

**T.C.
MARMARA ÜNİVERSİTESİ
AVRUPA ARAŞTIRMALARI ENSTİTÜSÜ
AB İKTİSADI ANABİLİM DALI**

**ECONOMIC INTEGRATION AND TAX REVENUES IN
THE EU AND TURKEY FROM A FISCAL FEDERALISM
PERSPECTIVE**

Doktora Tezi

KAZIM OKAN EROL

Istanbul, 2019

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Danışman: Prof. Dr. Başak Tanınmış Yücememiş

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TEZ ONAY SAYFASI

Marmara Üniversitesi

Avrupa Araştırmaları Enstitüsü Müdürlüğüne

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ÖZET

MALİ FEDERALİZM PERSPEKTİFİNDE AB ve TÜRKİYE'DE EKONOMİK ENTEGRASYON ve VERGİ GELİRLERİ

Bu tezde Mali Federalizm Teorisi Çerçevesinde Avrupa ekonomik bütünleşmesi mali ve vergisel boyutları dikkate alınarak açıklanmaktadır. Vergilendirme, mali federalizm teorisinin incelediği bir alt başlık olmakla birlikte AB mali yönetişiminin ve dolayısıyla İstikrar ve Büyüme Paktı ve Avrupa İstikrar Mekanizması gibi yeni mali uyum politikalarının önemli bir parçasını oluşturmaktadır. AB üyesi ülkelerin ve Türkiye'nin vergi sistemleri incelendiğinde çok farklı vergi yapılarının Avrupa tek pazarı içinde var olduğu, ekonomik bütünleşme ile vergilendirme arasındaki kısa dönemli ilişki dikkate alındığında vergi gelirlerinin ekonomik dalgalanmalar karşısında etkilendiği ve bu etkinin AB'nin mali yönetişimini yakından etkilediği anlaşılmaktadır. Ekonomik bütünleşmeye ek olarak mali federalizmin ölçütlerinden mali merkezileşme derecelerinin de vergi gelirleri üzerinde etkili olduğu görülmektedir. Vergi gelirlerinin ekonomik belirleyicilerinin tahmini yapıldıktan sonra emek ve sermaye üzerindeki vergi yükleri Türkiye için hesaplanmış ve uzun dönemde vergi yüklerinin ekonomik bütünleşmeden farklı yönlerde etkilendiği saptanmıştır. AB üyesi ülkelerinde çok farklı vergi sistemlerinin mevcut olması özellikle sermaye üzerinden vergi rekabetinin 2004 sonrası üye olan ülkeler arasında daha yoğun yaşanması, AB içinde asimetrik mali yapıların ortaya çıkmasına neden olmaktadır. Özellikle GIIPS ülkelerinin vergi gelirleri kriz dönemlerinde ciddi şekilde azalmış, borçlanma maliyetlerine ek olarak vergi sistemleri de otomatik istikrarlandırıcı görevini yerine getirememiştir. Diğer yandan AB, mali birlik kapsamında kendi bütçe gelirlerini oluşturmayı amaçlamaktadır. AB'nin oluşturacağı mali bütçenin gelir kaynakları daha istikrarlı olan çevre vergilerine ve ortak kurumlar vergisi matrahına dayanmalıdır. Aksi takdirde kriz dönemlerinde azalan vergi gelirleri AB'nin zaten düşük olan mali kapasitesini daha da düşürecek ve müdahale imkânını azaltacaktır.

SUMMARY

ECONOMIC INTEGRATION AND TAX REVENUES in the EU and TURKEY FROM A FISCAL FEDERALISM PERSPECTIVE

In this thesis, European economic integration is explained with fiscal dimensions within the framework of the theory of fiscal federalism. The basic premise of the theory of fiscal federalism is the idea that the necessity of more cooperation about taxation in economic and monetary unions. It also includes important inferences for the European Union (EU) in terms of fiscal governance. Fiscal federalism theory, under the headings of public expenditure and taxation theory, were examined to establish a strong financial structure within the EU and well functioning European and Monetary Union (EMU) needs a EU wide taxation plan. EU's fiscal governance is explained by adapting the new fiscal policies such as the mechanism of the Stability and Growth Pack (SGP) and the European Stability Mechanism (ESM) also by taking into account taxation dimension. This thesis also reviews the tax structures of member states and Turkey, the short-term relationship between taxation and economic integration will be analyzed with a panel data model. In addition to economic integration, indirect taxation and centralization as a fiscal federalism criteria have significant impacts on tax revenues. Especially GIIPS countries' tax revenues decreased severely after the financial crisis. Within the scope of fiscal union, EU tries to create its own budget and resources. EU's own budget resources should be based on direct taxation such as common corporate tax base. Otherwise, decreasing indirect tax revenues in times of financial crisis will reduce fiscal capacity of EU and also chance of intervention.

