THE GROWTH OF PUBLIC EXPENDITURE IN TURKEY, 1950-1990

(MACRO MODELS)
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Thesis submitted for the degree of

Doctor of Philosophy

at the University of Leicester

by

Safa Demirbas

Department of Economics

University of Leicester

November 1998
To my parents

To Dilek, my wife, who knows why

and

In memory of my uncle Mevlüt Yılmaz
Acknowledgement

First of all, I would like to thank Prof. David Pyle, my supervisor, for his advice, comments, encouragement and his patience throughout the study. Without his support, guidance and understanding this work could not have been completed. A major debt is also owed to Derek Deadman for his comments and criticisms. I also would like to thank Prof. C. W. Charemza for his helpful advice and comments and Dr. Dean Garratt for his comments and editing.

I also would like to thank the external examiner Prof. Norman Gemmell and the internal examiner Prof. Peter Jackson. I believe, their comments, evaluations and suggestions have contributed to the research.

A number of individuals, my friends and my friends' friends from Ankara and Istanbul were extremely helpful in providing data and material for this study. Many thanks to all of them.

Many thanks to my colleagues and friends in the Department of Economics. Throughout my study period, the environment in the department has been extremely pleasant and very friendly.

I also thank Prof. A. Naim Akman, A.Kadir Baharçicék, Selahattin Bakan, Recep Karabulut and my other colleagues from the Faculty of Economics and Administration at the University of Inónü for their help in overcoming bureaucratic difficulties to extend my period of study here.

I am also grateful to the University of Inónü for providing me with a research grant.

Many thanks to my parents and my parents-in-law for their prayers and support.

As to my family—Dilek, and Emre, I can hardly thank them sufficiently for their good-natured toleration of my wandering mind and body, and for Dilek's enthusiastic support.

Thank you all.
This thesis investigates statistically the existence of a long-run relationship between public expenditure and GNP (Wagner’s Law) using data for Turkey over the period 1950-1990 and examines whether there is a structural break in the public expenditure series as a result of the 1974 Cyprus War (Peacock and Wiseman’s Displacement Effect Hypothesis).

In the public finance literature several models have been used to explain public expenditure growth. For example, macro models such as Wagner’s Law, Peacock and Wiseman’s displacement effect hypothesis, and microeconomic (or decision process) models of public choice.

This thesis concentrates on macro models. These models try to explain the time pattern of public expenditures relative to broad aggregate variables such as GNP. In terms of macro models, the most prominent empirical generalisations about public expenditure growth are Wagner’s Law and the Displacement Effect Hypothesis.

Recent developments in time series analysis, such as cointegration analysis, investigate long-run relationships between variables, which allow us to apply new tests to Wagner’s Law. Using the Engle and Granger cointegration test and Turkish time series aggregate data for the period 1950-1990, we find no empirical support for Wagner’s Law. Recent advances in time series analysis allow us to test for the existence of a structural break in the series for public expenditure arising from the 1974 Cyprus War. The results do not support the existence of a displacement effect hypothesis due to the Cyprus War.

Using disaggregated data (public expenditure by economic and functional categories), Engle-Granger cointegration and causality test results provide some evidence for in favour of Wagner’s Law.

Finally, a synthetic approach encompassing various theories of public expenditure growth (e.g. Wagner’s Law, displacement effect hypothesis, demographic variables, relative prices and some dummy variables for country specific conditions) has been used to model public expenditure growth. The results provide some new evidence for Turkey.
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Abbreviations

AIC = Akaik’s Information Criterion
C = Public Consumption Expenditure
CE = Current Expenditure
CE = Current Expenditure
DE = Defence Expenditure
DFDPRs = Domestic and Foreign Debt Principal Repayments
DP = Democrat Party
DSP = Difference Stationary Process
E = Total Public Expenditure
EBFs = Extra-Budgetary Funds
EE = Education Expenditure
GAE = General Administrative Expenditure
GDP = Gross Domestic Product
GNP = Gross National Product
HE = Health Expenditure
IE = Investment Expenditure
IMF = International Monetary Fund
INF = Infrastructure Expenditure
LDR = the logarithm of dependency ratio
LRCE = the logarithm of ratio of current expenditure to GNP
LRDE = the logarithm of ratio of defence expenditure to GNP
LREE = the logarithm of ratio of education expenditure to GNP
LRGAE = the logarithm of ratio of general administrative expenditure to GNP
LRGNPPC = the logarithm of real GNP per capita
LRHE = the logarithm of ratio of health expenditure to GNP
LRIE = the logarithm of ratio of investment expenditure to GNP
LRINF = the logarithm of ratio of infrastructure expenditure to GNP
LRP = the logarithm of ratio of relative prices
LRTE = the logarithm of ratio of transfers to GNP
LRUP = the logarithm of ratio of urban population to total population
NATO = North Atlantic Treaty Organisation
PSBR = Public Sector Borrowing Requirement
REPC = Real Public Expenditure per capita
RGNP = Real GNP
RGNPPC = Real GNP per capita
RPP = Republican People’s Party
SEEs = State Economic Enterprises
SIS = State Institute of Statistics
SPO = State Planning Organisation
TE = Transfer Expenditure
TSP = Trend Stationary Process
WPI = Wholesales Price Index
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CHAPTER 1

INTRODUCTION
1 INTRODUCTION

One of the main features of the contemporary world has been the continued growth in the relative size of the public sector in both developing and developed countries. In particular, after the Second World War, the phenomenon of public expenditure growth happened almost universally and regardless of the nature of either the political or economic system concerned. Thus, the growth of public expenditure as a proportion of GNP (or GDP) has received considerable attention from economists, who have mainly directed their attention to the analysis of the reasons for the permanent growth of public expenditure.

Turkey appears to follow this universally observed "rule" of permanent growth of public expenditure. During the period between 1950 and 1990, economic growth, social and political changes were accompanied by a sharp increase in government spending. For example, while the ratio of total public expenditure to GNP was 23.5 percent in 1950, this ratio doubled in just forty years, increasing to 42.0 percent in 1990.

Recently, many economic and political commentators has been looking at this phenomenon with concern. Since 1980, most governments' thinking has reflected the view that the economic frontiers of the state should be rolled back in both developing and developed countries. The election of the Thatcher Conservative Government in Britain in 1979 and of President Reagan in the USA in 1980 brought to power political leaders who were committed in principle to pursuing radical strategies for slimming the public sector and reducing the role of the public sector in those countries. Many other western political leaders have also moved in the direction of reducing
the size of government. Similar tendencies have been seen in Turkey since 1980.

**The Aims and Objectives of the Thesis**

The purpose of this thesis is to investigate why and how public expenditure grew in Turkey during the years from 1950 to 1990. We attempt to investigate the main factors which are important in changing the ratio of public expenditure in the long-term. Our purpose here is not only to provide a descriptive study of public expenditure growth; but also to look at the related literature critically, focusing on methodological aspects and applying new time series econometric techniques, such as cointegration analysis, to Turkish data.

Public expenditure arises out of the functions of the state, and naturally, they have evolved to reflect the prevailing political, economic and social views of a society. In the public expenditure literature, in general, there is a wide variety of studies and theories to explain why the growth of public expenditure has occurred in both developed and developing countries. Some are based on empirical evidence, others on ideological or political theories. In order to answer the questions surrounding public expenditure growth and to provide a meaningful explanation of it, we need an analytical model. In the public finance literature, several models have been used to examine public expenditure growth, e.g. macro models (such as Wagner’s Law of increasing public expenditure and Peacock and Wiseman’s displacement effect hypothesis) and microeconomic (or decision process) models. Macro models of public expenditure growth attempt to look at the long-term growth of

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1 For more explanation and an overview of the different theories of public expenditure growth, see Larkey et al. (1981, 1984), Lowery and Berry (1983), Mueller (1987), Henrekson (1992) and Gemmell (1993) among others.
public expenditure. That is, they only explain the long-term rising trend of public expenditure, and they are essentially aggregative. As Brown and Jackson pointed out “[t]hese models begin with data on public expenditure and proceed to explain the time pattern of public expenditures in terms of broad aggregate variables such as GNP...” (1990: 120). These models are attractive to many researchers, because they require only aggregate variables, which are comparatively easy to find in order to build an analytical model. This point is especially important for developing countries in where finding reliable and detailed data is very difficult.

In this study, we will focus on macro models. In terms of macro models, the most prominent empirical generalisations about public expenditure growth are Wagner's Law of increasing public expenditure and the Displacement Effect Hypothesis. The latter was introduced by Peacock and Wiseman (1961). These models attempt to explain the long-term rising trend of public expenditure.

There are at least three reasons for studying the growth of public expenditure using Turkish data; the first is to eliminate earlier studies' methodological shortcomings for Turkish public expenditure growth; the second is to attempt to reach some insights in order to develop better theories of public expenditure growth in the case of Turkey, and third, to inform policy processes after analysing long term trends in Turkish public expenditure.

In studying public expenditure growth in Turkey, 1950 will be taken as the starting point. There are several reasons for the choice of this year, since it was a turning point in Turkey's politico-economic history. Firstly, there had been a single party system since 1923, but in 1950 a multi party system was established. This new phenomenon affected not only politics but also the
economy and public expenditure growth. In this new era, voters' demands were taken into account. We examine this phenomenon in detail in chapter 4. Secondly, in 1950, the newly elected government's economic policies were important in shaping Turkey's economic growth throughout the subsequent decade. At least in rhetoric, one of the main targets of the newly elected Democrat Party government was to decrease the role of public sector. Thirdly, by 1950, Turkey had recovered to a large extent from the abnormalities of the Second World War. Finally, as indicated by some researchers (e.g., Krzyzaniak, 1974; and Krueger, 1974), the availability and reliability of data is poor before 1950 in the Turkish case.

Methodology

Both Wagner's Law and the Displacement Effect Hypothesis have been tested by many researchers for developed and developing countries, including Turkey. These studies have found strong evidence in favour of Wagner's Law, especially in a time series framework. However, most of these studies have suffered from various methodological shortcomings which make their results highly questionable. In other words, since they have been performed on nonstationary variables, the results might be spurious whereas valid tests on Wagner's Law require that the data are stationary.

Recent developments in time series analysis, such as cointegration analysis, allow us to apply new tests to Wagner's Law. Recently, some studies applying cointegration analysis have appeared in the literature e.g. Henrekson (1992); Murthy (1993), Oxley (1994), Hondroyiannis and Papapetrou (1995) Ahsan et al. (1996) and Chletsos and Kollias (1997). As Henrekson (1992) points out, a test of Wagner's Law should focus on the time-series behaviour of public expenditure in a country for as long a time period
as possible, rather than on a cross-section of countries at different income levels.

Earlier studies of the growth of public expenditure have not looked at the time series properties of the variables examined. There was an implicit assumption that the data were stationary. However, recent developments in time series analysis show that most macroeconomic time series have a unit root (a stochastic trend) and this property is described as difference stationarity, so that the first difference of a time series is stationary (Nelson and Plosser, 1982). So that, in testing Wagner's Law, the nonstationary property of the series must be considered first. If both series are I(1), it is necessary to perform cointegration tests. If a pair of I(1) variables are cointegrated, one then proceeds to build an error correction model in order to capture the short-run and long-run causal relationship between the two series. As we mentioned above, to eliminate early studies' methodological shortcomings, cointegration analysis will be applied in this thesis. Furthermore, the recent advances in time series analysis also allow us to apply the Perron structural break test for the Displacement Effect Hypothesis.

Although there are some studies of public expenditure growth in the Turkish public finance literature, none has applied modern econometric techniques. Thus, our contribution to the literature on the growth of public expenditure in Turkey will be to apply recent econometric techniques which investigate time series properties of the variables, use cointegration analysis, and examine the causal relationship between national income and public expenditure using error-correction models and apply a newly developed structural break test (i.e., Perron's structural test) for the displacement effect hypothesis.
Outline and Contents

We will now briefly outline the structure of this thesis. This thesis is organised as follows:

In chapter 2, we will briefly discuss some of the problems surrounding the definition and measurement of public expenditure. The objective of the thesis is to test a number of theories of public expenditure growth. However, before we can do this, it is necessary to discuss some issues of measurement. As discussed by Larkey et al. (1981), the literature on public expenditure growth is subject to many measurement problems. There are a variety of concepts of public expenditure 'size' and growth, each of which employs any one of a number of operational measures (e.g., public expenditure as a proportion of GNP). In fact, it will be helpful to have a clear conception of the phenomena to be explained before beginning the explanation. Explaining the phenomenon of 'public expenditure growth' theoretically depends directly on what measures and what countries and time periods are selected for explanation. For example, to measure the relative size of the public sector the usual procedure is to take some ratio of public expenditure to national income, E/GNP. However, there are some doubts about which measure of public expenditure or national income to employ. For instance, as for the numerator in the E/GNP ratio, E, the most important doubt about the measurement is whether transfer payments should be included or not. Some would argue that if one concentrates on the public sector's role as a consumer of resources then transfers should be excluded. However, it is clear that the distributive function of the government is an important source of public sector intervention in the economy. Moreover such transfers are usually financed by taxes, and as such as are subject to the same kind of fiscal decision process as that involving the consumption of resources (Diamond, 1977a).
Similarly, as for the denominator of E/GNP ratio, GNP, several options are also available. For example, should we concentrate on GNP or GDP and should the chosen national income aggregate be measured at market prices or factor cost? Should we use real values or nominal values? The above problems, will be discussed in chapter 2.

In chapter 3, we critically review macro theories of the growth of public expenditure. Macro models search for an explanation of how public expenditure has behaved over the long-term, i.e. they analyse the time pattern of public expenditure. The explanation of public expenditure growth in terms of macro models is dominated by two general hypotheses which are (i) Wagner’s Law of increasing public expenditure and (ii) Peacock and Wiseman’s displacement effect hypothesis. In this context, we will attempt to discuss and critically evaluate the literature on Wagner’s Law of increasing public expenditure and Peacock and Wiseman’s displacement effect hypothesis.

Wagner (1883), writing more than one hundred years ago, offered a model of the determination of public expenditure in which public expenditure growth was a natural consequence of economic growth. Later, his views were formulated as a law and are often referred to as “Wagner’s Law”. His main contribution in this field was that he tried to establish generalisations about public expenditures, not from postulates about the logic of choice, but rather by direct inference from historical evidence.

After the publication of English translations of Wagner’s works in 1958, Wagner’s Law has become very popular in academic circles and it has been analysed and tested by many researchers, for example, Musgrave (1969), Bird (1971), Krzyzaniak (1972, 1974), Önder (1974), Mann (1980), Sahni and Singh
Chapter 1

(1984), Abizadeh and Gray (1985), Ram (1986, 1987), Yalçın (1987), Henrekson (1992), Courakis et al. (1993), Murthy (1993), Oxley (1994) and Chletsos and Kollias (1997). Some of these researchers have applied traditional regression analysis, whilst some others have used causality testing, and more recently cointegration analysis has appeared in the literature. Empirical tests of Wagner's Law have yielded results that differ considerably from country to country and period to period.

There have been also some empirical studies, which were cited above, relating to Wagner's Law for Turkey. Krzyzaniak (1974) conducted a study of Turkey for the period from 1950 to 1969. After regressing public expenditure on GNP he found statistically significant estimates of the income elasticity of public expenditure with regard to GNP which appear to support Wagner's Law. Önder (1974) conducted a study of public expenditure growth in Turkey for the period 1947-1967. Using aggregate variables (in total and in per capita terms), he found the income elasticity of public expenditure with regard to GNP (or GNP per capita) to be smaller than unity. These results appear to undermine Wagner's Law (with aggregate data) for the study period. However, after disaggregating data according to economic and functional classifications, he found the income elasticity of investment expenditure and transfer payments to exceed unity. As regards functional classification, income elasticities of health, education and infrastructure expenditures are greater than unity as well. In a recent study, Yalçın (1987) also found that using aggregate data, her findings did not support the validity of Wagner's Law. However, after disaggregation, the income elasticity for transfer expenditures with regard to GNP appears to support the validity of Wagner's Law.
A major omission in Wagner's thesis was a consideration of the effects of social upheavals on public expenditure. In this context, the work of Peacock and Wiseman (1961) is thought to enrich Wagner's demand oriented thesis by considering supply side constraints. In explaining the growth of public expenditure in the UK in the period 1890-1955, Peacock and Wiseman suggested that social upheavals such as wars make the burden of higher taxation required to finance higher levels of need more tolerable. To come to this conclusion, they questioned the generality of Wagner's Law and introduced the displacement effect hypothesis in an attempt to explain the time path of public expenditure in a democratic country. According to the displacement effect hypothesis, public expenditure grows over time, not at a constant rate, but roughly in a stepwise fashion. The movement from one 'step' to another coincided, in the British case, with the occurrence of two world wars. However, they claimed that the displacement hypothesis "may help to explain the evolution of government expenditure in other countries and at other times" (Peacock and Wiseman, 1961: 3).

Early studies of the displacement effect hypothesis usually focused on democratic developed countries and usually concentrated on the displacement caused by global social upheavals (i.e., the World Wars and Great Depression). Of course developing countries are not free of such social upheavals. They are also likely to experience major expenditure shifts as a result of social, political, military and economic characteristics peculiar to developing nations. Hence, when applying the displacement effect to a developing country, it is necessary to take special care. As argued by Goffman and Mahar (1971), the displacement effect as presented by Peacock and Wiseman rests upon a tax constraint excised by the electorate upon the legislator, which presupposes a modern democratic system. In many
developing countries, internal dictatorship, military intervention or external pressure from a foreign power or even international agency may reduce the role of the ballot box and introduce instead a different set of constraints. To overcome such constraints and for an expenditure displacement to result, may require a type of upheaval which is different from that observed in developed and democratic economies.

The displacement effect has been extended to include non-global social upheavals by Nagarajan (1979). In fact, the only difference between World War(s) (major social upheavals) and bilateral war(s) (non-global social upheaval) is that the number of countries concerned is smaller. However, the impact of a bilateral war on a country could be larger than a World War. If the displacement effect is linked only with responses to major disturbances caused by World Wars, then this hypothesis would fail to explain the shifts in public expenditure in many countries in the 1960s, 1970s and 1980s. It is quite possible that a non-global upheaval is likely to have a greater effect, in terms of the magnitude of social disturbances at the national level, in many developing countries.

Diamond and Wiseman (1975), Diamond (1977b), and Peacock and Wiseman (1979) have advanced the suggestion that the displacement effect was an example of structural change. In this context, structural breaks can be caused by major upheavals such as wars, depressions, hyperinflations, revolutions, military takeovers or any rapid political change that replaces one dominant group with another. Obviously, the definition of what constitutes a major social upheaval is going to be a bit fuzzy at the edges, what will make precise tests difficult. When a structural change happens between two points or two periods in time, old causal patterns are replaced by new and statistically some parameters can change significantly.
On the empirical side, many researchers have examined the question of the existence of a displacement effect on public expenditure generated as a consequence of the World Wars or the Great Depression and other social upheavals. (See, for example, Gupta (1967), Pryor (1968), 1972), Tussing and Henning (1974), Diamond (1977b), Watt (1978), Henrekson (1992)). The displacement hypothesis was also tested for non-global social upheavals such as Nagarajan (1979) for India, Yalçın (1987) for Turkey, Afxentiou (1987) for Cyprus among others. The evidence is inconclusive. While some studies support displacement effect hypothesis, some do not.

In addition to Wagner's Law and Peacock and Wiseman's displacement effect hypothesis, in chapter 3 we will look briefly at development models of public expenditure growth, such as Musgrave’s and Rostow’s theories of public expenditure. These models focus on the government’s role in the process of development as a supplier of infrastructure, capital and social investment. Musgrave (1969) is concerned with the changing role of the public sector during the development process. In other words, public expenditures play a significant role in the functioning of the economy, whether at a relatively low or high level of income. Similarly, Rostow (1971) suggests a theory of economic and political development which may help to integrate long term public sector development into broader theories of economic and political development respectively. Rostow’s model attempts to explain the size and composition of public expenditure with the stage of growth (development) analysis.

In chapter 4, we will give a short overview of the role of the state in Turkey. At the same time we will look at economic policy instruments which relate to the public sector in Turkey. Turkey is a developing country and like many other developing countries the government’s involvement in the economy is
at a high level. For this reason, any study which aims to examine the growth of public expenditure in Turkey cannot ignore the role of the state and the effect of the level of economic development and/or economic policies on public expenditure growth. In other words, the state has played a very important role in Turkey's growth, both in setting the environment for the private sector, and its own investment activities.

The period after 1950 which we are studying is a period of democracy in Turkish politico-economic history. In this period, governments started to pay more attention to their voter's demands. During the whole period, government intervention was vital in economic life. Although industrialisation policies have changed from liberalist to import-substitution, and then from import substitution to export oriented policies, the importance of the state did not change significantly.

In chapter 5, we will examine the growth of public expenditure in Turkey during the period 1950-1990. There is an implicit assumption of democracy in both Wagner's Law and the displacement effect hypothesis. After the first free elections in 1950, Turkey moved into a multi party system. This was the main reason for selecting 1950 as the starting point of the study. There are other reasons for this choice. For example, after this year data quality improved considerably, particularly, in relation to both GNP and public expenditure. In this chapter, we will look at public expenditure to GNP ratios, when analysing public expenditure growth. This is the most commonly used measure of size of public expenditure. This measure has been used in both the descriptive literature and empirical tests. Much of the popularity of this ratio stems from its appeal as a method of overcoming the problems of interpretation introduced by inflation. Although this technique suffers some deficiencies, 'there is nothing better at hand' (Henrekson, 1992: 13)
4). In this chapter, using this measure, we will look at the historical growth of public expenditure in Turkey in the democratic era. Public expenditures are also disaggregated into economic (i.e., current, investment, and transfers) and functional categories (i.e., general administration, health, education, infrastructure and defence).

Chapter 6 presents the results of empirical tests of Wagner's Law and Peacock and Wiseman's displacement effect hypothesis using Turkish data for the period 1950-1990. One of the classical approaches used in explaining public expenditure growth is Wagner's Law, which states that there is a long-run tendency for the public sector to grow relative to national income. There are at least six versions of this law in the literature. In this chapter, we will investigate whether there is a long-run relationship between public expenditure (growth) and GNP (growth), along the lines suggested by Wagner's Law for the case of Turkey during the period 1950-1990. Recent advances in time series analysis have permitted the investigation of the long-run relationship between public expenditure and GNP in terms of cointegration analysis. The concept of cointegration, first introduced into the literature by Granger (1981), is relevant to the problem of the determination of long-run or 'equilibrium' relationships in economics. Cointegration is the statistical implication of the existence of a long-run relationship between economic variables. The two step Engle and Granger (1987) cointegration methodology is applied to test six versions of Wagner's Law. This technique allows for additional channels through which causality might emerge. A prerequisite for testing for cointegration is to examine the time series properties of the individual variables involved. In order to fulfil this requirement, we will apply the Dickey-Fuller (DF)/Augmented Dickey-Fuller (ADF) integration tests. Many early researchers ignored the stationarity
requirement on the variables. In fact, standard regression techniques are invalid when applied to non-stationary variables. In the case of Wagner's Law, evidence of cointegration is sufficient to establish a long-run relationship between public expenditure and income. However, to support Wagner's Law would require unidirectional causality from income to public expenditure (Oxley, 1994). Therefore cointegration should be seen as a necessary condition for Wagner's Law, but not sufficient. Hence, conditional on cointegration results, it is necessary to look at the causality properties of the model(s). When we are testing Wagner's Law we have also used disaggregated data (i.e. economic and functional classifications of public expenditure) in order to see whether the thesis has any support at a lower level of aggregation.

Although there are different interpretations of the displacement effect hypothesis, there is agreement on the point that displacement implies a more or less permanent change. In Turkish fiscal history, during the study period there were several events that we could call 'non-global' social upheavals. In terms of public expenditure growth, the most important may have been the war between Turkey and Cyprus in 1974. Other events such as the 1960 military intervention and the military intervention (and/or the sudden radical change in economic policy) in 1980 might also generate a displacement effect. In order to test the displacement effect hypothesis, we applied the Perron test for structural break(s). A structural break is a sort of exogenous intervention in the series. Perron offers an integration level test for a series subject to a structural break. According to Perron (1989: 1363), "[this] approach is in the spirit of the intervention analysis suggested Box and Tiao (1975)". The test can be regarded as an improvement in the direction of searching and creating more informative economic time series.
For the Displacement Hypothesis, the Perron test for a structural break is mainly applied to determine whether the Cyprus War in 1974 caused a displacement effect in Turkish public expenditure. We also considered other possible structural break years during the study period such as the military coup in 1960, and the radical changes in economic policy (and/or military coup) in 1980.

Chapter 7 expands the discussion of public expenditure growth in Turkey. In many empirical studies, Wagner’s Law has been tested in a bivariable case only. Similarly, Peacock and Wiseman’s displacement effect hypothesis either has been tested in also bivariable case, or as a single public expenditure series i.e. using only the ratio of total public expenditure to GNP or public expenditure per capita series (see, for example, Henrekson, 1992). However, real economic life is more complicated than this. Many other variables, such as demography, relative prices, and/or the politico-economic conditions in a particular country, may affect the growth of public expenditure in a country in the long-run and/or in the short-run. Using only income (or some other variable) may not be enough to model public expenditure growth. In this chapter we have adopted a “synthetic approach” (and/or pragmatic approach) which embraces aspects of the various theories of public expenditure growth, such as Wagner’s Law, Peacock and Wiseman’s displacement effect hypothesis, relative prices and demographic factors. In addition, some dummy variables have been incorporated to allow for significant economic and political events during the study period.

Chapter 8 provides a summary and some general conclusions.
CHAPTER 2

THE DEFINITION AND MEASUREMENT OF PUBLIC EXPENDITURE
2.1 Introduction

A number of key terms are used in both the academic literature and public debate to explain the relative increase of the state in GNP. Terms such as; 'the extended role of the state', 'the growth of the government', and 'the expansion of the public sector' are commonly used. Similarly, imprecise terms such as 'state expenditure', 'government expenditure' and 'public expenditure' are all used. On the whole, 'state' is a more abstract term than 'government'. Usually, the term 'government' relates to central government and excludes local authorities and other public agencies. 'State' is a broader concept than government. In other words, the size of the public budget is not a measure of the power of the State, which has many instruments which have either no or negligible impact upon public expenditure totals. For example, state activity can take a variety of forms such as consumption, production, redistribution, regulation and each influences the economy different ways.

As Heald (1983) argues, there are considerable ambiguities at the margin about what constitutes public expenditure, partly stemming from the fact that the public sector itself is a rather amorphous concept.

This chapter will attempt to answer the following questions. What is public expenditure? How can we define and measure it? Although the measurement of public expenditure data is essential to most policy analysis, it is not an easy process. According to Cullis and Jones (1992) measurement problems are of both a conceptual and practical kind. A large literature attempts to describe or explain public expenditure growth. As background we will discuss issues of measurement and definition in this chapter.
2.2 The Definition of Public Expenditure

In defining public expenditure it is first necessary to decide which spending agencies to include and then which items of their expenditure to take into account. There are four possible spending agencies to consider: central government, local government, the national insurance fund and the nationalised industries. There is a consensus about the inclusion of the first two. There is also a strong case for including the national insurance fund because its disbursements are entirely determined by government policy and its income is derived partly from a general exchequer contribution (raised by taxation) and partly from levies on employers and employees of a largely compulsory nature and scarcely distinguishable from taxes. More difficult decision is the treatment of nationalised industries. In this study, we does not examine the expenditure of nationalised industries, so it has been excluded.

Public expenditure reflects the policy choices of governments. Once governments decide upon which goods and services to provide and the quantity and quality in which they will be produced, public expenditures represent the costs of carrying out these policies. This definition is sufficiently broad to enable us to make two distinctions. First, there are the costs of providing goods and services through the public expenditures, i.e. the amount that appears in the public sector accounts. Second, most rules, regulations and laws introduced by government result in private sector expenditure. For example, the passing of a law that requires a hotel to install minimum fire precautions will result in the hotel owner spending money. Another example would be the policy of ‘care in the community’ which is being pursued in the UK at present. Some economists would count such

1 Mentally ill patients are removed from public sector hospitals to their own or relatives’ homes.
expenditure along with other public expenditures since these private sector expenditures are caused by public sector decisions. This wider definition of public expenditure is of interest when one is discussing the costs of government actions. However for most purposes, a narrower definition of public expenditure is used (Brown and Jackson, 1990).

In the national income accounts, public expenditures are represented by two broad categories of government activity. First, there are exhaustive public expenditures. These expenditures correspond to the government's purchases of current goods and services (i.e. labour, consumables etc.) and capital goods and services (i.e. public sector investments in roads, schools, hospitals etc.). Exhaustive public expenditures are purchases of inputs by the public sector and are calculated by multiplying the volume of inputs by the input prices. Exhaustive public expenditures are claims on the resources of the economy, so that their use by the public sector precludes their use by other sectors.

The second category of public expenditures is transfer expenditures, such as public expenditures on pensions, subsidies, unemployment benefits and debt interest.

In the public expenditure literature, there is still a big debate about transfers. While some claim that transfer payments should be included in an analysis of the growth of public expenditure, others exclude such expenditures. We will discuss this point in detail below, because of its importance.

As Griffiths and Wall (1991) mention, The UK Central Statistical Office (CSO) offers at least ten measures of the size of public expenditure. However, no single measure of public expenditure has met with universal agreement, and even when one has been widely used for some time, it can be subject to change for a variety of reasons. For example, in 1986 public expenditure was
redefined to bring Turkey into line with some international economic agencies' (e.g., OECD) accounting methods, and this resulted in an apparent significant overnight reduction in consolidated public expenditure by extracting principal payments from the transfers. The changes in the definition of public expenditure in Turkey will be discussed in chapter 5.

As Likierman (1988: 7) indicates "[t]he process of revising the definition of public expenditure goes on all the time". As a recent Public Expenditure White Paper [(1986: 403); quoted by Likierman (1988: 7)] explained: "The scope and definition of public expenditure may be altered from one White Paper to the next..." This behaviour of the public expenditure definition can be seen in many countries. Of course, it is not difficult to see that "changes of this kind can make it difficult for anyone trying to analyse trends over time" (Likierman, 1988: 8).

As mentioned before, government decisions are reflected in public and private sector expenditures. Almost every government action results in expenditure changes in both sectors (Rice, 1983). However, if we were to include private expenditure in the measure of public expenditures, we would face an extremely large definition of public expenditures. Furthermore, it is nearly impossible to obtain the kind of data that would be required. In this thesis the definition of public expenditure will include only actual public expenditures, and we will exclude private sector "costs" resulting from government decisions.

### 2.3 Measuring Public Expenditure and Related Problems

Explaining the phenomenon of public expenditure growth theoretically depends on what measures, what countries and what time periods are selected for explanation (Larkey, Stolp and Winer, 1984).
As Peacock and Wiseman (1979: 18) point out, "it is possible to classify the data in so many different ways - the organisation of data itself presupposes some kind of hypothesis". Thus, since there is no 'scientific' or 'neutral' measure of public sector size that can be adduced, the size of the public sector is to a great extent a matter of choice (Cullis and Jones, 1987).

There are several major debates in connection with measurement aspects of public expenditure. We now discuss these measurement problems.

2.3.1 Transfer Expenditures

Firstly, there is a continuing debate in the public expenditure growth literature about whether to include transfer expenditures as part of public expenditure. On the one hand, some economists argue that transfer payments should be excluded from total public expenditure when measuring the public expenditure ratio. On the other hand, some scholars argue that transfer payments are as important as other components of public expenditures. For example, Buchanan and Flowers (1987: 63) state "this [transfer] is as much a real cost as direct outlay for tanks, planes, and paper clips. When estimating the real cost of government, the distinction between productive and transfer expenditures is not useful". According to them, "[t]axation imposed on some members of the community is a real cost of securing the benefits arising from the direct subsidising of other members even through explicit money transfers". Beck (1976) expresses a similar opinion. According to him, it may be argued that the inclusion of transfers overstates governments use of resources. However, omission of transfer payments is equally misleading since government transfers to households require diversion of taxpayers' income to government for the financing of transfer programs. Ho (1987) argues that like government purchases,
transfers are also determined by political decisions about allocative as well
distributional objectives, which are equally important for an expansion of the
public sector.

As discussed above, the redistribution of income shows the influence of
government (Lewis-Beck and Rice, 1985). Hence, any valid measure of public
expenditure should include transfer payments.

2.3.2 Using Absolute or Relative Values

The second issue in measuring public expenditure is related to use of absolute
or relative values. Many countries' historical data show that the absolute
level of public expenditures of a growing economy increases over time.
However, the absolute level of public expenditure is a meaningless concept
until it is seen alongside other magnitudes such as national output. While
total public expenditure may have been increasing, other items in the
economy such as personal incomes, prices, population and total output will
have been increasing also. The interest lies in the relative rates of increase in
these magnitudes rather then their absolute increase. The relative size of the
public sector is usually measured by comparing public expenditure with
some national income aggregate. As it is known, the standard economic
measure of the "size" of economy is GNP (or GDP). By estimating total public
expenditure as a percentage of GNP (or GDP), we can see public
expenditure's relative size and growth. For example, Figure 2.1 shows the
ratio of public expenditure to GNP for Turkey:
We have to decide whether it is the absolute or the relative growth of public expenditure that should be studied. For example, Henrekson (1992) studied and tried to explain both the share and absolute growth of public expenditure. He emphasised that an attempt to explain the absolute growth is methodologically more attractive for several reasons. First, the ratio of public expenditure to GDP (GNP) is inconsistent in that it can exceed unity due to the existence of taxable transfers. Second, public expenditure can grow in relative terms either because of public expenditure has accelerated relative to the growth of GDP (GNP) or because there has been a decline in the rate of growth of GDP (GNP). However, the share approach ignores the difference between these two possibilities.
Nevertheless, according to Musgrave (1978: 17), "[i]t seems reasonable ... to measure growth of the public sector not in absolute terms (even if measured by real per capita expenditures), but as a share in total income...."

At this point, it is necessary to mention some other problems. These problems are about how to measure the national product, and how to handle inflation.

2.3.3 The Problem of National Product

The most commonly used method of measuring the relative size of public sector is to compare public expenditures with some indicator of national output. There are several alternative national output aggregates that public expenditure could be related to. The two routinely used measures of national output are GNP and GDP. From Table 2.1, we can see a variety of measures of public expenditure ratios with regard to GNP and GDP using Turkish data.

<table>
<thead>
<tr>
<th>Table 2.1</th>
<th>Turkey's Public Expenditure Ratios 1950, 1970, 1980 (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Public expenditure as a proportion of GDP (factor cost)</td>
<td>23.5 30.3 26.9</td>
</tr>
<tr>
<td>2 Public expenditure as a proportion of GDP (market prices)</td>
<td>19.7 27.3 25.5</td>
</tr>
<tr>
<td>3 Public expenditure as a proportion of GNP (factor cost)</td>
<td>23.5 29.8 26.2</td>
</tr>
<tr>
<td>4 Public expenditure as a proportion of GNP (market price)</td>
<td>19.8 26.9 24.8</td>
</tr>
</tbody>
</table>


The public expenditure ratio represents the share of the national output "controlled" by government. Among scholars there is no consensus on which measure of output is most appropriate.
The differences between the ratios depend upon whether it is national or domestic product that is used in the denominator and whether the denominator is measured at market prices or factor cost. Since the difference between domestic product and national product is equal to net property income from abroad, there will be only a slight difference between ratios 1 and 3. Market prices, by definition, exceed factor costs by an amount equal to the net difference between indirect taxes and subsidies. Thus ratio 2 is smaller than ratio 1, because indirect taxes exceed subsidies.

As can be seen from Table 2.1, it is possible to construct different ratios, but which one of them is the true relative size of the public sector? According to Brown and Jackson (1990: 158), "[t]he answer is that the relative size of the public sector is an arbitrary measure. No single measure is the true one, but one measure can be more useful than another for particular purposes. Political arguments that rest upon the value of these ratios must likewise be arbitrary".

There is a similar argument about the choice between market price and factor cost measures. Variations in the ratio of public expenditure to national output will be sensitive to variations in the mix of direct taxes, indirect taxes or subsidies. This means that if ratio 2 (or 4) is to be used to show changes in the relative size of public sector over time, any conclusions that can be drawn are clouded because the ratio will not only be an indicator of the relative size of the public sector, but it will also reflect variations in the structure of public sector revenues. For example, the role of tax structure can be seen from Table 2.2.
As can be seen from Table 2.2, the alternative measures (or relative size) of the public sector can change. While the absolute sizes of the public sector in this example are identical, and their relative sizes are identical when using the factor cost measure of GDP (or GNP), their relative sizes differ when using the market price measure of GDP (or GNP). The difference arises, in this case, from variations in the tax structure and not because of variations on the public expenditure side. It would, therefore, seem that GDP measured at factor cost is the more appropriate ratio. But this measure also has its problems. As a national income accounting concept the factor cost measure of GDP makes very strong assumptions about the degree of shifting of indirect taxes and subsidies. GDP measured at factor cost is calculated by subtracting indirect taxes and adding subsidies from GDP measured at market prices. Thus the standard national income accounting procedure assumes complete forward shifting of indirect taxes and subsidies.

As the relative size of public expenditures can change depending on whether national output is measured in factor cost or market prices, which is the better denominator for public expenditure ratio? Most scholars side with the use of the factor cost measures, from which indirect taxes are subtracted out. This is desirable essentially because indirect taxes are used to different extents by different governments and even the same government over time. Also,
indirect taxes may be defined differently by different governments. Since direct taxes do not make up part of GNP (or GDP), differences in the dependence on indirect taxes by nations or by the same nation over time creates estimates of national income at market prices which fluctuate because of the tax structure. Thus, the measure of the relative size of the public sector is influenced simply by how governments decide to raise revenues. This could result in unreliable comparisons of the relative size of government not just across countries but even within a country over time. Still, factor cost is not a trouble free denominator for the public expenditure to GDP ratio. Defining subsidies also varies across nations. Therefore, as with market prices, "the factor cost measure of GDP (or GNP) will be biased and measures of the relative size of the public sector will be subject to error" (Brown and Jackson, 1990: 160). However, this factor cost error should be much less serious because subsidies usually contain much less of national output than do indirect taxes. GDP (or GNP) at factor cost, then, will be used to form the public expenditure ratio.

Whether to use GNP or GDP at factor cost seems to be a matter of choice. These estimates of national output differ very little and do not change much over time.

2.3.4 Current versus Constant Prices

Another measurement problem is created by inflation. After a period of inflation, it is clear that in current prices, government will be spending more this year than several years ago, even if it still provides the same quantity of services. That is, like private goods and services, the prices of public goods and services have risen over time. This forces governments to spend more each year in current terms to supply the same goods and services. However,
these spending increases do not reflect public expenditure expansion. Public expenditure is growing merely because of increasing prices. As Ruggles and Ruggles (1970: 68) note, "[a] time series of the major economic constructs relating to output will ... reflect both changes in prices and changes in quantity". Economists usually try to separate the price change from the quantity change. Therefore, it is possible to say that "current estimates of public expenditure reflect the real amount of public services only imperfectly as the unit of measurement changes over a time" (Andic and Veverka, 1964: 177). Simply using current public expenditures is sufficient when a single time period is observed, but problems arise when comparing these expenditures across time.

By focusing on the changing ratio of public expenditures to GNP, even though both are measured in nominal terms, the problem of deflating or adjustment for change in price level may appear to be taken care of automatically. However, this is correct only if the prices of publicly and privately provided goods have risen at the same rate. In other words, "[i]f the price (unit cost) of government services rises at the same rate as the general price level, there is no divergence between the two measures of public sector size" (Beck, 1981: 96). This may not be the case. In the long-term, goods and services provided by government may lend themselves less to technical advances than those privately provided, simply because they are less capital and technology intensive. This is the relative price effect first discussed in the literature by Baumol (1967), and then termed "Baumol's disease".

Price indexing is not a simple task. There is a disagreement over which goods and services should serve as a base for the indexing. Furthermore, as Beck (1981: 3) points out, "..no country publishes a deflator for total government spending." Therefore, if public expenditures are to be adjusted for inflation,
Chapter 2

an index based at least partly on private goods and services must often be used. There are a wide variety of these indices, such as the Consumer Price Index (CPI), the Wholesale Price Index (WPI), and the Gross National Product deflator. However, none of these is ideally suited for deflating public expenditures. Since most transfer payments ultimately purchase consumer goods, it is often argued that they should be deflated by the CPI (Beck 1981). Other public expenditures, such as spending on fixed assets (e.g., buildings and machinery) might be more accurately deflated by the WPI (Rice, 1983) or a Capital Goods Price Index.

For example, a comparison of the price indices for GNP and government expenditures in the UK, presented by Peacock and Wiseman (1961) for the years from 1890 to 1950, shows only a negligible divergence. Because of that relative prices played no part in their analysis of public sector growth, and they used nominal ratios only. However, in another study, they have since acknowledged that for other periods and places "separate deflation ... can make a considerable difference" (Peacock and Wiseman, 1979: 9). Peacock (1978: 6) argues that "most studies of long-term expenditure have largely ignored this problem ... [but] the evidence for the last two decades that the divergence is now marked" (Beck, 1981: 100).

If the relative price effect is weak or non-existent, then public expenditure as a percentage of GNP (or GDP), makes automatic adjustment for price fluctuations, since rising prices for the total economy are reflected in rising prices to public expenditure. "Much of the popularity and resilience of the public expenditure/GNP ratio stems from its appeal as method of overcoming the problems of interpretation introduced by inflation" (Heald 1983: 24).
All studies using an index of private output prices for deflating government expenditure, implicitly or explicitly assume identical productivity changes in the private and public sector (Andic and Veverka, 1964). If this assumption has no empirical basis, it is necessary to adjust the price index for the productivity discrepancy between two sectors.

Relative Price Effects (or Baumol's Disease)

In the literature on public sector growth, the tendency for government cost (per unit) to rise faster than the general price level is sometimes characterised as the "Baumol Effect" or "Baumol's Disease". Baumol (1967) claims that lagging productivity in the public sector drives up the relative cost of public services and increases the government's share of national income and expenditure (Beck, 1981). In his theory, Baumol described the relative growth of public sector as being due to a low or zero rate of productivity growth in the public sector. In other words, the Baumol model postulates that the relative price of public sector output will rise of over time due to the absence of productivity growth.

Baumol's theory of "unbalanced growth" is viewed by Peacock and Wiseman (1979) as the modern counterpart of Wagner's Law. However, Musgrave (1981: 86) has some reservations about this idea. According to him, first, "an increase in the relative price of public services will increase outlays enough to raise the nominal share only if the price elasticity of demand is above unity." Another point is that "Baumol's observation applies to outlays on public services only and not transfers, and within public services it applies to government produced services rather than to the purchase of private output (pencils for civil servants or military hardware). Yet these are the parts of the budget which have expanded most rapidly. For these reasons, Musgrave
claims that "I would not consider Baumol's point, interesting although it is in a narrow range, a major source of public sector expansion" (Musgrave, 1981: 86). Beck (1981) also criticised Baumol's theory since Baumol does not support his thesis with empirical data.

Similarly, according to Jackson (1980: 347), "Our main difficulty with using this model empirically is that we do not have sufficiently good estimates of the main parameters of the model. Given that the output of the public sector is extremely difficult to measure we do not have measures of public sector productivity, nor do we have measures of the price and income elasticities of demand for public goods."

According to Abizadeh and Basilevsky (1990), the main reason given by those who argue in favour of using real rather than nominal values is that the rate of inflation in the public sector is usually higher than the economy-wide rate of inflation (i.e. the Baumol Effect). Thus, if nominal variables are used one may end up unnecessarily overstating (or at other times understating) the relative size of government. Buchanan and Flowers (1987: 63) believe that the use of nominal figures will "reflect changes in prices along with changes in government's real share in economic activity". Similarly, Lewis-Beck and Rice, (1985: 6) point out that "...the unadjusted measure is preferable because it gives a better indication of government scope and power vis-a-vis the national economy". According to Musgrave (1981: 86), "...given the assumption that public services are worth their cost, it is the change in nominal shares that should be considered in measuring public sector expansion". Abizadeh and Yousefi (1988), examined the causes of public expenditure growth in Canada and concluded that the use of real or nominal values does not significantly alter the result. Henrekson and Lybeck (1988)
point out that it is possible to find arguments both in favour and against the use of real values.

2.3.5 Population Changes

Another question faced when measuring government expenditures is how to handle population changes. If a nation's deflated government expenditures double over the same period as its population triples, its per capita expenditures have actually fallen. That is, the government spends less per person. Many scholars correct for this by dividing expenditure by population, thus acquiring expenditure per capita. Population changes over time, and if more than a few years are compared, it is desirable to adjust for changes in population. This adjustment produces a per capita measure of public expenditure (Buchanan and Flower, 1987). We have discussed this topic because some versions of Wagner's Law use a per capita measure of public expenditure.

2.4 Conclusion

In this chapter, we have examined problems surrounding the definition of public expenditure and discussed related measurement problems. The preferred definition of public expenditure includes only those expenditures made by central government, and excludes private sector expenditures made in response to government actions. As discussed above, our public expenditure definition includes transfer expenditure as well. In order to analyse public expenditure growth, as discussed above, it appears that it is better to examine the ratio of public expenditures to GNP at factor cost. We will look more closely at Turkish public expenditure definition in Chapter 5.
CHAPTER 3

A CRITICAL REVIEW OF THE LITERATURE ON THE GROWTH OF PUBLIC EXPENDITURE: MACRO APPROACHES
Chapter 3

3 A CRITICAL REVIEW OF THE LITERATURE ON THE GROWTH OF
PUBLIC EXPENDITURE: MACRO APPROACHES

3.1 Introduction

Before we undertake an empirical analysis of public expenditure growth in
Turkey, we will review those macro models which attempt to explain the
growth in public expenditure.

There are a number of alternative approaches to examining public
expenditure growth. As well as macromodels there are microeconomic\(^1\) or
decision process models of public choice which try to explain the underlying
microeconomic foundations of the decision processes that finally give rise to
public expenditures. In this study, we will focus on macro models. In this
context, the term macro refers to the level of aggregation of public
expenditure. Macro models start with data on public expenditures and
continue to explain the time pattern of public expenditures in terms of broad
aggregate variables such as GNP. It is necessary to emphasise that the macro
models which are considered here differ from short-run macroeconomic
forecasting models in their treatment of public expenditure. It is well known
that macroeconomic forecasting models take public expenditure as
exogenously determined. However, macro models seek to explain how
public expenditure has behaved over the long term, i.e. they analyse the time
pattern of public expenditure (Jackson, 1980; Brown and Jackson, 1990).

