary description of the specific functions of each institution comprising the NIS.

Figure 1: The Turkish National Innovation System



- BTYK: Supreme Council of Science and Technology
- YPK: High Planning Council
- P-KKK: Money-Credit and Coordination Council
- YOK: Higher Education Council
- MoE: Ministry of Education
- MoIT: Ministry of Industry and Trade
- DTM: Undersecretariat of Foreign Trade
- HM: Undersecretariat of Treasury
- DPT: State Planning Organization
- TPE: Turkish Patent Institute
- KOSGEB: Small and Medium Industry Development Organization
- TSE: Turkish Standards Institute
- TURKAK: Turkish Accreditation Agency
- TUBA: Turkish Academy of Science
- TUBITAK: Scientific and Technological Council of Turkey
- TUDEB: Technology Monitoring and Assessment Directorate of TUBITAK
- TTGV: Technology Development Foundation of Turkey
- MAM: Marmara Research Centre of TUBITAK
- UME: National Metrology Institute of TUBITAK

RIs: Research Institutes

HIEs: Higher Education Institutes

Source: European Trend Chart on Innovation, Annual Innovation Policy for Turkey, September 2003-August 2004.

Box 1: Key Actors of the Turkish National Innovation System

The Supreme Council of Science and Technology (BTYK): the highest level science and technology policy making and co-ordination body in Turkey. Its responsibilities include approval of the policies proposed by the Scientific and Technical Research Council of Turkey (TUBITAK) and of the policies' implementation plan. It is chaired by the Prime Minister and comprises all relevant Ministries.

The Scientific and Technological Research Council of Turkey (TUBITAK): an autonomous body affiliated to the Prime Ministry, TUBITAK is responsible for the formulation of Turkey's science and technology policy as the secretary of BTYK. It is also the implementing agency for science, technology and innovation support programs. Finally, it is the National Coordination Office for Turkey in the EU Sixth Framework Programme. The following institutions are connected to TUBITAK:

- *Marmara Research Center (TUBITAK-MAM)*:* the largest contract research center in the country. It carries out research in several areas, including materials, ICT, energy & environment, food technology, and earth & marine sciences. MAM also runs a technopark and a technology free zone.
- *National Metrology Institute (TUBITAK-UME):* responsible for measurement, training, consultancy, information dissemination and infrastructure support.
- *Technology Monitoring and Assessment Directorate (TUBITAK-TIDEB)*:* provides grants for industrial R&D and has supported creation of six university-industry research centers program (USAMs). They include: Ceramics (at Anadolu University), Textile (Ege University), Biomedical Technologies (Hacettepe University), and advanced manufacturing (METU-OSTIM Organized Industrial Zone). USAMs promote university/industry and inter-firm collaboration for innovation.

State Planning Organization (DPT): responsible for the preparation and implementation of Turkey Five-Year Development Plans, which include innovation policy items for the purposes of budget allocations (assigned through its Co-ordination Council, P-KKK).

Under-Secretariat of Treasury (HM) and Under-Secretariat of Foreign Trade (DTM): involved in the formulation of innovation policies. DTM also provides funds to the "Implementing Agencies" (TUBITAK-TIDEB and the Technology Development Foundation of Turkey, TTGV) for supporting R&D and innovation activities of industry – based on the decree of P-KKK.

Continuation of Box 1: Key Actors of the Turkish National Innovation System

Ministry of Industry and Trade (MoIT): responsible for the determination of the objectives for the Turkish industrial policy, the assignment of technoparks (or ‘technology development zones’) and the establishment of Organized Industrial Zones. The following institutions are connected to MoIT:

- *Turkish Patent Institute (TPE)*: responsible for industrial and intellectual property rights, and for informing and guiding the industrialists, R&D institutes and individuals on IPR-related issues.
- *Turkish Accreditation Agency (TURKAK)*: responsible for accrediting organizations and ensuring that these organizations operate in accordance with national and international standards.
- *Turkish Standards Institute (TSE)*: responsible for standards preparation, product certification and testing.
- *Small and Medium Size Industry Development Organization (KOSGEB)**: autonomous public body supporting small and medium enterprises (SMEs). It finances 14 incubators (Technology Development Centers, TEKMERs) in cooperation with technical universities and industrial chambers.

*Note: * indicates implementing agencies that have the explicit objective of facilitating collaboration between industry and research institutions.*

Source: Summary based on Elci, S. (2005), op. cit.

Box 1 (follows): Key Actors of the Turkish National Innovation System

Ministry of Finance (MoF): responsible for the implementation of the R&D tax postponement and tax exemption schemes and the tax exemptions provided to the companies located in technoparks.

Ministry of National Education (MoNE) and the *Higher Education Council (YOK)*: the key players in the NIS for development of the human capital for innovation. They design and implement the education and training policies and coordinate policy implementation.

Turkish Academy of Science (TUBA): It is affiliated to the Prime Minister, and it is mainly engaged in co-operation with the academia and supporting academic research.

State Institute of Statistics (DIE): connected to one of the State Ministers and responsible for providing statistical information related to R&D, innovation and industry.

*Technology Development Foundation of Turkey (TTGV)**: a not-for-profit foundation financing technology development projects, technoparks, and start-up funds. It is financed by HM from resources of international donors (e.g., the World Bank) and DTM.

