FISCAL DECENTRALISATION, THE SIZE OF PUBLIC SECTOR AND ECONOMIC GROWTH IN TURKEY

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Abstract. Turkey has been experiencing fiscal decentralisation since the early 1980s. This study examines the impact of this fiscal decentralisation policy on public sector size and economic growth. Empirical findings of this study do not support the Leviathan hypothesis stating that fiscal decentralisation curbs the growth of central government. The finding is not compatible with explanations of the efficiency benefits of greater decentralisation. In this study, the relation between economic growth and fiscal decentralisation is also examined by using cross-section and time series data analyses. These analyses conclude that there is a negative relation between fiscal decentralisation and economic growth. Insignificance of fiscal decentralisation and lack of competing local governments are pointed out as explanations of the main findings.

Introduction

Decentralisation is defined as dispersing or distributing power from the centre to the locality. Classic theoretical arguments for decentralisation emphasise its political, economic (allocation and production efficiency) and administrative advantages.

The political advantages of decentralisation are related to power sharing between the centre and locality, and to the promotion of democracy (Wolman, 1990, pp.32-35). Allocative efficiency benefits are supposed to be enhanced by a decentralised government system. The argument that decentralisation may enhance allocative efficiency proceeds on the following grounds. A governmental structure must take into account the demand for public services and the conditions under which public services are supplied for allocative efficiency (Bird, 1980, p.17). A centralised system may not take into account the conditions under which public services are supplied satisfactorily; it may provide uniform services across all areas, irrespective of relevant differences (Heald, 1983, p.236). By contrast to a centralised system, different demands could be better taken into account in the supply of public goods in a decentralised system, which promotes allocative efficiency. In a decentralised structure, for instance, in a high crime area where most of the housing is made of stone, the local population may desire high police expenditures and minimal spending on fire prevention (Hewitt, 1991, p.83).

Decentralisation could contribute positively to the production efficiency of the public sector. The argument that production efficiency may be enhanced in a decentralised structure is based on the following arguments. First, under the local people's scrutiny, production efficiency of local public goods and services could be maximised (Campbell, 1991, p.6; Wolman, 1990, p.30-31). A decentralised system makes local people's scrutiny closer and so more effective. Second, a decentralised government system could promote cost containment at the local level, thus reducing the unit cost of providing local public services which stem

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from scale advantages (Hewitt, 1991, p.83). The administrative advantages of decentralisation are that the increased demand for public services could be coped with more efficiently in a decentralised structure because of the advantages of informational economies (Helm and Smith, 1987, p.ix).

There are cases for centralisation, too. First, decentralisation could reduce production efficiency, if the size of a decentralised unit is not large enough to support the economies of scale which is the technically least cost method of production (Bird, 1980, p.16). Second, fiscal instruments, taxes, expenditures and borrowing should be controlled by central government since it would have a maximum flexibility to respond to macro problems (Bahl,1999, p.7). Third, in a decentralised structure it is not easy to deal with the problem of externalities. Central governments invest in projects with big externalities. National priorities in public spending are crowded out by local public projects. These are the main arguments against decentralisation.

Despite the advantages of centralisation, international experience indicates that most countries follow decentralisation policies with varying degrees at the expense of potential efficiency losses. Dillinger (1994, p.5) reports that of the 75 developing and transitional economies with populations of more than 5 million, all but 12 have begun to decentralise political power. Turkey is also one of the countries that has put emphasis on decentralisation policies since the early 1980s and completed a twenty-year period with a consistent fiscal decentralisation policy.

It is argued that fiscal decentralisation has a positive impact on economic growth. It is also argued that the size of public sector is constrained by fiscal decentralisation since it restrains central government's revenue-maximising behaviour. This study aims at examining these two topics in the Turkish case.

The Turkish experience of fiscal decentralisation

It is accepted that the first Turkish municipality, which complies with the international standards, was established in Istanbul in 1854. Although some more municipalities were established across the country during the Ottoman era, it was not until 1930 (the Republican era) that municipalities had the special law. In 1984, three metropolitan municipalities (Istanbul, Ankara, and Izmir) were set up. More were established in the following years and the number of metropolitan municipalities was 15 in 1993 and 16 in 2001. There are currently 3,200 with three types of municipalities: metropolitan, metropolitan district and non-metropolitan. The following table gives the number of municipalities for each type. The following table shows the significant increase rate in the number of municipalities from 1980 until 1999.

Table 1: The Increase in the Number of Municipalities, 1980-1999

Year	Type of municipality			Total Number of Municipalities	Increase Rate as %
	non-metropolitan	metropolitan	metropolitan district		
1980	1725	-	-	1725	-
1985	1703*	3	43	1703	-1
1990	2032	8	55	2061	21
1993	2462	15	76	2710	31
1999	3109	15	76	3200	18

* The decrease in municipalities was due to the closure of municipalities by the Military Administration.

Source: For the years 1980-1993: The State Planning Organisation Report (1994). For 1999: The SIS Statistical Yearbook, 2001

The local government practices in the Republican era have been a legacy of the strong centralist state tradition, deeply entrenched by the idea and practice of the Ottoman State during its 600 years of history (Koker, 1995, p.53). As a sequence of this centralist tradition, promoting decentralization has never been in the agenda of governments. The governments have been reluctant to share power and sources with lower level governments until the 1980s.