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\(^1\) Micro models of public expenditure growth attempt to explain particular components of
public expenditure, whether caused by increasing demand for individual services or by
changes in their cost structures. Micro models attempt to identify the variables that directly
influence the demand for and supply of public sector outputs. There are micro models of the
behaviour of (a) voters, (b) politicians, (c) bureaucrats and (d) pressures groups.
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3.2 A Survey of the Literature on Wagner's Law

3.2.1 Introduction

For a long time, there was no model of the determination of public expenditures. Of course, some classical economists, e.g., Adam Smith, paid attention to tendencies in the long-term trend in public expenditures, but there was no attempt to translate such observations into a general theory (Tarschys, 1975). However, over one hundred years ago, a simple model of the determination of public expenditures was offered by Adolph Wagner, a leading German economist of the time. On the basis of his empirical findings, he "formulated a 'law' of expanding state expenditures; which pointed to the growing importance of government activity and expenditure as an inevitable feature of a 'progressive state'" (Bird, 1971: 1). Wagner tried to generalise the behaviour of public expenditure. He was the first scholar to recognise the existence of a positive correlation between the level of economic development and the size of the public sector. He contended that an increase in public spending was a natural consequence of economic growth. Here it should be emphasised that the main target of Wagner's Law was to establish generalisations about public expenditures, not from postulates about the logic of choice, but rather by direct inference from historical evidence.

Other economists, before and after Wagner, said much the same thing, but he was the first to attempt to demonstrate this 'law' empirically. Since then it has become firmly established as Wagner's Law. Here, it can be pointed out that "Wagner did not state his ideas in the form of a law; this was done by later commentators" (Brown and Jackson, 1990: 121).
3.2.2 Statement of the Hypotheses

As we will show below, there are many versions of Wagner's Law. A modern formulation of Wagner's Law can be defined as follows: "as per capita income rises in industrialising nations\(^2\), their public sectors will grow in relative importance" (Bird, 1971: 2). According to Wagner, there are three reasons why one might expect this to be happen.

Firstly, the administrative and protective functions of the state grow due to the rising complexity of legal relationships and communications. Moreover, increased urbanisation and concentrations of population need higher public expenditure on law and order and socio-economic regulation.

Secondly, Wagner predicted a considerable relative expansion of 'cultural and welfare' expenditures. In other words, he assumed that the income elasticity of demand for public services such as education, health and income redistribution is greater than unity, so that proportionately more of them would be demanded as income rose.

Thirdly, Wagner suggested that the technological needs of an industrialised society require larger amounts of capital than are forthcoming from the private sector. In other words, economic development and changes in technology required government to take over the management of natural

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\(^2\) In this study, we will use 'industrialising nations' as a synonym for 'developing countries'. In the broader sense, development is more than industrialisation. However, in many developing countries the development of industries has been regarded as a general development strategy. In other words, many developing countries (e.g. Turkey) give priority to industry in their development strategies. They believe that industrialisation plays a crucial role in the process of political, social and economic development. Especially after Second World War, for developing countries, industrialisation has been the key to catching up to the high living standards and political stature of industrialised countries. As Ghatak (1986: 273) pointed out "industrialisation is regarded as an important policy to affect fundamental economic and social changes in LDCs (Less Developed Countries) which are considered as necessary conditions to raise their economic growth potentials". In this context, it can be said that industrialisation is a necessary condition for development for many developing countries. In the narrow sense, therefore, it is possible to use these two terms as synonymous with each other.
monopolies in order to enhance economic efficiency. As a result, the state has to provide the necessary capital funds to finance large-scale capital expenditures, such as railroads.

According to Bird (1970), it is important to note that Wagner formulated these ideas in Germany in the late nineteenth century. Therefore, the "law" was explicitly stated to refer only to states in which income was rising as a result of industrialisation. Bird specifies the necessary conditions for the operation of the Wagner's Law as: (1) rising per capita incomes, (2) technological and institutional change, and (3), at least implicitly, democratisation (in the sense of political participation) of the polity.

As Gupta (1967: 246) argued, "his [Wagner's] justifications are based on his particular social and political philosophy and on the validity of the organic theory of the state". Wagner's Law is based upon Wagner's own view of the duties of state. In Wagner's Law, "the state was assumed to behave as if it were an individual existing and making decisions independently of the members of society" (Brown and Jackson, 1990: 123). In other words, "Wagner viewed the state as a being with its own tastes and preferences, something quite different from the individuals composing it" (Bird, 1971: 3). Peacock and Wiseman (1961) also pointed out that the law of increasing state activity depends upon the validity of the organic theory of the state. However, there are many other interpretations of the nature and duties of the state, for example the individualistic theory of state.3

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3 In the 'organismic theory', the state, including all individuals within it, is conceived as a single organic entity. In the individualistic theory of the state, the state is represented as the sum of its individual members acting in a collective capacity. The individual and the state may be fundamentally opposing forces in the second concept, while in the organic view, the state or general interest, subsumes all individual interest. The theory of government finance based upon the second concept of the state may be called the individualistic one (Buchanan, 1960: 8). "In the organismic theory the state is considered a single decision-making unit acting for society as a whole". "The focus is completely shifted in the individualistic theory. The individual replaces the state as the basic structural unit. The
In Wagner's words,

The 'law of increasing expansion of public, and particularly state, activities' becomes for the fiscal economy the law of the increasing expansion of fiscal requirements. Both the State's requirements grow and, often even more so, those of local authorities, when administration is decentralised and local government well organised. Recently there has been a marked increase in Germany in the fiscal requirements of municipalities, especially urban ones. That law is the result of empirical observation in progressive countries, at least in our Western European civilisation; its explanation, justification and cause is the pressure for social progress and the resulting changes in the relative spheres of private and public economy. Financial stringency may hamper the expansion of state activities, causing their extent to be conditioned by revenue rather than the other way round, as is more usual. But in the long-run the desire for development of a progressive people will always overcome these financial difficulties (Wagner, 1883: 8).

According to Peacock and Wiseman (1961), the most important point in this argument is its implication that the growth in expenditure derives from the growth in state activity, which is in itself the result of social progress. In that case, Wagner's Law is a 'law of increasing state activity'. It can also be seen from the quotation that the law is concerned with the secular (long-run) behaviour of public expenditure rather than with short-run change.

Recently, the most common interpretation of Wagner's Law of increasing state activity attributes the growth in public expenditures to the increase in demand brought about by an increase in per capita income. In formulating his 'law' Wagner adapted Engel curve analysis to explain the demand for public goods.

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state has its origin in, and depends for its continuance upon, the desires of individuals to fulfil a certain portion of their wants collectively. The state has no ends other than those of its individual members and is not a separate decision making unit. State decisions are, in the final analysis, the collective decisions of individuals" (Buchanan, 1960: 11-12).
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Time is an important implicit third dimension in Wagner's analysis. Growth in both income and public expenditures is assumed to occur over time (Ganti and Kolluri, 1979).

Recently, Wagner's Law has been found to be very attractive by many economists. According to Afxentiou (1986:160), "[t]he first attractive feature of Wagner's ideas was their simplicity. The second one was their generality and vagueness". In the last 30 years or so much attention has been given to an empirical assessment of Wagner's Law. There are several versions of Wagner's Law, and the evidence generated has tended to vary with the time periods, countries and variables considered. As we will show below, a substantial number of studies report support for the Law, while others conclude that supporting evidence is lacking.

Given the implicit nature of Wagner's original exposition, it is difficult to define precisely the empirical form of the relationship between 'economic progress' and the 'growth of state activity'. There are at least six different versions of Wagner's Law which have been empirically investigated (e.g., Afxentiou and Serletis (1991); Afxentiou (1986); Mann (1980); and Gandhi (1971) offer five versions). However, there is no objective criterion to decide which of the six versions is the most appropriate and convincing test of the Law (Afxentiou, 1986). So, we will need to consider and test all six versions of Wagner's Law in our empirical analysis (Chapter 6). We now look more closely at them:

The 'traditional' Peacock and Wiseman version postulated that public expenditure increases at a faster rate than output. Symbolically, this version would be that $E = f(GNP)$, where $E$ denotes the level of government aggregate expenditure and GNP is the gross domestic product. According to Peacock
and Wiseman’s formulation of Wagner’s Law and Wagnerian expectations, the elasticity of E with respect to GNP should exceed unity.

Pryor’s version of Wagner’s Law asserted that in "growing economies the share of public consumption expenditures in the national income increases" (Pryor, 1968: 451). A functional relationship of the form is \( C = f(GNP) \), where \( C \) is the level of public consumption expenditures.\(^4\) Inherently, the elasticity of \( C \) with respect to GNP would be expected to exceed unity under Pryor’s formulation of the Law.

Goffman’s Version of Wagner’s Law is as follows:

...as a nation experiences economic development and growth, an increase must occur in the activities of the public sector and that the ratio of increase, when converted into expenditure terms, would exceed the rate of increase in output per capita (Goffman, 1968: 359).

The formulation of this version is \( E = f(GNP/P) \), where \( E \) stands for the level of government expenditure, \( GNP/P \) stands for per capita gross national product, and \( P \) is population. A validation of Wagner’s hypothesis requires that the elasticity of public expenditure with respect to GNP per capita be greater than unity.

According to Musgrave, Wagner’s Law "must be interpreted as postulating a rising share of the public sector... or ratio of public expenditure to GNP...[in the context of] development of a country from low to high per capita income..." (Musgrave, 1969: 74). This version assumes a functional relationship of the form \( E/GNP = f(GNP/P) \) and Wagner’s hypothesis is valid

\(^4\) Pryor used this term. “Public consumption expenditures cover the current expenditures for goods and services and the transfer payments by governments...” (Pryor, 1969: 26-27).
if the elasticity of public expenditure as a share of GNP with respect to GNP per capita is greater than zero.

The fifth distinct version of Wagner's Law is linked with Gupta (1967) and Michas (1975). Their formulation is \( \frac{E}{P} = f(\frac{GNP}{P}) \) and the focus of this version is to enquire whether or not the elasticity of public spending per capita with respect to GNP per capita is greater than unity.

The sixth version of Wagner's Law is referred to as the 'modified' Peacock-Wiseman share version (Mann, 1980), because it converts the 'traditional' Peacock and Wiseman formulation into the 'share version' of Musgrave. This formulation translates into the functional relationship \( \frac{E}{GNP} = f(GNP) \). This version requires that the ratio of income elasticity to GNP be greater than zero.

The six versions of Wagner's Law can be summarised as follows:

<table>
<thead>
<tr>
<th>Expression</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>( E = f(GNP) )</td>
<td>(I) Peacock-Wiseman Version</td>
</tr>
<tr>
<td>( C = f(GNP) )</td>
<td>(II) Pryor Version</td>
</tr>
<tr>
<td>( E = f(GNP/P) )</td>
<td>(III) Goffman Version</td>
</tr>
<tr>
<td>( \frac{E}{GNP} = f(GNP/P) )</td>
<td>(IV) Musgrave Version</td>
</tr>
<tr>
<td>( \frac{E}{P} = f(GNP/P) )</td>
<td>(V) Gupta and Michas Version</td>
</tr>
<tr>
<td>( \frac{E}{GNP} = f(GNP) )</td>
<td>(VI) &quot;the modified&quot; Peacock-Wiseman share version by Mann (1980)</td>
</tr>
</tbody>
</table>

3.2.3 Empirical Testing of Wagner's Law: Previous Studies

Oxley (1994) among others). However, empirical testing of the hypothesis is difficult since it is not certain exactly what is to be tested. Different versions of the hypothesis, concentrating on the income elasticity assumption, have been tested. The use of different definitions for the size (and growth) of government have led to different results. For example, some studies vindicate Wagner's Law while others either reject or fail to confirm it. No clear pattern of results nor consistent conclusions have emerged (Abizadeh and Basilevsky, 1990). Most empirical studies of Wagner's Law have used a single independent variable in a regression equation to test its validity, but several studies have included additional explanatory variables, such as measures of urbanisation, population growth, the age structure of population, the level of industrialisation, the growth of manufacturing or trends in agricultural production, and even openness\(^5\) etc. (e.g. Ganti and Kolluri (1979), Mann (1980), Lowery and Berry (1983) and Abizadeh and Gray (1985)). These additional variables have been used "...to capture Wagner's intentions" (Gemmell, 1993b: 111). In other words, they have been included in order to reflect the level or trend of economic development and industrialisation.

There are some methodological issues confronting the testing of Wagner's Law. Before looking at some empirical studies in detail we will discuss these problems.

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5 Openness: "The 'openness' of the economy approximates the ratio of imports, exports or their sum to GNP (or GDP)" In other words, three different forms of openness has been used empirically, i.e., as the ratio of imports to GNP, or as the ratio of exports to GNP, or as the ratio of imports plus exports to GNP. For example, Abizadeh and Gray (1985) used this variable in their study.
Time Series or Cross-Section Analysis?

Although there is a strong tendency to use time series analysis for testing Wagner's Law, there are many cross-section studies as well. Most empirical tests of Wagner's Law have involved either (a) time series studies of the growth of public expenditures in individual countries or groups of countries or (b) cross-section comparisons of public expenditure patterns across a number of countries reflecting differing levels of development. Usually in both types of study the samples have included countries which are either developed and/or developing.

In early studies, long-time series analysis of industrialised countries has confirmed that the public expenditure share in GNP tends to increase with the growth of GNP per capita. Hence, according to Peacock and Wiseman (1961: 20),

...the available evidence for a number of European countries during the present century does show a public expenditure growth of the character that Wagner prophesied, and this has persuaded later writers... that his 'Law' continues to be valid.

However, according to recent studies, e.g. Henrekson, (1988: 111), "The empirical evidence for Wagner's Law is mixed". As Tarschys (1975) pointed out, for the developing countries, the data are less convincing. Several cross-nation comparisons have failed to provide evidence of any clear correlation between per capita income and public expenditures. For example, Lall's study (1969), covering 46 developing countries for the period of 1962-64, found no statistically significant relationship between GNP per capita and total government expenditures or several functional subcategories of public expenditures.
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The reason why Wagner's Law should be tested with time series data for individual countries rather than with cross-section data for a group of countries is, as Bird (1971) pointed out, that Wagner's Law is intended to describe the Engel curve for government activity for a particular nation.

Although Wagner's Law is appropriate for developing and/or industrialising countries, most studies of Wagner's Law have limited their scope to a time-series analysis of developed countries, due principally to the greater availability and reliability of the data. Those studies which have partially or completely covered a sample of developing countries have generally proceeded on a cross-section basis. However,

inferences drawn from international cross-section comparisons at a point in time are... completely irrelevant as tests of a hypothesis the essence of which is postulated change over time in a particular country (Bird, 1971: 10).

As Wagner intended his Law as a developmental Law which would apply to individual countries over time, it is appropriate that the 'Law' be tested against time series data (Abizadeh and Gray, 1985). In this context, Abizadeh and Gray concluded that "for 'Developing Countries' Wagner's Law was upheld". According to them (1985: 214), "a review of Wagner's own writings and of other studies of his 'Law' suggested that the 'Law' was intended to apply to countries in the process of economic development but not necessarily at other stages" (see also, Musgrave (1969), Bird (1970, 1971), and Herber (1975)).

Relative or Absolute Growth of Public Expenditure?

This topic was discussed in Chapter 2 in general terms. Here we will apply it briefly to Wagner's Law. According to Musgrave (1969: 73, fn. 1), "... there is no explicit statement in Wagner that the law of expanding scale relates to the
share rather than the absolute level of public expenditures...." However, according to Henrekson (1993: 408), "... this alleged ambiguity is unjustified. Timm (1961), in a thorough assessment of Wagner's writings, convincingly demonstrates that Wagner had the relative growth in mind". Musgrave's final conclusion is on the same lines as Henrekson: "The proposition of expanding scale, obviously, must be interpreted as postulating a rising share of the public sector in the economy. An absolute increase in the size of the budget can hardly fail to result as the economy expands" (Musgrave, 1969: 74).

Having discussed some important issues surrounding the testing of Wagner's Law, we can now look more closely at some empirical studies. Many empirical studies examined more than one version of Wagner's Law. In some studies all six versions of Wagner's Law have been tested (for example, Mann (1980), Afxentiou (1986), Afxentiou and Serletis (1992)). Apart from regression analysis, in recent years, causality testing and cointegration analysis have been used for Wagner's Law. Now we will look at some of these studies.

Musgrave (1969) examined the course of public expenditures using time series data for the United Kingdom, the United States, and Germany covering the period from 1890 to 1960. Over this period per capita real income and total public expenditures as a percentage of GNP increased sharply in all three countries. He concluded that "On the overall basis at least, Wagner's Law well meets the Western economic development during the last three-quarters of a century" (Musgrave, 1969: 92).

Mann (1980) also conducted a test using time series data for both 1925-76 and 1941-1976 for Mexico. He included the proportion of GDP generated in
manufacturing, the proportion of GDP generated in agriculture and the proportion of population in urban areas as explanatory variables in order to capture Wagner's ideas. Mann tested the six versions of Wagner's Law which were given above (see 3.2.2.) While, non-share versions could support Wagner's Law for Mexico, two share versions did not support. Nagarajan and Spears (1990: 167) claimed that Mann's conclusion of no support for Wagner's Law is based on a misapprehension of the ratio-income-elasticity. They reinterpreted the income elasticity coefficients in Mann's two share versions of Wagner's Law. After their correction, all six versions in Mann's paper appeared to support Wagner's Law for Mexico.

Lowery and Berry (1983) conducted a study for United States expenditure growth for the period 1948-1978. They included variables to account for population growth, changes in demographic structure, and changes in urbanisation. Their findings suggest that Wagner's Law provides the best fit among the several simple explanations; three of the four independent variables in their equation have coefficients with the expected signs. According to Lybeck (1986: 77), however, "[n]one of the variables came close to being significant".

Abizadeh and Gray (1985) used pooled time series, cross-section data for 53 countries grouped into poor, developing and developed countries according to Physical Quality of Life Index covering the period from 1963 to 1979. They

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6 Lowery and Berry divided the major explanations of public expenditure growth into two types according to their assumptions about the role of choice institutions in determining the size of the public sector: responsive and excessive government explanations. Responsive government explanations are: Wagner's Law; the International Explanation; the Supply-Side Explanation; the Party Control Explanation, and; the Demonstration Effect Explanation. As regards Excessive Government Explanations, they are; the Fiscal Illusion Explanation; the Bureau Voting Explanation; the Institutional Centralisation Explanation, and; the Electoral Competition Explanation.
recognised that empirical work on Wagner's Law offers conflicting results. According to Cullis and Jones (1987: 98), "they [Abizadeh and Gray] are critical of the methodology that typically measures the elasticity of the ratio of government expenditures to GDP per capita...". The hypothesised relationship between economic development and the growth of government expenditures is found to hold for the developing group of countries, but not for the poor, or for the developed groups. In order to incorporate other measures of economic development in addition to GDP per capita, they included four other regressors which were the ratio of agriculture to GDP (agricultural ratio), total commercial energy consumption per capita, openness (export+import/GDP), and an index of financial intermediaries7. According to Abizadeh and Gray (1985), Wagner intended his 'law' to apply only to countries in the process of development, but not necessarily to countries at other stages. Their findings support this interpretation of Wagner's hypothesis. So, they concluded that Wagner's Law did not apply to poor countries, did apply to developing countries and applied in reverse to developed countries (a declining government expenditure ratio). That is, they suggest that there is an inverse Wagner's Law for developed countries. Gould (1983) also reached the same conclusion.

In Ram's (1987) study, the data set (Summers' and Heston's data set) includes 115 countries and covers the period 1960-80 for all of them; in addition data for a longer period 1950-80 have been utilised for a subset of 63 countries. Ram used real income estimates (i.e. using purchasing power parity exchange rates) for all these countries over the period 1960-80 and regressed real government expenditure against total and per capita income. While the time-

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7 They defined financial intermediaries as follows: currency outside banks divided by money supply, based on IMF definitions (approximately M2) both in current value terms.
series results tend to support Wagner's hypothesis in about 60% of the countries, the cross-section results refute the hypothesis. Ram concluded that "It does seem to be the case that time-series data support Wagner's hypothesis more than cross-section data" (Ram, 1987: 203). However, according to Henrekson (1992: 26), in Ram's study, "...the time period is undoubtedly too short to examine the validity of a secular hypothesis".

Gemmell (1990) points to the importance of relative prices in explaining public expenditure growth. He argues that, "tests of Wagner's Law using 'current' price data are liable to produce biased outcomes" (Gemmell, 1990: 361). He used the revised data set produced by Summers and Heston (1988) for the period 1960-1985 for 117 countries. The measure of government used in his study is government real consumption expenditure. As Gemmell pointed out, it is only one of many definitions of public sector size. Gemmell's study found almost no support for Wagner's hypothesis using the conventional, but narrow, interpretation of an income elasticity of government real output (expenditure) in excess of unity. Out of 117 countries the hypothesis that the income elasticity for government output exceeds unity was supported in only 7 per cent of the cases. This stands in stark contrast to previous investigations of the hypothesis. The main reasons for the different results appear to be (i) the data set used measures the government share in GDP in 'real' rather than nominal terms and (ii) the exclusion of relative price effects in previous tests has biased results in favour of acceptance of the hypothesis (Gemmell, 1990). As Gemmell (1990: 376) indicated "[r]elative price changes do affect the real size of the government sector, though the mechanisms by which this occurs may differ to some extent between developed and less developed countries."
A recent study by Courakis et al. (1993) examined the relationship between aggregate income and public expenditures in Greece and Portugal during the years 1958-85. Their analysis finds that permanent income, relative prices, stabilisation policy and socio-political factors are the main determinants of public expenditures, but the results reveal significant differences in responses to these determinants across components of expenditures and between the two countries. Courakis et al. (1993) found no support for the per capita formulation of Wagner's Law in the case of Portugal and Greece.

Krzyzaniak (1974) conducted a study of Turkey for the period from 1950 to 1969. According to Krzyzaniak, “in a developing country like Turkey, under the revenue constraints, it [Wagner’s Law] is a relationship between the tax side of the budget rather than public wants and increases in national income” (Krzyzaniak, 1974: 15). He claims that the dependent variable E (public expenditure) is politically determined, and then the model may be called political. After regressing public expenditure on GNP he finds statistically significant estimates of the income elasticity of public expenditure.

Önder (1974) also conducted a study of public expenditure growth in Turkey for the period 1947-1967. He found that using aggregate variables, the income elasticities of public expenditures (both in total and in per capita terms) are smaller than unity. These results do not support the validity of Wagner’s Law. Önder finds that after disaggregating public expenditure, according to economic and functional classifications, the income elasticities of investment and transfer payments with regard to GNP are greater than unity. Similarly, health, education and infrastructure expenditure with regard to GNP are also greater than unity. These results appear to support the validity of Wagner’s Law for disaggregated public expenditure data.
Yalçın (1987) studied the public sector in Turkey during the period from 1963 to 1985. She used consolidated budget expenditure as the dependent variable. Her findings did not support Wagner's Law, since the income elasticity for consolidated budget expenditure is smaller than 1. However, when public expenditure is disaggregated by economic category the income elasticity for transfer expenditures is greater than 1. According to Yalçın, this can be explained as follows: (1) Public expenditures related to income distribution grow faster than GNP. In this case, it can be understood that economic development disturbs income distribution; (2) Financial transfer expenditures to the private sector and to the SEEs can increase. In other words, in order to promote economic development, subsidies grow faster than GNP; (3) Debt payments increase. Yalçın (1987) argued that the last two reasons (financial transfers and debt payments) help to explain the Turkish case. In Turkey, debts usually are used in order to finance public investment, and financial transfers are used in order to promote private sector and SEEs investments. According to Yalçın (1987), in the Turkish case, the relationship between transfer expenditures and GNP is not unidirectional, but probably bidirectional. She also claims that it is not easy to prove whether public expenditure causes income growth or vice versa, in a country, like Turkey, where the role of the state in economic development is very important.

Causality studies

In the literature, Granger causality tests of public expenditure and national income have produced apparently conflicting findings. Recently, Ahsan et al. (1990), noted that in the case of the US, the reported results range over the full

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8 Consolidated budget expenditure, in Turkish budget system, contains the summation of the general budget and the annexed budgets which will be explained in Chapter 5.
continuum from no causality to bidirectional causality. They argue that this disparate evidence calls for a re-examination and interpretation of the differences in the causality results.

Causality studies using single country samples (Canada, India and US) by Sahni and Singh (1984), Singh and Sahni (1984, 1986) sought to determine the directions and pattern for each country, both at the aggregate expenditure level and by functional categories, using annual data. The empirical results for these individual country studies reveal that at the aggregate level causality between government expenditures and national income is consistently bidirectional, i.e. causality between national income and public expenditure is neither Keynesian nor Wagnerian.

Recently, Ram (1986) has used 31 years of internationally comparable annual data for 63 countries and demonstrated that there is limited support for the causal order suggested by Wagner's Law and for econometric models in the Keynesian mode of thought which treat public expenditure as an exogenous variable (Delorme et al., 1988). Ram's findings show that there is much diversity in the results for different countries and that there exists very limited evidence for unidirectional causation in either direction. Further, in about one-half of the sample countries, there is no evidence of any statistically significant causal ordering. However, according to Ahsan et al. (1989), Ram's and Sahni-Singh studies can be criticised: there may be the problem of omitted variables. As a result, this may blur causality results.

Delorme et al. (1988) use historical data on a quarterly and annual basis for the periods 1947-1986 for the United States, 1960-1987 for Germany, and 1957-1987 for Great Britain. They attempted to show that the causal ordering between public expenditure and national income is likely to be sensitive to
the aggregation of time series data and can produce different results when formally tests the Wagnerian and Keynesian models. They conclude that in causality studies testing Wagnerian and Keynesian notions of causality, different results can be found due to problems with temporal aggregation. They claim that, by switching to quarterly data from annual data, the casualty results changed in every case examined. According to them, the role of potentially omitted variables may also help in interpreting these diverse causality results. It is generally recognised that failure to account for omitted variables can give rise to misleading causal ordering among variables, and in general, yields biased results.

Afxentiou and Serletis (1992) tested Wagner's Law in the Canadian case during the period 1926-1988. Before applying causality tests, they examined the time series properties of the variables involved. That is, they applied a unit root test (e.g., Dickey-Fuller test). The test was carried out on data measured in real terms, which distinguished between exhaustive and transfer expenditures. They found limited support for Wagner's Law.

They argue,

"...the development of a theory of government growth will not be an easy undertaking. It may not be even in the cards. As long as government behaviour is characterised by ad hoc rather than by systematic processes, government spending will be more associated with an art rather than a science of government (Afxentiou and Serletis, 1992: 41).

Cointegration Studies

According to Oxley (1994), the main problem facing most previous tests of Wagner's Law relates to the statistical properties of the data. In particular, valid tests of Wagner's Law require that the data be stationary, that is integrated of order zero, denoted I(0) or if I(1) (non-stationary), cointegrated.
Furthermore, if Wagner's Law is to be regarded as a long-term phenomenon and not simply a spurious relationship, cointegration should be regarded as a necessary characteristic of the models under test, as should uni-directional causality.

Recently, Henrekson (1992) tested Wagner's Law using time series data for the period 1861-1988 for Sweden. This may be the first study which applies cointegration techniques in this field. Although very few time series-studies have failed to find strong support for Wagner's Law, he claims that previous studies of Wagner's Law suffer from various methodological shortcomings that make their results highly questionable. For example, he shows that these findings are likely to be spurious, because they have been performed on non-stationary variables that are not cointegrated (Henrekson, 1992). In order to eliminate methodological shortcomings, Henrekson applied cointegration analysis to Swedish data on Wagner's Law. He was unable to find any long-run relationship between public expenditure as a share of GDP and GDP per capita.

Murthy (1993) also applied the techniques of unit root testing (Dickey-Fuller) and cointegration (Engle-Granger) to determine the presence of a long-run link between the share of government expenditure in real GDP and real GDP per capita in the Mexican economy between 1950 and 1980. He found a cointegrating relationship between the variables. The finding of cointegration between the variables shows that the long-run equilibrium predictions of economic theory supported by data (Murthy, 1993).

Amey and Ashworth (1993) examined the long-run properties of Wagner's Law for 120 countries using the method of cointegration proposed by Johanson (1988), with short-run dynamics modelled by an error-correction
mechanism. They used the Summers and Heston (1991) data set for the period 1950-1988. Although they used constant price data set, their results indicate serious doubts concerning Wagner’s Law.

Oxley (1994) investigated the existence of Wagner’s Law in Britain during the period 1870-1913 using cointegration analysis and causality tests. He found strong support for the thesis. Furthermore, evidence of unidirectional Granger-causality from income to public expenditure is also established giving overwhelming support for Wagner’s Law during this period of British history.

Hondroyiannis and Papapetrou (1995) have tested the existence of a long-run relationship between public expenditure and GDP in Greece over the period 1951-1992. They applied Augmented Dickey-Fuller, Phillips-Perron and KPSS\(^9\) unit root tests and employed the Johanson and Juselius maximum likelihood estimation technique of cointegrating vectors, to detect if there exists a long-run relationship between public expenditure and income (i.e. Wagner’s Law). They concluded that their results do not support Wagner’s Law for all functional forms, that is, all six version of Wagner’s Law. More recently, for almost the same period, Chletsos and Kollias (1997) tested Wagner’s Law using disaggregated public expenditure data from Greece for the period 1953-1993. They also employed cointegration and the related notion of error correction. Their results suggest that in the case of Greece only the growth of defence expenditure support the validity of Wagner’s Law.

\(^9\) KPSS is a test developed by Kwiatkowski et al. (1992).
Ahsan et al. (1996), using the Engle and Granger cointegration tests and time series data from Canada for the period 1952-1988, examined the validity of Wagner's Law. Their findings suggest that Wagner's Law has been valid in Canada.

3.2.4 Critique of Wagner's 'Law'

Wagner's Law is still subject to important criticisms. Although Wagner's Law has certain strengths, it also has several defects. Primarily, the 'law' deals with 'interdisciplinary' phenomena, but it is not essentially interdisciplinary in its analytical framework. There are some disciplines, e.g. political science, economics and sociology, which must be involved in any theory of public expenditure. Such theories must take into account the cultural characteristics of a society. It therefore seems unlikely that the causal conditions described by Wagner are of an entirely economic nature. They constitute all of the primary determinants of relatively expanding public sector during industrialisation and economic growth (Herber, 1975). Crowley (1971: 28) argued that "it [Wagner's Law] largely ignores non-economic factors".

According to Peacock and Wiseman (1961: xxiii),

Wagner's argument suffers from two serious defects. First he adopts an organic theory of the state. It is difficult to believe that this theory is superior to other explanations of the character of the state..."

In addition, another important criticism relates to the effect of wars (or more generally, major disturbances). Wagner took no special account of the effect of wars on public expenditures, largely because of nineteenth century optimism. He expected them to be fewer in number and shorter in duration in the future. However, war has been one of the great facts of life in the twentieth century (Bird, 1971). Therefore, any theory of public sector activity
which ignores wars and their associated expenditures, must be incomplete. Gemmell argues that, although Peacock and Wiseman (1961), Bird (1971) and others have criticised Wagner for his neglect of the impact of war on public expenditures, "Wagner indicates the possibility of taxation rising temporarily to 'oppressive' levels 'in the case of a temporary national emergency' to fund the (military) expenditure necessary to defend the existence of the state. Unlike Peacock-Wiseman, Wagner does not argue for continued higher taxes after the emergency" (Gemmell, 1993b: 120).

Gould (1983), in his study of six advanced countries (United Kingdom, United States, Germany, Sweden, New Zealand, and Ireland), refers to some weaknesses in Wagner's Law. First, there is an assumption in Wagner's Law that there are no revenue constraints on governments as the ratio of public expenditure to GDP rises. Second, Wagner did not foresee that at more advanced states of prosperity consumers might wish to substitute private for public consumption to gain more freedom of choice. Third, Wagner's Law also ignores the effect of ideology - i.e., the partisan composition of government - on the growth of the relative size of the public sector.

It has been suggested that Wagner's hypothesis concentrates upon a demand side explanation of expenditure growth. There is little in Wagner's thesis about the problem of financing such expenditures, i.e. the supply side (Thomson, 1979).

According to Larkey et al. (1984: 69), "[a] persistent problem with the 'law' is that it is not at all clear what is to be tested."

Here, we can quote Diamond's evaluation of Wagner's Law for today's (contemporary) developing countries,
Essentially, Wagner's law is not a really "Law" or theory, but rather a philosophising about development based on the underlying idea that this process is fundamentally similar in different countries at different historical periods. Because of this Wagner's thesis is too 'deterministic' to afford an adequate explanation of the relative size of the public sector in currently developing countries (Diamond, 1977a: 55-56).

Finally, it can be said that, despite the unpersuasive nature of some his reasoning, Wagner's vision of the rise in state activity has been apparently confirmed during the last century in every advanced country in the world (Bird, 1971). Although it has some defects, according to Herber (1975: 373), "it does provide a convenient framework for discussion and for further research" and it also gives us some useful insights into the growth of public expenditures. In brief, on the positive side, Wagner's Law starts from a set of observations and tries to explain them. In addition, Wagner draws attention to the importance of permanent influences on public expenditure. He also considered the effect of the increasing complexity of economic life on the necessary functions of government. On the other hand, (1) it is based on an organic theory of the state, (2) one of the inherent assumptions of Wagner's hypothesis is the existence of peace and stability and so, it neglects the influence of war on public expenditure, (3) it also ignores the effect of ideology, and (4) Wagner emphasises only the long term trend of public expenditure, and ignores the time pattern of public expenditure growth. In other words, Wagner's hypothesis is not concerned with short-run change or the actual process of change (Abizadeh and Yousefi, 1988).

3.2.5 Conclusion

In the last three decades much attention has been given to an empirical assessment of Wagner's Law. Unfortunately, there are at least six versions of the hypothesis in the literature. The main reason for so many different versions of the law is Wagner's own impreciseness (Gandhi, 1971).
Afxentiou (1986) points out, Wagner did not really offer a substantive theory but rather a broad philosophical thesis. There have been many econometric studies attempting to test its validity, either using time series or cross-section data. While some studies have vindicated it, some studies have not. Wagner's Law appears to hold for developing countries which are in the initial stages of development and it should be remembered that Wagner was generalising from Germany's transition from a rural-agricultural economy to urban-industrial one (Diamond, 1977a). Some studies showed that Wagner's Law is irrelevant to both pre-industrial (and/or low per capita income) and post-industrial (and/or high per capita income) stages of economic growth, so that Wagner's Law applies only to the industrialising/developing phase of a society. In the light of recent advances in time series analysis, cointegration analysis should be applied for Wagner's Law.

3.3 A Survey of the Literature on Peacock and Wiseman's Displacement Effect Hypothesis

3.3.1 Introduction

Peacock and Wiseman's displacement effect hypothesis is still one of the most frequently cited explanations of public expenditure growth.

The 'displacement effect' in public spending was first formulated by Peacock and Wiseman in connection with a study of British public expenditure for the period 1890-1955. They questioned the generality of Wagner's Law and introduced their displacement effect hypothesis to explain the time path of the growth of public expenditure in democratic countries (Rowley and Tollison, 1994). Brown and Jackson (1990: 123) state that "Peacock and Wiseman's study (1961) is probably one of the best known analyses of the time pattern of public expenditure". Peacock and Wiseman interpreted their data to show that
public expenditure grew over this period, not a constant rate, but roughly in a stepwise fashion. Moreover, the movement from one 'step' or 'plateau' to another coincided with the two world wars (Bird, 1972).

Central to the Peacock and Wiseman Hypothesis is that decisions about public expenditure are taken politically, and so can be influenced through the ballot box or by whatever media citizens use to bring pressure to bear upon the government. Political choices about the use of resources are seen to differ from choices made through the market system. In particular, citizens can have ideas about desirable levels of public expenditure which are quite different from, and perhaps incompatible with, their ideas about reasonable burdens of taxation.

3.3.2 The Displacement Effect Hypothesis

Peacock and Wiseman (1961) reject Wagner's historical determinism. Their own model is not restricted to simple economic phenomena, but encompasses social and political dimensions, such as voting behaviour and group attitudes.

After examining whether there are any permanent influences (i.e., population, prices, and income) on the size of public expenditures, they argue that there is still an unexplained part of public expenditure growth.

When Peacock and Wiseman (1961) looked at the growth of public expenditure in the United Kingdom over the period from 1890 to 1955, they put forward two basic propositions. These are (a) total public expenditure has risen faster than GNP over the period, and so, the public sector takes an increasing proportion of economic resources for its own use, and (b) there is a clear 'displacement effect' in the two world wars.
According to Peacock and Wiseman (1961), although British public expenditure decreases after the wars, it does not return to its prewar level, and a similar pattern is to be observed in other countries similarly affected. At this point, it may be worth quoting Peacock and Wiseman's own explanation of the displacement effect:

When societies are not being subjected to unusual pressures, people's ideas about tolerable burdens of taxation, translated into ideas of reasonable tax rates, tend also to be fairly stable. Fixed, if low, rates of taxation are obviously compatible with growing public expenditure if real output is growing, so that there may be some connection between the rate of growth of real output and the rate of growth of public expenditure. Much more rapid rates of expenditure growth are unlikely; in settled times, notions about taxation are likely to be more influential than ideas about desirable increases in expenditure in deciding the size and the rate of growth of public sector. There may thus be a persistent divergence between ideas about desirable public spending and ideas about the limits of taxation. The divergence may be narrowed by large-scale social disturbances, such as major wars. Such disturbances may create a displacement effect, shifting public revenues and expenditures to new levels. After the disturbance is over new ideas of tolerable tax levels emerge, and a new plateau of expenditure may be reached, with public expenditures again taking a broadly constant share of gross national product, though a different share from the former one.

This displacement effect has two aspects. People will accept, in times of crisis, methods of raising revenue formerly thought intolerable, and the acceptance of new tax levels remains when the disturbance has disappeared.... Expenditures which the government may have thought desirable before disturbance, but which it did not then dare to implement, consequently become possible. At the same time, social upheavals impose new and continuing obligations on governments both as the aftermath of functions assumed in wartime (e.g., payments of war pensions, debt interest, reparation payments) and as the result of changes in social ideas. Wars often force the attention of governments and peoples to problems of which they were formerly less conscious—there is an 'inspection effect,' which should not be underestimated (Peacock and Wiseman, 1961: xxiv).

According to Nagarajan (1979), there are two versions of the displacement effect. The original version implies that 'social disturbances' would tend to
increase the level of public expenditure in relation to national output, accompanied by a shift in the level of taxes. The second version does not stress shifts in the ratio of public spending to national output. It is likely that the 'inspection process' may generate a different kind of displacement which is an interfunctional shift without shifting the levels of aggregate spending and taxes (Nagarajan, 1979). Bird (1971) argues that such interfunctional shifts are not really related to the displacement effect. However, if the "interfunctional shift" is accompanied by a shift in the level of aggregate expenditure and taxes, then it would be a displacement effect (Nagarajan, 1979). According to Brown and Jackson (1990), the inspection effect arises from voters' keener awareness of social problems during the period of social upheaval. Inherently, wars or other social upheavals arouse the sentiments of community. Hence government expands its provision of services in order to improve social conditions and the government is able to finance these higher level of expenditure. These effects can lead to a shift in the level of public expenditure in relation to national output. So, public expenditures do not return to their former levels.

It can be seen from Figure 3.1 that there are three possible patterns of the effect of war expenditures on public expenditures. It is usually assumed that the increase in war related expenditures displace both other public and private civilian expenditures. In other words, while public expenditures rise dramatically the increase is less than the increase in war related expenditure. This displacement is illustrated in all three diagrams.
As regards expenditures in the postwar period, there is a disagreement between Peacock and Wiseman and their critics. As can be seen in Figure 3.1(a) civilian public expenditures in the postwar period return to their...
original growth path. In Figure 3.1(b), it is obvious that the trend in total public expenditures experienced during the war period continues into the postwar period along with an upward shift in the level of civilian public expenditures. This is Peacock and Wiseman's hypothesis of a long run displacement effect. In the final case, Figure 3.1(c), displacement is a temporary phenomenon. After the war expenditures return to the old trend line. Musgrave (1969) and Bird (1970, 1972) support the time patterns shown in figure 3.1(c). If Musgrave's and Bird's interpretations are accepted, the displacement effect is a temporary (short-run) phenomenon, rather than a permanent (long-run) phenomenon.

When Peacock and Wiseman were investigating the possibility of a displacement effect, their main emphasis was U.K government expenditure. However, they claim that it "give(s) us an approach for the subject that might be equally fruitful in studying other countries and periods" (Peacock and Wiseman, 1961: 25).

Later, "the displacement effect was generalised to include any major social upheaval like the Great Depression of the 1930s, when applied to analyses of other countries' experience" (Thomson, 1979:). Recently, as argued by Singh and Sahni (1984), the displacement effect has been extended to include non-global social upheavals as illustrated by Nagarajan's study. Nagarajan (1979: 100) says that

...empirical studies investigating the 'displacements' in government spending resulting from the 'social disturbances' of a 'non-global' nature are virtually negligible. The only difference between World War (major social upheaval) and a 'bilateral' war ('non-global' social upheaval) is that the number of countries concerned is smaller -but the impact on a country immediately concerned may be even larger compared with a country which, during the World Wars, was not really concerned with the war activities on its own territory.
Nagarajan (1979:102) claims that "if the 'displacement effect' is linked solely with responses to social disturbances caused by world wars, then this hypothesis would obviously fail to explain the shifts in government spending in many countries in the 1960's and 1970's. It is quite conceivable that a 'non-global' upheaval is likely to have a greater impact, in terms of the magnitude of social disturbances at the national level in many developing countries". For example, Indo-China war in 1960 (Nagarajan 1979) and Cyprus war in 1974 (see Afxentiou, 1987).

Peacock and Wiseman founded their analysis upon a political theory of public expenditure determination. So, they opened up the analysis of public expenditure to the influence of the ballot box (Brown and Jackson, 1990). As Jackson (1993:121) pointed out, "Peacock and Wiseman used a public choice approach to explain the developments that had taken place in public spending".

When a nation enters into a war, it is clear that its public expenditure increases. Peacock and Wiseman (1961) demonstrate this for the U. K. over the past century. Even, the possibility of war may have an effect of public expenditure size. In other words, even in peace, the fear of war may lead to increased military spending, and thus to public expenditure growth. The motive of strong defence in times of peace varies, depending on the national mood. Military activity may have a significant effect on public expenditure size for those nations involved in extended major military conflicts (Rice 1983). For example, in 1974 Turkey was involved in the Cyprus conflict. Fighting such a war demands a substantial long range commitment of resources, so that in the year or so after the hostilities cease public expenditure associated with the conflict may remain high.
In short, Peacock and Wiseman argue that war or other social disturbances cause 'displacement' of expenditure levels, as the notion of what is a 'tolerable burden of taxation' rises during time of crisis. Subsequent to such crises, popular acceptance of higher taxes permit government to reorder priorities in favour of social expenditure through an 'inspection process,' producing a displacement pattern of expenditure growth over time (Pluta, 1979).

3.3.3 The Displacement Hypothesis as a Structural Break Theory

According to the displacement hypothesis, public expenditures are fairly stable over long periods of time because people have strong ideas of maximum tolerable tax rates. However, wars and other social upheavals are capable of displacing these notion of tolerable tax rates. Following a period of upheaval, expenditures may fall again, but not to their previous levels. Therefore, public expenditures grow in a discontinuous, stepwise fashion, the steps coming at times of major social upheavals. Wiseman and Diamond (1975), Diamond (1977b), Peacock and Wiseman (1979) and others have advanced the suggestion that the displacement effect was an example of structural change. From this point of view, the displacement hypothesis is considered a special case of the more general phenomenon of a structural break, or structural change. Public expenditure and other economic variables might change continuously on the basis of (more or less) stable causal parameters, as independent variables such as population, income, age distribution, and urbanisation change over time, then because of some (social) disturbances, these parameters might all change simultaneously, substituting a new causal model for the old one. Peacock and Wiseman state that in such cases, "the economists' normal ceteris paribus assumption-that tastes, preferences, and institutions are unchanged- is inappropriate" (1979: 16).
According to Tussing and Henning (1991: 397), "[t]he upward displacement hypothesised by Peacock and Wiseman is an example, but obviously not the only one, of such a structural change."

In the short-term, structural breaks can be caused by major upheavals such as wars, depressions, hyperinflations, revolutions, military takeovers, rapid political change that replaces one dominant group with another. Where longer periods are concerned, e.g. from a generation to a century or more, structural change is the ordinary, expected result of continuing technological, economic, and other secular change (Tussing and Henning, 1991).

As stated by Tussing and Henning (1991: 394-5), "[w]hen a structural change occurs between two points or two periods in time, old causal patterns are replaced by new and the world, or at least the part of it under study, operate differently from before. Statistically, most or perhaps all parameters change significantly, altering causal patterns between any two variables in a complex way."

3.3.4 An Alternative Interpretation of the Displacement Effect: a Ratchet Effect

Bird (1972) has offered an alternative explanation of the displacement effect and called it the "ratchet effect". Similar to the Duesenbery "ratchet effect" familiar in the study of the consumption function.

The main argument of the ratchet effect is that if there is a crisis and GNP declines, then public expenditure declines, but less rapidly than GNP - due to, perhaps, inertia in adjusting expenditure plans - so that public sector share increases. The experience of Canada and the U.S. in the 1930s is cited in evidence. In other words, Bird (1972) has argued that crises are likely to have short-term implications for E/GNP rather than lead to a permanent upward
displacement for E/GNP. A crisis that leads to a declining GNP or slower GNP growth is likely to increase E/GNP temporarily, since it takes time to adjust public expenditure plans downwards. Conversely, it is also argued that E/GNP is likely to fall in the short run in times of unexpectedly rapid GNP growth (Henrekson, 1992).

Peacock and Wiseman (1979) argue that at the extreme, the ratchet effect interpretation of the displacement hypothesis leads to the denial of its very existence. However, as Diamond (1977b) argues, Bird is strong on criticism but weak in positive contribution. For example, he did not provide any empirical test of his own model.

In order to test Bird's ratchet effect hypothesis, Henrekson applied an exponential smoothing technique (Holt-Winter two parameter smoothing model) for Sweden and for the U.K. for the period 1922-1987. According to his findings, the results from the U.K. and Sweden support to the ratchet effect hypothesis. Here, it should be emphasised that, in contrast to the P-W hypothesis, the ratchet effect hypothesis does not claim to explain changes in the long-run level of public expenditures as a share of GNP. It only claims that unexpected changes in the growth of GNP may cause deviations from the long-run equilibrium path of E/GNP (Henrekson, 1992).

3.3.5 Displacement Effect for Developing Countries

The displacement effect hypothesis was derived for the U.K. The findings of Peacock and Wiseman for the United Kingdom as well as subsequent studies concentrate on the displacement caused by two major phenomena, namely the World Wars and the Great Depression. While developing countries are not free to such social upheavals, they are also likely to experience major expenditure shifts as a result of social, political, military and economic
characteristics peculiar to developing nations (Goffman and Mahar, 1971). Traditional reliance upon wars and depressions for explanatory purposes are unsatisfactory for developing countries. Hence, the applicability of the displacement effect to the experience of a developing country is perhaps questionable. Because of that, Goffman and Mahar (1971), Nagarajan (1979) and Afxentiou (1987), among others, have looked at some interstate conflicts and/or wars, the effect of revolution and rapid major change in domestic politics for developing countries. In this context, we can consider some special factors such as the demonstration effect emerging from the economic policies of developed nations, influence of ideology as exemplified by rapid changes in domestic political philosophy and the entry of publicly planned industrialisation as other important determinants of public expenditure in developing countries (see, Goffman and Mahar (1971), Mahar and Rezende (1975) and Afxentiou (1980)).