Innovation intermediaries that support collaboration between industry and research institutions, in addition to the (*) organizations included above:

Innovation Relay Centers (IRC-Ege and IRC-Anatolia): established with EC funds from the Sixth Framework Program to foster international technology transfer activities.

Associations and Chambers of Commerce:

- *The Union of Chambers of Commerce and Industry (TOBB)*: a hub of a network of industrial and commercial chambers and non-governmental organizations which facilitates the flows in the NIS.
- *Chambers of industry and commerce* located in several regions around the country. They have important roles as intermediaries. Only a few of them are active on innovation related issues, such as the Istanbul Chamber of Industry and Mersin Chamber of Industry and Trade.
- *Turkish Industrialists' and Businessmen's Association (TUSIAD)*, responsible for granting awards for innovation and for organizing Technology Awards and Congress with TTGV and TUBITAK. awareness and facilitating information flows between the public and private sectors.

- *The Technology Management Association (TYD)* which aims at creating a culture of innovation and innovation-based entrepreneurship among school children and teachers in cooperation with private sector companies, NGOs and academia.
- Other remarkable non-governmental organizations with mediating role in innovation related issues include the *Foreign Investors Association (YASED)*, the *Economic Development Foundation (IKV)* and sectoral bodies such as the *ICT Foundation of Turkey (TBV)*, *Informatics Association of Turkey (TBD)* and the *Automotive Manufacturers Association Of Turkey (OSD)*. They all carry out activities for raising awareness and facilitating information flows between the public and private sectors.

Technology parks and incubators. There are 17 technoparks established by universities and research centers under the ‘Law of Technology Development Regions’ and a few incubators set up by private companies (e.g., Ericsson, Koc Holding, and Siemens). The Cyberpark established by the Bilkent University with financing from the World Bank’s ITP program- includes an incubator set up jointly with KOSGEB is the first incubator founded through private-public partnership.

*Note: * indicates implementing agencies that have the explicit objective of facilitating collaboration between industry and research institutions.*

Source: Summary based on Elci, S. (2005), op. cit.

Annex 6.3 Strategic Objectives related to science, technology and innovation

BTYK's *Science and Technology Strategies Implementation Plan* for the period 2005-2010 (approved in March '05). The Science and Technology Policies Action Plan is a strategic framework for actions to be undertaken by several S&T institutions between 2005 and 2010. It consists of actions defined under seven strategic objectives that are in line with the main objectives, basic principles and major targets of the National S&T Strategy. The seven strategic objectives are:

- Increasing awareness on science and technology (S&T) and developing an S&T culture
- Increasing and developing S&T human resources
- Supporting result oriented and qualified research
- Increasing the effectiveness of S&T management
- Enhancing the science and technology performance of private firms
- Developing research environment and infrastructure
- Increasing the effectiveness of national and international networks

In a meeting held in March 2005, BTYK appointed TUBITAK as the institution which will monitor and coordinate the implementation of the S&T Plan. TUBITAK has carried out a survey of key participants to increase awareness on the plan and assess the current situation in the areas identified above.

Vision 2023 Project, objectives to be implemented by TUBITAK between 2005 and 2010:

1. Developing knowledge-intensive products with high added value and becoming a global design and production center for consumer goods.
2. Becoming competitive in agricultural production.
3. Developing competencies in development of space and defense technologies.
4. Developing competencies in flexible manufacturing-flexible automation processes and technologies.
5. Gaining skills for clean production.
6. Gaining skills for developing material technologies.
7. Developing competencies in the field of health and life sciences.
8. Gaining skills for developing modern and safe transportation systems.
9. Ensuring food safety and reliability.
10. Gaining skills for healthy and modern urbanization and establishing required infrastructure.
11. Developing competencies in energy technologies.
12. Gaining skills for the productive use of natural resources.
13. Developing competencies in environmental technologies.
14. Strengthening the technological infrastructure for transition to the information society.

Eight priorities for competency building:

1. Information and Communication Technologies
2. Biotechnology and Genetic Technologies

3. Material Technologies
4. Nanotechnology
5. Design Technologies
6. Mechatronics
7. Production Processes and Technologies
8. Energy and Environmental Technologies

Summary of complementary objectives included in *The Eight Five-Year Development Plan (2000-2005)*; *The Preliminary National Development Plan*; *Industrial Policy for Turkey*; and *SME Strategy and Action Plan*.

- Fully establishing and efficiently operating the National Innovation System (NIS).
- Completing legal and institutional arrangements for the smooth functioning of the NIS
- Supporting scientific and technological developments to ensure Turkey's transition to a knowledge economy, including: increasing state supports for R&D, enhancing physical, human and legislative infrastructure for innovation, encouraging establishment of technoparks and promoting growth of venture capital.
- Making the Intellectual Property Rights regime fully operational, and raising public awareness on IPR.
- Encouraging improvement of university-industry collaboration by establishing technological support and development centers, technoparks and technology institutes.
- Increasing innovative capabilities of enterprises through training and international co-operation.

Source: Summary based on Elci, S. (2005), op. cit.