The rate of urbanisation has been phenomenal starting from the early 1960s up to the late 1970s as shown in Table 2. This urbanisation has posed a great challenge to the expansion and maintenance of physical infrastructure, which is the responsibility of municipalities. However, as a result of the long-standing negligence of municipalities by governments, municipalities were not ready to solve these challenges. Municipalities have experienced financial problems in this period. The ratio of municipal expenditures to GDP declined from 1.5% to 0.9% and the ratio of municipal revenues to GDP declined from 1.4% to 0.9% between 1967 and 1980 (Ozturk, 1997, p.77-79).

Table 2 : Urbanisation ratios, 1960-2000

year	urban population / total population as %	rural population / total population as %
1960	32	68
1970	39	61
1980	44	56
1990	59	41
2000	65	35

Source: SIS Statistical Yearbooks

As a consequence of the severe economic crises in the late 1970s, Turkey has undertaken a major Structural Adjustment Programme advised by the World Bank. The Turkish government prepared and implemented a tax reform in 1980 and the new revenue sharing policy was a part of this reform package (OECD Economic Surveys, 1981, pp.43-46). Within this reform package, the central government took steps to strengthen municipal power and resources to meet increasing demands upon local services. A fundamental change was made in the system of central-local financial relations to provide adequate revenues to municipalities.

A new revenue sharing policy was initiated in 1981. A certain proportion of general budget tax revenues is distributed to municipalities according to population. In the metropolitan municipalities, additional revenue shares are allocated according to origin-base. Furthermore, two funds, the Municipal Fund and the Local Government Fund, were established to help small municipalities' capital investments in 1981.

Table 3 indicates that between the years of 1982 and 2000, local revenue to GDP and local expenditure to GDP increased from 1 percent to 3 percent. Although local expenditures to general budget expenditures increased from 6 percent to 11 percent, as compare to developed countries and some developing countries, fiscal decentralisation ratio is still low. In the following sections, to what extent fiscal decentralisation policy affect the size of public sector and economic growth is investigated.

Table 3: Local Revenues and Expenditures, GDP and General Budget Expenditures

Year	Local Revenue / GDP, as %	Local Expenditure / GDP, as %	Local Expenditure / General Budget Expenditures, as %
1982	1	1	6
1985	2	1	9
1990	2	2	11
1995	2	2	11
2000	3	3	11

Source: The percentages are calculated by the authors using data which are gathered from the S*tatistical Yearbooks,* the State Institute of Statistics.

Fiscal Decentralisation and the Size of Public Sector

The impact of fiscal decentralisation on the size of public sector is theoretically explained and empirically examined in the literature. It is argued by Brennan and Buchanan (1980) that decentralisation can curb the growth of government which is labelled in the literature as the Leviathan hypothesis. Brennan and Buchanan (1980) call the public sector as 'Leviathan' which is a monolithic entity that seeks to maximise the revenues that it extracts from the economy. Brennan and Buchanan hypothesises that decentralisation can restrain the growth of the Leviathan. The characteristics of Leviathan excessive government are political actors actively or passively pursuing their self-interest, centralisation with fewer government tiers, bureaucratic monopolies, constitutional decline and fiscal illusion (Cullis and Jones, 1998, p.360).

In a Tibeout-style world (Tibeout, 1956), the mobility of people would generate competitive pressures among local authorities to reduce taxes. The competition among local governments that places heavy reliance on local fiscal decisions will greatly limit the capacity of the central government to channel resources into the public sector. As a result, fiscal decentralisation restrains the size of public sector by serving as a constraint on the revenue-maximising behaviour of central government.

Beginning with Oates's (1985) pioneering empirical study, many have tested the Leviathan hypothesis. The results of some previous studies are summarised in Table 4.

Table 4: Previous Studies on The Leviathan Hypothesis

Study	**Country(ies)**	**Finding**
Oates (1985)	USA, 18 developed and 25 developing countries	No
Nelson (1987)	USA	Yes
Marlow (1988)	USA	Yes
Forbes and Zampelli (1989)	USA	No
Grossman (1989a)	USA	Yes
Grossman (1989b)	USA	Yes
Zax (1989)	USA	Yes
Joulfaian and Marlow (1990)	USA	Yes
Grossman (1992)	Australia	No
Kneebone (1992)	Canada	Yes
Ehdai (1994)	30 countries	Yes

Yes: Confirming the Leviathan hypothesis; No: Not confirming the Leviathan hypothesis.
Source: Based on the authors' literature review.

As shown Table 4, the results are mixed. In addition, the methods used in these studies vary significantly. These studies have examined either the association between the competition between local governments and size of public sector, i.e. Oates (1985) and

Nelson (1987), or whether citizen mobility acts as a constraint on the growth of government, i.e. Kneebone (1992).

Opposing the Leviathan hypothesis, Oates (1985) identifies three alternatives to the Leviathan hypothesis. The first alternative is that there is no systematic relation between the size of public sector and fiscal decentralisation. Oates had two justifications, a public choice process in which decision makers maximise median voter utility and local services are provided under constant returns to scale. The second and third alternatives suggest a positive relation between the size of public sector and fiscal decentralisation. The justification for the second is that "greater decentralisation may result in the loss of certain economies of scale with a consequent increase in the costs of administration" (p.749). The third alternative which Oates argues that "citizens will wish to empower the public sector with a wider range of functions and responsibility ....at more localised levels" (Oates, 1985:749). Oates concludes that 'perhaps, after all, Leviathan is a mythical beast'.(p.756).

