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MASTER'S THESIS

RELATIONSHIP BETWEEN PUBLIC EXPENDITURES AND PUBLIC REVENUES IN TURKEY

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ABSTRACT

RELATIONSHIP BETWEEN PUBLIC EXPENDITURES AND PUBLIC REVENUES IN TURKEY

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In this study, the causality relationship between public expenditures and public revenues is analyzed. Autoregressive Distributed Lag Model and Toda-Yamamoto causality approach are used in the analysis for the sample period of 2006:Q1-2018:Q4. Empirical results show that there is co-integration and unidirectional causality relationship between these variables, which supports the Spend-and-Tax Hypothesis.

Keywords: Public Expenditure, Public Revenue, Unit Root Test, Autoregressive Distributed Lag Model, Bounds Test, Co-integration, Error Correction Model, Toda-Yamamoto Causality Analysis, Spend-and-Tax Hypothesis.

ÖZET

TÜRKİYE'DE KAMU HARCAMALARI İLE KAMU GELİRLERİ ARASINDAKİ İLİŞKİ

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Bu çalışmada kamu harcamaları ile kamu gelirleri arasındaki nedensellik ilişkisi analiz edilmiştir. Analizde 2006:Q1-2018:Q4 dönemi için Dağıtılmış Gecikmeli Otoregresif Model, eşbütünleşme testi ve Toda-Yamamoto nedensellik testleri kullanılmıştır. Ampirik sonuçlar, bu değişkenler arasında Harcama-Vergi Hipotezini destekleyen tek yönlü nedensellik ilişkisi olduğunu göstermektedir.

Anahtar Kelimeler: Kamu Harcamaları, Kamu Gelirleri, Birim Kök Testi, Dağıtılmış Gecikmeli Otoregresif Model, Eşbütünleşme, Hata Düzeltme Modeli, Toda-Yamamoto Nedensellik Analizi, Harcama-Vergi Hipotezi.

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LIST OF SYMBOLS AND ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
CBRT	Central Bank of the Republic of Turkey
CUSUM	Cumulative Sum
CUSUMSQ	Cumulative Sum of Squares
ECM	Error Correction Model
EU	European Union
EXPSH	Share of Government Expenditures in GDP
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
H_0	Null Hypothesis
H_1	Alternative Hypothesis
IMF	International Monetary Fund
LM	Lagrange Multiplier
MTAR	Momentum-Threshold Autoregressive
OECD	Organization for Economic Co-operation and Development
PP	Phillips and Perron
REVSH	Share of Government Revenues in GDP
SC	Schwarz Criterion
SCT	Special Consumption Tax
TAR	Threshold Autoregressive
TurkStat	Turkish Statistical Institute
VAR	Vector Auto-Regression Model
VAT	Value-Added Tax
VECM	Vector Error Correction Model

CHAPTER I

INTRODUCTION

1.1. BACKGROUND

Public finance is related to public sector economics and entails the tax collection and expenses of the government, particularly their impact on resource allocation and distribution of the income. Experts of public finance are mainly involved in analyzing the tax and spending policies as well as developing the appropriate guideline for governments (Rosen and Gayer, 2014: 13).

The implementation details and the borders of public financing are not well defined. This way we can assume that, what can be achieved via the control of taxation and spending, can equally be arranged by rules and regulation. In this respect, if one wants to control the ever growing size of corporations, then a possible solution is to apply larger taxing proportional to the size of the companies. Alternatively, companies beyond a certain size may not be allowed. Scientists continue to heavily investigate the topic of public financing, but antitrust issues still attract little attention, and are studied within the context of industrial organizations. (Rosen and Gayer, 2014: 2).

In order to meet the demand efficiently, it is imperative that scarce resources of the country's economy are distributed and utilized in an optimal manner. The utilization and the distribution of public financial resources have a direct role on the economic life and the governments organize such activities via different entities. In the orientation of these financial resources, the main role is of course taken up by the state institutions (Akdoğan, 1997: 23).

Empirically, the studies that test the causality relationship between public expenditures and taxes have occupied an important place in the economic literature after 1980s, especially because they put forward important policy suggestions on budget deficits (Payne, 2003: 302). These studies, which were previously carried out

mostly for developed countries and especially for the USA, were then conducted for many developing countries and different findings were obtained. The importance of investigating the causality relationship between public expenditures and public revenues is based on policy recommendations that can be drawn from this relationship. If public expenditures and public revenues are influenced by each other's past values, it can be considered that there is a causal relationship between these two variables in the Granger sense. This relationship will also help to determine the way to reduce budget deficits (Akçağlayan and Kayıran, 2010: 130).

1.2. OBJECTIVES

This thesis examines the relationship between public expenditures and public revenues by using ARDL Methodology and Toda-Yamamoto causality approach.

1.3. ORGANIZATION OF THE THESIS

In chapter 2, brief overview of public expenditures and public revenues in Turkey is given.

In chapter 3, theoretical literature (including four alternative hypotheses: tax-and-spend hypothesis, spend-and-tax hypothesis, fiscal synchronization hypothesis, institutional separation hypothesis) and empirical literature are examined.

In chapter 4, methodology and data are described.

In chapter 5, empirical results of relationship between public expenditures and public revenues are presented.

In chapter 6, conclusions are given.

CHAPTER II

BRIEF OVERVIEW OF PUBLIC EXPENDITURES AND PUBLIC REVENUES IN TURKEY

2.1. PUBLIC EXPENDITURES

2.1.1. Definitions

Based on decrees from the parliament and the president, works undertaken, costs of goods and services purchased, contributions for social security, interest payments for national and international debts, expenditures for general loans, debts arising from the instalments of loan mechanisms, financial and social transfers, donations, aids and other expenditures are called public expenditures (Public Financial Management and Control Law No. 5018, 2003: 8660).

Public expenditures are necessary not only to meet the individual needs of the public but also ensure the survival and the continuity of the state (Mosoti, 2014: 1).

The concept of public expenditures is redefined originating from the formation of states i.e., as the most modern instrument to serve the public and is subjected to ever changing definitions in different phases of history. Public expenditures are those made in order to meet the needs of the public. Nowadays the increases in public expenditures are the direct consequence of the increases in amounts and contents of public services (Kanca and Bayrak, 2016: 171).

2.1.2. Categories

Depending on specific conditions of countries, public expenditures exhibit a wide range of differences. In this sense, to be well informed, it becomes essential to investigate the reasons for these differences and diversifications. Since public expenditures are the financial indications of public services, it is reasonable to make an appropriate classification and make estimates of costs as to how these services should be distributed and prioritized. To this end, public expenditures, similarly to other expenditures of the state are listed with their respective headings and financial

amounts. On the other hand, to foresee the economic and financial consequences, it is also necessary to make a scientific classification. This way, it becomes easier to use the expenditures as a financial tool. (Edizdoğan, 1991a: 74-75).

Due to constant change and evolutionary nature of economic activities, it has become essential to classify the wide spectrum of public expenditures according to certain criteria. A general approach would be a classification based on quantification. (Türk, 2002: 9).

Adopting different scales, public expenditures can be classified in a variety of manners. It is also possible to create classification based on economic functional quantifications. In terms of economic classifications, groupings such as current expenditure and capital expenditure are possible, in terms of functional classifications, groupings such defense, health and education can be considered.

In the context of modern governments, to reach to the goals of budgets, expenditure classifications should be functional and economical classifications. Moreover, appropriate analysis of fiscal policies applied by governments and measuring central government's or total public sector's performance needs functional and economical classifications. Whereas economical classification is more suitable for defining the effects of fiscal policies on general economy, functional classification measures the public sector performance on the basis of social, cultural, economic etc. policies (Moğol, 2002: 125).

The following benefits are expected from the classification of public expenditures:

- The scarce sources can be distributed in the best way possible.
- The taxpayers can easily trace where their tax payment is spent.
- The classification can help policy makers. This way, they can determine their preferences more correctly.
- The financial roots of public services can be arranged in groups.
- The preparation of statistics of financial data becomes easier (Bilici, 2016: 68).

The classification of public expenditures is a useful tool for the measurement of performance and for deciding on the policies. For the forecast and orientation of economic, financial and social policies, the classification of public expenditures and

the related data again becomes imperative. Such an act would allow and contribute positively to theses analyses (Akdoğan, 1997: 52-53).

In the next sections, the classification of public expenditures will be described in details.

2.1.2.1. Economic Classification

Economic classification makes it possible to analyze the effects of public expenditures on the economy. In another words, this analysis reveals the impact of public expenditures on national income. In line with economic classification, expenditures are linked to aggregate demand, therefore affect the gross national product directly or indirectly.

There has been more attention to the effect of public expenditures on the orientation of the economy, particularly following the World War I and the 1929 crisis, and under the Keynesian Theory, the public expenditures have gained a more stronghold position, following the World War II. From this point of view, the classification of public expenditures has been a hot topic and has long been discussed at length. This classification is also important for the determination fiscal policies. (Edizdoğan, 1991a: 80).

Based on the economic classification, public expenditures are divided into two groups, namely real and transfer expenditures. This division was initially made by A. C. Pigou. At the same time, Pigou scientifically classified public expenditures depending on whether they caused an increase in production capacity of economy (Kalenderoğlu, 2015: 82).

2.1.2.1.1. Real Expenditures

Real expenditures are those made by the state to buy services and goods from individuals and providers. As a result of this, national income rises. Real expenses originate from the traditional functions of the state. Some examples are educational, administrative and military expenses. (Kaya, 2006: 22). When analyzing real expenses, two categories can be identified. The first category is the external purchase of goods and services. The second category is rather internal and consists of the salaries, and other payments made to the civil servants (Künü, 2013: 12).

Within the real expenses, there is also the distinction of current and investment expenses. This distinction exists in the budgets of almost all states, being based on the different nature expenditures for consumption and investment. Here the aim would be to investigate the relationship between public expenditures and accumulation of capital. (Edizdoğan, 1991a: 87).

Current expenses are those reserved by the central administrations for the goods of capital investment. These expenditures are made for goods having life cycle of one year and for goods and services which are used more than once and consumed within a year. These expenditures are related to the balance of consumption and the use of national income. These expenditures are heavily dominated by the execution and maintenance of administrative tasks and duties. In this context, salaries are considered within the framework of real expenses (Edizdoğan, 1991a: 87).

Capital expenditures are those which help capital accumulation and expand the production capacity. The benefit of capital expenditures is the sustainability. (Kalenderoğlu, 2015: 84). On the one hand, capital expenditures raise national income, on the other hand they create employment. Expenses made to increase production efficiency and those whose positive effects extend over a number of years are to be named as capital expenditures. (Künü, 2013: 14). For instance, road, bridge, dam constructions, big maintenance activities, expenses for survey and project works are classified in this group. These expenditures reinforce the production infrastructure and like current expenditures help raise national income (Bilici: 2016: 71).

The significance of capital expenditures has increased in proportion to the role of the state in economy. Within classical theory the weight of capital expenditure is almost next to null, since in this theory, the intervention of state in economy is considered unacceptable. Again, according to this theory, the state is responsible only for undertaking the minimum of capital expenditures. In contrast, after the 1929-1930 crisis and following Keynes, the role of the state in the economy seems to have increased. Of course the contribution of the real expenses to economic development and job creation cannot be ignored, but capital expenditures contribute substantially to the escalation of employment levels and to the efficient use of resources. Ultimately, we should bear in mind that, the services based on capital

expenditures cannot be offered unless real expenses are made. (Akdoğan, 1997: 75-76).

2.1.2.1.2. Transfer Expenditures

Transfer expenditures are not oriented towards the purchase of goods or services, but are aimed at social aid and strengthening social ties. The have gained a position among the public expenditure, after the year 1929. (Akdoğan, 1997: 73). The fact that transfer expenses starting to occupy an (important) position in the budget can be explained with the notion of social state (Kaya, 2006: 23).

Transfer expenditures can be classified among themselves as direct, indirect, revenue-capital, cash or in-kind aid. Indirect transfers are those that directly contribute to the income of individuals, examples are interest payments of state debts, pension salaries, food and heating aids. The indirect transfers increase income of individuals indirectly, examples are fixing ceiling prices for consumers, base prices for producers. Income transfers are money transfers aimed at boosting the consumption directly or indirectly. Capital transfers on the other hand help to increase production. Such transfers are also named as government subsidies. In-kind transfers are those made in the form of goods and services, examples are food and coal aids. Cash transfers are the actual cash payments such as salaries for the disabled, elderly etc. Social transfers are registered as negative income tax. Such a terminology implies that the state collects tax from the well off, and gives it to the needy (Bilici, 2016: 70).

In Turkey, the following items constitute the most important transfer expenditures; balancing the budget deficit of government institutions with private budgets, balancing the budget deficits of social security institutions, balancing the budget deficits of state economic enterprises (these are called “Treasury aid”), payments made for the interest of debts and balancing the budget deficits of local administrations (Bilici, 2016: 69).

Table 2.1 lists the economic classification of public expenditures between the years 2006 and 2017 as percentages of GDP.

Table 2.1: Economic Classification of Public Expenditures (2006-2017)

(% of GDP)

Types of Expenditure	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures	**22.3**	**23.0**	**22.5**	**26.5**	**24.7**	**22.0**	**22.7**	**22.0**	**21.4**	**21.0**	**21.8**	**21.5**
Current	**7.5**	**7.7**	**7.6**	**8.8**	**8.4**	**8.1**	**8.5**	**8.2**	**8.3**	**8.2**	**8.7**	**8.1**
Personnel	5.7	5.9	5.8	6.7	6.4	6.2	6.5	6.2	6.3	6.3	6.7	6.1
Other Current	1.7	1.8	1.8	2.1	2.0	2.0	2.1	2.0	2.0	1.9	2.1	2.0
Investment	**1.5**	**1.4**	**1.7**	**1.9**	**2.2**	**2.1**	**2.1**	**2.3**	**2.2**	**2.3**	**2.1**	**2.1**
Transfers	**13.3**	**13.9**	**13.2**	**15.9**	**14.1**	**11.7**	**12.1**	**11.4**	**10.9**	**10.6**	**11.0**	**11.2**
Interest Payments	5.8	5.5	5.1	5.3	4.2	3.0	3.1	2.8	2.4	2.3	1.9	1.8
Transfers To SEEs	0.6	0.3	0.4	0.6	0.7	0.4	0.4	0.3	0.3	0.4	0.3	0.3
Rebates	1.5	1.8	1.7	1.8	1.6	1.6	1.8	1.6	1.8	1.8	1.8	2.0
Social Security	3.1	3.8	3.5	5.3	4.7	3.8	4.1	4.0	3.8	3.4	4.1	4.3
Other Transfers	2.3	2.5	2.5	2.9	2.9	2.9	2.7	2.7	2.6	2.7	2.8	2.8

(% of Expenditure)

Types of Expenditure	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Current	**33.6**	**33.4**	**33.8**	**33.0**	**34.1**	**37.0**	**37.6**	**37.4**	**38.9**	**39.0**	**40.0**	**37.9**
Personnel	25.8	25.7	25.9	25.1	25.9	28.1	28.5	28.4	29.6	29.8	30.5	28.4
Other Current	7.8	7.7	7.9	7.9	8.2	8.9	9.1	9.1	9.2	9.2	9.4	9.5
Investment	**6.6**	**6.3**	**7.6**	**7.1**	**9.0**	**9.6**	**9.2**	**10.5**	**10.3**	**10.8**	**9.7**	**9.9**
Transfers	**59.8**	**60.3**	**58.6**	**59.9**	**57.0**	**53.4**	**53.2**	**52.0**	**50.8**	**50.2**	**50.3**	**52.2**
Interest Payments	26.2	24.1	22.6	20.1	16.9	13.8	13.6	12.6	11.4	10.8	8.8	8.5
Transfers To SEEs	2.6	1.3	1.7	2.1	2.7	1.6	1.8	1.5	1.6	1.8	1.4	1.2
Rebates	6.6	7.8	7.7	6.8	6.5	7.4	8.0	7.4	8.2	8.4	8.5	9.4
Social Security	14.1	16.5	15.7	19.9	19.2	17.3	17.9	18.0	17.7	16.3	18.7	19.8
Other Transfers	10.3	10.7	10.9	11.0	11.8	13.3	11.9	12.5	11.9	13.0	12.9	13.2

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

2.1.2.2. Administrative and Functional Classification

Functional classification is the one made taking into account the organizational structure, the functions performed by the state. Allowances to the state organs are made in the budget according to the administrative classifications. This classification is also known as the organic classification, since the allowances are distributed to the state organs depending on their spending. (Türk, 1996: 46). Examples of administrative classification are the Presidency, Supreme Court, Court of Accounts, Parliament, Ministry of Education, Trading Ministry, etc.

The services which constitute the functional classification can broadly be grouped into three separate headings, these are general, economic and social services. General services are essential components and afford the continuity of being a state such as general administration, defense and jurisdiction. Economic services cover services such as the supply of raw materials, intermediate goods for production, this way they offer benefits to the manufacturers rather than the consumers. Examples of such services are construction, energy, transportation, etc. These services indirectly provide benefits to the consumer by reducing the production costs of manufacturers. Social services are those beneficial to the society on individual and general basis. Examples are services associated with education, health, social security culture, housing. Social services provide direct benefit to the individuals (Edizdoğan, 1991a: 79).

With functional classification, it is possible to understand the purpose of the public expenditure. The precondition of such a classification is that, the public organization undertaking the task, should have made such a classification. In this manner, the total amount of spending for each group of services can be identified individually and also the sorting of expenses across the different services can easily be made (Türk, 2002: 56).

Functional classification demonstrates the progress of expenditures against time and also the cross inspection of services and their dependence on each other. Classification, while enabling the estimation and cross assessment of the cost of public services, at the same time, paves the way to the analysis of cost and returns. In functional classification, if a service is performed by more than one public administration, all expenses are summed and this way a total is recorded for each service. Hence, it become possible to group the expenditures under the headings of education, defense, health etc. Functional classification is important in the sense that the public services are conducted in an effective way, public resources are used efficiently, duplications are prevented and lastly, it enables scientific studies. But in some cases, the same service can be undertaken by different public organizations where the separation and classification become somewhat difficult. For instance, in defense expenditures, in addition to the direct benefits collected, it may be confusing how to classify the revenue obtained from the activities in the defense related establishments (Akdoğan, 1997: 72-73).

In functional classification, title name is independent of who spends the money but is related to the sector for which the spending is made. Furthermore, in functional classification such grouping enables the efficient spending of financial resources. Similar to private enterprises, with such groupings, the state also seeks to maximize the efficiency. Some examples of expenditures according to functional classification are national security expenses made by both Directorate General of Security and General Command of Gendarmerie, these two expenditures come under a single heading. In a similar manner, the expenditures of Ministry of Transport and Infrastructure (which is considered to be an administration with a general budget), the expenditures of Directorate General of Highways (an administration with special budget), the expenditures of Directorate General of State Railways (State Economic Enterprise) are all gathered under the budget of Ministry of Transport and Infrastructure. In military defense sector, all expenditures made by the Ministry of National Defense, General Command of Gendarmerie and Command of Coast Guard are grouped under the same heading. All expenditures of Ministry of National Education, Council of Higher Education and the universities are grouped under a single heading of education (Bilici, 2016: 73).

In Turkey, the functional classification is in line with the fundamentals of The Classification of Functions of Government (COFOG) published by Organization for Economic Co-operation and Development (OECD) specifically prepared for functional classification. The first level items used for functional classification are:

i. General Public Services: Services for legislative acts, foreign affairs, foreign economic aid, services of finance ministry and treasury, customs services, general planning and statistical activities, debt management, basic investigations are included in this functional classification.
ii. Defense: Military defense activities, management of land, sea and air forces, civil defense activities, military aid, contribution to international peace keeping forces are included in this category, while military hospitals and military schools are excluded.
iii. Public Order and Safety: Services offered by police forces for land, sea ports, borders, for traffic, labs, for institutional safety and fire and courts are included in this category.

iv. Economic Affairs: The general economic activities including the foreign trade, supervision of banking activities, publicity of general trade activities, management of patents and trademarks, management of general employment policies, farming, energy, mines, construction, transportation and communications are included in this category.

v. Environmental Protection: Collection of waste, their processing and discharge, sewage services, combating air pollution, protection of environment, climate, protection of fresh water resources, protection of nature and the habitat are included in this category.

vi. Housing and Community Amenity: Settlement, property and land development activities, clearance of shanty areas, provision of fresh water and future planning, assessments of available resources are included in this category.

vii. Health: Health services offered by the state, hospitals, clinics, organization of surgical operations, public health and licensing of health service providers, are included in this category.

viii. Recreation, Culture and Religion Services: Sports activities, recreation centers, support of sports teams, public libraries, museums, theaters, various cultural activities, printed and visual press, religious activities and the maintenance of related accommodation facilities are in this category.

ix. Education: Management and running of schools at all education levels, the related construction activities, educational activities, organization of educational institutions, their supervision and permissions are included in this category.

x. Social Security and Aid: The social security and protective social services of the state, pension services, social aids to the aged and the needy are included in this category. Aids in cash, salaries of the needy are excluded from this category (Directorate General of Public Accounts: 2017: 3-6).

Table 2.2: Functional Classification of Central Government Expenditures (2006-2018)

(% of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Central Government Budget Expenditures	**22.6**	**23.2**	**22.8**	**26.8**	**25.4**	**22.6**	**23.1**	**22.6**	**21.9**	**21.6**	**22.4**	**21.8**	**22.3**
General Public Services	8.9	8.6	8.3	8.8	7.7	6.6	6.7	6.3	6.2	6.1	5.8	5.5	6.1
Defense	1.5	1.3	1.3	1.5	1.3	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.1
Public Order and Safety	1.3	1.4	1.4	1.6	1.6	1.6	1.7	1.6	1.7	1.7	1.8	1.7	1.8
Economic Affairs	2.7	2.7	2.9	3.3	3.6	3.2	3.2	3.2	3.0	3.1	3.0	2.9	3.0
Environmental Protection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Housing and Community Amenity	0.5	0.5	0.4	0.4	0.6	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3
Health	1.2	1.3	1.3	1.6	1.4	1.3	1.0	1.1	1.1	1.1	1.1	1.1	1.1
Recreation, Culture and Religion Services	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Education	2.8	2.9	3.1	3.6	3.6	3.5	3.6	3.6	3.7	3.7	4.0	3.7	3.6
Social Security and Aid	3.3	4.0	3.8	5.6	5.2	4.4	4.8	4.7	4.5	4.3	5.0	5.1	4.9

(% of Expenditure)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Central Government Budget Expenditures	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
General Public Services	39.5	37.2	36.2	32.9	30.4	29.2	29.1	28.0	28.0	28.0	25.8	25.2	27.3
Defense	6.5	5.8	5.7	5.4	5.1	5.1	5.1	4.8	4.7	4.5	4.5	4.5	5.0
Public Order and Safety	5.9	6.1	6.2	6.1	6.4	7.2	7.3	7.3	7.5	7.7	8.0	7.9	8.1
Economic Affairs	11.9	11.6	12.8	12.3	14.0	14.0	13.9	14.2	13.9	14.5	13.3	13.4	13.5
Environmental Protection	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Housing and Community Amenity	2.2	2.3	1.7	1.4	2.2	1.5	1.5	1.7	1.3	1.2	1.0	1.3	1.3
Health	5.2	5.5	5.7	5.8	5.5	5.9	4.3	4.8	4.8	4.9	4.9	5.2	4.8

(% of Expenditure)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Recreation, Culture and Religion Services	1.6	1.6	1.7	1.7	1.8	2.1	2.1	2.2	2.3	2.2	2.0	2.0	1.9
Education	12.5	12.6	13.4	13.3	14.1	15.4	15.7	15.9	16.9	17.2	17.8	16.8	16.2
Social Security and Aid	14.7	17.1	16.6	20.9	20.3	19.3	21.0	21.0	20.5	19.8	22.5	23.5	21.8

Source: Ministry of Treasury and Finance (Central Government Budget Expenditures), TurkStat (GDP Statistics)

The distribution of public expenditures with the naming of the above functional classifications can be found in Table 2.2 for Turkey between the years 2006-2018, in both percentages of GDP and the expenditures themselves. Accordingly, we see that the greatest share belongs to the general public services. In 2006, the share of general public services in central budget expenditure is 39.5% and as a percentage of GDP it is 8.9%. In 2018, these ratios respectively become 27.3% and 6.1% which means that the percentage of general public services in central budget expenditures has slightly dropped with years. Ranked in the second position is the social security and aid. Education is in the third rank. The defense expenditures seem to be falling in the period taken, whilst public order and safety expenditures exhibit rising trend. The percentage of central budget expenditures in GDP, while displaying a steady trend against time, also records some rises in 2009-2010.

2.1.3. Progress of Public Expenditure in the World

We see a general rise in the public expenditures in the world, particularly following World War I. A number of unexpected increases are seen in the expenditures due to defense and transfer expenses. Additionally, public expenditures have arisen to never declining levels resulting from the devastating effects of the war. After 1929, the classical approach of non-interventionist state will lose grounds. During the 1930s, we see Keynes who puts forward the idea the state should abandon the classical approach and should instead intervene in the economy through its fiscal policies. According to Keynesian theory, the public expenditures are the external tools to affect the economic growth and to stabilize the economic fluctuations. (Künü: 2013: 111-112).

In developed countries, 1930s are the beginning of years witnessing the increasing role of the state in nationalization, thus establishing a stronghold in the economy. Following the great recession of 1929, economic growth has declined, unemployment and poverty have reached unprecedented levels. For such circumstances of crises, Keynes stresses the importance of state financial policies, thus drawing the attention of the economists and the others. The solutions and proposals of Keynes are welcomed by many to relieve the narrowing economies, thus accelerating the acts of nationalizations in countries, particularly following World War II. On the other hand, for the nations becoming independent in those days, this idea is found quite favorable, hence the world as a whole has entered an era where the state starts to play an unquestionable role in the basic industries. In this era shaped by Keynesian theories when judged by expenditures and revenue, it is seen that public expenditures have a positive impact on the public income (Sarı, 2003: 26).

The concept that the state should play a key role in the economy has continued until the stagflation of 1970s. According to the supply oriented theory of economy, that has emerged in 1970s, the state should pursue a low profile in the economy. For the realization of this aim, the state should implement privatization. The main idea in the supply oriented theory of economy, the roots of inflation lie in the act of public spending. In addition, production should be organized around supply rather than consumptions. This is because the main stimulus in the growth of the economy is more (mass) production (Künü, 2013: 111-112).

Although almost all countries have recovered from recession, they also begin the process of privatization after observing the inefficiency and performance drops in the industries nationalized. In this period, the expectation has been that the state withdraw from the economic platform, should instead concentrate on its primary duties such as education, defense etc. To this end, initially in developed, later in developing countries, the previously nationalized and existing industries are privatized (one by one). However, an unexpected contradiction has occurred during these events. That is, although both the developed and developing countries have paid much attention to privatization, the percentages of state expenditures in GDP, have continued to rise in time (Sarı, 2003: 26).

There are different approaches and philosophies as to the role of the state in economy and its associated component of public spending. These range from the basic idea that the state should assume the task of planning and managing the economy up to assigning a role of the minimum and intervention only when required. The magnitude of public expenditures is considered to be an important measure of the economic size of the state. (Selen and Eryiğit, 2009: 178).

The advocates of the classical economic theories, such as Rational Expectations Theory, Supply Side Economics Theory and Monetary Theory suggest that the solutions to the existing economic problems can be attained by reducing public expenses. The defenders of this hypothesis try to substantiate their arguments by saying that the intervention of the state in the economy deters the initiative of the private sector, also causing the overall efficiency and the amount of investments to drop (Ulusoy and Zengin, 1998: 3).

According to Musgrave (1980), the concept of the public sector may be interpreted in various ways. It may be conceived as reflecting budgetary transactions, public enterprises, public regulations and similar concerns. All these policies are of significance, but in terms of analyzing the size of the public sector, budgetary activity is on focus. Even if this narrower view is taken, the size of the public sector may be measured in different ways. Various ratios may be devised, relating budgetary activities to different components of the national income accounts, such as personal income, national income and gross national product. Personal income includes income received by households, and contains three governmental components, which are transfer payments, wage and salary earnings from public employment and the third one is interest receipts. National income measures the sum of total of factor incomes such as wages, interests, rents, profits earned during a given period. These ratios offer a convenient way of examining the relative importance of the public sector in the structure of an economy. The most comprehensive measure is given by the total government expenditures to gross national product. The ratio results by comparing in terms of gross national product or gross domestic product and can be higher or lower, but it does not greatly affect the comparative pattern among countries (Musgrave and Musgrave, 1980: 139-141).

A generally accepted rule of measuring the public activity is the percentage of public expenditures in GDP. This measure has the important advantage; since it is

expressed in a single numeric value. The portion of public expenditures in GDP can range between 0 and 1, where the upper limit of public expenditures is the GDP itself. How close is the portion of public expenditures to the value of unity (1), is determined by the supply of labor. Reduction in the supply of labor causes a reduction in production levels and income. How close is the portion of public expenditures to the value of zero (0), is determined by the role of the state in the market. If the state offers no public services and has no intervention in the market, the portion of public expenditures in GDP becomes zero (0) (Uluatam, 1991: 155). But this also means that the state assumes no economic role or function. The actual reality shows that in countries of low income, even though no transfer expenditures are made, the state has to carry out the minimum level of public services, thus must have a share in the revenues. For this reason, the lower limit of the portion of public expenditures in GDP has to be greater than zero (Edizdoğan, 1991a: 73). In theory, the ratio being zero or unity denotes the practically impossible cases, since they point to a nonfunctioning economy. (Kalenderoğlu, 2015: 87).