ANNEXES Chapter 8

Annex 8.1: Model-based simulations of impact of EU accession on agriculture and food sectors

Table A 8.1: Pre- and post-accession tariffs for the EU and Turkey with respect to trading partners

(tariffs in percent)

	European Union-25				Turkey				
	Turkey	2004 Other	Total	Post Total	EU	2004 Other	Total	Post-accession Other Total	
Merchandise trade	1.2	3.4	3.4	3.3	1.9	5.4	3.5	1.8	0.9
<i>Agriculture & food</i>	5.7	14.1	13.8	13.6	47.2	35.2	39.0	8.8	6.1
<i>Agriculture</i>	2.8	13.6	13.1	12.9	68.7	36.8	44.2	7.8	6.0
Rice	98.4	91.6	91.7	91.5	34.0	34.0	34.0	85.6	83.5
Wheat	4.0	10.5	10.3	10.2	40.0	40.0	40.0	12.4	9.1
Other grains	10.6	21.5	21.3	21.2	56.3	56.3	56.3	12.5	11.4
Oil seeds	0.2	1.7	1.7	1.7	20.0	20.0	20.0	1.0	0.9
Sugar	73.8	113.2	113.1	112.9	77.2	77.2	77.2	44.0	18.6
Plant-based fibers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vegetables & fruits	3.0	19.1	17.3	17.0	36.9	36.9	36.9	24.2	21.9
Other crops	0.5	2.8	2.7	2.7	39.7	39.7	39.7	3.6	3.1
Beef and sheep	1.2	6.2	6.1	6.1	135.0	135.0	135.0	1.7	0.2
Other livestock	2.2	1.2	1.2	1.2	135.0	135.0	135.0	0.8	0.4
<i>Processed foods</i>	12.1	14.7	14.6	14.4	27.5	31.1	29.4	11.5	6.2
Beef and sheep meat	64.6	52.5	52.5	52.4	227.5	227.5	227.5	38.4	33.7
Other meat products	28.0	25.8	25.8	25.6	227.5	227.5	227.5	30.0	16.7
Vegetable oils & fats	58.6	11.3	13.6	10.8	31.2	31.2	31.2	9.4	7.9
Dairy products	40.9	42.1	42.0	40.9	150.0	0.0	150.0	0.0	0.0
Other food	2.9	8.8	8.6	8.5	14.1	14.1	14.1	12.0	5.5
Beverages & tobacco	4.9	8.9	8.8	8.7	15.9	15.9	15.9	9.5	3.5
<i>Other natural resources</i>	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.0	0.0
<i>Fossil fuels</i>	0.5	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.2
<i>Textile & wearing apparel</i>	0.2	7.0	6.7	6.7	0.2	9.3	3.8	5.7	2.3
Textile	0.3	6.5	6.0	6.0	0.2	8.7	3.8	5.6	2.4
Wearing apparel	0.1	7.9	7.5	7.5	0.2	11.1	3.0	6.6	1.7
<i>Leather</i>	0.5	5.9	5.9	5.9	0.2	12.8	4.9	5.8	2.1
<i>Chemicals rubber & plastics</i>	0.3	2.2	2.1	2.1	0.2	4.1	1.3	1.7	0.5
<i>Iron and steel</i>	0.0	0.7	0.6	0.6	0.5	8.2	5.5	0.7	0.4
<i>Motor vehicles & parts</i>	0.0	6.4	6.0	6.0	0.2	8.6	1.0	5.7	0.6
<i>Capital goods</i>	0.1	1.1	1.1	1.1	0.3	1.7	0.8	1.1	0.4
<i>Other manufacturing</i>	2.8	2.8	2.8	2.7	0.1	2.7	1.1	1.9	0.7

Source: GTAP release 6.0 and CEPII.

Table A 8.2: Average domestic support in Turkey pre- and post-cession

	In percent		In millions of dollars	
	Pre-	Post-	Pre-	Post-
Output subsidies	4.0	5.3	235	1,196
Capital payments	2.0	18.4	94	997
Land payments	56.2	50.7	1,799	2,017
Input subsidies		6.1	0	446
Sub-total			2,128	4,657
Export subsidies	1.7	5.0	33	144
Total			2,161	4,801

Source: GTAP 6.0 and own calculations

Table A 8.3: Output impacts of accession

	<i>Pre- accession</i>	<i>Change in \$ million</i>	<i>Percent change</i>	<i>Structure^a in percent</i>	<i>Structure^a in percent</i>
Agriculture and food	31,750	4,777	15.0	14.3	15.0
Agriculture	21,598	1,722	8.0	11.4	11.3
Rice	29	258	896.5	0.1	1.0
Wheat	1,698	241	14.2	8.0	8.8
Other grains	718	-29	-4.0	3.4	3.2
Oil seeds	432	17	3.9	3.0	2.9
Sugar	658	33	5.1	2.1	2.5
Plant-based fibers	2,963	1,875	63.3	7.4	11.4
Vegetables and fruits	9,720	-26	-0.3	57.0	57.3
Other crops	1,608	-645	-40.1	9.9	6.0
Beef and sheep	1,313	509	38.8	3.0	2.6
Raw milk	1,440	193	13.4	3.7	3.7
Other livestock	1,019	-705	-69.2	2.4	0.7
Processed foods	10,152	3,056	30.1	2.9	3.6
Beef and sheep meat	539	126	23.3	3.5	3.5
Other meat products	317	261	82.4	2.6	3.9
Vegetable oils and fats	1,159	2,389	206.1	8.1	20.2
Dairy products	3,082	250	8.1	38.6	34.0
Other food	2,611	-118	-4.5	26.8	20.8
Beverages and tobacco	2,444	148	6.1	20.5	17.7

Note: a. The structure for the three broad aggregates is relative to aggregate value added. For the agricultural sectors, it represents the share of total agricultural value added and similarly for the food sectors.