Grossman (1992:244-245) finds in the Australian case no support for the Leviathan hypothesis. Grossman points out three reasons to explain his finding: (a) number of lower level governments is low, Australia had 840 local government authorities in 1983, USA had 22.000 multi-function local governments in 1982; (b) the economic insignificance of local governments "although sufficient Australian local government units may exist to foster competition, their economic importance is slight "; (c) mobility of citizenry is marginal due to relative economic insignificance.

An Econometric Analysis of the Relation between Fiscal Decentralisation and the Size of Public Sector

Model

The Leviathan hypothesis implies that the size of public sector should vary inversely with the extent of fiscal decentralisation. One of the important conceptual and empirical problems which emerge from the existing empirical studies is that no agreement has been reached on an appropriate formula for devising the relationship between the size of public sector and fiscal decentralisation. In particular, the empirical studies on this subject use different measurements for size of the public sector and fiscal decentralisation variables. For example, Oates (1985) and Nelson (1987) measured fiscal decentralisation by the number of local governments and by the number of residents per jurisdiction respectively. Jones and Cullis (1987, pp.68-73) developed several measures for public sector size and pointed out that 'the size of public sector is to a great extent a matter of choice'.[1]

In this study, In order to investigate the relationship between public size and fiscal decentralization, the following model developed by Ehdaie (1994, pp.7-9) is used. According to Ehdaie, the Leviathan model predicts that, other things being equal, the overall size of the public sector should inversely vary with the extent of simultaneous decentralization of the national government's taxing and spending decisions (fiscal decentralization). Moreover, Ehdaie argues that *other things equal* should include the simultaneous transfer of the national government's revenue and of its spending powers to sub-national governments (fiscal collusion).

Ehdaie develops the following model:

$$PUBSIZ = \alpha_0 + \alpha_1 FISDEC + \alpha_2 FISCOL + \alpha_3 Z + U \quad (1)$$

or

$$PUBSIZ^* = \alpha_0 + \alpha_1 FISDEC^* + \alpha_2 FISCOL^* + \alpha_3 Z^* + U^* \quad (2)$$

[1] This debate of how to measure public sector size is called by Cullis and Jones (1998) 'a debate within a debate'. For interested readers, Cullis and Jones (1987, pp.64-86; 1998, pp.355-357) provide extensive information on this issue.

Where:
PUBSIZ: public size, ratio of total national-local government expenditure to GDP;
FISDEC: fiscal decentralisation, ratio of total local governments own-source revenues over total national-local government expenditures;
FISCOL: fiscal collusion, ratio of the national government's revenues transferred to local governments over total national-local government expenditures.
Z: a vector of other control variables;
U: disturbance terms.

In equation 2, superscript asterisks refer to the growth rate of variables. In both estimation, If $\alpha_1 < 0 \rightarrow$ Leviathan hypothesis is confirmed. If $\alpha_1 < 0$ and if $\alpha_2 > 0$, provides further support for the Leviathan model.

Data, Sources and Features of the Series

The macroeconomic data for the period 1982-2000 used in the empirical section of this paper is obtained from *Statistical Indicators* published by the State Institute of Statistics and *the Electronic Data Distribution System* (www.tcmb.gov.tr) of the Central Bank of Turkey. The starting year of this time period (1982) is dictated by local government finance reform which was taken place in mid-1981. The following variables are used in the analysis.

LRPY: The logarithm of per capita income
LI/Y: The logarithm of the ratio of investment to income
LFISDEC: The logarithm of fiscal decentralization
Llab: The logarithm of labour force
LPUBSIZ: The logarithm of public size
LFISCOL: The logarithm of fiscal collusion

As a measure of fiscal collusion, FISCOL, this study uses the ratio of the national government's revenues transferred to subnational governments over total subnational-national government expenditures. FISCOL only varies with the variation of simultaneous transfer of the national government's revenue and assignment of its spending responsibility to subnational governments. It remains fixed with the extent of fiscal (de)centralization. FISDEC and FISCOL are independent policy variables (Ehdaie, 1994).

This study adopts the measure of public-sector size, PubsIz, employed by Marlow (1988), Grosmann (1989;1992), Joulfaian and Marlow (1991), and Kneebone (1992). PubsIz is defined as the total general government expenditures share of gross domestic products.

The Dickey-Fuller (DF) test is very common simple procedure for determining the order of integration of a series. Many econometric software packages include DF and Augmented Dickey-Fuller (ADF) test routines. The procedure how to carry out these tests is explained in detail in the recent econometric test books (Gujarati, 1995; Charemza and Deadman, 1997; Harris, 1995) and therefore, it is not explained in detail here.

The results of the DF and ADF unit root test for the variables are presented in Table 5 and Table 6, respectively. The critical values produced by the *PcGive econometrics program* are based on the response surfaces in MacKinnon (1991) (Doornik and Hendry, 1994).

Table 5: The DF And ADF Tests For Unit Root

Explanatory Variable, y_{t-1}	t-value of coefficient, γ (Model 1)	Critical value 5%	t-value of coefficient, γ (Model 2)	Critical value 5%	Results
LRPY	-2,095	-3.69	-1,29	-3,04	Not I(0)
LI/Y	-3,17	-3.69	-1,74	-3,04	Not I(0)
LFISDEC	-2,09	-3.69	-2,41	-3,04	Not I(0)
Llab	-0,66	-3.69	-1,65	-3,04	Not I(0)
LPUBSIZ	-1,34	-3.69	-0,38	-3,04	Not I(0)
LFISCOL	-1,8	-3.69	-2,23	-3,04	Not I(0)
Model 1	$\Delta y_t = a_0 + \gamma\ y_{t-1} + a_2 t + \sum_{i=2}^{p} \beta_i \Delta y_{t-i+1} + \varepsilon_t$				
Model 2	$\Delta y_t = a_0 + \gamma\ y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta y_{t-i+1} + \varepsilon_t$				