Because of developing countries' specific conditions, when we apply this theory to developing countries, we should consider some modifications and we have to show special care. According to Goffman and Mahar (1971: 70), "the displacement effect as explained by Peacock and Wiseman rests upon a

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10 Demonstration effect: Tarschys has presented the demonstration effect explanation of public expenditure growth. According to him, the revolution in social communications such as television has led to increased awareness of the standard of living enjoyed by other segments and even in other parts of the world. Demonstration effect "points to the role of increasing societal communication in spurring growth in the public sector." Tarschys' presentation of this model stresses the role of mass communication in publicising inequities and thereby encouraging transfer expenditure altruism on the part of wealthy (Berry and Lowery, 1987: 74; see also 58-59). According to Tarschys, 1975: 21), "The revolution in social communications, particularly the coming of television, has led to increased awareness of the standard of living enjoyed by other segments in society and even in other parts of the world. As a consequence, expectations and pretentious mount and people get increasingly sensitive to injustices in the distribution of public goods. Through information about services provided in other political units - communes, landsting, or other countries - the citizens and their representatives also know more about what there is to get and can thus better articulate and communicate their views. In this way, the dissemination of inventions will become more rapid. The growing concern about regional problems provides an example of this process. Regional redistribution has developed in response to pressures from areas that have become increasingly conscious of their relative deprivation."
tax constraint exercised by the electorate upon the legislator, which presupposes a modern democratic system". In many developing countries, internal dictatorship, military takeover or external pressure from a foreign power or even international agency may reduce the role of the ballot box and introduce instead a different set of constraints. "To overcome such constraints and for expenditure displacement to result, may require a type of upheaval which is different from that observed in developed and democratic economies" (Goffman and Mahar (1971: 72). Therefore, in understanding the behaviour of the economies of developing countries, one should direct greater attention to those factors which are more prevalent in developing nations.

Foreign influences may have also had direct effects on the level and composition of spending in developing countries by virtue of a sort of national demonstration effect. Developed nations essentially transmit their influence via international economic relations but also by virtue of a demonstration effect (Goffman and Mahar (1971), and Mahar and Rezende (1975)). This effect may have been intentional and tied to some aid program, or it may have been a natural result of modern communications and transportation. Developing nations today are likely to provide levels of public service which approach the current levels of the developed nations rather than the levels provided by the latter at an earlier stage in their development. In the same vein, Musgrave (1969) also argued that developing countries today do not operate the same technical, political, and value conditions as prevailed in the past when now developed countries were at similar low levels of income. Attitudes toward growth, changed communication, the demonstration effect of affluence and welfare measures taken abroad, the conflict of political ideologies, all make for the basic differences in the historical setting.
Chapter 3

It is possible that the growth of public expenditure may be affected by the process of economic development itself. While there appears to be some empirical support for the proposition that developed economies demand more public expenditures, there is also basis for arguing that economic development requires such expenditures (Gofman and Mahar, 1971).

While public expenditure increases and sometimes demonstrates a displacement pattern in developing countries, the traditional reliance upon wars and depressions for explanatory purposes was unsatisfactory. Instead, in understanding the behaviour of developing countries’ economies, we should direct greater attention to those factors which are more common in developing countries, such as rapid changes in domestic politics, military takeovers, the entry of publicly planned industrialisation.

3.3.6 Empirical Studies

After Peacock and Wiseman’s study appeared, many researchers attempted to test the displacement hypothesis\(^{11}\). As with Wagner’s ‘Law’, there has also been considerable controversy about how to test for what is referred to as the ‘displacement effect’ of major social upheavals. Most of the discussion, is concerned with the existence, or otherwise, of a permanent shift in the relationship between the public sector’s share and other variables, and with whether the shift has affected the constant term and/or the slope coefficients and/or the error variance (O’Hagan, 1980: 429-30). Most researchers attempting to test the displacement effect hypothesis estimated regressions of

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some version of public expenditure on a measure of national income and tested for shift in the constant term and/or the slope coefficients.

When illustrating the stepwise movement in public spending, Peacock and Wiseman simply plotted the growth of public spending and GNP against time. Researchers have undertaken statistical tests for displacement utilising three related approaches; the first using dummy variables (e.g., Pryor 1969), the second testing for the stability of parameters across subperiods (e.g., Gupta, 1967), and the third by applying the intervention analysis (e.g., Rasler and Thomson, 1985); and Henrekson (1990, 1992, 1993)).

Gupta (1967) first attempted to analyse statistically and, in so doing, to generalise the Peacock and Wiseman thesis. He used per capita public expenditure and real per capita GNP. Although the original Peacock and Wiseman displacement hypothesis took real per capita government expenditures as a function of time, Gupta instead makes real per capita government expenditures a function of per capita income. The test was carried out for five countries (United Kingdom, Germany, U.S.A., Canada, and Sweden) for the periods 1890-1962 for U.K.; 1881-1958 for Germany; 1923-1961 for U.S.A.; 1926-1960 for Canada; and 1920-1958 for Sweden. He founded that in most cases a significant change in slope as well as intercept occurred between related subperiods. Gupta concluded that there is an upward displacement after the World Wars in all cases, except for Sweden after the Second World War. However, this finding seems to be due to an estimation error.

According to Gupta, the displacement effect did not occur after the Second World War in Sweden, because she did not directly participate in the War. However, Nagarajan (1983) argued that there may be a demonstration effect of war on public expenditures in countries
Gupta also found a significant displacement effect, caused by the Great Depression, in both the U.S. and Canada. However, according to Henrekson (1992: 46), "unfortunately, the study is awash with methodological shortcomings making the empirical findings doubtful. Several subperiods contain as few as five observations; in many cases observations are arbitrarily dropped due to their alleged 'abnormality'; the subperiods compared are in some cases separated by as much as 18-21 years; neither standard errors nor Durbin-Watson statistics are reported despite the fact that the author admits a likely autocorrelation of residuals; the Great Depression is arbitrarily tested as an upheaval in the U.S. and Canada, but not in any of the other countries...."

Pryor (1968), using United Kingdom data for the period 1890-1961, tested for the existence of a displacement effect by fitting two equations. In the first version, public expenditures were determined by time and dummy variables set equal to 1 for postwar periods. In the second version, public expenditure was determined by income and the same postwar intercept dummy variables. Pryor interpreted the displacement effect as implying upward intercept shifts only. After examining per capita government civilian expenditures, he found that the displacement is not statistically significant in either period. He argued that time is somewhat unsatisfactory as an independent variable since the relation between government expenditures and time is not entirely clear. Pryor reformulated the displacement hypothesis with per capita national income as an explanatory variable instead of time. In this case, the displacement effect is statistically significant both for total and for civilian per capita expenditures. He found statistically significant upward displacement for total public expenditure per capita but not for per capita public

not at war. After re-examining Gupta's econometric tests, he found that there was a displacement effect in Sweden.
expenditures net of debt, war related, and defence spending. As a result of these findings, Pryor (1968: 445) concluded that "...the displacement which occurred was entirely due to increases for defence and war related purposes".

The Peacock and Wiseman displacement effect was considered by Goffman and Mahar (1971) with respect to six Caribbean countries. The authors conclude that income does not determine public expenditures in a straightforward manner in developing countries. There are some special factors such as the demonstration effect, and rapid changes in domestic political philosophy which seem to be important-determinants of public spending in developing countries.

Nagarajan (1979) extended the displacement effect to include non-global social upheavals such as the Indo-China hostilities of 1962 in India. He applied a 'structural break' test (Chow test) for the crisis of 1962 - i.e., the Indo-China hostilities. His findings provide empirical support for the displacement effect in government expenditure associated with the Indo-China hostilities of 1962 in India. His conclusion is that a social upheaval of a 'non-global' nature could also produce 'displacements' and change the character of public expenditures (Nagarajan, 1979).

Recently Nomura (1991) used the Chow test and a modified Wald test in order to test the displacement effect on public expenditure of two oil crises (1973-74 and 1978-79) in Japan, the UK, and the USA. He found evidence of a displacement effect of the first crisis in both Japan and the United Kingdom. There is also a displacement due to the second oil crisis in the United Kingdom and the United States, but not in Japan. Nomura's (1991: 416) conclusion is that "it seems likely that the displacement effect associated with the world wide recession after the oil crises occurred because many
expenditures became highly desirable. During the period of world wide recession, there might be radical changes in accepted ideas about the proper role of government”.

Wiseman and Diamond (1975) reinterpreted the displacement effect as a theory of structural break. According to them (1975: 414), "The original thesis was one of structural change, and this implies testing for changes in the coefficients as well as for shifts in the spending function". In his later study, Diamond (1977b: 39-67) posits that "...the Peacock and Wiseman analysis of displacement can be interpreted as a theory of 'structural break'. Thus the ceteris paribus assumption that tastes, preferences, and institutions remain constant is denied. On the contrary, they concentrate on times of major social upheaval when these factors can safely be assumed to change." In this context, according to Diamond, Gupta’s statistical tests are incomplete tests of the structural break hypothesis. Diamond tested the 'structural break' reinterpretation of the displacement hypothesis for the United Kingdom using a Chow test. There are four time periods in his study: 1885-1913; 1920-1929; 1930-1938; and finally, 1950-1970. Three intervals reflect three major disturbances- World War I, the Great Depression and World War II. The results showed evidence of significant structural change in the estimated parameters, and he concluded that there had been displacement effects. However, whilst he regressed three measures of government expenditure per capita on GNP, of the nine Chow tests only five showed evidence of a significant structural change.

There have been some criticisms of Diamond’s use of the Chow test of structural stability. Diamond had criticised the econometric technique used by Bonin et al. (1968) and especially their implicit assumption that the variance of the error term is the same before and after the displacement.
Diamond suggests that this assumption is unrealistic and his test of the displacement hypothesis implies that the problem of unequal error variance has been overcome. However, according to Watt (1978: 448), whilst "...Diamond was correct to question the assumptions of equality of error variance before and after a displacement", he could not overcome this problem, because the Chow test is not appropriate to solve this problem. As Tussing and Henning (1991) point out, the Chow test assumes standard errors to be unchanged between the periods. Watt (1978) offered the Jayatissa\textsuperscript{13} test as an alternative test.

Henrekson (1993) tested the displacement effect using intervention analysis on data for Sweden and the U.K. He looked for evidence of an upward displacement after World War II. He found strong evidence against the displacement hypothesis and concluded that, "the results clearly disprove the hypothesised upward displacement" (Henrekson, 1993: 69).

3.3.7 Criticisms of The Displacement Effect Hypothesis

There are many criticisms of 'the displacement effect hypothesis'. More recent studies, using modern econometric techniques, have produced somewhat conflicting evidence as to the nature and significance of the displacement effect in public expenditure (Nagarajan, 1979). According to Pryor (1968), two major objections can be raised against the displacement effect:

Firstly, if the tax rates are progressive, if all tax revenues are expended, and if GNP per capita is increasing, then public expenditures as a ratio of GNP will rise and a 'displacement effect' is not needed to explain the rise in relative

\textsuperscript{13} Jayatissa (1977) in his paper established "a small sample test which may readily be extended to a test of some the of the coefficients in the two regressions". In other words, he developed a test appropriate to cases of inequality in error variance.
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expenditures. Moreover, if the government is permitted to borrow in order to finance its expenditures, then difficulties in changing the tax rate are no longer such an important restraint.

Secondly, the 'displacement effect' due to war does not seem useful in explaining the pattern of public expenditures in certain postwar cases, e.g. Japan. In addition, displacements have occurred in various nations in situations other than war, e.g., in the Great Depression in the United States. Gupta (1967) and other researchers have also discussed this point. If social 'upheavals' causing 'displacements' are used to explain changes in the pattern of public expenditures a posteriori, then the theory cannot be refuted and loses its character as a scientific statement.

Another weakness of the displacement effect results from the concept of large-scale social disturbances. It may be interpreted differently by different researchers. For example, Gupta applied it only to the two world wars, Bonin et al. (1969) included the Great Depression as an additional displacement, whereas Musgrave (1969), Mann (1975), Nagarajan (1979), and Afxentiou (1987) used it in a much broader context to refer correspondingly to anything that affects peoples attitudes toward the public sector or toward economic development. "This freedom of interpretation lessens the theoretical value of the displacement effect and reduces its empirical testing to an exercise in definition. Further to the disagreement over how to define a social upheaval, researchers arrive at conflicting results because they either use different data or consider different time periods or they hold different views as to whether a 'displacement' is econometrically represented by a shift of government expenditure function or by a change in its slope" (Afxentiou, 1987: 120).
According to Hadjimatheou and Tackie (1992: 69-70), "The empirical evidence is conclusive (on the Displacement Effect)". Bird (1970, 71) and Musgrave (1969), Cameron (1978), Cullis and Jones (1987) and Gould (1983) have questioned the long-run significance of Peacock and Wiseman's displacement effect hypothesis. If, as Musgrave and Bird believe, after the war (and/or crisis) the ratio (E/GNP) slowly reverts to its long-run trend prior to the war, then the effect is a short-run (temporary) one rather than a long-run one.

According to Brown and Jackson (1990), Peacock and Wiseman's thesis explained the expansion of the relative size of the public sector during wartime in the UK. It did not explain the expansion since the 1960s. This has seen a period of expansion in the social services and increases in transfer payments. Moreover, the increases in government expenditure of the sixties and seventies do not fit at all easily into the theory of 'social disturbance'. In fact, where the ratio of public expenditure to National Income has continued to increase in the 1970s and 1980s, it has been more easily explained by downward deviations of trend National Income in recession, with consequent increases in spending on unemployment benefits and social services, rather than through any upward revision of government expenditure plans (Griffiths and Wall, 1991). In this context we can use Gould's (1983) study as an example. He studied Germany, United States, the United Kingdom, New Zealand, Sweden and Ireland. Although there was no major social upheaval during the postwar period 1950-1974, there has been a long term upward trend in the ratio of public expenditure to GDP. This observation clearly refutes the Peacock and Wiseman hypothesis. The United States, which was heavily involved in two wars during this period, shows only a moderate increase in the public expenditure/GDP ratio. However, there is clear evidence of the oil price rise of 1973-74, which could be described as a major
social upheaval. This was followed in all countries by a sharp rise in the public expenditure/GDP ratio ranging from approximately four percentage points in Germany and United States through to five in the U. K., seven in New Zealand, eight in Sweden, and thirteen in Ireland. Thus from this and other studies examining data covering both world wars of this century, there appears to be unambiguous evidence of the displacement effect. However, this still leaves the long term trend of 1950 to 1970 unexplained. The Peacock and Wiseman hypothesis clearly explains short-term variations in the ratio of public expenditure to GDP but not the long-term upward trend (Gould, 1983).

According to Hadjimatheou and Tackie (1992: 69-70), "Peacock and Wiseman's displacement hypothesis, though offering a plausible explanation of some of the unusually big shifts in state expenditure share, does not offer a general theory of the growth and composition of state expenditure."

3.3.8 Conclusion

The freedom of interpretation of the displacement effect hypothesis lessens its theoretical value and reduces its empirical testing to an exercise in definition. As a result of disagreement over how to define a social upheaval, researchers arrive at conflicting results because they either use different data or consider different time periods or because they hold different views as to whether a 'displacement' is economically represented by a shift of the government expenditure function or by a change in its slope (Afxentiou, 1980). For example, Henrekson (1992) argues that there are at least four versions of displacement hypothesis.

Although the 'displacement effect' is a vague hypothesis, and "does not seem very great" (Pryor, 1968: 446), it gives us one important insight: "In certain periods the tax system might act as a restraint to government expenditures.
This system might act as a constraint to government expenditures" (Pryor, 1968: 446).

According to Jackson (1993), Peacock and Wiseman's model was not sufficiently well developed to allow empirical testing nor was it general enough to account for developments in the time pattern of public spending post 1950. However, Peacock (1979) along with a number of other researchers has developed the public choice theory of public expenditure growth over the past thirty years.

The analysis of Peacock and Wiseman stresses the importance of government revenue as a determinant of public expenditure and the idea that governments see the taxpayers as having a definite view of what constitutes a tolerable level of taxation is. The displacement hypothesis gives attention to the supply side without neglecting the significance of the demand side, it highlights the political rather then the economic basis of budgetary decisions (Afxentiou, 1980).

After reviewing the displacement effect hypothesis, it is possible to claim that it is still on the agenda. Recently, for example, Rowley and Tollison (1994) have offered a research proposal to study the cold war period, using a displacement effect hypothesis.

3.4 Development Models of Public Expenditure Growth

3.4.1 Introduction

In addition to Wagner's Law and Peacock and Wiseman's Displacement Effect Hypothesis, there are other macro approaches which try to account for the growth of public expenditure. These include the models of Musgrave and Rostow. Musgrave (1969; 1974) is concerned with the changing role of the
public sector during the development process. Similarly, Rostow's (1960; but especially 1971) studies attempt to isolate the different stages of economic growth. At different stages of growth, government is confronted by different sorts of problems. It is argued that the size and actions of the public sector can be viewed as a response to the changing needs of a developing economy (Whynes and Bowles, 1981).

Their views can be summarised as follows: In the early stages of economic growth and development, public sector investment as a proportion of the total investment in the economy is seen to be high, because the public sector provides social infrastructure such as transportation systems, sanitation systems, law and order, health and education and other investments in human capital. It is argued that this public sector investment is necessary to gear up the economy for take-off into the middle stages of economic and social development. In the later stages of growth, the government continues to supply investment goods but public investment is complementary to the growth in private investment. During all the stages of development, market failures arise which can prevent the push towards maturity. There is an increase in government involvement in the economy in order to deal with these market failures (Brown and Jackson, 1990).

Musgrave claims that, over the development period, as total investment as a proportion of GNP rises, the relative share of public investment falls. According to Rostow, once the economy reaches the maturity stage the mix of public expenditures will shift from expenditures on infrastructures to increasing expenditures on education, health and welfare services. In the mass consumption stage income maintenance programmes and policies designed to redistribute welfare will grow significantly relative to other items of public expenditure and also relative to GNP.
3.4.2 Musgrave's Theory of Public Expenditure Development

According to Musgrave (1969), public expenditures play a significant role in the functioning of the economy, whether at a relatively low or high level of income. At the same time, one can expect that this role may change in the course of development as the budgetary function is adapted to the changing needs of the economy. Musgrave tries to rationalise this pattern as "a theory of public expenditure development".

While many authors have studied public expenditure development, in this context, Burkhead and Miner (1971) argue that Musgrave's study seems the most complete. According to Gemmell (1993b), Musgrave used Wagner's Law as a basis for introducing more detailed hypotheses concerning public expenditure growth. However, Musgrave rejects the assumption that the development of public expenditures as a whole can be explained by a common set of generalisations. He also argues that Wagner's choice of categories - protection, general administration, economic administration, and education - is not entirely suitable for explaining expenditure development, (except education), in the contemporary world. Whilst he accepts the distinction between defence and civilian functions of public expenditure, he claims that civilian expenditures must be examined by economic categories. So, Musgrave divides civilian public expenditures into consumption, investment and transfers and considers how forces which coincide with industrialisation/development might encourage expansion or contraction in these expenditures. He suggests a number of hypotheses concerning changes in the share of public expenditure during development.

According to Wagner, the share of the public sector in the economy will rise as economic growth proceeds. However, Musgrave emphasises that Wagner's prediction was based on an expectation of major expansion in
public enterprises as growth occurred. The appropriate expenditures are those for which no saleable product results i.e., either transfer payments or expenditures for services provided without direct charge. The question at issue concerns the effect of economic considerations on the level of such expenditures as an economy develops from low to high per capita income (Burkhead and Miner, 1971). However, the determinants of expenditure development are not only economic. There are other forces that must be considered. He calls these "conditioning and social factors"\textsuperscript{14} (Musgrave, 1969). Whilst he considers the importance of "conditioning factors", he tried to concentrate on economic considerations in his analysis.

**Economic Factors**

In exploring economic factors, Musgrave distinguishes between public consumption, investment expenditure and transfers (for example welfare benefits) and considers how each may change at different stages of development.

**Public Consumption**

According to Musgrave (1969: 78), "the basic question is whether the income elasticity of demand for public consumer goods is in excess of unity". Musgrave expects demand for public goods to increase with development. At the low levels of per capita income, which exist in many developing countries, the majority of consumption goes to provide the bare necessities of life leaving little space for goods of a nonessential kind. On the other hand, there is a need for social goods. Certain basic public services, such as

\textsuperscript{14} Conditioning, Social, Cultural, and Political factors in Musgrave's model are: i) demographic changes; ii) technological change; iii) Social, cultural and political factors. In Musgrave's model these are held constant.
municipal expenditures for civil administration, protection, sanitation etc. have to be provided. As income rises, part of it will generate increasing demand for such services, but it is possible that the demand for a large supply of private goods (food, clothing, housing) expands more sharply. This will be the case especially in view the demonstration effect generated by the example of developed countries. As a result, there is little reason to expect that the income elasticity of demand for public consumer goods should be in excess of unity over this low per capita income range. Later, as consumption rises into the luxury range there will be an increasing demand for complementary public goods, suggesting an increased share of the government provided services in consumption. Speculation of this sort suggests either a flat or hardly rising share of public consumption during the early stages of development, with perhaps more rapid expansion in the public share later on.

Two specific points, however, may change this pattern. First, the consumption pattern at any given average per capita income depends greatly upon the distribution of income. In the growth context, this pattern depends on the distribution of the increase in income. It is possible that unequally distributed increments will call for a larger share of public consumption expenditures than an equally distributed income growth, because high income groups do not need public services to the same degree as lower income groups.

Second, the process of urbanisation may cause an increase in public services. If income growth is associated with urbanisation, it is also likely to call for an increased need for public services. This follows because urban life needs more services to be produced in a public form than does rural life and follows from economies of scale, external costs generated by private provision, or for other reasons. This is relevant both with regard to consumption and to
capital expenditures. In particular, capital expenditures are important during a stage of rapid urban expansion (Musgrave, 1974).

Musgrave (1969: 78) claims that "in line with an expanded Engel's law, the share of consumer expenditure going into private expenditures on the basic needs for food, shelter, and clothing declines as income rises". There are also some public services which meet 'basic needs' such as protection, sanitation, sewerage. The same argument can be made regarding these. "As some slack develops, resources may be applied to satisfy secondary needs, and these will call for a larger public goods share, i.e. education, health facilities, safety, and other items which fall on the borderline of division between consumption and capital formation. Considerations such as these suggest a rising public to private consumption ratio over the early stages of economic growth, but the case appears less clear than with regard to capital formation" (Musgrave, 1969:78).

In the welfare state a rising share of consumer expenditures flows into 'adult toys' for leisure time use, such as sport cars, motor boats and other durables serving luxury consumption. They require substantial public expenditure to provide the essential facilities for their use such as high-speed roads, parks and so on (Musgrave, 1969).

Furthermore, the increasing complexity of economic organisation, which goes with economic growth, may produce a new set of basic public services. The emergence of corporations and large enterprises necessitates the services of regulatory agencies. Higher population density raises the need for traffic patrols; advancing industrialisation calls for measures to counteract air and water pollution, etc. These activities clearly make for an increased absolute
level of public activity, but they need not make for a rising public share (Musgrave, 1969).

Investment (Public Capital Formation)

According to Musgrave (1969: 76), "The literature on economic development suggests that public capital formation is of particular importance at early stages of development." He imagines that public capital is investment that cannot be provided privately because of widespread externalities, decreasing costs, or deficient capital markets. The, early stages of development require a high ratio of public investment to GNP to provide the infrastructure needed to increase productivity. Transportation, irrigation, and training are among the important social overheads that permit the specialisation and expansion of markets necessary to growth. "All these are types of investment the benefits of which are largely external, and which must therefore be provided publicly, either by local or central government. As the economy develops and a larger flow of savings becomes available, the capital stock in private industry and agriculture must be built up" (Musgrave, 1969: 76). Moreover, in early stages of growth the lack of developed markets for private capital coupled with a relatively limited taxable capacity usually necessitates public investment in non-externality yielding capital formation. As development proceeds, both of these factors lessen and a reduction in the share of public capital formation can be expected (Burkhead and Miner, 1971). In other words, "[s]ubsequent rises in private investment serve to reduce the public share as income increases but a tendency for the share of total investment in GNP to rise helps to weaken the decline in the public investment/GNP ratio" (Gemmell, 1993b: 107). However, these movements occur only at the early to middle stages of economic development. At later stages of development, with higher per capita incomes, new areas of investment emerge to raise this
share once again. So, as Gemmell (1993) pointed out, Musgrave remains uncertain on whether tendencies towards an increasing or decreasing public investment share in GNP will dominate at relatively late stages of development.

Public capital formation to complement, protect, or service private investment and consumption, such as highways, defence and sanitation, are among these areas (Burkhead and Miner, 1971). For example, the need for increased human capital, provided primarily in public funded schools, to operate the extremely complex technologies of advanced stages of economic growth. It is argued that human investment is one of the important factors in the development process. It can be said that industrialisation cannot be carried out without a labour force which has the technical know-how needed to operate equipment.

In sum, since economic development implies a rising investment share in GNP, this indicate that we may expect, initially at least, an increasing ratio of public investment (Musgrave, 1974). The ratio of public to total capital formation may be expected to be high at early stages and to decline at least temporarily after the "take-off" is reached. At the same time, there may well be periods at later stages of development when the ratio of public to total capital formation rises. According to Musgrave (1969), much depends on the particular stage of income and its capital needs, and there is little reason to expect a continuous trend to exist.

Transfers

When analysing public expenditure growth, it is necessary to consider the role of transfer payments. In developed countries, it is evident that over roughly the last ninety years there has been both a rapidly rising per capita
income and a rapidly rising share of this income being subject to redistribution through the tax-transfer mechanism. In general, this reflects the social and political pressures toward the development of a welfare state during this period. Richer countries can afford to devote a larger share of their income to redistribution. In developing countries, the level of transfer payments is already large, even though per capita income is still very low. However, it is not directed towards welfare but rather towards debt and interest payments. Nevertheless, transfer payments are still growing, and frequently in forms which benefit particular groups and contribute to economic rigidities rather than to establishing greater security and a more equal distribution of income for the population as a whole (Musgrave, 1974). Although this statement was done more than 20 years ago, today we still face similar scenarios in developing countries, e.g., Turkey.

In developing countries such as Turkey, income distribution is extremely unequal. According to Musgrave (1974), a substantial correction of this situation is a precondition for orderly social and economic development. The role of expenditure policy in improving this situation is of crucial importance.

Public redistribution in relation to GNP may be expected to fall with rising per capita income if the aims of redistributive policy are to provide a minimum absolute standard of consumption, while this ratio will tend to remain constant if the aim is to provide a certain relative degree of equality of income. In either case any systematic effect of growth in reducing inequality will reduce transfer payments, and vice versa. To the extent that growth increases personal risks with respect to income by more frequent obsolescence of skills or lessened family cohesiveness, increased transfers are necessary. In addition, higher per capita income reduces the need for capital expansion and may lessen concern for the disincentives to saving and labour
supply that some economists contend results from redistributive transfers. Logic does not provide a clear answer here, although Musgrave leans toward anticipation of a declining share for redistribution (Burkhead and Miner, 1971).

Musgrave (1969:122, 124) concludes that

the theory of expenditure growth remains a fascinating but somewhat elusive problem. Even if economic factors only are considered, it is difficult to arrive at an expenditure law. ... Disaggregation is needed as hypotheses differ with regard to capital, consumption, and transfers outlays, and the weights of these components are subject to change, so that the overall pattern is left in doubt.

the evidence remains puzzling and need of further explanation, including greater emphasis on ...the noneconomic factors.

Recent development of the public choice approach, which emphasises noneconomic factors e.g. political factors, can be considered in this context.

3.4.3 Public Expenditure Development in Rostow's Theory of Stages of Growth

Rostow suggests a theory of economic and political development. His model may help to integrate long term public sector development into broader theories of economic and political development respectively (Kohl, 1983). According to Rostow's theory in Politics and The Stages of Growth (1971), creation of the preconditions for take-off to development is essentially a matter of building social overhead capital. Expenditures for the institutional infrastructure and public investments in the material infrastructure must be paid for from a national product that is still relatively small in the early stages of development. Therefore, there is a sharp rise in the state's claims on total economic resources. Later, during self-sustaining growth and the drive toward technological maturity, labour movements and political parties demand new social policies such as social insurance systems and educational
systems with compulsory schooling. In these stages, Rostow's theory tells us that labour movements and political parties accompany the process of industrialisation. At the same time, economic growth supplies the public sector with increasing revenues with the result that the share of GNP in the public sector need not rise rapidly. This carries on into the stage of mass consumption. Later, in the stage of "search for quality," essential value changes bring increasing strains to the political system. Negative external effects of extensive industrial growth are realised. A growing awareness of the deficient provision of public goods and services and an emphasis on redistribution issues lead to growing demands for welfare and education services. Since all of this occurs in the context of declining economic growth rates, a rapid increase in the ratio of public expenditure to GNP must be expected (Kohl, 1983). Rostow's model is graphically represented in Figure 3.3.

Figure 3.2  Public Expenditure Development and the Stages of Economic Growth

Source: Kohl (1983): Figure 11.3, p.212.
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According to Rostow, the transition from underdevelopment to development can be described as series of stages through which all countries must pass (Todaro, 1989). Rostow distinguishes five such stages: traditional, transitional (preconditions for take-off), take-off, maturity and high mass-consumption and these five stages are valid for all countries. Later, Rostow wrote in 

Politics and the Stages of Growth,

In the Stages of Economic Growth I did not deeply explore the process by which nations made the broad collective decisions which determined the content of their national life at each stage of growth. ... This book does explore the factors deep in history, culture, and the active political process which have shaped modern societies. But politics is clearly a different business than economics. ... Political development consists in the elaboration of new and more complex forms of politics and government as societies restructure themselves so as to absorb progressively the stock and flow of modern technology which is, essentially, uniform. The "stages of growth" is addressed directly to the process whereby that absorption proceeds, real income per capita rises, and government expands the proportion of society's resources it mobilises and allocates to public purposes. This linkage does not imply that politics is economically determined. The view here is that economic, social and political forces fully interact (Rostow, 1971: 2-3 (Emphasis added)).

When the stages are examined, the trend of public expenditure growth is revealed. That is, in the process of transition from the first stage to the fifth stage, in order to provide economic development and growth, public investment plays a significant role. Transportation system, health and education services and infrastructure, security and justice services are provided by public sector. Consequently, the public sector has to undertake investment in these areas. These investments are important for an economy in order to reach take-off and other stages. Public investment compensates for the inadequacy of private sector investment in the country. When the economy reached the maturity stage, public investment in infrastructure is converted into the social and welfare spending.
Now, we look more closely at Rostow's views linking the analysis of public expenditures as a proportion of GNP - and, particularly the specific components of public expenditure - to the 'stages of growth (development)' analysis. According to Rostow (1971: 347), "[t]his field of study begins with the proposition of Adolph Wagner, in the 1880s". Economic and social expenditures of the state expand with the passage of time and the progress of industrialisation. However, Rostow argues that this process is not continuous and is not true for all stages of growth. In this, he agrees with Musgrave (1969).

*The Role of Government and Public Expenditure in Developing and Industrialised Countries*

The central idea of Rostow's thesis is that it is logically and practically possible to identify stages of development and to classify societies according to these stages. The Stages of Economic Growth (Development), presents a political theory as well as a descriptive economic study of the pattern of the growth and development of nations (Thirlwall, 1989). Our main interest is not Rostow's Stages of Economic Growth as such, but the development of public expenditures in the Rostow's theory. According to Rostow (1971: 276), "...governments have generally undertaken a relatively more active role in the growth and welfare functions than in the past, at similar stages". In order to show this general difference, Rostow uses the following information (see Table 3.1 which is taken from Rostow).
### Table 3.1  Public (Expenditure as a Proportion of Gross National Product: Pre-1913 and 1966 (developing regions)

<table>
<thead>
<tr>
<th>Welfare and Growth</th>
<th>Constitutional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Security (Military)</td>
</tr>
<tr>
<td>U.S. (1913)</td>
<td>1.1</td>
</tr>
<tr>
<td>U.K. (1913)</td>
<td>3.7</td>
</tr>
<tr>
<td>Germany (1913)</td>
<td>3.3</td>
</tr>
<tr>
<td>Japan (1910)</td>
<td>11.3</td>
</tr>
<tr>
<td>Latin America (1966) Average</td>
<td>1.5</td>
</tr>
<tr>
<td>Asia (1960) Average</td>
<td>3.3</td>
</tr>
<tr>
<td>Middle East (1966) Average</td>
<td>8.5</td>
</tr>
<tr>
<td>Africa (1966) Average</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*Source:* Rostow (1971: 277), Table 40.

In 1913 the United States, the United Kingdom, and Germany were relatively more advanced (in terms of the existing technologies) than most of the contemporary developing countries covered in the 1966 regional averages presented in Table 3.1. In 1910, Japan was at an early stage of the drive to technological maturity. As can be seen from this Table, Japan shows a pattern similar to that of contemporary developing countries.

In the contemporary developing countries it is possible to see the high security expenditures in the Middle East; the larger relative role of public investment; the higher relative expenditures for the 'other' functions of government, all of which demonstrate the more important part played by
government in all its dimensions in today's developing world compared with its role in earlier times.

Whilst there are criticisms of Rostow's thesis, Thirlwall argues that (1989: 63), "Rostow offers many extremely valuable insights into the development process ... The role of investment in raising the rate of growth is particularly stressed, as are certain political and sociological preconditions for development which economists are prone to forget...."

According to Kohl (1983: 215), carefully constructed time series for a larger number of economic and political variables are needed for a stricter testing of the Rostow's Model. However, matched historical comparisons within broader analytical frameworks such as developed by Rostow (1971) give us a much better understanding of the changing priorities among governments and of the corresponding changes in the structure of public expenditure over the last one hundred years.

It is necessary to indicate that in the Rostow's approach, the international economic, financial and political relations were completely ignored. Rostow attempted to form a politico-economic model in an abstract universe. In the context of public expenditure growth, the most interesting point in Rostow's model is that it attempted to explain the size and the composition of public expenditure with the stage of growth (development) analysis (Sönmez, 1987).

### 3.5 Conclusion

After studying various macro approaches to public expenditure growth, we can briefly conclude that Wagner's Law, (e.g., the proposition that public expenditure as a share of GNP tends to grow in the course of development), is a demand side explanation. Wagner concentrated on the income elasticity of
demand for public outputs. It is applicable, especially for industrialising/developing countries. Until recently, many researchers have found evidence supporting Wagner's Law. However, some researchers (e.g., Henrekson (1992); Murthy (1993) and Oxley (1994)) using new time series econometric techniques question these findings. According to them, previous results may be spurious. For this reason, in order to examine whether there is a spurious relationship in public expenditure growth with regard to GNP, it is necessary to apply modern time series econometric techniques such as cointegration analysis. In a later, empirical chapter (chapter 6), we will apply this technique to data for Turkey from 1950 to 1990.

As regards the Displacement Effect Hypothesis, its emphasis is on the supply side. Peacock and Wiseman focused on the shift points in the relative size of public expenditure which coincided with periods of social upheaval such as wars. The Displacement Effect Hypothesis was accepted as an example of a structural break by many researchers (e.g., Diamond and Wiseman (1975), Diamond (1977) and Peacock and Wiseman (1979)). A structural break is a kind of exogenous intervention in the series. Perron proposes an integration level test for a series subject to a structural break. In chapter 6, we will discuss and apply the Perron test for the displacement effect hypothesis to the Cyprus conflict in 1974 between Turkey and Cyprus (and/or Greek) using Turkish data for the same period.

The development models of Rostow and Musgrave focus on the government's role in the process of development as a supplier of infrastructure capital and social investment. In Rostow's and Musgrave's development models public expenditure is a prerequisite of economic development. The public sector initially provides infrastructure such as roads, railways, water supply and sanitation. As economic developments proceeds, the balance of public sector
investment shifts towards human capital, providing educational, health and welfare services. There are some similarities among Wagner's hypothesis, Rostow's approach and Musgrave's views such as industrialisation and economic growth. All three approaches investigated these two phenomena. So, it is possible to find some common points in these approaches. For example, "[l]ike Wagner, Musgrave (1969) is concerned with the changing role of the public sector during the development process. Unlike Wagner, however, Musgrave explicitly measures development by per capita income" (Gemmell, 1993b: 106-107). Because of data unavailability\(^{15}\), and the absence of a clear formulation of both Musgrave's and Rostow's models, we are unable to test these models.

\(^{15}\) For both models, take-off very important stage. According to Rostow (1960), Turkey entered this stage in 1930s. Therefore, the application of these models requires longer time series data than we have used in this study.
CHAPTER 4

POLITICS AND PUBLIC EXPENDITURE IN TURKEY, 1950-1990
4 POLITICS AND PUBLIC EXPENDITURE IN TURKEY, 1950-1990

4.1 Introduction

In order to understand the general trend of public expenditure in Turkey, it is necessary to know something about the general economic environment and general economic policies, because there is likely to be a close relationship between economic policies and the pattern of public expenditure. Therefore, in this chapter, we will give a brief overview of the development of the role of the public sector (and/or the role of the state) and we will examine economic policies which relate to the public sector in Turkey over the period 1950-1990.

Conventionally, modern Turkish economic history (starting from 1923) has been divided into five periods: (1) the period of economic recovery (1923-1932) which is referred to as a liberal period; (2) the period of Étatism\(^1\) (1933-1949); (3) the free enterprise period (or second liberal period) (1950-1960); (4) the period of comprehensive economic planning under import substitution policies (1960-1979); and (5) the period of economic planning under the export promotion policies (1980-1990). As indicated by Land (1970: 4), "[t]his classification, which reflects the dominant political-economic jargon of the times, presumably refers to the different roles of government in modern Turkish history."

For the purposes of this study, we will divide Turkish economic history into two subperiods which are different in terms of applied economic policies. In

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\(^1\) Krueger (1974) argues that, the concept of Étatism was never clearly articulated. According to Eroglu (1982), Étatism, in a narrow sense, can be defined as a system which anticipates direct state intervention in the economy. Barkey (1990) claims that the application of Étatism was ad hoc concentrating solely on the creation of an industrial base. However, this policy neglected the agricultural sector. This narrow Étatist focus was a mistake from both political and economic perspectives. In particular, Turkey was a country where 80 percent of the population was involved in agriculture. For a discussion and more information about Étatism and its origin see Okyar (1965), Boratav (1982), Hansen (1991) and Hershlag (1968 and 1988) among others.
this chapter we will look more closely at these subperiods. The division is related to the important socio-political event of the formation of a multi-party political system in 1950. The period from 1923 to 1950 was a period of One-Party rule, and the period of after 1950 was a period of Democracy. Understanding of the difference between the two periods is vital. In the first period, in the process of economic policy making, the basic element was the needs of the state. In other words, the bureaucrats, technocrats, and the military were dominant in the economic decision making process and they concentrated on state activities. In the democratic period, governments started to pay more attention to the their voters' demands. So, the populist dimension which was very important (explicitly or implicitly) in the democratic period could be seen to be almost completely absent during the One-Party period (Akat, 1984).

Our main interest will be the Democratic period. After giving only very brief information about the first period, we will concentrate on the period of Democracy, which can be further subdivided into two main subperiods: (1) the liberal era (or liberalisation years) between 1950 and 1960; and (2) the planning era (after 1960). A finer classification of the planning era is (2a) planning under import substitution policies (1960-1979), and (2b) planning under export promotion policies (1980-1990).

It can be claimed that the state has played a very important role in Turkey's growth, both in setting the environment for the private sector, and in its own investment activities. The key state enterprises - or the State Economic Enterprises (SEEs hereafter) - substantially affected every phase of economic activity not just in terms of their own performance and growth, but also in their financing (Krueger, 1974). However, an analysis of the SEEs is beyond the scope of our study.
4.2 The Role of the State and Economic Policies Before 1950

In the period from 1950 to 1990 the role of the state in Turkey changed markedly. In order to understand why, we need to look very briefly at the role of state and economic policies from the beginning of the Turkish Republic (1923) to the end of One-Party system in 1950.

Since the establishment of the Republic of Turkey in 1923, we can see evidence of considerable state intervention in an attempt to encourage economic and social development. However, during this period the emphasis and direction of state intervention and economic policies changed significantly. After the establishment of the Republic the government experimented with liberal policies. For example, from 1923 until 1932 the state officially relied on the private sector for economic development. However, the experiment failed, because of important international economic events, such as the Great Depression. The Turkish government reacted to these events by abandoning liberal economic policies, and reinstituting protectionist ones (Saracaglu, 1994). In 1933, the liberal policy was changed to Étatism, or state directed economic development. Initially, Étatism was viewed by the government as a temporary policy to isolate Turkey from the harmful effects of the Great Depression and trade cycles. The claim of early Étatist (or statist) policies was that “the state’s role was to establish the institutions that would stimulate private enterprises” (Land, 1970: 6). However, “these protectionist policies proved to be more in accord with the general philosophy of the Turkish state tradition, and the temporary measures became permanent” (Saracoglu, 1994: 64).

The most important economic manifestations of this Étatist philosophy included, (a) primary emphasis on rapid industrialisation, (b) a leading role
for the central government in planning and determining the allocation of investment, (c) a dominant role for state-owned firms in the banking and large-scale industrial sectors, (d) discouragement of foreign ownership, management, and investment, and (e) import substitution to minimise dependence on foreign trade.

In sum, before 1950, with the exception of short lived liberalism from 1923 to 1932, Étatism, protectionism and currency control, which implied widespread government intervention in economic activity, continued and was even supplemented with a policy of import substitution.

4.3 The Role of State and Economic Policies, 1950-1990

4.3.1 Liberal Era, 1950-1960

Nineteen fifty was an important date in both politics and economic policy in Turkey. The 1950 election brought to power a new political group, as well as a new set of economic policies.

In the election campaign, the Democrat Party (DP hereafter) supported liberal ideas and values and raised the whole question of the role of the state in the economy. They criticised the assumption by the state of directly productive activities. They argued that the state should restrict its intervention to the construction and operation of infrastructure installations such as energy, water, communications, and transport. In the DP's election programme of 1950, there was a statement to the effect that SEEs would be gradually given to the public, when the democrats came to power (Okyar, 1979).

Turkish elections in 1950 brought the DP to the power under Adnan Menderes' Prime Ministership and threw the Republican People's Party (RPP hereafter) out of office. Hence, this election ended the era of single party rule
in Turkey. "With the coming to power of the Democrat Party in 1950 Turkish politics entered a period of relative liberalism" (Heper, 1991: 15). In other words, the 1950 election results brought a liberal atmosphere to both Turkey's economic and political life.

The DP came to power with an impressive array of supporters, such as the intelligentsia, new business elites, the peasantry and urban workers. The party had committed itself to establishing a free enterprise system, where the duty of industrialisation would be given to the private sector. They also promised to give more attention to the agricultural sector which was neglected and relegated by the RPP.

Economic policy during the years of the DP government can be divided into three periods. The first, from the 1950 election until 1954, was a period during which emphasis was placed upon increasing agricultural production. The second, from the massive crop failure of 1954 until August 1958, was characterised by domestic and foreign economic difficulties and economic policy consisted largely of ad hoc measures to solve them. The third period, starting with the stabilisation program and de facto devaluation in August 1958, came to an end with the military coup of May, 1960.

The initial period of Democratic rule was characterised by high growth rates, helped by the favourable international conditions created by the Korean War. Turkish GNP growth exceeded 10 percent per annum in real terms for the first three years of the new government. As promised, the Democrats concentrated on the development of agriculture. Several factors contributed to this emphasis: (1) political support for the DP regime originated largely from the peasantry; therefore this government gave priority to road-building and other investment projects within the rural sector, (2) The DP's
commitments to free enterprise and the pricing system were more consistent with agricultural price supports and other pricing incentives (liberal credit policies, etc.) than with direct intervention, (3) in post-war Europe, where food shortage was observed as a major problem, Turkey was moved during the Marshall Plan consultations to focus on expansion of food output. As a result, the early years of the DP regime were marked by a rapid expansion of agricultural output and a significant increase in public infrastructural investments.

In the second period, the Democrats' attempts to expand the output of agriculture and their investments in infrastructure and a significant increase in public expenditure led to fiscal deficits which had to be financed by borrowing from domestic and external sources. By that time, not only opportunities for rapid increases in agricultural output through extensive investment had largely disappeared, but also the massive crop failure caused by bad weather sharply focused attention on the inherent difficulties of dependence on agriculture. In particular, after 1953 with the contraction in international markets following the collapse of the Korean War induced boom, there was a recession in agriculture (agricultural production dropped by 20 per cent between 1953 and 1954, largely as a result of bad weather) and general idleness in manufacturing which created a dilemma for the democrats. In addition, the DP's agricultural tax policies contributed to the general decline. In order to encourage the agricultural sector, the government dropped the tax on agricultural income in the 1954 budget. As Dwight Simpson (cited in Barkey, 1990: 54) argues, "[h]owever valuable such a step may have been politically when 77 percent of population and 40 percent of a GNP is exempted from taxation it becomes very hard to finance a large investment program without a corresponding deficit." As a result of the
agricultural price supports and large public expenditure on infrastructure, there were strong inflationary pressures. These were worsened by the government's effort to control inflation by holding down the SEEs output prices. The result was large losses by these enterprises, which were financed by central bank credits, which further stimulated inflation (Krueger, 1987). In sum, it can be said that, the years 1954 to 1958 were characterised by increasing inflation, foreign and domestic indebtedness, accompanied by budgetary and current account deficits, and a depreciation of the Turkish currency.

As a result of these difficulties, from the mid-1950s, the system degenerated into one of extreme interventionism, tough price controls, confronted by growing inflationary pressures and difficulties in the balance of payments credit restrictions, and other fiscal legislative measures accompanied by the traditional excessive bureaucracy (Hershlag, 1988). The emphasis on agricultural development was decreased. The government instituted import controls because of large balance of payments deficits. While they contributed to the reduction in imports, the measures did not help the foreign exchange problem. In spite of all the subsidies, exports failed to increase further, having reached a peak in 1953 and actually declining over the course of the rest of decade. The reason for this was the overvaluation of the Turkish Lira as the domestic economy suffered from high inflation (Barkey, 1990). Finally, the balance-of-payments pressures which had emerged in 1952 and deepened in 1953. Consequently, following these problems, government policy became increasingly interventionist, with continued use of additional direct controls on both the domestic and foreign fronts. Detailed government regulation and intervention in economic activity replaced the rather more
liberal economic policies for early years. Thus, the liberal phase of 1950-1953 was abandoned.