Table 2.3: Public Expenditures as Percentages of GDP in the Selected OECD Countries (%)

Countries	**1975**	**1980**	**1990**	**1998**	**2010**	**2017**
Germany	24.48	25.38	24.69	31.72	31.31	28.17
Denmark	31.02	35.98	37.00	38.98	42.27	37.59
Spain	-	-	-	21.47	19.91	18.82
Finland	24.71	25.37	28.16	37.54	38.40	37.88
France	33.57	36.46	38.95	45.59	49.32	47.51
United Kingdom	36.49	35.56	32.58	32.05	42.28	36.03
Greece	17.90	21.40	42.29	42.71	50.53	46.80
Ireland	34.78	40.24	35.70	31.14	62.23	24.22
Italy	31.03	38.57	43.24	40.61	41.36	41.26
Luxembourg	28.74	32.19	29.15	37.24	39.93	38.74
Mexico	12.55	10.87	16.92	11.16	21.40	20.43
Netherlands	40.75	45.55	45.39	38.76	41.57	37.76
Poland	-	-	-	39.12	36.59	34.22
Portugal	23.72	27.37	32.32	37.27	43.96	41.45
Sweden	24.73	33.96	35.46	37.51	32.36	31.05

Countries	1975	1980	1990	1998	2010	2017
United States	19.47	20.54	21.56	18.72	26.16	22.32
Turkey	14.23	18.24	15.30	21.86	33.56	31.89
OECD Members	22.62	24.72	25.00	26.06	29.76	27.20

Source: World Bank

In Table 2.3, we show the percentages of public expenditures in GDP for the selected OECD countries. As seen this percentage seems to be increasing with years. But for some countries, in the period 1975 to 2017 the percentages are either stable or exhibiting downward trends. For instance, in United Kingdom this percentage is the same between 1975 and 2017 but in Netherlands, there is a decrease from 1975 to 2017. The countries which display the highest rises against time are Portugal, Mexico and Turkey. As an overall, the percentages are seen to have reached the highest levels after the year 2010 in the majority of countries.

We cannot claim that there will be negative consequences of rises in the public expenditures. With the increases in public expenditures, the state performs a number of important economic and social functions. Identifying the economic and social benefits, the shares of public expenses in GDP have in general increased in almost all the countries. This increase can be regarded as a part of the interpretation of modern and contemporary state. With definition of social state, the tasks and functionality borders have expanded. The economic development, combating unemployment, expansion of the boundaries of social services, inclusion of educational and health services are the main activities and the factors causing the rises in public expenditures. The arena of public activities and tasks come as a result of public demand. The provision of economic development, educational and health services are among the expectations of the public (Çelebi, 1992: 111).

From 1990 onwards, the public sector, in developing and particularly in developed countries, has grown enormously in size and scope. The industrialized countries have expanded the welfare of the society, while the developing countries have adapted a development strategy under public sector supervision. As a result, public sector has experienced growth both in size and scope worldwide (Uzay, 2002: 154).

The results of industrialization, the evolutions of economic thoughts and theories, advances in education, health, defense, developments in the economic and social functions of the state, broadenings in the functions central and local administrations, the changing role of the state in economic and social life of the society have modified and been effective on the functioning of the state and the structure and scope of public expenditures (Akdoğan, 1997: 71). Changes in human needs also affect the scope of public expenditures. We see the reflections of the ever changing nature of the individuals' needs in the structure and quantification of public expenditures (Sharp and Sliger, 1964: 33).

Table 2.4: Percentage of Composition of Public Expenditures in Selected OECD Countries (% of Total Expenses)

	Goods and Services Expense[1]		**Compensation of Employees[2]**		**Subsidies and Other Transfers[3]**		**Interest Payments[4]**		**Other Expense[5]**	
Countries	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**
Germany	3.9	5.1	5.5	5.7	77.9	82.1	4.6	2.0	8.1	5.1
Denmark	7.8	8.1	11.0	11.0	15.9	15.0	4.1	2.7	3.8	3.7
Spain	3.6	3.6	10.8	10.1	69.6	67.0	8.6	12.1	7.3	7.2
Finland	8.3	8.1	8.5	7.3	50.3	54.6	3.3	2.5	4.5	4.4
France	5.3	5.4	18.5	18.2	51.1	55.9	5.0	3.6	3.1	3.1
United Kingdom	13.1	13.5	13.6	16.1	57.9	56.5	6.7	7.3	8.8	6.7
Greece	9.4	8.2	21.5	22.1	40.8	46.5	12.0	6.9	5.3	6.6
Ireland	7.0	11.3	16.4	26.6	27.9	40.8	4.5	8.1	1.2	2.8
Italy	3.4	3.3	14.6	13.6	46.4	49.9	9.9	8.9	3.2	3.0
Luxembourg	6.7	6.6	18.1	18.3	54.6	53.4	1.0	0.9	3.3	3.9
Mexico	7.0	6.9	12.3	11.3	61.4	63.6	11.0	13.3	8.3	4.9
Netherlands	6.3	5.5	6.7	7.8	77.9	79.0	3.9	2.6	5.2	5.1
Poland	6.7	6.7	14.1	14.1	44.3	44.1	6.4	4.3	3.7	3.9
Portugal	8.6	8.6	24.9	20.8	42.4	43.6	7.0	9.2	3.7	3.7
Sweden	5.7	5.2	8.8	9.3	70.8	73.1	2.7	1.0	12.0	11.4
United States	9.8	7.3	10.0	9.7	62.7	65.5	9.7	10.9	7.8	6.5
Turkey	12.1	11.0	21.7	21.8	48.0	49.0	11.5	6.4	6.8	11.8
Average of OECD Members	8.6	8.1	12.9	13.9	58.0	56.2	4.8	4.3	7.2	6.7

[1] Goods and services comprise all government payments in return for goods and services used to manufacture goods and services on the market as well as non-market ones. Own-account capital formation is excluded here.

[2] Compensation of employees consists of all payments in cash, as well as in kind, made to employees in return for services provided, and government contributions to social insurance schemes such as social security and pensions which provide benefits to employees.

[3] Subsidies, grants, and other social benefits include all unrequited, nonrepayable transfers on current account to private and public companies; grants to foreign governments, international organizations, and other government units; and cash and in-kind social security, social assistance, and employer social benefits.

[4] Interest payments consist of interest payments on government debt to domestic and foreign residents (including long-term bonds, loans and other debt instruments).

[5] Other expense specified by spending on dividends, rent, and other miscellaneous expenditures (including provision for consumption of fixed capital).

Source: World Bank

Compositions of public expenditures of selected OECD countries as percentages are listed in Table 2.4. Accordingly, we see that the public expenditures are dominated by subsidies and other transfers and compensation of employees. The interest payments appear to be falling in time. In the average of OECD countries, subsidies and other transfers, goods and services expense and interest payments have declined in the interval 1990-2017, on the other hand, other expenses exhibit rises in the same period. In Turkey, we observe increases in subsidies and other transfers between the years 1998 to 2017.

2.1.4. Increases in Public Expenditures

Public expenditures have demonstrated rising trends starting from the beginning of 20th century. The amount of public expenditures has increased after World War II by the states attaching more importance to social policies (Kanca and Bayrak, 2016: 172). States take active role in economic and social life in the modern times, leading to diversification of public services and their scopes and this has inevitably brought about increases in public expenditures (Özbudun, 2002: 99). With the increases in public expenditures, several new related theories and ideas have been put forward. Now we move on to explain these theories.

2.1.4.1. Theory of Wagner

Adolph Wagner studying the industrialized countries such as USA, Germany, Sweden in 1880 has found that industrialization brings about welfare as well as increases in public expenditures. By this, Wagner has reached the conclusion that there is a relationship between the financial requirements of the state and national income in proportion to industrialization. According to Wagner this relation cannot be a pure a coincidence, but rather the reality experienced in all countries whose revenues have increased. As a matter of fact, the rises in public expenditures are expressions of escalations in activities of the state. An increase in demand for public services is seen in industrialized countries. The rising "social progress" demand of the public has caused the activities of the state to expand. This is because the activities that will materialize social progress are to come from the state rather than the private sector. As a result of these services not being undertaken by the private sector, the share of the state in the economy increases (Edizdoğan, 1991a: 50).

In this respect, the theory that there is a correlation between the rising share of the public sector and the economic development is known as "Wagner's Law". According to Wagner, it is possible to resolve the conflict and imbalance resulting from the ever increasing demands of the public and the rapid industrial developments. For this, protective and regulatory aspects of the state must be reinforced. (Gacener, 2005: 104).

The state is bound to increase the public expenditures to meet the ever increasing public demands. The cost of public services rises continuously due to social progress. In some cases, the income elasticity of goods and services provided by state may become greater than unity (one) (Kalenderoğlu, 2015: 77).

According to Wagner's Law, the public goods are classified as luxurious, hence their prices face constant increases in proportion to the income of the public. This attribution may also provide an explanation to the constant increases in the transfer expenditure of the state (Sarı, 2003: 26-27).

According to Wagner there is no direct cause between the national income and public expense. Wagner's Law states that public economy expands as the public demand increases and the need arises to keep externalities under control. At the same time, Wagner theory reaches a different conclusion than the Keynesian approach

which accepts the idea that the public expenditures are the external instrument in contribution to the national income. This way, public expenditures have an internal and indirect impact on national income (Selen and Eryiğit, 2009: 179).

2.1.4.2. Peacock and Wiseman Approach: Displacement Thesis

The notion of ever increasing trend of public expenditure proposed in Wagner's Law requires a long time analysis. This theory does not include the short term variations of public expenditures. The first theory explaining the change of trends with time in public expenditures was put forward by Alan T. Peacock and Jack Wiseman known as the jump thesis in public expenditure.

Peacock-Wiseman (1961) investigated the relationship about UK public expenditure and gross national product (GNP) in the period between 1890 and 1955. Here they noted the existence of upward jump following World War I and World War II. The expenditure peaks coincide with years of wars, i.e., 1900, 1918, 1943, 1952.

At the focal point of their theories, Peacock and Wiseman discuss the increasing trend of public spending on supply-side. Peacock and Wiseman improved their theory by bringing criticism against Wagner's Law and proposing a new definition, called the displacement effect. They examined the progression of public spending in United Kingdom between the years of 1989 and 1950 and, they alleged that public spending has increased gradually. According to their findings, sudden increase (jumps) in the public spending process was stemmed from unusual social circumstances like wars. They discriminated between tax and public finance. But, when there are unusual social circumstances, this discrimination can hardly be made. And at such times, new tax and spending rules and regulations become acceptable by society (Uçar et al. 2015: 45).

Peacock and Wiseman emphasized that it is natural to expect big jumps in public expenditures in extraordinary times such as war. Interestingly at the end of the war, these expenditures do not fall back to previous levels. The increases in public expenditures during these times, influence the way of thinking of the taxpayer as well. This way, the taxpayers sociologically become prepared to face high taxing rates. It is also clear that such extraordinary circumstances automatically call for increased resources of public revenue (Hockley, 1992: 30).

According to the investigations of Peacock and Wiseman, citizens who cannot tolerate high taxes at ordinary times, show more tolerance when the situation changes and becomes extra ordinary like war, natural disaster, economic crisis etc. In other words, at times of social instability, raised, intolerable tax burdens become tolerable. In summary according to Peacock and Wiseman, these extraordinary events cause what is called the displacement effect (Peacock and Wiseman, 1961: 27).

It is possible to explain the displacement effect in the following manner. After an extraordinary event or period, the taxing levels and contents imposed during the extraordinary times do not return to the levels and contents before the extraordinary times. Additionally, a new course of action after the expiry of the extraordinary period is not discussed. For instance, during wars, the supply of goods and services by the state (to its own citizens) is intentionally reduced. As a result of this reduction, a new perception on the tolerable level of taxing is developed in the public. A new level of taxing settles around a higher position. This way, public expenditures reach higher levels and remain there whereby it becomes impossible to return to the previous state of affairs. Hence both expenditures and taxes reach level higher than the previous times. This taxing and expenditure level continue to be valid until a new extraordinary situation. Of course there is the option where the state may wish to return to the status quo existing before the extraordinary period. But this case is only seen in situations of another extraordinary events (Edizdoğan, 1991a: 57).

In contrast to Peacock and Wiseman, C. E. Lindblom puts forward the idea that public expenditures do not exhibit jumps during extraordinary times, but rather follow smooth curves, unless the administrators decide otherwise (Kalenderoğlu, 2015: 78).

2.1.4.3. Baumol: Relative Price Effect

Baumol's hypothesis can be explained as follows. Public sector largely undertakes labor intensive production, since labor productivity does not increase at the same pace as that of the private sector, wages in the public sector do not rise as much it does in the private sector. Since the public sector has to pay competitive wages in order to attract qualified persons to provide public services, cost of public services increase. In this respect, public expenditures tend to rise. The view of

Baumol, from this perspective is that the rise in the prices of factors of production without raising efficiency will definitely cause increase in public expenditures (Kalenderoğlu, 2015: 80).

2.1.4.4. Other Approaches Related to Increases in Public Expenditures

Other aprroaches to explain the reasons for the increase in public expenditure can be summarized as follows:

Increasing Social Welfare Approach: Pigou and Dalton advocate with this approach, the state increases public expenditures for the purpose of producing social services and the interaction relationship is carried out continuously. According to this approach, if each expenditure increases social welfare, spending should continue. Thus, it will be possible to equalize the cost tax collected and the social benefit obtained by spending the income collected from this tax (Kalenderoğlu, 2015: 80).

Maximization Approach: This approach is an approach put forward by theorists such as A. Downs, J. M. Buchanan and G. Tullock, and positively reveals the subject. In this view, governments try to maximize their lifetime in a country governed by democracy. Voters are also trying to maximize their real income. In general, due to the increase in the standard of living, there is a change in the quality of the requested public activities. This situation, which arises from the idea that services on education, health, housing and transportation gain weight, may arise as a result of high income flexibility. Intense demand pressure in this direction leads to attempts to spend extra money through the political process (Akdoğan, 1997: 63).

Development Process of the Economy Affects Public Expenditures Approach: It is seen that various opinions are put forward in this regard. According to Musgrave (1969), the composition of public expenditure changes as a country's economy completes its development process. This change is in favor of expenditure on health, education and other social spending. Musgrave states that the level of public expenditure will increase due to this change. On the other hand, Rostow (1966), explains the increase in public expenditure with the importance of economic development and the role of the state in achieving this development. The increase in the level of production, importance of public investments, increase in the economic functions of the state, and the increase of the role of the state in terms of performing

both fiscal and extra fiscal duties cause an increase in public expenditure (Akdoğan, 1997: 64).

2.1.5. Distinction Between Central and Local Government Expenditures

Central government under the jurisdiction of legislative organ operates in a wide area together with its local organizations. The related spending of the central government is realized within the general framework of the budget. The subsidy of the public spending is done through taxing, public borrowing and funds (Peters, 1975: 122).

The state is responsible to meet the common demands and rights of the citizens living within its borders. The state fulfils these tasks by what is called the central administration (Nadaroğlu, 1986: 16).

It is observed that services which fall into the general interest of the public are planned and executed by central administrations (Akdoğan, 1997: 24). The needs of the public which cannot be generalized nationwide are served locally. In this respect, local governments are the public entities serving the public for needs outside those met by central government (Edizdoğan, 1991a: 143). Turkey has three types of local governments which are special provincial administrations, municipalities and villages (Union of Municipalities of Turkey, 2020).

Local administrations also have to meet the additionally created demand due to rapid urbanization, population increases and the new demand brought about by technological developments. This places the local administration in a more important position. It is generally accepted worldwide that the needs of the public are best served from the nearby localities. Nowadays, the significance of local administrations (governments) is appreciated more, since they can offer more efficiency and more cost effectiveness in the delivery of public services, they are more adaptable to the local needs of the public (Ulusoy and Akdemir, 2009: 260).

Central government expenditures are the expenses incurred by the administrations of the general budget. Local government expenditures on the other hand are expenses incurred, for instance by municipalities. In fact, both types of spending are made by the central government, because a major part of the income of the municipalities comes from the central government.

Based on the principle of unity of administration in the constitution of the Turkish Republic, public services are carried out both by local and central governments. Central administrations make spending to perform the nationwide services, while local administrations spend money to perform the local services. The relations in the balanced distribution of the public income between the spending of centralized and local needs are called intergovernmental fiscal relations (Kalenderoğlu, 2015: 85).

Intergovernmental fiscal relations actually define a reciprocity relation. The first one is sharing the services and the corresponding expenditures. From the financial perspective, the concept of sharing the income can also be used here. It is difficult to state a clear-cut rule as to which public services will be handled centrally and which ones locally. Such a division of responsibilities will depend on economic and social conditions, administrative and financial structure and strength of local governments. In a given country, the followings should be considered in the classification of functions as local and central (Tekin: 1977: 123-124):

i. Divisibility of the benefits generated by the services and their geographical spread: In general, central governments offer indivisible and collective services, whereas the local administrations can afford the divisible and semi-collective goods and services. This means that the services of central governments are heavily dominated by indivisible and collective ones, in the local governments, this content shifts to half divisible and semi-collective items. For instance, military and jurisdiction and military services are good examples of indivisibility, therefore fall under the control of central governments. On the other hand, utilities such as water, electric supplies and health services can be divided, as a result can be offered by local governments. Some services are strictly regional, hence can be considered as marginal utility. From such marginal utility, only the local people can benefit. Sewage system for instance, can be a benefit solely to the local people. Hence such services are considered regional rather than nationwide spread (Buchanan, 1960: 17).

ii. Effectiveness of the administration: According to this criteria, the services should be left to the most effective administration. Noticeable production

efficiency can be achieved if some services are organized centrally rather than locally. (Due, 1967: 476).

iii. Political reasons: The above is incomplete, in the sense that the division of duties between the central and local governments can sometimes be of political origin. Particularly, in federal states, economic concerns can be ignored in the division of services. This way, in the sharing of services between local and central governments, economic as well as historical, cultural heritages play a role. Local governments, have always been an important entity all throughout the history of mankind, but their boundaries of independence vary with ever changing political decisions.

In fact, it is difficult to draw the lines between the local and central administrations. Some overlays are possible depending on circumstances. While some services in nature can only be organized centrally, therefore assigned to central governments, but considering the benefits, the others may be reserved to the local administrations. In practical implementation, a lot of deviations are seen depending on countries, geographic conditions, political reasons. Military expenditures and military strategies in particular are of nationwide in nature and therefore require central planning. Other expenditures can be completely local. Yet some other expenditures are both of local and nationwide concern. Some examples are infrastructure investments, security, health (Akdoğan, 1997: 334-335).

In Turkey, the expenses in budgets of the local administrations consist of four classified headings, these are institutional, functional, financial and economic. Among these headings, institutional classification allows the determination of responsibilities and those responsible for programs. Functional classification shows the activity types. Similar to central government expenditures, the expenditures of local governments will fall into 10 groups of state activities (Local Administrations Budget and Accounting Regulation, 2016), these are listed below:

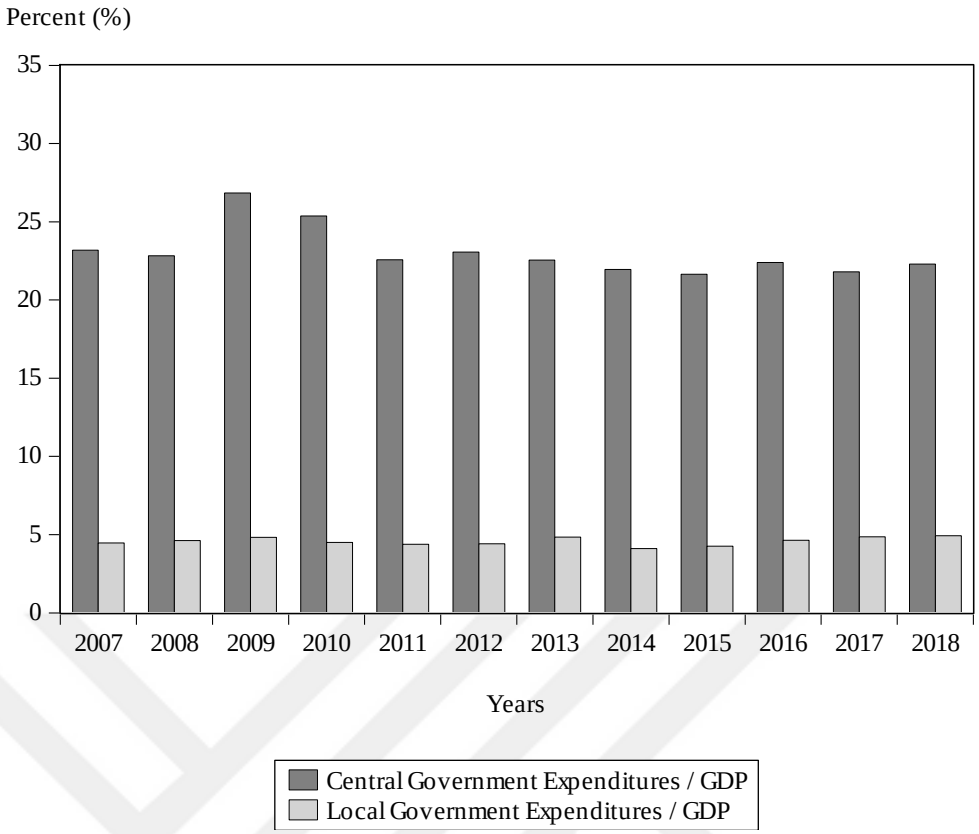
1. General public services
2. Defense
3. Public order and safety
4. Economic affairs
5. Environmental protection
6. Housing and community amenities

7. Health
8. Recreation, culture and religion services
9. Education
10. Social security and aid.

Financial type of classification will indicate source of finance. Here there are 8 types of financing codes. If for instance, the financing of services executed by the administrations are financed by their own sources, these are classified as “Local Governments”. Local government expenditures are an economic and financial classification. With such a classification, the types of expenditures are:

1. Compensation of employees
2. Government premiums to social security agencies
3. Good and services purchases
4. Interest
5. Current transfers
6. Capital expenditures
7. Capital transfers
8. Lending
9. Reserve appropriations.

In Figure 2.1, we plot the Central Government and Local Government Expenditures as a Proportion of GDP for Turkey.



Data Source: Numeric data is taken from Ministry of Treasury and Finance, TurkStat (GDP Statistics)

Figure 2.1: Central Government and Local Government Expenditures as a Proportion of GDP (%)

The share of central and local governments expenditures as a percentage of GDP between the years 2007 and 2018 is shown in Figure 2.1. Since the scope of central government expenditures is wider, it is seen from this graph, the percentage of central government expenditures is much larger than those of the local governments. In the year 2007, the percentage of central government expenditures in GDP is 23.1%, while the ratio of local governments is 4.4%. In 2018, these ratios have respectively become 22.3% and 4.9%.

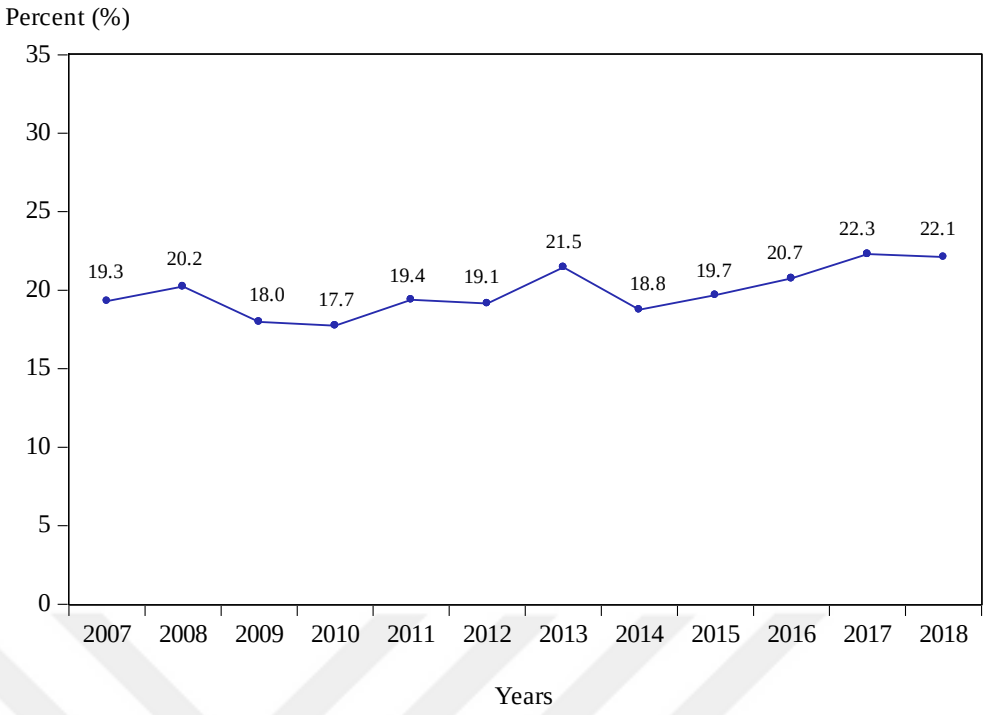
In line with philosophy of modern state, the face of public services, their contents will change and public expenditures will experience a proportional, even a rapid rise. With this development, the expenditures of municipalities undertaking the local government investments also show rising trends, not encountered earlier. In this increase, we find a decisive role of increased social, cultural, economic needs of people living in cities. But in all countries, the share and the importance of local

government expenditures within the general budget is closely related to national political climate and the constitution. In political systems applying more centralization, it is no secret that the weight of local administration will decrease (Tekin 1977: 117).

In connection with public expenditures, researchers such as Peacock and Wiseman investigated the validity of Wagner's Law. From these studies, a general trend of increase in both central and local government expenditures is encountered almost for similar reasons. Taking into account in the balance of supply and demand, the origins of these increases can be linked to the followings:

- The changing preferences and needs of the society
- The population changes in those receiving the services
- Demographic changes in the people served
- Variation in income levels
- Changes in age ranges and their new expectations.
- Changes in the prices of local services
- Changes in the unit prices of inputs coming from the public supplies
- Changes in the unit prices of efficiency in the provision of public supplies
- Changes in the quality of the productivity of public sector (Jackson, 1973: 60-61).

The ideas and the proposals explaining the origins of the increases in public expenditures are also seen as valuable lessons by local authorities. Next we present in Figure 2.2 the local government expenditures as a proportion of central government expenditures.



Data Source: Numeric data is taken from Ministry of Treasury and Finance, TurkStat (GDP Statistics)

Figure 2.2: Local Government Expenditures as a Proportion of Central Government Expenditures (%)

In Figure 2.2, local government expenditures as the portion of central government expenditures is plotted against time (years). Accordingly, we see that this portion is 19.3% in 2007, while it increases to 21.5% in 2013. After experiencing a fall in 2014 it rises to 22.1% in 2018. It is interesting to note that both types of spending follow the same rising trend. Turning to actual figures, we find that central government expenditures are 204,068 million TL in 2007, reaching 999,489 million TL in 2017. In the same period, local government expenditures are respectively 39,383 million TL and 183,658 million TL.

For quantitative and conceptual framework of local administrations, several approaches exist in the literature. Below we elucidate, some of these, namely the triple public allocation theory of Musgrave, the Layer Cake Model of Tiebout and Musgrave, Flypaper Effect, Vote by Foot Theory of Tiebout and decentralization theory (Bülbül, 2013: 51).

As the name suggests, there are three functions in triple public allocation theory. The first function covers those services like defense and jurisdiction

concerning the whole public, thus need to be organized centrally. The redistribution of revenues is one of the major tasks of the central administration and cannot left to the discretion of local administrations. The function of macroeconomic stability affects the entire economic outputs of the country and thus has to be handled centrally (Bülbül, 2013: 51-52).

According to Layer Cake Theory of Tiebout and Musgrave it is the duty of the central administration to manage the stable distribution of public sector and distribution of revenues, while the local administration should allocate the resources. In the allocation of resources, lower ranks are more efficient in this sense. Tiebout made an analysis on the preference of the individuals settling down in an area where the needs of the individuals are optimized assuming mobility of the households. This way a solution is formulated to the supply of public goods avoiding fictitious markets (Brown and Jackson, 1990: 256).

The classical models built upon the behavior of local administration advocate the preference of the electorate and their priorities on the allocation of transfer payments. But empirical studies have revealed that the expenditures of the local administrations based on non-refundable funds create “Flypaper Effect” causing deficits in the budgets of local administrations (Aytaç, 2015: 167).

There are softer approaches for the financial transfers from the central administration to the local ones. These are named as “Flypaper Effect” in the literature. The approach which argues that financial transfers from the central administrations increase the dependency of local administrations on financial transfers and thus the negative effect of the efforts to obtain other income is called flypaper effect in the literature. (Kızılkaya et al., 2018: 484-485).

According to Vote by Foot Theory, the consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods. This is a major difference between central and local provision of public goods. At the central level, the preferences of the consumer-voter are taken into account, and the government tries to adjust to the pattern of these preferences, whereas at the local level various governments have their revenue and expenditure patterns more or less fixed. Given these revenue and expenditure patterns, the consumer-voter tends to move to the community whose local government best satisfies his set of preferences. The greater the number of communities and the greater the diversity among them, the

closer the consumer will come to full realization of his personal preferences (Tiebout, 1956: 418). In the Tiebout Model, efficiency means that voter-taxpayers should be fully informed about the alternatives available (McCaleb, 2007: 254).