CONTENTS

	Page No.
CONTENTS.....	iii
ABBREVIATIONS.....	viii
LIST of TABLES.....	x
LIST of GRAPHICS.....	xii
INTRODUCTION.....	1

CHAPTER I

Fiscal Federalism and Theory of Taxation

1.1. Conceptual Framework of Fiscal Federalism	8
1.1.1. The Concept of Fiscal Federalism and Fiscal Equalization.....	10
1.1.2. Fiscal Union and Fiscal Federalism in the EU.....	15
1.2. Public Revenues Theory of Taxation.....	17
1.2.1. Classification of Taxes.....	22
1.2.2. Optimal Taxation Theory.....	24
1.2.3. Indirect Taxation.....	25
1.2.3. Direct Taxation.....	28
1.3. Tax Applications of Fiscal Federalism.....	33
1.3.1. Income Taxation.....	34
1.3.2. Corporate Taxation.....	37

1.3.3. Taxes on Capital.....	39
13.4. Consumption Taxes.....	42
1.4. Public Expenditures and Fiscal Federalism.....	44
1.5. Cost and Benefits of Fiscal Federalism.....	47

CHAPTER II

European Economic Integration from a Fiscal Federalism Perspective

2.1. Historical Approach to European Economic Integration	50
2.2. Transition to Common Tax Policies in the EU	55
2.3. EU Central Budget.....	56
2.3.1. Revenue Budget.....	58
2.3.2. Expenditure Budget.....	61
2.4. Fiscal Harmonisation in the EU.....	63
2.4.1. Fiscal Regulations.....	65
2.4.1.1. Stability and Growth Pact.....	66
2.4.1.2. Six Pack, Two Pack and Fiscal Compact.....	67
2.4.1.3. European Semester.....	71
2.4.1.4. European Stability Mechanism.....	73
2.4.2. Harmonization of Tax Policies	76
2.4.2.1. Tax Cooperation.....	76

2.4.2.2. Tax Coordination	77
2.4.2.3. Tax Harmonization.....	77
2.4.2.4. Convergence	78
2.4.2.5. Corporate Tax Harmonization.....	78
2.4.2.6. VAT Harmonization.....	82
2.4.2.7. Capital Taxation.....	85
2.4.2.8. Environmental Taxation.....	87
2.5. Costs and Benefits of a Fiscal Union in the EU.....	88

CHAPTER III

EU Member States' and Turkey's Tax System

3.1. Taxation Systems In the EU.....	90
3.2. Tax Revenue Systems of EU-15.....	92
3.3. Selected EU Member States' Tax Systems and Fiscal Union Debates....	102
3.3.1. Germany.....	102
3.3.1.1. German Tax System.....	102
3.3.1.2. German Point of View to Fiscal Union	103
3.3.2. France.....	104
3.3.2.1. French Tax System.....	105
3.3.2.2. French Point of View to Fiscal Union.....	106

3.3.3. United Kingdom.....	106
3.3.4. Austria.....	107
3.3.5. The Netherlands.....	108
3.3.6. Belgium.....	108
3.3.7. Northern Member States.....	109
3.3.8. Central East European Member States (CEEMS).....	110
3.4. Tax Revenue Systems of GIIPS and Financial Crisis.....	113
3.5. Turkish Tax System and Economic Integration	117
3.5.1. Economic Integration of Turkey to the European Single Market.....	119
3.5.2. Turkish Tax System.....	122
3.5.3. Measuring Average Effective Tax Rates of Turkey.....	124
3.5.4. Economic Integration and Turkish Average Effective Tax Rates.....	126
3.5.5. Conclusions and Policy Recommendations for Turkey.....	129

CHAPTER IV

Tax Revenue Growth Model and Average Tax Rates

4.1. Aim of the Application	131
4.2. Literature Review of the Application.....	132
4.3. Econometric Model.....	138

4.3.1. Tax Revenue Model and Data.....	138
4.3.2. A Panel Data Analysis of Tax Revenues.....	141
4.3.2.1. Panel Unit Root Tests of Dependent Variables.....	143
4.3.2.2. Economic Integration Indicators.....	145
4.3.2.3. Fiscal Centralization Degree.....	146
4.3.2.4. Direct versus Indirect Taxation.....	148
4.3.2.5. Determinants of Tax Revenue Growth.....	148
4.3.3. Results For EU-15.....	149
4.3.4. AETR, Trade Openness and Centralization in EU-10.....	151
4.4. Results.....	153
CONCLUDING REMARKS.....	155
 Appendixes.....	 161
Appendix 1. Average Effective Tax Rates.....	161
Appendix 2. Panel Unit Root Tests of Dependent Variables.....	164
Appendix 3. Panel Unit Root Tests of Fiscal Centralization.....	168
Appendix 4. Panel Unit Root Tests of Economic Integration.....	170
References.....	173