Table 6: The DF and ADF Unit Root Tests for the Differenced Series

Explanatory Variable, Δy_{t-1}	t-value of coefficient, γ (Model 1)	Critical value 5%	t-value of coefficient, γ (Model 2)	Critical value 5%	Results
ΔLRPY	-4,801	-3.69	-4,81	-2.95	I(0)
ΔLI/Y	-3,52	-3.69	-3,80	-2.95	I(0)
ΔLFISDEC	-3,162	-3.69	-3,08	-2.95	I(0)
ΔLlab	-2,927	-3.69	-2,79	-2.95	Not I(0)[2]
ΔLPUBSIZ	-5,536	-3.69	-4,64	-2.95	I(0)
ΔLFISCOL	-3,75	-3.69	-3,18	-2.95	I(0)
Model 1	$\Delta\Delta y_t = a_0 + \gamma\ \Delta y_{t-1} + a_2 t + \sum_{i=2}^{p} \beta_i \Delta\Delta y_{t-i+1} + \varepsilon_t$				
Model 2	$\Delta\Delta y_t = a_0 + \gamma \Delta y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta\Delta y_{t-i+1} + \varepsilon_t$				

The results of DF and ADF unit root tests show that the annual variables are not stationary in level, but their first differences are stationary. Formally, all variables are I(1).

Empirical Findings
Testing the Leviathan Hypothesis

As far as the features of the time series used in this paper are concerned, they are I(1). This implies that using these series without transformation or applying estimation methods which consider these features of the data are necessary. The newly developed co-integration methods (Engle and Granger, 1987; Johansen, 1988; Johansen and Juselius, 1990) presents a new way to tackle these deficiencies existed in the series. In this paper, co-integration analysis known as the Johansen Procedure in the literature developed by Johansen (1988), and Johansen and Juselius (1990) is employed. This procedure is fast becoming an essential tool for applied economists wishing to estimate time series models. This approach starts with a

[2] ΔLLab is stationary if $\Delta\Delta y_t = \gamma \Delta y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta\Delta y_{t-i+1} + \varepsilon_t$ is chosen as a model.

Vector Autoregressive Model (VAR) such as (Holden and Thompson, 1992; Charemza and Deadman, 1997):

$$Z_t = A_1 Z_{t-1} + ... + A_k Z_{t-k} + \varphi\, D_t + u_t \qquad (3)$$

Where Z_t is a (n x 1) vector that contains current and lagged values of n variables which is assumed to be I(1), each of A_i is an (n x n) matrix of parameters, D_t is a vector I(0) variables[3], u_t is the vector of random errors.

Here, the formulation of the VAR model is of major importance because the results of the cointegration test can be very sensitive to that formulation. In particular, the choice of the appropriate lag-length is important. Since a VAR model contains lagged dependent variables as regressors, autocorrelation of error terms can be very serious as it could lead to inconsistent estimates of parameters if the OLS method is used for estimation. However, lagged dependent variables may provide a good approximation to an autoregressive process in the error terms. Thus the best lag-length can be established by choosing k in equation 3 which results in estimated model residuals without significant autocorrelation[4] (Harris, 1995). Using too many lags reduces the power of the statistics. If data sample is small, this could make entire modelling process impossible.

In empirical investigation, one lag for each variable in the unrestricted VAR has been initially employed and results yield the error terms which do not have any econometric problems such autocorrelation, non-normal distribution, varying variances.

After determining the lag length, the unrestricted reduced form of the system, which constitutes a three-equation VAR model, is estimated by OLS for the period of 1983-2000. In Turkey, the coalition governments started at 1991 and run up to 2003. It is argued that multi party coalitions are very sensitive to the public expenditure and follow populist economic policies (Onis, 1996, 1999; Ergun, 2001). Therefore, in addition to the economic variables in the system, a step dummy is also restricted to the long run dynamics. In order to see whether the coalition governments after 1991 have any influence on the size of public sector, a step dummy, namely 'S1991', is introduced.

Empirical analysis starts from an augmented VAR with one lag on all variables and the result of the unrestricted VAR estimates are presented in Table 7. The diagnostic test results of the unrestricted VAR can be seen in Table 8.

Table 7: Unrestricted VAR Estimates

	LPUBSIZ	LFISDEC	LFISCOL
LPUBSIZ-1	0.703 (3.905)	0.68 (2.76)	0.266 (0.829)
LFISDEC-1	-0.189 (-0.929)	-0.102 (-0.36)	-0.262 (-0.722)
LFISCOL-1	-0.0009 (-0.005)	0.853 (3.02)	0.961 (2.610)
Constant	1.175 (1.99)	-1.485 (-1.845)	-0.289 (-0.275)
S1991	0.152 (2.03)	-0.290 (-2.818)	-0.148 (-1.105)
note: figures in parentheses are t-ratios			

[3] D_t actually represents a vector of any variables which are included in the system to ensure that errors u_t are white noise, thus it may contain dummy variables as well.

[4] There are also two information criteria, the Schwarz and Hannan-Quinn criteria, used to determine the appropriate lag length in empirical studies.