According to decentralization theory, there is an opportunity to help increase the economic wealth in the society by shaping and solving the needs of the society in small groups. On the other hand, more centralized decisions, by offering a flat level in the quality of services, do not allow such a differentiation (Bülbül, 2013: 53).

2.1.6. Historical Overview of Public Expenditures in Turkey

2.1.6.1. The Progress of Public Expenditures Between 1980 and 1990 in Turkey

An important instrument of public is the public expenditure. Through these expenditures, the public is able to shape the social, cultural, economic, political areas. In Turkish economy, the impact and the role of the public have continued up to the present. During the periods when the private sector could not maintain sustainability, the state has supported the private sector, through its own spending and this way has turned the wheels of the economy (Kayalı, 2017: 53).

It is well known that public spending is used as an adjusting device for demand levels both in economic recession and economic booms. Particularly, in short terms, public spending has a direct and dramatic influence on the increase and decrease of demand levels. Considering that public spending is composed of current, investment and transfer parts, public spending not only finances economic development, but it also redistributes the resources among the different social and income groups and through current spending, it purchases the production factors and this way generates public goods and services (Başol, 1992: 57-59).

Between the years 1923 and 1929, the state attempted to initiate the take-off of the economy by its subsidies. The crisis of 1929 revealed the necessity of state intervention, hence it was envisaged to follow the Keynesian roadmap. In fact, when 1929 crisis started, the state intervention became a necessity worldwide, so all the states adopted the Keynesian methods. All throughout 1930s states undertook several investments in various fields. Substantial increases in expenses were seen during World War II. In this period, in order to reduce the impact of military spending on the budget, the shares of other budget

items were reduced and the rich were taxed additionally. The years 1950 to 1960 was the time where the disadvantages of public debts and budget deficits were experienced. In this interval, negative effects of the abnormal increase in current and transfer spending were particularly felt. In 1960s, with the adoption of new constitutions, a concept of planned economy was initiated. Between 1960 and 1970, the policy of replacement of imports was pursued, private sector was subsidized, savings were made on public spending (Kayalı, 2017: 53-54).

In the interval 1961 to 1980, Turkey opted for the mixed economy and to develop the economy, decided to adopt five year plans, while restricting imports. In order to plan the development of the economy, State Planning Organization was established in 1961, with the state assuming the central role in the economy (Künü, 2013: 112).

The reasons for increases in public expenditures starting from 1980s can be summarized as follows: The budget deficits of state economic enterprises directly or indirectly shaped the size of the general budget. These developments have placed pressure on the budgets of state economic enterprises, also leading to increases in financial demands. Additionally, inflation has also affected public expenditures. In general, the main cause of inflation lies in the fact that public revenues do not meet the public expenditures. Deficit in social security expenses is another cause of inflation. The inflationary pressures of social security organizations (such as State Retirement Fund, Social Insurance Institution (SSK) and Pension Fund for the Self Employed (Bağ-Kur)) started from 1986 onwards. The ratio with respect to gross national product was 0.6 % in that year, rising to 2.6% in 2000. The budget deficits of municipalities also existed in the same time interval. Local administrations financially failed to meet the demands of the public with their own revenues due to disorganized and unplanned rapid urbanization and the corresponding infrastructures. Another additional source of revenue in this period was the funds outside the budget. Although contrary to the budget aims, the frequent utilization of funds furnished them the same rights as the other budgetary items. In 1986, there were 103 different funds. The cabinet decided during the budget preparations in 1993, to integrate the funds within the consolidated budget, upon the recommendation of the Supreme Planning Council in noting the disadvantages and the harmful effects of funds. In the second half of 1980s, important steps were taken in terms of privatizations. With

privatizations, it was envisaged to ease the financial burden on interest payments so as to relieve the burden of state economic enterprises, at the same time providing finance to new investments. However, this was not achieved at the desired level. One particular aspect of privatization was to transfer the extra personnel to the other state economic enterprises with the consolidated budget. Undoubtedly, this constituted an extra load for the state economic enterprises absorbing the extra personnel. The general elections held in this time interval caused additional increases in public expenses (Ağcakaya, 2003: 222-224).

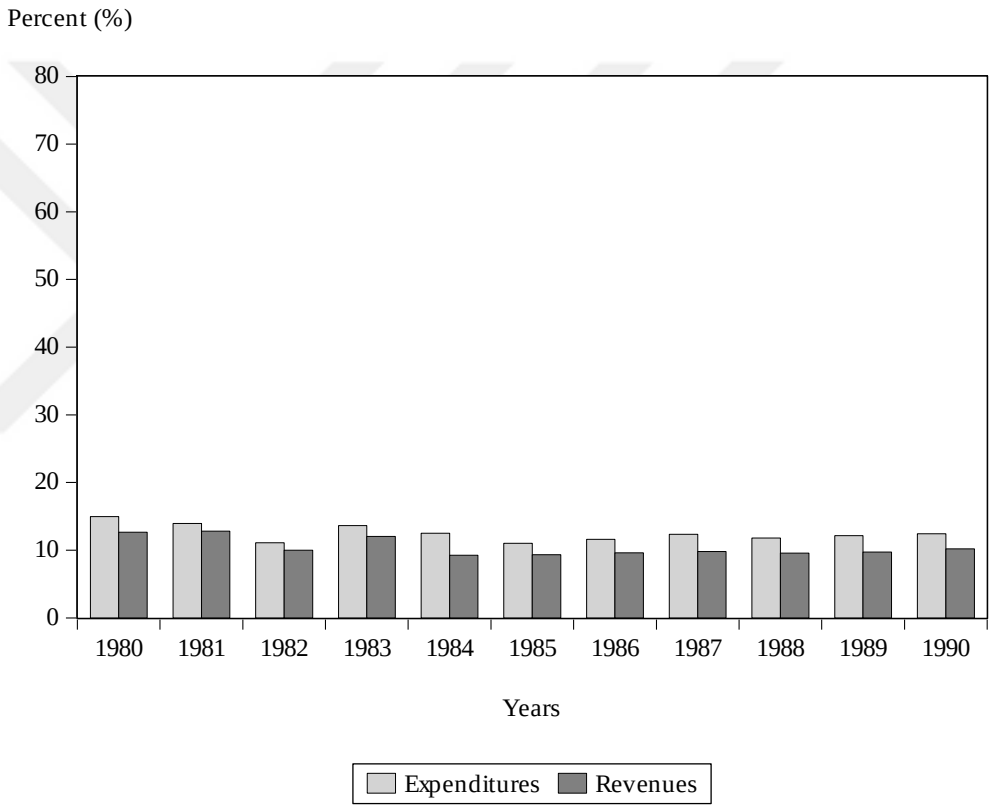
Free market economy was initiated in Turkey starting from 1980s. This way the role of the state in the economic arena gradually decreased. Towards the end of 1990s, we see the escalation of privatization and the related policies. On the other hand, in 1990s, the aims of pulling down the inflation rate to single digits through privatization and restricting the public expenditures were pursued. In this context, substantial reductions were seen in public investments and transfer expenditures. Being contrary to the Keynesian theory following World War II, that private sector became the leader in economic development and the ratio of public expenditures changed accordingly (This is the case of income elasticity factor for demand of public services being greater than unity) (Sarı, 2003: 29).

The spending and taxing policies prior to 1980 showed differences depending on the specific period, but the majority of the public spending was the current spending type. While the amount of tax collected from income was steadily increasing, the tax collected from goods, services and foreign trade was falling, tax on the property, on the other hand, remained the same. The portion of fixed taxing on the source (i.e. salaries and as such) was rising, tax collected according to declaration was dropping. Such an imbalance points to the inadequacy and inefficiency of taxing system (Başol, 1992: 95-97).

The fact that the Turkish economy was constantly behind the expected level of development, prior to 1980s caused a change in terms of the economic concepts. With the decisions taken on 24th of January 1980s, a return to the liberal economy was made, thus the role of the state in the economic arena was limited. The failure of privatization led to increases in the deficits and debits of public institutions. The problem of public deficits and budget debits continued in

the 1990s. In this period, personnel expenditures, social security deficits caused increases in public spending (Kayalı, 2017: 54).

It is interesting to see that the restrictive policies of 24th of January 1980 aimed at reducing the role of the state in the economy was gradually abandoned in 1983. This way, public investments went on the rise and anti-inflation and control policies were dropped. Up to the year 1987, public investment continued to increase despite the partial use of industrial capacity. Additionally, the general and local elections helped to increase public spending. The search of the private sector for new markets, the increased public spending due to elections accelerated the search for new political solutions (Toprak, 1995: 390).



Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.3: Public Expenditures and Public Revenues for 1980-1990 Period (% of GDP)

Figure 2.3 illustrates the progress of public expenditures and public revenues as the ratio of GDP for the years 1980 to 1990. Accordingly, the greatest difference between the ratio of expenditure and revenues happens to be in 1984. In this

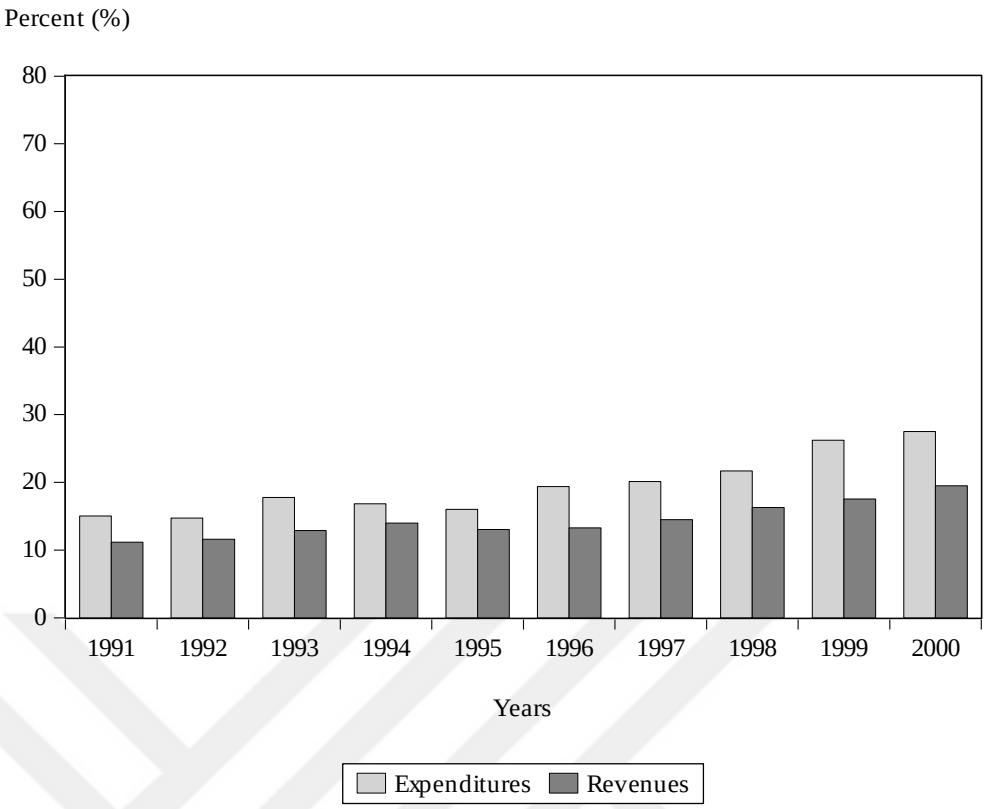
particular year, the ratio of expenditures is 12.5% while that of revenues is 9.3%, thus the difference becomes 3.2%. The years when this difference is the smallest is 1981 and 1982 with the numeric value of 1.1%. In the years 1980 to 1990 the highest ratio of public expenditures in GDP is in 1980 where the numeric value is 15.0%, with the smallest being in 1985 at 11.0%. The greatest share of public revenues in GDP is the year of 1981 with 12.8%, whereas the lowest is in the years of 1984 and 1985 with 9.3%.

Table 2.5: Components of Public Expenditures According to Economic Classification, 1980-1990 (% of GDP)

% of GDP	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Current	6.9	5.9	5.0	5.6	4.9	4.3	4.3	4.7	4.4	5.7	6.6
Transfers	5.5	5.3	3.8	5.6	5.3	4.5	5.0	5.7	5.9	5.2	4.6
Investment	2.6	2.8	2.3	2.5	2.3	2.1	2.3	1.9	1.5	1.2	1.3

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.5 contains the economic classification of public expenditures covering the period 1980 to 1990, given in section 2.1.2.1 of the thesis. Accordingly, current expenditures seem to have the highest share in public expenditures at the beginning of the period. In 1983, the ratios of current and transfer expenditures in GDP seem to have materialized as 5.6%. In the following period, transfer expenditures reach higher levels in comparison to current expenditures. This trend continues until 1989, where in 1989 the reverse happens and current expenditures, occupy the highest percentage in GDP in relation to the others. Investment expenditures seem to be steady throughout the years.



Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.4: Public Expenditures and Public Revenues for 1991-2000 Period (% of GDP)

Figure 2.4 displays the variation of the ratios of public expenditures and public revenues in GDP in the years 1991 to 2000. From there, it is seen that the year when the difference between expenditures and revenue makes a peak is 1999. In this particular year, the ratio of expenditures is 26.2% while that of revenues is 17.6% with the difference being 8.6%. The year when this difference is the smallest is 1994 with the numeric value of 2.9%. In the related period, the ratio of public expenditures in GDP is the highest in 2000 with 27.5%, it is the lowest in 1992 with 14.7%. The highest ratio of public revenues in GDP is in the year of 2000 with 19.5%, while it is the lowest between 1984 and 1991 with the ratio of 11.2%.

Table 2.6: Components of Public Expenditures According to Economic Classification, 1991-2000 (% of GDP)

% of GDP	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Current	7.6	8.3	8.1	6.9	6.0	6.3	7.0	7.2	8.5	8.0
Transfers	6.1	5.2	8.3	9.0	9.1	11.9	11.6	13.1	16.2	17.9
Investment	1.4	1.3	1.3	0.9	0.9	1.2	1.5	1.4	1.5	1.6

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.6 shows the economic classification of public expenditures in the years 1991 to 2000. Similar to the period 1980 to 1990, at the beginning, current expenditures have the highest share in public expenditures. In the year 1993, the ratio of current expenditures in GDP is 8.1%, whereas that of transfer expenditures is 8.3%. Following this period, transfer expenditures seem to settle at a higher position than current expenditures. This trend has continued up to today and transfer expenditures have always ranked at the top. Investment expenditures have fluctuated around 2% throughout the years.

2.1.6.2. The Progress of Public Expenditures Between 1990 and 2000 in Turkey

The fundamental issues of the Turkish economy between the years 1990 and 1999 can be summarized as follows. In this time interval, Turkey appears to have faced several economic crises. Although, there are external reasons for these crisis, the main items are (i) the formation and unsustainability of national and foreign debts (ii) the unhealthy organizational structure of public banks and the financial system as a whole and lack of solutions (CBRT, 2001: 4).

In the second half of 1990s, with the increases in the debts and the interest rates, it became necessary to enforce a proper balance between the public revenues and expenditures in order to break this vicious circle. From this perspective, the followings were effective in the unbalanced increase of public expenditures during the last ten years i) funds outside the consolidated budget, the uncontrolled expenditures of municipalities and public organizations with circulating capitals and balancing of their deficits through public banks in an non-transparent manner, violating the budgetary disciplinary rules, ii) the surplus and inefficient employment

policies and salary increases not apportioned to skills and productivity, iii) increases in the number of public projects, increased cost and low efficiency, iv) increased deficit of social security organizations, v) agricultural incentives not oriented towards the actual needs, vi) the existence of a large collection of inefficient and costly state economic enterprises (CBRT, 2001: 4).

In Turkey, the budget deficit became noticeable after 1950s. In the year 1974 as a results of price increases in petrol and the peace movement in Cyprus and the resulting embargos of the West and the US, the Turkish economy ran into huge budget deficits. In the decisions of 24 January 1980, lowering the budget deficits by restricting public expenditures was considered to be an important instrument for economic stability, but this act did not provide a good source of revenue for the state. In short it was seen that restricting the public expenditures alone was not an adequate measure to restore the economy. Starting from the beginning of 1990s, the gap between the public revenues and expenditures grew even greater. The gulf crisis in 1990–1991 is accounted as an external factor contributing to the budget deficit. (Saatçi, 2007: 94).

In the year 2000, the main targets of the state were ensuring the financial discipline via the implementation of measures for restoration of the debt portfolio to stable structure, increasing the revenues and elimination of funds. Within this framework, measures were adopted to increase revenues and restrict the expenditures outside the interest payments. But the crisis emerging in November 2000 and February 2001 escalated the debt, affecting the public sector negatively. In order to reduce the impact of the crisis on public financing, reforms were made in 2001 to increase the public efficiency and transparency. This way, the expenditures outside the interest payments were restricted, hence it was aimed to improve the balance of payments. As a result, excluding the revenues from privatizations, the ratio of revenues with respect to GNI was 3.2 % in 2000, it rose to 6.6 % in 2001 (CBRT, 2001: 33).

Turkey implemented important political transformations starting from 1980 with the aim of being integrated with the worldwide markets. In 1990s, in parallel to the increasing demands of capital by public sector, financial markets became sensitive to the movements of foreign currencies. Turkey was affected by the crises emerging in Asian markets in 1994, later expanding worldwide. To relieve the

impact of the crises, an economic package was introduced on 5 April 1994. This package initially created a negative effect on employment and production. The economic contraction in GNI became 3.8 % when this package was launched, reaching 6 % towards the end of 1994 (Selen and Eryiğit: 2009: 179)

In those days, the transformations starting with 24 January 1980 are generally named as the beginning of neoliberal era. In the competitive environment that emerged in 1980s, the chronic structural issues led to adaptation problems. In short, although the decisions of 24 January 1980 provided partial solutions to some economic problems initially, but this fragile stability was later replaced by economic instability (Apaydın and Açıkalın, 2015: 201).

2.1.6.3. The Progress of Public Expenditures in Turkey After the Year 2000

Starting from 2000, rigid control of the public budget and restriction of public expenditure were seen as the main instruments to lower inflation. In this respect, it was decided to increase taxing rates and reduce current expenses and the transfer payments to social security institutions. But these programs failed, and Turkey went through two separate crises. The basic aim in the economic programs put into practice starting from 2000 is to reduce inflations, interest rates, public debts, increase exports and reduce current expenses. The infrastructure investments, although contributing to the economic growth, Turkey nevertheless continues to be affected by global crisis (Künü, 2013: 113-114).

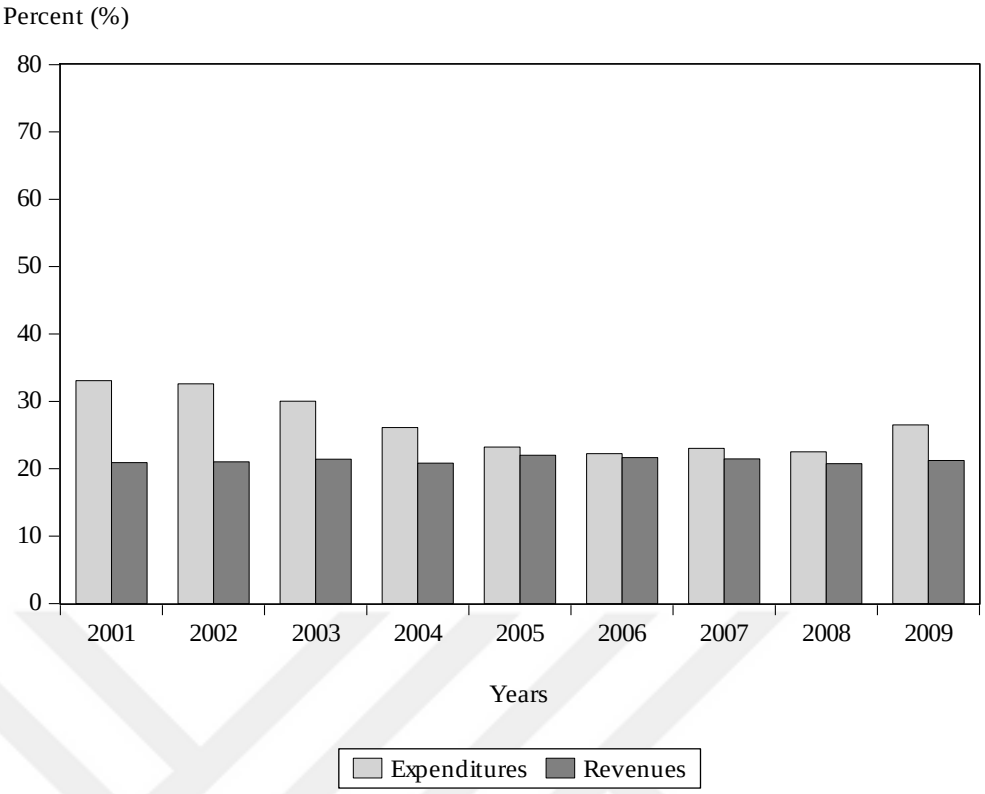
After the financial crisis of 2001, Turkey modernized the legislation concerning the budget process. The main change was the introduction of the Public Financial Management and Control Law (PFMC), adopted by the Turkish parliament in December 2003 (Law No. 5018, amended in 2005, Law No. 5436). This law replaced the General Accounting Law of 1927, which was outdated in many respects. The purpose of the PFMC Law is stated in its first article: The purpose of this law is to regulate the structure and functioning of the public financial management, the preparation and implementation of the public budgets, the accounting and reporting of all financial transactions, and financial control in line with the policies and objectives covered in the development plans and programs, in order to ensure accountability, transparency and the effective, economic and efficient collection and utilization of public resources (Kraan et al., 2007: 20).

All clauses of Law 5018 put into force in 2005 are reformist in its entirety in terms of Turkish public financing. It is possible to list the building blocks and fundamental aims of this law as follows:

- To establish a direct bond between the development plans and the budget.
- To ensure that all financial transactions are included in the budget.
- The provision of the technical grounds for the detailed presentation of data for public revenues and expenditures to the public within the constraints of the existing classifications of the budget and accounting rules.
- The change of the existing public finance and control system by law so that it becomes effective and compatible with international and European Union standards.
- To enlarge the scope of the budget so that budgetary rights are efficiently utilized.
- To increase the budget preparations and implementations.
- To ensure the transparency of financial management.
- To establish a healthy accountability mechanism and a balanced proper check and balances in expenditures.
- The formation of an effective internal control system, this way establishing a modern and contemporary public finance system (Tuncer, 2016: 17-18).

Medium Term Plan (MTP) prepared by the Presidency of the Republic of Turkey, Strategy and Budget Office is a program involving macroeconomic policies, targets and indications. This program after having been accepted by the cabinet, provides the preparation grounds for multiyear budget activities. On top of all, this program reflects the clear economic view of Turkey (Tuncer, 2015: 18-19). The fundamental aims of MTP are stable and wide spread economic growth, to reduce inflation and the deficit in current expenses, increase competitiveness and employment, increase economic efficiency, strengthen and support public financial discipline (Presidency of the Republic of Turkey, Strategy and Budget Office, 2018: 5).

Following the crises in November 2000 and February 2001, economic growth was observed in Turkey after the establishment of financial discipline (Tuncer, 2015: 25).



Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.5: Public Expenditures and Public Revenues for 2001-2009 Period (% of GDP)

Figure 2.5 presents the ratios of public expenditures and public revenues in GDP between the years 2001 and 2009. Accordingly, the year when difference in the ratios of expenditure and revenue is the greatest happens to be 2001. Within this particular year the ratio of expenditures is 33.1%, while that of revenues is 20.9%, thus the difference becomes 12.2%. The year when this difference is the smallest is 2006 with the ratio of 0.6%. In the related time interval, the highest ratio of public expenditures occurs in 2001, and the smallest is 22.3% in the year 2006. The highest ratio of public revenues is 22% occurring in the year 2005, while the smallest is 20.8% taking place in years 2004 and 2008. In general, we see that in the years between 2001 and 2009, the ratios of public expenditure and public revenue in GDP exhibit rising trends.

Table 2.7: Components of Public Expenditures According to Economic Classification, 2001-2009 (% of GDP)

% of GDP	2001	2002	2003	2004	2005	2006	2007	2008	2009
Current	8.3	8.5	8.2	7.8	7.2	7.5	7.7	7.6	8.8
Transfers	22.8	21.8	20.2	17.0	14.6	13.3	13.9	13.2	15.9
Investment	2.0	2.3	1.5	1.3	1.4	1.5	1.4	1.7	1.9

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

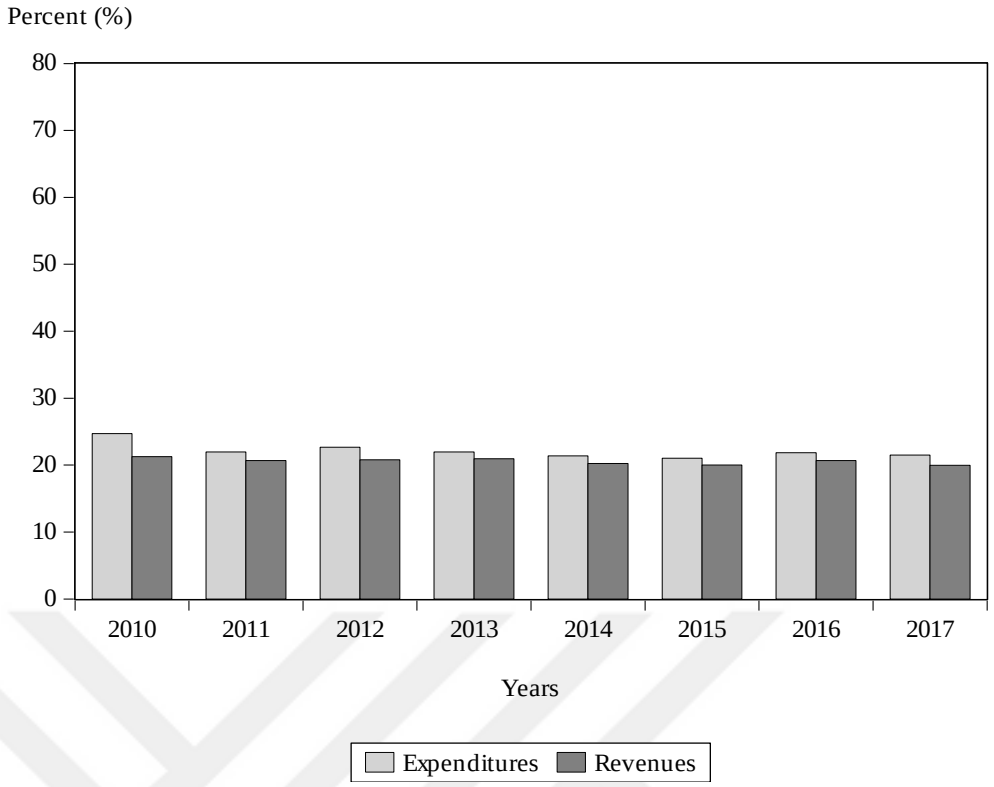
Table 2.7 gives the economic classification of public expenditures in the years 2001 to 2009. Accordingly, throughout the period, the largest share of public expenditures goes to transfer expenditures. On the other hand, however, the ratio of these expenditures in GDP has a declining trend in the years 2001 to 2009. At the beginning, this ratio is 22.8%, while in 2009, it falls to 15.9%. In the same interval, current expenditures and investment expenditures as ratios of GDP are more or less stable.

In the related period, in parallel to the aims of the ninth development plan in progress, the withdrawal of the public sector from the market of commercial goods and services and with a large scale of privatization, the role of the state in mining and production has experienced dramatic falls (Presidency of the Republic of Turkey, Strategy and Budget Office, 2006: 58). The slowing trend of capital expenditures up to the year 2005 is due to privatization acts (Feyzullah, 2013: 93).

It is possible to arrive at the following fundamental conclusions and derivations upon the examination of medium terms plans of the years from 2015 to 2018 from the public finance and public expenditures:

- Preservation and sustainment of the structure of public finance and discipline,
- Increased efficiency of resource utilization, the start of responsiveness and accountability for expenditures and budget implementations, arrangement of public expenditures in line with the policies of medium term plans, the questioning of the priority, efficiency and effectiveness of public investments,
- Establishment of the proper balance of income and expenditure in the budget after 2015 and realization of the structural reforms and preventive measures,

- Savings in public current expenses,
- The removal of the inefficient programs by applying the effectiveness program and restricting the new expenditure programs,
- Prevention of programs not having regular income,
- Exercising control over current expenses and establishing harmony between them and the budget,
- The use of zero budget and identification of savings in the purchase of goods and services,
- Increasing the activities of inspection over the public health services and interrogation of the public satisfaction, review of social security payments from the view of efficiency and abuse,
- Increasing the level of coordination by escalating the inspection activities, increasing the quality of municipality expenditures,
- Subsidizing and encouraging the innovative investments of public and the private sector, channeling those investments to improve the life quality of citizens and employment, regional development,
- Supporting the investments that contribute to the e-state infrastructure, investments oriented to the prevention of national disasters, identification of research and development (R&D) investments as the priority (Presidency of the Republic of Turkey, Strategy and Budget Office, 2018: 34-35).



Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.6: Public Expenditures and Public Revenues for 2010-2017 Period (% of GDP)

Figure 2.6, displays the 8-year progress of the ratios of public expenditures and public revenues in GDP between the years 2010 and 2017. As seen, the ratio of the expenditure is highest in 2010. In that year, the ratio of the expenditures is 24.7% and that of revenues is 21.2%, hence the difference is 3.5%. The years when this ratio is the smallest, i.e., 1%, are 2013 and 2015. In the interval, 2010 to 2017 the ratio of public expenditures becomes highest in 2010, it is smallest in 2015 with a numeric value of 21%. In a similar manner, the highest ratio of public revenues is encountered in the year 2010, while the smallest figure is for the years 2015 and 2017, with a ratio of 20%.

Table 2.8: Components of Public Expenditures According to Economic Classification, 2010-2017 (% of GDP)

% of GDP	2010	2011	2012	2013	2014	2015	2016	2017
Current	8.4	8.1	8.5	8.2	8.3	8.2	8.7	8.1
Transfers	14.1	11.7	12.1	11.4	10.9	10.6	11.0	11.2
Investment	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.1

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.8 shows the economic classification of public expenditures between 2010 and 2017. At the beginning of this period, transfer expenditures occupy the largest portion in public expenditures. Moving from 2010 to 2011, we see a drop of 2.4%. The average ratio of current expenditures in GDP is about 8.3% between the years 2010 and 2017. The ratio of investment expenditures in GDP has an average value of 2.2% in the same period.

2.2. PUBLIC REVENUES

The dependence of financial responsibilities on financial strength of the individuals and the institutions causes the diversification of public revenues (Edizdoğan, 1991b: 10). In this section, we aim to describe the revenue resources of the state.

2.2.1. Definition

The state needs income to undertake the tasks that it has to perform. This income is obtained via different institutions and from different sources. Presently states collect approximately one third of the gross domestic product (GDP) as income. This money is spent to carry out public duties, thus injected back into the economy. State performs financial, social and economic functions. Public income or revenue is needed to perform these duties. All duties undertaken by the state require financial resources and the state attempts to get these financial resources within the legal framework of public revenues (Akdoğan, 1997: 87).

To perform the public services, states and other public institutions must possess production facilities or can call for the supply of goods and services from the

market. In both cases, financial resources are needed. The public revenues are those collected by the state within the legal and constitutional boundaries and then directed into public spending so that public services can be executed. (Orhaner, 2000: 117).

The magnitude of public revenues and their ratio to GDP are clear indications of the size and capacity of the national economy and public welfare. On one hand, the state retrieves part of theses revenues from the economy to finance the public goods and services, on the other hand, the state uses these revenues to shape the fiscal policies. (Akıncı, 2019: 101).

2.2.2. Major Sources of Revenues

Public revenues are obtained from a diversity of resources. These are taxes, fees, duties, special assessment income, fiscal revenues fines, property and entrepreneur income, funds, income obtained from financial transactions, donations.

2.2.2.1. Taxes

According to Law 5018 (2003), the revenues of administrations under the general governance are tax, fees, funds, shares and similar revenues, interest, price increases and fines, social security cuts, donations and aids, revenues obtained from real estates and chattels, revenues obtained from services, revenues obtained from the sale of premium debts, other revenues.

The act of taxing is based on the sovereignty rights of the state. It is the economic value collected by state organs who are empowered to collect it from the public in a nonreciprocal way and within the legal framework defined. (Ulusoy, 2016: 50).

Taxes are an important element of the public revenues. For this reason, there are different views in the literature on how an efficient taxing system should be.

One such view is from Musgrave (1980). Similar to other countries, the tax system in United States has been shaped by political, social and economic needs. Of course, it has not been designed by the experts in the field, so it cannot be considered as optimum. But what indeed constitutes a "good tax" system, how do we define it. Ever since Adam Smith, various economists and philosophers have investigated this subject, we may summarize their findings as follows; a good tax system should be fair, i.e., the tax burden should be shared by the citizens on an equitable basis. If and

when tax incentives are used, they should not damage the fairness of the whole system. A good tax system should allow stable economic situation and growth. The taxpayer should easily be able to comprehend the (flowchart of) tax system and establish confidence in its fairness. A good tax system should be administratively compliant with the other polices of the state. Obviously there are other criteria for a tax system to be qualified as good. The different objectives may not necessarily be compliant; in this case, a balance of compromises will be required (Musgrave and Musgrave, 1980: 235).

According to Stiglitz (1999), the design of a tax system, which is just and acceptable has always been under serious discussions. To the taxpayer, less tax is always favored. On the other hand, the question is how it should be distributed among the public and who should pay more, who should pay less. Throughout the history, the governments have sought ways of maximizing their tax revenues and the general guidelines or the properties of tax systems which will lead to this process. Generally accepted five such properties for a good tax systems are; a good tax system should not hinder the efficient allocation of resources, thus it should be economically efficient. A good tax system should contain administrative simplicity, i.e. its management should have the least cost for the state. A good tax system should be flexible enough to be adaptable to changing economic conditions. A good tax system should be sufficiently transparent to allow the taxpayer to assess and evaluate the system and what he or she is being taxed for. A good tax system should be fair in taxing the individual in terms of social and economic status and particularly the income (Stiglitz, 1999: 456-458).

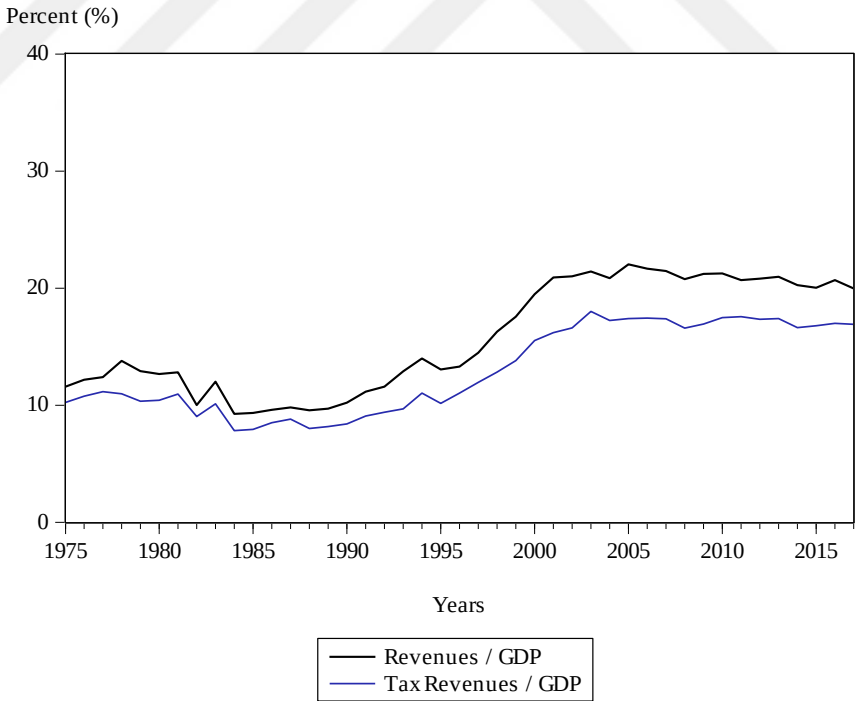
The fundamental source of financing the public expenditures is taxing. Taxes on the other hand are the important instruments in the determination of social and economic policies for balance of payments, distribution of wealth, sustainability of economic development (Budget Justification for 2020, 2019: 126).

Nowadays, taxing seems to be the main financial instrument in achieving financial policies. With this major role of taxing in public revenues among others, the state aims to establish economic developments, economic stability, a fair distribution of source and income (Akıncı, 2019: 101).

Taxes are an important source of revenue of the state for public expenditures, for intervention in socioeconomic life. To realize the financial or other activities, it is

essential that taxing should not cause a loss in welfare of the society, but instead should help the economic stability. This way, an efficient tax collection system will come into force and taxing is bound to reach a level that will comfortably finance the public expenditures (Mucuk and Alptekin, 2008: 160).

There are several characteristics of taxing. The first and the most important one is that taxes are collected in a forceful way. This is enforced and regulated by the state relying on its rights of sovereignty. Taxes are unrequited (nonrefundable). This means that the state is (free) to decide which public services are to be offered by using the financial resources generated by taxes. This also means that the state is at liberty to decide which of those public goods and services are to be prioritized in these expenditures. As a general rule, the priority often is given to collective goods and services. Tax is collected in order to finance the public spending. Taxing is an instrument to transfer money from the individuals of the private sector to the public sector. The money collected via taxes is not paid back like done in the case of loans. This way, taxing is deterministic. Its legal framework is established and protected by laws. Levying and lifting taxes are done by legislation (Kalenderoğlu, 2015: 129).



Data Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.7: Total Revenues and Tax Revenues as a Proportion of GDP in Turkey (%), (1975-2017)

Figure 2.7 displays, for the case of Turkey, the historical variation of public revenues and tax revenues in ratios of GDP. From there, we see that in 1975, the ratio of public revenues is 11.6% while that of tax revenue is 10.2%. Hence we can say that approximately 80% of public revenues comes from taxes. Following a slight fall in 1980s, the difference between the ratios of public and tax revenues begins to widen. This can be interpreted as the increasing share of revenue sources other than taxes. We have already stated in the other sections that public expenditures rise in parallel to the rising trend of public services. This way, the expectation for rises in public revenues is a natural result of this process.

Considering their origins, taxes can broadly be classified into three groups. These are taxes related to income (income tax, corporate tax), taxes related to expenditures (income tax arising from expenses, transaction and sales taxes, customs taxes), taxes related to wealth (property taxes, inheritance taxes). Taxes can also be classified as in-kind versus cash, specific versus advalorem and direct versus indirect. Among these, the most popular classification is direct, indirect taxes (Temiz, 2008: 2-3). The generally accepted rule is that the individual and corporate taxes based on their payment ability are classified as direct taxing, whereas taxing aimed at payment ability of the individuals and the companies indirectly are considered as the indirect taxing. (Turhan, 1998: 97-98). Income tax, corporate tax, taxing of motorized vehicles are examples of direct taxing. Value added tax, customs duties are examples of indirect taxing (Kalenderoğlu, 2015: 162-163).

Throughout history, the difference between direct and indirect taxing goes a long way back, also being interpreted in several different contexts. The comparable advantages of direct and indirect taxing are that they can be flexible depending on circumstances. From the view of observing business cycle and price movements, indirect taxes are more sensitive than the direct ones. Particularly, advalorem indirect taxes (which are measured as a percentage of the purchase value), being the forerunners of the indirect taxes are the most sensitive ones to price fluctuations. On the other hand, it is often argued that the state should adjust the direct taxing, taking into account the financial capability of the taxpayer. When considered in the context of size and efficiency, the majority of the views in the literature suggest that the indirect taxing is more advantageous. Of course both types of taxing (direct or indirect) have pros and cons. For this reason, applying only one or the other cannot

be a preference. Within the current taxing system, direct and indirect taxing have the same weight of importance (Edizdoğan, 1991b: 183-193).

Table 2.9: Some Indicators for Tax Revenues (1980-2016)

Years	Tax Revenue / GDP	Direct Tax Revenue / GDP	Indirect Tax Revenue / GDP	Direct Tax Revenue / Tax Revenue	Indirect Tax Revenue / Tax Revenue
1980	10.5	6.5	4.0	62.0	38.0
1981	10.9	6.8	4.2	61.8	38.2
1982	9.0	5.5	3.6	60.5	39.5
1983	9.9	5.5	4.4	55.2	44.8
1984	8.2	4.3	3.9	52.7	47.3
1985	8.8	3.5	5.3	39.4	60.6
1986	10.2	4.1	6.1	40.4	59.6
1987	10.6	4.2	6.4	39.6	60.4
1988	10.3	4.0	6.3	38.6	61.4
1989	10.8	4.7	6.1	43.3	56.7
1990	11.4	4.8	6.5	42.7	57.3
1991	12.0	5.2	6.8	43.3	56.7
1992	12.7	5.4	7.4	42.2	57.8
1993	12.9	5.3	7.6	40.9	59.1
1994	12.9	5.3	7.6	41.2	58.8
1995	12.4	5.1	7.3	40.9	59.1
1996	13.1	4.8	8.3	36.7	63.3
1997	14.4	5.3	9.1	37.0	63.0
1998	15.2	6.6	8.5	43.8	56.2
1999	15.9	6.7	9.2	42.3	57.7
2000	17.4	6.8	10.6	39.2	60.8
2001	18.2	7.3	10.9	40.2	59.8
2002	16.6	5.8	10.8	35.0	65.0
2003	17.2	5.7	11.6	32.8	67.2
2004	16.9	5.3	11.7	31.1	68.9
2005	17.4	5.3	12.0	30.7	69.3

Years	Tax Revenue / GDP	Direct Tax Revenue / GDP	Indirect Tax Revenue / GDP	Direct Tax Revenue / Tax Revenue	Indirect Tax Revenue / Tax Revenue
2006	17.4	5.1	12.3	29.3	70.7
2007	17.2	5.5	11.7	32.0	68.0
2008	16.7	5.5	11.2	33.1	66.9
2009	16.9	5.6	11.3	33.1	66.9
2010	17.8	5.1	12.7	28.7	71.3
2011	17.9	5.4	12.6	29.9	70.1
2012	17.5	5.4	12.1	30.8	69.2
2013	17.8	5.0	12.8	28.2	71.8
2014	17.1	5.1	11.9	30.1	69.9
2015	17.3	5.0	12.2	29.2	70.8
2016	17.2	5.2	12.1	30.0	70.0

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

In Table 2.9, we find data related to taxing rates. From this table we see that tax revenue over GDP and indirect tax revenue over total tax revenue increase with years. In the year 1990, this ratio is 11.4% and 42.7% of it comes from direct taxing, while 57.3% of it comes from indirect taxing. The ratio of direct tax revenue to GDP is more or less stable throughout the years, but its portion is seen to decrease with time.

Data Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Figure 2.8: Direct and Indirect Tax Revenues as a Proportion of GDP (%)

In Figure 2.8, we see the direct and indirect taxing ratios in Turkey as a percentage of GDP. This way, in 1990 these ratios are nearly equal, but in time, indirect taxing seems to take the lead. Specifically, the ratio of direct taxing is more or less stable, fluctuating around 5%, but indirect taxing appears to be increasing with years, rising above 10% from the year 2000 onwards. Based on these observations, we can comment that indirect taxing plays a larger role in the taxing system of Turkey.

Increasing role of the indirect taxing can be attributed to several reasons. We can say that the taxing structure of countries are affected by economic, social and political factors. Some of these may be listed as follows; the important reforms made in 1985 for taxing of services, particularly the introduction of value added tax, the introduction of special consumption tax in 2002, the introduction of special communication tax and gambling tax in 2004, reduction in corporate taxing from 30% to 20%, coming into force with legislation no. 5520, the introduction of

minimum waging and the associated taxing in 2008, the tax incentives given in 1989, 1994, 2000, 2001 and global economic crisis. The effects of these changes on the structures and the constituents of direct and indirect taxing have been of different dimensions (Yıldız and Sandalcı, 2019: 23).

As exemplified above, the indirect taxing tends to assume a larger role in the whole taxing system, at an accelerating speed with time. In Turkey, the larger portion occupied by the indirect taxes is not exactly due to the higher level of indirect taxing, but it is precisely because of direct taxing not being at the desired level. As a result, according to OECD statistics, in the year 2020, including the social security payments, the direct taxes make up only 13.5% of the GDP in Turkey, this way being well below the OECD average of 22.8% (Presidency of the Republic of Turkey, Strategy and Budget Office, 2014: 7-8).

The cases of the taxes being direct or indirect have an influence economic development (Şaşmaz and Yayla, 2018: 320).

Taxes can be classified and examined in quite a number of groupings subject to different criteria and viewpoints. In addition to the already established classification of direct and indirect, taxes can also be classified as taxing based on income, wealth and spending. This classification is made depending on whether the tax is levied on income, wealth or spending. This way, taxing on spending can also be classified into sub-groups. Furthermore, classification can be made such as taxes on income, taxes on wealth, taxes on goods and services, taxes on foreign trade (Akdoğan, 1997: 206-207). Turkish taxing system being similar to the other contemporary taxing systems, consists of the modern components such as taxing on income, wealth, goods and services and foreign trade (Susam and Oktayer, 2007: 114). In Table 2.10, we find the percentages of taxes with respect to GDP in Turkey between the years 2006 and 2017, where the taxes are separated with such headings.

Table 2.10: Tax Revenue as a Proportion of GDP (2006-2017)

Revenues	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Tax Revenues	17.4	17.4	16.6	16.9	17.5	17.6	17.3	17.4	16.6	16.8	17.0	16.9
Taxes On Income	4.4	4.8	4.8	5.2	4.7	4.8	4.8	4.4	4.4	4.3	4.5	4.5
Taxes On Wealth	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Taxes On Goods & Services	9.2	9.1	8.5	8.8	9.3	9.0	9.0	9.3	8.8	9.0	9.2	8.9
Taxes On Foreign Trade	3.1	2.9	2.9	2.5	3.0	3.4	3.1	3.3	3.0	3.1	2.9	3.2

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

From Table 2.10, we understand that the highest tax revenues come from goods and services. In the second rank, we see taxes on income. Tax revenues on wealth in ratio to GDP is somewhat stable against time, being low compared to other types of taxes.

2.2.2.2. Fees

Fees in general are the payments made by the citizens who benefit from certain services offered by the public institutions. The main difference between taxes and fees is that the former is compulsory, while the latter is at will. This means that the taxpayer has the obligation to pay the tax without objection. On the other hand, it is possible to avoid paying fees, provided that the individual refrains benefiting from a specific public service (Nadaroğlu, 2000: 193-195).

Fees are collected as a result of some services delivered by the state and contrary to taxes, a direct reciprocity principle applies in the case of fees. It may be that some individuals draw specific benefits form some public services. Examples of fees are jurisdiction charges, notary charges. Fees can be defined as charges imposed on public services whose benefit is restricted to those who use them. Characteristics of fees can be listed as follows;

- Fees are charged as a results of services offered to those who need them.
- Just like taxes, payment is compulsory.
- Type of service is neither commercial or industrial.

In fees, the beneficiary pays the cost of services partially or fully. As an example, jurisdiction services are supported by the state, but the person benefiting from this service contributes partially to the cost. (Edizdoğan, 1991b: 12).

On top of all, for fees to be applied, the citizen has to gain an identifiable benefit from the service. Hence the fees constitute (at least partially) the return payment for the service in question. If the fees are above the cost of the services, then fees approximate to taxes (Akdoğan, 1997: 89-90). This way, if fees are fixed above the cost, the amount above the actual cost may be treated as tax (Bilici, 2016: 182).

2.2.2.3. Duties

Duties are the payments made in return to granting the permission by the authorities to perform a specific task or activity. There are similarities and dissimilarities between duties, fees and taxes. For this reason, sometimes no such distinction is made in public revenues. Nowadays, we see less confusion in the terminology, thus witnessing more clear-cut borders between them. Although some variation is observed from one country to the other, the share of duties in public revenues is rather low. Duties are often collected by local administrations, in rare cases by central administrations (Akdoğan, 1997: 91).

A good example of duties is the stamp duty applied over imports (Kalenderoğlu, 2015: 125).

2.2.2.4. Special Assessment

Special assessment is the money collected as a result of properties gaining extra value in a land development region organized by the public entities, and considered as payments towards the cost of the regional development. The fundamental philosophy in special assessment is the return of the additional value created in the properties to the public who initially financed the land development. Special assessment can be regarded as the public revenue between taxes and fees. The value adding character of special assessment places it at a distance from taxes, closer to fees (Edizdoğan, 1991b: 13).

Special assessment is compulsory like taxes; on the other hand, it is different in the sense that it has direct return. The individual paying for the special assessment gets in return added value for his/her property. Even if the beneficiary has not demanded such a service, a service is undertaken and the value of the beneficiary's property has increased. This places an obligation to the beneficiary to pay for special assessment (Nadaroğlu, 2000: 197-198).

Special assessment can only be applied if the ruling organs decides so, meaning that every land development will not result in special assessment (Akdoğan, 1997: 92).

Special assessment in Turkey is considered to be a part of the public revenues of municipalities (Erginay: 1998: 20). In this respect special assessment is stated to be one of the revenues of local administrations (Akdoğan: 1997: 92).

2.2.2.5. Parafiscal Revenues

Parafiscal revenues are external to the budget resulting from the need of supporting a special part of the public expenditures and the charging authority is assigned to some public or semi-public entities. In modern times, all public related activities are financed by taxes. From the economic, social, financial or administrative perspectives, if a particular public service does not concern the whole public, then it is more reasonable to fund such expenses by collecting money from those who specifically benefit from such service. This is because, such a service does not serve the public as a whole, but rather a section of the society. Moreover, it would be the case that the cost of such service is above the usual. Examples of such cases (institutions) are Social Security Institution and Chambers of different Professions (Akdoğan, 1997: 92-93).

The differences between parafiscal income and tax income can be listed as follows:

- Tax is included in the (general) budget, whereas parafiscal income is not and it has its own separate budget.
- There is no concrete provision in tax, and there is in a parafiscal income. This can be in the form of bonus payments and (or) pensions.
- Tax is applied if it is included in the budget law, and for the parafiscal income, the legislature must delegate the authority to collect revenue. As in

the case of tax, the organization collects these revenues every year without the need for a recurring condition (Bilici, 2016: 183).

2.2.2.6. General Fines and Tax Fines

General fines and tax fines constitute special class in the context of public revenues. Unlike the other types of revenues, they do not carry the direct revenue generating aim. Despite this aim, they eventually turn into revenue generating mechanism. The idea in fines is the punishment of the guilty rather than collecting revenues. These fines are added to the state budget and turn into public revenues (traffic fines for instance). The aim in tax fines is ultimately to ensure that taxes are collected in their entirety and it is presumed that imposing tax fine will help achieve this aim. In this manner, tax fines generate revenue for the state budget just like normal taxing. Some examples of tax fines are fines for smuggling, forgery etc. (Edizdoğan, 1991b: 14).

2.2.2.7. Borrowing Revenues

Just like taxing, borrowing is an important instrument of fiscal policies (Umutlu et al., 2011: 75). In unusual circumstances, where the economic, social and political turmoil are encountered, the state may have to resort to different methods of burrowing money in order to continue offering public services uninterruptedly (Erdem et al., 1998: 79). This borrowing can be at a national level or may be from international markets (Bilici, 2016: 188).

The revenues obtained from burrowing are classified as internal and external Internal borrowing is derived from the national resources of the country. Return payment comes from the revenues generated by taxes. The sources of internal burrowing are the long and short term state and treasury bonds (Türkal, 2003: 382). The state may also resort to internal borrowing in cases when the state wishes to diminish the liquidity in the hands of the individuals (Lerner, 2000: 72).

External borrowing comes from foreign sources. When external borrowing is used, the internal resources increase, but at the time of return payment, internal resources (wealth) decrease. External borrowing can also be in the form of the state itself or its different organs abating financial or real revenues or in the form of internal institutions or the individuals receiving credits from external sources. Also

included in the category of external borrowing is technical assistance received from advance countries (Türkal, 2003: 382). The main reason for external borrowing is to develop national income, price stabilization, increase employment, improve balance of payment, redistribute the national income, balanced regional development. This way reasons behind external borrowing can be economic and social (Çöğürcü, 2011: 12-13).

Internal and external borrowing can have different effects on the economic growth. Internal and external borrowing at the time of receiving and during back payment do not increase or decrease the national income. Some positive effects may be seen on the other hand, if the state utilizes some funds not effectively used by the individuals, this way removing the economic irregularities. If internal borrowing is used efficiently, it may help national productivity. In the case when the internal borrowing is not injected into production, then it becomes an inefficient process. External borrowing acts as an additional resource to the national income. This additional resource increases the national capital accumulation. This increased capital accumulation in turn increases the growth rate. This chain of reactions will eventually lead to increases in gross national product and subsequently raising the income of the individual (Türkal, 2003: 410).

2.2.2.8. Funds

All activities to regulate public revenues and expenses and activities beyond taxing are called funds. In Turkey, there are several different definitions of funds both on the regulation side and also among researchers. Funds consist of the money or other assets reserved in a special account. Spending of funds is given to some institutions and is inspected by Grand National Assembly of Turkey. This way, funds have legal framework having the important characteristics such as funds are reserved for special tasks and its spending enjoys some flexibility, while being inspected by Grand National Assembly of Turkey (Akdoğan, 1997: 97-98).

The reasons for the establishment of funds are the effective execution of some public services and achieving the public aims which carry priority. (Berksoy, 1999: 241). Funds are budget related or totally the outside the budget, but in any case are accounts of public money. Funds are established for economic and social reasons,

being managed by independent entities (Kalenderoğlu, 2015: 128). An example from our country is Savings Deposit Insurance Fund (SDIF).

2.2.2.9. Fiscal Monopoly

In order to generate revenue for the treasury, fiscal monopoly is the method used by the state in the production and trading of a certain good directly or indirectly. The state may establish monopoly either on its own or may authorize a certain corporation. (Tekin, 1969: 320). The main purpose of founding a fiscal monopoly is the generation of revenue. States require resources to finance public expenditure. This way, fiscal monopoly is one of such resource. Although the idea behind fiscal monopoly is revenue generating, there are other reasons as well. These reasons may be classified as financial, economic, political and social reasons (Tekin, 1969: 324). In a sense, fiscal monopoly is a way of imposing tax.

In fiscal monopoly, the state performs a certain task which otherwise can also equally be undertaken by the private sector. Fiscal monopolies provide revenue for the state in two ways. The first one the surplus value between the cost of the good and its selling price. The second is the tax on the selling price. (Kalenderoğlu, 2015: 128). In this context, fiscal monopoly is a way of charging taxes. When the consumer buys the good produced under fiscal monopoly, a tax payment is made just like the case consumption tax. Hence we may conclude that fiscal monopoly is a way of taxing.

In some cases, fiscal monopoly can be considered as a kind of subsidy to the manufacturer. In any manufacturing field, in order to maintain the prices in favor of supporting the producer, a certain pricing policy must be applied. The importance of monopolies varies from one country to the other. In general, the weight of monopolies will tend to decline in economies where free market conditions prevail more and more (Tekin, 1969: 326-327).

2.2.2.10. Revenues Generated from Financial Transactions

States based on their right of sovereignty, similar to taxing, may resort to different financial instruments to generate revenues. Revenues obtained as a results of financial transactions can be analyzed in three groups such as printing bank notes and coins, emission end devaluation revenues. Among these, printing bank notes is a

small revenue source. On the other hand, the extra supply of coins into the market is a surplus value for the state if the cost of this process is lower than the values printed on the coins. Devaluation is the act of reducing the value of the national currency against gold or foreign currencies. This way, the nominal value of the gold reserves or the foreign currencies held by the state or in central bank will rise. This rise, obtained over gold and foreign currencies becomes an extra income for the state (Edizdoğan, 1991b: 18-20).

Emission revenues are those obtained by printing bank notes. The impact of emission revenues is seen in short terms. Nevertheless, due to sudden effect on economic structures, this method is a desirable one, but not preferred to be used often (Akdoğan, 1997: 98-99).

The income obtained by printing money is called "Seniority revenue" (based on the sovereign rights of the state). We can explain the relation between economic growth and printing money in the following way:

- Printing money in parallel with economic growth: If the state prints (issues) the money in order to meet the actual demand of the growing economy, then the state acquires revenue which is equal to the amount of money printed minus the cost of the actual printing. Since the money is printed in response to economic growth, this action does not cause inflation. It is important to note that the manner that seniority revenue is obtained changes from country to country. The states with the trusted currencies have an advantage in this respect. The people who live in countries with less trusted currencies usually tend to convert and keep their local investments in more trusted currencies.
- Printing money above (or without) the economic growth: In this case, there will be inflationary pressure. Usually states resort to this solution when faced with inadequate public revenues. This is a way of trying to acquire revenue by printing money. With increase of money in circulation and the absence of corresponding economic growth, demand artificially rises and inflation increases. This also reduces purchasing power of the individual who does not get an equal share from this process. The people in this category need more money to preserve its previous income level. The only way to achieve this is either work more or sell some of the present assets. At the end of this complex operations, the state acquires a new type of tax called inflation tax.

This tax will compose of the disproportional difference increases in goods, services and the salaries (Bilici, 2016: 185-186).

2.2.2.11. Other Public Revenues

There are indirect public revenues or public revenues that do not carry much weight in the grand total. Amongst these are donations, aids, loots, other assets inherited by the state. Donations and aids come from individuals or legal entities and serve the interest of the public in a nonreciprocal manner. Financially supporting the essential services such as defense, education and health, they contribute positively to the increase of public revenues (Akdoğan, 1997: 98-99).

2.2.3. Categorization of Public Revenues

2.2.3.1. Public Revenues in the Narrow and Wide Senses

Public revenues collected by the central government constitute the revenues in the narrow sense. Among these are social security revenues, revenues from the local administrations, floating capital organizations and revenues from funds. By adding the revenues from the state economic enterprises and other financial groups to the above, we arrive at public revenues of the wide sense (Bilici, 2016: 190).

2.2.3.2. Regular and Irregular Public Revenues

The regular revenues of the state used to undertake the execution of public services are taxes, fees and duties. Upon failing to meet the demand, the state may choose to reduce public spending or increase taxes. But this may not always be possible particularly in the short terms (Türkal, 2003: 379). Revenues obtained from regular taxes are the usual part of everyday life and collected periodically, i.e. (regular) taxes, fees. Real estate and entrepreneur revenues are also considered amongst regular ones. Revenues arising from debts are presently classified as regular revenues (Bilici, 2016: 189).