By 1958 the economic situation had worsened. So, Turkey was unable to borrow any funds from abroad. External pressures, combined with the rising cost of political crisis in the country, forced the Democrats to announce a stabilisation programme in August 1958 under the aegis of the IMF. This programme included a *de facto* devaluation (from TL 2.8 per dollar to TL 9 per dollar), control on government expenditures and the liberalisation of the import regime. The implementation of the stabilisation programme led to a sharp drop in the rate of inflation, so that by late 1959 the government was able to relax its credit and expenditure policies. Nevertheless, in May 1960 the Menderes government was overthrown by a group of military leaders (Krueger, 1974).²

Although Étatism was rejected by the Democratic government, the import substitution policies did not actually change. For example, the idea of transferring SEEs to the private sector was forgotten in a very short time after 1950. On the contrary, the DP government established more SEEs (Uluatam and Tan, 1982). After the crop failure of 1954 the SEEs became a useful instrument for attaining government objectives when the liberal approach of 1950-1953 appeared to have failed. The SEEs investment increased rapidly, financed by Central Bank credits. As a result, SEEs grew relatively faster than the private sector during the 1950s.

² The 1960 military takeover: "The military coup of May 1960 against the Democratic Menderes regime symbolised the particular role of the army as the guardian of Kemalist principles, of 'guided democracy' and of political, social and economic stability. At the turn of each of the next two decades, the army intervened in the political and, in fact, in the socio-economic life of the country" (Hershlag, 1988: 21).
The sale of SEEs did not happen, because there were strong political objections against selling the profitable ones and no willing buyer for the unprofitable ones. Indeed, the SEEs expanded their share of industrial activity during the 1950’s. As a matter of principle, it had promised to open up vast possibilities to private enterprise to ensure security and confidence in the Government’s economic program. However, in reality, as argued by Rustow (1967: 24), “...the ratio of public to private investment in a decade of DP rule remained nearly unchanged, although there was a shift in public investment from manufacturing to infrastructure.” In 1950 when Menderes gained power and hence Étatism theoretically ended, 63 per cent of value-added in Turkish industry originated from private firms and 37 per cent from SEEs. In 1960, when the Menderes’ government fell, 52 per cent of industrial value-added originated in the private sector and 48 per cent in the public. Ironically, “[p]ublic enterprises in Turkey from 1939 to 1950 grew at an annual rate of about 7.6 percent, but from 1950 to 1960 during the supposed free enterprise era, they grew at about 8.9 percent (Land, 1971). The main reason for this result appears to have had little or nothing to do with economic philosophy. The DP’s SEEs policies show us that despite the Democrat’s liberal discourse during the whole period of the DP government, direct government intervention in the economic life of Turkey increased.

It should be pointed out that the common denominator of economic policy during the 1950s was an absence of coordination. Prime Minister Menderes was against planning. This approach, as Krueger (1974: 7) pointed out, “... led to a lack of any clearly formulated overall economic policy, even for government expenditures.” In other words, “the Democrats ...lacked a cohesive

3 Emphasis added.
approach or strategy and simply expected the economy to develop by 'leaps and bounds' once the private sector had been freed from the confines of Étatism" (Barkey, 1990: 52-3). So, in the 1950s government intervention in the economic life of Turkey increased, but without a well elaborated and comprehensive programme and strategy (Hershlag, 1968). Growing government intervention may be legitimate within the framework of an Étatist concept, but the Democrat Party government was opposed to Étatism.

In fact, the economic policy of the mid-1950s was unsustainable without a significant change in some key parameters. Unfortunately, there were no consciously formulated and enunciated economic policy shifts. Government only responded on a case-by-case basis rather than well elaborated policies. For policy-makers, reforms were forced upon them by the imperatives of a balance of payments crisis. In other words, as Krueger (1987: 182) argues, "[t]he Turkish economic policy in the late 1950s was shaped by the difficulties that arose out of the unsustainable and expansionary fiscal and monetary policies that had been pursued in the early 1950s..."

To sum up, the first five years of the 1950s were characterised by a total expenditure (quasi-Keynesian) approach, extensive infrastructural and other long-term projects. This, resulted in inflationary effects. At the same time, there were some attempts to support private initiative and attempts at selling public enterprises to the private sector. After 1955, however, there was the slower rate of growth in agriculture, more rapid monetary expansion, large military and other government expenditures, and an ambitious crop subsidy program in Turkey. This resulted in serious balance-of-payments difficulties, a large external debt, and rapid inflation (over 15% annually) (Land, 1971). So, although the early 1950s brought a clear departure from Étatism and central planning and the principles of étatism and planning were abandoned
by the democratic regime, in reality the structure of the economy did not change, because of a certain degree of electoral pressure and an absence of consciously articulated and implemented economic policies. These among other things, dictated expensive infrastructural and even industrial projects in outlying Turkey. However, "all this was not well integrated into comprehensive economic programming and efficiency considerations" (Hershlag, 1988: 18). So, despite some success in the first part of the 1950s, the politically oriented "total expenditure" policies quickly caused many problems such as balance-of-payments crisis in 1958, continued inflation and budget deficits. In addition to these problems, there was government repression of criticism. So, government's economic failure in the second half of the decade, loss of confidence in the economic prospects of the country and political and social upheavals caused the military to intervene in 1960. Following the military takeover centrally planned economic development was again on the agenda (Hershlag, 1988).

4.3.2 The Planning Era, 1960-1990

The military intervened in Turkish politico-economic life in 1960 and appointed a civilian government. This government ruled Turkey for eighteen months, until elections were held under a new Constitution. After the military takeover in 1960, Turkey entered into a new era in terms of economic policies. "Economic development is widely acknowledged as a goal and pursued with a new sense of urgency" (Rustow, 1967: 5). Import substitution policies started in the late 1950s. However, they were informal during that period. Three months after the 1960 military intervention, the new administration established the State Planning Organisation (SPO hereafter). The planning era is divided into two subperiods, which are termed (i) the
planning era under import substitution policies (1960-1979) and, (ii) the planning era under export promotion policies (1980-1990).

4.3.2.1 The Planning Era under Import Substitution Policies, 1960-1979

There were many motives behind the 1960 Military takeover. For example, many Turkish intellectuals were opposed to the Menderes government because of its political alliance with peasants and religious elements in the society (Land, 1970). According to Krueger (1974: 9), a major economic motive for the military takeover was "the fear that the government was reverting to the inflationary policies that dominated the pre-1958 period."

The RPP gained power in a coalition government after the elections of 1961. The Justice Party (Adalet Partisi) won the election in 1965 and was in power until the 12 March 1971 military intervention. The Republican Party advocated economic planning, a large role for government economic activity⁴, and was somewhat more suspicious of private enterprise, whereas the Justice Party gave a greater role to the private sector without changing the main politico-economic approach. In other words, economic policy showed considerable continuity throughout the 1960's which was in marked contrast to the 1950's. One of the major commitments of the revolutionary government was to a greater coordination of economic policy. The SPO was established soon after the May 1960 Coup. Army officers were seriously concerned for the planning of economic development. In order to institutionalise their concerns for proper planning they made sure that SPO would be included in the 1961 constitution as an integral state organ. According to Article 41 of the 1961 Constitution, it was the duty of the State to

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⁴ As a result some call this period the "new étatist" period. See Hansen (1991), and Hershlag (1988) among others.
devise development plans which would, within the confines of the democratic process, realise the progress of society along economic, social and cultural lines. Accordingly, the SPO was to formulate, execute and when necessary, revise the development blue prints. So, "economic planning became a constitutional requirement in the 1961 Constitution" (Hansen, 1991: 258). In addition, inflationary financing of public expenditure was also banned by the 1961 constitution and budgetary policy was seen as the major policy instrument. Investment was generally guided toward import substitution. One of the main reasons for establishing the SPO was to introduce greater rationality into the allocation of resources. From its establishment until today, the effect of SPO in forming economic policies has changed from time to time, but it has always existed (Uluatam and Tan, 1982). Work began almost immediately on a comprehensive Five Year Plan which officially began in 1963. The Plan was implemented and its successor, the Second Five Year Plan of 1968 to 1972, marked a continuation of planning although with greater emphasis upon incentives in the private sector. The guidelines, published in the First Five Year Development Plan (FFYDP), made it clear that "the private and public sectors were not independent and autonomous entities, but rather two complementary parts of a whole" (FFYDP, p.59).

Both the first two Plans adopted a target growth rate of 7 per cent annually in real terms. The development of Turkish industry was stressed in each Plan, with particular emphasis upon the development of new industries. As such, "import-substitution goals became a conscious element of development policy" (Krueger, 1974: 10). The goal of import-substitution was to effect structural change in Turkish industry. Structural change required backward and forward linkages, as well as technological innovations to help reduce
dependence on outside sources (Barkey, 1990). The emphasis on import substitution was sustained into the Third Five Year Development Plan (1973-1977). The Fourth Five Year Development Plan (1979-1983) put greater stress on better coordination of planning in relation to market forces and to comparative advantage.

Politics provided the main motivation for import substitution. The message was carried by a coalition of interests which had emerged on the eve of the 1960 coup and strongly believed that the solution to Turkey's chronic problems lay in industrialisation. They also agreed on the need for import-substitution and its implementation through state directed plans. The main components of this coalition included the new industrialist bourgeoisie, the intelligentsia, both civilian and military bureaucracies and the industrial working class (Barkey, 1990).

Turkey has no significant oil resources of her own. Consequently, the Turkish economy was seriously affected by the oil price increase of 1973-4. However, the Turkish government did substantially nothing in the short run about this issue. According to Hansen (1991), the oil price shocks did great harm to the Turkish economy and contributed to the foreign exchange crisis.

It is also possible that these economic problems, for the most part, were beyond the control of Turkish authorities. The rapid rise in oil prices following the revolution in Iran was the most serious of these problems, further limiting the government's ability to control domestic inflation and the balance-of-payments deficits. Similarly, rising international interest rates made the cost of borrowing and debt servicing very expensive. Unlike the rest of the world, Turkey did not make the painful adjustments necessary to
overcome the impact of the oil price increases. The authorities avoided politically difficult choices such as raising domestic fuel prices.

Following the oil price shocks, there was an inflation push in the economy. The domestic forces for the inflation push were public overspending and wage pressures. The burden of security expenditure has been a dominant factor, commanding some 5 percent of GNP and 15-16 percent of the annual budget. The weak coalitions of the 1970s also contributed to the inflationary distortions. These problems led to stabilisation programs in 1978 and 1979. However, these stabilisation programs have not produced any significant result at least in the short-run, apart from the renegotiation and partial rescheduling of foreign debts. None of the 13 government coalitions of the 1970s proved able to meet the economic and social challenges. On the contrary, they contributed to magnifying the problems (Hershlag, 1988). Their popularity was so low and there was not good coordination between coalition partners.

There were other factors that affected the breakdown of the Étatist oriented policy after the first oil price shock. "One factor that tended to make the Étatist policy unsustainable and contributed to its breakdown was the excessive increase in real wages, a consequence of liberalisation of the labour market and legalisation of labour unions which the 1961 constitution guaranteed" (Hansen, 1991: 353-54). In addition, the expansion of fixed investment and the inability of the Turkish authorities to cope with problems played an important role in this process. The last point is quite important. According to Hershlag (1991: 23), "[t]he contention that the real cause of deterioration in the 1970s was mismanagement and not the oil surge, can hardly explain the dangerous turn in foreign accounts, though it may have
been true with regard to many aspects of Turkey's long-term economic trends."

The breakdown of Étatist policy after 1973-74, was also affected by the Cyprus issue. The 1974 Cyprus intervention was economically an unexpected and unwelcome event. In addition to the cost of the operation itself, there was the cost of the continued maintenance of large numbers of troops on the Island and the subsidisation of the Turkish Cypriot administration. The intervention also resulted in an arms embargo on Turkey. The embargo was an expensive punishment because it forced Turkey to use valuable foreign exchange resources to buy arms. Otherwise, these would have been purchased under more favourable conditions with grants and the like (Barkey, 1990). Therefore, it is possible to say that international sanctions as a consequence of Turkish intervention in Cyprus and the following diplomatic conflict with Greece caused major repercussions in terms of the flow and source of foreign capital to Turkey. Thus, it played a significant role in this crisis (Ancanlı and Rodrik, 1990).

These conditions around 1980 led the country to radically change its development strategy. After the first oil shock, Turkey’s development policy faced many difficulties which were discussed above. The weak coalitions of the 1970s also contributed to the inflationary distortions. According to Barkey (1990), Turkey’s developmental policy also affected the conditions. This policy’s alternative cost was high. For example, if we the compare growth rates of Turkey and the outward-oriented newly industrialising countries (NICs) between 1976 and 1979, we see that although the NICs also suffered from the oil price hikes like Turkey, they succeeded in maintaining higher growth rates. Whereas Turkey grew at an annual rate of 2.1 percent
between 1976-79, the achievement of NICs with 9.7 percent was considerably better.

Krueger (1974) compared planned manufacturing investment and growth with what would have happened under alternative allocations of the same total investment in manufacturing in the Turkish economy. The alternative allocations are hypothetical. Krueger considers two alternative patterns: (1) moderate import substitution; and (2) balanced export promotion and import substitution. Anne Krueger showed that following a (hypothetical) alternative or modified import substitution path would have allowed Turkey to realise much bigger gains in employment, exports and industrial production. Under (hypothetical) policy options which she called "moderate import substitution" and "balanced export promotion and import substitution," the Second Five Year Development Plan, for instance, would have given significantly better results (Barkey, 1990).

Why were policies which emphasised the import substitution approach's inherent faults continued, despite overwhelming evidence that they were not working? The economic case against pursuing these policies was strong and compelling. So, the answer must lie in the unwillingness to change and in the State's inability to act decisively, to counteract domestic distortions. Therefore, the answer is a political one. According to Barkey (1990: 104), the main reason "... is the absence of political leadership which combined with the external pressures, spiralled Turkey into crisis." The State's unwillingness to change strategies or make corrections to them was supported by the private sector fears of foreign markets and competition. Moreover, the private sector was comfortable and profitable behind the State erected barriers.

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If we look at the net results of the plans of the 1960s and 1970s and their implementation, we see that there was irregular and discontinuous growth; for the most part falling behind targets and expectations, and a still backward agriculture; more surplus labour in both rural and urban areas; deficits in the public budget and on current account; and particularly in the late 1970s, an inflationary spiral with all its economic and social consequences. The increase in social and political upset derived from deeper undercurrents of frustration and dissatisfaction with persisting and widening inequality, and not only from political propaganda (Hershlag, 1988). According to Krueger and Turan (1989) the inability of the government to respond to the economic difficulties of the late 1970s played a significant role in this politico-economic upheaval. "Although two stabilisation programmes were begun, both were soon abandoned; the government could not afford politically to cut expenditures" (Bates and Krueger, 1993: 450).

As a result of the above problems, the Turkish economy entered into social, economic, and political crises in the late 1970s. On the one hand there was government crisis in the Parliament. There was an absence of strong government, all governments being extremely weak in terms of majority in the Parliament, and only established by coalitions. It was a barrier to taking necessary economic decisions. The result was that the economy was pitched into crisis too. High imports and low exports caused balance-of-payment problems. In order to tackle these crises, it was necessary to take radical economic decisions. Consequently, on 24 January 1980 a new economic policy package was accepted by the Justice Party government (under Demirel's Prime Ministership). The architect of this economic policy package was Mr. Turgut Özal, who was the head of SPO at that time. The new economic policy package was introduced unexpectedly, rather than evolving
as a gradual progression of the Turkish economic system, and applied as part of an orthodox stabilisation package (Nas, 1988).

4.3.2.2 The Planning Era under Export Promotion Policies, 1980-1990

According to Stiglitz (1989:15), "[t]he 1980s have witnessed a reassessment of the role of the government. In country after country, officials publicly committed to the principle of a more limited role for government have been elected." On the theoretical side, supply side economics, which became popular at the beginning of the 1980s in the US and the UK, also found a response in the Turkish economy. A main target of the supply side approach is to reduce the role of the public sector in an economy (Oyan et al., 1992).

Faced with the most serious economic crisis in the history of the Turkish Republic, the government finally became persuaded of the need to undertake fundamental reforms in order to change the structure of the economy (Saracoglu, 1994). On January 24, 1980, the government announced a major economic reform program, which was different from earlier reform programs. The main difference from earlier liberalisation programs was the government’s statement about intending to liberalise the economy more generally including the trade and payments regime. The structural adjustment initiated in 1980 embodied the following objectives: (1) making prices flexible, (2) removing controls not only on prices but also on quantities, (3) reducing direct government participation in the economy and (4) avoiding the de-stabilisation of the economy through fiscal deficits, inflation and external debt accumulation. In particular, the economic policy reforms aimed at a radical reorientation and restructuring of the economy through liberalising imports, promoting export-led growth, reducing the role of the public sector, expanding the private sector, and increasing foreign investment
(Baysan and Blitzer, 1991). The main essence of the 1980 adjustment program was to achieve both the short-term goal of stabilising the economy and the long-term objective of restructuring it so as to ensure steady growth under the principles of a free-market economy (Saracoglu, 1994). The new approach represented a fundamental break with the import substitution strategy of the earlier decades which was in turn based on extensive state intervention. The old economic policy approach appeared to have reached its limits in the second half of the 1970s (Önis, 1991). In addition to the transformation of the trade and payment regime, the government announced that the emphasis in economic activity would be placed on the private sector as a starting point of the reform program (Krueger and Aktan, 1992). Thus, it is possible to say that the new development strategy involved an opening of the economy via export promotion policies and greater reliance on market forces and less on planning by decree (Lewis and Urata, 1983). That is, the process of opening up the economy has been characterised by a series of far-reaching reforms in trade policies, domestic monetary and fiscal policies and the exchange rate policy.

One of the major aspects of the program was the elimination of controls over SEE prices. This was important because of its future impact on the budget deficit. In the January 1980 program, it was announced that, in future, prices of SEE outputs (except coal, fertilisers, and electricity) would be freely determined and government subsidies would no longer be given (with a few exceptions). Then, largely as a result of the liberalisation policy, the deficits of SEEs were greatly decreased in the first half of the 1980s (Krueger and Turan, 1993).

The main economic target was to pass from an import substitution structure to an outward-oriented production structure. In this, the priority was
transferred to the private sector and the market economy, where, private sector profitability and private sector accumulation were protected (Onder, 1991). At this point, it should be pointed out that the switch from the traditional inward-looking to an outward-looking development strategy was mainly a response to the crisis into which the economy had plunged during 1977-1979.

Although the new economic policy package passed through parliament, socio-economic unrest and poor economic performance carried on. To prevent political disintegration and economic disaster the military intervened in the system again (Hershlag, 1988). As a result, on 12 September, 1980, there was another military takeover. However, the new government which was appointed by the military leaders supported the new economic policy package. "Despite the radical political changes following the coup, continuity of the economic policies launched in January 1980 was preserved, still under the economic leadership of Turgut Özal..." (Hershlag, 1988: 41). Özal, the architect of this package, was appointed to the State Ministry as a Deputy Prime Minister for Economic Affairs. His main interest was the coordination of economic policies. Therefore, during the military intervention, the main policy did not change significantly and the reforms were continued under the military government.

The 1980 military takeover had two sets of political economic results. First, it supported, and even rescued, the January 24 1980 economic policy package. Second, it opened the door for the restructuring of the state's political foundations, without which the long-term economic transformation would not have materialised. In order to understand the implication of the new economic regime, it is necessary to take into account the role of the military takeover. When the military intervened, the January 24 measures had
significantly impacted upon the economy. However, despite the abundant evidence of a transformation, the measures were still in their infancy and their long-term economic success was not by any means guaranteed (Barkey, 1990). After the military takeover, the wage-price policy was entirely reversed with a ban on militant unions and the establishment of the Supreme Arbitration Board. Strikes were declared illegal (Hansen, 1991). This was one of the main instruments to success for the January, 1980 reform package. As Brand (1987: 27; quoted in Hansen, 1991: 387) pointed out "It was imperative that wages should be frozen if the 24 January program was to succeed." Özal used the military as a shield and managed to direct the various state agencies to design policies with the desired level of cohesion and continuity. According to Barkey (1990), without the coup, the liberalisation policies instituted in January 1980 could not have survived.

After three years of the military regime, free elections were held and Özal’s Motherland Party (Anavatan Partisi) took power. Özal had originally designed his economic reform program for the last government in early 1980. Nevertheless, he had no opportunity to implement it fully until September 1980, when Turkey’s military junta promoted him to Deputy Prime Minister for Economic Affairs. Although he was forced to resign from office in 1982, he was returned to power in 1983 by his election victory. This result dramatically confirmed the country’s commitment to Özal’s market oriented policies and export-led growth model.

In the 1980s, the new economic strategy was aimed at decreasing both the scale of public sector activity as well as the degree of state intervention in the operation of the market. Some analysts believe that there were two major waves of reform: one starting in 1980 and the other in late 1983. Either way, the central force of policy toward opening the economy and relying more on
markets and less on government controls continued throughout the 1980s. The second phase of the 1980 economic policy reforms started by late 1983, after free elections. As soon as the Motherland Party gained power, Özal's government moved quickly to regain the momentum of policy reforms (Krueger and Aktan, 1992). From an economic perspective, 1980 was the beginning of the transformation of Turkey's political economy from its import substitution-inspired attitudes and structures to a more dynamic and open system. The January 24, 1980 measures served as the catalyst for the changeover, and the Motherland Party government, in 1983 and 1984, introduced a number of new measures to consolidate the gains achieved.

In the second half of 1980s, political popularity and anxiety about its re-election became very important for the government. As a result, public expenditure was increased, and income tax was reduced. However, this policy did not work and the public debt increased dramatically along with inflation. In order to restore its popularity, the government tried to decrease inflation. In order to do that, the government used the prices of SEEs' production as a stabilisation tool. In particular, after 1986-1987, the government reduced the SEEs' wholesale prices 20-25 percent relative to private sector wholesale prices. However, as argued above, implementing this policy instrument was against the spirit of the new economic reforms. In addition, SEEs could not borrow any money from the public sector. As a result, SEEs borrowed money from foreign resources and the domestic market. However, interest rates were high and so, their financial structure deteriorated. The government adopted the policy of allocating a growing proportion of public resources through non-budgetary channels, for instance, extra-budgetary funds (This issue will be discussed in detail in next chapter).
Both practices helped the government to intervene effectively in economic and social life.

Turkey’s political economy in the 1980s displayed a fundamental inconsistency. A series of measures aimed at liberalising the economy, were accompanied by an ambitious growth strategy based on the expansion of the public sector. As a result, the projected retreat of the State did not materialise, although a crucial shift occurred in the type of state intervention, plus a considerable reduction in the government investment in the price determination process. As argued by Önis (1991), instead of a retreat of the State, we observe a significant re-ordering and re-organisation, as well as further centralisation of the State apparatus itself as compared with the previous pattern. Certain elements of the pre-1980 import-substitution regime, namely a large public sector and rent seeking behaviour, though in new and modified forms, continued to manifest themselves in spite of the radical shifts in economic path established in the post-1980 era.

Thus, there were several contradictions in the Motherland Party’s politico-economic policies. On the one hand, the Özal government planned to reduce the economic role of the state by liberal economic policies. On the other hand, we observe interventions which increased the role of the public sector in economic life. For example, in order to promote industrial exports the government used instruments such as export and investment promotions, interest rate policies, extra-budgetary funds. They also used some tools of public finance policy such as taxes and expenditures. Because of these policies, the public sector’s role in the economy had grown and its interventionist behaviour appeared. Consequently, despite the Motherland Party’s “smaller public sector” discourse, in reality, these resulted a bigger public sector (Altay, 1994). According to Saybasılı (1986), although economic
policy supposedly changed from a Keynesian stance to a liberal approach, we see the development of a ‘new interventionist state’ instead of a ‘liberal’ state in Turkey.

The Turkish reforms were successful in restructuring the economy away from extreme inward-oriented policies and integrating the Turkish economy more closely with the rest of the world, both in trading relations and other capital flows. However, some aspects of the stabilisation program were less satisfactory. For example, political pressures led the government to increase expenditures on infrastructure as elections approached (Bates and Krueger, 1989). Hence, there was little success in cutting public expenditures. In part, this was caused by perceiving deficiencies in transport, communications, and other facilities in support of an outward-oriented trade strategy. However, there appear to have been political pressures to maintain public expenditures (Krueger and Aktan, 1992). That is, political pressures to increase public expenditure on infrastructure and other public services (not SEEs) resulted in large increases in fiscal deficits, especially prior to each election. The aim of stabilisation was largely forgotten as government expenditures began rising sharply, and inflation once again accelerated. Inflation rebounded, and remained 50-60 percent in the late 1980s and early 1990s. In the 1980s, the least satisfactory results have been the persistent rapid rate of inflation. In large part, this was because of the continuing large government expenditures which were directed largely toward the development of infrastructure. Government expenditures were 25 percent of GNP in 1980. They fell to a low of 18.9 percent in 1985, and rose thereafter to the 21-22 percent range for the following three years, and reached 42 % in 1990. According to Hershlag (1988: 48), "[t]here is an evident positive correlation between the inflationary trends of the 1980s and the rate of increase in the consolidated government
expenditure and the budgetary deficits". There was also a coincidence of growth performance, particularly in the mid and late 1980s, with growing budgetary deficits (Kuruç, 1994). In contrast to earlier fiscal expansions, however, this one was geared largely toward increased expenditures of infrastructure, while SEEs remained subject to fairly strict controls (Krueger and Turan, 1993).

In four decades after 1950, public spending always had an attraction for the conservative governments. Following 1980, both the military regime (1980-1983) and later the Motherland Party (ANAP) governments attempted to reduce the boundaries of the public sector. However, after 1983, together with a significant rise in public spending, the proportion of public investments relative to that of private-sector investments still remained high. In the mid-1980s, the public sector's share of total investments reached 60 percent. The ANAP allocated funds to infrastructure and local government to prepare a new political base for itself. Unlike earlier periods, a smaller proportion of national income was allocated to social wage, or consumption; energy, transportation, and communication sectors were awarded larger shares, whereas the share of such social sectors as education, health, and social security declined or did not increase significantly. Consequently, during the 1980s, public spending played a crucial role in the management of the economy (Kuruç, 1994).

4.4 Conclusion

In terms of implementing economic policies, for half a century, from the advent of the great depression through to the end of the 1970s, except for a short lived liberalisation in 1950-1953, Turkey followed an inward-looking economic strategy with heavy reliance on government intervention. Besides erecting barriers to trade and financial flows, various governments assumed a
leading role in the economy by creating public enterprises, both to help the problems created by the world crisis and to accelerate western style industrialisation (Kopits, 1987). During the whole period, although the emphasis and form have changed from time to time, this basic approach was never seriously challenged: economic nationalism survived wars, elections, and military governments for more than 50 years, until the beginning of the 1980s (Baysan and Blitzer, 1991).

After the 1960 military take over, medium term development planning has been a feature of Turkish economic policy. The constitution requires governments to submit to parliament Five-Year Plans and Annual Programmes to establish a general framework for economic policies. The Plans and related Annual programmes, the latter setting specific targets for a given year, are binding on the public sector and indicative for the private sector. From 1963 to 1990 six Five Year Development Plans have emerged: 1963-1967; 1968-1972; 1973-1977; 1979-1983; 1984-1989 and 1990-1994. The first three plan concentrated heavily on import substitution development. The fourth plan, which put greater stress on better coordination of planning in relation to market forces and to comparative advantage, already forms part of the 1980s scenario, as does the fifth plan, 1985-1989. The Fifth Five Year Development plan lists three priorities: energy, infrastructure and export-oriented industries. The SFYDP covers the period from 1990 to 1994. Like the Fifth Plan, it reveals the government’s determination to continue the outward-oriented development strategy adopted in 1980 and to liberalise the economy further by increasing reliance on market forces (OECD, 1990). The domestic political and socio-economic unrest, as well as external factors, such as the oil boom that began in 1973, 1974 Cyprus conflict, and the subsequent oil glut of the 1980s, and stagflation in the Western economies, adversely affected the
implementation of the plans and the projected targets and expected results (Hershlag, 1988).

Étatism was a dominant politico-economic ideology in Turkey for a long time. In the 1980s ideas changed markedly. However, as Land (1970) said, "[é]tatism is still a live political idea in Turkey. It is still debated, praised, and criticised. It is hard to believe that a mere political slogan would be around for such a long time" (Land, 1970: 20). There is still a considerable attachment to this ideology in modern Turkish Politico-economic life (see Nas (1988), Heper (1985) and Esmer (1993)). "In fact, decrees and laws, and even democratically phrased constitutions, have proved ineffective in eradicating the tradition of deeply rooted étatism, plausibly re-defined as a major indispensable tool of rapid development and progress, under the name of devletçilik. This basic notion has survived many political and economic upheavals, despite intermittent denials by politicians, economists and academics" (Hershlag, 1988: xi).

Consequently, over the period from 1950 until 1990 there existed a set of government policies applied to different conditions, but largely devoted to fostering growth of the economy with the state as the leader. "Ideological considerations, such as free enterprise or étatism occupied the speeches of politicians, while the government steadily increased the resources brought to bear on the problem of promoting economic growth" (Land, 1970: 44).

Many economists and social scientists emphasise that Turkish society's étatist (or statist) and centralist tradition has strong historical roots (Esmer, 1993). For example, Heper (1985: 16) claimed that "[t]he Turkish Republic seems to have inherited from the Ottoman Empire a strong state and a weak civil society."
During the period from 1950 to 1990, there have been three military interventions in Turkey. The periodic interventions of the armed forces roughly occur at ten year intervals: in 1960-61; in 1971-73; in 1980-83. The 1960 military takeover established and/or returned the planning strategies and changed the national scenario. Domestic political and socio-economic unrest led to the second military takeover in 1971 and to the third one in 1980.

According to Nas (1988: 198), "In Turkey, in contrast to free-market economies, individuals form expectations from the perception that the state is in the centre of economic life. In addition to providing public goods, governments are viewed as responsible for the production of essential private goods and achieving an acceptable level of social welfare. It is true that the role of the state in Turkey has been changing gradually since the inception of the 1980 liberalisation policy. But despite impressive accomplishments, the expectation that the state 'does or must do everything' has yet to change".

Nowadays, there is a debate about a privatisation package which proposes to sell many SEEs to the private sector. However, despite the privatisation rhetoric, many SEEs in the package have not been sold yet. It is an historical fact that cultural values of a society change only slowly and are much more difficult to change than the powers and the government programs.

If we look more closely at 1980s, we can see that the essence of a statist Turkish tradition did not change significantly. According to Esmer (1993), the intervention of the state in the economy was extensively accepted by society.
CHAPTER 5

THE GROWTH OF PUBLIC EXPENDITURE IN TURKEY, 1950-1990
5 THE GROWTH OF PUBLIC EXPENDITURE IN TURKEY, 1950-1990

5.1 Introduction

Like many other countries, the size and the growth of the public sector has been a major focus of economic and political debate in Turkey.

The objective of this chapter will be to examine the historical growth of public expenditure in Turkey during the period from 1950 to 1990, that is, in the democratic era. Although there were some interruptions as a result of temporary military takeovers, in general, democracy has continued. Other than the 1960 military take-over, temporary military interventions have not changed the type of economic policies significantly. In terms of public expenditure growth, the Turkish experience is interesting, because Turkey has applied different economic strategies (e.g., import substitution policies and export promotion policies (See chapter 4.) in order to industrialise and to achieve economic development during that period.

Turkish data collection has improved with time. In current values there is good data from 1950 for both GNP and public expenditure. Therefore, especially after 1950, statistical records provide a good opportunity to study public expenditure in a developing country.

In Turkey, the definition of public expenditure excludes public enterprises, social security institutions, and local government. However, as indicated by Hemming (1991: 32), "[p]art of central government expenditure typically reflects transfers to local government and public enterprises which are in turn

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1 Krzyzaniak (1972:19) argued that "The local government in Turkey is a small operation, its revenue depending heavily on transfers from the central government." According to Land (1970:11), "The exclusion of local government and social security institutions is not important, since in Turkey, these expenditures represent a very small part of total public expenditures".
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spent by the recipients." So, the term public expenditure in this study refers to the consolidated budget, that is, the summation of the general budget and the annexed budgets.\(^2\) However, as we will discuss below, EBFs\(^3\) have a very distinctive place in the definition of Turkish public expenditure after 1984. Because of this, "[t]he consolidated budget is no longer the only relevant indicator of the control authorities' fiscal policy stance. Starting with the introduction of the so called 'Social Housing Fund' in 1984, the authorities have shown a preference for shifting charges on the central government resources to special funds, which are financed principally by levies on transactions" (OECD, 1985: 23). Later, many new extra-budgetary funds became established in the system. Official figures for the consolidated budget exclude EBFs expenditure during the period from 1984 to 1990. However, in the 1993 budget, many EBFs were added into the consolidated budget expenditure. We have decided to include EBFs expenditure in the total of public expenditure and economic classifications of public expenditure from 1984 to 1990, for if we had ignored EBFs expenditure after 1984, we would fail to represent the true picture of total public expenditure necessary for the empirical analysis contained in chapter 6. However, because of data unavailability (To the best of my knowledge, there is no information on the functional classification of EBFs expenditure), the functional classification figures (Figures 5.3a- 5.3c) cover only the period from 1950 to 1983. In addition to EBFs, since 1986 we have also included domestic and foreign debt repayments, which were excluded from official transfer expenditure figures in 1986, in order to provide a consistent data set.

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2 Annexed budget: Annexed budgets have been established in Turkey for public institutions to which Parliament has granted more than usual autonomy and their activities include some public institutions such as universities, State Highway Department, Waterworks etc.

3 Extra-Budgetary Funds will be discussed below (see 5.3.2).
5.2 Trends in Public Expenditure in Turkey

It is a well-established hypothesis that the public sector's share of a country's GNP increases with economic development. The use of this measure is very popular in the public expenditure growth literature. However, some versions of Wagner's Law use level information. Therefore, in this chapter, although we will concentrate on the ratio of public expenditure with regard to GNP, in examining the behaviour of Turkish public expenditure growth, we will also look at real public expenditure (at 1968 prices).

There is a continuing debate about whether it is the absolute or the relative growth of public expenditure that should be studied. For example, public expenditure can grow in relative terms either because of the growth of public expenditure has accelerated relative to the growth of GNP or because there has been a decline in the rate of growth of GNP (The share approach ignores this possibility) (Henrekson, 1988).

In this chapter, we will concentrate on the public expenditure to GNP ratios, since the ratio of public expenditures to GNP (or GDP) is the most commonly used measure of the size of public expenditure. This measure has been used in both the descriptive literature on public expenditure growth (e.g. Nutter (1978); Beck (1981)) and also in empirical tests of the many explanations of the public expenditure growth process (e.g., Mann (1980); Cameron (1978); Borcherding (1977); Berry and Lowery (1987)). As Heald (1983: 24) argues, "[m]uch of the popularity and resilience of the public sector/GDP [GNP] ratio stems from its appeal as a method of overcoming the problems of interpretation introduced by inflation." However, such a technique has various methodological shortcomings (see Henrekson, 1992: 3-4). For example, the ratio of total public expenditure to GNP includes one
component in the numerator (i.e. transfers) that is not part of the denominator. Due to the existence of taxable transfers this ratio may even exceed unity. Yet, as Henrekson (1992) argues, although the traditional ratio measures suffer some deficiencies, "...there is nothing better at hand" (Henrekson, 1992: 4). Whilst Nutter (1978: 1-2) argues that "direct government spending as a fraction of national product is nonetheless a useful and widely used first approximation of the size of government."

So, in this chapter, after examining the development of the level of real public expenditure, we will look at public expenditure as a percentage of GNP in order to eliminate the effect of price increases and so, we will see the scope of public expenditure in the whole economy. The implicit assumption here is that price increases affect both the public expenditure and GNP in the same way.\(^4\) So, the trends of public expenditure can be evaluated as a proportion of GNP. The proportion of public expenditure in GNP also throws some light on the relationship between public expenditure and economic development.

As mentioned above, we will also chart the level of total public expenditure (using the GNP deflator to deflate the nominal series) in order to see changes in levels.

Now, we will examine the real public expenditures and their ratios for economic classifications, (e.g. current expenditure, investment, and transfers expenditure). Finally, we will look at the functional classification (e.g.,

\(^4\) According to Yalçın (1987), there is no significant relative price effect in the Turkish economy. It is necessary to point out that it is her opinion rather than the result of an empirical study. In the Turkish case, the official statistics give the WPI since 1981 (see SPO, 1990: 66-67) for both public sector and private sector separately. However, we could not find any data for earlier period. In order to see the relative price effect we need different indexes for both sectors for whole period. According to Bulutoglu (1988), at least for some subperiods, the relative price effect may be seen in the series (e.g. in early 1960s (few years i.e. 1960-1963) and 1970s wages and salaries in public sector increased more than other prices.
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general administration, health, education, infrastructure and defence) of real
public expenditure and public expenditure relative to GNP.

5.2.1 Trends in Total Public Expenditure in Turkey, 1950-1990

The Aggregate Picture

Public expenditure in Turkey at current prices increased from 2054.6 million
TL in 1950 to 106981907 million in 1990, or by 5206845.7% (i.e. 30.3 % p.a.).
Absolute figures alone, however, give a misleading impression of the
significance of these increases in the size of public expenditure, for many
important changes also took place during this period. If we look at the real
series (Figure 5.1a), in 1950 real total public expenditure (at 1968 prices) was
8218.4 millions TL, but increased during the period 1950-1990 to reach
129734.8 by 1990. Over four decades, the increase was 1478.6% (i.e. 6.8 %
p.a.). In this kind of situation, index numbers are a very useful way of
showing how some quantity is fluctuating with time. Many of the situations
we seek to represent involve very large numbers, for example, the GNP or
total public expenditure of Turkey; the size of such numbers are almost
meaningless and also disguise the amount of change taking place. In such
situations, an index number will be much easier to understand and will
highlight the changes which are taking place. In this context, when we look
at Figure 5.1b which shows the growth of total public expenditure and Figure
5.1c which compares the growth of total public expenditure to the growth of
GNP at 1968 prices, while GNP index increased from 100 in 1950 to 887.4, the
index of total public expenditure increased from 100 in 1950 to 1578.6 in 1990.
However, in some subperiods growth in GNP was more than total public
expenditure. For example, during the 1950s to early 1960s (except 1961) real
GNP grew slightly faster than real total public expenditure, but around the
year 1964 the growth rate of public expenditure accelerated. This picture may also show the effects of liberal economic policies (in 1950s) which were aimed at controlling public expenditure in those years. This situation also shows that in those years Turkey's growth was significant. According to Figure 5.1c, since the year 1964 the growth of real total public expenditure was faster than real GNP (except 1971-1973 and 1978-1981).

The development of per capita total public expenditure and per capita GNP can be seen from Figure 5.1d. It is clearly seen from the figure that the growth of real public expenditure per capita grew faster than real GNP per capita. While the real per capita GNP index increased from 100 in 1950 to 329.4 (i.e. by 3 % p.a.), the index of real per capita public expenditure increased from 100 in 1950 to 586.1 in 1990 (i.e. by 4.4 % p.a.).
1960 Military Coup

1974 Cyprus Intervention


The data includes EBFs since 1984 and foreign debt principal repayments since 1986.
Figure 5.1b Index of Real Total Public Expenditure in Turkey, 1950-1990 (1950=100)

Nominal Series deflated using GNP deflator.
The data includes EBFs since 1984 and foreign debt principal repayments since 1986.
Figure 5.1c Indexes of Real Total Public Expenditure and Real GNP in Turkey, 1950-1990 (1950=100)

Nominal Series deflated using GNP deflator.
The data includes EBFs since 1984 and foreign debt principal repayments since 1986.
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Most studies of the growth of public expenditure usually refer to the growth of public expenditure in relation to GNP. This development is depicted in Figure 5.1e. The picture is basically similar to the previous figures. During the period from 1950 to 1990, in Turkey (as in much of the rest of the World) many important events occurred. The public expenditure ratio may be affected by internal events, e.g. a change of government, or by external events, e.g. World Wars or financial crises. As can be seen from Figure 5.1e, during the whole period from 1950 to 1990 total public expenditure ratio fluctuated between 18.4 percent (1959) and 41.8 percent (1990) and increased significantly. In other words, while total public expenditure ratios have increased over the period, such increases do not show a steady upward trend. As can be clearly seen from Figure 5.1e, the ratios have fluctuated quite markedly during the period.

In the early 1950s, there were two important events which impacted upon Turkey. One was an internal event; the RPP (Republican People’s Party) lost the election and the DP (Democrat Party) took power. As a consequence, a liberal policy replaced the Étatist policy. The other was the Korean War\(^5\). In 1950, because of the Korean War (Turkey send about 5000 troops to the war), defense expenditure increased slightly. Although, this war caused a displacement in defence expenditure (and/or in total public expenditure), the

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\(^5\) The Korean War stimulated the production of export of Turkish chromium at fairly high prices, and the boom also favorably influenced cotton exports. However, Turkey enjoyed these advantages only during the Korean War. During the War, the U.S. and other countries were busy increasing their own stocks and keeping them intact. But as soon as the War was over, U.S. and Canadian granaries put their stocks on the international market, pulling down prices. To dispose of growing surpluses Turkey had to offer them at reduced international prices. To sum up, Turkey’s terms of trade improved during 1950 and 1951. The Korean War caused a rise in the prices of raw materials and agricultural commodities. However, after the Korean boom, the situation changed for the worse. At a time of decline in Turkish export prices, import prices rose steadily after 1950/51, with only a small decline in 1953, thus explaining the deterioration in Turkish terms of trade and the burden of subsidies on the national economy increased.
effect of War had been claimed to be not significant (Önder, 1980). In addition to these events, in 1952 Turkey became a member of NATO (North Atlantic Treaty Organisation). After joining NATO, Turkey acquired some responsibilities to NATO. However, the benefits which Turkey gained from NATO were argued to be bigger than the responsibilities (Önder, 1974: 134-135; Shorter et al., 1967). As explained in the previous chapter, in 1950, a liberal approach was followed by the Democrat Party government. After 1950, the main target of new economic policies was a reduction in the public sector's role in the economy. In the early 1950s, this approach worked, and the share of public expenditure in GNP fell slightly. As can be seen from Figure 5.1e, for example, total public expenditure as a percentage of GNP fell from 23.5 percent (1950) to 18.4 percent (1959).

By the end of the DP period (1960) the public expenditure ratio had fallen to 19.6 percent. However, the information from the level of real public expenditure shows that the level of real public expenditure rose during the period (See Figure 5.1c). At first sight, it is possible to think that the DP government's liberal approach had some effect in decreasing public expenditure relative to GNP in the 1950s. This is partly true, especially in the early 1950s (Önder, 1974). However, changes in this ratio should not be interpreted solely as a consequence of the liberal philosophy of the DP government. Positive developments in agricultural production and in the economy generally permitted by the good weather conditions allowed a reduction in the relative size of public expenditure. The fall in the public expenditure ratio can be partly explained by the fast increase in GNP in money terms. According to Önder (1981), in the late 1950s, because of the implemented money and foreign trade policies the general price level increased. The increase in prices, mostly resulted from increase in public
expenditure. In order to meet increases in public expenditure, the government, resorted to printing money to finance government budget.

As a result of the DP's liberal philosophy and the fast increase in GNP, in 1951, the ratio of public expenditure as a share of GNP decreased significantly (from 23.5 percent to 20.5 percent). However, because of the Korean War, in which Turkey was involved, by 1951, the public expenditure ratio started to increase again. Another event which might affect public expenditure in the 1950s was Turkey's membership of NATO. On the one hand, NATO, which is responsible for the provision of public goods and services on an international basis, has to be financed out of funds subscribed by member states, thereby adding to Turkish public expenditure. On the other hand, after joining NATO in 1952, the expenditure on military equipment and machinery decreased, because significant amounts of these were provided by NATO (Yasa, 1980). In addition, the DP's economic policy after 1953 was inflationary. As a result, wages and salaries in the public sector increased several times in the second half of the 1950s (e.g., 25 percent in 1955 alone). In this year, there was the slower rate of growth in agriculture, more rapid monetary expansion, large military and other government expenditures, and an ambitious crop subsidy program in Turkey. In 1958 the IMF offered fiscal reforms and a stabilisation policy for Turkey. As a result of this, in August 1958, the government applied a stabilisation policy package and the Turkish Lira was devalued. The value of the Turkish Lira fell significantly against the Dollar. Thus, there was a decline in the price index and a decrease in public expenditure following the stabilisation policy in 1958.

Following the military takeover in 1960, Turkey entered into a new era in terms of economic policy which was shaped by import substitution policies. The military government adopted an expansionary policy and launched an
ambitious first-five year development plan in 1963, which resulted in a rapid expansion of public expenditure.

In 1961 the ratio of public expenditure with to GNP is much higher than both before the 1960s and after 1961. From 19.6 percent in 1960, the ratio increased to 28.9 percent in 1961. It is an interesting case. What happened in 1961 and what is (are) the main reason(s) for this sharp increase in the ratio of public expenditure with regard to GNP? In order to answer these questions we should look at some events that happened during 1960-1961. Firstly, the growth of GNP showed a very small increase, while public expenditure increased significantly (for example, in 1961, there was 35 percent wage and salary increase in public sector)\(^6\). Secondly, it has been argued in the literature (e.g. Goffman and Mahar (1974) and Mahar and Rezende (1975)), that military takeovers can cause a sudden change in economic policies which can also result in sudden increases in public expenditure growth. So, this year saw the combined effect of an increased growth rate of total public expenditure, a slight decline in GNP and the 1960 military coup. This sharp increase in the share did not continue after 1961. In contrast, in 1962, there was a sharp decrease in the public expenditure ratio, from 28.9 percent in 1961 to 20.8 percent. The main reason for this was that real GNP showed a rather sharp increase in 1962 because of good weather conditions, and, as a result, the proportion of public expenditure relative to GNP decreased significantly in that year (Önder, 1981). After 1962, there was a steady increase in the public expenditure ratio. In late 1960s, the pressure of demand

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\(^6\) The rise in this percentage highlights one of the pitfalls of expressing public expenditure as a ratio of GNP, namely that the numerator and denominator are not independent. As discussed above, over this period total public expenditure went up (mainly through wage and salary increases in public sector and new establishments (such as SPO) after the military coup) in response to the very slow increase in GNP associated with slow growth at the agricultural output.
for public services and expenditures in general, coupled with the inaccuracy of budget forecasts, left little or no room for expenditure flexibility. When revenues have been over estimated or demand slows signs of bunching up, the only choice open to the authorities is to curtail public expenditures, especially investment expenditures—often abruptly. This procedure is applied quite frequently and affects all categories of expenditure except wages and salaries and debt repayments (OECD, 1970). During the 1960s and 1970s the ratio fluctuated between 19.6 percent in 1960 and 30.8 percent. However, the general trend was upward.