ABBREVIATIONS

AETR:	Average Effective Tax Rate
BEPS:	Base Erosion and Profit Shifting
CCCTB	Common Consolidated Corporate Tax Base
CEEMS	Central and East European Member States
DG-TAXAUD:	Directorate-General for Taxation and Customs Union
DOLS:	Dynamic Ordinary Least Squares
ECB:	European Central Bank
EEC:	European Economic Community
EMTR:	Effective Marginal Tax Rate
EFU:	European Fiscal Union
EMU:	European Monetary Union
ERM:	Exchange Rate Mechanism
ESM:	European Stability Mechanism
EMF:	European Monetary Fund
ETS:	Emissions Trade System
EU:	European Union
FDI:	Foreign Direct Investment
FMOLS:	Fully Modified Ordinary Least Squares
GDP:	Gross Domestic Product

GNP:	Gross National Product
GIIPS:	Greece, Italy, Ireland, Portugal and Spain
GNP:	Gross National Product
HLGOR:	High Level Group on Own Resources
ICTD:	International Center for Tax and Development
ITR:	Implicit Tax Rate
IMF:	International Monetary Fund
KOF:	Konjunktur Für Schungsstelle
NEMS:	New East European Member States
OECD:	Organisation of Economic Cooperation and Development
PESCADF:	Pesaran's cross sectional dependence augmented Dickey Fuller Test
POLS:	Pooled Ordinary Least Squares Method
SGP:	Stability and Growth Pact
UN:	United Nations
VAT:	Value Added Tax

LIST of TABLES

	Page No:
Table 1: EU Central Budget Revenue.....	60
Table 2: EU Central Budget Expenditure.....	62
Table 3: Fiscal Harmonization in the EU.....	75
Table 4: Tax Policy Harmonization	88
Table 5: Tax Revenues as % of GDP (EU-15).....	93
Table 6: Structure of Tax Revenues (EU-15) (%).....	95
Table 7: Fiscal Centralization Degrees (EU-15) (%).....	97
Table 8: Central Government Share in Total Taxation EU-15 (%)	98
Table 9: Implicit Tax Rates on Labor (EU-15) (%)	100
Table 10: Implicit Tax Rates on Capital (EU-15) (%)	101
Table 11: Tax Revenues as % of GDP (CEEMS).....	111
Table 12: Implicit Tax rates on Capital (CEEMS) (%)	112
Table 13: Implicit Tax Rates on Labor (CEEMS) (%)	112
Table 14: Literature Review (Tax and Globalization).....	133
Table 15: Literature Review (Tax Revenues).....	136
Table 16: Dependent and Explanatory Variables.....	139
Table 17: Summary Statistics of Dependent Variables (EU-15).....	140
Table 18: Correlation Matrix.....	141

Table 19: Unit Root Tests.....	144
Table 20: PESCADF Tests for Dependent Variables (EU-15)	145
Table 21: Results of Tax Revenue Growth Model	150
Table 22: AETR on Capital (Results)	152
Table 23: AETR on Labor (Results).....	153



LIST OF FIGURES

Page No:

Figure 1: Tax Incidence.....	27
Figure 2: Labor Supply.....	29
Figure 3: Laffer Curve.....	31

LIST OF GRAPHICS

Graphic 1: Tax Revenues of Greece and Ireland (million \$).....	113
Graphic 2: Implicit Tax Rates on Capital (GIIPS) (%)	115
Graphic 3: Implicit Tax Rates on Capital (GIIPS) (%).....	117
Graphic 4: Turkey's Exports and Imports with EU (In billion Euro).....	119
Graphic 5: FDI Flows from EU to Turkey in Million Euro.....	120
Graphic 6: KOF Economic Globalization Index of Turkey	121
Graphic 7: Tax Revenues from Goods and Services (%)	123
Graphic 8: Direct and Indirect Tax Revenues as Percentage of GDP	123
Graphic 9: AETR on Capital in Turkey (%).....	126
Graphic 10: AETR on Labor in Turkey (%).....	127
Graphic 11: Correlation between Trade Openness and AETR in Turkey.....	128
Graphic 12: Tax Revenue Centralization (EU-15).....	146
Graphic 13: Tax Revenue Centralization (CEEMS).....	147