In case the public expenditure is not met by the taxes in the short runs, the state may feel obliged to introduce irregular sources of revenue. The prevailing conditions of the country may necessitate such alternative financing resources. Irregular public revenues to meet the deficit in public spending will be printing money, levying new taxes, internal or external borrowings (Türkal, 2003: 379).

Additional cases are tax collected during and after natural disasters, public disorder, economic crises. Below we cite some examples of the irregular revenues in Turkey obtained from the application of irregular taxes; property taxes applied between years 1942 and 1943, the financial balance tax put into implementation in 1972, the economic balance tax and net active tax applied after the crisis of 1994, earthquake tax introduced in 1999, additional earning tax, corporate tax, special communication tax, the additional taxes for motorized vehicles, additional real estate tax applied between 2002 and 2003 to re-establish the economic stability. The usual practice is that irregular taxing expires once the extraordinary situation ends. But in some cases, we see the opposite. For instance, special communication tax introduced in 1999 after the national earthquake disaster is still in force (Bilici, 2016: 189).

2.2.3.3. Revenues Based on State Sovereignty Rights

According to this category, public revenues can be split up into two classes as those based on the sovereignty rights of the state and those not based on such rights. The revenues resulting from sovereignty rights are taxes, fines, revenues of compulsory borrowings, revenues obtained from the implementation of monetary policies (emission etc.), revenues transferred from other public institutions. The revenues unrelated to the state sovereignty rights are those coming from manufacturing activities (the profits of public state enterprises etc.), the revenues obtained from the sale of movable and immovable items of the state, revenues coming from nonobligatory borrowings and revenues obtained from inheritance. Since this classification is systematic and clear-cut one, such a classification enables a complete categorization of public revenues (Edizdoğan, 1991b: 34-35).

2.2.4. Classification of Public Revenues in Turkey

The central government classifies the income section of the budget into six groups[1].

1. *Tax Revenues:* Tax revenues are classified into seven categories, these are:

i. Tax charged over the income (income tax, corporation tax)

ii. Tax charged over property (vehicle tax, inheritance tax, note that real estate tax is not included here, since it is collected by the municipalities)

[1] Ministry of Treasury and Finance, 2020 Central Government Consolidated Financial Statistics.

iii. Domestic taxes on goods and services
iv. Taxes on international trade and transactions (taxes charged over import, customs duty, VAT over imports)
v. Stamp duties
vi. Fees
vii. Other taxes not classified elsewhere.

2. Entrepreneur and Ownership Revenues, Factor Revenues: Factor revenues are those obtained by the state operating in the market as an entrepreneur. In the budget, they are classified into five groups:

i. Revenues obtained from the sale of goods and services (in the category of goods, we may name the bank checks, other valuable papers, in the category of services, we may name fees for bridges, tunnels etc.)
ii. Revenues from state economic enterprises and state banks (the revenues of treasury portfolio and its investments, the shares transferred to the state from the profits of state economic enterprises)
iii. The profits of institutions (the profit shares transferred to the state by the floating capital)
iv. Rental income (rental income from real estates and other assets, rental income from the state houses etc.)
v. Other entrepreneur and ownership revenues (Bilici, 2016: 191).

3. *Grants, Aids and Special Revenues:* They can be donations and aids from foreign countries or special revenues (those revenues outside of public services, as defined in specific laws and decrees).

4. Interests, Shares and Fines: Interest revenues obtained from the state accounts in the banks. Such shares collected from individuals and institutions, as those obtained from regulatory bodies, insurance companies, private education, GSM operators, stock exchanges (Bilici, 2016: 190-191).

5. *Capital Revenues:* These revenues are divided into three categories, which are sales of immovable, sales of movables, sales of other capital. Sales of immovable are revenues obtained from the sale and or privatization of state economic enterprises, land and social buildings of the state. Sales of movables are revenues obtained from the sale of property and assets other than the real estate. We may also mention sale of shares in state telecom companies etc. (Bilici, 2016:192).

6. *Collections from Loans.*

2.2.5. Development of Public Revenues in the World

Table 2.11: The Percentage of Public Revenues With Respect to GDP in Selected OECD Countries

Countries	**1975**	**1980**	**1990**	**1998**	**2010**	**2017**
Germany	22.43	24.50	24.41	29.59	27.88	28.55
Denmark	29.95	33.11	36.70	38.59	39.86	38.95
Spain	-	-	-	18.34	14.78	15.69
Finland	26.36	25.98	29.62	39.21	35.24	36.57
France	33.03	37.53	38.18	43.16	42.90	44.73
United Kingdom	34.41	33.49	32.61	32.41	34.22	35.31
Greece	19.62	21.66	23.86	38.81	39.67	46.15
Ireland	28.03	32.04	32.22	33.44	30.88	24.48
Italy	24.48	29.62	-	37.48	37.05	37.73
Luxembourg	32.24	36.35	33.57	41.83	41.04	40.88
Mexico	12.18	14.26	15.42	10.42	18.04	20.00
Netherlands	40.77	43.48	41.88	37.43	37.70	39.09
Poland	-	-	-	36.08	31.91	33.61
Portugal	19.35	22.69	28.61	34.34	34.41	37.50
Sweden	27.35	31.16	39.07	38.10	32.57	32.81
United States	17.31	19.10	18.21	19.83	16.47	19.56
Turkey	16.88	18.07	13.66	17.23	31.73	29.70
Average of OECD Members	20.59	22.73	22.21	24.64	23.40	25.40

[1] Revenue is cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales. Grants are also considered as revenue but are excluded here.

Source: World Bank

Table 2.11, presents the public revenues as percentages of GDP in selected OECD countries. From there, we see a consistent increase in this percentage against time. The average of the OECD countries is 20.59 % in 1975, increasing to 25.40% in 2017.

Table 2.12: The Composition of Public Revenues as Percentage of the Total in Selected OECD Countries

Countries	Taxes on Goods and Services[1]		Social Contributions[2]		Taxes on Income, Profits and Capital Gains[3]		Grants and Other Revenue[4]		Taxes on International Trade[5]		Other Taxes[6]	
	2010	**2017**	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**	**2010**	**2017**
Germany	24.7	22.1	55.7	55.8	15.0	17.8	4.5	4.3	-	-	-	-
Denmark	36.6	36.2	3.0	2.2	41.3	44.9	-	-	-	-	4.3	4.6
Spain	44.8	48.6	6.8	5.2	38.5	34.1	9.9	11.9	-	-	0.1	0.2
Finland	36.7	38.7	33.9	32.5	14.5	16.0	14.3	11.7	-	-	0.6	1.1
France	22.2	22.7	42.2	41.9	23.4	25.9	-	-	0.0	0.0	5.9	4.6
United Kingdom	31.6	32.9	21.8	21.6	36.4	33.7	4.8	6.4	-	-	5.4	5.4
Greece	31.5	33.0	33.1	31.2	17.8	18.8	-	-	0.0	-	1.7	4.5
Ireland	32.7	32.0	17.8	17.1	35.9	40.7	-	-	-	-	1.9	2.0
Italy	22.2	23.9	35.1	33.6	32.0	31.1	5.9	6.5	-	-	4.7	5.0
Luxembourg	29.6	28.1	29.8	29.8	29.5	30.8	-	-	-	-	1.9	3.0
Mexico	25.5	27.2	11.5	10.7	28.3	35.8	32.6	24.1	1.1	1.2	1.0	1.0
Netherlands	26.9	26.6	35.0	35.9	26.2	29.6	9.7	5.3	0.0	-	2.2	2.6
Poland	38.6	36.9	36.6	40.7	12.5	12.5	-	-	-	-	0.8	0.7
Portugal	31.4	33.2	32.3	30.0	21.1	24.1	12.3	-	0.0	0.0	2.9	2.7
Sweden	38.8	37.8	8.9	9.2	15.2	16.3	9.6	7.3	-	-	27.5	29.3
United States	2.8	2.4	39.3	33.7	47.6	49.6	8.5	6.2	1.2	1.0	0.6	7.2
Turkey	38.8	38.4	27.6	24.4	17.4	18.1	11.2	15.8	0.9	1.4	4.0	1.9
OECD Members	31.6	32.3	32.3	30.9	26.3	26.5	11.7	10.2	0.9	-	1.4	1.9

[1] Taxes on goods and services include general sales and turnover or value added taxes, selective excises on goods, selective service taxes, goods or property use taxes, mineral extraction and production taxes, and fiscal monopoly profits.

[2] Social contributions include employee, employer and self-employed social security contributions, and other contributions whose source cannot be determined. They also incorporate actual or imputed contributions to government operated social insurance schemes.

[3] Taxes on income, profits, and capital gains are imposed on the actual or presumptive net income, on corporate and business profits, and on capital gains, whether or not realized, on property shares, and other assets. The consolidation of intragovernmental payments is eliminated.

[4] Grants and other revenue include grants from other foreign governments, international organizations, and other government units; interest; dividends; rent; requited, nonrepayable receipts for public purposes (for example; entrepreneurial income from government ownership of property); and voluntary, unrequited, nonrepayable receipts different from grants.

[5] Taxes on international trade include import and export duties, export monopolies or import profits, trading income and currency taxes.

[6] Other taxes include employer payroll or labor taxes, property taxes, and taxes not assigned to those groups, such as late payment penalties or nonpayment of taxes.

Source: World Bank

In Table 2.12, we find the composition of public revenues for some of the OECD countries. Accordingly, it is seen that in general, among the public revenues the components of taxes on goods and services, social contributions and taxes on income, profits and capital gains have noticeable weights. On the other hand, the shares of taxes on international trade and other taxes in public revenues seem to be lower. As an OECD average, the taxes on goods and services in 2017 are 32.3% of public revenues. The percentage of social contributions again in 2017 is 30.9%, while in the same year, the percentage of taxes on income, profits and capital gains is 26.5%.

Table 2.13: Tax Revenue (% of GDP) in Selected OECD Countries

Countries	**1975**	**1980**	**1990**	**1998**	**2010**	**2017**
Germany	10.04	10.28	9.83	10.84	11.18	11.47
Denmark	26.72	28.53	29.72	32.05	32.74	33.37
Spain	-	-	-	15.78	13.07	13.86
Finland	22.16	21.46	24.42	22.71	18.60	20.76
France	17.72	19.29	18.73	23.13	22.09	23.81
United Kingdom	24.27	23.88	24.15	24.95	25.14	25.45
Greece	12.70	13.77	15.12	20.53	20.21	25.97
Ireland	21.27	24.20	25.33	26.53	21.80	18.27
Italy	12.71	17.37	24.18	23.41	22.17	23.05
Luxembourg	19.96	21.58	22.10	25.57	25.02	25.29

Countries	1975	1980	1990	1998	2010	2017
Mexico	9.18	11.42	11.85	8.16	10.11	13.05
Netherlands	22.34	23.07	23.29	20.71	20.99	23.10
Poland	-	-	-	20.19	16.55	16.81
Portugal	12.31	15.18	17.67	20.54	19.73	22.46
Sweden	16.62	16.44	21.80	29.68	26.73	27.60
United States	11.19	12.14	10.47	12.33	8.60	11.76
Turkey	14.72	14.34	11.56	14.68	19.41	17.85
OECD members	13.40	14.54	14.49	15.64	13.93	15.79

Source: World Bank

Table 2.13 presents the percentage of tax revenues in ratios of GDP in selected OECD countries. From there, it is seen that this ratio rises in time in some countries, while in some others, it is more or less the same. In Greece for instance, the ratio is 12.70% in 1975, but in 2017 it reaches 25.97%. In Italy and Portugal, this ratio exhibits a noticeable increase. The OECD average, being 13.40% in 1975, becomes 15.79% in 2017.

The purpose of the taxes collected by the state is the financing the public expenditures. On the other hand, with these taxes, several different commitments are envisaged. Classified as social and economic, the priority in these commitments is to help economic and social developments. The economic development is an expression of structural changes in economic and social life (Şaşmaz and Yayla, 2018: 316).

In the supply driven economies, the effect of taxing is felt mainly by tax reduction. This prediction is explained by Laffer Curve. In this curve, tax reduction affects the decisions of sectors of the economy, leading to increases in production and tax revenues. In literature, it is often emphasized by several economists that effective tax policies contribute positively to economic development. But in some other studies, it is asserted tax reductions cause increases in public expenditures instead of promoting economic development (Şaşmaz and Yayla, 2018: 318).

2.2.6. Distinction Between Central and Local Government Revenues

Parallel to the changes and developments in the world, public administrations also face changes. In all countries, public services are shared between central and

local administrations. This sharing necessitates the sharing of revenues as well. As a consequence, some (specific) services are to be undertaken by central administrations, while some other (the remaining) ones are undertaken by the local administrations (Bülbül, 2013: 48).

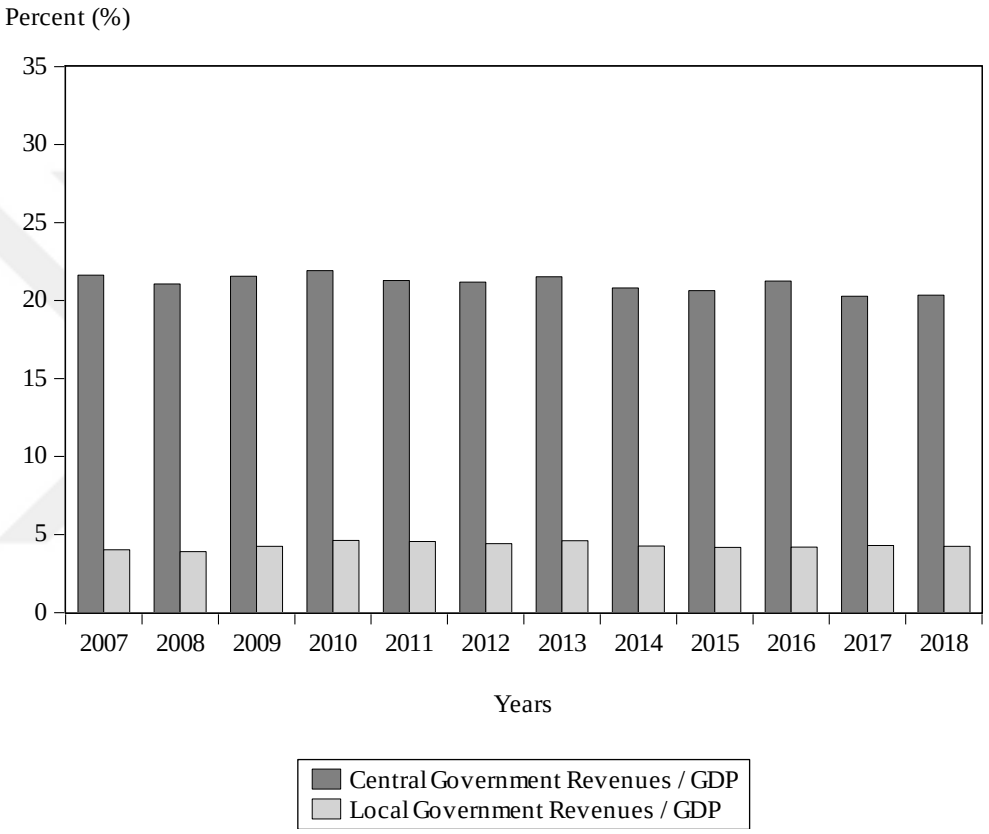
Central administration may grant the permission to the local administration to apply taxing within certain restrictions. The restriction limits and the general guidelines can be defined in legislative documents. Local administrations may increase or lower taxes within the legal limits allowed. Additionally, central administration may have allocated some of their revenues to the local administration taking into account issues such as geographic and population sizes and local demands. On the other hand, central administrations on top of the normal tax they collect, may charge an extra percentage of tax to be channeled to the budget of local administrations. This application is flexible in the sense that the rising financial burden of the local administrations can easily be accommodated by adjusting this percentage. Although taxing is easy to manage and cost effective, we may face some problems in the cases when it is fixed to high levels and it is not properly utilized by local administrations, this also constitutes some contradiction to fairness of taxing. Although local administrations appear to be free to impose taxes, this can be practiced only within legal bounds (Akdoğan, 1997: 331-332).

The revenue budgets of local administrations (municipalities) show the variety of their income. Revenue types are (Local Administrations Budget and Accounting Regulation, 2016):

1. Tax revenues
2. Enterprise and ownership revenues
3. Grants and aids
4. Other revenues
5. Capital revenues
6. Debt recovery
7. Reject and returns.

In Turkey, municipal revenues consist of revenues collected by municipalities themselves and the apportionments from the central government tax revenues. Local governments are not authorized to collect taxes on revenues and expenditures. Only the state (i.e. central government) collects such types of taxes and makes allocations

to local governments. The central government allocates 0.5% of state tax revenues to special provincial administrations. Ministries usually realize their investments in the provinces through special provincial administrations by transferring the relevant appropriation. Own revenues of special provincial administrations are minimally low; they mostly rely on the apportionments from the central budget and transfers of appropriations from the ministries. Special provincial administrations have no power to levy taxes or charges (Union of Municipalities of Turkey, 2020).

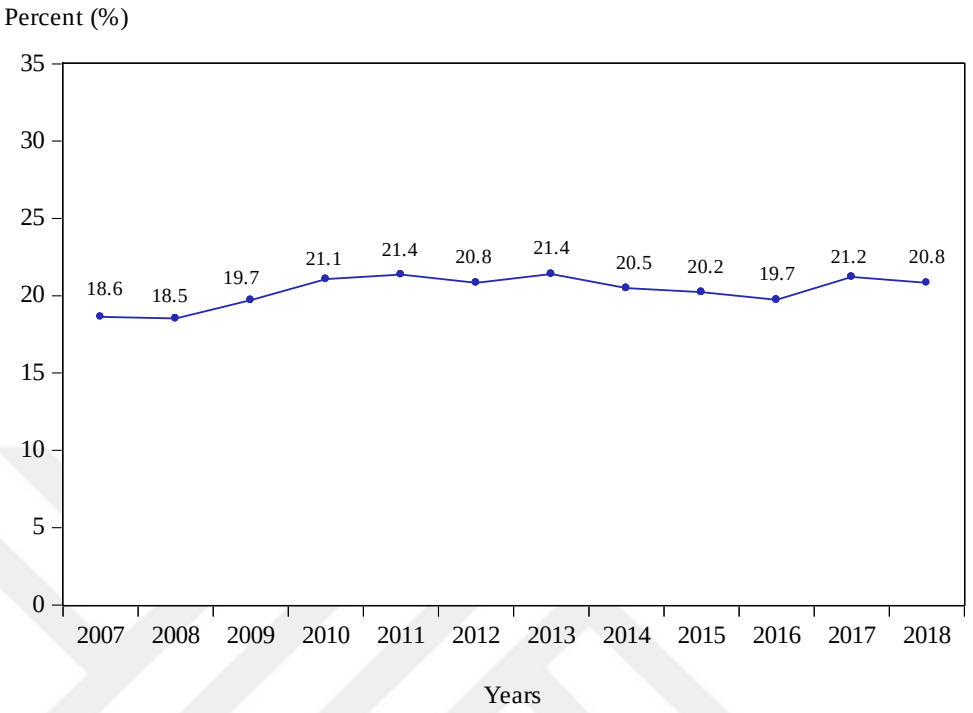


Data Source: Ministry of Treasury and Finance, TurkStat (GDP Statistics)

Figure 2.9: Central Government and Local Government Revenues as a Proportion of GDP (%)

In Figure 2.9, we illustrate the variation of revenues of central and local administrations in proportion to GDP against time (years). We see from there that the percentage of central government expenditures in GDP is 21.6% in 2007, and it has dropped to 20.3% in 2018. This percentage reaches a peak in 2010 with a numeric value of 21.9%. From the same graph, we understand that the percentage of local

government expenditures in GDP is 4.0% in 2007 rising to 4.2% in 2018. This ratio become the highest in 2010 and 2013 with a value of 4.6%.



Data Source: Numeric data is taken from Ministry of Treasury and Finance, TurkStat (GDP Statistics).

Figure 2.10: Local Government Revenues as a Proportion of Central Government Revenues (%)

In Figure 2.10, we see the ratio of local government revenues with respect to those of the central government, again plotted against years. There, it is found that this ratio is 18.6% in 2007 rising to 21.4% in 2011 and 2013. There is a slight drop between 2013-2016, meanwhile it has become 20.8% in 2018. From the year 2007 to 2018, local government revenues have arisen from 190,360 million TL to 757,834 million TL, while in the same period, local government expenditures have increased from 35,474 million TL to 157,938 million TL.

2.2.7. Historical Overview of Public Revenues in Turkey

2.2.7.1. The Progress of Public Revenues Between 1980 and 1990 in Turkey

With the economic stability decisions of 24 January 1980, Turkey stepped into the market economy. In this period, similar to UK and USA, Turkey was

influenced by the market demand policies and financial policy instruments were designed accordingly. (Ejder, 2000: 130).

In Turkey's economy starting from 1923, there is mainly the use of indirect taxes. Income tax was applied until 1949 as direct tax. In 1949, institutions and trades taxing were introduced. With the arrangements made in the 1970s, income tax was modified. As a result, the share of taxes on income increased from 31.3% in 1960-1970 to 53.62% between 1976 and 1979. In the period 1980 to 1985, direct taxes continued to dominate. With the introduction of VAT into the tax system in 1985, the structure changed. The weight of indirect taxes in total tax revenues became more than direct taxes. Indirect taxes have been the most preferred taxes in the Turkish financial system to date, since they are easily collected and they are the type of tax where tax evasion is less common (Kayalı, 2017: 96).

In the contemporary conjecture theory of Keynes, the policy of parallel taxing does not cause the slowing of conjectural fluctuations, but strengthens them. This is because, in the expansion process of conjectural changes, the lowering of taxes or increasing of public expenditures arises demands, thus accelerating inflationary pressure. In a similar manner, budget deficits are experienced in such circumstances. In recession times, increasing taxes, reducing investments cause to strengthen the deflation process. For this reason, contrary to the classical economic philosophy, it is envisaged to stimulate growth in economy by tax reductions. (Kaya and Kaygısız, 2015: 182). To prevent crisis and to activate the markets, tax reduction policies are implemented (Yılmaz, 2013: 219).

With the stability programs of 24 January 1980, increase in export potentials and foreign investment were foreseen. To this end it was aimed to enlarge free market economy, by easing the formation of companies eventually leading to a new taxing arrangements (Öncel et al., 1993: 238).

The most important factor that caused the expansion of indirect taxing in Turkey was the introduction of VAT in 1985. This was done for compliance with EU regulations. Additionally, the special spending tax introduced in 2002 is another component in the indirect taxing. This tax replaced quite of number of previous tax items as detailed in (Tosuner and Arıkan, 2017, 427-428).

One of the milestones and the most important tax revision in the taxing policies of modern Turkey was the introduction of VAT in 1984 and its

implementation in 1985 (Öncel et al., 1993: 233). With the introduction of VAT, the other unfair taxes were removed, thus establishing a just and fair taxing system. This new tax was also important for integration with EU. In time VAT has become one of the important revenues of the Turkish Republic. In the meantime, custom taxes were reduced, for instance it was 4.8% in 1986, while it dropped to 1.5% in 2000. (Terzi, 2001: 152).

The tax reforms introduced at the beginning of 1980, the adjustment of prices of goods sold by state economic enterprises helped to lower public debts. With the introduction of VAT, tax collection was made easier, the share of tax revenues in GDP rose. On the other hand, since public expenditures remained high, national debts did not subside as expected and extra financial load for investment emerged (CBRT, 2002: 29).

Table 2.14: Some Indicators Related to the Public Revenues (1980-1990)

Indicators	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Tax Revenues / Total Expenditures	69.5	78.5	81.5	74.0	62.7	72.1	73.1	71.3	67.7	67.1	67.6
Tax Revenues / Expenditures Excluding Interest Payments	71.6	82.6	86.2	80.6	71.0	82.6	87.4	86.8	88.8	85.8	85.3
Total Revenues / Total Expenditures	84.6	91.8	90.2	88.0	74.1	85.0	82.7	79.5	81.0	79.8	82.2
Total Revenues / Expenditures Excluding Interest Payments	87.1	96.6	95.4	95.8	83.9	97.3	98.8	96.7	106.2	102.0	103.8
Tax Revenues / GDP	10.4	10.9	9.0	10.1	7.8	7.9	8.5	8.8	8.0	8.2	8.4
Direct Taxes / GDP	6.5	7.1	5.7	6.0	4.6	3.8	4.4	4.4	4.0	4.4	4.4
Indirect Taxes / GDP	3.9	3.9	3.3	4.1	3.3	4.1	4.1	4.4	4.0	3.8	4.0
Direct Taxes / Tax Revenues	62.8	64.5	63.3	59.4	58.3	47.7	52.0	49.6	49.6	53.4	52.1
Indirect Taxes / Tax Revenues	37.2	35.5	36.7	40.6	41.7	52.3	48.0	50.4	50.4	46.6	47.9

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.14, shows, between the years 1980 and 1990, some indicators on public revenues. According to the given 10 indications, tax revenues / total expenditures ratio is 69.5% in 1980. It becomes highest in 1981 with 78.5%. As explained, in section 2.2.2 of the thesis, taking into account major sources of revenues, it is seen that a large portion of total expenditures comes from tax revenues. The highest ration attained by total revenues / total expenditures is in 1982 with the numeric value of 91.8%, it is the lowest in 1984 with 74.1%. With the exclusion of interest payments indicators rise during 1980 to 1990 and the three months of this interval, it goes above 100%. The ratio of tax revenues in GDP in the time interval of 1980 to 1990 is 8.9% on average. The highest of this figure is in 1981, while the lowest is in 1984. Further details can be found in section 2.2.2.1 of the thesis, including the classification of taxes as direct and indirect.

The most important criteria in the analysis of taxes is the classification of direct and indirect taxing. It is possible to identify the taxpayer in the case of direct taxing, examples are taxes on salaries, corporate taxes, property and motor vehicle taxes. These taxes are more easily subjected to tax evasion. Indirect taxes are almost free from tax evasion, but less deterministic than the direct taxing. VAT, special spending tax, customs and banking taxes are examples of indirect taxing (Ay and Talaşlı, 2008: 137).

The taxing structure has gone through enormous changes in the last fifty years. The frequent crises and the attempts in adaptation to EU rules are the main causes of these changes (Presidency of the Republic of Turkey, Strategy and Budget Office, 2014: 3).

In the recent years, indirect taxing has been considered as a rapid way of financing public expenditures. But such an approach places the tax burden on the low and fixed income group of the society. (Susam and Oktayer, 2007: 118-119).

Table 2.15: Sources of Public Revenues (1980-1990) (% of GDP)

Type of Revenues	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Revenues	12.7	12.8	10.0	12.0	9.3	9.3	9.6	9.8	9.6	9.7	10.2
General Budget Revenues	12.5	12.7	9.9	11.9	9.1	9.1	9.4	9.6	9.4	9.6	10.1
Tax Revenues	10.4	10.9	9.0	10.1	7.8	7.9	8.5	8.8	8.0	8.2	8.4
Taxes On Income	6.4	6.9	5.6	5.8	4.4	3.7	4.3	4.3	3.9	4.3	4.3
Taxes On Wealth	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Taxes On Goods & Services	2.9	2.8	2.3	2.8	2.0	2.6	2.7	2.7	2.5	2.4	2.5
Taxes On Foreign Trade	1.0	1.0	1.0	1.3	1.2	1.5	1.4	1.7	1.5	1.4	1.5
Nontax Revenues	2.0	1.3	0.8	1.7	1.0	0.9	0.8	0.8	0.7	0.8	0.8
Special Revenues & Funds	0.1	0.4	0.0	0.1	0.3	0.3	0.1	0.0	0.7	0.6	0.9
Annexed Budget Revenues	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.15 gives the list of public revenues and the ratios of such revenues in GDP between the years 1980 and 1990. Accordingly, the ratio of revenues was 12.7% in 1980 and it dropped to 10.2% in 1990. In the related period, the lowest ratio is 9.3% in 1984 and 1985, the highest is 12.8% in 1981. The ratio of general budget revenues in revenues is 98.4% in 1980 and it becomes 99% in 1990. Again in the same period, the ratio of revenues in GDP seems to be falling slightly with respect to the beginning. Both tax revenues and general budget revenues exhibit increase in the same directions. In 1980, tax revenues constitute 82.2% of the revenues. The ratio of tax revenues in GDP is the highest in 1981 with 10.9%. The largest component in tax revenues is taxes on income. Ratio of taxes on income in GDP is 6.4% in 1980 and the ratio in tax revenues is 61.9%. In 1990 the ratio of taxes on income in GDP is 4.3%, the ratio in tax revenues is 51.2%. Ratio of taxes on goods and services in GDP is 2.9% in 1980 and it becomes 2.5% in 1990. Ratio of taxes on goods and services in tax revenues is the lowest in 1984 with 25.8%, while it becomes the highest in 1985 with 32.8%.

Taxing is an instrument to understand and appreciate the income level of the payer. It is also important to determine the minimum. The property tax serving the same aim, nevertheless has weight in the taxing system (Susam and Oktayer, 2007: 112).

2.2.7.2. The Progress of Public Revenues Between 1990 and 2000 in Turkey

Particularly, the ongoing taxing problems and the chronic problems state economic enterprises, subsidies to the agricultural sector following 1989 generated substantial amount of public debt. In 1990, although no specific efforts were made by the state, the portion of indirect taxes came mainly from consumption rather than widening the bases of taxing (CBRT, 2002: 30).