Although the general trend was upward, there were some subperiods e.g. 1971-1973 and 1979-1982, where we observe a decline in the ratio of public expenditure to GNP. However, after 1983 (especially after the introduction of EBFs), public expenditure started to increase again. Now we can look more closely at these subperiods. In August 1970, there was a devaluation of the Turkish Lira. The pre-devaluation period (1969-1970) was dominated by social unrest and political instability. There were widespread clashes between right-wing and left-wing extremists, the universities were closed, and there were street demonstrations. Political instability and violence continued through 1970 and into early 1971. In addition, internal opposition within the ruling party began to weaken the government.
Figure 5.1d Real Per Capita Public Expenditure and Real Per Capita GNP in Turkey, 1950-1990

Nominal Series deflated using GNP deflator.
The data includes EBFs since 1984 and foreign debt principal repayments since 1986.
Figure 5.1e Total Public Expenditure as a Percentage of GNP, 1950-1990


The data includes EBFs since 1984 and foreign debt principal repayments since 1986.
In 1971, several important events affected economic conditions. Because of social and political unrest, Turkey underwent another military intervention. It was a coup by communique. In this coup the military preferred to rule indirectly by establishing a Suppraparliamentary government and leave the existing system and the parliament untouched. After the 12 March military intervention, the military supported the civil government to take many significant politico-economic decisions in order to prepare and implement a new economic policy package, which included things such as control of the private sector, the control and limitation of foreign capital and foreign trade, the nationalisation of mines, land reform, the priority to the public sector in fuel consumption. These proposals gave rise to instability and stagnation in the market (economy) (Hic, 1980; Saybasli, 1986). Therefore we observe a decline in the ratios between 1971 and 1973. However, in 1973, there was the first oil shock. Since Turkey has no significant oil resources of her own, the Turkish economy was seriously affected by the oil price increase of 1973-74. As discussed in Chapter 4, the governments did virtually nothing in the short-run about this issue. Therefore, after the first oil price shock and the Cyprus conflict (1973-4), Turkey faced many politico-economic crises again. Both of these events created not only short term uncertainty, particularly in 1974, but also had long lasting repercussions (Uygur, 1993). As argued in Chapter 4, unlike the rest of the world, Turkey did not make the painful decisions and adjustments necessary to smother the impact of the oil price increases. That is, in Turkey, domestic petroleum prices were not increased significantly after the oil price increase of 1973 (Barkey, 1990; Celasun and Rodrik, 1989). In addition, the 1974 Cyprus intervention was economically an unwelcome event as well. As well as the cost of the operation itself, the continued maintenance of large numbers of troops on the island and the
subsidisation of the Turkish Cypriot administration, the intervention also caused the US Congress to impose an arms embargo on Turkey. There was also a significant increase in public employees' salaries. As a result, in 1974 both because of a further substantial increase in public employees' salaries and because of higher defence expenditure the ratio of public expenditure to GNP started to increase significantly.

As argued in chapter 4, weak governments in the 1970s increased public expenditure without considering the consequences. Hale argued that in the second half of 1970s, "governments were too weak to take steps needed to set their house in order, such as realistic pricing and employment policies, and overall restraint in public expenditure" (Hale, 1981: 256). The share of total public expenditure in GNP increased until 1977 which saw a peak of 30.8 percent. In part this may have been because of the elections that took place in 1977. However, one year later, the ratio started to fall. According to Önder (1989) and Krueger and Turan (1993), this behaviour of public expenditure supports the idea of political business cycle theories in Turkey. There are other election years that show similar behaviour (e.g., 1969).

The years in which the ratio of total public expenditure relative to GNP increased the fastest coincided with economic and political crises (i.e., 1969-1971 and 1974-1977). In those years there was political instability in Turkey. According to Wagstaff (1989: 10), "during the 1970s, governments lacked overall majorities and turned to irresponsible free spending." In other words, when society faces economic, social and political problems, public expenditure is used as a tool in order to appease the electorate. However, since 1978, difficulties with obtaining resources have put a cap on the ratio of public expenditure to GNP. As argued by Rodrik (1990a), "[b]etween the mid-1977 and early 1980, a string of weak governments was unable to arrest
the deterioration of the economy”. Actually, there was some attempt to cut public expenditure in late 1970s. However, as Celasun and Rodrik (1989: 198) discussed, the reduction of public expenditure was only half-hearted. The standby agreement with the IMF, and the devaluation decisions failed to solve the resource problem.

As a result, Turkey entered the late 1970s facing severe economic and political circumstances. Labour unrest had reached crisis proportions. Moreover, political violence was rampant and spreading. In the face of these problems, the newly installed minority government of Süleyman Demirel announced a comprehensive package of policy reforms in January 1980. The architect of the policy package was Turgut Özal, the head of SPO. Although the government managed to take radical economic decisions, socio-political unrest was not stopped. These problems produced the foundations for the conditions that caused the 1980 military takeover (Önder, 1989). As Barkey (1990) has argued, the lack of a good leader was also important in this process.

The year 1980 was another turning-point in Turkish economic history. Before 1980, and especially since the beginning of the planning period, it was accepted that the state was “the engine of economic development” (Önder, 1989: 23). However, after the 1980 economic policy package, this view, at least at a theoretical level, was discarded and it was now accepted that in order to increase the rate of economic growth, it was necessary to reduce the State’s activities, to stress the role of market forces, so that the private sector should become the engine of economic development. This was a drastic change in policy. As argued in chapter 4, one of the main targets of the 1980 economic policy package was “reducing the level of public expenditures and reordering the priorities of public investments...” (Krueger and Turan, 1993: 146).
357). However, this was a difficult goal to achieve immediately. In order to see the effect of changes in economic policy concerning state activities, and whether the attempt to reduce the role of the state in the whole economy was successful, we will also look at the share of public expenditure relative to GNP after 1980.

The new economic policy package in 1980 was aimed at cutting public expenditure growth. In this context, for example, "[p]ublic investment has been directly squeezed by austerity measures and by the desire to reduce the role of the government" (Baysan and Blitzer, 1991: 379). The initial policy package of January 1980 contained huge price hikes for the SEE products. The SEEs were a major source of the instability experienced by Turkey in the 1970s. During 1960s and 1970s, the SEEs were sheltered from market forces, had become a conduit for consumer subsidies. Overstaffed and overinvested, and with practically free access to financing from the banking system and the government budget, many of them pursued an ill-defined and confusing mix of economic, social and political objectives (Kopits, 1987). In the absence of a significant additional tax effort, the burden of adjustment in the public sector fell mainly on subsidies, wages and salaries in public sector, lower support prices in agriculture and current social expenditures (Celalson and Rodrik, 1989). In the early 1980s, there was indeed a reduction in the ratio of public expenditure. For example, it fell from 27.3 percent in 1980, and 24 percent in 1982. However, the effect was only short-term. In this short-term success, we have to take into account the role of military coup. The Military takeover also helped to implement the 1980 economic policy decisions. After the military takeover, the wage price policy was entirely reversed with a ban on militant trade unions and the establishment of the Supreme Arbitration Board. Strikes were declared illegal. This was one of the main instruments to
success for the 1980 stabilisation program. After the 1983 election, total public expenditure started to increase, and reached 41.8 percent in 1990. Although there were some attempts to liberalise the economy, there were also different instruments to support export promotion policies.

From 1984 onwards, the government established many important extra-budgetary funds. As we will discuss below (see 5.3.2), the main reason for developing EBFs system in the mid-1980s was that since the whole state income was included in the budget, it was difficult to take expenditure decisions rapidly in order to allow some public expenditures to be spent on time. The Ozal government instead of reorganising and reforming the budgetary system, preferred to establish extra-budgetary funds which also played an important role in increasing public expenditure growth. For example, while they were only 0.5% of GNP in 1984 they increased to 5.7% in 1990.

Özal, the Prime Minister and the leader of Motherland Party, chose to significantly expand public expenditures before the referendum and the national election in 1987 in order to ensure his and the Motherland Party's survival in the face of growing competitive pressures from rival parties (Sayari, 1992).

Given the importance of political patronage in retaining supporters and winning new ones, governing parties in Turkey had often sought to manipulate public policy and/or public expenditure to influence electoral outcomes. In the case of the Motherland Party, the need to allocate resources

7 The referendum was about a constitutional amendment that would abolish the political ban on Demirel, Ecevit and other party leaders and elites. Former party elites were still barred from political activity. Following 1980 September military coup, the ruling junta headed by Gn. Kenan Evren dissolved all political parties and banned 240 politicians from politics for five to ten years.
for patronage-oriented government expenditures became all the more pronounced due to the electoral calendar of 1987-88 (Sayari, 1992).

The expansionary fiscal policies after the mid-1980s, caused rapid growth of total public expenditure. Therefore, the authorities decided to curtail this rapid growth of public expenditure and to reduce the PSBR (Public Sector Borrowing Requirement). However, the share of public expenditure relative to GNP reached 41.8 percent at the end of the entire period, in 1990.

In conclusion, at the aggregate level, Figures 5.1a-5.1d illustrate that total public expenditure increased significantly, both in an absolute sense [by 1578.6% (i.e. 7% p.a.) at 1968 prices] and in relative importance over the period 1950-1990. However, this increase does not, at first glance, appear to have taken place in an orderly, regular fashion. There were particular years with exceptional behaviour but as a rule the long-term movement in the total public expenditure is clearly upward, but with periods of hesitation (e.g. 1971-73 and 1980-82).

5.2.2 Public Expenditure by Economic Category, 1950-1990

In the Turkish budgetary system, public expenditure is divided into three categories: (i) current expenditure, (ii) investment expenditure, and (iii) transfer expenditure.

In Figure 5.2a the economic categories of real public expenditures are depicted since 1950. Indexes of economic categories of public expenditure is presented in Figure 5.2b (calculated by the growth of index 1950=100). It is very clear from Figure 5.2b that the different components of total public expenditure have widely different growth rates. Concerning the growth of
the different components of public expenditure, we can see that transfers increased fastest.

In most studies of the growth of public expenditure one usually refers to the growth of public expenditure in relation to GNP (or GDP). This development is depicted in Figure 5.2c.

A disaggregation of total public expenditures into expenditures for current, transfers and investment showed that these components had experienced widely different growth rates. Hence it has been hypothesised that it would be unlikely that all three components could be explained by the same factors (Henrekson, 1988). While public expenditure in Turkey has grown both in real terms and as proportion of GNP, not all items of public expenditures have grown at the same rate. For example, even in some years while one (or more) item(s) was (were) decreasing, another was increasing. While current expenditures and investment expenditures were decreasing or growing steadily, transfers were increasing. As a conclusion we can say that while the expenditure ratios have generally increased over the study period, such increases have not reflected a steady upward trend. The ratios have decreased during certain intervening years.

Now, we will look more closely at economic categories of public expenditures.

Current Expenditures

Current expenditure is composed of expenditures on current running costs of public services and the military, such as wages and salaries, fuel, rent and so on.
Between 1950 and 1990, personnel expenditure played an important role in the increasing current expenditure. Since a large proportion of current expenditure goes to personnel expenditure in Turkey, changes strongly affect both current and total public expenditure ratios.

Figure 5.2a depicts real public expenditures by economic category. The general tendency of all expenditures is upward. As can be from Figure 5.2b (which charts the indexes of public expenditures by economic categories), the lowest growth rate among components of economic categories is current expenditure. During the whole period current expenditure increased by 789.6 percent (i.e. 5.2 % p.a.), while total public expenditure increased by 1578.6 percent (i.e. 7 % p.a.), investment expenditure increased by 1443.8 percent (i.e. 6.7 % p.a.), and transfers increased by 4319.6 percent (i.e. 10 % p.a.).
Figure 5.2a  Real Public Expenditure by Economic Category (at 1968 prices), 1950-1990

Notes: Where CE is current expenditure; IE is investment expenditure; TE is transfer expenditure. The data include EBFs since 1984 and internal external foreign debt principal repayments since 1986. Nominal series deflated using GNP deflator.
Indexes of Real Public Expenditure by Economic Category in Turkey, 1950-1990
(1950=100)

Source: Onder (1984); Oner (1993); SIS (1993); OECD (1992)
Notes: Where CE is current expenditure; IE is investment expenditure; TE is transfer expenditure.
The data include EBFs since 1984 and internal external foreign debt principal repayments since 1986.
Nominal series deflated using GNP deflator

Notes: Where CE is current expenditure; IE is investment expenditure; TE is transfer expenditure.

The data include EBFs since 1984 and internal external foreign debt principal repayments since 1986.
Figure 5.2c charts the development of public expenditures by economic category as percentage of GNP. In the 1950s, current expenditures decreased significantly (from 15.3 percent in 1950 to 8.5 percent in 1960). Although there were several significant wage and salary increases in public sector in second half of the 1950s, in order to compensate for public sector employees' wage and salary losses, public sector employees' real wages and salaries still decreased. In the 1950s, while the position of public sector employees was adversely affected, the agricultural sector gained. In other words, current expenditure in the 1950s was very flat, while the general price level was very high, and public sector employees' purchasing power decreased significantly (Önder, 1974: 89-90). As Amelung discussed, "The military and the bureaucracy had been the losers of the DP era. This loss in the social scale was mainly due to the increasing inflation taxing constant wage earners. As a result, the military and the bureaucracy suffered real income losses causing unrest within these two groups" (Amelung, 1988: 19).

The 1960 military coup generated a greater role for the government. After the 1960 military takeover the share of current expenditure relative to GNP started to increase in the 1960s and 1970s, and fluctuated between 9.5 percent and 12.8 percent. These ratios are higher than the second half of the 1950s. Trade unionism was supported by the 1960 Constitution. After the 1960 military coup, trade unions were very active. Because of the power of unions in Turkey, they could obtain wage increases independently of conditions in the labour market (Krueger, 1987). In other words, the 1960 military intervention offered a new beginning for labour. Through its 1961 Constitution, the new regime opened the political system and liberalised the rules governing the behaviour of trade unions. So, for the first time, the rights to strike and collective bargaining were legalised in Turkey. As a
result, in the early 1960s labour unions appeared as a powerful interest group. This caused considerable wage increases. Consequently, in the 1960s and 1970s, trade unions played an important role in increasing wages and salaries in the public sector. There were some significant salary and wage increases in the public sector in the 1960s, for example; 35 percent in 1961 alone. According to Barkey (1984: 54), "[w]age rates increased with the ability of unions to seriously negotiate with employers..."

The State Personnel Law which come into force in 1970 also caused a significant increase in current expenditure. Following the personnel reform, civil servants' and officers' wages increased significantly.

As can be seen from Figure 5.2c, the fall in current expenditure started after 1979, and carried on until 1989, as a result of the 1980 economic policies. The 1980 economic policy package supported the export promotion policies. One of the main instruments of this policy was the control of wages and salaries in the public sector, in order to control the growth of public expenditures. "One of the unfortunate but probably essential parts of the Turkish reforms of the early 1980s was the decline in real wages that took place" (Krueger, 1987: 198). In other words from 1980 to mid-1980s, because of the Government's economic policies the ratio of current expenditure decreased. In order to ensure the success of export led growth policies, wages and salaries were controlled in order to maintain external competitiveness (Ataç and Ataç, 1993). In other words, in the aftermath of September 1980 military coup, labour unions were weakened. Then, the situation of labour unions was used in the reduction in real wages and salaries in the economy. "While wage repression may not have been a direct policy goal, it facilitated stabilisation by taking cost pressures off the private and public sectors" (Rodrik, 1990a: 5). However, at the end of 1980s, it became more difficult to get labour to accept
real wage cuts (Rodrik, 1990b), because their purchasing power decreased dramatically. As a result, in 1989, personnel expenditure was the main source of higher-than-planned expenditure, because of sizeable wage and salary increases in the public sector granted in July. In the 1980s, the general decline of current expenditure relative to GNP shows that the goods and services which were supplied to the public receded in terms of quantity and/or quality (Önder, 1989). There was an increase in current expenditure in late 1980s due to wages and salary increases granted to public employees in 1989 and 1990).

Investment

Government investment represents increases in the capital stock of the public sector, such as equipment, buildings and roads. Investment is likely to be planned over a long time horizon. However, investment expenditures appear to be most affected by considerations relating to stabilisation policies. At this point, we have to remember that in Turkey, the central government budget is a principal vehicle for implementing national development plans. Investment expenditure and investment related transfer expenditures from the consolidated budget are closely related to the investment targets of the public sector, including State enterprises.

The increase in real investment expenditure lies between transfers and current expenditure as shown in Figure 5.2b. In terms of a percentage of GNP (Figure, 5.2c), investment expenditure fluctuated in the period 1950-1990. The fluctuations around the trend of investment expenditure appeared mostly as a result of shocks which later affected the budget constraint and drastically curtailed the consolidated budget. The main reason for this may be that public investment is the easiest expenditure item to cut in a crisis. In the
1950s, although there was the intention of cutting public expenditure, the proportion of public investment in total investment increased (Önder, 1984). For example, at the beginning of the 1950s, the ratio of investment expenditure relative to GNP was around 2 percent. Although it was not very high, it was mostly invested in the areas that would also support the private sector such as infrastructure, irrigation projects etc. At the end of the 1950s investment expenditure had reached 5.5 percent of GNP.

Investment expenditure fluctuated in the 1960s and 1970s as well. Especially, in the politico-economic crisis, as argued above, the ratio of investment expenditure decreased for example between 1971-73. At the beginning of the period the ratio of investment expenditure relative to GNP was 5.5 percent, and during the period it increased to 8 percent in 1977. Nevertheless since 1978, the extension of economic, social and political upheaval and the difficulties in finding resources for investment expenditure meant that the ratio began to fall and reached 3.4 percent at the end of 1970s (1979). It can be said that the upheaval adversely affected investment expenditure. In late 1970s, because of difficulties about finding resources public investment expenditure started to decrease.

Since the beginning of the 1980s, it was the government’s intention that the public sector should usually concentrate on infrastructure and fixed capital investments and the other fields would be left to the private sector (Önder, 1984).

Towards the end of the 1980s investment expenditures started to fall in the consolidated budget. However, it was just an appearance. The main reason for the decrease was that some of investment expenditures were taken away from the consolidated budget. Starting in 1984, EBFs became an important
part of Turkish public finance management. They played a very important role in investment expenditure. In 1984, the size of EBFs relative to GNP started to increase and reached 5.7 percent in 1990. This was the main reason for including EBFs expenditure in consolidated budget expenditure. After this adjustment, it is possible to show that there was an increase in investment expenditure, not a decrease. For example, the ratio reached 5.7 percent of GNP in 1990.

As Önis (1991) has argued, "...public investment continued to be a dominant form of capital accumulation in the Turkish economy in spite of the fact that the composition of public investment has shifted dramatically from manufacturing to infrastructural activities. Throughout the 1980s, the public sector accounted for more than 50 percent of total fixed capital formation" (Önis, 1991: 32).

At this point, it is necessary to look at the relationship between SEEs and investment expenditure. In Turkey, it is almost impossible to derive investment expenditure from only the consolidated budget expenditure, since a large proportion of public investment has been carried out by SEEs -which requires dealing with public expenditure in a broad sense.

**Transfers**

Transfer expenditures are not direct expenditures on goods and services but involve payments to persons by means such as pensions, student grants, agricultural supports and export incentives. In Turkey, subsidies, transfer to SEEs and debt interest payments are of major importance (OECD, 1983). In Turkish budget system, heavy losses of SEEs are compensated out of the budget.
Beck (1979, 1982) proposed that in several countries the phenomenon of public sector expansion arises mainly from the growth of transfer payments. For this reason, one might not observe the size of the public sector increasing with economic development if only the "... government expenditure on goods and services is considered" (Ram, 1986: 395).

According to Beck (1982: 171), "the most dramatic public sector development of the past century has been the rapid growth of transfer outlays." Whilst Beck was referring to developed countries, this statement is also true for developing countries. The increase in transfer expenditure in developed countries is caused principally by welfare expenditures, but in developing countries, e.g. Turkey, the main reason for increasing transfer expenditure is domestic and foreign debt interest payments. For example interest payments have risen from around 2 percent of expenditures in the 1970s to 10 percent in late 1980s (e.g. 1987). In fact, in late 1980s, they absorb as large a share of the economic resources as expenditures on education (OECD, 1987).

Now we look at transfer expenditures in Turkey during the period from 1950 to 1990. Figures 5.2a and 5.2b indicate that the most rapidly increasing category of public expenditure, in terms of the economic classification, is transfers. It increased by 4319.6 percent in real terms during the study period (Figure 5.2b). As a percentage of GNP, as can be seen from Figure 5.2c, there is a significant increase in the ratio of transfer expenditure to GNP over the period as well, from 4.6 percent in 1950 to 22.3 percent in 1990. In the 1950s the transfer expenditure ratio increased only slightly. By 1960 it was still only 5.6 percent. The supported buying in agricultural products and transfers to SEEs led to a slight increase in transfer expenditures. The relative improvements in the agricultural sector, in the 1950s, also carried on during the high inflation years (in the second half, especially in the late 1950s).
Government transfers to pension funds related to the rise in public sector wages and salaries caused an increase in transfer expenditures as well.

The share of transfer expenditure relative to GNP increased significantly during the 1960s and 1970s. Whilst it was only 5.6 percent at the beginning of 1960, and although it fluctuated during the two decades, it reached 15.8 percent in 1979. In 1970, there was a significant devaluation (66%) which, caused a significant increase in transfer expenditure, because of an increasing foreign debt burden in terms of Turkish Lira. Like the decade earlier, supported buying in the agricultural sector, transfers to SEEs, and to pension funds related to the increase in public sector wages and salaries continued. Social transfers played an important role in this increase. It should be remembered that in these years import substitution policies were applied. Their implementation also had some effect on this increase (e.g., subsidies to the private sector and transfer to SEEs). In the late 1970s, debt interest payments put upward pressure on the transfers ratio, and indirectly on the total public expenditure ratio in Turkey.

In the 1980s, the upward trend in transfers continued. The main reason was again debt interest payments. Of course there are other reasons as well, such as subsidies to exporters. Interest payments on domestic and foreign debts, which were increased significantly in the mid 1980s, mostly to foreign creditors, were the major components of public transfer expenditure and they were very difficult to reduce unless rescheduling could be negotiated, or aid receipts be used to pay interest.

As indicated in Figure 5.2c, there is a sharp increase in the transfer ratio in 1986 (from 13.3 percent in 1985 to 20.1 percent in 1986). However, it was an unhealthy growth, since the growth of the transfer expenditure was mainly
due to current transfers, and approximately half of it was the interest payments on internal and external debt payments. According to Görgün (1991), the biggest role in increasing transfer expenditure was the debt principal and interest payments. For example, the proportion of debt interest payments relative to GNP reached 5 percent in 1990. If we consider internal and external principal payments, the proportion increases to 8 percent (Görgün, 1991).

Drastic increases in transfer expenditure after 1986 also caused an increase in total public expenditure. Domestic and foreign interest payments are very important in transfer expenditure. Particularly after 1987 almost half of transfer expenditure goes to domestic and foreign debt interest payments (Oyan and Aydın, 1991).

5.2.3 Public Expenditure by Functional Category, 1950-1983

Official statistics are often available on a consistent basis for a surprisingly short period, for example only three or four years. In official Turkish publications, there is no consistent database for the functional classification of public expenditure over a long period. Önder (1984) constructed an expenditure series over the long period 1927-1983, which provides a database ending in 1983. From 1984, we have included EBFs expenditure in total public expenditure and economic classification of public expenditure. However, we failed to find any (official or non-official) figures for the functional classification of EBFs expenditure to enable the construction and extension of this database until 1990. For this reason, the figures for the functional classification of public expenditure cover the period from 1950 to only 1983.
Önder's functional categories consist of (i) general administrative expenditures, (ii) education expenditures, (iii) health expenditures, (iv) infrastructure expenditure and (v) defence expenditures. The development of these different items can be seen below in Figures 5.3a-5.3c.

Figure 5.3a shows the development of functional categories of real public expenditure in Turkey during 1950-1983. Figure 5.3b presents the indexes of functional categories of real public expenditure. From these figures, it will be observed that, each component of public expenditures in each functional category has generally increased during the entire period in Turkey. However, as can be seen clearly from figures, each component's growth rate is different and increases are not regular. Indeed, in some periods it is possible to observe a decline in the series.

Looking at the ratio of functional classification of public expenditure with regard to GNP gives us some information about the determination of the priorities among public services according to resource allocation.

It is necessary to emphasise that there are many factors that affect the growth of public expenditures made for each public service. These factors can be identified as income, regional conditions, public needs, public objectives, political priorities, relationship with neighbouring countries, and economic and non-economic factors (Ataç, 1983).

When we look at public expenditure by functional category as percent of GNP, Figure 5.3c shows that there are fluctuations in all functional classifications during the period from 1950 to 1983. It is almost impossible to see permanent increases or permanent decreases of the each shares of public services. During the 1950s there is a downward trend of almost all headings. However, this trend started to change in the late 1950s.
While the ratios of public expenditure to GNP for education, health and welfare related services were quite low, expenditures for defence and economic services were relatively high. This means that the emphasis on capital investments for economic development was in keeping with the needs of a growing industrial sector but at a cost of relatively little public investment in human capital. In the 1960s and 1970s, there was a significant increase in general administration. It was 8.0 percent in 1960, but reached 17.7 percent in 1978. Health expenditure and education expenditure remained quite stable. Between 1967 and 1971 there was also a slight increase in infrastructure expenditure while defence expenditure, like health and education expenditure remained quite stable. In the 1980s this trend did not change significantly. We can now discuss these expenditures in more detail.

General Administrative Expenditure:

General administrative expenditures include expenditure of the regular administrative divisions of the government, including the Presidency, the National Assembly, legislative bodies, the department of foreign affairs, departments concerned with tax, administration and the control of the business (including tax, treasury and audit departments), and agencies responsible for the supply of information to the public and similar general services. General administrative expenditures can be affected by general economic, social and technological factors. For example, if governments role in economic development increases, this kind of expenditure can increase as well. Another example can be urbanisation. As a result of urbanisation, for example, the demand of police services may increase. This corresponds to the Wagnerian vision that a more complex economy requires a more complex and costly general government machine.
Figures 5.3a and 5.3b show that general administrative expenditure at 1968 prices increased moderately during the study period. Overall growth rate is 624.9 percent (i.e. 5.5 % p.a.). This is bigger than health and defence expenditure, but less than education and infrastructure expenditure. When we look at public expenditure by functional category as a percent of GNP, Figure 5.3c shows that general administrative expenditure (hereafter GAE) fluctuated between 5.5 percent in 1959 and 17.7 percent in 1978 GAE decreased significantly from 11.4 percent in 1950 to 5.5 percent in 1959.

In the 1960s and 1970s, there was a significant increase in GAE. In those years, the government’s role in economic development was significant. After the 1960 military coup, import substitution industrialisation policies were implemented in the Turkish economy. Both the competence and the size of the Bureaucracy increased during the 1960s, so that the bureaucracy had a stronger bargaining position against the government. Between 1976 and 1978, the ratio of GAE to GNP was quite high, it reached 17.7 in 1977. In the 1970s, there were significant increases in public sector wages and salaries. After 1978 there was a sharp decrease in GAE. This trend continued until 1980, then it started to increase again.
Figure 5.3a Real Public Expenditure by Functional Category (at 1968 Prices), 1950-1983


Where GAE is general administrative expenditure; HE is health expenditure; EE is education expenditure; INF is infrastructure expenditure; DE is defence expenditure.

Because of data unavailability for EBFs the period is from 1950 to 1983 in this figure.
Figure 5.3b  Indexes of Real Public Expenditure by Functional Category in Turkey, 1950-1983 (at 1968 prices)

Where GAE is general administrative expenditure; HE is health expenditure; EE is education expenditure; INF is infrastructure expenditure; DE is defence expenditure.
Because of data unavailability for EBFs the period is from 1950 to 1983 in this figure.
Figure 5.3c Public Expenditure by Functional Category as a Percentage of GNP in Turkey, 1950-1983


Where GAE is general administrative expenditure; HE is health expenditure; EE is education expenditure; INF is infrastructure expenditure; DE is defence expenditure.

Because of data unavailability for EBFs the period is from 1950 to 1983 in this figure.
Education Expenditure and Health Expenditure

The main instruments of human capital formation are education and health expenditure. Both education and health expenditure are argued to be very important in economic development. Because of a high population growth rate in many developing countries, in general, expenditures on education and health are not enough to meet society's needs. They can help to improve labour productivity. There is a close relationship between economic growth and improvements in human capital. The improvement of human capital contributes to increasing economic development.

Figure 5.3a shows that both education and health expenditure grew over time in real terms. However, the increase in health expenditure is very low. The second fastest growing category (after infrastructure expenditure) is education expenditure (Figure 5.3b), where the overall growth rate is 905.6 percent (i.e. 6.7 % p.a.). In terms of a percentage of GNP, education and health expenditure did not change significantly. As can be seen from Figure 5.3c, during the 1950s and early 1960s total public expenditure on education fluctuated between 2 and 2.5 percent of GNP. However, in most European countries this ratio fluctuated between 3 and 6 percent and in USA was around 6 percent. Starting from 1965, there was a slight increase in education expenditure relative to GNP. This trend carried on until the late 1970s. Because of politico-economic crises, there was a slight decrease in the late 1970s and the early 1980s.

Since Turkey is a developing country, education and health are very important both in five year development plans and in annual plans. Human capital is a very important element in developing process. According to Hershlag (1968), until the mid-1960s, public expenditure on education not
only failed to keep pace with the requirements of society and the economy but it also lagged behind the growth of national product and other fields of national expenditure. "Despite relatively low rate of public expenditure on education, the educational system grew substantially after the mid-1960s. However since 1980, there was a decline on education expenditure relative to GNP" (Hershlag, 1988: 66).

Mackenzie argues that "Most governments are direct providers of educational services on a large scale, and at the primary and secondary levels, at least, their share of the total supply of such services typically exceeds 90 percent" (Mackenzie, 1991: 107). This statement is also valid for Turkish education services.

Education expenditure at the general government level changes from 4.5 percent to 7 percent of GDP in industrial countries. In developing countries, education expenditures range from 2.5 percent to 7.5 percent of GDP, and represents a smaller share of GDP on average than in developed countries (Mackenzie, 1991). In late 1960s, according to UNESCO's assessment, Turkey ranked among the lowest-ratio group (UNESCO, Statistical Yearbook, 1969).

Public expenditure on education was 2.7 percent of GNP in 1983, as compared with about 5 percent in other similar countries (for example, 4.6 percent in Portugal). As late as 1984, public fixed investment in education amounted to 3.3 percent of total public investment, and in 1984 3.25 percent. Since private fixed investment in this sector was negligible, the share of education in total (public plus private) fixed investment reached some 2 percent only (Hershlag, 1988).

As regards health expenditure, it is highly correlated both with income levels and health indicators such as life expectancy. From an economic point of
view, adequate health care improves human capital by strengthening an individual's capacity to work productively. According to Kochhar (1991: 103) "[t]o improve health standards, developing countries will have to generate resources to support larger health sectors."

In Turkey, during the study period, health expenditure fluctuated between 0.06 percent of GNP in 1982 and 1.6 percent of GNP in 1953. As can be seen from Figures 5. 3a-5.3c, in the 1960s and 1970s, health expenditure remained quite stable, and did not change significantly during the whole period. However, the level of real health expenditure increased from 100 in 1950 to 460.3 in 1983. That is, the average annual increase was 4.6 percent.

According to Uygur (1991), the proportion of investment for health and education expenditure in public investment is decreasing from the late 1960s up to today. Recently, even though there is increase in this proportion, it is still less than the period of 1963-67.

If we assess health and education expenditure together, it is possible to say that even though they are very important in the formation of human capital, as a proportion of GNP both are quite low. Even in some periods, such as from the late 1970s to 1988, they have declined. As Önder (1989) and Oyan and Aydin (1991) argue, the decrease in social service expenditure such as education and health has two adverse effects in the medium term. First, the formation of human capital development will be slowed. As a result of this, in the long term it can adversely affect labour productivity and capital productivity. Second, the decrease in social service expenditure can cause a deterioration in equality of opportunity, and it will be a barrier to a stable economic development.
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There is one point to looking at health expenditure in Turkey which is important: although the health expenditure in the consolidated budget is quite low as a proportion of GNP, health services are produced both by public sector and by private sector. In other words, in Turkey there is not a fully subsidised health system. Nearly, 50 percent of the population (e.g. 45.6 percent in 1990) was not covered by social insurance programs. Therefore, it is possible to claim that private health expenditure is also an important phenomenon in Turkey. Recently, the SPO (1997) produced some data for both private and public health expenditure which shows that if we take into account private sector health expenditure the ratio of health expenditure to GNP has increased significantly (e.g. to 3.5 percent in 1990). However, it is difficult to say that education expenditure follows the same path, because education services are almost fully covered by public sector during the study period. However, after 1990, private expenditure in education sector started to increase, since new regulations now supporting private investment in this field.

Infrastructure Expenditure:

Infrastructure expenditure is vital for a developing country. With the DP government, "The role of state was to be confined to basic industries and the provision of infrastructure" (Wagstaff (1989: 9). As can be seen from Figures 5.3a and 5.3b, infrastructure expenditure is the most rapidly growing category in functional classification of public expenditure. Its overall growth rate is 966.3 percent (i.e. 6.9 % p.a.) (Figure 5.3b). Figure 5. 3c shows that in 1950s it fluctuated between 2.6 percent to 4.8 percent of GNP. The DP government has given priority to infrastructure expenditures. In the 1960s and 1970s, as an extension of import substitution policies and fast growth targets, there was
a considerable increase in infrastructure expenditure, which reached 7 percent of GNP in 1969.

As mentioned above, although the data set for functional classification covers the period from 1950 to 1983, we can descriptively discuss the behaviour of infrastructure expenditure for the post-1983 period. In the second half of the 1980s, some researchers claim that there was significant increase in infrastructure expenditure. In this context, we can quote EBFs as an example. A large proportion of EBFs expenditures was used in infrastructure in the second half of the 1980s. One of the priorities of the fifth five year development plan (1985-1989) was infrastructure. Because of that, “During the 1980s important steps were taken in the development of an infrastructural base, the most impressive on which occurred in the communication sectors” (Önis, 1996: 156). The government’s involvement in infrastructure, largely through long-term public works projects (financed for the most part by extra-budgetary funds), contributed to higher public expenditures (Hershlag, 1988). It is observed that the nature of public investment in the post-1980 period was turned towards from manufacturing to infrastructural activities such as transport, communications and energy fields which are complementary to private sector activities. Despite this marked change in the nature of the state intervention at the micro level, the overall weight of the public sector in economic activity did not change significantly during the course of 1980s (Önis, 1996). In contrary, “…the scope of government activity was considerably enlarged via extra-budgetary funds, which could be used and abused for discretionary purposes” (Rodrik, 1990: 25).
Defense Expenditure:

Like many other countries, defense expenditure has an important place in Turkish public expenditure. Therefore a significant amount of resources allocated to defense. So, defense expenditure account for an important part of public expenditure and the proportion of defense expenditure in GNP is a significant amount as well. “In many countries, military spending is not only for the purpose of national defense, but also to maintain internal security” (Hemming and Hewitt, 1991: 90). This statement can also explain the Turkish case. Military expenditures account for an important part of public expenditure. Military activities in Turkey encompass a wide range of public tasks. Beside providing external security, the military have also controlled dissident groups internally, as for the Kurdish fight in the South East of Turkey since early 1980s, and have supported or replaced civilian agencies in the maintenance of law and order during periods of restive political change following the military takeovers (e.g. May 27, 1960, March 12, 1971 and September 12, 1980). Turkish forces have also participated in NATO and were active in the United Nations military operation in Korea and recently in Somalia and more recently in Bosnia. Thus, the concept of military activity gatherers together a diverse set of tasks (Shorter, 1967).

Defense is the classic example of a public good provided by State. In the contemporary world, although wars are quite rare, most countries fear potential threats and acquire arms to insure against them (Levine and Smith, 1997). In other words, while inter-state wars are rare, inter-state antagōnism is common. There are a large number of bipolar hostilities which have prompted arms races, though the term, ‘arms race’ is very imprecise. One of the examples of bipolar antagōnism is Greece-Turkey (other examples are India-Pakistan, Iran-Iraq, North-South Korea, Taiwan-China and Syria-Israel).
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In these cases, the countries wish to match the military capabilities of their potential enemies and will try to acquire advanced technology weapons (Levine and Smith, 1997). The development of real defense expenditure can be seen from Figures 5.3a and 5.3b. Although the defense expenditure is very important in Turkey, the growth of real public expenditure is quite moderate. The overall growth rate during 1950-1983 is 402.4 percent (i.e. 4.2 % p.a.) (which is the smallest one in functional categories) (Figure 5.3b). Defense expenditure as a percentage of GNP can be seen from Figure 5.3c. There were fluctuations in defense expenditure until 1955, followed by a slight decrease in defense expenditure, because of relatively peaceful years. On the other hand, after joining NATO, some part of the defense burden was transferred to the programme of joint defence. As can be seen from Figure 5.3c, in the 1960s and 1970s, defense expenditure, like health and education expenditure remained quite stable. Defense expenditure also fluctuated during the whole period between about 4 to 5 percent of GNP. In this period, there are some events that affected defense expenditure such as the Korean War (in early 1950s), and 1974 Cyprus intervention. Military intervention can cause an increase in defence expenditure. "Actual conflict then leads to a further escalation of military spending on both sides. With end to conflict, a reassessment of risk and response will almost certainly leave military expenditure at a permanent higher level" (Hemming and Hewitt, 1991: 90).

In this context, the relationship between neighbouring countries also has a significant effect on defense expenditure from time to time, e.g., the Turkish-Greek animosity. In other words, there is a geographical reason relates the size of armies to the size of the country or more particularly, to the length of the defensive frontier. This is relevant for Turkey. Turkey’s length of defensive frontiers is very long and Turkey’s relationship with its neighbours in general is not friendly.
5.3 Other Factors Affecting Public Expenditure after 1980

After the 1980 economic policy package, there were some important changes in the consolidated budget expenditure. Its definition changed significantly. It was not a good indicator of public expenditure any more after 1980, in particular, after the mid 1980s. For this reason, it is necessary to consider these changes which are mainly domestic and foreign debt principal repayments and EBFs.

5.3.1 Domestic and Foreign Debt Principal Repayments

Internal and external debt principal repayments were defined as part of transfer expenditures before 1986. However, since 1986, they have been taken away from transfer expenditures. However, in order to have a consistent data set we add them back into the public expenditure. The mid-1980s were hard times for the Turkish economy in terms of external debt payments. Turkey faced a debt crisis. There were large amounts of external debt principal which had to be repaid. As can be seen from Table 5.1, almost one fifth of total public expenditure was going to external and internal principal payments. Table 5.1 shows their proportion relative to GNP and TPE.

5.3.2 Extra-Budgetary Funds

According to Hemming (1991: 33), "[t]o the extent possible, all expenditure of the government should be reflected in measured expenditure even if some of it is not included in the expenditure budget." In this context, we can consider the status of EBFs in Turkish public finance system.
Table 5.1  Domestic and Foreign Debt Principal Repayments as a Percentage of GNP and TPE, Turkey, 1986-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>DFDPRs/GNP</th>
<th>DFDPRs/TPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>4.36</td>
<td>18.73</td>
</tr>
<tr>
<td>1987</td>
<td>4.41</td>
<td>18.34</td>
</tr>
<tr>
<td>1988</td>
<td>4.09</td>
<td>17.43</td>
</tr>
<tr>
<td>1989</td>
<td>4.40</td>
<td>17.49</td>
</tr>
<tr>
<td>1990</td>
<td>3.92</td>
<td>14.67</td>
</tr>
</tbody>
</table>

Notes: Where, DFDPRs is Domestic and Foreign Debt Principal Repayments.

EBFs started to grow in the mid-1980s. Since 1985, EBFs have played an increasingly important role in the Turkish economy. Although a number of smaller funds had been established much earlier (OECD, 1992), they had no significant effect on the economy. Before 1980 there were 33 EBFs which were not important in terms of their size in the whole economy and in the public sector economy. There is no database for EBFs for early years, that is before 1984. At this point, as Oyan et al. (1991) discussed, it is necessary to emphasise that the database on EBFs in Turkey is deficient. None of the public institutions prepares a database which includes all funds. In addition, it is also very difficult to acquire the existing data. After 1984, some important EBFs began to be shown in the table of the public sector's overall balance in the Annual Plans of SPO and some other official publications. Therefore, it is almost impossible to find any consistent data for early years for EBFs, even for the post-1984. On the whole, whilst the full adjustment of public expenditure data to reflect EBFs spending may not be possible, but a minimum requirement is a reasonably consistent treatment during 1984-1990. For example, as can be seen from Table 5.2, in 1984, the proportion of EBFs
relative to GNP was only 0.5 percent. However, in 1985 it increased suddenly to 1.1 percent, and then to 3.5 percent in 1986. The pattern is the same when we look at the percentage of EBFs relative to total public expenditure as well. After 1984 the number and size of EBFs increased sharply, and reached over one hundred. In 1990, EBFs accounted for 5.7 percent of GNP. The shares of EBFs show that EBFs are a hidden facet and an important dimension of public expenditure in Turkey. Therefore, EBFs must be taken into account in any realistic assessment for public expenditure growth after 1984.

As stated by OECD (1985: 23 [1984-85 Economic Surveys: Turkey]), “The consolidated budget is no longer the only relevant indicator of the central authorities’ fiscal policy stance. Starting with the introduction of the so-called ‘social housing fund’ [Common Settlement Fund] in 1984, the authorities have shown a preference for shifting charges on central government resources to special funds, which are financed principally by levies on transactions....”

Since 1984, several EBFs were created for special purpose lending (for housing and infrastructure projects) and expenditures (in agriculture, tourism, and education). Although operating within the Central Government, these funds are outside the normal budgetary appropriation and implementation process. The funds are financed by various earmarked tax revenues (mainly VAT related), operating revenue from dams and bridges, interest from the sale of income-sharing certificates. For example, one of the important EBFs revenues come from shares in the whiskey tax, the exit fee charged all Turks travelling abroad (after 1996 it was abolished), sales of revenue sharing certificates, and foreign loans guaranteed by the Central Bank (Waterbury, 1992; Kopits, 1987).
These funds disburse money in a rather discretionary way and are largely beyond the purview of the parliament. "The importance of these funds can be gauged by considering that their revenues amount to a quarter of the regular budgetary revenues" (Rodrik, 1990a: 15). Naturally, the scope of government activity was considerably enlarged via EBFs, which could be used and abused for discretionary purposes (Rodrik, 1990a).

The main reason for developing this system in the mid-1980s was that since the whole state income was included in the budget, it was difficult to take expenditure decisions rapidly in order to allow some public expenditures to be spent on time. The Government, instead of reorganising and reforming the budgetary system, preferred to establish extra-budgetary funds.

According to Onis, (1991: 32),

The original motive for the creation of EBFs lay in the government's inability to generate revenues from standard sources. In addition to providing a solution to the revenue problem, the EBFs could be spent without prior parliamentary approval. Hence the EBFs helped to provide considerable discretionary powers to the central government, and notably to the prime minister, in the allocation of revenues. For instance, in 1988, 11.2 percent of public investment was financed from the EBFs.

Two of the indicators of the importance of the fund system in the whole economy and the public sector are the amount of resource spending relative to GNP and/or relative to total public expenditure (Emek, 1992). Table 5.2 indicates the proportion of EBFs relative to GNP and TPE in current prices for the period from 1984 to 1990.
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Table 5.2 Extra-Budgetary Funds Expenditure in Turkey as a Percentage of GNP and TPE in Current Prices: 1984-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>EBFs Exp./GNP</th>
<th>EBFs Exp./TPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>1985</td>
<td>1.1</td>
<td>4.3</td>
</tr>
<tr>
<td>1986</td>
<td>3.5</td>
<td>10.1</td>
</tr>
<tr>
<td>1987</td>
<td>3.5</td>
<td>9.9</td>
</tr>
<tr>
<td>1988</td>
<td>3.6</td>
<td>10.2</td>
</tr>
<tr>
<td>1989</td>
<td>5.1</td>
<td>12.9</td>
</tr>
<tr>
<td>1990</td>
<td>5.7</td>
<td>13.6</td>
</tr>
</tbody>
</table>


In recent years, public sector investment moved from manufacturing to infrastructure and EBFs made significant contributions to the energy, transportation and housing sectors. EBFs investment in public investment was 10.9 percent in 1988, but reached 19.6 percent in 1990 (Emek, 1992).

In 1988, according to a government decision, 30 percent of EBFs' revenues had to be transferred to the central government. However, some of the special funds were exempted from the transfer requirement, whilst lower transfer rates were required of some other funds OECD (1990).

According to one of the OECD studies, "there would also seem a need to reduce gradually the number of EBFs and to introduce tighter supervision of their budgets and financing strategies" (OECD, 1990: 110).

By 1991, there were more than one hundred EBFs, controlling revenues equal to about one half of the central government budget. By now, the EBFs have become an issue of political debate as their quasi-independence poses a threat to the central authority and their large number substantially reduces the
transparency of fiscal control. Hence, the new government decided that the Treasury should scrutinise all funds with the eventual aim of including them under the general budget system. It is intended to merge a number of funds into a single multipurpose fund, while smaller funds may be liquidated. Larger funds such as the public participation Fund, the Housing Fund and the Defense Industry Fund will, however, retain their present status for the foreseeable future (OECD, 1992).

Actually it is questionable whether special funds are a suitable instrument for allocating public investment expenditure in the medium term. On the one hand, EBFs seemed to have been useful mainly in the treatment of failures in the administrative mechanisms or of private markets typical of early phases of development; hence, their functions need eventually to be reallocated to both the private and public sectors. For example, the Mass Housing Fund largely offset temporary market deficiencies, such as the practical absence of any private mortgage lending in Turkey (OECD, 1990). On the other hand, these funds caused large and uncontrollable increases in total expenditures. The gradual reduction in the number of funds and tighter control and prioritisation of their expenditure is a necessary policy in Turkey. It is necessary to point out that, as Oyan et al. (1991: 74) stated, "the liquidation or the narrowing of the fund system which is functioning as a strong instrument of public finance ... is a political decision". So, the solution can be a political one and it appeared in 1993. In order to control public expenditure, many of EBFs (63 out 107) were included under the general budget system, and they started to appear under related ministries transfer headings. Because of their importance in public expenditure and their policy application we have decided to add EBFs expenditure into total public expenditure definition since 1984.
5.4 Conclusion

This chapter has traced the growth of public expenditure in Turkey over the period 1950-1990 and tried to examine in detail both real public expenditure and the ratios of total public expenditure, economic and functional classification of public expenditure. While public expenditure in Turkey has grown both in real terms and as a proportion of GNP, not all items of expenditure have grown at the same rate. In the last decade, for example, the fastest growing item has been transfer payments.

Public expenditure, relative to GNP, did not decrease significantly as a result of the liberal economic policy approach adopted in the 1950s. However, during this period, public expenditure was directed towards infrastructure expenditures. Motorway, irrigation and energy investments were particularly important.

1960 was the beginning of the planning period. The 1960s and the 1970s saw an upward trend in public expenditure, which can be partly explained by the adoption of import substitution policies. For example, total public expenditure, relative to GNP, reached a peak in 1977 at 30.8 percent. After 1977, the public expenditure ratio started to decrease.