Source: LINKAGE simulation results.

Table A 8.4: Trade impacts—change in export and import values in millions of dollars

	Exports			Imports			Net Trade
	EU	Other	Total	EU	Other	Total	
Agriculture and food	3,734	837	4,572	1,374	1,338	2,712	1,860
<i>Agriculture</i>	571	710	1,281	614	957	1,571	-290
Rice	234	0	234	8	12	21	213
Wheat	25	303	328	36	88	124	204
Other grains	18	98	116	0	135	135	-19
Oil seeds	3	2	5	8	129	137	-132
Sugar	39	0	39	66	-1	65	-27
Plant-based fibers	248	248	496	-43	-144	-187	683
Vegetables and fruits	-23	-36	-59	30	79	109	-168
Other crops	-47	-108	-156	86	317	403	-558
Beef and sheep	21	176	197	41	6	47	149
Raw milk	9	14	22	0	0	0	22
Other livestock	46	14	60	379	337	717	-657
<i>Processed foods</i>	3,164	127	3,291	760	381	1,141	2,150
Beef and sheep meat	277	0	277	4	133	137	140
Other meat products	242	126	368	129	24	153	215
Vegetable oils and fats	2,272	-3	2,268	102	233	335	1,934
Dairy products	266	114	380	296	0	296	84
Other food	68	-130	-62	143	-7	135	-197
Beverages and tobacco	40	21	60	87	-2	85	-24
Other natural resources	-31	-30	-61	5	26	31	-92
Fossil fuels	1,653	1,255	2,908	60	1,298	1,358	1,550
Textile and wearing apparel	-268	-16	-284	-24	242	218	-502
Textile	-70	14	6	-17	148	132	-187
Wearing apparel	-219	-49	-268	15	39	53	-321
Leather	21	18	39	-22	55	33	6
Chemicals rubber and plastics	-144	-168	-312	248	434	682	-994
Iron and steel	-183	-219	-403	-232	413	182	-584
Motor vehicles and parts	-368	-117	-485	182	88	270	-755
Capital goods	-532	-363	-895	583	393	976	-1,871
Other manufacturing	71	-330	-260	270	289	559	-819
Construction	-19	-15	-35	4	2	6	-40
Utilities and services	-759	-770	-1,530	294	349	643	-2,173
Other manufacturing	465	28	492	1,115	2,942	4,057	-3,565
Non tradeables	-779	-786	-1,564	297	352	649	-2,213
Merchandise trade	3,931	849	4,780	2,465	4,522	6,987	-2,207
Total	3,152	63	3,216	2,763	4,873	7,636	-4,420

Annex 8.2-Regional Spending By Agency

1. Regional spending for each agency is diverse due to many reasons including location of natural resources (forests in the case of MOEF and water resources in the case of DSI) as well as sizeable ongoing projects. However there are problems with prioritizing the projects where there is very limited available funding. DSI allocates its agricultural spending based on ongoing irrigation projects in 26 different areas. However, funding amounts are insufficient to complete the current projects and there is no clear plan for prioritization of project implementation. Therefore, many areas that are in urgent need wait for a long time to receive enough funding to be completed. With current levels of investment allocation²⁷⁶ and without inclusion of any new projects, it would take 35 years to finish all DSI's on-going.
2. In 2002, DSI allocates 39 percent of its investment budget in the Southeast region and as much as 28 percent is distributed in Urfa province alone. Almost all of these investments are made under the GAP project²⁷⁷, still there are problems with GAP due to insufficient funding; i.e. in order to complete the investment program fully by the planned year of 2010 the current size of investment allocations have to be increased considerably. Apart from that, Mediterranean region receives the lowest allocation from DSI budget with only 5 percent.
3. Unlike DSI, MARA spends the lowest share of both recurrent and investment budget in the Southeast region (9 percent each); whereas, the highest share of recurrent and investment budgets are used in Central Anatolia (19 percent and 18 percent respectively). GDRS's spending (direct recurrent and investment costs) is concentrated in the Black Sea region (24 percent) and the least amount is utilized in the Aegean region (10 percent). MOEF also distributes its highest recurrent and investment budgets in the Black Sea region (21 percent and 22 percent respectively) and lowest budgets in the Southeast region (6 percent and 4 percent respectively). Tedas and GD Roads are similar to MOEF and spend the highest portion of investment budget in the Black Sea region (29 percent and 33 percent respectively). Tedas spends the least in the Southeast region (7 percent) and GD Roads spends the least in the Aegean region (5 percent). (Annex 2 Table 2)
4. Rural Expenditures per rural population shows that MARA utilizes the highest amounts in Mediterranean and the least in South East Anatolia; DSI allocates the highest again in South East and the least in Mediterranean; GDRS spends the highest amounts in Black Sea and lowest amounts in Aegean; MOEF spend the highest recurrent in Black Sea and highest investment in Mediterranean and the lowest amounts in South East; TEDAS and GD roads makes the highest investments per rural population in Black Sea and the lowest in South East and Aegean respectively. The biggest total recurrent spending per rural population is made in Black Sea and the biggest investment per rural population is made in South East regions. The lowest ratio for recurrent budget is spent in Aegean and for investment is spent in Central Anatolia. (Annex 2, Table 4 and Chart 3).