After 1990, we see frequent crisis in the Turkish economy. Despite the external reasons, the main causes here were the unsustainability of national and foreign debts. and the ill-fated economic structure of the public banks and the absence of basic solutions (CBRT, 2001: 1).

In the years 1990, the fundamental problem in public revenues was the absence of wide basing of taxes despite the high rates, hence causing unfairness. (CBRT, 2001: 4).

Turkey's economy experienced instability between 1980s and 2000s. At the end of the 1990s, high budget deficits, high inflation and interest expenditure were seen. On the other hand, the country was dragged into a crisis environment with the effect of instability that emerged in Asian countries as well as the internal problems it faced. As a solution, a stabilization program covering the year 2000-2002 was put into effect in 1999 under the name of "Fighting Exchange Rate Based Inflation Program" supported by IMF. The main objectives of this program focused on ensuring stability in public financial balance, financial markets and exchange rates and increasing growth through structural reforms (Paksoy and Bakan, 2010: 161).

To restore the situation back to normal, a comprehensive program entailing strict financial control and bringing down interest rates and inflation was devised. As a result, interest rates dropped drastically and inflation fell down, though not at the rate desired (CBRT, 2001: 9).

Factors underlying the crisis in 2001 are; the structure of the foreign exchange market, in other words, the fluctuations in exchange rates due to the excessive foreign exchange demand, the financial crises and the setting of the primary surplus target in the field of public finance, the narrowing effects caused by the real economy, the external debt stock and the balance of payments deficit. A new stabilization program called the Transition to the Strong Economy

(GEGP) was put into effect in 2001 to overcome these crises (Şimşek, 2007: 57-59).

Focusing on fiscal policy, anti-inflation policy and structural reform policies, GEGP's regulations on tax policies are as follows:

- The measures taken at the end of 2000 to increase tax revenues will continue to be implemented meticulously,
- The automatic pricing mechanism in fuel oil will continue and the Fuel Consumption Tax will be adjusted to the minimum targeted inflation rate and the share of Fuel Consumption Tax collection in GNP will be 2.8 percent,
- The use of tax identification numbers will be expanded to widen the tax base,
- Tax audits will be increased in order to minimize tax loss and evasion (Can, 2003: 77).

In November 2002, new economic targets were determined under the name of "Urgent Action Plan". The objectives of the program regarding taxation are: The removal of the financial armament, widening the tax burden on the base, simplifying the tax legislation, implementation of the tax peace project (Paksoy and Bakan, 2010: 163). In the Urgent Action Plan, it was attempted to raise the awareness of the taxpayer. In line with these aims, the Revenue Administration was established in 2005. Regulations protecting taxpayer rights were made in tax laws. In order to reinforce taxpayer focus, comprehensive tax and penalty structures, called tax peace, were realized. Thus, measures con be converted into more tax collections, and public revenues increased (Kayalı, 2017: 101).

Tax reductions in the period after 2007 in Turkey, exceptions and exemptions practices began to be applied more frequently. With the application of minimum subsistence allowance introduced on 1 January 2008, people began to pay less tax. In order to reduce the impact of the 2008 Global Crisis on companies, an additional article was added to corporate tax, lowering it to 20%, this way reducing corporate tax, giving incentives to investment. In November 2008, the practice of asset peace came on the agenda. Thus, it was aimed to bring the foreign assets to the country by applying tax deductions and tax exemptions. By attempting to revive the registered economy, by applying discounts and exemptions

at different SCT rates for different segments of the economy, it was intended to raise public revenues (Kaya and Kaygısız, 2015: 183).

With the 2008 Global Crisis, as a result of the fiscal discipline applied after 2001, the financial sector more or less maintained its solid stance, while the real sector was negatively affected by the problems experienced in domestic and foreign demand. Monetary policy and fiscal policy were implemented together to recover from the crisis of 2008. Interest rates were reduced by liquidity policy makers, causing liquidity increases, and tax policies were additionally implemented. Discounts were made in VAT and SCT and incentive packages for regional and different segments were announced (Kaya and Kaygısız, 2015: 180).

Table 2.16: Some Indicators Related to the Public Revenues (1991-2000)

Indicators	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Tax Revenues / Total Expenditures	60.4	63.9	54.5	65.5	63.4	57.0	59.4	59.2	52.7	56.4
Tax Revenues / Expenditures Excluding Interest Payments	74.1	78.1	71.7	98.1	95.6	91.9	83.1	97.9	85.2	99.9
Total Revenues / Total Expenditures	74.3	78.6	72.5	83.0	81.5	68.6	72.0	75.0	67.0	70.8
Total Revenues / Expenditures Excluding Interest Payments	91.1	96.1	95.3	124.4	122.9	110.6	100.7	124.2	108.3	125.3
Tax Revenues / GDP	9.1	9.4	9.7	11.0	10.1	11.0	12.0	12.8	13.8	15.5
Direct Taxes / GDP	4.7	4.7	4.7	5.3	4.3	4.4	4.9	6.0	6.3	6.4
Indirect Taxes / GDP	4.3	4.7	5.0	5.7	5.8	6.7	7.1	6.8	7.5	9.2
Direct Taxes / Tax Revenues	52.3	50.4	48.6	48.3	42.5	39.5	40.8	46.7	45.4	40.9
Indirect Taxes / Tax Revenues	47.7	49.6	51.4	51.7	57.5	60.5	59.2	53.3	54.6	59.1

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.16 provides some indicators on public revenues between the years 1991 and 2000. As seen, the ratio of tax revenues to total expenditures was 60.4% in 1991, falling to 56.4% in 2000. The highest of this ratio is 65.5% in 1994, the lowest is in 1999 with 52.7%. Moving from 1991 to 2000, we see the falling trend of tax revenues in total expenditures. The rest of the details can be traced and interpreted from the Table itself.

The balance between the direct and indirect taxes shifted in favor of indirect taxing. In the period between 1980 and 1990, the share of indirect taxes rose steadily. In 1995, out of the total taxes collected, 41% was due to direct taxing, while the rest came from indirect taxes. Nowadays, direct taxes constitute a bare 31%, while indirect taxing has reached 69% (Susam and Oktayer, 2007: 117).

The corporate tax reductions made in 1995 classified Turkey amongst those that changed the taxing system most frequently. But this action did not result in tax increases, on the contrary, the ratio of corporate taxing in the total tax revenues remained at 9%. (Susam and Oktayer, 2007: 121).

Table 2.17: Sources of Public Revenues (1991-2000) (% of GDP)

Type of Revenues	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Revenues	11.2	11.6	12.9	14.0	13.0	13.3	14.5	16.3	17.6	19.5
General Budget Revenues	11.0	11.5	12.8	13.9	12.9	13.2	14.4	16.1	17.4	19.3
Tax Revenues	9.1	9.4	9.7	11.0	10.1	11.0	12.0	12.8	13.8	15.5
Taxes On Income	4.7	4.7	4.6	4.6	4.1	4.3	4.8	5.9	6.1	6.2
Taxes On Wealth	0.1	0.1	0.1	0.7	0.2	0.1	0.1	0.1	0.2	0.2
Taxes On Goods & Services	2.8	3.1	3.3	4.0	4.0	4.8	5.0	5.0	5.7	6.7
Taxes On Foreign Trade	1.5	1.5	1.7	1.7	1.8	1.9	2.1	1.8	1.8	2.5
Nontax Revenues	0.5	0.5	0.6	0.9	0.8	0.8	1.0	1.7	1.8	2.0
Special Revenues & Funds	1.5	1.6	2.4	2.0	2.0	1.3	1.4	1.6	1.8	1.7
Annexed Budget Revenues	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.17 shows the sources of public revenues in the years 1991 to 2000. Accordingly, the ratio of public revenues rose from 11.2% to 19.5% between the

years 1991 to 2000. Tax revenues in revenues general budget revenues has the same rising trend. The rest of the details can be seen from the Table itself.

Table 2.18: Share of Income, Corporate and Value Added Tax in General Budget Tax Revenues (1990-2000)

Percent (%)	**1990**	**1991**	**1992**	**1993**	**1994**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Share of Income Tax in Tax Revenues	41.0	42.4	42.4	40.4	34.0	30.9	30.4	30.1	31.6	37.7	33.3	23.4
Share of Corporate Tax in Tax Revenues	10.2	9.0	7.1	7.2	8.2	7.5	9.5	8.4	8.3	8.1	10.5	8.9
Share of Value Added Tax (VAT) in Tax Revenues	27.2	29.0	29.7	31.0	33.0	30.1	32.7	33.1	32.9	29.5	28.1	31.6
Shares of Income Tax, Corporate Tax and VAT in Tax Revenues	78.5	80.4	79.3	78.6	75.3	68.5	72.7	71.7	72.9	75.4	72.0	64.0

Source: Revenue Administration, Various Tax Statistics

We find in Table 2.18, the listing of share of income, corporate and value added tax in general budget tax revenues between the years 1990 and 2000. It is seen that the largest share of tax revenues comes from income tax. This ratio is 41% in 1990, dropping to 34% in 1994. Share of value added tax (VAT) in tax revenues is 27.2% in 1990, showing some fluctuations against the years. The other conclusions can be drawn from the Table in question.

2.2.7.3. The Progress of Public Revenues in Turkey After the Year 2000

Table 2.19: Some Indicators Related to the Public Revenues (2001-2009)

Indicators	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Tax Revenues / Total Expenditures	49.0	50.9	60.0	66.0	74.9	78.3	75.5	73.6	63.9
Tax Revenues / Expenditures Excluding Interest Payments	99.1	91.2	103.0	105.8	105.8	106.1	99.4	95.2	80.0
Total Revenues / Total Expenditures	63.2	64.4	71.4	79.9	94.8	97.4	93.2	92.2	80.1
Total Revenues / Expenditures Excluding Interest Payments	128.0	115.6	122.5	128.0	134.0	131.9	122.8	119.2	100.2
Tax Revenues / GDP	16.2	16.6	18.0	17.2	17.4	17.4	17.4	16.6	16.9
Direct Taxes / GDP	6.6	5.6	5.9	5.1	5.1	4.8	5.2	5.2	5.6
Indirect Taxes / GDP	9.6	11.0	12.1	12.1	12.3	12.6	12.2	11.4	11.3
Direct Taxes / Tax Revenues	40.5	33.7	33.0	29.7	29.4	27.5	29.9	31.4	33.2
Indirect Taxes / Tax Revenues	59.5	66.3	67.0	70.3	70.6	70.7	69.0	68.6	66.8

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.19 exhibits some indicators on public revenues between the years 2001 and 2009. Accordingly, the ratio of tax revenues in total expenditures was 49% in 2001, rising to 63.9% in 2009. In line with the impact of crisis in 2008, the ratio of tax revenues in total expenditures drops from 73.6% to 63.9% in 2009. The ratio of tax revenues in total expenditures excluding interest payments, goes above 100% during 2003 to 2006. The rest of the details can be traced from this particular Table.

Table 2.20: Sources of Public Revenues (2001-2009) (% of GDP)

Type of Revenues	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Revenues	20.9	21.0	21.4	20.8	22.0	21.7	21.5	20.8	21.2
General Budget Revenues	20.7	20.7	21.1	20.5	21.7	21.0	20.8	20.1	20.5
Tax Revenues	16.2	16.6	18.0	17.2	17.4	17.4	17.4	16.6	16.9
Taxes On Income	6.4	5.4	5.5	4.8	4.8	4.4	4.8	4.8	5.2
Taxes On Wealth	0.2	0.2	0.4	0.3	0.4	0.4	0.4	0.4	0.4
Taxes On Goods & Services	7.4	8.4	9.4	9.2	9.4	9.2	9.1	8.5	8.8
Taxes On Foreign Trade	2.3	2.6	2.7	2.9	2.9	3.1	2.9	2.9	2.5
Nontax Revenues	3.0	3.0	2.2	2.9	4.0	3.6	3.4	3.2	3.1
Special Revenues & Funds	1.5	1.1	0.9	0.4	0.3	0.3	0.2	0.4	0.5
Annexed Budget Revenues	0.2	0.3	0.4	0.3	0.3	0.6	0.6	0.6	0.7

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.20 shows the shares of public revenues and sources of public revenues in GDP, between the years 2001 and 2009. Thus we see that the ratio of revenues in GDP was 20.9% in 2001 changing to 21.2% in 2009. The highest and the lowest of the time interval and the rest of the details can be evaluated from the Table itself.

Table 2.21: Share of Income, Corporate and Value Added Tax in General Budget Tax Revenues (2001-2009)

Percent (%)	**2001**	**2002**	**2003**	**2004**	**2005**	**2005**	**2006**	**2007**	**2008**	**2009**
Share of Income Tax in Tax Revenues	29.1	23.0	20.2	19.5	19.1	20.3	21.0	22.2	23.4	23.4
Share of Corporate Tax in Tax Revenues	9.3	9.3	10.3	9.5	9.6	10.3	8.2	9.2	9.8	10.5
Share of Value Added Tax (VAT) in Tax Revenues	31.3	34.2	32.1	34.0	32.1	32.0	33.5	32.4	31.6	30.6
Shares of Income Tax, Corporate Tax and VAT in Tax Revenues	69.7	66.6	62.6	63.0	60.8	62.7	62.7	63.8	64.8	64.6

Source: Revenue Administration, Various Tax Statistics

The data on the share of income, corporate and value added tax in general budget tax revenues for the years of 2001 to 2009 is presented in Table 2.21. Accordingly, we see that the largest portion of tax revenues belongs to value added tax (VAT). This ratio remains above 30% throughout the years, reaching 34.2% in 2002. Share of corporate tax in tax revenues display a lower percentage with respect to others.

Table 2.22: Some Indicators Related to the Public Revenues (2010-2017)

Indicators	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Tax Revenues / Total Expenditures	70.7	80.0	76.4	79.2	77.7	79.8	77.8	78.7
Tax Revenues / Expenditures Excluding Interest Payments	85.1	92.8	88.4	90.5	87.7	89.5	85.3	86.0
Total Revenues / Total Expenditures	86.0	94.2	91.7	95.3	94.7	95.2	94.7	92.9
Total Revenues / Expenditures Excluding Interest Payments	103.4	109.3	106.2	109.0	106.9	106.7	103.9	101.5
Tax Revenues / GDP	17.5	17.6	17.3	17.4	16.6	16.8	17.0	16.9
Direct Taxes / GDP	5.1	5.2	5.2	4.8	4.8	4.7	4.9	4.9
Indirect Taxes / GDP	12.4	12.4	12.1	12.6	11.8	12.1	12.1	12.0
Direct Taxes / Tax Revenues	29.2	29.4	30.0	27.6	28.8	27.9	28.9	28.8
Indirect Taxes / Tax Revenues	70.8	70.6	70.0	72.4	71.2	72.1	71.1	71.2

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

The list of some indicators on public revenues is given in Table 2.22 for the years between 2010 and 2017. Thus we see that the tax revenues in total expenditures

was 70.7% in 2010, rising to 78.7% in 2017. The rest of the details can be deduced from the Table itself.

Table 2.23: Sources of Public Revenues (2010-2017) (% of GDP)

Type of Revenues	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Revenues	21.2	20.7	20.8	21.0	20.2	20.0	20.7	20.0
General Budget Revenues	20.5	20.0	20.0	20.2	19.4	19.2	19.9	19.2
Tax Revenues	17.5	17.6	17.3	17.4	16.6	16.8	17.0	16.9
Taxes On Income	4.7	4.8	4.8	4.4	4.4	4.3	4.5	4.5
Taxes On Wealth	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Taxes On Goods & Services	9.3	9.0	9.0	9.3	8.8	9.0	9.2	8.9
Taxes On Foreign Trade	3.0	3.4	3.1	3.3	3.0	3.1	2.9	3.2
Nontax Revenues	2.6	2.2	2.5	2.7	2.7	2.3	2.8	2.2
Special Revenues & Funds	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Annexed Budget Revenues	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7

Source: Presidency of the Republic of Turkey, Strategy and Budget Office, Economic and Social Indicators

Table 2.23 gives the share of public revenues and sources of public revenues in GDP between the years 2010 and 2017, where we see that the ratio of revenues in GDP 21.2% in 2010, becoming 20% in 2017. The rest of the statistics can be read from the table itself.

In the general budget, due to privatization, the share of taxes in revenues has increased, while the others have dropped. This shows the march towards a healthy economic structure is on the way (Presidency of the Republic of Turkey, Strategy and Budget Office, 2014: 8).

Table 2.24: Share of Income, Corporate and Value Added Tax in General Budget Tax Revenues (2010-2019)

Percent (%)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Share of Income Tax in Tax Revenues	21.0	21.0	22.0	21.4	22.7	22.7	23.4	23.0	23.8	25.4
Share of Corporate Tax in Tax Revenues	9.7	10.3	10.1	8.6	8.8	8.0	8.9	9.2	11.4	10.7
Share of Value Added Tax (VAT) in Tax Revenues	32.1	33.6	32.5	33.7	32.5	33.1	31.9	33.0	34.0	32.9
Shares of Income Tax, Corporate Tax and VAT in Tax Revenues	62.7	64.9	64.6	63.7	63.9	63.7	64.1	65.2	69.1	68.9

Source: Revenue Administration, Various Tax Statistics

The shares of income, corporate and value added tax in general budget tax revenues for the years are listed in Table 2.24 for the years 2010 to 2019. It is seen that the biggest share comes from value added tax (VAT). Share of corporate tax in tax revenues constitutes a lower percentage with respect to the rest. The income tax, corporate tax and value added tax in tax revenues comprise an important share of 60% for the years 2010 to 2019.

CHAPTER III

LITERATURE REVIEW*

3.1. REVIEW OF THE THEORETICAL LITERATURE

While good economic analysis requires joint consideration of both aspects of public spending and government revenues, the practice is to treat them as separate issues (Musgrave and Musgrave, 1980: 229). With the emergence of high budget deficits as an important problem in the world economies in the 1970s, it can be seen that the number of studies discussing the policies aimed at achieving public budgetary balance is increased. (Çavuşoğlu, 2008: 143).

There are four fundamental hypotheses explaining the relationship between government expenditures and revenues. These hypotheses have been the subject of many studies in different countries, within different time intervals and with different econometric methods. These hypotheses are explained below:

3.1.1. The Tax-and-Spend Hypothesis

The tax-and-spend hypothesis suggests that changes in government revenues cause changes in government expenditures. Such a view is advocated by Friedman (1978). Friedman suggests that, as government expenditures increase, it will lead to the hidden tax of inflation. According to Friedman, the cost of government to the public is measured by government spending rather than explicit taxes (Payne, 1998: 308).

Friedman (1978) criticized the arguments that the budget balance would be achieved through the increase of tax revenues; he argued that higher taxes would only lead to more public spending and that the budget deficits would reach the highest level that the public could accept. According to Friedman, there are two types of taxes: explicit and hidden. Friedman defines a budget deficit as a hidden

*See the summary of related literature in a table in Appendix 1

tax. Friedman advocates reducing taxes for all possible cases (Friedman, 1978: 11-12).

Buchanan and Wagner (1977) have established the same relation of causality with Friedman (1978), suggesting modified relationship between taxes and public spending; however, it differs from Friedman (1978), stating that causality can be positive or negative, depending on whether the taxes are indirect or not. In contrast to Friedman, Buchanan and Wagner (1977) demonstrate that financing methods other than direct taxes, such as borrowing and emissions, increase the expenditure. According to Buchanan and Wagner, the indirect financing of the budget deficit would increase the demand for public goods and services by reducing the perceived price of public goods and services, in other words by creating fiscal illusion; it causes expenditures to increase (Çavuşoğlu, 2008: 143-144).

3.1.2. The Spend-and-Tax Hypothesis

The spend-and-tax hypothesis is based on the study entitled, "The Growth of Public Expenditure in the United Kingdom" by Alan Peacock and Jack Wiseman. Their hypothesis is that government spending tends to evolve in a gradual pattern. This situation is observed especially at times of war. Due to social upheavals, temporary increases in government expenditures can lead to permanent increases in government revenues (Dökmen, 2012: 122).

Another study supporting the argument that the increases in public expenditures would cause tax increases was made by Barro (1979). Adopting the Ricardian Equivalence Approach, Barro (1979) underlines that public borrowing in order to finance public expenditures will result in an increase in the future tax liabilities of individuals. Thus, increases in public expenditures cause increase in taxes. Barro suggests that the net effect of wealth will only emerge in a situation where the value of public debt securities cannot be capitalized with future taxes. As a result, Barro states that a change in the relative amounts of taxes and debts does not have any valid theoretical reason for creating a net wealth effect on aggregate demand, interest rates and capital formation; therefore, the fiscal illusion proposed by Buchanan and Wagner (1977) is not acceptable (Çavuşoğlu, 2008: 144).

The effects of financial policies on macroeconomic variables is one the most emphasized subject in economy. In this connection, the fundamental question is the

determination of whether the financial policies are instrumental to achieve economic stability or not. On this topic, there is yet no consensus among the economists as how the public debts will influence the behavior of economic entities. Additionally, there are several different ways of balancing the public debts. The mostly used solutions here are increasing taxes and expending the scope of public debts. The impacts of these two different solutions have different returns on macroeconomic variables and on the behavior of economic entities (Uğurlu and Düzgün, 2009: 99-100).

Two main streams, conducting research in this area, exist, with the first one being the Keynesian position. An increase in debt arising from the tax cuts raises disposable income and stimulates aggregate demand. This results in the debt that causes higher interest rates and deters the private investors. The second stream is the Ricardian's approach. According to Ricardian equivalence, the economic entities conceive the present tax cuts to be tax burden of the future, since economic entities act in a foresighted manner. These entities believe that current value of taxes is not future related but is related to the present government spending. This way, an increase in debt cannot give a stimulus to the aggregate demand, and thus, the increase in debt has no real effects. This second view has largely been attributed to the work of Barro (1974) (Kim, 2003: 2).

Ever since Barro (1974) has tabled the question whether government bonds correspond to net wealth or not, a vast majority of literature has been devoted to this topic both on the theoretical and the empirical grounds. Assuming the answer to the Barro's question is no, then changes in the composition of government expenditure finance will have no effect on consumption. With this assumption, the phrase "Ricardian equivalence" has the implication that private consumption is affected to the same level by taxes and debts. Expressed differently, debt becomes neutral with respect to consumption. It was Buchanan (1976) who first pointed out the close relationship between the Barro proposition and previous work carried out by David Ricardo in the eighteen century, eventually termed the Ricardian equivalence. Ricardo discussed the preference of financing a war via new government debt or via temporary taxing. He concluded that such a choice was illogical, since debt represents deferred taxes (Ricciuti, 2001: 2).

The notion of "Ricardian equivalence" has begun to occupy an important role in modern economic philosophy, in large owing to the work of Barro (1974). In associating the existing theory and the evidence on Ricardian equivalence, it is imperative to draw the dividing line between the short-run effects of government borrowing (primarily the potential for stimulating aggregate demand, and its implications for macroeconomic stabilization policy) and the long-run effects (primarily the potential for suppressing capital accumulation) (Bernheim, 1987: 263).

The central idea in Ricardian observation is that deficits cause postponement of taxes. A rational individual should not feel the difference between paying one unit of currency in taxes today, and paying one unit of currency plus interest in taxes tomorrow. Since the timing of taxes does not affect an individual's lifetime budget constraints, it cannot alter his consumption strategy either (Bernheim, 1987: 264).

For the validity of Ricardian Equivalance, quite a number of assumptions have to be made. These are (Uğurlu and Düzgün, 2009: 101-102):

- Number of taxpayers has to be fixed.
- The lifetime of economic entities is infinity, they have a powerful insight, economic vision and forecasting capability.
- There is no limit to the liquidity or level of debts in the capital market. The individuals borrow or lend money at the same rate as the states (Giorgioni and Holden, 2003: 210).
- Taxes are lump sum type (Kim, 2003: 8).
- Public consumption has to remain unchanged.
- The main capital and its interest have to be financed by taxes deferred to the next terms (Marinheiro, 2001: 3).
- There is no uncertainty about economic future. The future revenues and taxes are predictable.

3.1.3. The Fiscal Synchronization Hypothesis

In addition to the tax-and-spend and spend-and-tax hypotheses, another hypothesis that defines the relationship between public expenditures and public revenues is the fiscal synchronization hypothesis. This approach suggests joint decision-making on public expenditure and revenue. Musgrave (1966) and

Meltzer and Richard (1981) advocate this hypothesis. According to fiscal synchronization, citizens compare the marginal benefits and marginal costs of government services when making a decision on the appropriate levels of expenditure and revenue. This hypothesis implies a bidirectional causality relationship between public expenditures and public revenues. If there is bi-directional causality between public expenditures and revenues, the fiscal synchronization hypothesis is valid (Payne, 1998: 308).

3.1.4. The Institutional Separation Hypothesis

The hypotheses mentioned above provide either a unilateral or bilateral causality relationship between public expenditures and revenues. In institutional separation hypothesis, there is no causality between public expenditures and revenues since the functions of allocation and taxation of the public sector are completely separate functions institutionally. This hypothesis is suggested by Baghestani and McKnown (1994) (Çavuşoğlu, 2008: 144). Finding of Baghestani and Mcknown (1994) support that expenditures and revenues does not affect budgetary disequilibria (Payne, 1998: 309).

3.2. REVIEW OF THE EMPIRICAL LITERATURE

In literature, there are several studies investigating the relationship between public sector revenues and expenditures and other related areas. Some of these are cited below.

In Ram (1988), the author compares the two conflicting conclusions of two previous studies conducted on the causality between the revenues and expenditures of the US government and by data extensions, and it is found that although there are considerable variations for specific cases, but in general, if the federal data is taken into account, the causality seems to be running mainly from revenue to expenditure and it is the other way round in the states and local governments. The government expenditure and revenue relationship is examined in Paleologou (2013), for three EU countries, namely Sweden, Greece and Germany in the context of soft and hard budget constrains where no asymmetries are observed for Sweden and Germany while the evidence of asymmetry is found in momentum threshold autoregressive form for Greece. Various hypothesis about the government

spending and revenues are tested in Anderson et al. (1986) and it is found that higher taxes will not lead to immediate higher or lower spending, on the other hand higher spending will lead to higher taxes later. The Engle-Granger error correction approach is applied in Payne (1998) in order to infer the temporal relationship between revenues and expenditure decisions in 48 individual states of US. There it is seen that in half of the states, the tax-and-spend hypothesis is supported.

The long-run causal relationship between government revenues and spending of the Swedish economy over the period 1722–2011 is examined in Irandoust (2018). The results based on hidden co-integration technique and a modified version of the Granger non-causality test reveal the existence of a long-run and asymmetric relationship between the two entities. The relationship between public sector revenues and expenditures in Turkey is investigated in Mangır and Kabaklarlı (2016) and from the findings of autoregressive distributed lag model, it is concluded that the change in public sector revenues has significant impact on public sector expenditures. With a focus on the role of the government revenue-expenditure nexus on the dynamics of the budget balance in Turkey, the validity of the theorems known as spend-and-tax and tax-and-spend hypotheses in the relevant literature is tested in Çavuşoğlu (2008). The results confirm the validity of the spend-and-tax hypothesis in Turkey.

The causality relationship between public expenditure and public revenue is reviewed in Dökmen (2012) for 34 OECD countries over the period of 1994 to 2007 where the results of Holtz-Eakin causality tests indicate the unidirectional causality running from tax revenues to public expenditures and the validity of tax-and-spend hypothesis for these OECD member countries. The relationship between budget revenues and expenditures of Turkey is investigated in Akar (2014) with data covering the period from 1952 to 2012 where it is concluded that budget revenues and expenditures are highly correlated in the long run and there is bi-directional causality between the variables in the short run.

The sustainability of budget deficits and dynamic linkages between government revenues and expenditures in five major South Asian economies, namely India, Pakistan, Bangladesh, Srilanka and Nepal for period 1985-2014 are

examined in Shastri et al. (2017) with the results supporting the existence of long-run relationship between government revenues and expenditures.

Using autoregressive distributed lag and vector autoregressive models, a study is undertaken by Çetintaş and Baygonuşova (2017) for Kyrgyzstan in order to understand the relationship between government spending and revenues. There it is found that an increase in real government revenue will lead to even higher public expenditure. An empirical analysis of the fiscal policy regime in Turkey is performed in Arısoy and Ünlükaplan (2010) based on time series methods and annual data of the period 1950 to 2009, which concludes that fiscal policy is not sustainable in Turkey and no causality between real revenues and expenditures is detectable.

The case of Namibia is examined in Eita and Mbazima (2008) with the results unveiling a unidirectional causality from government revenue to government expenditure. In a case study of Romania by Hye and Jalil (2010) on the causal relationship between the expenditure and revenue of the government, a bidirectional long run relationship between the two variables is found. Using the quarterly data collected for the years between 1960 and 2016, Phiri (2016) examines the asymmetric equilibrium effects in the South African fiscal budget; the results reveal a bidirectional causality between revenues and expenditures.

Long and short term relationships of government revenues and expenditures of the Turkish economy are studied in Altunöz (2017) and it is found that long-run relationship exists among the variables and the causal relationship flows unidirectional from government revenues to expenditures both in the short and long-run relationships. By taking 40 Asian countries and examining government revenues and expenditures over the period of 1995 to 2008, the study by Mehrara et al. (2011) verifies from the causality tests that there is a bidirectional causal relationship between government expenditures and revenues in both the long and the short run, hence fiscal synchronization hypothesis is confirmed. The issue of potential links between government revenues and government expenditures is investigated in Lojanica (2015) for the Republic of Serbia, to highlight the measures that should be undertaken in order to reduce budget deficits and spend-and-tax hypothesis is found to be valid.