One of the main targets of the 1980 economic policy package, which was supporting export promotion policies, was to reduce the role of the public sector in the whole economy. As a result of this approach, during the early 1980s, the proportion of public expenditure in the GNP decreased. The decrease in the transfer expenditures ratio was less than the other items (e.g., current expenditure and investment), because of sharp increases in debt interest payments and other debt payments. However, since the mid-1980s public expenditure ratios have started to increase again. One important
feature of the 1980s was the emergence of EBFs, especially from the mid-
1980s. Consequently, despite intentions and the attempts in the 1980s to limit
public expenditure, the government failed to contain the rising trend of
public expenditure significantly. As Önis (1991: 39) pointed out “Turkey’s
political economy in the 1980s displayed a fundamental paradox. A series of
measures in the direction of liberalizing the economy especially in the context
of the post-1983 period, was accompanied by an ambitious growth strategy
based on the expansion of the public sector”.
CHAPTER 6
TIME SERIES ANALYSIS OF WAGNER’S LAW
AND
THE DISPLACEMENT EFFECT HYPOTHESIS
Chapter 6

6 TIME SERIES ANALYSIS OF WAGNER'S LAW AND THE DISPLACEMENT HYPOTHESIS

6.1 A Cointegration Analysis of Wagner's Law

As discussed in chapter 3, Wagner's Law states that public expenditure increases at a faster rate than that of national output. There are at least six versions of this law (see Table 6.1). In this section we will examine whether there is a long-run relationship between public expenditure growth and GNP growth, along the lines suggested by Wagner's Law, for the case of Turkey. Recent advances in time series analysis have permitted the investigation of the long-run relationship between public expenditure and GNP in terms of cointegration analysis. The data under examination consist of gross national product (GNP), total public expenditure (E), and public consumption expenditure (C), all in real terms. The GNP deflator has been used to obtain real values. The data are also examined in per capita terms, and some categories of public expenditure are used in the form of ratios to GNP, as required by the various formulations of Wagner's Law. We will examine six versions of Wagner's Law in the period from 1950 to 1990. All the equations in Table 6.1.1 have been estimated in terms of constant (1968) Turkish Liras and are specified in logarithmic form, so that it will be possible to obtain measures of income elasticity directly. The symbol L, before a variable denotes its natural logarithm.
Table 6.1:  Six Versions of Wagner’s Law

<table>
<thead>
<tr>
<th>Functional form</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 LE = a + b L GNP</td>
<td>Peacock-Wiseman [1968]</td>
</tr>
<tr>
<td>2 LC = a + b L GNP</td>
<td>Pryor [1969]</td>
</tr>
<tr>
<td>3 LE = a + b L (GNP/P)</td>
<td>Goffman [1968]</td>
</tr>
<tr>
<td>4 L(E/GNP) = a + b L(GNP/P)</td>
<td>Musgrave [1969]</td>
</tr>
<tr>
<td>5 L(E/P) = a + b L(GNP/P)</td>
<td>Gupta [1967]</td>
</tr>
<tr>
<td>6 L(E/GNP) = a + b L GNP</td>
<td>“Modified” version of P-W suggested by Mann [1980]</td>
</tr>
</tbody>
</table>

6.1.1  The Concept of Cointegration

The concept of cointegration, first introduced into the literature by Granger (1981), is relevant to the problem of the determination of long-run or ‘equilibrium’ relationships in economics. Cointegration is the statistical implication of the existence of a long-run relationship between economic variables (Thomas, 1993). In other words, from a statistical point of view, a long-term relationship means that the variables move together over time so that short-term disturbances from the long-term trend will be corrected (Manning and Andrianacos, 1993). The basic idea behind cointegration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989).

The formal definition of cointegration is as follows:

Time series $x_t$ and $y_t$ are said to be cointegrated of order $d$, $b$ where $d - b \geq 0$, written as:

$x_t, y_t \sim CI(d, b)$.

if:
1. both series are integrated\(^1\) of order \(d\),
2. there exists a linear combination of these variables, say \(\alpha_1 x_t + \alpha_2 y_t\), which is integrated of order \(d-1\) (Charemza and Deadman, 1992:144).

Here, the vector \([\alpha_1, \alpha_2]\) is called a cointegrating vector. Cointegrating coefficients, which constitute the cointegrating vector, can be identified with parameters in the long run relationship between the variables.

Cointegration means that one or more linear combinations of these variables is stationary even though individually they are not. If these variables are cointegrated, they cannot move "too far" away from each other. In contrast, a lack of cointegration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other (Dickey et al., 1991).

One topic which is related to cointegration is the order of integration of the variables. In the literature, much of the theory of cointegration has been developed for the case where all series are integrated of order one, written as I(1). In practice, it is often desirable to formulate cointegration hypotheses among more than two variables. Therefore, higher orders are also possible and allowed for under the general definition of cointegration. However, if the number of variables involved in the long run relation increases, the problem becomes much more complicated than a two variable case. In a multivariable case, it is possible for the variables to be integrated of different orders and the error term \(u_t\) to be stationary. Here it can be pointed out that if variables in a long run relationship are of different orders of integration and the order of integration of a dependent variable is lower than the highest order of integration of the explanatory variables, there must be at least two

---

1 Integration is the representation of a process as a sum of past shocks. A process is said to be integrated of order \(d\) (I(d)) if after differencing \(d\) times the resulting process is stationary (denoted I(0)).
explanatory variables integrated of this highest order if the necessary condition for stationarity of the error term is to be met.

Now we can look more closely at cointegration theory. There are three notions behind cointegration: spurious correlation, stationarity\(^2\) (time series analysis) and error correction modelling (ECM) (Holden and Thomson, 1992).

First, if there is a high degree of correlation between two variables, it does not automatically imply the existence of a causal relationship between the variables concerned (Holden and Thomson, 1992). For example, a high \(R^2\) may only indicate correlated trends and not a true economic relationship (Miller, 1991). Most economic time series, such as public expenditure and GNP, exhibit nonstationary\(^3\) tendencies that cause spurious regression results. To remedy this problem, some time series studies have used rates of change of \(E\) (total public expenditure) and GNP that are close to the concept of first differencing. As argued by Miller (1991), however, first differencing filters out low-frequency (long-run) information. To remedy this problem, the cointegration technique and error correction modelling are recommended (Bahmani-Oskooee and Alse, 1993).

According to Granger and Newbold (1974), spurious regressions are typically characterised by a very low Durbin-Watson statistic. For example, "spurious regression problems may exist when the adjusted \(R^2\) is higher than the

\(^2\) Stationarity of a series implies that graphs of a realization of a time series over two equal-length time intervals should exhibit similar statistical characteristics. Stationary series have a tendency to return to their original value after a random shock: the mean and variance of such a series do not change with the passage of time.

\(^3\) Nonstationary unit root processes are characterised by time paths that exhibit trend movements, and the paths of such series would usually be expected to diverge from their original value over time. Variables with unit roots are characterised by fluctuations around a stochastic trend, with shocks leading to permanent movements in the series away from trend. However, if there are strong long-run linkages between a group of individual series so that a linear combination of them is stationary (stable), then the series are said to be cointegrated.
Durbin-Watson statistic; under such circumstances the coefficient estimates are problematic" (Miller, 1988: 31-32).

In fact, many early researchers who looked at Wagner's Law ignored the stationarity requirement of the variables. However, the standard regression techniques are invalid when applied to non-stationary variables. In other words, "...static regressions among integrated series are meaningful if and only if they involve cointegrated variables" (Banerjee, et al. 1993: 204). This practice led to a substantial literature dealing with the spurious regression problem.

It can be seen from the above discussion that cointegration analysis confronts spurious regression, attempting to identify conditions under which the regression relationship is not spurious. Therefore, the problem of spurious regression, and the resulting work on cointegration, occurs because most economic time series are non-stationary. Hence, time series regressions frequently lead to the question of whether the regression equation error term is non-stationary (i.e., possible spurious regression) or stationary (i.e. cointegration) (Miller, 1988; 1991).

In applied economics, for practical purposes, 'weak', or second order, stationarity is employed. This requires the mean, variance and covariances of a series to remain constant over time. In this sense, a stochastic process (say \(X_t\)) is said to be stationary, if the following conditions are satisfied for all values of \(t\):

i. \(E(X_t) = \text{constant} = \mu\),

ii. \(\text{Var}(X_t) = \text{constant} = \sigma^2\) and,

iii. \(\text{Cov}(X_t, X_{t+j}) = \text{constant for all} \ t \neq j = \sigma_j\)

Consequently, the means and the variances of the process are constant over time. Condition iii requires that the covariance between two values of \(X\)
taken from different time periods depends only on the gap between the periods, and not the actual time at which this covariance is considered. If one or more of the conditions above are not satisfied, the process is nonstationary (Charemza and Deadman, 1992; Thomas, 1993).

Cointegration and error-correction modelling involves four steps. First, determine the orders of integration for each of the variables; that is, difference each series successively until stationary series emerge. Second, estimate cointegration regressions with ordinary least squares, using variables with the same order of integration (in the two variable case). Third, test for stationary residuals of the cointegration regressions. In the case of Wagner’s Law, evidence of cointegration is sufficient to establish a long-run relationship between public expenditure and income. However, it does not necessarily give evidence for Wagner’s Law (except in the very weakest of definitions) (Amey and Ashworth, 1993). Support for Wagner’s Law would require unidirectional causality from income to public expenditure (Oxley, 1994). Therefore, cointegration should be seen as a necessary condition for Wagner’s Law, but not sufficient. Hence, we also need to look at causality properties of the models under test. Similarly, according to Granger, “…an empirical exercise should never just test for cointegration but should always be followed with estimation of a full error correction model of some form, as the extra gain in interpretation can be very worthwhile” (Granger, 1994: 345-346). So, finally, if there is a cointegrating relationship between variables, construct the error-correction model in order to test the causality properties of the models under consideration.

6.1.2 Time Series Properties of the Series: Stationarity and Unit Root Tests

The investigation of stationarity (or nonstationarity) in a time series is closely related to the tests for unit roots. Existence of unit roots in a series denotes
non-stationarity. A number of alternative tests are available for testing whether a series is stationary.

Testing for the Order of Integration

Several tests for the presence of unit roots (testing for the order of integration) in time series data have appeared in the literature: These are, (i) the Sargan-Bhargava (1983) CRDW test, (ii) regression based t-tests which are called the Dickey-Fuller (DF) test, and the augmented Dickey-Fuller (ADF) test\(^4\), (iii) the Phillips and Perron test, and (iv) the Perron test. Unit-root tests indicate whether each series is stationary, i.e. whether the series has a stochastic trend. If there is a unit root in a series, this indicates non-stationarity.

In order to establish the order of integration of the variables in our data set, we employ DF and ADF tests. The ADF test for unit roots (Dickey and Fuller, 1979; 1981) indicates whether an individual series, say \(y_t\), is stationary by running an OLS regression. All these tests are based on regression equations 6.1.1 to 6.1.8 presented below. Where it is necessary, one can also examine augmented forms of these equations.

The DF test is based on the estimation of the following regression equation:

\[
\Delta y_t = \alpha y_{t-1} + \varepsilon_t \tag{6.1.1}
\]

The DF test consists of testing the negativity of \(\alpha\) in the ordinary least squares regression (6.1). The null hypothesis \(\alpha = 0\) implies a nonstationary \(y_t\) series. Rejection of the null hypothesis \(\alpha = 0\) in favour of the alternative \(\alpha < 0\) implies that \(y_t\) is integrated of zero.

\(^4\) The DF test does not take account of possible autocorrelation in the error process. Dickey and Fuller (1981) found a simple solution for this weakness of the DF test using lagged left hand-side variables as additional explanatory variables to approximate the autocorrelation, and this test is called the Augmented Dickey-Fuller (or ADF) test.
If the null hypothesis cannot be rejected, for example, the variable $y$, might be integrated of an order higher than zero, or might not be integrated at all. Consequently, the next step would be to test whether the order of integration is one. If $y_t \sim I(1)$, then $\Delta y_t \sim I(0)$. Hence we can repeat the test using $\Delta y_t$ instead of $y_t$. The Dickey-Fuller equation is now

$$
\Delta \Delta y_t = \alpha \Delta y_{t-1} + \varepsilon_t
$$

[This is a test for $I(0)$]. (6.1.2)

and again our interest is testing the negativity of $\alpha$. If the null hypothesis is rejected and the alternative $\alpha < 0$ can be accepted, the series $\Delta y_t$ is stationary and $y_t \sim I(1)$. If the null hypothesis cannot be rejected, we may subsequently test whether $y_t \sim I(2)$. We can continue the process until we establish an order of integration for $y_t$, or until we realise that $y_t$ cannot be made stationary by differencing. In practice, it is unusual for economic series to be integrated of an order greater than two.

The DF test can also be used for testing the order of integration of a variable generated as a stochastic process with drift. This is achieved by tests on the equation:

$$
\Delta y_t = \alpha y_{t-1} + \delta + \varepsilon_t
$$

(for levels) (6.1.3)

$$
\Delta \Delta y_t = \alpha \Delta y_{t-1} + \delta + \varepsilon_t
$$

(for first differences) (6.1.4)

where $\delta$ is a constant representing drift. In practice, it is unclear when one should use this test, and when one should use the DF test without a constant. According to Charemza and Deadman (1994: 4/17), "It is better to start with DF test without a constant; if the null hypothesis is not rejected, move to the DF test with a constant."

Statistical inference about a stochastic trend is usually combined with a deterministic trend, that is, a mixed-stochastic-deterministic process. In this
case, the straightforward modification of the Dickey-Fuller equation which accounts for both drift and a linear deterministic trend is the following:

\[ \Delta y_t = \alpha y_{t-1} + \delta + \gamma t + \varepsilon_t \]  
(for levels) \hspace{1cm} (6.1.5)

\[ \Delta \Delta y_t = \alpha \Delta y_{t-1} + \delta + \gamma t + \varepsilon_t \]  
(for first differences) \hspace{1cm} (6.1.6)

In the above equations, it has been assumed that the expected value of \( \varepsilon_t \) is zero and that the stochastic process \( \{ \varepsilon_t \} \) is white noise, but these conditions may be relaxed to allow for autocorrelation in the series of \( \varepsilon_t \). If the \( \varepsilon_t \)'s are autocorrelated, the process (the variable under consideration) will still be nonstationary.

A weakness of the original DF test is that it does not take account of possible autocorrelation in the error process \( \varepsilon_t \). If \( \varepsilon_t \) is autocorrelated (that is, it is not white noise) then the ordinary least squares estimates of equation (6.1.1), and its variants are not efficient. A simple solution, advocated by Dickey and Fuller (1981), is to use lagged left-hand side variables as additional explanatory variables to approximate the autocorrelation. This test, called the augmented Dickey-Fuller test (denoted conventionally as ADF), is widely regarded as being the most efficient test from among the simple tests for integration and is at present the most widely used in practice.

The general form of ADF test can be written as follows:

\[ \Delta y_t = \alpha y_{t-1} + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \delta + \gamma t + \varepsilon_t \]  
(for levels) \hspace{1cm} (6.1.7)

where \( \Delta y \) are the first differences of the series, \( m \) is the number of lags and \( t \) is time. "The practical rule for establishing the value of \([m]\) ... is that it should be relatively small in order to save degrees of freedom, but large enough not to allow for the existence of autocorrelation in \( \varepsilon_t \). For example, if for \([m]=2\) the Durbin-Watson autocorrelation statistic is low, indicating first order
autocorrelation, it would be sensible to increase $m$ with the hope that such autocorrelation will disappear” (Charemza and Deadman, 1992: 135).

In the ADF test “the null hypothesis is that the variable under investigation has a unit root, against the alternative that it does not. The substantially negative values of the reported test statistic lead to rejection of the null hypothesis” (Dickey et al., 1991: 72).

A series is stationary if the coefficient on the lagged variable (for example, $y_{t-1}$ in Equation 6.1.7) is negative and significantly different from zero. Equation (6.1.7) is testing for I(0) series. In order to check for higher orders of integration, equation (6.1.7) has to be written in the appropriate order of difference of the series. For example for I(1) series, it can be written as follows:

$$
\Delta \Delta y_t = \alpha \Delta y_{t-1} + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \delta + \gamma t + \epsilon_t \quad \text{(for first differences)}
$$

(6.1.8)

Again, we use this regression to test $\alpha = 0$ against $\alpha < 0$. If $\alpha = 0$ is rejected then the $y_t$ series is stationary.

In short, the DF/ADF test proceeds as follows: equations such as 6.1.7 and 6.1.8 are estimated adding as many terms of differenced variables as are necessary to achieve residuals that are non-autocorrelated.
Table 6.1.1  \textit{DF/ADF Unit Root Tests in Levels and in First Differences}

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF Levels</th>
<th>Critical Values</th>
<th>ADF 1st-Differences</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m *</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LGNP</td>
<td>-2.10</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
<tr>
<td>LE</td>
<td>-3.28</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
<tr>
<td>LC</td>
<td>-3.48</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
<tr>
<td>L(GNP/P)</td>
<td>-2.14</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
<tr>
<td>L(E/P)</td>
<td>-3.26</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
<tr>
<td>L(E/GNP)</td>
<td>-3.38</td>
<td>[0] 6.1.5</td>
<td>-3.5247</td>
<td>[0] 6.1.4</td>
</tr>
</tbody>
</table>

- \( m \) = Number of lags which were chosen according to the Akaike Information Criterion (AIC).\(^5\)
- *Equation applied
- **Critical values (at 5% significance level) taken from MacKinnon (1991) and reported by Microfit 4.0.

Tables 6.1.1 presents the calculated t-values from DF/ADF tests on each variable in levels and in first differences. In the case of the levels of the series, the null hypothesis of non-stationarity cannot be rejected for any of the series. Therefore, the levels of all series are non-stationary.

Applying the same tests to first differences to determine the order of integration, the critical value is (are) less (in absolute terms) than the calculated values of the test statistic for all series in all cases. This shows that all of the series are integrated of order one \([1(1)]\), and become stationary after differencing once. Since all of the series are integrated of the same order, the series may be tested for the existence of a long-run relationship between them, i.e. a cointegrating relationship.

---

\(^5\) At this point, it is necessary to indication one important issue, raised by Pitarakis and Tridimas (1996), in relation to the ADF unit root test procedure. Regarding the possible \([1(1)]\)'ness of variables, the application of the ADF test led to conflicting results. Inferences were extremely sensitive to the number of lags and deterministic components included in the DF/ADF regressions. In order to avoid arbitrariness about choosing the optimal lag lengths, we looked at the Akaike Information Criterion (AIC).
Two Types of Trends: Difference Stationary Process and Trend Stationary Process

Nelson and Plosser (1982: 152)'s "...tests ... suggest that economic time series do not contain deterministic time trends but contain stochastic trends characteristics of DS class of processes". After Nelson and Plosser's finding there has been a common acceptance that "...many economic time series appear to be DSPs" (Perman, 1991: 9).

We can now look more closely at this issue. Time series can be trend stationary processes (TSP) or difference stationary processes (DSP). It is important to know the type of trend in time series analysis, since "cointegration deals with the relationship between variables that have stochastic trends" (Cuthbertson et al., 1992: 152). Both the models with TSP and DSP exhibit a linear trend. However, the appropriate method of eliminating the trend differs. If a trend is DSP, it can be removed by first differencing. If a trend is TSP, it has to be removed by regressing the variable, say Y, on time. In order to test whether the variables are DSP of TSP, one can apply the Dickey-Fuller joint hypothesis test (i.e. and F-test).

Let us suppose the variable Y is determined as follows:

\[ y_t = \alpha + \beta T + \phi y_{t-1} + \epsilon_t \]  

(6.1.9)


where T is a time trend and \( \epsilon_t \) is white noise. Subtracting \( y_{t-1} \) from both sides and generalising to allow for the possibility of higher order AR processes, equation (6.1.9) can be written as

\[ \Delta y_t = \alpha + \beta T + \phi^* \Delta y_{t-1} + \sum_{i=1}^{m} \phi_i^* \Delta y_{t-i} + \epsilon_t \] \[ \phi^* = (\phi - 1) \]  

(6.1.10)

Sufficient terms in the differenced variable have to be added to ensure non-autocorrelated residuals.
It is customary when estimating (6.1.10) to test the joint hypothesis \( \beta = \phi^* = 0 \). Failure to reject this joint hypothesis implies that \( y_t \) is subject to a stochastic but not a deterministic trend. Under such conditions, as we have seen in DF/ADF tests above in Table 6.1.1, stationarity can be achieved by first differencing.

We can test the joint hypothesis \( \beta = \phi^* = 0 \). In this joint test, the null hypothesis of DSP (i.e. \( H_0: \phi^* \text{ and } \beta = 0 \)) is tested against the alternative of TSP, i.e. \( H_1: \phi^* < 0 \text{ and } \beta \neq 0 \). Failure to reject this joint hypothesis implies that \( y_t \) is subject to a DSP process but not a TSP. Critical F-values are given by Dickey and Fuller (1981). These F-values are much higher than those in the standard F-tables.

Table 6.1.2  Results of Dickey-Fuller Joint Hypothesis Tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test Statistics</th>
<th>Critical Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGNP</td>
<td>3.26</td>
<td></td>
</tr>
<tr>
<td>LE</td>
<td>2.86</td>
<td>at 0.05: 6.90</td>
</tr>
<tr>
<td>LC</td>
<td>5.59</td>
<td></td>
</tr>
<tr>
<td>L(GNP/P)</td>
<td>5.57</td>
<td></td>
</tr>
<tr>
<td>L(E/P)</td>
<td>6.38</td>
<td></td>
</tr>
<tr>
<td>L(E/GNP)</td>
<td>6.28</td>
<td></td>
</tr>
</tbody>
</table>

* The related critical F-values taken from Dickey and Fuller (1981: 1603; Table 6) are 7.24 for 25 observations at 5% significance level, and 6.73 for 50 observations at 5% level of significance. Since we have 41 observations the suitable critical value can be calculated as approximately 6.90 at a 5% significance level.

After testing the six variables used in various versions of Wagner's Law, we cannot reject the null hypothesis of DSP at the 5% level of significance (see Table 6.1.2). Therefore, it is reasonable to say that the variables under examination are DSP. However, some of the calculated values (i.e. 5.59, 5.57, 6.38, 6.28), seem to be too high to claim that we have a pure DSP. A better explanation would be that they are DSP dominant mixed processes. As Charemza and Deadman (1992: 139) have argued, "statistical inference about
a stochastic trend is often combined with a deterministic trend”. In other words, a mixed (stochastic-deterministic) process is also possible.

In sum, the evidence suggests stationary series in first differences, so we can apply cointegration analysis to our data set.

### 6.1.3 Testing for Cointegration

A cointegration test can be applied to determine the existence of a long-run relationship between the variables. There are several tests of the cointegrating regression. Mainly these are: (i) CRDW which is the cointegrating regression Durbin-Watson statistic (derived from Sargan and Bhargava (1983)), (ii) the Dickey-Fuller test (DF), and (iii) the augmented Dickey Fuller tests (ADF). All three tests are used by Engle and Granger (1987) and Hall (1986). However, they (Engle and Granger and Hall) suggest that using the ADF test to test for unit roots in residuals is best. Hence, it was decided to use Engle and Granger’s residual based approach.6

The Engle and Granger (1987) two step procedure for modelling the relationship between cointegrated variables has received a great deal of attention in recent years. One of the benefits of this approach is that the long-run equilibrium relationship can be modelled by a straightforward regression involving the levels of the variables (Inder, 1993). According to Holden and Thomson (1992: 26), “this approach is attractive for two reasons: First, it reduces the number of coefficients to be estimated and so, reduces the problem of multicollinearity [Of course, this is not a problem with our model(s)]. Second, the first step can be estimated by ordinary least squares.”

---

6 There are other approaches as well, such as Johansen’s Full Information Maximum Likelihood (FIML) approach, and Stock and Watson’s (1988) approach.
Before testing for cointegration, that is, in order to establish the existence or otherwise of a long-run relationship between two economic time series, say \( x \) and \( y \), it is first necessary to test whether variables are integrated to the same order. Applying DF/ADF unit root tests (Table 6.1.1), we found that each of the variables used in all six versions of Wagner's Law is I(1). Since all series are integrated of the same order, the series can be tested for the existence of a long-run relationship between them, i.e. cointegration. The procedure used to establish the existence of a cointegrating relationship is as follows: First, the hypothesised long-run relationship(s) (e.g. \( ly = a + b lx \)) is (are) estimated by OLS. This is called the cointegrating regression. Second, the residuals from this regression are retained and the DF/ADF test is applied to the residuals, as follows:

\[
\Delta e_t = \phi^* e_{t-1} + \sum_{i=1}^{m} \phi^*_i \Delta e_{t-i} + v_t
\]  

(6.1.11)

and test \( H_0 : \phi^* = 0 \) against \( H_1 : \phi^* < 0 \) using appropriate critical values (e.g., MacKinnon, 1990, 1991). In other words, the null hypothesis of the cointegration test is that the series formed by the cointegrating regressions are not stationary. It is necessary to emphasise that the above equation has no intercept or time trend, since the \( \varepsilon, s \) must have a zero mean because we do not expect them to have a deterministic trend. The tests results can be seen in Table 6.1.3 below:
### Table 6.13  Cointegration Regressions and DF/ADF Tests

<table>
<thead>
<tr>
<th>Version of Wagner's L. Variable</th>
<th>Dependent</th>
<th>Coefficient of Explanatory V.</th>
<th>( R^2 )</th>
<th>CRDW ADF (*)</th>
<th>Critical Values **</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 LE</td>
<td>-4.06</td>
<td>1.23</td>
<td>0.975</td>
<td>0.93</td>
<td>-3.44 (0)</td>
</tr>
<tr>
<td>2 LC</td>
<td>-4.70</td>
<td>1.27</td>
<td>0.966</td>
<td>0.93</td>
<td>-3.66 (0)</td>
</tr>
<tr>
<td>3 LE</td>
<td>-7.88</td>
<td>2.25</td>
<td>0.967</td>
<td>0.80</td>
<td>-3.09 (0)</td>
</tr>
<tr>
<td>4 L(E/GNP)</td>
<td>-4.74</td>
<td>0.41</td>
<td>0.556</td>
<td>0.91</td>
<td>-3.38 (0)</td>
</tr>
<tr>
<td>5 L(E/P)</td>
<td>-4.75</td>
<td>1.42</td>
<td>0.936</td>
<td>0.91</td>
<td>-3.37 (0)</td>
</tr>
<tr>
<td>6 L(E/GNP)</td>
<td>-4.06</td>
<td>0.23</td>
<td>0.573</td>
<td>0.92</td>
<td>-3.44 (0)</td>
</tr>
</tbody>
</table>

*Number of lags (in parentheses) were chosen by the Akaike Information Criterion.

** Critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 3.0.

Before interpreting the cointegration results, it is necessary to emphasise that the Engle-Granger method does not prove whether the relation(s) is (are) really a long run one(s). This is an assumption and cannot be statistically verified. We need to have a strong belief in a long run equilibrium relationship between the variables that is supported by relevant economic theory where the theory suggests a suitable assumption about a long run relationship (Charemza and Deadman, 1992).

The null hypothesis of the cointegration test is that the series formed by the residuals of each of the cointegrating regressions is not stationary. To test the null hypothesis of non-stationarity of the residuals, the DF/ADF unit root tests are employed on the residuals of each of the six cointegrating regressions. Table 6.1.4 presents the results of the DF/ADF unit-root tests for the residuals series from the six cointegrating 'Wagner's Law' regressions. We cannot reject the null hypothesis of nonstationarity for five out of six versions of Wagner's Law. The 5% critical values (MacKinnon, 1991) are bigger (in absolute terms) than the calculated t-values. The null hypothesis of non-stationarity can be rejected in version 2 only (Pryor's version. See Table 6.1). If we use Charemza and Deadman's critical values which are -3.92
(lower limit) and -3.80 (upper limit), we failed to reject the null hypothesis in version 2 as well. These results show that there is no long-run relationship between public expenditure and GNP in Turkey for all six versions of Wagner’s Law.

The real income elasticities for non-ratio versions are all greater than unity, while for ratio versions they are greater than zero. These results imply that all versions support Wagner’s Law. However, since the variables are not cointegrated in 5 out of six versions of Wagner’s Law, these results should be regarded as unreliable and based on spurious regression results. Therefore, a regression specified in the levels of the variable will lead to inconsistent estimates.

Although, our findings, fail to reject the null hypothesis of no long-run relationship between the variables, we have to treat these results with caution. We need to consider the weaknesses and limitations of cointegration analysis. The findings of non-cointegration do not exclude the possibility of cointegration in some higher order system that includes more variables such as relative prices, demographic variables, dependency ratio, manufacturing ratio, agricultural ratio. We will consider some of them in chapter 7. The omission of important variables may produce the non-cointegration result. As Muscatelli and Hurn (1992: 12) pointed out, "... the omission or inclusion of certain variables from the cointegration regression can dramatically affect the results obtained from cointegrating regressions."

Our inability to observe a long-run relationship between the public expenditure and GNP may be the result of a number of factors and not necessarily a rejection of the existence of a cointegrated system. The Dickey-Fuller procedure used in testing may not have sufficient power against the alternative hypothesis to allow measurement of the long-run relationship.
According to Blangiewicz and Charemza (1990: 314), "...very little is known about power of cointegration tests for small samples". Therefore, static OLS cointegrating regression results may produce important bias in small samples (Banerjee et al., 1986; Perman, 1991). In other words, the data period analysed may not be sufficiently long to fully capture the long-run relationship. Although our statistical procedure measures no long-run relationship we suspect that this result should be interpreted cautiously. However, without evidence of cointegration an error correction procedure to model short-run dynamics cannot be used. However, it is possible to continue to model the short-term dynamics by applying Granger test to measure for possible causal relationships between variables (Ansari et al., 1997). In the following subsection, we will apply Granger causality test.

6.2 Causality Between Public Expenditure and National Income and Wagner's Law

Economists have been interested in the relationship between public expenditure and national income for a long time (e.g., Wagner (1883); Peacock and Wiseman (1961, 1979); Gupta (1967, 1968); Ram (1986, 1987); Gemmell (1990) among others). On the one hand, public expenditure is seen as an exogenous factor, which can be used as a policy instrument to influence the level of national income (Keynesian approach). On the other hand, public expenditure is seen as an endogenous factor or as an outcome, not a cause of growth in national income (Wagnerian approach). The standard empirical approach used to evaluate the two different approaches has been to apply causality testing techniques in the Granger (1969) sense. Studies of the direction of causality between income and public expenditure are quite new. In the public finance literature, the casual link between public expenditure and national income was first examined by Singh and Sahni (1984) and Sahni and Singh (1984). These two pioneering studies, which applied the Granger causality test to public expenditure and national income, were each confined
to one country. They conducted causality tests using annual data for Canada and India respectively covering a 30 year period from 1950 to 1980/81. Since then, causality studies of the relationship between public expenditure and national income growth have had a central place in modern public expenditure analysis. Granger causality tests have been carried out for both developed and developing countries with mixed results; in same cases, finding unidirectional causality from expenditure to income (or conversely), or finding no causal relationship or finding a bidirectional causality between two aggregate variables (e.g., Ansari et al (1997); Oxley (1994); Khan (1990); Ram (1986); Sahni and Singh (1984); Singh and Sahni (1984)).

As Karavitis (1987) has argued, the necessity of causality tests in the field of public expenditure growth can be considered by using Wagner's law as an example. Despite its several interpretations (see Chapter 2), the original formulation of Wagner's Law appears to imply that in the wake of economic development, government expenditure increases not merely in size but also as percentage of national income. The causality in Wagner's Law runs from national income to public expenditure. In other words, support for Wagner's Law requires unidirectional causality from GNP (and GNP/P) to public expenditure.

Singh and Sahni (1984: 630) argue that the relationship between public expenditure and national income has been treated differently in two major areas of economic analysis. While public finance studies have generally postulated that growth in public expenditure is caused by growth in national income, most macroeconometric models have tended to take the view that income growth is determined, in part, by growth in public expenditure. These different views of the causal relation between the two variables, in turn, rest on more basic differences in assumptions. Public finance studies, following Wagner, have considered public expenditure as a behavioural
variable, similar to private consumption expenditure. By contrast, macroeconometric models, essentially following Keynes, have treated public expenditure as an exogenous policy instrument designed to correct short-term cyclical fluctuations in aggregate expenditures.

Rarely has the assumed causal process been subjected to rigorous empirical testing. Purely a priori judgements for choosing between the two competing postulates are rendered difficult because of the possibility of feedback in macro relations which tend to obscure both the direction and the nature of causality. As a result, both types of studies are viewed with a great deal of scepticism.

It is clear that knowledge of the true nature of the causal process will help determine the robustness of the estimated relationships in these studies. Should the causality be Wagnerian, the estimates derived from macroeconometric models would evidently suffer from simultaneity bias. On the other hand, if the causality is Keynesian, the estimates reported in public finance studies would similarly be biased. In addition, knowledge of the precise causal process has important policy implications. For example, if the causality were Wagnerian, public expenditure is relegated to a passive role. In other words, public expenditure plays no role in economic growth, and therefore cannot be relied upon as a policy instrument. If Keynesian, it acquires the status of an important policy variable. In this case, public expenditure becomes a policy variable which can be used to influence economic growth. Relying on this Keynesian hypothesis, many developing countries, such as Turkey, have assigned to their public sector the role of promoting growth and economic development.

One of the critiques of the role of the public sector is that government is less efficient than market forces in allocating resources. Moreover, the regulatory
process and, for that matter monetary and fiscal policies, can potentially distort the incentive system. As argued by Ansari et al.,

it is not necessary that either Wagner's hypothesis, with causal ordering from national income to expenditure, or Keynes's hypothesis, with causal ordering from expenditure to national income hold true. Nor, for that matter, are the two propositions mutually exclusive. On the one hand, if government obligations call for a smoother expenditure pattern than that which is possible given the variation in national income (financed, say, through debt borrowing), the causal link from national income to expenditure will be lessened. On the other hand, government expenditure can crowd out private expenditure thus reducing the causal link from expenditure to national income. Sorting out the causal relationship between government expenditure and national income is essential if the effectiveness of public expenditure as a policy instrument for economic development is to be assessed (Ansari et al., 1997:544).

Whether changes in national income growth help predict changes in public expenditure growth (and/or vice versa) remains an important issue of sustained interest in the empirical public finance literature. In recent years, attention has been mainly confined to two specific areas, namely, estimation of the impact of the public sector on output growth (by means of regression analysis) and causality testing. Unfortunately, the outcome of both types of analysis has been inconclusive (Ahsan et al., 1992). More recently, cointegration studies have started to appear in the literature as a new development in time series analysis.

Causality studies based on Wagner's reasoning is hypothesised to run from GNP (and/or GNP/P) to the dependent variable which takes four different forms: E, C, E/P, E/GNP. We also look at the Keynesian approach which assumes that causality is hypothesised to run from public expenditure to GNP. Wagner's Law requires that public expenditure does not cause GNP, because of that it is necessary to apply bivariate causality testing.
6.2.1 Granger Causality Test

Although there is some evidence that various measures of public expenditure and GNP (and GNP/P) are nonstationary, and noncointegrated, it is still possible to apply the Granger causality test, using I(0) series. In other words, we can use changes in GNP and public expenditure in order to apply Granger causality test.

In section 6.1.4, for each version of Wagner's Law, the ADF statistic cannot reject the null hypothesis of no cointegration and this conclusion leads us to say that a long-run equilibrium relationship between public expenditure and GNP for Turkey over the study period does not exist. In the absence of a long-run relationship between the variables, it still remains of interest to examine the short-run linkages between them (Manning and Adriacanos, 1993; Gemmell, 1990). However, without evidence of cointegration an error-correction procedure cannot be used to model short-run relationship between national income and public expenditure (Ansari et al., 1997). However, it may still be possible to model short-run behaviour of the relationship between national income and public expenditure applying the Granger causality test. That is, even though a long-run relationship between the two macro variables cannot be established for this time period, it may still be possible that the variables are causally related in the short-run.

In economics, systematic testing and determination of causal directions only became possible after an operational framework was developed by Granger (1969) and Sims (1972). Their approach is crucially based on the axiom that the past and present may cause the future but the future cannot cause the past (Granger, 1980).

In econometrics the most widely used operational definition of causality is the Granger definition of causality, which is defined as follows:
x is a Granger cause of y (denoted as \( x \rightarrow y \)), if present y can be predicted with better accuracy by using past values of x rather than by not doing so, other information being identical (Charemza and Deadman, 1992:190).

If event A happens after event B, it is assumed that A cannot have caused B. At the same time, if A happens before B, it does not necessarily mean that A causes B. For example, the weatherman’s prediction occurs before the rain. This does not mean that the weatherman causes the rain. In practice, we observe A and B as time series and we would like to know whether A precedes B, or B precedes A.

In the literature, there are various tests for determining Granger causality in a bivariate system. Among them, Guilkey and Salemi (1982) and Geweke-Meese-Dent (1983) recommend the use of the ordinary least squares version of the Granger test, because of its ease of implementation, power, and robustness in finite samples.

There are a number of causality studies in the field of public expenditure. However, very few of them (e.g. Henrekson (1992); Afxentiou and Serletis (1992); Murthy (1993); Oxley (1994); Ansari et al. (1997)) have checked for the time series properties and especially cointegrating properties of the time series involved. As Bahmani-Oskooee and Alse (1993: 536) pointed out, "Standard Granger or Sims tests are only valid if the original time series from which growth rates are generated are not cointegrated". Therefore, it is necessary to check for the cointegrating properties of the public expenditure and GNP before using the simple Granger test. Since we have applied cointegration tests earlier in this chapter (6.1.4) and have found no evidence of a cointegrating relationship in any of the equations, it is now possible to apply causality testing.
If the null hypothesis of noncointegration between $Y_t$ (public expenditure) and $X_t$ (GNP or GNP/P) cannot be rejected, then the standard Granger causality test can be employed to examine the causal relationship between the series (using the variables in first differences) (Mahdavi et al., 1994). Following this statement we can test the hypothesis that GNP growth, labelled ($\Delta LX$), causes public expenditure growth, labelled ($\Delta LY$), and vice versa, by constructing the following causal models:

$$\Delta LY_t = \alpha + \sum_{i=1}^{m} \beta_i \Delta LY_{t-i} + \sum_{i=1}^{n} \delta_i \Delta LX_{t-i} + e_t \tag{6.2.1}$$

$$\Delta LX_t = a + \sum_{j=1}^{q} b_j \Delta LX_{t-j} + \sum_{j=1}^{r} c_j \Delta LY_{t-j} + v_t \tag{6.2.2}$$

where $e_t$ and $v_t$ are two uncorrelated white-noise series and $m, n$ and $q, r$ are the maximum number of lags. It is well known that the causality literature assumes stationarity of the time series being examined. In subsection 6.1.4., we found that the variables were non stationary in levels, but stationary in first differences. Because of that we will apply Granger causality using the variables in first differences of the logarithms of the variables which are stationary (i.e. $I(0)$). One can use the standard F-test in order to determine the causal relationship between the variables. Interchanging the causal and the dependent variables in the regression equation allows a test for bi-directional causality.

Four findings are possible in a Granger causality test: (i) neither variable "Granger causes" the other. In other words, independence is suggested that when the sets of $X$ and $Y$ coefficients are not statistically significant in both regressions; (ii) unidirectional causality from $X$ to $Y$: That is, $X$ causes $Y$, but not vice versa (in this case Wagner's Law applies); (iii) unidirectional causality from $Y$ to $X$: That is, $Y$ causes $X$, but not vice versa (Keynesian modelling is valid in that case); (iv) $X$ and $Y$ "Granger cause" each other. If
(iv) is found to be true, there is a feedback effect (or bilateral causality) between two variables (Miller and Russek (1990); Gujarati (1995)). So neither the Keynesian or Wagnerian approach is valid. According to the above equations (6.2.1 and 6.2.2), the null hypothesis that \( X \) does not Granger Cause \( Y \) is rejected if the coefficients of \( \delta_i \)'s in equation 6.2.1 are jointly significant (i.e. \( \delta_i = 0 \)), based on the standard F-test. The null hypothesis that \( Y \) does not Granger cause \( X \) is rejected if the \( c_j \)'s are jointly significant (i.e. \( c_j \neq 0 \)) in equation 6.2.2. And if both some \( \delta_i \neq 0 \), and some \( c_j \neq 0 \) then there is feedback between \( Y \) and \( X \).

6.2.2 Empirical Results

The Granger causality test results are presented in Table 6.2.1. The results include the six versions of Wagner's Law which are in presented in Table 6.1.

In the tests, causality is hypothesised to run from GNP (or GNP/P) to the dependent variable, which takes four different forms; E, C, E/GNP, E/P. In other words, the hypothesis that GNP causes Public expenditure requires that Public Expenditure does not cause GNP.\(^7\) The tests are carried out using the first differences of each series (i.e., the stationary values).

The difficulty in fitting models 6.2.1 and 6.2.2 revolves around determining the appropriate lag lengths (i.e. \( m \), and \( n \) in equation 6.2.1; \( q \) and \( r \) in equation 6.2.2.). In the literature both lags are frequently chosen to have the same value, and lag lengths of 1, 2, 3 and 4 are usually used. There are several criteria to determine “optimum” lag lengths, such as Akaike’s Information criterion, Akaike’s FPE, and the Schwarz criterion. Following Afxentiou and Serletis (1992), we have chosen four different commonly chosen lag lengths - 1, 2, 3, and 4 lags.

\(^7\) As discussed Chapter 3, transfers are included in public expenditure.
The null hypothesis of noncausality is tested using F-statistics. The results of F-tests are presented in Table 6.2.1. The results in Table 6.2.1 indicate that there is no evidence to support either Wagner’s Law in any of its versions or Keynesian hypothesis.

Table 6.2.1  The Results of Granger Causality tests on the Six Versions of Wagner’s Law

<table>
<thead>
<tr>
<th>Version of Wagner's Law</th>
<th>Null Hypothesis</th>
<th>F Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 Lag</td>
</tr>
<tr>
<td>1</td>
<td>ΔLGNP does not cause ΔLE</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>ΔLE does not cause ΔLGNP</td>
<td>0.02</td>
</tr>
<tr>
<td>2</td>
<td>ΔLGNP does not cause ΔLC</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>ΔLC does not cause ΔLGNP</td>
<td>0.02</td>
</tr>
<tr>
<td>3</td>
<td>ΔL(GNP/P) does not cause ΔLE</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>ΔLE does not cause ΔL(GNP/P)</td>
<td>0.027</td>
</tr>
<tr>
<td>4</td>
<td>ΔL(GNP/P) does not cause ΔL(E/GNP)</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>ΔL(E/GNP) does not cause ΔL(GNP/P)</td>
<td>0.02</td>
</tr>
<tr>
<td>5</td>
<td>ΔL(GNP/P) does not cause ΔL(E/P)</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>ΔL(E/P) does not cause ΔL(GNP/P)</td>
<td>0.02</td>
</tr>
<tr>
<td>6</td>
<td>ΔLGNP does not cause ΔL(E/GNP)</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>ΔL(E/GNP) does not cause ΔLGNP</td>
<td>0.02</td>
</tr>
</tbody>
</table>

The degrees of freedom for the F distribution under the null are (1, 36), (2, 33), (3, 30), (4, 27) for the 1, 2, 3, and 4 lag cases respectively. The related F-critical values at 5% significance level are (4.11), (3.30), (2.92) and (2.73) respectively.

The data are deflated using the GNP deflator.

As Ansari (1997: 549) argued, "[m]any factors can of course lessen the causal relationship between the two macro variables, the least of which is the form of government expenditure itself. Expenditure on foreign military hardware will help little, but expenditure on health, education, roads, bridges and port facilities can do much to encourage growth and development in the economy. However, government expenditure on such investments can impact on
interest rates and crowd out private expenditure on other investments”. In addition, other factors also influence the relationship such as sanctions after the 1974 Cyprus conflict and military coups.

In testing for causality, the lags were chosen in advance, that is, arbitrarily. Even though this procedure is commonly applied in empirical studies, there are some criticisms about this way of choosing lag length. Arbitrary lag specifications can produce misleading results, and so we must treat the results with caution. That is, the Granger causality test is very sensitive to the number of lags used in the analysis. Considering this point, in order to determine the appropriate lag structure, one can use one of the appropriate lag length criteria such as Schwarz’s criterion. We have looked at AIC as well. Most of the cases, one lag was chosen by AIC. However, the results were not changed at all.

The conclusion that we have reached, based on the econometric method and data set used, is that there is no evidence to support either Wagner’s Law or Keynes’s hypothesis.

6.3 The Displacement Effect: An Empirical Test

The main objective of this section is to test whether the war between Turkey and Cyprus in 1974 caused a displacement effect in Turkish public expenditure. As discussed in Chapter 3.3, there are several versions of the displacement hypothesis. Peacock and Wiseman (1961) introduced this hypothesis in a study of British data between 1890 and 1955. However, they claim that it “give[s] us an approach to the subject that might be equally fruitful in studying other countries or periods” (Peacock and Wiseman, 1961: 25). As argued in chapter 3, according to Nagarajan (1979: 102), “…a ‘non-global’ social upheaval is likely to have a greater impact, in terms of the magnitude of social disturbances at the national level in many developing
countries". In this context, several authors have argued that some interstate wars (e.g., the 1904-1905 Russo-Japanese War for Japan and the 1962 Indo-Chinese War for India) had greater impacts on public expenditure patterns than some of the twentieth-century’s global wars (Rasler and Thomson, 1989).

The displacement hypothesis essentially tries to explain fundamental breaks during the course of the history of fiscal activity. The important point is that the time profile of public expenditure is discontinuous and displays step-wise features that are caused by major social disturbances, such as wars, depressions, revolutions, military interventions, and sudden political change (Afxentiou, 1987; Tussing and Henning, 1991).

Although there are some disagreements over the interpretation of the displacement hypothesis, there is agreement on the point that displacement implies a more or less permanent change, whether a 'shift' or a 'break' (Tussing and Henning, 1991). In this context, we can describe two testable versions of the displacement hypothesis (Henrekson, 1990; Nagarajan, 1979) as follows:

i) Real absolute public expenditure per capita evolves in a step like pattern, where the movement from one step to another coincides with major social disturbances.

ii) Public expenditure as a share of national income evolves in this same pattern. In other words, Peacock and Wiseman’s displacement hypothesis offers a plausible explanation of some of sudden changes in the ratio of public expenditure to GNP.

Peacock and Wiseman’s thoughts evolved into a scheme of structural breaks, the essence of which is that the normal assumption of ceteris paribus, that is, tastes, preferences and institutions remaining constant, no longer holds after a social upheaval; it is the changes in these parameters that constitute the break.
Historical examples (e.g., England and India) show that the displacement effect is a common phenomenon, but the reasons that give rise to it are likely to vary from one country to other (Afxentiou, 1987).

Turkey is a developing country. Because of data inadequacies the study period is from 1950 to 1990 only. In that period there were several events that we could call 'non-global' social upheavals. In terms of public expenditure growth, the most important may be the war between Cyprus and Turkey in 1974.8 Other events which might generate a displacement effect are: (i) the 1960 military intervention (and/or the change in economic policy from the liberal era to the planning era) in 1960, (ii) the first oil price shock in 1973-74 (of course, it is almost impossible to separate it from Cyprus conflict using annual data), and (iii) the military coup (and/or the radical change in economic policy) in 1980.