²⁷⁶ World Bank "Turkey Policy and Investment Priorities for Agricultural and Rural Development", February 2005.

²⁷⁷ GAP accounted for approximately 15 percent of rural budget expenditures (excluding energy) in 2002. Through 2001, 10.8 quadrillion TL had been spent for GAP. (Ibid, Annex 2.)

Annex 2

Table 1. 2002 Rural Expenditures (Current NTL)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
MARA								
Recurrent	58,338,522	60,649,751	70,524,832	89,570,525	79,061,152	61,378,262	41,702,766	461,225,809
Investment	4,528,732	5,211,154	6,031,081	6,183,500	5,730,211	4,168,038	3,249,128	35,101,844
Total	62,867,253	65,860,905	76,555,913	95,754,025	84,791,363	65,546,300	44,951,894	496,327,653
DSI/1								
Recurrent	18,795,032	24,948,181	12,702,286	37,578,893	22,644,243	35,393,044	98,595,021	250,656,701
Investment	74,441,499	98,812,281	50,309,952	148,838,752	89,687,072	140,181,258	390,505,373	992,776,187
Total	93,236,531	123,760,462	63,012,238	186,417,645	112,331,315	175,574,302	489,100,394	1,243,432,888
GDRS/2								
Recurrent	102,650,209	99,187,689	124,227,595	157,195,897	246,395,064	165,414,407	116,813,445	1,011,884,307
Investment	38,755,714	37,448,435	46,902,282	59,349,506	93,026,762	62,452,414	44,103,061	382,038,173
Total	141,405,923	136,636,124	171,129,877	216,545,403	339,421,826	227,866,822	160,916,506	1,393,922,480
MOEF								
Recurrent	17,776,113	15,092,250	19,509,806	28,012,348	27,302,283	16,688,577	7,745,540	132,126,916
Investment	7,293,175	7,184,988	8,834,306	7,669,737	9,884,297	3,315,698	1,715,683	45,898,883
Total	25,069,288	22,277,238	28,344,112	35,682,085	37,186,579	20,005,274	9,461,223	178,025,799
TEDAS								
Investment	16,671,511	20,662,846	7,767,465	14,144,358	30,489,515	9,455,821	7,343,418	106,534,934
GD Roads								
Investment	3,129,426	2,222,713	7,539,278	6,400,467	15,403,894	9,419,892	2,495,704	46,611,374
TOTAL								
Recurrent	197,559,876	199,877,871	226,964,519	312,357,663	375,402,742	278,874,290	264,856,772	1,855,893,733
Investment	144,820,056	171,542,417	127,384,364	242,586,320	244,221,750	228,994,121	449,412,367	1,608,961,395
Total	342,379,932	371,420,288	354,348,883	554,943,983	619,624,492	507,868,411	714,269,138	3,464,855,128
TOTAL (Million USD)								
Recurrent	131.3	132.9	150.9	207.7	249.6	185.4	176.1	1,233.9
Investment	96.3	114.0	84.7	161.3	162.4	152.2	298.8	1,069.7
Total	227.6	246.9	235.6	368.9	412.0	337.7	474.9	2,303.6

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
Ag GDP 2002 (NTL)/3	4,961,121,092	5,634,190,936	4,662,538,116	5,757,973,574	4,526,425,639	2,570,836,311	3,223,838,334	31,336,924,000
Rural Population	2,238,838	3,492,436	2,329,310	5,109,891	2,829,232	3,508,465	3,216,949	22,725,121
Ag GDP Per Capita (NTL)	2,216	1,613	2,002	1,127	1,600	733	1,002	1,379
Exchange Rate (\$/TL) (Annual Average)		1,504,119						

1/ DSI's current budget is allocated based on regional distribution of investments.

2/GDRS's current and investment budgets are allocated based on the regional distribution of direct costs of investments as shown below.

Direct Costs of Investment	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
Rural Roads	71,052	64,488	74,450	122,673	203,766	128,670	74,438	739,537
Drinking Water & Other	26,958	30,216	44,162	27,417	31,491	29,267	37,095	226,606
Total	98,010	94,704	118,612	150,090	235,257	157,937	111,533	966,143
Region's Share	10.1%	9.8%	12.3%	15.5%	24.4%	16.3%	11.5%	100%

3/ Regional Ag GDP for 2000 is reflated to 2002 levels by using GNP deflator.