The case of Turkey is examined in Terzi and Oltulular (2006) and the empirical results show some evidence of positive relationship between tax revenues and government spending. By using aggregated and disaggregated data for period of 1995–2003, Yamak and Abdioğlu (2012) investigate co-integration and causality relationship between government revenues and government expenditures for Turkey with the results pointing to the existence of long run relationship between aggregated government revenues and government expenditures, disaggregated nontax normal revenue and transfer expenditure.

In another work Akçağlayan and Kayıran (2010), the evidence for co-integration and causality between government revenues and expenditures for Turkey over the period 1987-2005 is sought for. The results obtained from error-correction model and Toda-Yamamoto Causality Test suggest that there is no causality relationship between government revenue and government expenditure in either direction. It is argued in Feyzullah (2013) that although there is a mutual relationship between public expenditures and taxes, there is also no clear evidence of linkage between public expenditures and tax revenues in terms of causality. In a master thesis Arslan (2019), relationship between government revenues and expenditures for Turkey is investigated by VAR/Granger Causality Test. The findings indicate that fiscal synchronization hypothesis is valid between total expenditures and total revenues and spend-and-tax hypothesis is valid between total expenditures and tax revenues.

CHAPTER IV

DATA AND METHODOLOGY

4.1. DATA AND METHODOLOGY

The following Autoregressive Distributed Lag (ARDL) Model is used in testing for co-integration:

$$\Delta LNREVSH_t = a_0^r + \sum_{i=1}^{P} b_i^r \, \Delta LNREVSH_{t-i} + \sum_{i=0}^{p} c_i^r \Delta LNEXPSH_{t-i} + \mu_1^r LNREVSH_{t-1} + \mu_2^r LNEXPSH_{t-1} + \varepsilon_t^r \quad (4.1)$$

$$\Delta LNEXPSH_t = a_i^x + \sum_{i=1}^{P} b_i^x \, \Delta LNEXPSH_{t-i} + \sum_{i=0}^{p} c_i^x \Delta LNREVSH_{t-i} + \mu_1^x LNEXPSH_{t-1} + \mu_1^x LNREVSH_{t-1} + \varepsilon_t^x \quad (4.2)$$

where REVSH is the share of government revenues in GDP, EXPSH is the share of government expenditures in GDP, *a's* are the intercepts, *ε*'s are the random error terms , and Δ is the first difference operator. All variables are expressed in natural logarithms.

The null and alternative hypotheses of the test for equation 4.1 are

H_0: $\mu_1^r = \mu_2^r = 0$ (no co-integration)

H_1: $\mu_1^r \neq 0$, $\mu_2^r \neq 0$

The null and alternative hypotheses of the test for equation 4.2 are

H_0: $\mu_1^x = \mu_2^x = 0$ (no co-integration)

H_1: $\mu_1^x \neq 0$, $\mu_2^x \neq 0$

The long-run relationship between the two variables can be written as:

$$LNREVSH_t = \alpha^{LR,r} + \mu^{LR,r} LNEXPSH_t + \varepsilon_t^r \quad (4.3)$$

$$LNEXPSH_t = \alpha^{LR,x} + \mu^{LR,x} LNREVSH_t + \varepsilon_t^x \quad (4.4)$$

Long run coefficients α and μ can be obtained from equations from initial estimation of the ARDL model with level variables.

The error correction model (ECM) can be expressed as follows:

$$\Delta LNREVSH_t = \alpha_0^r + \sum_{i=1}^{m} \beta_i^r \, \Delta LNREVSH_{t-i} + \sum_{i=0}^{p} \gamma_i^r \Delta LNGEXP_{t-i} + \varphi^r EC_{t-1}^r + \varepsilon_t^r \quad (4.5)$$

$$\Delta LNEXPSH_t = \alpha_0^x + \sum_{i=1}^{m} \beta_i^x \, \Delta LNEXPSH_{t-i} + \sum_{i=0}^{p} \gamma_i^r \Delta LNREVSH_{t-i} + \varphi^x EC_{t-1}^x + \varepsilon_t^x \quad (4.6)$$

Short run coefficients can be obtained from initial estimation of the ARDL model. EC_{t-1} terms are error correction terms, which capture the short-run dynamics. They are defined as follows:

$$EC_{t-1}^r = LNREVSH_{t-1} - \alpha^{LR,r} + \mu^{LR,r} LNEXPSH_{t-1} \quad (4.7)$$

$$EC_{t-1}^x = LNREVSH_{t-1} - \alpha^{LR,x} + \mu^{LR,x} LNEXPSH_{t-1} \quad (4.8)$$

The study uses quarterly time series data obtained from The Central Bank of Turkey. For government revenues series of Central Government Revenues (TP.KB.GEL001) and for government expenditures series of Central Government Budget Expenditures (TP.KB.GID001) are used. Quarterly GDP data series are used to calculate the shares of revenues and expenditures in GDP. Data were deseasonalized by using the R-package *seasonal*. Moving holidays of Turkey and the trading day effects are accounted for in the seasonal adjustment. Table 4.1 gives the descriptive statistics for the data.

We use a dummy variable (denoted by D1 in the results tables) to control for the instability in the period of 2006-2010. (D1=1 for all quarters in 2006-2010, and D1=0 otherwise.)

Table 4.1: Descriptive Statistics

Variables	Maximum	Minimum	Mean	Std. Dev.
LNREVSH	23.23	19.51	21.23	0.76
LNEXPSH	28.17	20.81	23.03	1.64

Notes: Sample period: 52 observations from 2006Q1 to 2018Q4

Plots of the data series are shown in Figures 4.1 and 4.2. While LNREVSH shows a slight downward trend, LNEXPSH does not have a trend in most of the period.

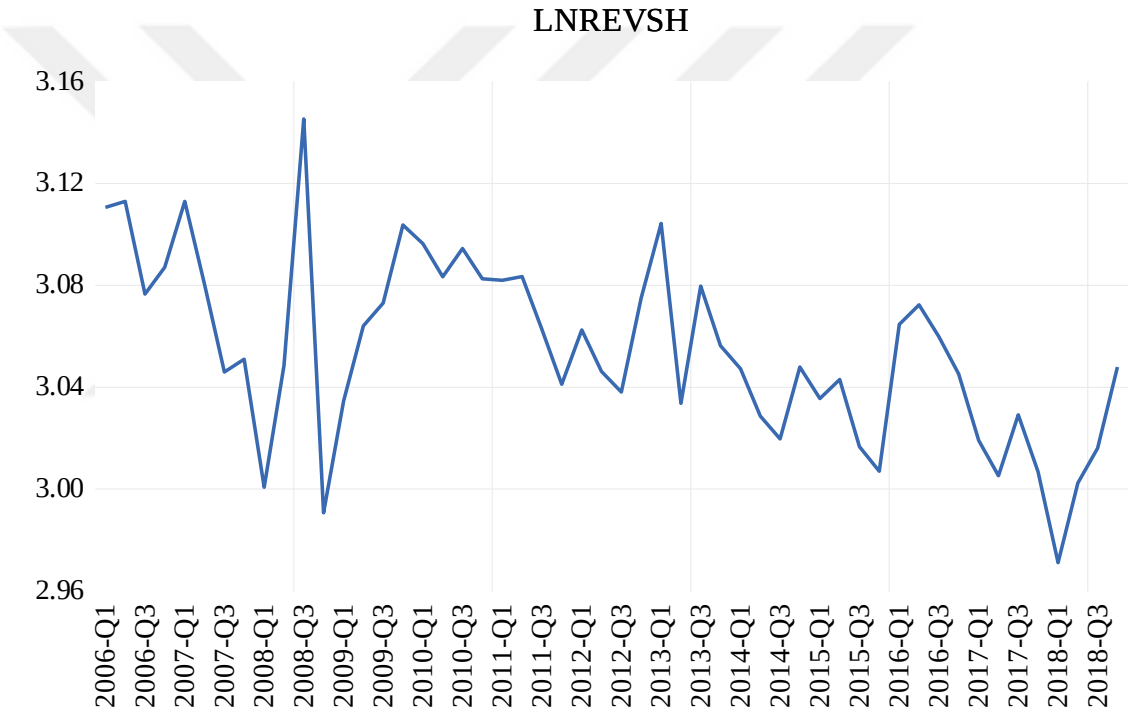


Figure 4.1: Share of Government Revenues in GDP (LNREVSH)

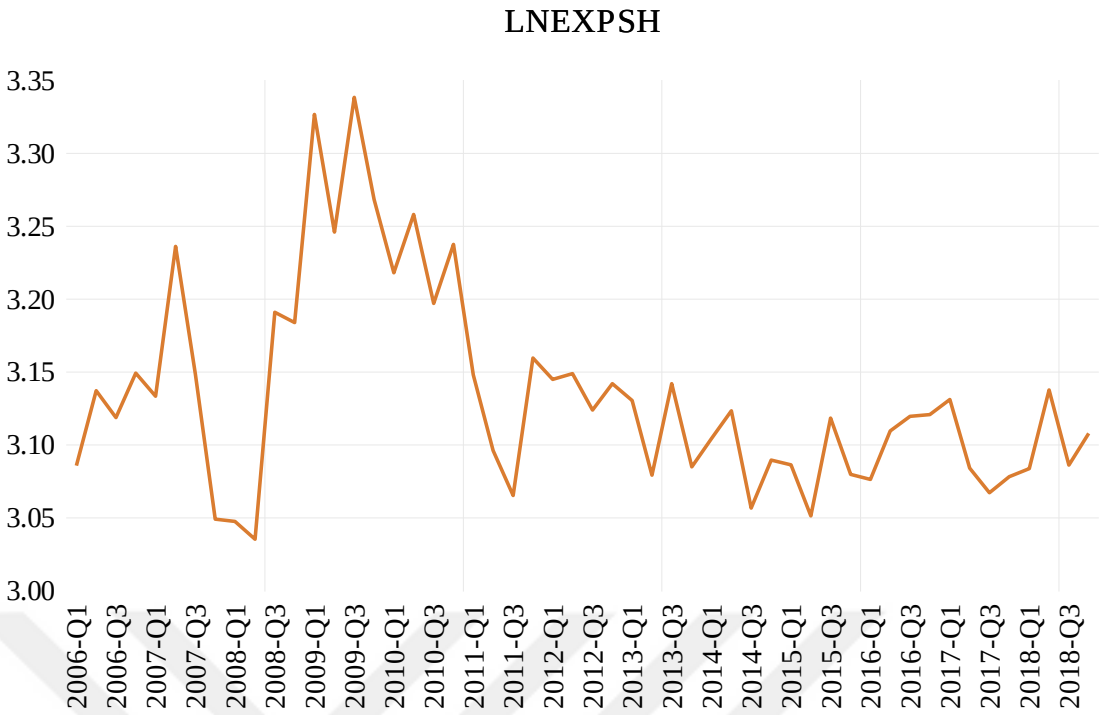


Figure 4.2: Share of Government Expenditures in GDP (LNEXPSH)

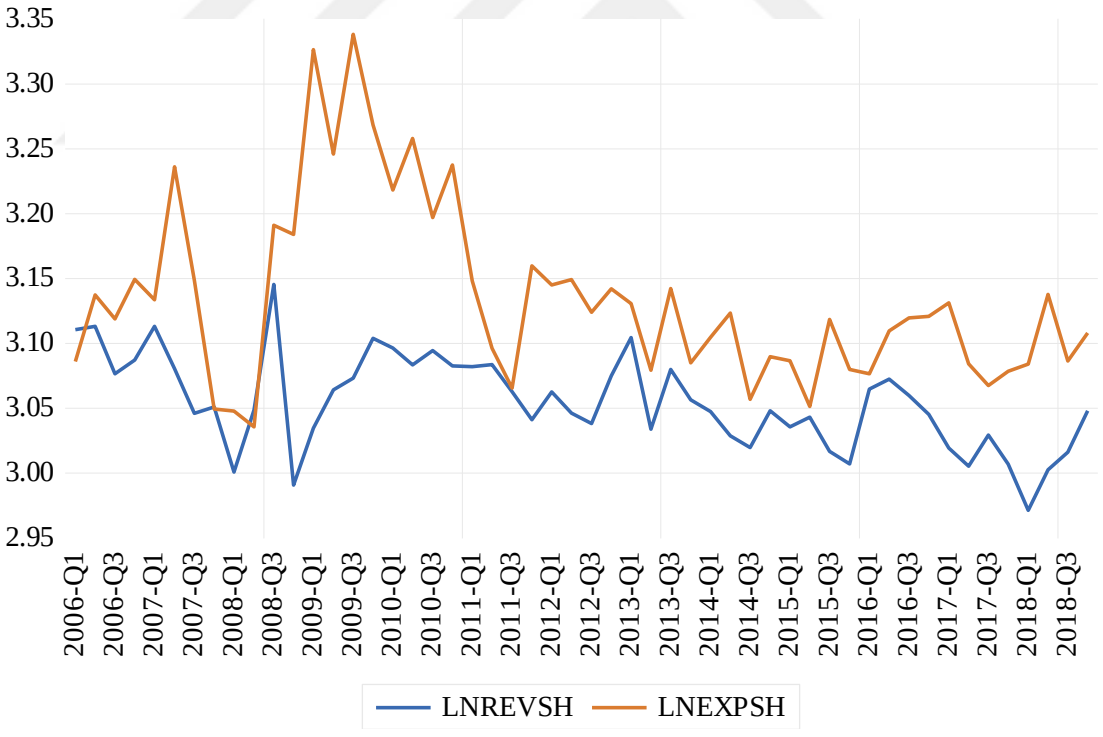


Figure 4.3: Plot of Both Series

4.2. UNIT ROOT TESTS

ARDL methodology requires that none of the series used in the study to be integrated of order two, I(2). To check this Augmented Dickey-Fuller (ADF) is used to determine the times series properties of the series. The null hypothesis in both of the test is stationarity, that is, there is a unit root in the time series. The null hypothesis is rejected if the test statistic is more negative than the relevant critical value.

The unit root test results for LNREVSH are shown in Table 4.2. The maximum lag order is set to 10 and SBC is used to select the lag order. A lag order of zero is selected and the test statistic is -4.43752, which is more negative than the critical values listed in Table 4.2. P-value is also less than 0.05. So it is possible to reject the null hypothesis of non-stationarity, and conclude that LNREVSH does not have a unit root. The same is true when the regression equation includes both an intercept and a linear trend (see the second row of Table 4.2). Next, first differenced LNREVSH (DLNREVSH) is checked. The results in the Table 4.2 show that the null hypothesis is rejected. Hence, the conclusion is that LNREVSH is integrated of order 0 or I(0). These conclusions are the same when the maximum lag order is set to 4 instead of 8 or Phillips-Perron (PP) test is applied.

Table 4.2: ADF Unit Root Tests for LNREVSH

Variable	**Include of Test Equation**	**TestStatistic**	**Prob.**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**
LNREVSH	Intercept	-4.437515	0.0008	-3.56543	-2.919952	-2.597905
LNREVSH	Trend and Intercept	-5.572888	0.0001	-4.148465	-3.500495	-3.179617
DLNREVSH	Intercept	-9.91740	0.0000	-3.568308	-2.921175	-2.598551
DLNREVSH	Trend and Intercept	-9.836791	0.0000	-4.152511	-3.502373	-3.180699

Repeating the same decision process for LNEXPSH, we find that LNEXPSH is not I(2), either (see Table 4.3). First, ADF Test is performed to check stationarity. Again the maximum lag order is set to 10 and SBC is used to select the lag order. A

lag order of one is selected and the test statistic is -2.173114, which is less negative than the critical values listed in Table 4.3. P-value is also greater than 0.05. So it is not possible to reject the null hypothesis of non-stationarity. The same is true when the regression equation includes both an intercept and a linear trend (see the second row of Table 4.3). Next, first differenced LNEXPSH (DLNEXPSH) is checked. The results in Table 4.3 show that the null hypothesis is rejected. So, LNEXPSH is I(1), stationary at first difference, according to the ADF Test.

Table 4.3: ADF Unit Root Tests for LNEXPSH

Variable	**Include of Test Equation**	**TestStatistic**	**Prob.**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**
LNEXPSH	Intercept	-2.173114	0.2184	-3.568308	-2.921175	-2.598551
LNEXPSH	Trend and Intercept	-3.101316	0.1176	-4.161144	-3.506374	-3.183002
DLNEXPSH	Intercept	-10.1397	0.0000	-3.568308	-2.921175	-2.598551
DLNEXPSH	Trend and Intercept	-10.04016	0.0000	-4.152511	-3.502373	-3.180699

Phillips-Perron Test results are shown in Table 4.4. Phillips-Perron test statistic is -3.172500 when only an intercept is included in the test regression, which is less negative than the %5 critical value. Also, p-value is less than 0.05. So, it is possible to reject the null hypothesis, which means that LNEXPSH is stationary. However, when the regression equation includes both an intercept and a linear trend, a test statistic of -3.543382 is obtained. This is more negative that the 5% critical value, indicating that LNEXPSH has a unit root. Since the DLNEXPSH is stationary (see Table 4.4), PP Test results seem to support the ADF test results at the 5% significance level, indicating that LNEXPSH is I(1).

Table 4.4: Phillips-Perron Unit Root Tests for LNEXPSH

Variable	Include of Test Equation	TestStatistic	Prob.	1% Critical Value	5% Critical Value	10% Critical Value
LNEXPSH	Intercept	-3.172500	0.0275	-3.565430	-2.919952	-2.597905
LNEXPSH	Trend and Intercept	-3.543382	0.0453	-4.148465	-3.500495	-3.179617
DLNEXPSH	Intercept	-10.36275	0.0000	-3.568308	-2.921175	-2.598551
DLNEXPSH	Trend and Intercept	-10.26292	0.0000	-4.152511	-3.502373	-3.180699

CHAPTER V

EMPIRICAL RESULTS

In this chapter, we present the findings of the analyses that were done using the dataset and the methods described in the above-mentioned chapter.

5.1. ARDL MODEL AND THE DIAGNOSTIC TESTS

The estimation process starts with the selection of optimal lags for the variables that are used in the model. Optimal lags (*p* lags for the dependent variable, *q* lags for independent variables) are selected by using the Schwarz Criterion (SC). This procedure requires the specification of a maximum lag length, which is set to four initially. Maximum lag length is increased, if necessary, until this process yields an ARDL(p,q) model that meets the relevant diagnostic test criteria.

Results for LNREVSH given in Appendix 3 Table A3.1 indicate that ARDL(1,0) is the selected model when the maximum lag order is set to twelve. Diagnostic test results are given in Table A3.2. Results of serial correlation, heteroskedasticity and Ramsey RESET Test do not indicate any problems with the model at the five percent significance level (null hypotheses of no serial correlation, homoskedasticity, no specification errors cannot be rejected at the five percent significance level). However, normality condition has a p-value of 0.0406, which indicates that the null hypothesis of normality cannot be rejected at one percent significance level. CUSUM and CUSUM of squares are plotted in Figures 5.1 and 5.2 together with the 5 percent critical lines, which means that model parameters are stable since neither series go outside the area between the critical lines.

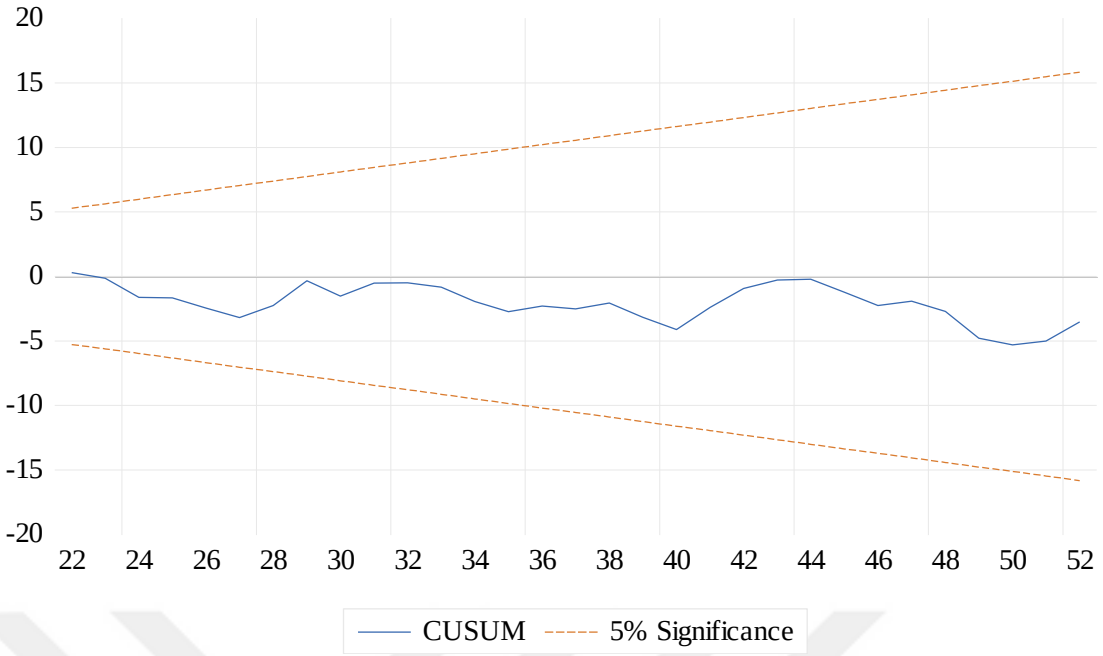


Figure 5.1: Plot of the CUSUM Stability Test for LNREVSH

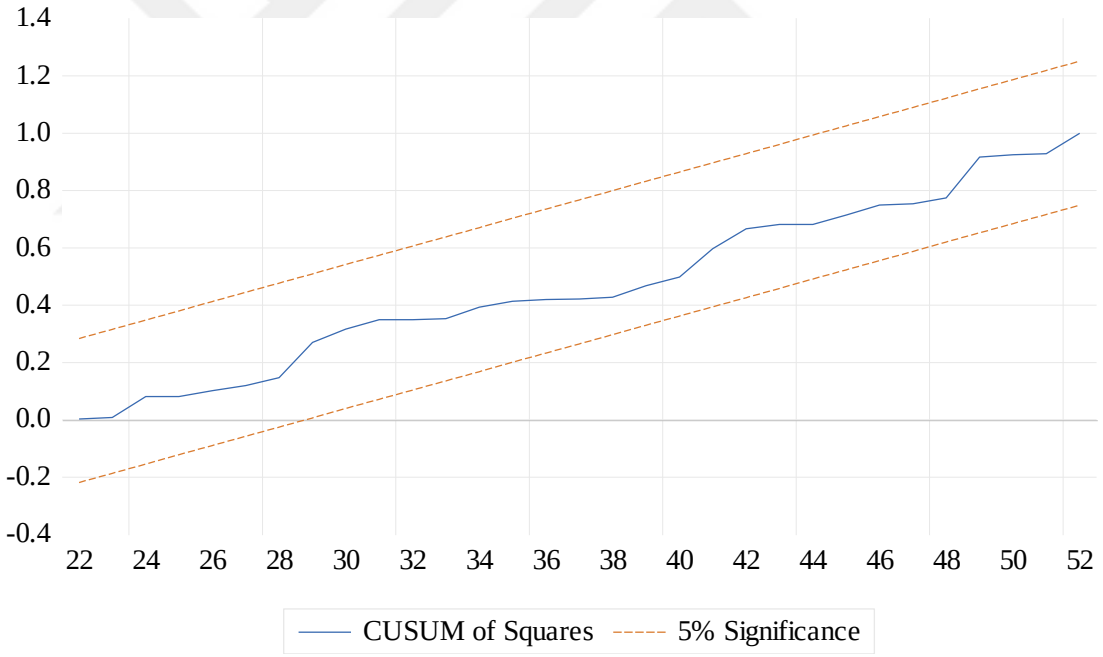


Figure 5.2: Plot of the CUSUMSQ Stability Test for LNREVSH

Results for LNEXPSH given in Appendix 4 Table A4.1 indicate that ARDL(1,1) is the selected model when the maximum lag order is set to twelve. However, the diagnostic test results given in Table A4.2 indicate that there is heteroskedasticiy. Also, residuals are not distributed normally. Setting the maximum lag order to other values, such as 4, 10, 12 do not change this conclusion. On the

other hand, bounds test given in Table A.4.3 indicates that there is co-integration. Note that the long run coefficient this model yields, 0.669816, is not significant (see Table A4.3).

5.2. BOUNDS TESTING

F-statistic obtained from the estimation of equation 4.1 is compared with the critical values given in Pesaran et al. (2001). To conclude that there is co-integration between LNREVSH and LNEXPSH F-statistic must be higher than the upper bound. The test is inconclusive when F statistic is between the upper bound and the lower bound.

Bounds test results for LNREVSH as dependent variable given in Table A3.3 indicate that the null hypothesis of no co-integration is rejected since the calculated F-statistic is higher than the upper critical value. Hence, we can conclude that there is co-integration between LNREVSH and LNEXPSH.

5.3. LONG RUN COEFFICIENTS AND ERROR CORRECTION MODEL

Long run coefficients are given in Table A3.3 From Table A3.3, coefficient of LNEXPSH is 0.167006, and significant at the ten percent significance level. This means that one percent increase in EXPSH increases REVSH by approximately 0.17 percent in the long run.

Error correction term, denoted by CointEq(-1) in Table A3.4, is negative and significant, and less than one in absolute value. This coefficient (-0.835553) indicates that about -83.5% of errors (any deviations from equilibrium) are corrected for within a quarter.

5.4. TODA-YAMAMOTO CAUSALITY ANALYSIS

In order to perform Toda-Yamamoto (1995) Causality Test, the lag length (p) must be determined through the VAR model. In the second step, the highest degree of integration (d_{max}) is added to the lag length (k). Toda-Yamamoto is applied through the following steps:

1. We begin with defining the optimal lag length (k) for the VAR model by using the Schwarz Criterion.

2. With the optimal lag length taken from step 1, we check the diagnostic tests (serial correlation etc.). If there is a problem with the diagnostics, lag length should be increased.
3. The model with specified lag length (k) in step 2 is estimated with extra lag for all variables in the model. Hence, we estimate VAR model with (k + $dmax$) order. In Eviews 11, this can be applied by adding an extra lag for all variables in the exogeneous variables box in the model.
4. Finally, causality test is applied by using the "VAR Granger Causality/Block Exogeneity Wald Test". Accordingly, we check the hypothesis below:

   H_0: There is no causality relationship between variables.

   H_1: There is causality.

   Rejection of null hypothesis (H_0) entails the rejection of causality.

VAR lag orders selected by different criteria are shown in in Table A5.1. The optimal lag length selected by Schwarz Criterion is one. In the VAR analysis made considering one lag, diagnostic tests were checked as step two. According to the results given in Table A5.2., there is serial correlation. Since serial correlation problem started to improve in seventh lag, lag length (k) was taken as seven. We estimate VAR model by adding an extra lag for both LNREVSH and LNEXPSH. Diagnostic tests no longer indicate any problems with this modified model.

Toda-Yamamoto causality test results are given in Table A5.3. Since the p-value for LNEXPSH (0.0145) is less than 0.05 when the dependent variable is LNREVSH, null hypothesis of no Granger causality is rejected, and we can say that there is a Granger causality from LNEXPSH to LNREVSH. However, p-value for LNREVSH (0.4722) is greater than 0.05 when the dependent variable is LNEXPSH, which means there is no causality relationship in this case. So, we can conclude that there is unidirectional causality from LNEXPSH to LNREVSH which is consistent with their long-run relationship results (co-integration) given in section 5.

CHAPTER VI

CONCLUSION

This study aims to examine the relationship between government revenues and expenditures, and the sustainability of budget deficits in Turkey. An ARDL bounds testing methodology is adopted to look into these issues. Hence, the first stage of the analysis is to check whether the revenue and expenditure series have unit roots to make sure that neither of them are integrated of order two, I(2). Since neither series are found to be I(2), bounds testing is performed, and the conclusion is that there is co-integration between government revenues and expenditures when the former is the dependent variable in the model. When an ARDL model with the government expenditures as the dependent variable is run there was also co-integration between government expenditures and revenues, but because of certain diagnostic problems, this result is considered unreliable.

The finding of co-integration between government revenues and expenditures indicate that there is a non-spurious relationship between the two series. Hence, one can talk about the long run equilibrium and the short run dynamics. The coefficient for the relevant expenditure term in the long run model is positive and significant, indicating that revenues increase when expenditures increase in the long run.

The result of Toda-Yamamoto causality test indicates that when government revenues are dependent variable, there is a causality relationship between government expenditures and revenues.

This finding appears to support the spend-and-tax hypothesis outlined in section 3.1.2. Recall that this hypothesis states that spending decisions are made first, and the taxes (revenues) are adjusted accordingly. This procedure creates a link between the two variables, running from expenditures to revenues. This means that increases in expenditures would increase revenues, as well. This finding has an important implication on how budget deficits can be reduced. It seems that in

Turkey, budget deficits can be reduced by tighter control of expenditures rather than cuts in taxes as would be implied by spend-and-tax hypothesis.

Regarding Turkey, the finding of spend-and-tax hypothesis is in line with Akçoraoğlu (1999), Terzi and Oltulular (2006), Çavuşoğlu (2008), Wahid (2008), Yamak and Abdioğlu (2012), Kaya and Şen (2013), Aysu and Bakırtaş (2018) studies.