In order to test the displacement hypothesis, the variable we use is LRTPE, i.e. ratio of public expenditure to GNP and LRPEPC, i.e. real per capita public expenditure. The ratio of the nominal values could be interpreted as a ratio of real outputs when both nominal GNP and nominal expenditure values are deflated by the same deflator (Ferris and West, 1996).

The original Peacock and Wiseman hypothesis focuses on the development of public expenditures over time and so time is the vital component of any model for testing the hypothesis. In order to account for the effect of the war (or social upheaval), the war year[s] should be modelled instead of being simply excluded from the data set, as has been the case in the work of other researchers. Therefore, within the confines of the Peacock and Wiseman

8 Afxentiou (1987) found evidence of a displacement effect on public expenditure in Cyprus because of this war.
hypothesis, it can be said that a time series approach is the most appropriate (Henrekson, 1992).

6.3.1 Perron Integration Level Test for a Structural Break

The potential existence of structural breaks makes the testing for the order of integration of a series by Dickey-Fuller tests unreliable. Perron (1989, 1990) and Perron and Vogelsang (1992) have indicated that a structural change in the mean of a stationary variable will tend to bias the Dickey Fuller and augmented Dickey-Fuller tests towards non-rejection of the null of a unit root in the process. In other words, "...in the presence of such a break, one may conclude that a process is I(1) whereas in fact it is I(0) (albeit with a change in mean at some known point)" (Charemza and Deadman, 1997: 119).

According to Perron (1989), standard tests of the unit root hypothesis against the alternative of stationary fluctuations around a deterministic trend cannot reject the unit root hypothesis if the true data generating mechanism is trend stationary with a one time break.

A structural break is a sort of exogenous intervention in the series. If we ignore this break, it can lead to an inadequate model specification and "spurious unit roots". Perron proposes an integration level test for a series subject to a structural break, and Rybinski (1995) provides the appropriate critical values for small samples. According to Perron (1989: 1363), "[this] approach is in the spirit of the intervention analysis suggested Box and Tiao (1975)". The test can be regarded as an improvement in the direction of searching and creating more informative economic time series. If a "spurious unit root" is found, (i.e. the structural break changes the integration level of the variable in question) the next step would be to remove this effect by applying Box and Tiao (1975) type "intervention analysis". In order to see whether it is necessary to do this, we first apply the Perron Integration Level
Test for a structural break in the series. After examining the Perron test result, if there is evidence of a structural break in the series (e.g. the integration level of the series has changed), then we can move to Box-Tiao type intervention analysis (Ghatak and Utkulu, 1993).

In practice, the effect of interventions on data series is usually modelled by a combination of "step" and "pulse" functions. The former refer to dummy variables which take the value of zero before the event happening, and unity afterwards. A pulse variable is a dummy variable which takes the value of unity only at the moment of intervention, and zero otherwise (Charemza and Deadman, 1997).

Perron (1989) suggests two types of model: an "additive outlier" model and an "innovational outlier" model. The former is recommended for series exhibiting a sudden change in mean and the latter is appropriate if the change takes place gradually. I decided to apply an 'additive outlier' model, because it can be hypothesised that the effect of the war was sudden. We have assumed that because of the 1974 Cyprus war, there might be a structural break in 1974 in the examined series. Such a change can be analysed by 'intervention analysis'.

Estimation of an additive outlier model (where the break point is known) is a two step technique. In the first step, we compute residuals from the OLS regression:

\[ y_t = \mu + \delta DU_t + \epsilon_t \]  

(6.2.1)

where

\[ DU_t = 1 \text{ if } t > T_b, \text{ otherwise } DU = 0, \text{ and} \]

---

9 Intervention analysis is a data thirsty technique. According to Pyle and Deadman (1993), in order to run intervention analysis properly, we need about 100 observations; and also data set must not be lopsided i.e. pre and post-intervention time periods must be approximately the same.
$T_b$ is the point where the break occurs, and $DU$ is a dummy variable.

In the second step, it is necessary to compute the regression:

$$
\Delta e_t = \omega D(TB)_t + \lambda e_{t-1} + \varepsilon_t
$$

(6.2.2)

where

$$D(TB)_t = 1, \text{ if } t = T_b + 1, \text{ otherwise } D(TB) = 0.$$  

Then, we test for the negativity of $\lambda$ (tables of critical values are given by Rybinski (1995)), where $\lambda$ is the ratio of $T_b$ to the sample size, $T$.

In this test procedure, the dummy (zero-one) variable in an $I(1)$ process represents a shift of the process, not a unitary shock.

By applying the Perron test, we remove the effect of the break from the time series and then apply the standard DF/ADF integration test procedure in order to see whether structural break has changed the integration level.

### 6.3.2 Empirical Results

With respect to the series we are investigating, three possible break points come into mind. These are (i) the Cyprus conflict in 1974, (ii) the military coup (and/or a significant change in economic policy from liberal era to the planning era) in 1960, and (iii) the military coup (and/or the radical change in economic policy) in 1980. It is possible to consider oil price shock in 1973-1974, but it is almost impossible to separate it from the Cyprus conflict. Since we cannot test for three possible break points simultaneously, we have decided to run separate Perron-tests for each of these possible break points. Whilst the approach followed here may not be strictly valid, it gives an indication of the problem at hand (Hayo, 1996). Results of the Perron additive outlier test are presented in Table 6.3.1.
Table 6.3.1  **Perron Additive Outlier Integration Test for a Structural Break**

<table>
<thead>
<tr>
<th>Variables and Break Years</th>
<th>In Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td></td>
</tr>
<tr>
<td>LRPEPC</td>
<td>-1.21</td>
</tr>
<tr>
<td>LRTPE</td>
<td>-2.44</td>
</tr>
<tr>
<td>1960</td>
<td></td>
</tr>
<tr>
<td>LRPEPC</td>
<td>-0.21</td>
</tr>
<tr>
<td>LRTPE</td>
<td>-1.60</td>
</tr>
<tr>
<td>1980</td>
<td></td>
</tr>
<tr>
<td>LRPEPC</td>
<td>0.85</td>
</tr>
<tr>
<td>LRTPE</td>
<td>-2.21</td>
</tr>
</tbody>
</table>

\[ \lambda = T_b / T = 0.6 \text{ (break in 1974), } 0.3 \text{ (break in 1960), and } 0.8 \text{ (break in 1980) and related critical values (at 5% significance level) taken from Rybinski (1994) are } -3.55, -3.5, \text{ and } -3.28 \text{ for 40 observations respectively. } \]

\[ T_b \text{ is the point where the break occurs.} \]

Table 6.3.1 shows the results of estimating an additive outlier model with a known break time (\( T_b = 1974 \)). We also looked at the other possible break years such as 1960 and 1980. The results in Table 6.3.1 lead to the rejection of the unit root at the 5% level. These results suggest that there seems to be no 'spurious root' created artificially by a possible break occurring in 1974 as a result of Cyprus war. The results are the same for 1960 and 1980. Since the effects of these exogenous breaks on the variables in question are insignificant, we conclude that there are no spurious unit roots generated by exogenous breaks in the examined time series. In other words, the results of Perron additive outlier tests indicate that the 1974 Cyprus conflict, the 1960 military coup and the 1980 military coup do not have any clear effect on both series. Consequently, we can interpret these results as meaning that there is no evidence for a structural break(s) in the examined LRTPE and LRPEPC series as a consequence of events which were mentioned above. However,
we will reconsider the displacement effect hypothesis in the next chapter using dummies and incorporating other explanatory variables.

6.4 Wagner’s Law and Causality between Public Expenditure and National Income: Cointegration and Error-Correction Analysis Using Disaggregated Data

In subsections 6.1-6.3 above, using aggregate data, neither Wagner’s Law nor Peacock and Wiseman’s displacement hypothesis gave any clear answer to the phenomenon of growth of public expenditure in Turkey for the period 1950-1990. Some scholars such as Pryor (1968); Musgrave (1969); Bird (1970); Mahar and Rezende, (1975) and Jackson (1990), in analysing the public expenditure growth issue, have suggested that a more fruitful approach might be through analysis of disaggregated data.

A point of dispute concerns the type of disaggregation which is most useful and the argument centres around the relative merits of functional (e.g. defence, social services, economic services) versus economic (consumption, capital formation, transfers, subsidies) groupings of expenditure. For example, while Bird (1970) and Pryor (1968) appear to favour functional groupings, Musgrave (1969) appears to favour economic groupings. Each method of disaggregation is supposed to offer something that the other does not. So it is possible to consider the two basic approaches as complementary. For instance, Musgrave has disaggregated public expenditure into consumption, investment and transfers. Then he has considered how forces which have coincided with development might have encouraged expansion or contraction in these expenditures. Following these recommendations, we attempt here to apply cointegration tests to both components of economic and functional classifications of public expenditure, to see whether the findings in chapter 6 are changed.
In order to understand why public expenditure in Turkey has risen so dramatically, we examine the components of public expenditures, both in economic and functional classifications. It is possible that these components can show different growth rates both in magnitude and in terms of the time pattern of growth. Therefore, it was hypothesised that it would be unlikely that all components of public expenditure could be explained by same factors. Although aggregate data did not support Wagner's Law and Peacock and Wiseman displacement hypothesis, it will be a good exercise to analyse disaggregated data using the methods of cointegration and causality testing (or causality testing with error-correction mechanism).

The disaggregation of total public expenditures by economic classification used in this study is as follows: current expenditure (CE), investment expenditure (IE) and transfers expenditure (TE). The functional classification is into general administrative expenditure (GAE), health expenditure (HE), education expenditure (EE), infrastructure expenditure (INF) and defence expenditure (DE). Data sets for the economic classification are for the period 1950-1990 and for the functional classification are for the period 1950-1983, because of data unavailability.

6.4.1 **Empirical Methodology: Cointegration and Granger Causality with Error-Correction Mechanism**

Since we have explained cointegration analysis and standard causality testing above, we will concentrate on Granger causality with error-correction mechanism. For cointegration-error-correction analysis using disaggregated data, we will use equations 6.4.1a and 6.4.1b below for each component of public expenditure:

First we have to apply OLS to the cointegration regressions in both (causal) directions for Wagner's Law.
where $LY_t$ is the logarithm of the component of public expenditure with regard to GNP, and $LX_t$ is the logarithm of real GNP per capita. We use Musgrave's (1969) version of Wagner's Law which has been interpreted to mean that the ratio of total public expenditure to GNP is a function of (real) per capita income. Support for Wagner's Law would require $\beta_i > 0$. Since Wagner's Law requires unidirectional causality from income to public expenditure, in order to detect unidirectional causality we should look at the reverse regression as well (equation 6.4.1b) for both economic and functional categories.

Engle and Granger's (1987) cointegration technique made a significant contribution towards testing Granger-causality. According to this technique, if a pair of I(1) series are cointegrated, there must be causation in at least one direction (Granger, 1988). Evidence of cointegration among variables also rules out the possibility of the estimated relationship being 'spurious'. However, although cointegration indicates the presence or absence of Granger-causality between variables, it does not show the direction of causality between variables. The direction of Granger causality can be detected through the error correction mechanism (Masih and Masih, 1996). However, as Granger (1988) argues, causality tests based on traditional time series techniques (i.e. Granger and Sims tests) can reach incorrect conclusions about causality when time series are cointegrated. This is because the error correction terms are not included in the standard Granger or Sims tests. Before the appearance of error correction modelling, Granger causality was detected by Granger and Sims tests. The alternative test for Granger
causality, based on an error correction model that incorporates information from the cointegrated properties of the variables, is as follows:

$$\Delta L Y_t = a_1 + b_1 E C T_{t-1} + \sum_{i=1}^{\infty} \alpha_i \Delta L Y_{t-i} + \sum_{i=1}^{\infty} \beta_i \Delta L X_{t-i} + \epsilon_t$$  \hspace{1cm} (6.4.2)

Where \( \Delta \) indicates first differences and the error correction term \( E C T \), are from cointegration regressions as presented in Table 6.4.2. By including the error correction term in 6.4.2, the model introduces an additional channel through which Granger causality could be detected. For example, concentrating on equation 6.4.2, \( L X \) (e.g. \( L R G N P C \)) is said to Granger cause \( L Y \) (e.g. \( L T E \)) not only if the \( \beta_i \)'s are jointly significant, but also if \( b_1 \) is significant. In contrast to the standard Granger test, the error correction model allows for the finding that \( L X \) (i.e. \( L R G N P C \)) Granger causes \( L Y \) (e.g. \( L T E \)), as long as the error correction term carries a significant coefficient even if the \( \beta_i \)'s are not jointly significant (Granger, 1988).

According to Jones and Joulfaian (1991) the lagged changes in the independent variable describes the short-run causal impact, while the error correction term introduces the long-run impact. So, in addition to indicating the direction of causality among variables, the ECM approach helps us to distinguish between 'short-term' and 'long-term' Granger causality.

In short, according to the two step Engle and Granger technique, after establishing any cointegrating relationship between variables (in the first stage), in the second stage, the residuals from 6.4.1a and 6.4.1b (cointegration regressions) can be introduced into the error-correction model. Cointegration analysis and the error-correction mechanism provide additional channels through which causality can be detected. If the variables are not cointegrated, this would suggest the absence of a long-run causal relationship between
them. If the variables are cointegrated, we can examine Granger causality via an error-correction mechanism.

6.4.2 Public Expenditure by Economic Classification

As argued in chapter 6, a pre-requisite for testing for cointegration is to examine the time series properties of the individual variables examined. To do that, using the same methodology as in chapter 6, we will apply ADF unit root tests to the variables involved. The period is from 1950 to 1990 for economic categories. The results are shown in Table 6.4.1 for economic categories:

Table 6.4.1  ADF Unit Root Tests in Levels and First Differences for Disaggregated Data (Economic Classification)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levels</th>
<th>First Differences</th>
<th>Integration Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRGNPPC</td>
<td>-1.34</td>
<td>-2.9358</td>
<td>-6.50</td>
</tr>
<tr>
<td>LRCE</td>
<td>-3.29</td>
<td>-2.9422</td>
<td>-5.76</td>
</tr>
<tr>
<td>LRIE</td>
<td>-3.24</td>
<td>-2.9378</td>
<td>-5.76</td>
</tr>
<tr>
<td>LRTE</td>
<td>-1.29</td>
<td>-2.9358</td>
<td>-5.76</td>
</tr>
</tbody>
</table>

Where LRGNPPC, LRCE, LRIE and LRTE denote the natural logarithms of real gross national income per capita, ratio of current expenditure to GNP, ratio of investment expenditure to GNP and ratio of transfer expenditure to GNP respectively.

In order to apply cointegration analysis in the bivariate case the series must be of the same integration level. As can be seen from Table 6.4.1, some components of economic classification (LRCE and LRIE) are I(0) in levels. Hence, we cannot use them in a test of cointegration; because, if one variable is I(1) and the other is I(0), they can not be cointegrated and so there is no long-run relationship between them. However, LRTE and LRGNPPC are of the same integration level. They are not stationary in levels, but stationary in first differences. Therefore, we can use them in a cointegration regression.
Chapter 6

The two step Engle and Granger (1987) cointegration methodology employed in this study involves the estimation of the above regression equations (6.4.1a and 6.4.1b) in order to establish the long-run relationship between the variables involved, i.e. LRGNPPC and LTE for economic classification. Cointegration test results are presented in Table 6.4.2:

**Table 6.4.2  Cointegration Regressions and ADF Unit Root Tests**

(Economic Classification)

<table>
<thead>
<tr>
<th>Cointegration Regressions</th>
<th>Dependent Variable</th>
<th>Constant</th>
<th>Coeff.of Expl. Var.</th>
<th>CRDW</th>
<th>ADF</th>
<th>Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRTE = f(LRGNPPC)</td>
<td>LRTE</td>
<td>-6.40</td>
<td>1.15</td>
<td>0.75</td>
<td>1.01</td>
<td>-3.54 -3.4925</td>
</tr>
<tr>
<td>LRGNPPC=f(LRTE)</td>
<td>LRGNPPC</td>
<td>-0.50</td>
<td>0.66</td>
<td>0.75</td>
<td>0.78</td>
<td>-3.26 -3.4925</td>
</tr>
</tbody>
</table>

♦Critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 3.0.

Results shown in Table 6.4.2 suggest that, in the case of Turkey, there is cointegrating relationships between LRTE and LRGNPPC (the economic classification). However, after reversing the order (i.e. for second equation in Table 6.4.2), the relationship indicates no cointegration.10 In other words, the null hypothesis of non cointegration can be rejected in favour of cointegration only in the case of transfer expenditure as a dependent variable in economic classification. Since the income elasticity is positive in the cointegrated regression, the results appear to support the validity of Wagner’s Law. However, in order to accept this evidence, we should look at causality properties of the variables, since Wagner’s Law requires unidirectional causality from income to expenditure. It is indicated by Engle and Granger

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10 As Enders (1995) discussed, as the sample size grows infinitely large, asymptotic theory indicates that the test for unit root in both formulations (of Table 6.4.2 based on their error terms) become equivalent to each other. Unfortunately, the large sample properties on which this result is derived may not be applicable to the sample sizes usually available to economists. In practice it is possible to find that one regression indicates the variables are cointegrated, whereas reversing the order indicates no cointegration (Enders, 1995: 385).
(1987) that it is possible to draw inferences about causality between time series on the basis of ECMs. If two variables are cointegrated, causality must run in at least one direction between them, since one variable help to forecast the other.

On this basis, Granger causality tests for Wagner's Law, via, the error-correcting mechanism, is tested, in the case of LRTE and real gross national income per capita. The results of the Granger causality tests based on the error-correction model are shown in Table 6.4.3.

**Table 6.4.3**  *Granger Causality Tests from Error Correction Model (ECM): Disaggregated Data (Economic Classification)*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>for ECT(-1)</td>
<td>for ECT(-1)</td>
<td>for ∆LRGNPPC</td>
<td></td>
</tr>
<tr>
<td>ΔLTE</td>
<td>-0.34</td>
<td>-2.10*</td>
<td>NS</td>
</tr>
</tbody>
</table>

ECT(-1) denotes the error-correction term. D represents first differences.
* means 'significant at 5% level'.
NS means 'no significant lag found'.
Since cointegration not established the opposite direction (see Table 6.4.2), we did not run causality test in the opposite direction.

The findings of the causality tests, reported in Table 6.4.3, suggest that the growth of real GNP per capita has caused the increase of transfers. In other words, our empirical findings support Wagner's hypothesis in the case of transfers, while it is rejected in the case of other public expenditure components (economic classification). Considering Jones and Joulaian's (1991) interpretation, although there is no any short-run causal impact, error-corrections terms show the long-run causal impact. In other words, the short-run dynamics indicate that public transfer expenditures (i.e. LRTE) and real GNP per capita are unaffected by lagged changes in public transfer expenditures (i.e. LRTE) and real GNP per capita respectively. Thus, neither LRTE nor LRGNPPC respond to short-run dynamic channels of causality.
However, the empirical error-correction results give evidence in support of Wagner’s Law as the estimated coefficient of ECT is statistically significant in the case of transfers.

6.4.3 Public Expenditure by Functional Classification

Firstly, as we have done above, since a pre-requisite for testing for cointegration is to examine the time series properties of the individual variables examined, we will apply ADF unit root tests to the variables involved. The data period for functional classification is from 1950 to 1983. The results are shown in Table 6.4.4 for functional categories:

**Table 6.4.4 ADF Unit Root Tests in Levels and First Differences for Disaggregated Data (Functional Classification)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levels ADF</th>
<th>Critical Value</th>
<th>First Differences ADF</th>
<th>Critical Value</th>
<th>Integration Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRGAE</td>
<td>-2.62</td>
<td>-2.9528</td>
<td>-6.80</td>
<td>-2.9591</td>
<td>I(1)</td>
</tr>
<tr>
<td>LRHE</td>
<td>-3.93</td>
<td>-2.9528</td>
<td>-5.86</td>
<td>-2.9558</td>
<td>I(1)</td>
</tr>
<tr>
<td>LREE</td>
<td>1.57</td>
<td>-2.9528</td>
<td>-2.9558</td>
<td>I(0)</td>
<td></td>
</tr>
<tr>
<td>LRINF</td>
<td>-3.32</td>
<td>-2.9558</td>
<td>-2.9558</td>
<td>I(0)</td>
<td></td>
</tr>
<tr>
<td>LRDE</td>
<td>-4.74</td>
<td>-2.9528</td>
<td>-2.9528</td>
<td>I(0)</td>
<td></td>
</tr>
</tbody>
</table>

Where LRGAE, LRHE, LREE, LRINF and LRDE denote ratio of general administrative expenditure to GNP, ratio of health expenditure to GNP, ratio of education expenditure to GNP, ratio of infrastructure expenditure to GNP and ratio of defence expenditure to GNP respectively.

* Critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 3.0.

The components of the functional classification, as can be seen from Table 6.4.4, while LRHE, LRINF and LRDE are I(0), and only LRGAE and LREE are I(1). As argued above, in order to apply cointegration analysis in the bivariate case the series must be of the same integration level. Some components of functional classification, as can be seen from Table 6.4.4, LRHE, LRINF and LRDE are I(0) in levels, only LRGAE and LREE are I(1). We cannot use I(0) variables in a test of cointegration; because, as they can not
be cointegrated and so there is no long-run relationship between them. However, LRGAE and LRGNPPC are of the same integration level. They are not stationary in levels, but stationary in first differences. Therefore, we can use them in a cointegration regression. We only apply cointegration tests to those variables which are I(1). The two step Engle and Granger (1987) cointegration methodology involves the estimation of the above regression equations (6.4.1a and 6.4.1b) in order to establish the long-run relationship between the variables involved, i.e., LRGNPPC, LRGAE and LREE for functional classification. Cointegration test results are presented in Table 6.4.5:

Table 6.4.5  Cointegration Regressions and ADF Unit Root Tests  
(Functional Classification)

<table>
<thead>
<tr>
<th>Cointegration Regressions</th>
<th>Dependent Variable</th>
<th>Constant</th>
<th>Coeff.of Expl. Var.</th>
<th>R²</th>
<th>CRDW</th>
<th>ADF</th>
<th>Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRGAE=f(LRGNPPC) LRGAE</td>
<td></td>
<td>0.52</td>
<td>0.55</td>
<td>0.41</td>
<td>1.24</td>
<td>-4.20</td>
<td>-3.5267</td>
</tr>
<tr>
<td>LRGNPPC=f(LRTE) LRGNPPC</td>
<td></td>
<td>1.59</td>
<td>0.748</td>
<td>0.41</td>
<td>0.54</td>
<td>-2.94</td>
<td>-3.5267</td>
</tr>
<tr>
<td>LREE=f(LRGNPPC) LREE</td>
<td></td>
<td>-1.27</td>
<td>0.72</td>
<td>0.61</td>
<td>0.48</td>
<td>-1.76</td>
<td>-3.5267</td>
</tr>
<tr>
<td>LRGNPPC=f(LREE) LRGNPPC</td>
<td></td>
<td>2.39</td>
<td>0.85</td>
<td>0.61</td>
<td>0.32</td>
<td>-1.25</td>
<td>-3.5267</td>
</tr>
</tbody>
</table>

Critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIIT 3.0. Variables are same variables as in Table 6.4.4.

Results shown in Table 6.4.5 suggest that, there is a cointegrating relationships between LRGAE and LRGNPPC, but not vice versa. In other words, the null hypothesis of non cointegration can be rejected in favour of cointegration only in the case of general administrative expenditure, but not for LREE. Since income elasticity is greater than zero (i.e., 0.55) in this cointegrated regression, the results appear to support the validity of Wagner's Law. However, in order to accept this evidence, we should look at causality
properties of the variables, since Wagner's Law requires unidirectional causality from income to expenditure.

The results of the Granger causality tests based on the error-correction model are shown in Table 6.4.6.

Table 6.4.6  Granger Causality Tests from Error Correction Model (ECM): Disaggregated Data (Functional Classification)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Coefficient for ECT(-1)</th>
<th>t-statistic</th>
<th>F-statistic</th>
<th>Coefficient for ECT(-1)</th>
<th>t-statistic</th>
<th>F-statistic</th>
<th>Coefficient for SALRGNPPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALRGAE</td>
<td>-0.68</td>
<td>-3.89**</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ECT(-1) denotes the error-correction term. D represents first differences.
** means 'significant at 1% level'.
NS means 'no significant lag found'.

The findings of the causality tests, reported in Table 6.4.6, suggest that the growth of real GNP per capita has caused the increase of general administrative expenditure. In other words, in terms of functional classification, our empirical findings support Wagner's hypothesis in the case of general administration expenditures, while it is rejected in the case of other public expenditure components. As we argued above, although there is no short-run causal impact, error-corrections terms show the long-run causal impact. In other words, the short-run dynamics indicate that LRGAE) and real GNP per capita are unaffected by lagged changes in LRGAE and real GNP per capita respectively. Thus, neither LRGAE nor LRGNPPC respond to short-run dynamic channels of causality. However, the empirical error-correction results give evidence to support for Wagner's Law as the estimated coefficient of ECTs are statistically significant in the case of general administrative expenditure equation in functional classification.
In this section, after examining the components of public expenditure both in economic and functional classifications, our results show that there is some limited evidence to explain the growth of public expenditure in terms of Wagner's Law in Turkey during the study period. That is, transfer expenditure (in economic classification, 1950-1990) and general administrator expenditure (in functional classification, 1950-1983) give some evidence for Wagner’s Law.

6.5 Conclusion

The objective of this chapter has been to investigate both Wagner's Law and Peacock and Wiseman's Displacement Effect Hypothesis, using Turkish time series data for the period 1950 to 1990.

In section 6.1, it was found that, in relation to six versions of Wagner's Law, aggregate public expenditure is not cointegrated with GNP (except for Pryor's version, i.e., version 2). We know that "cointegration is a statistical implication of the existence of a long-run relationship between economic variables" (Thomas, 1993: 164). However, the cointegration test results suggest that there is no long-term relationship between aggregate public expenditure and GNP in real terms.

In section 6.2, we have investigated the causal relationship between public expenditure and GNP as an extension of cointegration analysis. It was argued in the literature that in the absence of a long-run relationship between the variables, it is possible to examine the short-run linkages between them. Considering this argument, we have applied the Granger causality test, in order to determine whether there could be short-run relationship between variables. According to Granger causality test results, there is no evidence to support Wagner's Law.
In section 6.3, we have applied Perron's Integration level test (using an additive outlier model) to test for a structural break as a result of the Cyprus War in 1974, the 1960 military coup and the 1980 military coup. The test result did not change the integration level. So, one can conclude that the possible structural break following the Cyprus War was insignificant. We can conclude that the Perron test results do not support hypothesis of a displacement effect hypothesis in Turkish public expenditure in 1974 and other possible structural break years (i.e., 1960, 1980).

The failure to find empirical support for the displacement hypothesis is not surprising. The growth of government is a complex process that cannot be satisfactorily explained within the confines of a small (politico-economic) model (Henrekson, 1992). Moreover, when we apply the displacement effect hypothesis to developing countries, we have to take into account these countries' special conditions. Önder (1974) claims that Peacock and Wiseman's displacement effect hypothesis is more appropriate for advanced countries. There are three factors that might have a permanent effect on public expenditure growth. These factors are an increase of population, an increase in the general price level and an increase in income. While the increase of population and an increase in the general price level are not significant in advanced economies, they have significant effects in developing countries.

In many developing countries, such as Turkey, since price changes and population growth are both large, so that public expenditure is affected by not only by income growth but by population and price growth also. Therefore, the public expenditure trend in these countries is sharply upward over time. Consequently, when a social disturbance occurs, that can cause a displacement effect, its effect will be masked by the very sharp increases in public expenditure trend caused by population growth and price increases.
Hence, although the displacement effect can be seen in developed countries' public expenditure, it cannot be clearly seen in developing economies (even if it actually exists), at least not in Turkish case. However, in our empirical tests one of the measures used to test the displacement effect hypothesis was real per capita public expenditure, which eliminates the effects of population growth and price increases. Using this measure, we could find no evidence of a displacement effect. So, our results may disprove Önder's criticisms about applying the displacement effect hypothesis to developing countries, at least for real per capita expenditure version of displacement effect hypothesis. In addition, second version, ratio of total public expenditure with regard to GNP, as discussed earlier, can also be accepted as a real value (not considering the effects of relative prices).

In sections 6.2 and 6.3, we have attempted to examine some determinants of public expenditure growth in terms of Wagner's Law and Peacock and Wiseman displacement effect hypothesis in Turkey. However, we failed to find any evidence both for Wagner's Law and displacement effect hypothesis using aggregate data. Then in section 6.4, we have examined disaggregated data to investigate public expenditure growth in Turkey in terms of Wagner's Law. After examining the components of public expenditure both in economic and functional classifications, we have found that there is some limited evidence to explain the growth of public expenditure in Turkey during the study period. When transfers and general administrative expenditure were used in the equation(s), there was some evidence to support for Wagner's Law.
CHAPTER 7

MODELLING PUBLIC EXPENDITURE GROWTH IN TURKEY
7 MODELLING PUBLIC EXPENDITURE GROWTH IN TURKEY

In previous chapters, the public expenditure component of the dependent variable was the consolidated budgeted expenditure. However, in this chapter, the real size of public expenditure is measured in two different ways: the first uses the consolidated budgeted expenditure (as in the previous chapters) which includes investment and transfers; whereas, the second measurement i.e. the National Accounts definition of government consumption expenditure, excludes investment and transfers. Gemmell (1990) has pointed out that the latter definition of government (i.e. government consumption expenditure) is one of the many definitions of public sector size and is probably one of the more restrictive. We use these two different measures for public expenditure (especially the second measurement) to examine the effects of relative prices on public expenditure growth in Turkey.

Although we have discussed descriptively some politico-economic events in Turkey in chapters 4 and 5, we have not included them in the empirical model(s) of chapter 6. In this chapter, we will consider the trends in the public expenditure/GNP ratio for total public expenditure to GNP and government consumption expenditure to GNP. We will also look at the trends in the real total public expenditure and real government consumption expenditure. So we will use two data sets in this chapter: Data set 1 covers the entire period from 1950 to 1990 and is used to model the ratio of total public expenditure to GNP and total real public expenditure. On the other hand data set 2 covers the period from 1960 to

1 In the absence of the deflator for total public expenditure, we interpreted the ratio of nominal values as a ratio of real total public expenditure to GNP without considering relative prices (See chapter 6 for detail discussion). According to Ferris and West (1996: 551) "The ratio of the nominal values could also be interpreted as a ratio of real outputs when both nominal expenditure categories are deflated by the CPI index" [i.e., by the same index].
1986 only and is used to analyse the ratio of government real consumption expenditure to real GNP and government real consumption expenditure. The data will be discussed in subsection 7.3 in detail.

In chapter 6, we analysed public expenditure growth in terms of Wagner’s Law (in a bivariant case) and Peacock and Wiseman’s displacement effect hypothesis. However, the real economy is more complicated than this. Here, when we are modelling public expenditure growth in Turkey, we will try to consider a number of other possible explanatory factors. In other words, after examining the bivariate (i.e. public expenditure and income) case in terms of a cointegration-causality-error-correction framework, and not finding any positive result in previous chapter, we looked at disaggregated data, and have found some evidence for Wagner’s Law using transfers and general administrative expenditure as dependent variables respectively. Perron’s Additive Outlier test for the existence of a structural break did not provide any evidence in favour of the displacement effect hypothesis. In this chapter, we have decided to investigate other factors which may have affected public expenditure growth in Turkey. In this context, we have considered some additional variables such as relative prices, urbanisation, dependency ratio and some politico-economic variables related to Turkey’s specific conditions (e.g., military coups and/or implemented economic policies) which were discussed in chapters 4 and 5.

In this chapter, following Hadjimatheou and Tackie (1992), we have adopted a pragmatic approach. That is, we embrace aspects of the various theories of public expenditure growth (such as Wagner’s Law, Peacock and Wiseman’s displacement effect hypothesis, relative price effects and so on) but model selection is not guided by a single positive theory of public
expenditure growth. So, we will consider Wagner’s Law, Peacock and Wiseman’s displacement hypothesis, the effect of relative prices in order to explain more fully public expenditure growth in Turkey. In conducting the empirical work, we will try to incorporate both economic and political variables in the model.

7.1 Theoretical Background and Some Historical Facts

The discussion in this section is separated into consideration of (1) reasons suggested for the long-run growth of the public expenditure ratio; (2) reasons for sharp sudden changes in the ratio; (3) some historical facts about Turkey’s political and economic environment (or country specific conditions).

The Long-run Growth of the Ratio

The effect of personal income

This issue was discussed earlier in Chapter 3. Here we will briefly discuss it again. “Income effects on public sector goods are usually hypothesised to be positive, because if the income elasticity of public goods is, in the short-run, higher than that of private goods, higher (at least per capita) income will be associated, ceteris paribus, with higher demand for public goods” (Neck and Schneider (1988: 242). This argument lies behind the Wagner’s Law of increasing public expenditure. In discussions on the growth of public expenditure, Wagner’s Law\(^2\) of increasing public expenditure is often taken as a starting point. If Wagner’s Law is interpreted as predicting an income elasticity on public expenditure greater than one, then that prediction when applied to the ratio of public expenditure with regard to GNP would correspond to a positive coefficient of per capita GNP. The

\(^2\)See chapter 3 in which six versions of versions of Wagner’s law were discussed.
empirical basis of this law was provided by an examination of the industrialisation process in various developing and developed countries. In our previous empirical chapters, we have followed the same path, and examined the validity of this law for Turkey using only expenditure and income variables. However, it has been argued that examining Wagner's law in only a bivariate case (i.e., relating income and expenditure) and viewing it as implying an income elasticity of public expenditure greater than one (or zero) is too simplistic (Hadjimatheou and Tackie, 1992; Gemmell, 1990). It is perhaps more productive to consider the alternative view of Wagner's Law in which more variables are used to capture industrialisation processes such as urbanisation, the ratio of manufacturing and so on. Amey and Ashworth argue that "...many of the important elements of Wagner's explanation for public expenditure growth remain untested. Indeed, the usual manner of finding cointegration should a simple test fail is to examine a more complicated multivariate relationship" (Amey and Ashworth, 1993: 11). In this context, Gemmell (1990: 374-375) has also argued that "...Wagner identified a number of aspects of 'development' which would create pressures for a larger public sector and which are not completely captured by a per capita GDP [or GNP] index". So, we look at some additional variables in order to explain more fully the phenomenon of public expenditure growth in Turkey.

Urbanisation

Urbanisation (i.e. the ratio of urban population to total population) is a taste variable. The urban population includes population of provinces and district centres. It is argued in the public expenditure growth literature that an increase in "urbanisation" results in an increased
demand for economic and social services, such as water supply, sanitation, traffic control and management, and public protection, and results in an increase in public expenditure. So, we can expect a positive relationship between urbanization and the size of public expenditure. Urbanization has increased in Turkey during the study period, like many other developed and developing countries. The ratio of urban population to total population was 25% in 1950, but increased to 59% percent in 1990.

Dependency Ratio

It has been argued that much of the growth in public expenditure can also be accounted for the change in the age distribution of the population (see Lewis-Beck and Rice, 1985; Abizedeh and Yousefi, 1988). We introduce the dependency ratio to represent the change in the age distribution of population in Turkey. The argument used here is that, ceteris paribus, as the dependency ratio rises, the public expenditure ratio (or real total public expenditure) rises as well. That is, a positive relationship is hypothesised to hold between dependency ratio and ratio of public expenditure (or real total public expenditure).

The age dependency ratio is defined as (SIS: 1993) the ratio of the population aged between zero and fourteen plus the population aged 65 and over to the economically active population (i.e. population aged between 15 and 64). Demographic factors such as the size of and changes in the dependency ratio are often used as additional explanatory variables in regression analysis of public expenditure growth. In many developing countries, increases in population have been associated with a changing population age structure, with consequences for government output. In developing countries, population increases have typically been associated
with high birth rates (and falling infant mortality rates) leading to increased dependency rates via a rise in the "under-15-years" age group. "This rise is likely to have increased demand for education and health services in greater proportion to the increase in total population even if, ceteris paribus, an additional person increases demand for these services proportionately" (Gemmell (1990: 373).

Relative Prices

Another candidate for explaining public expenditure growth is relative prices. "Relative prices of public goods compared to private goods can have an influence on both the demand and the supply of public goods. On the demand side, ceteris paribus, the effect of prices of publicly provided goods and services to the individual should be negative. ... On the other hand, following Baumol (1967), the theoretical literature has also studied supply side effects of relative price changes" (Neck and Schneider, 1988: 241).

Empirically, we take the ratio of the deflator for public consumption to the deflator for private consumption as an indicator for the relative price of public goods. A negative effect on the public expenditure to GNP ratio, RTPE, would be in accordance with the demand side effects postulated by the public goods model, a positive influence with the supply side effects of Baumol's Disease (Neck and Schneider, 1988).³

According to the relative price effect, the price of public goods tends to grow faster than the prices of private consumption items. Saunders and Klau's (1985) study shows that the relative price effect was below average

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³ For further discussion in relative prices, see Mueller (1989), Neck and Schneider (1988) and Gemmell (1990) among others.
in Turkey among OECD countries for the period 1960-1971). In the period after 1971 (1971-1982), Turkey experienced price increases in the private sector higher than those in the government consumption sector (Saunders and Klau, 1985). So, in modelling public expenditure growth in Turkey, it may be worth considering relative price effects.

*Sudden Changes in the Ratio of Public Expenditure to GNP*

As discussed in chapter 3, a major omission in Wagner's law, was a consideration of the effects of major social upheavals on public expenditure growth. In this context, the work of Peacock and Wiseman (1961; 1967; 1979) improved Wagner's demand oriented hypothesis by making us mindful of supply side constraints. In explaining the growth of public expenditure in the UK in the period 1890-1955, Peacock and Wiseman suggested that major disturbances such as wars make the burden of higher taxation required to finance higher levels of public expenditure more tolerable. In particular, such a major social upheaval leads to a displacement of some peace related expenditures by war related expenditures. In fact, the tolerance of a higher limit on the tax burden leads to the war related expenditure exceeding the higher tolerance level in the crisis. Therefore, "war related public expenditure is replaced by public expenditure devoted to long standing problems made more visible by the crisis" (Cullis and Jones, 1987: 92). The empirical evidence of the existence of a displacement effect is inconclusive. Bird (1970; 1972) and Musgrave (1969) have questioned the long-run effect of Peacock and Wiseman's displacement effect hypothesis. If, Musgrave and Bird's critique is correct, the ratio simply reverts (after the war and/or social upheaval, then the effect is a short-run temporary one rather than a long
run one (Hadjimatheou and Tackie, 1992). In chapter 6, we fail to find any evidence for displacement effect in the long-run. What happened in the short-run? We will try to see it in this chapter.

Some historical Facts and/or Country Specific Variables

Turkish public expenditure as a percentage of GNP increased from 20% in 1950 to 42 percent in 1990. Although an upward trend is easily observable, the rate of increase is not evenly spread throughout the period. There are three events which might have caused structural breaks in the public expenditure ratio or total real public expenditure series. These events coincided with distinct crises in the politico-economic history of Turkey: first the 1960 military coup (which coincided with the introduction of import substitution economic policies), second the conflict between Cyprus and Turkey in 1974 (which coincided with the first oil price shock), and third, the 1980 military coup (and/or radical economic policy changes in 1980). So, the socio-political and economic events highlighted in chapters 4 and 5 suggest the possibility of structural breaks in 1960, 1974 and/or 1980.

Further, as we discussed in Chapters 4 and 5, there are different economic policies and/or regimes in Turkish economy during the study period. In order to test these kind of politico-economic changes (i.e., political displacement effects), we can use dummy variables in the long run equation(s) and in the short-run equation(s). In the 1950s there were liberal economic policies in Turkish economy. Following the 1960 military coup, an import substitution approach was implemented as an

---

4 See Chapter 3 for more discussion about the displacement effect hypothesis.
industrialisation (and/or development) policy. Another policy alternative, which is export-oriented industrialisation/development policy, was prepared by politicians, but its implementation also followed another military coup (1980). We look at the influence of the 1974 Cyprus intervention using a dummy variable.

7.2 Methodology: Cointegration and Error Correction Models

In this chapter, we will use the same approach which was used in the previous chapter. Therefore we will not discuss the methodology in detail. However, we will emphasise a few points which are new: In the previous chapter, we applied bivariate cointegration analysis. In this chapter, since we have more than one explanatory variable, we apply multivariate cointegration analysis. If we establish a cointegrating relationship between variables under investigating, instead of applying Engle-Granger's second stage, we will apply Sims, Stock and Watson's (1990) (hereafter SSW) approach in order to construct an error-correction model. The reasons for choosing SSW's approach will be discussed in detail below (see 7.4) when we are constructing an empirical model of public expenditure growth in Turkey. In addition, as we mentioned above, we will use some dummies in our model to model regime changes.

It is necessary to point out that "...the omission or inclusion of certain variables from the cointegrating regression can dramatically affect the results obtained from cointegrating regressions" (Muscatelli and Hurn, 1995: 180). As Muscatelli and Hurn (1995: 181) have pointed out "...there is an increasing trend for researchers to adopt dummy and proxy variables to
explain possible structural breaks in the long-run relationship between a number of economic series”. In the Turkish case, there are several extraordinary events which may cause structural break(s) in the long run relationship between a number of variables in question. So, in order to explain the effects of extraordinary events, (whether they cause structural break(s)), we will include some dummy variables to our model.

7.3 Data

Our basic study period is 1950-1990. In the introduction to this chapter, we have mentioned two sets of data. Our study of public expenditure growth in Turkey covers periods 1950-1990 for data set 1, and periods 1960-1986 for data set 2. The reason for using two different data sets is the availability (or unavailability) of some new variables for the entire period. For example, we were able to obtain data on the dependency ratio and the ratio of urban to total population for the whole period. However, we have failed to find data for some variables (i.e., the price variables such as the deflator for total public expenditure) for the entire period. Therefore, in the second data set, because of data unavailability the study period was shortened to correspond to the time period for which data were available. As a result, the second data set, which was obtained from National Accounts Statistics compiled by the United Nations relates to a shorter period: 1960-1986. For the second data set, we will use the ratio of government real consumption expenditure to real GNP (at 1968 constant prices) as a dependent variable, not the total public expenditure/GNP ratio, since the relative price data relates to a narrower definition of public expenditure. The data used in this chapter and their sources are described in the Appendix 7.2. Here we will give a brief description of the variables that have been used in the empirical model(s).
Chapter 7

RE is the real total public expenditure which is deflated by GNP deflator (1968=100). RTPE is ratio of total public expenditure to GNP (Note that the dependent variable is expressed as a percentage share of GNP). Total public expenditure includes transfers. RGNP is real GNP (at 1968 constant prices). RGNPPC stands for real GNP per capita (GNP per capita divided by the GNP deflator (1968=100)); RUP is ratio of urban population to total population; DR is the dependency ratio; RP is the relative price of public output (that is, the ratio of the deflator of public consumption to the deflator of private consumption (RP=PG/PC); RG is ratio of real government consumption expenditure to real GNP (at 1968 constant prices).

7.4 Empirical Model(s) and Results

To test whether the change in the applied economic regimes (i.e. import substitution and export promotion), military coups and the Cyprus intervention had an influence on the size of public expenditure, we will use dummy variables. That is, for “political displacement effects” and for displacement effect because of Cyprus intervention, we allow for changes in the constant terms of the demand equation(s), in the form of three shift variables (D60, D74 and D80). The statistical analysis was carried out via the application of two single equation models of the form:

\[ LRTPE_t = a_0 + a_1 \log\text{RGNPPC}_t + a_2 \log\text{RUP}_t + a_3 \log\text{DR}_t + a_4 \log\text{RP}_t + a_5 \text{D60}_t + a_6 \text{D74}_t + a_7 \text{D80}_t + u_t \]  
\[ (7.4.1a) \]

\[ LRE_t = \beta_0 + \beta_1 \log\text{RGNP}_t + \beta_2 \log\text{RUP}_t + \beta_3 \log\text{DR}_t + \beta_4 \log\text{RP}_t + \beta_5 \text{D60}_t + \beta_6 \text{D74}_t + \beta_7 \text{D80}_t + \mu_t \]  
\[ (7.4.1b) \]

where

L stands for the natural logarithm,
D60= a dummy variable, taking the value zero prior to the 1960 Military coup and/or import substitution period, and one thereafter,

D74= a dummy variable, taking the value zero prior to the Cyprus intervention, and one thereafter,

D80= a dummy variable, taking the value zero prior to the 1980 Military coup (and/or the introduction of export promotion/liberal policies), and one thereafter.

In this equation, the dummy variables are expressed in absolute terms; in all other cases the coefficient will show the value of the elasticity of expenditure with respect to that particular explanatory factor.

7.4.1 Empirical Model(s) and Results [Data Set 1]: 1950-1990

As mentioned above, the public expenditure component of our main dependent variable, the real size of public expenditure, is measured in two different ways. The first definition of total public expenditure was consolidated budget expenditure which includes transfers and investments. Since we do not have a deflator for total public expenditure, in these equations, we do not include relative prices. Therefore, our equations for data set 1 are:

\[ LRTPE_t = \alpha_0 + \alpha_1 LRGNPPC_t + \alpha_2 LRUP_t + \alpha_3 LDR_t + \alpha_4 D60_t + \alpha_6 D74_t + \alpha_7 D80_t + \mu_t \]

\[ (7.4.2a) \]

\[ LRE_t = \beta_0 + \beta_1 LRGNP_t + \beta_2 LRUP_t + \beta_3 LDR_t + \beta_4 D60_t + \beta_6 D74_t + \beta_7 D80_t + \mu_t \]

\[ (7.4.2b) \]

The definitions of variables are given above.
In constructing a model of public expenditure growth, it is important that the time series properties of the data are fully understood. Therefore, first, we will look at time series properties of the new variables. Then we will carry out the application of cointegration analysis and ECM. It is however necessary to point out that tests for cointegration are critically dependent upon the first stage being correct, that is to say that the variables included in the cointegrating regression are indeed all I(1).

ADF test results are given in Appendix 7.1 at the end of this chapter. ADF results show that all the variables in data set 1, are I(1). Now we need to test the stationarity of the residuals from the regression equations (7.4.2a and 7.4.2b).