Table 2. 2002 Rural Expenditures for Each Agency by Region (%)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
MARA								
Recurrent	12.6%	13.1%	15.3%	19.4%	17.1%	13.3%	9.0%	100.0%
Investment	12.9%	14.8%	17.2%	17.6%	16.3%	11.9%	9.3%	100.0%
Total	12.7%	13.3%	15.4%	19.3%	17.1%	13.2%	9.1%	100.0%
DSI/1								
Recurrent	7.5%	10.0%	5.1%	15.0%	9.0%	14.1%	39.3%	100.0%
Investment	7.5%	10.0%	5.1%	15.0%	9.0%	14.1%	39.3%	100.0%
Total	7.5%	10.0%	5.1%	15.0%	9.0%	14.1%	39.3%	100.0%
GDRS/2								
Recurrent	10.1%	9.8%	12.3%	15.5%	24.4%	16.3%	11.5%	100.0%
Investment	10.1%	9.8%	12.3%	15.5%	24.4%	16.3%	11.5%	100.0%
Total	10.1%	9.8%	12.3%	15.5%	24.4%	16.3%	11.5%	100.0%
MOEF								
Recurrent	13.5%	11.4%	14.8%	21.2%	20.7%	12.6%	5.9%	100.0%
Investment	15.9%	15.7%	19.2%	16.7%	21.5%	7.2%	3.7%	100.0%
Total	14.1%	12.5%	15.9%	20.0%	20.9%	11.2%	5.3%	100.0%
TEDAS								
Investment	15.6%	19.4%	7.3%	13.3%	28.6%	8.9%	6.9%	100.0%
GD Roads								
Investment	6.7%	4.8%	16.2%	13.7%	33.0%	20.2%	5.4%	100.0%
TOTAL								
Recurrent	10.6%	10.8%	12.2%	16.8%	20.2%	15.0%	14.3%	100.0%
Investment	9.0%	10.7%	7.9%	15.1%	15.2%	14.2%	27.9%	100.0%
Total	9.9%	10.7%	10.2%	16.0%	17.9%	14.7%	20.6%	100.0%

Table 3. 2002 Rural Expenditures by Agricultural GDP (%)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	South East	Total
MARA								
Recurrent	1.18%	1.08%	1.51%	1.56%	1.75%	2.39%	1.29%	1.47%
Investment	0.09%	0.09%	0.13%	0.11%	0.13%	0.16%	0.10%	0.11%
Total	1.27%	1.17%	1.64%	1.66%	1.87%	2.55%	1.39%	1.58%
DSI/1								
Recurrent	0.38%	0.44%	0.27%	0.65%	0.50%	1.38%	3.06%	0.80%
Investment	1.50%	1.75%	1.08%	2.58%	1.98%	5.45%	12.11%	3.17%
Total	1.88%	2.20%	1.35%	3.24%	2.48%	6.83%	15.17%	3.97%
GDRS/2								
Recurrent	2.07%	1.76%	2.66%	2.73%	5.44%	6.43%	3.62%	3.23%
Investment	0.78%	0.66%	1.01%	1.03%	2.06%	2.43%	1.37%	1.22%
Total	2.85%	2.43%	3.67%	3.76%	7.50%	8.86%	4.99%	4.45%
MOEF								
Recurrent	0.36%	0.27%	0.42%	0.49%	0.60%	0.65%	0.24%	0.42%
Investment	0.15%	0.13%	0.19%	0.13%	0.22%	0.13%	0.05%	0.15%
Total	0.51%	0.40%	0.61%	0.62%	0.82%	0.78%	0.29%	0.57%
TEDAS								
Investment	0.34%	0.37%	0.17%	0.25%	0.67%	0.37%	0.23%	0.34%
GD Roads								
Investment	0.06%	0.04%	0.16%	0.11%	0.34%	0.37%	0.08%	0.15%
TOTAL								
Recurrent	3.98%	3.55%	4.87%	5.42%	8.29%	10.85%	8.22%	5.92%
Investment	2.92%	3.04%	2.73%	4.21%	5.40%	8.91%	13.94%	5.13%
Total	6.90%	6.59%	7.60%	9.64%	13.69%	19.75%	22.16%	11.06%

Table 4. 2002 Rural Expenditures by Rural Population (Current NTL)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
MARA								
Recurrent	26	17	30	18	28	17	13	20
Investment	2	1	3	1	2	1	1	2
Total	28	19	33	19	30	19	14	22
DSI/1								
Recurrent	8	7	5	7	8	10	31	11
Investment	33	28	22	29	32	40	121	44
Total	42	35	27	36	40	50	152	55
GDRS/2								
Recurrent	46	28	53	31	87	47	36	45
Investment	17	11	20	12	33	18	14	17
Total	63	39	73	42	120	65	50	61
MOEF								
Recurrent	8	4	8	5	10	5	2	6
Investment	3	2	4	2	3	1	1	2
Total	11	6	12	7	13	6	3	8
TEDAS								
Investment	7	6	3	3	11	3	2	5
GD Roads								
Investment	1	1	3	1	5	3	1	2
TOTAL								
Recurrent	88	57	97	61	133	79	82	82
Investment	65	49	55	47	86	65	140	71
Total	153	106	152	109	219	145	222	152

Table 5. 2002 Rural Investments

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
Total Rural Investment (Current NTL)	144,820,056	171,542,417	127,384,364	242,586,320	244,221,750	228,994,121	449,412,367	1,608,961,395
Total Rural Investments by Region	9.0%	10.7%	7.9%	15.1%	15.2%	14.2%	27.9%	100.0%
Rural Investment/Ag GDP	2.92%	3.04%	2.73%	4.21%	5.40%	8.91%	13.94%	5.13%
Per Capita Rural Investment (Current NTL)	65	49	55	47	86	65	140	71
Per Capita Rural Investment (USD)	43	33	36	32	57	43	93	47