Table 8: Diagnostic Test Results

	LPUBSIZ	LFISDEC	LFISCOL
Far (1,12)	0.635 (0.44)	1.53 (0.23)	0.041 (0.84)
Farch (1,11)	0.42 (0.52)	0.28 (0.60)	0.002 (0.96)
Chi-Squred (2)	0.16 (0.92)	2.43 (0.29)	9.23 (0.009)
Fhet (7,5)	0.422 (0.85)	1.73 (0.28)	0.625 (0.72)
note: figures in parentheses are p-values			

The diagnostic tests involve F-tests for the null hypotheses that there is no serial correlation against serial correlation up to order 2 (Far), no autoregressive conditional heteroscedasticity against a one-lag alternative (Farch), no heteroscedasticity (Fhet) and a chi-square test for normality. There seems a non normal distribution of the residuals in LFISCOL equation. LFISCOL is assumed to be weakly exogenous which means that it is not determined by the model. As Harris (1995) argues, the non-normality is less of a problem if the variable is proven to be weakly exogenous.

After the VAR model is adequately specified, number of cointegrating vectors in the three equations system are investigated. Two test statistics, the *trace* and *maximum eigenvalue* statistics, are used to determine the number of cointegrating vectors. The trace statistics tests that there are at most r cointegrating vectors against the alternative of more than r cointegrating vectors. Initially the null hypothesis of no cointegration is tested against the alternative that there exists at least one cointegrating vector. If the null is rejected, implying that there is at least one vector, then the next step requires us to test the null of a single vector against the alternative that there are at least two cointegrating vectors, and so the procedure goes on.

The *maximum eigenvalue* statistics tests whether there are exactly r cointegrating vectors against the alternative that there are $(r+1)$ cointegrating vectors.

After having computed both trace and maximal eigenvalue statistics, we may proceed to compare them with the critical values provided by Johansen and Juselius (1990) or Osterwald-Lenum (1992). In practice, it is recommended to begin by testing the null hypothesis that there exists no cointegrating vector (i.e. $r = 0$). If this hypothesis is not rejected, the testing procedure stops; however if it is rejected it is possible to consider sequentially the null hypotheses that $r \leq 1$, $r \leq 2$, $r \leq 3$ and so on.

Table 9 gives the cointegration tests, *Max* and *Tr* denote the associated *maximum eigenvalue* and *trace* statistics respectively.

Table 9: Johansen Cointegration Test Results

Ho:rank=p	Max	Using T-nm	95%	Trace	Using T-nm	95%
p= = 0	21.41	17.84	22.0	39.3*	32.75	34.9
p< = 1	12.53	10.44	15.7	17.89	14.91	20.0
p< = 2	5.36	4.46	9.2	5.36	4.46	9.2

The maximum eigenvalue statistics indicate that there is not any cointegrating vector. On the conrary, the trace statistics indicates that there is a cointegrating vector. This means that there is a long run relationship between the variables concerned. The first cointegrating vector is as follows[5]:

CIvec1=LPUBSIZ – 3.998*LFISDEC + 2.39*LFISCOL – 0.032 -0.35*s1991

[5] The long run cointegrating vector is shown as in the co-integration literature here and the opposing sign is used, while interpreting the sign of the variables on the normalized variable (here LPUBSIZ).

This vector is interpreted as fiscal decentralization and the step dummy are positively associated with the size of public sector, while fiscal collusion have a negative influence on the size of public sector in the long run in Turkey for the period under concern. These results show that the Leviathan hypothesis is not supported by the Turkish data since the sign of LFISDEC is positive in the long run. The reasons why the Leviathan hypothesis is not supported will be given in conclusion part.

The sign of the coefficient of FISCOL may be positive or negative, depending on whether the stimulating effect of transfer of the national government's revenue to sub-national governments (revenue sharing) on the size of the public sector would exceed or fall short of the constraining influence of the decentralized expenditures financed through revenue-transfers. The positive sign of α_2 regardless of its significance level would show that revenue sharing with taxing decisions concentrated in the hands of revenue maximising national government exterminates the constraining influence of decentralization of spending power, providing further support for the Leviathan model (Ehdaie, 1994). It is found in this study that the sign of the coefficient of FISCOL is negative. This finding provides an additional evidence for rejecting the Leviathan hypothesis in the Turkish case.

Theoretical Framework for Fiscal Decentralisation and Economic Growth Interaction

In the theoretical literature, the contribution of fiscal decentralization to economic growth is ambiguous. There are cases for and against the argument whether there is a positive relation between fiscal decentralisation and economic growth or not.

The cases for the argument that there is a positive relation between fiscal decentralisation and economic growth are as follow. Fiscal decentralisation is seen as one of the ways to promote economic. Decentralisation fosters greater responsiveness of policy makers to the will of people and results in a closer correspondence between people preferences and public policies. As a consequence of this advantage, decentralised government operations can improve economic growth.

The growth dimension of fiscal decentralisation is emphasised due to two reasons (Davoodi and Zou, 1998):

(i) Stimulating economic growth is one of the major objectives of fiscal decentralisation.

(ii) An important objectives of the government is to implement policies that will ensure a sustained increase in per capita income. In this context it becomes important to reveal that which degree of the local government [or central government] contributes more to economic growth. It is frequently argued that public services like infrastructure and education are sensitive to local and regional conditions. In addition, if these services are delivered by local governments, they would be more effective in stimulating economic growth than centrally-planned policies which do not consider geographical differences in delivering these services. As a result, ceteris paribus, in a decentralised fiscal system in which local governments play a predominant role economic growth is more rapid.