INTRODUCTION

The European economic integration, which has started with globalization, trade liberalization and regional integration at the same time, has deeply affected the economic and financial structures of the EU member states. The supranational structure of the European Central Bank (ECB) has eliminated the possibility of the Euro area members to determine the monetary policy and it is required to comply their monetary and fiscal policies with the ECB's framework. In addition to the transfer of the independence of the monetary policy to the ECB, the necessity of harmonization of fiscal policies after the 2008 financial crisis has come to the agenda of European Commission. It was understood after the Eurozone sovereign debt crisis that the Monetary Union, which was not supported by compatible fiscal policies, was unsustainable in the end.

The 2008 global financial crisis and the following Eurozone sovereign debt crisis have deeply affected the economic governance in the EU that has created a fragile structure against global financial crises. Advanced economic integration leads to the spread of these financial crises to all EU countries easily. The global financial crisis realizes that EU needs a different approach to monetary policy and economic governance by developing new mechanisms to prevent new asymmetric economic shocks. Member states were unable to finance their fiscal imbalances and budget deficits through expansionary fiscal policy because they could not determine their own monetary policies within the Monetary Union. Countries such as Greece, Spain and Ireland have faced the debt crisis in an environment of fiscal indiscipline. The increasing financial integration has increased the danger of the debt crisis that started in these countries to spread throughout Europe.

In the context of this economic crisis, the necessity of reviewing public financial policies and the necessity of harmonizing fiscal policies of member states have emerged. European fiscal structure that is more resilient against asymmetrical shocks must be established as a new economic governance tool. Fiscal harmonization especially tax harmonization is particularly recommended by policymakers for a more resilient economy against financial crises against asymmetric shocks. One of the most

important pillars of increasing fiscal discipline is the consistent and efficient collection of tax revenues as a part of primary surplus. The most important issue in establishing a strong structure against these crises is the establishment of a stable and effective tax system that also provide equal distribution of income.

The main topic of this study is to examine how the fiscal policies of the member states, especially tax revenues, were affected by tax structures in the process of economic integration. Although the determination of fiscal policy and tax policy are among the issues that are under the jurisdiction of the member states and are among the least intervened areas by supranational European institutions, the harmonization of national tax systems and the fight against the financial crisis fall under the competence of EU's economic governance. The EU's limited central budget makes it difficult to struggle with the global financial crisis unless member states realize structural reforms such as harmonization of tax structures. Designing fiscal policy at EU level requires fiscal federalist approach.

First chapter of this thesis explains theoretical framework of fiscal federalism in detail. The literature about fiscal federalism on public expenditure and revenue applications will be summarized and the literature on classification of taxes, in particular the corporate tax, will be stated. In the classification of tax types, it is aimed to determine the tax burden on wages, capital returns with an economic approach considering production factors. Academic studies on taxation within the framework of fiscal federalism theory are scrutinized in the first chapter.

According to the theory of fiscal federalism; for the existence of an effective tax system, taxes from production factors with high international mobility, must be collected centrally by a higher authority. When the individual member countries' tax systems are examined, there are countries that have a strong income system with unitary structure as well as federalist states, which are very successful in terms of tax collecting capacity. The tax structures of the member states will be analyzed in the light of OECD and Eurostat statistics and the countries will be classified as unitary and federalist according to their degree of fiscal centralization.

The supranational structure of the EU and its economic union characteristic constitute a good laboratory environment to investigate the applicability of a common fiscal policy in such monetary and economic unions. In recent years, the increasing fiscal tightening policies have affected the economic structure of the member states in the EU, especially the southern countries, which are affected by the global financial crisis deeply. One of the important tools of fiscal tightening policies is an effective tax system and revenue policy. The monitoring of the budgeting process of the Member States by the European Commission and the introduction of the six-pack, the so-called two packs, and the transposition of this monitoring process of the EU into the legislation of the member states have further increased the importance of tax revenues. Second chapter of the thesis discusses the contents of these regulations in detail.

In the second chapter of the thesis, the historical development of European economic integration, the fiscal harmonization efforts, which are important part of single market, will be emphasized. If the fiscal harmonization was examined in two periods before and after the crisis, European institutions have focused eliminating the fiscal policy differences between the countries after the crisis but making the functioning of the single market economy policy was a priority before the global financial crisis.