Rural Investments by Agency within Regions (%)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
MARA	3%	3%	5%	3%	2%	2%	1%	2%
DSI	51%	58%	39%	61%	37%	61%	87%	62%
GDRS	27%	22%	37%	24%	38%	27%	10%	24%
MOEF	5%	4%	7%	3%	4%	1%	0%	3%
TEDAS	12%	12%	6%	6%	12%	4%	2%	7%
GD Roads	2%	1%	6%	3%	6%	4%	1%	3%
	100%	100%	100%	100%	100%	100%	100%	100%

Rural Investments by Region for Each Agency (%)

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
MARA	13%	15%	17%	18%	16%	12%	9%	100%
DSI	7%	10%	5%	15%	9%	14%	39%	100%
GDRS	10%	10%	12%	16%	24%	16%	12%	100%
MOEF	16%	16%	19%	17%	22%	7%	4%	100%
TEDAS	16%	19%	7%	13%	29%	9%	7%	100%
GD Roads	7%	5%	16%	14%	33%	20%	5%	100%

	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	East Anatolia	SouthEast	Total
Ag GDP 2002 (Current NTL)/1	4,961,121,092	5,634,190,936	4,662,538,116	5,757,973,574	4,526,425,639	2,570,836,311	3,223,838,334	31,336,924,000
Rural Population	2,238,838	3,492,436	2,329,310	5,109,891	2,829,232	3,508,465	3,216,949	22,725,121
Ag GDP Per Capita (Current NTL)	2,216	1,613	2,002	1,127	1,600	733	1,002	1,379
Ag GDP Per Capita USD/2	1,473	1,073	1,331	749	1,064	487	666	917

1/ Regional Ag GDP for 2000 is reflated to 2002 levels by using GNP deflator.

2/ Exchange Rate (\$/TL) (Annual Average) 1,504,119

ANNEXES Chapter 9

Annex 9.2 Data Tables

Table 1: Total Health Expenditures, by Financing Agents, 1999-2004 (billion liras)

	1. General Govt	1.1			1.2	2. Private Sector	2		Total
		General Govt exc Social Sec. Funds	1.1.1 Central Govt	1.1.2 Local Govt	Social Security Funds		2.1 Private Household	2.2 Other	
1999	3,047,000	1,432,340	1,273,930	158,410	1,614,660	1,937,550	1,454,430	483,120	4,984,550
2000	5,190,130	2,308,090	1,845,170	462,920	2,882,040	3,057,780	2,280,150	777,630	8,247,910
2001	7,022,381	2,937,265	2,818,996	118,269	4,085,116	4,749,617	3,541,733	1,207,884	11,771,998
2002	11,743,273	4,497,469	4,331,273	166,196	7,177,304	6,828,504	5,091,934	1,736,570	18,571,777
2003	15,787,575	5,056,720	4,831,306	225,414	10,662,355	8,364,918	6,237,619	2,127,299	24,152,492
2004	19,526,730	6,582,478	6,316,507	265,972	12,875,752	9,159,585	6,830,193	2,329,392	28,686,315

Source: MOH, National Health Accounts (for 1999, 2000); updated author calculations for other years using MOH/MOF/SSK/BK/ES data sources

TABLE 2: Program and Actual Health Expenditures, 2005

<i>Billion TL</i>		2005 Prog	2005 Actual	Variation (2-1)	% Variation (3/1)
	HEALTH	1,190	1,115	-75	-6.34
Budget	PHARMA	1,125	832	-293	-26.04
(Civil Servants)	TOTAL	2,315	1,947	-368	-15.91
	HEALTH	3,960	3,117	-843	-21.29
SSK	PHARMA	2,340	3,551	1,211	51.74
	OTHER	480	432	-48	-10.10
	TOTAL	6,780	7,099	319	4.71
	HEALTH	1,077	1,132	55	5.08
ES	PHARMA	1,590	1,525	-65	-4.07
	OTHER	143	126	-17	-11.96
	TOTAL	2,810	2,783	-27	-0.97
	HEALTH	1,501	1,297	-204	-13.57
Bağ-Kur	PHARMA	2,160	2,058	-102	-4.72
	OTHER	253	268	15	5.78
	TOTAL	3,914	3,623	-291	-7.43
	HEALTH	850	902	52	6.14
Green Card	PHARMA	300	779	479	159.63
	TOTAL	1,150	1,681	531	46.18
	HEALTH	8,428	7,563	-865	-10.27
TOTAL	PHARMA	7,665	8,745	1,080	14.09
	OTHER	876	825	-51	-5.82
	TOTAL	16,969	17,133	164	0.96

Sources: (1) Budget (CS): January-November figures are taken from GD of Public Accounts of MoF. December is estimated to be the average of August-November.

(2) SSK : January-November taken from SSK. December is an estimate.

(3) ES : Taken from ES. January-September realization. October-November provisional. December is estimated to be the average of August-November.

(4) BK : January-November taken from BK. December is an estimate.

(5) Green Card: "Total" figures are taken from GD of Public Accounts of MoF. December is estimated to be the average of Aug-Nov. Last three months for "Health" and "Pharma" are estimates.