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APPENDICES

APPENDIX 1

Table A1.1: Literature Review

Row	Authors	Method	Country	Period	Conclusion
1	Abdul Aziz, Habibullah, Saini, Azali (2000)	Granger Causality	Malaysia	1960-1990	Fiscal Synchronization Hypothesis
2	Akar (2014)	TAR, MTAR	Turkey	1950-2012	Fiscal Synchronization Hypothesis
3	Akçağlayan and Kayıran (2010)	Toda Yamamoto Causality	Turkey	1987:Q1-2005:Q4	Institutional Seperation Hypothesis
4	Akçoraoğlu (1999)	Granger Causality	Turkey	1955-1995	Spend-and-Tax Hypothesis
5	Al-Qudair (2005)	ECM	Saudi Arabia	1964-2001	Fiscal Synchronization Hypothesis
6	Altunöz (2017)	Granger Causality, Toda-Yamamoto Causality	Turkey	1970-2015	Tax-and-Spend Hypothesis
7	Anderson, Wallace, Warner (1986)	Granger Causality	USA	1946-1983	Spend-and-Tax Hypothesis

Row	Authors	Method	Country	Period	Conclusion
8	Aregbeyen and Ibrahim (2012)	ARDL	Nigeria	1970-2008	Tax-and-Spend Hypothesis
9	Arısoy and Ünlükaplan (2010)	Granger Causality	Turkey	1950-2009	Institutional Seperation Hypothesis
10	Arslan (2019)	VAR, Granger Causality, Asymmetric Causality Test	Turkey	2006:M1-2019:M3	Fiscal Synchronization Hypothesis for the relationship between total expenditures and total revenues; Spend-and-Tax Hypothesis for the relationship between total expenditures and tax revenues.
11	Aslan and Taşdemir (2009)	Granger Causality	Turkey	1950-2007	Fiscal Synchronization Hypothesis
12	Aysu and Bakırtaş (2018)	Toda-Yamamoto Causaity, Asymmetric Causality	Turkey	2006:M1-2017:M1	Spend-and-Tax Hypothesis
13	Bohn (1991)	ECM	USA	1792-1988	Tax-and-Spend Hypothesis
14	Chang and Ho (2002)	Multivariate Error-Correction Models (MVECM)	China	1977-1999	Fiscal Synchronization Hypothesis
15	Chen (2008)	Granger Causality	Taiwan	1955-2005	Tax-and-Spend Hypothesis

Row	Authors	Method	Country	Period	Conclusion
16	Çavuşoğlu (2008)	VAR	Turkey	1987:Q1-2003:Q4	Spend-and-Tax Hypothesis
17	Çetintaş and Baygonuşova (2017)	ARDL, VAR	Kyrgyzstan	1995-2014	Tax-and-Spend Hypothesis
18	Darrat (1998)	Granger Causality	Turkey	1967-1994	Tax-and-Spend Hypothesis
19	Dökmen (2012)	Holtz-Eakin Causality	OECD Member Countries	1994-2007	Tax-and-Spend Hypothesis
20	Eita and Mbazima (2008)	Granger Causality	Namibia	1977-2007	Tax-and-Spend Hypothesis
21	Elyasi and Rahimi (2012)	Granger Causality	Iran	1963-2007	Fiscal Synchronization Hypothesis
22	Feyzullah (2013)	VAR	Turkey	1980-2012	Institutional Seperation Hypothesis
23	Günaydın (2004)	Toda Yamamoto Causality	Turkey	1983:Q1-2003:Q3	Tax-and-Spend Hypothesis
24	Hye and Jalil (2010)	ARDL	Romania	1998:Q1-2008:Q3	Fiscal Synchronization Hypothesis
25	Irandoust (2017)	Hidden Cointegration Technique, Modified Version of the Granger Non-Causality Test	Sweden	1722–2011	Fiscal Synchronization Hypothesis
26	Kaya and Şen (2013)	VAR, Granger Causality	Turkey	1975-2011	Spend-and-Tax Hypothesis
27	Lojanica (2015)	ARDL, VECM	Serbia	2003:M1-2014:M11	Spend-and-Tax Hypothesis

Row	Authors	Method	Country	Period	Conclusion
28	Luković and Grbić (2014)	Toda Yamamoto	Serbia	2003:Q1-2012:Q4	Spend-and-Tax Hypothesis
29	Manage and Marlow (1986)	Granger Causality	USA	1929-1982	Tax-and-Spend Hypothesis
30	Mangır and Kabaklarlı (2016)	ARDL	Turkey	2004:M1-2016:M1	Tax-and-Spend Hypothesis
31	Mehrara, Pahlavani, Elyasi (2011)	Granger Causality	40 Asian Countries	1995-2008	Fiscal Synchronization Hypothesis
32	Obeng (2015)	VAR, Granger Causality	Ghana	1980-2013	Tax-and-Spend Hypothesis
33	Paleologou (2013)	TAR , MTAR, ECM	Germany, Greece, Sweden	1965-2009	Fiscal Synchronization Hypothesis for Sweden and Germany; Spend-and-Tax Hypothesis for Greece
34	Park (1998)	Granger Causality	Korea	1964-1992	Tax-and-Spend Hypothesis
35	Payne (1998)	ECM	United States (48 Individual States)	1942-1992	Tax-and-Spend Hypothesis for 24 States; Spend-and-Tax Hypothesis for 8 States; Fiscal Synchronization Hypothesis for 11 States; Remaining 5 States failed the diagnostic tests for ECM.
36	Phiri (2016)	MTAR	South Africa	1960:Q1-2016:Q2	Fiscal Synchronization Hypothesis

Row	Authors	Method	Country	Period	Conclusion
37	Ram (1988)	Granger Causality	USA	1929-1983	Fiscal Synchronization Hypothesis
38	Shastri, Giri, Mohapatra (2017)	Granger Causality	India, Pakistan, Bangladesh, Srilanka, Nepal	1985-2014	Spend-and-Tax Hypothesis for India, Bangladesh, Pakistan and Srilanka; Tax-and-Spend Hypothesis for Nepal.
39	Subhani, Hasan, Osman, Rafiq (2012)	Granger Causality	Pakistan	1970-2010	Tax-and-Spend Hypothesis
40	Terzi and Oltulular (2006)	Granger Causality	Turkey	1984:M1-2003:M12	Spend-and-Tax Hypothesis
41	Turan and Karakaş (2018)	NARDL	Turkey	1998:Q1-2016:Q4	Fiscal Synchronization Hypothesis
42	Wahid (2008)	Granger Causality	Turkey	1975-2003	Spend-and-Tax Hypothesis
43	Yamak and Abdioğlu (2012)	Granger Causality	Turkey	1995-2003	Spend-and-Tax Hypothesis
44	Yılancı, Şaşmaz, Öztürk (2020)	Asymmetric Causality	Turkey	2006:M1-2019:M11	Tax-and-Spend Hypothesis is valid in the long term; Asymmetric Tax-and-Spend Hypothesis is valid in the short, medium, and long terms.
45	Young (2009)	Granger Causality	USA	1959:Q3-2007:Q4	Tax-and-Spend Hypothesis

APPENDIX 2

Table A2.1: ADF Test Results for LNREVSH

The Dickey-Fuller regressions include an intercept but not a trend:

Null Hypothesis: LNREVSH has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.437515	0.0008
Test critical values:	1% level	-3.565430	
	5% level	-2.919952	
	10% level	-2.597905	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept and a linear trend:

Null Hypothesis: LNREVSH has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.572888	0.0001
Test critical values:	1% level	-4.148465	
	5% level	-3.500495	
	10% level	-3.179617	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept but not a trend:

Null Hypothesis: D(LNREVSH) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.917399	0.0000
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept and a linear trend:

Null Hypothesis: D(LNREVSH) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.836791	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

Table A2.2: ADF Test Results for LNEXPSH

The Dickey-Fuller regressions include an intercept but not a trend:

Null Hypothesis: LNEXPSH has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.173114	0.2184
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept and a linear trend:

Null Hypothesis: LNEXPSH has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 3 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.101316	0.1176
Test critical values:	1% level	-4.161144	
	5% level	-3.506374	
	10% level	-3.183002	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept but not a trend:

Null Hypothesis: D(LNEXPSH) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.13970	0.0000
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

The Dickey-Fuller regressions include an intercept and a linear trend:

Null Hypothesis: D(LNEXPSH) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.04016	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

Table A2.3: Phillips-Perron (PP) Test Results for LNEXPSH

The regressions include an intercept but not a trend:

Null Hypothesis: LNEXPSH has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.172500	0.0275
Test critical values:	1% level	-3.565430	
	5% level	-2.919952	
	10% level	-2.597905	

*MacKinnon (1996) one-sided p-values.

The regressions include an intercept and a linear trend:

Null Hypothesis: LNEXPSH has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.543382	0.0453
Test critical values:	1% level	-4.148465	
	5% level	-3.500495	
	10% level	-3.179617	

*MacKinnon (1996) one-sided p-values.

The regressions include an intercept but not a trend:

Null Hypothesis: D(LNEXPSH) has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.36275	0.0000
Test critical values:	1% level	-3.568308	
	5% level	-2.921175	
	10% level	-2.598551	

*MacKinnon (1996) one-sided p-values.

The regressions include an intercept and a linear trend:

Null Hypothesis: D(LNEXPSH) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.26292	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

APPENDIX 3

Table A3.1: ARDL Model for LNREVSH

Dependent Variable: LNREVSH
Method: ARDL
Sample (adjusted): 2 52
Included observations: 51 after adjustments
Maximum dependent lags: 12 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (12 lags, automatic): LNEXPSH
Fixed regressors: D1 C @TREND
Number of models evalulated: 156
Selected Model: ARDL(1, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNREVSH(-1)	0.164447	0.142254	1.156008	0.2536
LNEXPSH	0.139543	0.072410	1.927124	0.0602
D1	-0.019906	0.017250	-1.154001	0.2545
C	2.156197	0.468445	4.602880	0.0000
@TREND	-0.001347	0.000581	-2.318072	0.0249

R-squared	0.383887	Mean dependent var	3.053633
Adjusted R-squared	0.330312	S.D. dependent var	0.035584
S.E. of regression	0.029120	Akaike info criterion	-4.141914
Sum squared resid	0.039006	Schwarz criterion	-3.952519
Log likelihood	110.6188	Hannan-Quinn criter.	-4.069540
F-statistic	7.165397	Durbin-Watson stat	1.925808
Prob(F-statistic)	0.000143		

*Note: p-values and any subsequent tests do not account for model selection.

Table A3.2: Diagnostic Tests

Serial Correlation Test:

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.117586	Prob. F(2,44)	0.3362
Obs*R-squared	2.465522	Prob. Chi-Square(2)	0.2915

Heteroskedasticity Test:

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.356305	Prob. F(4,46)	0.2638
Obs*R-squared	5.380359	Prob. Chi-Square(4)	0.2504
Scaled explained SS	7.806471	Prob. Chi-Square(4)	0.0989

Ramsey RESET Test:

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: LNREVSH LNREVSH(-1) LNEXPSH D1 C @TREND

	Value	df	Probability
t-statistic	0.988092	45	0.3284
F-statistic	0.976327	(1, 45)	0.3284
Likelihood ratio	1.094671	1	0.2954

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.000828	1	0.000828
Restricted SSR	0.039006	46	0.000848
Unrestricted SSR	0.038178	45	0.000848

LR test summary:

	Value
Restricted LogL	110.6188
Unrestricted LogL	111.1661

Normality Test:

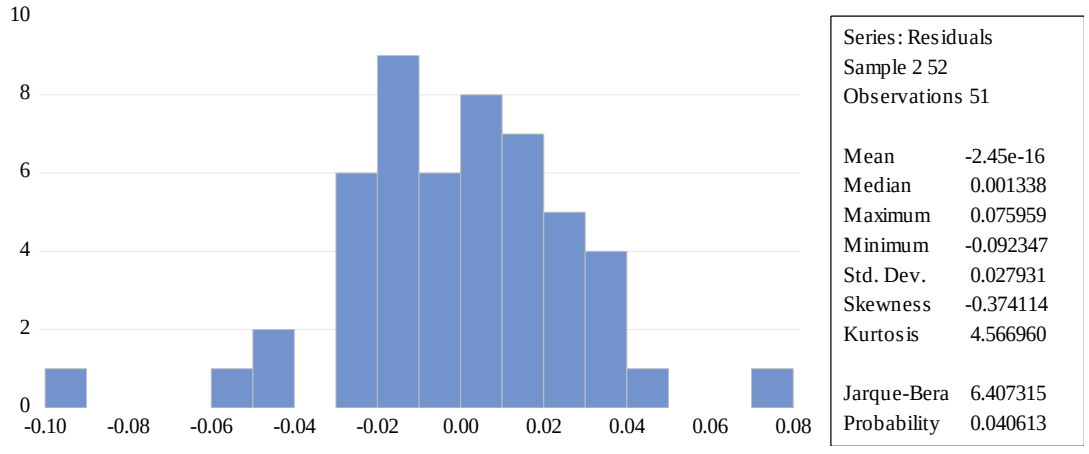


Table A3.3: Long Run Coefficients and Bounds Test for LNREVSH

Levels Equation
Case 5: Unrestricted Constant and Unrestricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEXPSH	0.167006	0.087479	1.909095	0.0625

EC = LNREVSH - (0.1670*LNEXPSH)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	17.90428	10%	5.59	6.26
k	1	5%	6.56	7.3
		2.5%	7.46	8.27
		1%	8.74	9.63
Actual Sample Size	51		Finite Sample: n=55	
		10%	5.8	6.515
		5%	6.93	7.785
		1%	9.8	10.675
			Finite Sample: n=50	
		10%	5.78	6.54
		5%	6.985	7.86
		1%	9.895	10.965

t-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-5.873670	10%	-3.13	-3.4
		5%	-3.41	-3.69
		2.5%	-3.65	-3.96
		1%	-3.96	-4.26

Table A3.4: Error Correction Representation for LNREVSH

ARDL Error Correction Regression
Dependent Variable: D(LNREVSH)
Selected Model: ARDL(1, 0)
Case 5: Unrestricted Constant and Unrestricted Trend
Sample: 1 52
Included observations: 51

ECM Regression
Case 5: Unrestricted Constant and Unrestricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.156197	0.359186	6.003013	0.0000
@TREND	-0.001347	0.000575	-2.343475	0.0235
D1	-0.019906	0.015980	-1.245684	0.2192
CointEq(-1)*	-0.835553	0.138137	-6.048719	0.0000

R-squared	0.440992	Mean dependent var	-0.001229
Adjusted R-squared	0.405311	S.D. dependent var	0.037357
S.E. of regression	0.028808	Akaike info criterion	-4.181129
Sum squared resid	0.039006	Schwarz criterion	-4.029614
Log likelihood	110.6188	Hannan-Quinn criter.	-4.123231
F-statistic	12.35917	Durbin-Watson stat	1.925808
Prob(F-statistic)	0.000004		

* p-value incompatible with t-Bounds distribution.

APPENDIX 4

Table A4.1: ARDL Model for LNEXPSH

Dependent Variable: LNEXPSH
Method: ARDL
Sample (adjusted): 2 52
Included observations: 51 after adjustments
Maximum dependent lags: 12 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (12 lags, automatic): LNREVSH
Fixed regressors: D1 C @TREND
Number of models evalulated: 156
Selected Model: ARDL(1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNEXPSH(-1)	0.495851	0.116793	4.245572	0.0001
LNREVSH	0.430994	0.238597	1.806364	0.0776
LNREVSH(-1)	-0.093307	0.247807	-0.376529	0.7083
D1	0.063086	0.027891	2.261890	0.0286
C	0.498519	0.945598	0.527200	0.6006
@TREND	0.001070	0.001017	1.052145	0.2984

R-squared	0.557886	Mean dependent var	3.135335
Adjusted R-squared	0.508762	S.D. dependent var	0.069523
S.E. of regression	0.048727	Akaike info criterion	-3.095018
Sum squared resid	0.106846	Schwarz criterion	-2.867745
Log likelihood	84.92297	Hannan-Quinn criter.	-3.008170
F-statistic	11.35673	Durbin-Watson stat	2.110906
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Table A4.2: Diagnostic Tests

Serial Correlation Test:

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.034032	Prob. F(2,43)	0.3642
Obs*R-squared	2.340267	Prob. Chi-Square(2)	0.3103

Heteroskedasticity Test:

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	5.181471	Prob. F(5,45)	0.0008
Obs*R-squared	18.63382	Prob. Chi-Square(5)	0.0022
Scaled explained SS	24.27195	Prob. Chi-Square(5)	0.0002

Ramsey RESET Test:

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: LNEXPSH LNEXPSH(-1) LNREVSH LNREVSH(-1) D1 C @TREND

	Value	df	Probability
t-statistic	0.351002	44	0.7273
F-statistic	0.123202	(1, 44)	0.7273
Likelihood ratio	0.142603	1	0.7057

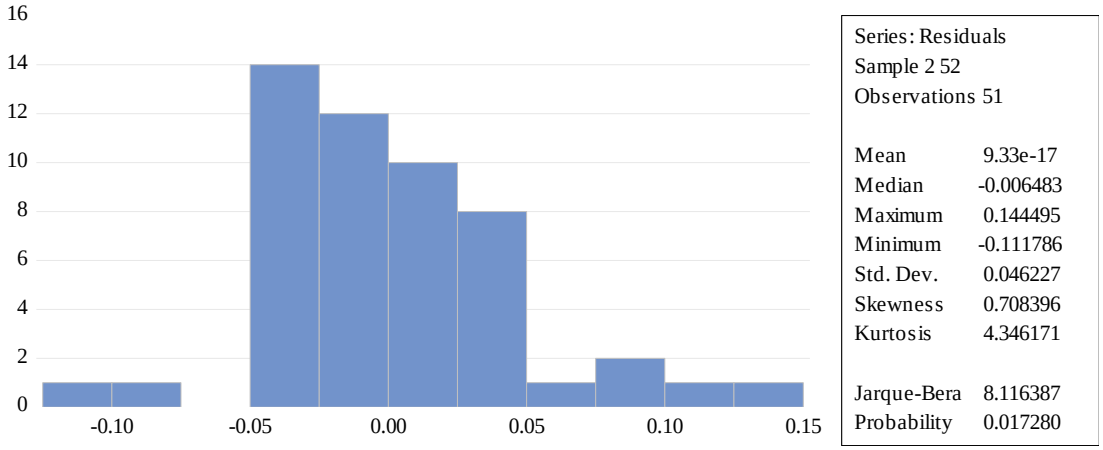
F-test summary:

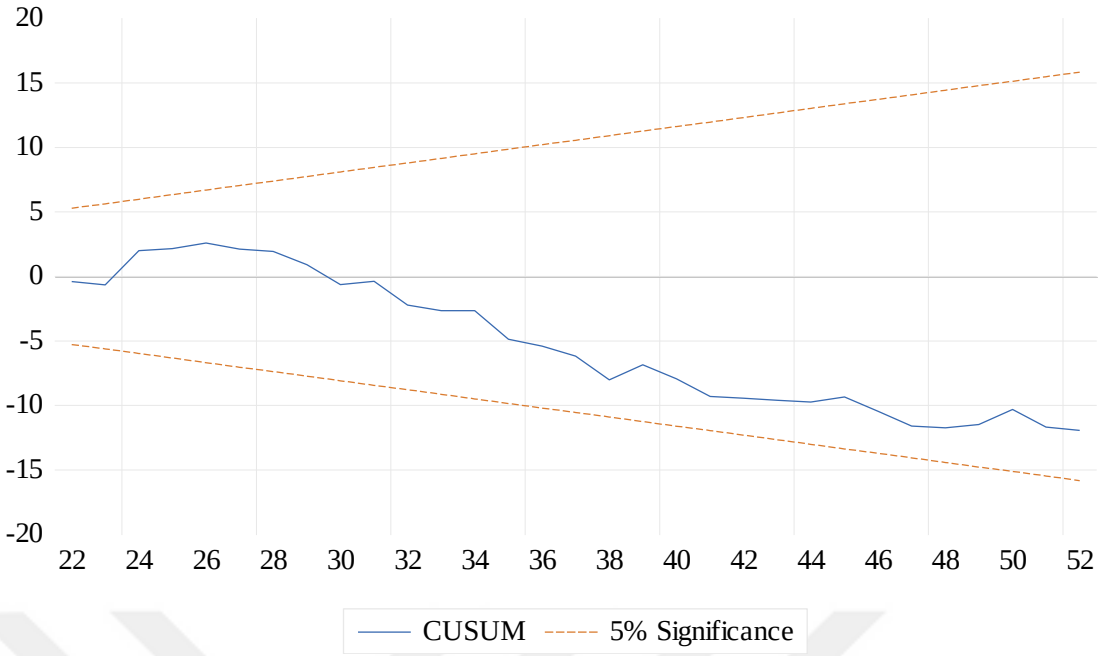
	Sum of Sq.	df	Mean Squares
Test SSR	0.000298	1	0.000298
Restricted SSR	0.106846	45	0.002374
Unrestricted SSR	0.106548	44	0.002422

LR test summary:

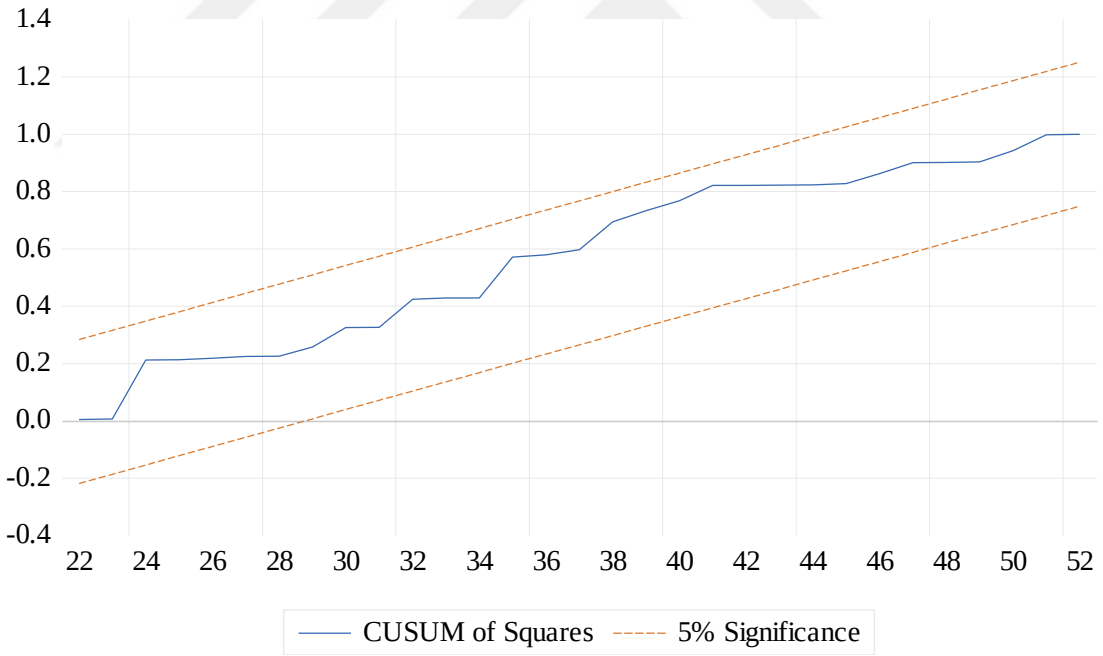
	Value
Restricted LogL	84.92297
Unrestricted LogL	84.99427

Normality Test:





Plot of the CUSUM Stability Test for LNEXPSH



Plot of the CUSUM Stability Test for LNEXPSH

Table A4.3: Long Run Coefficients and Bounds Test for LNEXPSH

Levels Equation
Case 5: Unrestricted Constant and Unrestricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNREVSH	0.669816	0.600237	1.115920	0.2704

EC = LNEXPSH - (0.6698*LNREVSH)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.319630	10%	5.59	6.26
k	1	5%	6.56	7.3
		2.5%	7.46	8.27
		1%	8.74	9.63
Actual Sample Size	51		Finite Sample: n=55	
		10%	5.8	6.515
		5%	6.93	7.785
		1%	9.8	10.675
			Finite Sample: n=50	
		10%	5.78	6.54
		5%	6.985	7.86
		1%	9.895	10.965

t-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-4.316621	10%	-3.13	-3.4
		5%	-3.41	-3.69
		2.5%	-3.65	-3.96
		1%	-3.96	-4.26

Table A4.4: Error Correction Representation for LNEXPSH

ARDL Error Correction Regression
Dependent Variable: D(LNEXPSH)
Selected Model: ARDL(1, 1)
Case 5: Unrestricted Constant and Unrestricted Trend
Sample: 1 52
Included observations: 51

ECM Regression
Case 5: Unrestricted Constant and Unrestricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.498519	0.122324	4.075382	0.0002
@TREND	0.001070	0.000856	1.250262	0.2177
D(LNREVSH)	0.430994	0.184262	2.339022	0.0238
D1	0.063086	0.027244	2.315592	0.0252
CointEq(-1)*	-0.504149	0.115497	-4.365028	0.0001

R-squared	0.338686	Mean dependent var	0.000431
Adjusted R-squared	0.281180	S.D. dependent var	0.056845
S.E. of regression	0.048195	Akaike info criterion	-3.134234
Sum squared resid	0.106846	Schwarz criterion	-2.944839
Log likelihood	84.92297	Hannan-Quinn criter.	-3.061861
F-statistic	5.889614	Durbin-Watson stat	2.110906
Prob(F-statistic)	0.000651		

* p-value incompatible with t-Bounds distribution.

APPENDIX 5

Table A5.1: VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LNREVSH LNEXPSH
Exogenous variables: C D1
Sample: 1 52
Included observations: 40

Lag	LogL	LR	FPE	AIC	SC	HQ
0	166.8254	NA	9.99e-07	-8.141269	-7.972382	-8.080205
1	177.8609	19.86396*	7.03e-07*	-8.493046*	-8.155270*	-8.370917*
2	181.4802	6.152709	7.19e-07	-8.474008	-7.967344	-8.290814
3	183.2254	2.792410	8.10e-07	-8.361271	-7.685719	-8.117013
4	187.6977	6.708445	8.00e-07	-8.384886	-7.540446	-8.079563
5	188.2828	0.819086	9.64e-07	-8.214139	-7.200811	-7.847752
6	190.0576	2.307332	1.10e-06	-8.102882	-6.920667	-7.675431
7	194.8721	5.777304	1.09e-06	-8.143603	-6.792500	-7.655087
8	199.5743	5.172482	1.10e-06	-8.178716	-6.658725	-7.629135
9	208.4311	8.856745	9.19e-07	-8.421553	-6.732674	-7.810908
10	211.7659	3.001387	1.03e-06	-8.388297	-6.530530	-7.716587
11	217.1634	4.317961	1.06e-06	-8.458170	-6.431514	-7.725395
12	220.2143	2.135659	1.26e-06	-8.410717	-6.215173	-7.616878

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Table A5.2: VAR Residual Serial Correlation LM Tests

VAR Residual Serial Correlation LM Tests
Sample: 1 52
Included observations: 50

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	6.631867	4	0.1567	1.705209	(4, 82.0)	0.1567
2	15.48192	4	0.0038	4.203724	(4, 82.0)	0.0038
3	5.715875	4	0.2214	1.461498	(4, 82.0)	0.2215
4	7.607310	4	0.1071	1.967711	(4, 82.0)	0.1071
5	5.395679	4	0.2491	1.376939	(4, 82.0)	0.2491
6	8.096123	4	0.0881	2.100421	(4, 82.0)	0.0882
7	2.383202	4	0.6657	0.597154	(4, 82.0)	0.6657
8	3.315450	4	0.5065	0.835451	(4, 82.0)	0.5065
9	0.415241	4	0.9812	0.102816	(4, 82.0)	0.9812
10	3.879268	4	0.4226	0.980876	(4, 82.0)	0.4227
11	0.609732	4	0.9620	0.151151	(4, 82.0)	0.9620
12	0.942418	4	0.9184	0.234092	(4, 82.0)	0.9184

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	6.631867	4	0.1567	1.705209	(4, 82.0)	0.1567
2	15.81762	8	0.0451	2.102592	(8, 78.0)	0.0453
3	16.50547	12	0.1692	1.432879	(12, 74.0)	0.1706
4	22.54497	16	0.1265	1.488217	(16, 70.0)	0.1291
5	26.70570	20	0.1437	1.411463	(20, 66.0)	0.1489
6	39.56961	24	0.0238	1.858779	(24, 62.0)	0.0265
7	42.81367	28	0.0363	1.714336	(28, 58.0)	0.0420
8	43.80357	32	0.0798	1.496323	(32, 54.0)	0.0943
9	44.29677	36	0.1614	1.301404	(36, 50.0)	0.1924
10	53.25047	40	0.0783	1.459086	(40, 46.0)	0.1080
11	54.55049	44	0.1323	1.314504	(44, 42.0)	0.1877
12	60.17373	48	0.1117	1.331354	(48, 38.0)	0.1819

*Edgeworth expansion corrected likelihood ratio statistic.

Table A5.3: Toda-Yamamoto Causality Test Results

VAR Granger Causality/Block Exogeneity Wald Tests
Sample: 1 52
Included observations: 44

Dependent variable: LNREVSH

Excluded	Chi-sq	df	Prob.
LNEXPSH	17.49190	7	0.0145
All	17.49190	7	0.0145

Dependent variable: LNEXPSH

Excluded	Chi-sq	df	Prob.
LNREVSH	6.595183	7	0.4722
All	6.595183	7	0.4722

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