Fiscal decentralisation also enhances local accountability and mobilisation local revenues which have positive effects on achieving economic growth. Fiscal decentralisation tools could maximise the efficiency benefits of decentralisation, if they promote local accountability and motivate local revenue mobilisation. Local accountability means that local managers are accountable for their operations. Local accountability is one of the conditions for realisation of the political, allocative and production efficiency advantages of decentralisation. Local accountability makes local governments more responsive to local needs and municipal officials more directly answerable for their decisions and performance. If

local authorities have discretion over their own tax bases, they may be able to tax the fast-growing parts of their economic base more easily than can the central government. Consequently fiscal decentralisation could contribute to improving the country's overall fiscal position and local governments' own fiscal position (Shah and Qureshi, 1994, p.xv; Bahl and Linn, 1992, p.386). It could therefore be suggested that the realisation of the benefits of local accountability and mobilisation local revenue promote economic growth.

Based on the suggestions it is argued and expected that there should be a positive relationship between fiscal decentralisation and economic growth. However, there are cases against the argument that there is a positive relation between fiscal decentralisation and economic growth.

Fiscal decentralisation may hinder economic growth because of the advantages of centralisation. The increasing importance of externalities demands a greater degree of centralisation of government expenditures. During the process of economic development, there are economies of scale in public activities, which are performed more efficiently by greater centralisation. With improved transport and communications, demand for improved and uniform standards of public services can be met satisfactorily only by greater centralisation of public finances. The superior taxing power of the central government, which primarily employs broad-based taxation, results in increasing centralisation of government activities (Kee, 1977, p.81). Peacock and Wiseman (1961) also advocate centralisation. They point out that during economic development process the economies of scale in public activities by greater centralisation indicate better performance. And also improved and uniform standard of public services can only be satisfactorily provided by centralisation of government services.

The relationship between fiscal decentralisation and economic growth are tested and examined in the empirical literature. Kee (1977), Davoodi and Zou (1998), Davoodi, Xie and Zou (1996), Oates (1993) Zhang and Zou (1998) exemplify these studies. Zhang and Zou (1998) find a higher degree of fiscal decentralisation is associated with lower economic growth in China. Kee (1977) finds that there is positive relation between decentralisation and per capita income for 64 countries. However, this study concludes that no relation is found between decentralisation and per capita income in the developing countries sample. A study by Davoodi and Zou (1998) finds a negative relationship between fiscal decentralisation and growth in developing countries, but none in developed countries.

Davoodi and Zou (1998) give the possible reasons why a negative relationship between fiscal decentralisation and economic growth is found as follow: (i) Decentralisation measure, at least in this study, does not give any information on what a local government buys and it does not distinguish between current spending and capital spending. Further, it does not distinguish spending on welfare and social security from infrastructure spending. (ii) The wrong revenue assignment among various levels of government may lead to lower growth. (iii) Fiscal decentralisation may not increase efficiency in developing countries since decisions of local government related to revenue and expenditure are still be constrained by central government. (iv) Local governments may not meet well local residents' preferences as well as needs.

An Empirical Analysis of the Relation between Fiscal Decentralization and Economic Growth

The relation between fiscal decentralisation and economic growth is examined by using cross-section and time series analyses in this study.

Cross-section data analysis: model and findings

The following model is developed and estimated by using 67 provinces' cross-sectional data for the years of 1990, 1995 and 2000. There are currently 81 provinces in Turkey. Provinces, which are newly established, are not included in the analysis since they have not got data for the complete period of 1990-2000.

$$GROWTH_i = \beta_0 + \beta_1 FISDEC_i + \beta_2 POP_i + DUMMY + u_i \qquad (4)$$

Where:

$GROWTH_i$: GDP growth rate of province i
$FISDEC_i$: (local expenditure (or revenues) / GDP ratio of province) i
POP_i: population of province i, as control variable for scale,
DUMMY:dummy variable, 1 for metropolitan provinces, 0 for non-metropolitan provinces
u_i: random disturbance terms.

The degree of fiscal decentralisation is measured by two indicators: local expenditures to GDP and local revenues to GDP. Dummy variable is used to capture effect of being metropolitan and non-metropolitan.

Tablo 10: The impact of fiscal decentralisation (local expenditures) on growth: the results of cross-section analysis

	1990			1995			2000		
C	5,72 (7,65)*	5,96 (7,8)*	6,06 (8,03)*	8,12 (18,17)*	8,10 (14,70)*	8,14 (14,57)*	1,15 (13,08)*	1,20 (11,37)*	1,27 (11,29)*
FISDEC	0,45 (0,1)	1,27 (0,28)	0,89 (0,2)	-1,22 (-2,08)*	-1,22 (-2,06)*	-1,24 (-2,07)*	-7,06 (-2,15)*	-7,54 (-2,26)*	-7,30 (-2,21)*
POP	-	-446 (-1,33)	-55 (-0,14)	-	26 (0,07)	155 (0,37)	-	-10,6 (-0,89)	2087 (-1,56)
DUMMY	-	-	-1,60 (-1,74)**	-		-68 (-0,56)	-	-	-1,58 (-1,62)
R^2	0,00	0,027	-0,07	0,06	0,06	0,06	0,06	0,07	0,11
F stat	0,01	0,89	1,62	4,33	2,13	1,51	4,62	2,70	2,72
Prob	0,91	0,41	0,19	0,04	0,12	0,21	0,03	0,07	0,05
WHT									
F-statistic, Prob	0,56a	0,79a	0,82a	0,82a	0,93a	0,91a	0,19a	0,37a	0,57a
Obs*R-squared, Prob	0,54a	0,72a	0,80a	0,81a	0,93a	0,90a	0,19a	0,37a	0,57a
Observation number	67	67	67	67	67	67	67	67	67

WHT: White Heteroskedasticity Test. Figures in brackets are t-statistics, * significant at the 5 percent level. ** significant at the 10 percent level. **a** denotes that the hypothesis of homoskedasticity is accepted at the 5 percent level.