TABLE 3: Trends in Health Expenditures, 1998-2005

<i>Billion TL</i>		1998	1999	2000	2001	2002	2003	2004	2005
	HEALTH	102,491	190,191	285,429	479,749	836,776	1,063,078	1,242,000	1,114,613
BUDGET	PHARMA	112,689	198,272	308,001	543,393	817,224	972,410	1,220,000	832,094
	TOTAL	215,180	388,463	593,430	1,023,142	1,654,000	2,035,488	2,462,000	1,946,707
	HEALTH	204,596	389,238	622,780	1,123,942	1,493,315	2,559,000	3,287,500	3,116,900
SSK	PHARMA	165,585	304,017	572,409	992,616	1,878,558	2,450,000	2,471,528	3,550,600
	OTHER	36,000	55,445	85,000	141,400	222,477	352,079	446,500	431,519
	TOTAL	406,181	748,700	1,280,189	2,257,958	3,594,350	5,361,079	6,205,528	7,099,019
	HEALTH	68,031	135,635	222,152	345,171	645,117	867,046	1,135,000	1,131,833
ES	PHARMA	106,044	198,076	358,185	660,135	1,099,664	1,516,601	1,524,000	1,525,095
	OTHER	12,965	25,737	42,736	84,089	95,440	114,543	136,000	125,951
	TOTAL	187,040	359,448	623,073	1,089,395	1,840,221	2,498,190	2,795,000	2,782,879
	HEALTH	52,920	140,327	215,605	330,043	692,900	996,700	1,111,000	1,297,363
Bağ-Kur	PHARMA	121,417	231,419	458,336	780,446	1,321,531	1,892,100	2,302,000	2,058,075
	OTHER	26,918	41,672	56,355	118,360	180,900	200,700	247,000	267,629
	TOTAL	201,255	413,418	730,296	1,228,849	2,195,331	3,089,500	3,660,000	3,623,067
	BUDGET	51,843	108,161	166,580	300,817	536,937	665,000	612,000	902,180
GREEN CARD	PHARMA	9,095	19,273	31,939	91,438	112,878	252,000	450,000	778,880
	TOTAL	60,938	127,434	198,519	392,255	649,815	917,000	1,062,000	1,681,060
	HEALTH	479,881	963,552	1,512,546	2,579,722	4,205,045	6,150,824	7,387,500	7,562,890
TOTAL	PHARMA	514,830	951,057	1,728,870	3,068,028	5,229,855	7,083,111	7,967,528	8,744,744
	OTHER	75,883	122,854	184,091	343,849	498,817	667,322	829,500	825,099
	TOTAL	1,070,594	2,037,463	3,425,507	5,991,599	9,933,717	13,901,257	16,184,528	17,132,732

TABLE 4: Real Increase in Health Expenditures, 1998-2005 (percent, y/y)

<i>Billion TL</i>		1998	1999	2000	2001	2002	2003	2004	2005
	HEALTH	26.0	19.1	-0.5	8.2	20.8	3.7	6.7	-16.7
BUDGET	PHARMA	16.4	12.9	2.9	13.6	4.2	-2.9	14.6	-36.7
	TOTAL	20.8	15.9	1.2	11.0	12.0	0.5	10.5	-26.6
	HEALTH	9.8	22.1	6.0	16.2	-8.0	39.9	17.3	-12.0
SSK	PHARMA	32.6	17.8	24.8	11.7	31.1	6.5	-7.9	33.4
	OTHER	-5.3	-1.1	1.6	7.1	9.0	29.2	15.8	-10.3
	TOTAL	16.3	18.3	13.3	13.6	10.2	21.8	5.7	6.2
	HEALTH	29.2	28.0	8.5	0.0	29.4	9.7	19.5	-7.4
ES	PHARMA	26.5	19.9	19.8	18.7	15.4	12.6	-8.2	-7.1
	OTHER	19.8	27.4	10.0	26.7	-21.4	-2.0	8.4	-14.0
	TOTAL	27.0	23.3	14.9	12.6	17.0	10.8	2.2	-7.6
	HEALTH	63.3	70.2	1.8	-1.4	45.4	17.4	1.8	8.4
Bağ-Kur	PHARMA	177.4	22.3	31.2	9.6	17.3	16.9	11.1	-17.0
	OTHER	39.1	-0.6	-10.4	35.2	5.8	-9.4	12.4	0.6
	TOTAL	110.7	31.8	17.1	8.3	23.7	14.9	8.2	-8.1
	BUDGET	28.7	33.9	2.1	16.3	23.6	1.1	-16.0	36.9
GREEN CARD	PHARMA	77.9	36.0	9.8	84.3	-14.5	82.2	63.1	60.7
	TOTAL	34.3	34.2	3.2	27.2	14.7	15.2	5.8	47.0
	HEALTH	22.1	28.9	4.0	9.8	12.9	19.4	9.7	-4.9
TOTAL	PHARMA	45.3	18.6	20.5	14.3	18.0	10.6	2.7	1.9
	OTHER	11.3	3.9	-0.7	20.3	0.5	9.2	13.5	-7.6
	TOTAL	31.3	22.2	11.4	12.6	14.8	14.2	6.3	-1.7

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