When we are using dummies in our cointegrating regressions, we have to be aware that in the presence of the shift dummy(ies) in the regression, the critical value for the test is higher than the critical value when excluding the dummies. However, as Muscatelli and Hurn (1995) point out, since "the properties of the least squares procedure in the presence of dummy variable have not, to our knowledge, been investigated", we have to accept the critical values obtained without dummies as an approximation.
Table 7.4.1a  
Cointegration Regressions and ADF Unit Root Tests  
for Residuals [Data Set 1], 1950-1990

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha$</td>
<td>12.35</td>
<td>5.04</td>
</tr>
<tr>
<td>LRGNPPC</td>
<td>0.63</td>
<td>1.84</td>
</tr>
<tr>
<td>LRUP</td>
<td>-0.30</td>
<td>-0.58</td>
</tr>
<tr>
<td>LDR</td>
<td>-2.37</td>
<td>-5.22</td>
</tr>
<tr>
<td>D60</td>
<td>0.31</td>
<td>3.62</td>
</tr>
<tr>
<td>D74</td>
<td>-0.21</td>
<td>-2.34</td>
</tr>
<tr>
<td>D80</td>
<td>-0.19</td>
<td>-2.23</td>
</tr>
</tbody>
</table>

Sample 1950-1990

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>$\bar{R}^2$</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>ADF (0)</td>
<td>-6.18</td>
<td></td>
</tr>
<tr>
<td>ADF (Critical Value)</td>
<td>-4.38</td>
<td></td>
</tr>
<tr>
<td>CRDW</td>
<td>1.91</td>
<td></td>
</tr>
<tr>
<td>LM (SC)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>RESET</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>Normality</td>
<td>1.84</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Calculations made by using MFIT 4.0 critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 4.0.

Table 7.4.1a shows the calculated ADF value (-6.18) is more negative than the critical ADF value (-4.38). In other words, test on the residuals $u_t$ suggest that they are stationary, and therefore that this long-run model is a cointegrating relationship. Degree of augmentation was chosen by Akaike's Information Criteria. Here we have to point out that, in modelling public expenditure growth in Turkey, a valid cointegration vector which includes LRTPE, LRGNPPC, LRUP, LDR can only be found once the dummies in the 1960, 1974 and 1980 (D60, D74 and D80) are included in the cointegrating regression. Without the dummies, a
cointegrating relationship between variables was not established. This result provides a justification for the inclusion of the variables.

We have given t-ratios for the cointegrating regressions (7.4.2a and 7.4.2b). However, it is necessary to point out that although, assuming cointegration, the OLS estimators themselves are consistent, this is not the case for their estimated standard-errors. Because the variables in the regression are I(1), the distributions of the OLS estimators are non-standard. They do not provide consistent estimates of the true standard-errors when the regression involves I(1) variables. That is, the significance of these coefficients cannot be assessed in the usual way, since sampling properties of regression statistics. Nevertheless, the long-run relationship is plausible. As Thomas (1997: 439) argued, "[this] has the unfortunate consequence that they cannot be used for significance testing. That is, we cannot use them to help decide what variables should be included in a cointegrating regression. We have to decide what variables to include either on a priori grounds or on the basis of the cointegration tests themselves".

Although we cannot use t-ratios for the significance testing, we can discuss the expected signs and estimated signs of the coefficients of the variables which are consistent. In order to support Wagner's Law, the prediction of the coefficient on the per capita GNP, LRGNPPC, is positive. As can be seen from Table 7.4.1a, the sign of the coefficient is indeed positive.

The coefficient on the degree of urbanisation, contrary to expectations, has a negative sign. This observed negative association between urbanisation and the size of public expenditure may be due to the fact that increased urbanisation results in an increase in public expenditure, but public
expenditure might have increased at a slower rate than GNP. This result is possibly indicating that there are economies of size to urbanisation at least during this period.

The coefficient on the dependency ratio also has a negative sign. During the study period the dependency ratio is decreasing in Turkey. At the beginning of the period (in 1950), it was about 71%. It reached 86% in 1970. By 1990, at the end of period, it dropped to 64%. Since the economically active population is increasing from 1970, this reverse effect might be reasonable. It is possible that this result provides some evidence of a supply side explanation of the dependency ratio effect. Since more people work, it means that more people have to pay income tax. As a result, it can increase total public expenditure.

As regards dummies, only D60 gives some evidence for positive displacement. The parameter estimates of dummies suggest that the occurrence of displacement effects in the post 1960 period. In particular, one detects positive displacement for LRTPE after 1960; negative displacements of 1974 and 1980 for LRTPE. That is, the new étatist era after 1960 (in other words as a result of the implementation of import substitution economic policies) led to an increase in total public expenditure ratio. The Cyprus conflict has a negative effect on public expenditure which is contrary to our expectations. As a result of the Cyprus conflict, it is possible that war related expenditure increased. However, the first oil price shock and other international pressures which followed shortly after this military intervention, may have caused total public expenditure to decrease. As regards the effect of the 1980 military coup (and/or the radical economic policy changes from import substitution to export promotion policies) i.e. D80, it also has a negative
sign. The main priority of 1980 economic policy reforms was to cut public expenditure, so, the expected sign of D80 is negative. Regression results show that the estimated coefficient of D80 had a negative sign which supports the policy makers' success (at least, for one of the main targets of the 1980 economic policy package which is cutting public expenditure).

Table 7.4.1b  
*Cointegration Regressions and ADF Unit Root Tests*  
*for Residuals [Data Set 1], 1950-1990*

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>α</td>
<td>1.33</td>
<td>0.66</td>
</tr>
<tr>
<td>LRGNP</td>
<td>1.55</td>
<td>6.27</td>
</tr>
<tr>
<td>LRUP</td>
<td>-0.77</td>
<td>-1.21</td>
</tr>
<tr>
<td>LDR</td>
<td>-2.50</td>
<td>-5.44</td>
</tr>
<tr>
<td>D60</td>
<td>0.30</td>
<td>3.57</td>
</tr>
<tr>
<td>D74</td>
<td>-0.23</td>
<td>-2.64</td>
</tr>
<tr>
<td>D80</td>
<td>-0.20</td>
<td>-2.49</td>
</tr>
</tbody>
</table>

Sample 1950-1990  
$R^2$ 0.988  
$\bar{R}^2$ 0.986  
ADF (0) -6.31  
ADF (Critical Value) -4.38  
CRDW 1.97  
LM (SC) 0.55  
RESET 3.30  
Normality 1.44

Notes: Calculations made by using MFIT 4.0, critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 4.0.

The second version of our model (equation 7.4.2b), uses total real public expenditure as a dependent variable and real GNP (instead of GNPPC) as one of the explanatory variables. As can be seen from Table 7.4.1b (above),
the calculated ADF value is (-6.3131 which is very close to ratio version (see Table 7.4.1a)) more negative than the critical ADF value. As a result, it is possible to say that for the second version of our model (7.4.2b) there is also cointegrating relationship between variables under examination.

We can also compare the expected and estimated signs of the coefficients of the variables for the second version (i.e. absolute growth of real total public expenditure, equation 7.4.2b). In this model, in order to support Wagner's Law, the prediction of the coefficient on LRGNP must be greater than one (unity). The estimated coefficient meets this criterion.

The estimated coefficients of urbanisation and dependency ratio in this version, have negative signs again. The signs and magnitudes of estimated coefficients of all three dummy variables are similar to the ratio version.

Error Correction Model

According to the Granger representation theorem, cointegrated variables must have an ECM representation. In other words, the existence of cointegration between a set of economic variables provides a statistical foundation for the use of error correction models (ECMs). The converse of this statement is also true: if an ECM provides an adequate representation of the variables under consideration, then they must be cointegrated. The main reason for the popularity of ECMs is that they provide a way of separating the long-run relationship between the economic variables from the short-run responses (Muscatelli and Hurn, 1995). After cointegrating relationship between variables under investigation are found the problem which immediately arises is how to estimate error correction term(s). Engle and Granger (1987) suggest a two stage procedure using the lagged
residuals from Ordinary Least Squares estimation of the long run regression(s) (i.e., equations 7.4.2a and 7.4.2b) as estimates of the error correction terms in below equations (i.e. 7.4.3a and 7.4.3b). The second stage of the Engle-Granger procedure involves estimating the following ECMs,

\[ \Delta \text{LRTE}_t = \theta_1 \Delta \text{LRGNPP}_t + \theta_2 \Delta \text{LRUP}_t + \theta_3 \Delta \text{LDR}_t + \theta_5 \Delta D_{60}t + \theta_6 \Delta D_{74}t + \theta_7 \Delta D_{80}t + \theta_8 u_{t-1} + \epsilon_t \]  

(7.4.3a)

\[ \Delta \text{LRE}_t = \delta_1 \Delta \text{LRGNP}_t + \delta_2 \Delta \text{LRUP}_t + \delta_3 \Delta \text{LDR}_t + \delta_5 \Delta D_{60}t + \delta_6 \Delta D_{74}t + \delta_7 \Delta D_{80}t + \delta_8 \mu_{t-1} + \epsilon_t \]  

(7.4.3b)

where \( \Delta \) denotes first difference; \( u_{t-1} \) and \( \mu_{t-1} \) are the one period lagged values of the residuals from cointegrating regressions (7.4.2a-7.4.2b) respectively, the empirical estimate of the equilibrium error term; and \( \epsilon, s \) are the error terms with the usual properties. If \( \theta_s \) and \( \delta_s \) are negative but less than 1 in magnitude, then the model incorporates a mechanism for correcting short-run deviations from the long-run equilibrium path.

Simulations by Pudney, Deadman and Pyle (1997) suggest that the Engle-Granger two stage procedure leads to serious bias in the estimated coefficients of the dynamic model, what are not present when the model is estimated using SSW. Therefore, in order to overcome this bias, Pudney, Deadman and Pyle (1998) and Hale (1998) have used Sims-Stock-Watson (1990) approach. So, the small sample properties of estimates of (7.4.4a and 7.4.4b) are superior to those from the Engle-Granger two-step procedure (i.e. 7.4.3a and 7.4.3b).
Although we have used the first stage of the Engle-Granger procedure to test for cointegration (as did Pudney, Deadman and Pyle, 1998), following the researchers which were mentioned above, our estimates of the full model are computed using an alternative one-step regression approach (i.e. SSW approach). If we substitute for \( u_{t-1} \) in (7.4.3a) and \( \mu_{t-1} \) (7.4.3b) from the long run models, the resulting regression equations are:

\[
\Delta\text{LRTP}_t = \theta_1 \Delta\text{LRGNPPC}_t + \theta_2 \Delta\text{LRUP}_t + \theta_3 \Delta\text{LDR}_t + \theta_5 \Delta\text{D60}_t + \theta_6 \Delta\text{D74}_t + \theta_7 \Delta\text{D80}_t + \theta_8 \text{LRTP}_{t-1} \\
+ \phi_0 + \phi_1 \text{LRGNPC}_t + \phi_2 \text{LRUP}_t + \phi_3 \text{LDR}_t + \phi_5 \text{D60}_t + \phi_6 \text{D74}_t + \phi_7 \text{D80}_t + \epsilon_t
\]

(7.4.4a)

Where, for example, \( \phi_0 = -\theta_8 \alpha_0 \), \( \phi_1 = -\theta_8 \alpha_1 \) and so on.

\[
\Delta\text{LRE}_t = \delta_1 \Delta\text{LRGNP}_t + \delta_2 \Delta\text{LRUP}_t + \delta_3 \Delta\text{LDR}_t + \delta_5 \Delta\text{D60}_t + \delta_6 \Delta\text{D74}_t + \delta_7 \Delta\text{D80}_t + \delta_8 \text{LRE}_{t-1} \\
+ \varphi_0 + \varphi_1 \text{LRGNP}_t + \varphi_2 \text{LRUP}_t + \varphi_3 \text{LDR}_t + \varphi_5 \text{D60}_t + \varphi_6 \text{D74}_t + \varphi_7 \text{D80}_t + \epsilon_t
\]

(7.4.4b)

where, for example, \( \varphi_0 = -\delta_8 \beta_0 \), \( \varphi_1 = -\delta_8 \beta \) and so on.

Pudney, Deadman and Pyle (1998) argued that "at first sight, this appears to be an inappropriate equation for estimation by OLS regression, since the explanatory variables are an uncomfortable mixture of I(0) and I(1) variables. Despite this, the results of Sims, Stock and Watson (1990) can be used to show that the estimated coefficients [from SSW model] ... have standard asymptotic properties. Monte Carlo simulations presented by Pudney, Deadman and Pyle (1997) for a broadly similar model of crime confirm this and show that OLS applied to (SSW-model) has much better small-sample properties than the Engle-Granger procedure..." (Pudney, Deadman and Pyle, 1998: 9). Following above discussion, we have applied the SSW approach to data set 1 for Turkish public expenditure. The
results of the estimated error-correction model (SSW) for 7.4.4a are shown in the Table 7.4.2a.

**Table 7.4.2a**  
*A Dynamic Model (SSW) [Data Set 1], 1950-1990*

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Parameter Estimates</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔLRGNPPC</td>
<td>-0.582</td>
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</tr>
<tr>
<td>ΔLRUP</td>
<td>2.764</td>
<td>1.560</td>
</tr>
<tr>
<td>ΔLDR</td>
<td>-5.180</td>
<td>-1.215</td>
</tr>
<tr>
<td>ΔD60</td>
<td>0.084</td>
<td>0.826</td>
</tr>
<tr>
<td>ΔD74</td>
<td>-0.318</td>
<td>-2.970</td>
</tr>
<tr>
<td>ΔD80</td>
<td>-0.174</td>
<td>-1.837</td>
</tr>
<tr>
<td>LRTPE(-1)</td>
<td>-0.980</td>
<td>-6.071</td>
</tr>
<tr>
<td>Constant</td>
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</tr>
<tr>
<td>LRGNPPC(-1)</td>
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</tr>
<tr>
<td>LRUP(-1)</td>
<td>0.467</td>
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</tr>
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<td>LDR(-1)</td>
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<td>-4.021</td>
</tr>
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<td>D60(-1)</td>
<td>0.376</td>
<td>3.506</td>
</tr>
<tr>
<td>D74(-1)</td>
<td>-0.137</td>
<td>-1.220</td>
</tr>
<tr>
<td>D80(-1)</td>
<td>-0.460</td>
<td>-3.579</td>
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**Sample 1950-1990**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>$R^2$</td>
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<tr>
<td>$\bar{R}^2$</td>
<td>0.550</td>
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<tr>
<td>DW</td>
<td>1.899</td>
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<td>LM (SC)</td>
<td>0.183</td>
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</table>

The results indicate significant short-run effects for only D74. The negative significant coefficient in the change in D74 confirms the downward shift in 1974 because of Cyprus conflict. Although it is contrary to our expectations, as discussed above, this result is acceptable. In the long-run the dependency ratio and D80 are negatively significant.
Although GNPPC has a positive sign, it is insignificant. D60 is significant which was expected. It is evidence for upward displacement following the 1960 military coup (and/or economic regime changes). It means that D60 supports the displacement effect hypothesis in the long-run, but not short-run. D80 also is significantly negative. This negative relationship was discussed above.

Table 7.4.2b  *An Dynamic Model (SSW) [Data Set 1], 1950-1990*

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Parameter Estimates</th>
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<td>0.710</td>
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<tr>
<td>ΔL RUP</td>
<td>2.700</td>
<td>1.504</td>
</tr>
<tr>
<td>ΔL DR</td>
<td>-5.071</td>
<td>-1.234</td>
</tr>
<tr>
<td>ΔD60</td>
<td>0.083</td>
<td>0.849</td>
</tr>
<tr>
<td>ΔD74</td>
<td>-0.320</td>
<td>-2.976</td>
</tr>
<tr>
<td>ΔD80</td>
<td>-0.178</td>
<td>-1.904</td>
</tr>
<tr>
<td>LRE(-1)</td>
<td>-0.983</td>
<td>-5.930</td>
</tr>
<tr>
<td>Constant</td>
<td>3.792</td>
<td>1.778</td>
</tr>
<tr>
<td>L RGNP(-1)</td>
<td>1.057</td>
<td>2.241</td>
</tr>
<tr>
<td>L RUP(-1)</td>
<td>0.381</td>
<td>0.457</td>
</tr>
<tr>
<td>L DR(-1)</td>
<td>-2.749</td>
<td>-3.816</td>
</tr>
<tr>
<td>D60(-1)</td>
<td>0.373</td>
<td>3.762</td>
</tr>
<tr>
<td>D74(-1)</td>
<td>-0.145</td>
<td>-1.279</td>
</tr>
<tr>
<td>D80(-1)</td>
<td>-0.456</td>
<td>-3.791</td>
</tr>
</tbody>
</table>

Sample 1950-1990

- $R^2$ 0.698
- $\overline{R}^2$ 0.548
- DW 1.891
- LM (SC) 0.225

Now we can look also at the error-correction (SSW) results for absolute growth of total real public expenditure (version (7.4.4b)).
Again, only D74 indicates negative significant short-run effects. Real GNP, the dependency ratio, D60 and D80 have significant long-run effects. In this case, the coefficient on real GNP supports Wagner’s hypothesis in the long-run. In the ratio version (i.e. version 7.4.4a), however, GNPPC is insignificant. Like in the ratio version, D60 also gives evidence for an upward displacement indicating positive displacement effect.

### 7.4.2 Empirical Model(s) and Results [Data Set 2], 1960-1986

The definition of public expenditure used in this subsection is government consumption expenditure, which excludes investment and transfers, and is obtained from National Accounts Statistics. For this data set, we have also obtained information on relative prices from the same source. For this definition of government size, we analyse the ratio of real government consumption expenditure to real GNP. Therefore, including the relative prices in the cointegration equation, we have attempted to explain more fully the phenomenon of public expenditure growth. However, our sample period is now shorter than before i.e. it covers only the period 1960-1986. Our new equations now are:

\[
\begin{align*}
\text{LRG}_t &= \alpha_1 + \beta_1 \text{LRGNPPC}_t + \beta_2 \text{LRUP}_t + \beta_3 \text{LDR}_t + \beta_4 \text{LRP}_t + \beta_5 D74_t + \beta_6 D80_t + \varepsilon_t, \\
\text{LRGC}_t &= \alpha_2 + \beta_1 \text{LRGNP}_t + \beta_2 \text{LRUP}_t + \beta_3 \text{LDR}_t + \beta_4 \text{LRP}_t + \beta_5 D74_t + \beta_6 D80_t + \mu_t,
\end{align*}
\]

(7.4.5a)

(7.4.5b)

where

\[
\begin{align*}
\text{LRG} &= \text{the logarithm of the ratio of real government consumption expenditure to real GNP.}
\end{align*}
\]
LRGC = the logarithm of real government consumption expenditure.
The other variables are the same as in the main equation (7.4.1a and 7.4.1b).

The ADF results (which are given in Appendix 7.1 at the end of this chapter) show that all variables for data set 2 are also I(1). Therefore, we can carry out multivariate cointegration analysis.

Table 7.4.3a  
\textit{Cointegration Regressions and ADF Unit Root Tests}  
\textit{for Residuals [Data Set 2], 1960-1986}

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha$</td>
<td>14.44</td>
<td>2.70</td>
</tr>
<tr>
<td>LRGNPPC</td>
<td>-0.49</td>
<td>-1.01</td>
</tr>
<tr>
<td>LRUP</td>
<td>0.46</td>
<td>0.62</td>
</tr>
<tr>
<td>LDR</td>
<td>-2.64</td>
<td>-2.58</td>
</tr>
<tr>
<td>LRP</td>
<td>-0.32</td>
<td>-1.49</td>
</tr>
<tr>
<td>D74</td>
<td>0.76</td>
<td>0.65</td>
</tr>
<tr>
<td>D80</td>
<td>-0.35</td>
<td>-3.45</td>
</tr>
</tbody>
</table>

Sample 1960-1986

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>0.73</td>
</tr>
<tr>
<td>$\bar{R}^2$</td>
<td>0.64</td>
</tr>
<tr>
<td>ADF (0)</td>
<td>-3.81</td>
</tr>
<tr>
<td>ADF Critical Value</td>
<td>-4.97</td>
</tr>
<tr>
<td>CRDW</td>
<td>1.39</td>
</tr>
<tr>
<td>LM (SC)</td>
<td>2.50</td>
</tr>
<tr>
<td>RESET</td>
<td>1.04</td>
</tr>
<tr>
<td>Normality</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Notes: Calculations made by using MFIT 4.0, critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 4.0.

Using equation 7.4.5a, we examined whether there was a cointegrating relationship between the variables. As can be seen from the Table 7.4.3a,
the calculated ADF statistic is -3.81 which is not negative enough for us to reject the hypothesis of non-stationarity. Therefore we are unable to demonstrate cointegration between LRG, LRGNPPC, LRUP, LDR, LRP and dummies (D74 and D80). Since we have a small sample (27 observations only), the results of cointegration tests have to be treated with great caution. According to cointegration regression results, it looks like the LRG is negatively correlated with real GNP per capita. The regression coefficient on the relative price variable is predicted to be negative. The regression results support our prediction. However, we cannot rely on these results because of finding non-cointegration between variables. We can suspect the spurious regression problem. The Engle-Granger tests are not accurate, and especially, lack power. They can fail to detect a long-run relationship even when one exists. However, all we can say here is that, with our data set 2, our tests fail to detect cointegration. At this point, the caution sounded by Hall (1986: 238) is worth quoting:

While the concept of cointegration is clearly an important theoretical underpinning of the error-correction model there are still a number of problems surrounding its practical application; the critical values and small sample performance of many of the tests are unknown for a wide range of models....

Since we could not establish any cointegration relationship for our model 7.4.5a, it is not necessary to apply ECM. However, we can estimate a short-run model in difference form (without including an error-correction term). The OLS results of the short-run model is in Table 7.4.3b below:

---

7 Wolde-Rufael (1997) has found that the share of real government expenditure to real GDP was negatively and significantly correlated with real GDP per capita in the case of Cyprus for the period 1960-1994. Therefore, although it is not significant, finding the negative relationship between LRG and LRGNPPC may not be a strange result.
### Table 7.4.3b  
*The OLS Results of the Short-Run Model [Data Set 2], 1960-1986*

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Parameter Estimates</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\Delta LRG_{NPC}$</td>
<td>-0.57</td>
<td>-0.91</td>
</tr>
<tr>
<td>$\Delta LRU$</td>
<td>1.03</td>
<td>0.91</td>
</tr>
<tr>
<td>$\Delta LDR$</td>
<td>-1.92</td>
<td>0.86</td>
</tr>
<tr>
<td>$\Delta RLP$</td>
<td>-0.28</td>
<td>-1.51</td>
</tr>
<tr>
<td>$\Delta D74$</td>
<td>-0.05</td>
<td>-0.51</td>
</tr>
<tr>
<td>$\Delta D80$</td>
<td>-0.36</td>
<td>-3.36</td>
</tr>
</tbody>
</table>

**Sample 1960-1986**
- $R^2$: 0.410
- $\overline{R}^2$: 0.260
- CRDW: 1.960
- LM(SC): 0.002
- RESET: 2.400
- Normality: 0.610

As can be seen from Table 7.4.3b, except for $\Delta D80$, none of the variables is significant in the short-run for the ratio version of the model. It shows that 1980 military coup (and/or radical changes in economic policy package influenced public expenditure growth in the short-run as well.

The results for the second version of the model (7.4.5b) are given in Table 7.4.4a.
Table 7.4.4a  
Cointegration Regressions and ADF Unit Root Tests
for Residuals [Data Set 2], 1960-1986

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficients</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha$</td>
<td>9.34</td>
<td>1.74</td>
</tr>
<tr>
<td>LRGNP</td>
<td>0.61</td>
<td>1.81</td>
</tr>
<tr>
<td>LRUP</td>
<td>0.73</td>
<td>0.82</td>
</tr>
<tr>
<td>LDR</td>
<td>-2.53</td>
<td>-2.43</td>
</tr>
<tr>
<td>LRP</td>
<td>-0.30</td>
<td>-1.44</td>
</tr>
<tr>
<td>D74</td>
<td>0.09</td>
<td>0.76</td>
</tr>
<tr>
<td>D80</td>
<td>-0.33</td>
<td>-3.20</td>
</tr>
</tbody>
</table>

Sample 1960-1986

$R^2$ 0.976
$\bar{R}^2$ 0.969
ADF (2-0) -3.94
ADF Critical Value -4.97
CRDW 1.43
LM (SC) 1.98
RESET 0.35
Normality 0.66

Notes: Calculations made by using MFIT 4.0, critical values (at 5% significance level) taken from MacKinnon (1991) and reported by MFIT 4.0.

For this version, the calculated ADF statistic is -3.94 which is again is not negative enough to reject the hypothesis of non-stationarity. That is, the real consumption expenditure (as a dependent variable) model does not also support cointegrating relationship between variables. The sign of the coefficient on LRGNP has a positive sign in this version, however, it is less than 1 and we have failed to establish cointegrating relationship between variables. Then, we will estimate short-run relationship for this version. The results are illustrated in Table 7.4.4b below:
Table 7.4.4b  The OLS Results of the Short-Run Model [Data Set 2], 1960-1986

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Parameter Estimates</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALRGNNPC</td>
<td>-0.57</td>
<td>-0.91</td>
</tr>
<tr>
<td>ALRUP</td>
<td>1.03</td>
<td>0.91</td>
</tr>
<tr>
<td>ADR</td>
<td>-1.92</td>
<td>0.86</td>
</tr>
<tr>
<td>ADRP</td>
<td>-0.28</td>
<td>-1.51</td>
</tr>
<tr>
<td>AD74</td>
<td>-0.05</td>
<td>-0.51</td>
</tr>
<tr>
<td>AD80</td>
<td>-0.36</td>
<td>-3.36</td>
</tr>
</tbody>
</table>

Sample 1960-1986

*R* 0.41  
*R* 0.26  
CRDW 1.96  
LM(SC) 0.002  
RESET 2.40  
Normality 0.61

Table 7.4.4b indicates that the results of the short-run model (i.e. in the first difference form) for real total public expenditure as dependent variable. The results are similar to ratio version. AD80 is the only significant variable in the short run. The estimated coefficients of AD80s are very close to each other in both equations, -0.36 and -0.35 respectively.

7.5 Conclusion

This chapter has investigated the role of determinants of total public expenditure and government consumption expenditure, using time series data for the period 1950-1990 for data set 1, and for the period 1960-1986 for data set 2. We have applied the relatively new procedures of unit root testing to establish the orders of integration of the individual series. We
applied the techniques of cointegration and error-correction modelling to
determine if the variable series were cointegrated.

In a multivariate cointegration framework, we have tried to include new
variables such as urbanisation, the dependency ratio and relative prices.
In addition, we also used dummy variables to capture some extraordinary
events which may have influenced the size of the public expenditure (i.e.
the Cyprus conflict and various military coups), in order to test for any
displacement effects caused by these events.

For data set 1, for both versions of the models, cointegrating relationships
were established between LRTPE/LRE and the other variables under
examination. For the first model (model 7.4.2a), the expected sign of the
coefficient on LRGNPPC is positive which supports Wagner's Law. The
coefficient on the degree of urbanisation has a negative sign, contrary to
our expectations. As regards the coefficient on the dependency ratio, it has
also a negative sign which is contrary to our expectations. The increase in
economically active population might affect this result. In order to
capture displacement effect, we have used dummy variables. D60 (the
1960 military coup and/or changes in economic policy) is the only dummy
to show a positive displacement effect. D74 (i.e. potentially capturing the
Cyprus conflict) has a negative effect on public expenditure. This is
contrary to our prediction. As a result of this conflict most probably war
related expenditures increased. However, some international events such
as the first oil price shock and/or the international pressures which
followed this conflict may have caused total public expenditure to
decrease.
As regards the second model (i.e. Model 7.4.2b which is investigating absolute growth of real total public expenditure), the estimated signs of the variables are similar to the first version. There is evidence for Wagner's Law and a positive displacement because of the 1960 military coup.

After establishing cointegrating relationship between the dependent(s) and independent variables in both models, it was necessary to apply ECM. Since Engle-Granger's two stage procedure has been criticised on the grounds of small sample bias, we have applied SSW's one-step approach in the second stage. For the ratio version, the results indicate significant short-run effects for only D74. The negative sign in the change D74 shows the downward shift in 1974 after the Cyprus conflict. Although it is contrary to our predictions, it is plausible (as discussed earlier). In the long-run, while the dependency ratio and D80 are negatively significant, GNPPC is insignificant. D60 gives evidence for an upward displacement effect. As regards absolute growth of public expenditure model, again, only D74 gives evidence for negative significant short-run effects. Real GNP, the dependency ratio, D60 and D80 have significant long-run effects. The estimated coefficient of real GNP which is greater than unity supports Wagner's hypothesis. D60 indicates the validity of displacement effect hypothesis.

However, for data set 2, we failed to establish a cointegrating relationship between the variables for both models. Failure to find evidence of cointegration may be due to short data set. For this data set, we have also added relative prices into our model. Then, we have also examined the short-run models using first differences of the variables. The coefficients of D80s which have negative signs are only significant ones in both short-run models. The relative prices did not increase the model(s) explanatory
power. It is necessary to remember that the data set 2 covers the shorter period than the data set 1. Therefore, the results are limited to the extent of sampling, variable limitations and the applied technique. For a longer period and/or after adding more variables the result may change.
### Appendix 7.1: ADF Unit Root Test for Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Levels</th>
<th>1st Differences</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADF m 5% CV</td>
<td>ADF m 5% CV</td>
<td></td>
</tr>
<tr>
<td>Sample: 1950-1990</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LRTPE</td>
<td>-3.3791 0 -3.5247</td>
<td>-8.3918 0 -2.9378</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRGEP</td>
<td>-3.2838 0 -3.5247</td>
<td>-8.0195 0 -2.9378</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRGNP</td>
<td>-2.0965 0 -3.5247</td>
<td>-6.2850 0 -2.9378</td>
<td>l(1)</td>
</tr>
<tr>
<td>LGNPPC</td>
<td>-2.1401 0 -3.5247</td>
<td>-6.5086 0 -2.9378</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRUP</td>
<td>-1.4144 0 -3.5247</td>
<td>-4.8993 0 -2.9378</td>
<td>l(1)</td>
</tr>
<tr>
<td>LDR</td>
<td>0.3149 1 -3.5279</td>
<td>-4.2336 0 -3.5279</td>
<td>l(1)</td>
</tr>
<tr>
<td>Sample: 1960-1986</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LRG1</td>
<td>-1.9649 2 -2.9907</td>
<td>-3.4510 2 -2.9970</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRGC</td>
<td>-3.4500 2 -3.6119</td>
<td>-3.6370 2 -2.9970</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRGNP</td>
<td>-0.7955 0 -2.9798</td>
<td>-4.7373 0 -2.9850</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRGNPCC</td>
<td>-1.2589 0 -2.9798</td>
<td>-4.9011 0 -2.9850</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRUP</td>
<td>-1.6733 2 -3.6119</td>
<td>-3.7176 0 -3.6027</td>
<td>l(1)</td>
</tr>
<tr>
<td>LDR</td>
<td>-1.6962 0 -3.5943</td>
<td>-4.3516 0 -3.6027</td>
<td>l(1)</td>
</tr>
<tr>
<td>LRP</td>
<td>-1.6340 0 -3.5943</td>
<td>-4.4541 0 -2.9895</td>
<td>l(1)</td>
</tr>
</tbody>
</table>

Notes: Calculations made by using MFIT 4.0, critical values taken from MacKinnon (1991) and reported by MFIT 4.0.
Appendix 7.2: Data and Their Sources

RTPE = the ratio of total public expenditure to GNP (Note that dependent variable is expressed as a percentage share of GNP). Total public expenditure includes investment and transfers (and EBFs after 1984) are taken from Önder (1984), Öner (1993), SPO (1985) and OECD (1992; Economic Surveys); GNP is taken from SIS (1993).


GRNPPC = the real GNP per capita (GNP per capita converted by GNP deflator (1968=100)),

GNPD = deflator for GNP (1968=100) is taken from SIS (1993).

RUP = the ratio of urban population to total population for the period 1950-1990, SIS (1996). Urban (or city) population include province and district centres.

DR = the dependency ratio, total age dependency ratio is equal to \[ \frac{(population \ aged \ (0+14)) + (population \ aged \ (65 \ years \ and \ over))*100}{(population \ aged \ (15+64))] \] for the period 1950-1990: SIS (1996). The table provides data for each five year; yearly observations were obtained through interpolation.

RP = relative prices (i.e. \( \frac{PG}{PC} \)), (that is, here the relative price variable is the ratio of the deflator of public consumption (PG) to the deflator of private consumption PC.

PG and PC are taken from National Accounts Statistics of Main Aggregates (various issues) for the period 1960-1986. The base year is 1968.

RG = the ratio of government real consumption expenditure to real GNP (i.e. \( \frac{G}{PG}/(GNP/GRNPD) \)) at 1968 constant prices) for the period 1960-1986: The consumption component of the ratio G (government consumption expenditure) is taken from National Account Statistics (various issues). Here government consumption expenditure excludes transfers and capital formation.

RGC = real government consumption expenditure, taken from National Account Statistics (various issues).
CHAPTER 8

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8 SUMMARY AND CONCLUSIONS

This thesis has focused on macro approaches to the study of public expenditure growth. In this context, Wagner's Law and Peacock and Wiseman's Displacement Effect hypothesis were tested using data for Turkey between 1950 and 1990. This study provides some theoretical, empirical and historical insights regarding public expenditure growth in Turkey. It is hoped that this study will contribute to the improvement of our understanding of public expenditure growth in Turkey.

In chapter 2, we discussed the definition and measurement of public expenditure. The measurement of public expenditure is fundamental to most policy analysis, but it is not an easy process. For example, in defining public expenditure it is necessary to decide which spending agencies to include. Measurement problems are of both a conceptual and practical kind. In this chapter some measurement problems were discussed such as the inclusion of transfer expenditures, using absolute or relative values, the problem of National Product.

The most commonly used method of measuring the relative size of the public sector is to compare expenditures with some indicator of national output. However, there are several alternative national output aggregates (e.g., GDP and GNP, at either market prices or factor cost) that public expenditure could be related to. There is a debate in the public expenditure growth literature about whether to include transfer expenditures as part of public expenditure. There is another debate about the use of absolute or relative values. Among scholars there is no consensus on which measure of output is most appropriate. There are also similar discussions about using current or
constant prices. Therefore, in this chapter, we have defined the concept of public expenditure and identified the main problems surrounding it.

In chapter 3, a critical review of macro models of the growth of public expenditure was presented. While macro models of public expenditure growth attempt to account for the long-term growth of public expenditure, micro models of public expenditure growth attempt to explain changes in particular components of public expenditure, whether caused by increasing demand for individual services or by changes in their cost structures. Macro models begin with data on public expenditure and continue to explain the time pattern of public expenditures in terms of broad aggregate variables. In other words, macro models try to explain how public expenditure has behaved over the long term. In this context, Wagner's Law and Peacock and Wiseman's Displacement Effect hypothesis are the most significant examples of macro models and we have focused on these two empirical models. In addition, we looked at various development models of public expenditure growth i.e. Musgrave's Theory of Public Expenditure Development and Rostow's "model" of public expenditure development. Musgrave's and Rostow's models are general approaches to the development process gleaned from examination of a large number of different case histories of developing economies.

Wagner was the first scholar to recognise the existence of a positive correlation between the level of economic development and the size of the public sector. After the publication of the English translation of his views (in 1958), many empirical studies aimed at testing Wagner's Law of increasing public expenditure appeared in the literature. Although there was controversy over the precise definition of Wagner's Law, the proposition that public expenditure as a share of national income tends to grow in the course
of economic development, has become an important "fact" in this field. Many time series studies have offered strong support for the Law. Even in the 1990s, it is still a living theory with several different interpretations. Interest in the 'Law' has continued, and now new data sets and econometric techniques (e.g. cointegration analysis) have become available to allow further and more rigorous testing of Wagner's Law.

The second theory discussed in Chapter three was Peacock and Wiseman's Displacement Effect Hypothesis. It remains one of the most frequently cited explanations of public expenditure growth. Analysis of the time pattern of public expenditure in the UK by Peacock and Wiseman (1961) postulated the existence of a Displacement Effect. A major omission of Wagner's Law, was a consideration of the effects of war or other social upheavals upon the level and growth of public expenditure. Peacock and Wiseman's model attempts to take such factors into account. They found that public expenditure increased during a war or a period of social crisis. When the war ended, or the crisis was resolved, public expenditure fell, but did not go back to the original level observed at the start of the emergency. The result was that growth in public expenditure occurs in a series of step-like stages. Like Wagner's Law, several different versions of the Displacement hypothesis have been tested by many researchers. However, the empirical evidence is inconclusive. Bird (1970; 1972) and Musgrave (1969) among others have questioned the long-run significance of the displacement effect hypothesis. According to them, if the ratio simply reverts (after the war or social upheaval) back to its long-run trend prior to the war, then the effect is a short-run temporary one rather than a long-run one. Whilst Peacock and Wiseman's displacement effect hypothesis may offer a plausible explanation
of some of the unusually big shifts in public expenditure share, it does not
give a general theory of the growth and composition of public expenditure.

In Chapter 4, we attempted to give background information and/or a general
framework to Turkish economy and politics in terms of the public
expenditure growth. We looked briefly at the impact of politics and economic
policies on public expenditure in Turkey during the period 1950-1990. The
idea was that there is likely to be a close relationship between economic
policies, the role of the state and the pattern of public expenditure. During
this period we can see different economic policy regimes, such as liberal
(early 1950s), import substitution (from late 1950s to 1979) and export-
promotion policies (since 1980), and the changing role of the state in Turkish
economy. In taking a wider view in order to understand Turkish public
expenditure growth, we briefly discussed different economic policies which
were implemented in this period. We should emphasise that during the
whole period the role of state was dominant. In other words, as argued by
Hershlag (1988: ix), "... decrees and laws, and even democratically phrased
constitutions, have proved ineffective in eradicating the tradition of deeply
rooted étatism, plausibly re-defined as a major indispensable tool of rapid
development and progress, under the name of devletçilik [étatism, statism].
The basic notion has survived many political and economic upheavals,
despite intermittent denials by politicians, economists and academics." The
role of the state in the Turkish economy has been changing gradually since
the 1980 liberalisation policy. As Nas (1988) points out, however, despite
impressive achievements, the expectation that the state 'does or must do
everything' has not changed significantly. It has still to change.

After looking briefly at the general economic and political structure of Turkey
in chapter 4, the historical growth of public expenditure in Turkey during the
period 1950-1990 was outlined in chapter 5. Like many other studies of the growth of public expenditure we looked at the growth of public expenditure in relation to GNP and of real public expenditure. We also looked at the economic and functional classification of public expenditure in this chapter. The percentage of total public expenditure to GNP fluctuated (with rising trend during the whole period) between 18.4 percent (1959) and 41.8 percent (1990). In some years, it increased significantly. If we look at the figures in chapter 5, it is possible to see that these years usually coincided with some social upheavals, e.g. a war, a military coup or an election. In this chapter we also examined very briefly extra-budgetary funds expenditure which were introduced into the public finance system in 1984.

Chapter 6 presents the results of an empirical analysis of public expenditure growth in Turkey. Wagner's Law was tested using aggregate Turkish data for the period 1950-1990. We looked at the time series properties of the data, i.e. we tested for the existence of unit roots. We found that both the public expenditure and GNP variables were nonstationary in levels, but stationary in first differences, that is, they are integrated of order one (I(1)). Dickey-Fuller joint hypothesis tests show that the variables under examination are characterised as a difference stationary process. At least, they are DSP dominant mixed processes, not trend stationary processes. Since we use single equation model(s), we have applied a cointegration test (the first stage of Engle and Granger's two stage residual based approach) to six versions of Wagner's Law. According to the test results, there is no cointegrating relationship between the variables. These findings show that the support of Wagner's Law found by many early researchers may be spurious. In a test on Turkish data we cannot find any long-run positive relationship between
public expenditure and GNP variables for any of the six versions of Wagner's Law listed in chapter 6.

Although there is some evidence that various measures of public expenditure and GNP (and GNPPC) are nonstationary, and non cointegrated in this study, it is still possible to apply to Granger causality test, using I(0) series (i.e. first differences in our case). In the absence of a long-run relationship between variables, it still remains of interest to examine the short-run linkages between them. We have carried out Granger causality tests for the six versions of Wagner's Law. However, there is no evidence to support either Wagner's Law in any of its versions or Keynes's hypothesis.

The second explanation of the growth of public expenditure we tested was Peacock and Wiseman's Displacement hypothesis. New advances in time series analysis allow us to test the displacement effect as a structural break. In fact, Perron's Structural Break test is used. We applied the Perron Additive Outlier test for structural breaks. The test results failed to support any hypothesised structural break in public expenditure in Turkey as a result of the 1974 Cyprus War, the military coup in 1960 and sudden and radical changes in economic policy in 1980 (and/or the military coup in 1980). The results of additive outlier tests are contrast with graphical observations in chapter 5. Therefore, this issue has been also reconsidered in chapter 7.

In short, empirical results for both theories suggest that Wagner's Law and the displacement effect hypothesis are not valid for Turkey, at least over the sample period. Our results are not comparable with other studies of public expenditure in Turkey, first, because the other studies did not assess the time series properties of the variables, and second, the study period is different. However, our results, in terms of Wagner's Law, contrast with Krzyzaniak
(1974) who has found evidence for Wagner's Law, although they are in line with the study of Önder (1974) and Yalçın (1987) who, using aggregate data, could not find evidence to support the Wagner's Law. As regards the displacement effect hypothesis, Yalçın (1987) found a significant displacement effect in 1971 following the 1971 military intervention.

In the light of the reported empirical results in chapter 6, one may tentatively suggest that the growth of public expenditure in the case of Turkey is not directly dependent on and determined by economic growth as Wagner's law states, or by displacement effects such as the 1974 Cyprus war and/or other possible structural break years. Of course, public expenditure is the outcome of many decisions in the light of changing economic circumstances. It is shaped by decisions about how public expenditure should be distributed among competing groups, whether geographically concentrated or aggregated in organised interests (Klein, 1976). Thus, other factors, such as political processes, interest group behaviour and the nature of Turkish development may be considered as possible explanatory variables for the increase in the size of public expenditure. In this context, we should remember the importance of state economic enterprises, which we did not include in our public expenditure definition. For example, Yalçın (1987) has found evidence for Wagner's Law after including SEEs in the public expenditure definition. As discussed in Chapter 4, political authorities over nearly the whole period relied on state economic activity rather than the market.

So, using aggregate data, neither Wagner's Law nor the displacement effect hypothesis provides any clear answer to the phenomenon of growth of public expenditure in Turkey during the study period. The use disaggregated data has been recommended by some scholars, such as Musgrave (1969), Bird
(1970) and Jackson (1990). Following this, in chapter 6 (6.4), we have tried to apply cointegration tests to both components of economic and functional classification of public expenditure. Our results show that the null hypothesis of noncointegration can be rejected in favour of cointegration only in the cases of transfer expenditure (economic classification) and general administrative expenditure (functional classification). We have also looked at the causality properties of the variables via error-correction mechanism. The results also support Wagner's Law in terms of transfers and general administrative expenditure only.

In chapter 6, public expenditure growth in Turkey was examined only in a bivariant case. In chapter 7, it was decided to investigate other determinants of public expenditure growth in Turkey. In this context, in order to model public expenditure growth in Turkey, some new variables such as relative prices, urbanisation and some politico economic variables related Turkey's specific conditions have been taken into account. So, a "synthetic approach" which considers the various aspects of public expenditure growth (e.g., income, urbanisation, relative prices, regime changes, military conflicts) was used in this chapter. We have used two data sets in this chapter. For the whole period, incorporating dummy variables into the equation, a cointegrating relationship between variables under consideration was established. In the second stage, we have applied a dynamic ECM model. Contrary to results reported in chapter 6, using additional variables and dummies gives some support for Wagner's Law and Peacock and Wiseman's displacement effect hypothesis. For example, D60 (which is a dummy representing the 1960 military coup and/or economic policy changes) gives evidence of upward displacement. In order to see the effects of relative prices a shorter data set (1960-1980) (i.e. data set 2) was obtained from United
Nations National Account Statistics of Main Aggregates. However, we failed to find any evidence of a long-run relationship between the variables under consideration when relative prices were added as an extra explanatory variable.

As regards limitations of the study, firstly, because of data problems we used only consolidated budget expenditure for data set 1, i.e., general budget expenditure plus annexed budget expenditure, and government consumption expenditure for data set 2. We could not include local public expenditures\(^1\) in the public expenditure definition. Secondly, both Wagner’s Law and the Displacement Effect are partial analyses of public expenditure growth. While Wagner’s Law is a demand side explanation, the Displacement Effect gives some insights into the supply side. However, it is necessary to conduct more integrated studies in this field. Finally, whilst we added some new explanatory variables and dummies in chapter 7, it is possible that we have still the omitted variable problem. In the public expenditure literature there are many variables used to explain public expenditure growth. Therefore, omitted variable(s) can affect the test results, so that our findings may be distorted due to an omitted variables bias. In this context, it is also possible to discuss the role of cultural factors and interest groups behaviour (see Musgrave (1969), Peltzman (1980) and Mueller (1989) among others). This list is almost endless and without an adequate theory of public expenditure growth, it is difficult to know when to stop including explanatory variables.

Furthermore, the problem of data quality is a general problem particularly for developing countries. The data compiled for a developing country, like

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\(^1\) See chapter 5, footnote 1 about the importance of local public expenditure.
Turkey, might be less reliable and it appears that nothing can be done about this limitation.

In this thesis, we have tested two of the many explanations of public expenditure growth. They are partial models of public expenditure growth. There is a common argument that public expenditure is the outcome of many decisions. In this context, recently, the study of public expenditure growth has been one of the fastest growing research fields in public choice. In this framework, many competing and complementary hypotheses have been offered to explain public sector growth. These include special interest group formations (Olson, 1982), bureaucratic monopoly power (Niskanen, 1971), and rent seeking. As pointed out by Peacock and Rizzo (1987), public debt also could be a determinant of public expenditure growth. In this context, Buchanan and Wagner (1977) have found that debt is a major cause of public expenditure growth. For many decades Turkey has a significant amount of debt, the relationship between debt and public expenditure growth could be an other interesting research topic for Turkey. In this study, we mainly concentrated on demand side of public expenditure growth. To explain the growth of public expenditure from a generalised theoretical perspective which consider both cost side and demand side could be an other research agenda for Turkey (e.g. Jackson, 1993; Ferris and West, 1996).

For example, one way of looking at public expenditure growth is political business cycles models (or government spending cycles) (see, for example, Van Dalen and Swank, 1996). In these models the emphasis has been on the influence of elections and ideology on aggregate public expenditure and/or on various categories of public expenditure. This approach would be a good exercise for Turkish public expenditure as well.
Twenty eight years ago, Musgrave's general conclusion on public expenditure development was as follows: "The theory of expenditure growth remains a fascinating but somewhat elusive problem. Even if economic factors only are considered, it is difficult to arrive at an expenditure law" (Musgrave, 1969: 122). It would appear that relatively little progress has been made in the intervening years. According to Jackson (1993), "...knowledge of public expenditure dynamics is still rudimentary and our understanding about sources of public expenditure growth is conjectural" (Jackson, 1993: 122).

Part of the explanation for this situation must be that there are a vast number of competing theories of public expenditure growth and each theory of public expenditure growth "...has hold of only a small piece of the elephant" (Rostow, 1971: 6). We still lack a comprehensive theory of public expenditure growth, and it would appear that we are still a very long way from fully understanding the phenomenon.
REFERENCES
References


References


References


References


References


References


References


References


References


References


References


OECD, Economic Surveys, Turkey. Several issues.


References


References


References

Possible when Crimes are Under-Recorded?” *Public Sector Economics Research Centre*, Department of Economics, University of Leicester.


References


References