Tablo 11: The impact of fiscal decentralisation (local revenues) on growth: the results of cross-section analysis

	1990			1995			2000		
C	5,34 (6,46)*	5,56 (6,67*)	5,94 (5,67*)	8,93 (10,2)*	8,86 (9,74)*	9,60 (0,21)	1,18 (12,21)*	1,21 (11,15)*	1,23 (11,18)*
FISDEC	3,07 (0,59	4,27 (0,81)	4,67 (0,88)	-5,98 (-1,49)	-6,13 (-1,51)	-6,88 (-0,95)	-8,04 (-2,24)*	-8,17 (-2,26)*	-6,92 (-1,82)**
POP	-	-47 (-1,42)	-47 (-1,41)	-	11 (0,32)	-3,96 (-6,33)*	-	-77 (-0,65)	-146 (-1,08)
DUMMY	-	-	-0,05 (-0,61)	-		0,95 (4,56)	-	-	-1,08 (-1,04)
R^2	0,05	0,03	0,04	0,03	0,03	0,95	0,07	0,07	0,09
F stat	0,34	1,19	0,91	2,24	1,16	7,18	5,03	2,71	2,17
Prob	0,55	0,30	0,43	0,13	0,31	0,00	0,02	0,07	0,1
WHT									
F-statistic, Prob	0,41a	0,70a	0,53a	0,50a	0,83a	0,00	0,55a	0,55a	0,69a
Obs*R-squared, Prob	0,40a	0,68a	0,50a	0,49a	0,81a	0,00	0,53a	0,53a	0,67a

WHT: White Heteroskedasticity Test. Figures in brackets are t-statistics, * significant at the 5 percent level. ** significant at the 10 percent level. **a** denotes that the hypothesis of homoskedasticity is accepted at the 5 percent level.

Very low R squares indicate that changes in fiscal decentralization explain little part of local economic growth. The estimations, overall, show that fiscal decentralization has a negative impact on local economic growth. This finding does not conform to the conventional wisdom in which fiscal decentralization contributes to economic growth positively.

Time-series data analysis: model and findings

This study uses a model in time-series data analysis which is commonly used in previous research. Following Lin and Liu (2000), this paper augments a Cobb-Douglas production function6 with fiscal decentralisation.

A representative multivariate relationship follows in implicit form:

$Y = f$ (PC, LAB, FISDEC) (5)

Where Y, PC, LAB and FISDEC are national income, physical capital, labour and fiscal decentralization respectively.

This long run relationship in linear form can be expressed as follows:

$Y = a + \alpha PC + \beta LAB + \delta FISDEC + u$ (6)

Where a and u are the intercept term and the residuals respectively.

In order to estimate the augmented production function with fiscal decentralization by utilizing the Johansen cointegration procedure, a VAR is formulated with two lags. As stated earlier, the determination of the lag length is a very important while forming the VAR. The two lag-length produces residuals without significant autocorrelation. After determining the lag length, the unrestricted reduced form of the system, which constitutes a four-equation VAR model, is estimated by OLS for the period of 1983-2000. In addition to the economic variables in the system, a step dummy is also restricted to the long run dynamics. In order to see whether the coalition governments after 1991 have any influence on economic growth, a step dummy, namely s1991, is introduced.

Empirical analysis starts from an augmented VAR with two lags on all variables and the result of the unrestricted VAR estimates are presented in Table 12. The diagnostic test results of the unrestricted VAR can be seen in Table 13.

Table 12: Unrestricted VAR Estimates

	LRPY	LI/Y	LFISDEC	LLAB
LRPY-1	-0.185 (-0.712)	-1.086 (-1.98)	0.686 (0.347)	0.233 (2.03)
LRPY-2	-0.394 (-1.901)	0.299 (0.68)	-0.273 (-0.174)	-0.201 (-2.211)
LI/Y-1	-0.098 (-0.457)	-1.23 (-2.728)	-0.124 (-0.077)	0.196 (2.077)
LI/Y-2	0.110 (0.59)	-1.043 (-2.649)	-0.225 (-0.159)	0.359 (4.355)
LFISDEC-1	0.083 (1.52)	0.28 (2.444)	0.798 (1.928)	0.035 (1.489)
LFISDEC-2	-0.043 (-0.496)	0.577 (3.105)	-0.433 (-0.646)	-0.132 (-3.414)
LLAB-1	0.11 (0.113)	-4.323 (-2.092)	1.66 (0.223)	1.67 (3.859)
LLAB-2	2.587 (2.394)	6.70 (2.95)	-1.202 (-0.147)	-1.207 (-2.539)
S1991	-0.062 (-1.481)	0.149 (1.68)	-0.152 (-0.476)	0.004 (0.26)
Constant	-4.185 (-1.612)	-3.219 (-0.59)	-8.293 (-0.419)	3.240 (2.837)
note: figures in parentheses are t-ratios				

[6] Ghatak et al. (1995), Piazolo (1995), Coe and Moghadam (1993), Leigh (1996) and Odedokun (1996) and others augment the AK-Type (Rebelo, 1991) production function with human capital, trade liberalization or financial development which is a common procedure and also consistent with the endogenous growth literature.

Table 13: Diagnostic Test Results

	LRPY	LI/Y	LFISDEC	LLAB
Far (1,6)	1.263 (0.303)	0.007 (0.93)	7.90 (0.03)	0.387 (0.55)
Farch (1,5)	0.397 (0.55)	0.243 (0.64)	0.39 (0.55)	0.031 (0.86)
Chi-Squred (2)	0.427 (0.80)	1.321 (0.51)	0.317 (0.85)	4.91 (0.85)

The diagnostic tests involve F-tests for the null hypotheses that there is no serial correlation against serial correlation up to order 2 (Far), no autoregressive conditional heteroscedasticity against a one lag alternative (Farch), no heteroscedasticity (Fhet) and a chi-square test for normality. Although there seems to be serial correlation in the FISDEC equation, it is ignored in the analysis. Furthermore, all other diagnostics are satisfactory.

After the VAR model is adequately specified, in the four equations system, the existence of the number of the long run relationship (number of cointegration vectors) is investigated by the Johansen procedure. Table 14 provides for the *maximum eigenvalue (Max)* and *trace (Tr)* statistics respectively.

Table 14: Johansen Cointegration Test for the Long Run Relationship

Ho:rank=p	Max	Using T-nm	95%	Trace	Using T-nm	95%
p= = 0	64.43**	34.11**	28.1	126.1**	66.76**	53.1
p< = 1	32.58*	17.25	22.0	61.67**	32.65	34.9
p< = 2	21.61**	11.44	15.7	29.09**	15.4	20.0
p< = 3	7.47	3.95	9.2	7.47	3.95	9.2

Both *maximum eigenvalue* and *trace statistics* indicate that there are three cointegrating vectors between four variables which are the maximum number of the cointegrating vectors that econometric theory predicts. However it is difficult to interpret three long run relationship between these variables. On the other hand, for the small samples, the suggested statistics (Reimers, 1992) (using T-nm) shows only one cointegrating vector between these four variables. Therefore, the existence of one cointegrating vector is accepted here for the further analysis. The selected long run relationship which is economically interpratable is as follows:

CIvec2=LRPY – 0.956*LI/Y + 0.481*LFISDEC – 2.64*LLAB + 0.238*s1991 +14.01

According to this long run vector, investment ratio which is used for the capital stock as a proxy and labour force have positive influence on the per capita income. On the other hand, fiscal decentralization and dummy are negatively associated with the per capita reel income. The results imply that the impact of the fiscal decentralization on the economic growth is not realized through the channels that economic theory explains.

Concluding remarks

This study examines the relationship between fiscal decentralisation and the size of public sector related to the Leviathan hypothesis. This hypothesis argues fiscal decentralisation restrains growth of public sector due to the advantages of decentralisation. The findings of this study do not confirm the Leviathan hypothesis. This study also examined the relationship between fiscal decentralisation and economic growth. The findings show that there is a negative relationship between fiscal decentralisation and economic growth. Two reasons could be used as explanation of main findings:

(i) Insignificance of fiscal decentralisation: Local expenditures to general budget expenditures is 11% after 18 years experience of a consistent fiscal decentralisation policy in Turkey. Fiscal decentralisation is still very insignificant to affect the size of public sector and economic growth. Expected effects of fiscal decentralisation on the size of public sector and

economic growth will not be materialised unless a strong fiscal decentralisation policy is sustained.

(ii) Lack of competing local governments: By assumption, the Leviathan hypothesis argues that it is competition that serves to constrain the revenue maximising instincts of government. To have a competition between local authorities, the voters must face a range of viable alternatives. In Turkey, municipalities can not compete to attract people and companies, since they are given no significant discretion, e.g. municipalities can not alter local tax rates.

The conventional wisdom points out that while capital and infrastructure spending have positive growth effects, welfare and current spending have negative growth effects (Davoodi and Zou, 1998, p. 254). An examination of local spending data shows that 47% of expenditures are current with 33 % personnel expenditures in Turkey in 2000. Due to high current spending, local spending might have a negative impact on economic growth.

Regular massive economic crises in Turkey (April 1994 and February 2001) affect macroeconomic conditions of the country negatively. Local governments are also affected by these economic crises. Decisions of local governments related to revenue and expenditure are further constrained by central government in economic crises. The economic crises which affect the country as a whole lead to the further deterioration of the financial problems of municipalities. As a result local governments may not succeed in meeting local residents' preferences. Local governments do not, therefore, contribute to economic growth positively.

Zou and Zhang (1998) examined the impact of intersectoral allocation of local government spending on economic growth in China. Their findings indicate that some local spending have a positive impact on local economic growth while some have negative. The impact of intersectoral allocation of local government spending on economic growth in Turkey can not be examined due to data unavailability. Currently the State Institute of Statistics does provide local spending data at provincial level in economic classification as current, investment and transfers. A disaggregated approach should be used so that the influences of the structure of different expenditures can be isolated.

Turkey is waiting for a full membership to the EU. Turkey is also a regular of borrower of the World Bank and IMF. Turkey's economy is often jeopardized by economic crises. All these pose great challenges to vulnerable fiscal decentralisation policy. On the one hand there are the advantages of fiscal decentralisation, on the other hand there is a concern for macroeconomic control. Compared the member countries of the EU, Turkey lag much behind as far as fiscal decentralisation ratio is concerned. The European Union have developed the 'subsidiarity' principle which suggests that public functions should be exercised at the lowest possible tier of government unless these functions are positively provided more effectively at a higher level. To comply with the EU standards, Turkey should take steps forward for promoting fiscal decentralisation.

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