This thesis also aims to elaborate whether the increasing movement of goods and services in the EU leads to an increase in the tax competition or the reduction of tax rates. In the second part of our thesis, the studies on harmonizing the corporate tax supported by the European Commission in order to reduce the harmful tax competition among member states and the theoretical debate on this subject will be scrutinized.

In the aftermath of the crisis, fiscal harmonization efforts, such as limiting debt to GDP ratios and primary deficit, were aimed at removing the differences between the countries as well as closely monitoring the financial structures of the countries and creating a strong economic structure against the financial crises. Fiscal austerity packages are the most important pillars of creating stabile and resilient public finance system. In revenue side, it is aimed to make the tax systems more growth-oriented and robust against financial crises. Measures are taken to increase tax revenues, reduce debt

burden and create stabilizing funds against possible future financial crises. The transfer of some of the tax revenues to the EU budget is also discussed after the crisis which means a sort of fiscal union. These discussions are carried out under the name of Stability and Growth Pact (SGP), which is considered as the financial monitoring and correction mechanism of the EU. The historical development of the SGP, its functioning and its role in the post-crisis period will be examined in the second part of this thesis.

The implications of European economic integration in the area of fiscal governance and the dimensions of the EU central budget play an important role in the debate of fiscal federalism. While the size of the income and expenditure items of the EU budget is only 1% of the gross European product, it plays an important role in the EU's fiscal governance. In addition to the funds used in the stabilization policies after the financial crisis, the new functions of the EU budget has also revealed the necessity to expand the size and the stability of it. The EU budget was developed in the historical process as an important instrument of European economic integration and fiscal harmonization was seen as an integral element of the monetary union. The historical development of the EU fiscal structure is discussed in second chapter in the context of economic integration and single market creation.

This thesis also summarizes tax harmonization efforts in the EU in terms of different tax types. In the third chapter, the harmonization of tax rates, which is an extension of the fiscal integration process, the convergence of tax laws, the reduction of different practices and the establishment of a common tax base in the final stage will be examined. The classification of direct and indirect taxation in the EU and international tax literature will be used when investigating the existing tax systems of EU member states. However, in the course of econometric analysis, in addition to “tax revenue growth model”, tax burdens on production factors (wage and capital) will be used with an economic approach in parallel with the studies in the literature on taxation.

EU-15 countries' tax systems will be explained in a fiscal federalism perspective as well as consideration of the enlargement process of the new member states and their tax systems. Although Turkey is not a member state, as a candidate state, there are many similarities between Turkey and new member states. Turkey's tax

structure and its evaluation in an economic integration process will be scrutinized in third section of this thesis.

In the third chapter, the effects of the fiscal structures of individual countries on the tax revenues in an economic integration process and the impact of these structural differences among the EU member states on tax revenues will be emphasized. In this framework, the EU member states will be examined in a double distinction between pre-2004 member countries, EU-15 and Central and Eastern European countries. In this classification, the tax systems of the new member countries and the fiscal structures of the pre-2004 member countries include fundamental differences. The calculation of tax burdens of two main groups of countries as well as the status of candidate country Turkey and the relationship between economic globalization and tax burdens is situated in the third section.

The most important test faced by the EU at the stage of a well-functioning monetary and economic unity is the global financial crisis, which has been effective all over the world after 2008. The effects of this crisis began to be felt primarily in the south-eastern European countries and Ireland, and then spread to all EU countries. In this process, Greece, Italy, Ireland, Portugal and Spain (GIIPS) should be considered separately within EU-15 and the changes in tax revenues of these countries should be closely monitored. In the third part of this thesis, GIIPS countries will be analyzed in terms of revenue-oriented budgets and the effects of the financial crisis on tax structures will be explained empirically. In particular, tax burden differences on labor and capital are more precise after the crisis. In this sense, the global financial crisis made tax revenues of GIIPS countries and new member countries more volatile against economic fluctuations.

It will be explored how the tax structures of these countries react to globalization and increasing goods, services and capital flows. As a policy proposal and also as a result of the econometric analysis, policy recommendations will be made on how to establish an administrative structure at the EU level in order to effectively collect tax revenues in the light of the theory of fiscal federalism.

The effects of tax revenues in the post-integration period and the importance of indirect taxation will be investigated. Advanced economic and financial integration directly affects the tax revenues, in particular the revenues from tax resources with high mobility. Which tax types are more advantageous in the coordination of the EU institutions at the center? On the other hand, which tax revenues should be within the scope of the taxation authority of the countries is important for the optimal collection of tax revenues. As a result of the analysis of panel data with an econometric study, the relationship between economic integration, financial federalism and tax revenues will be revealed. Tax types will be analyzed with an economic approach as effective tax burdens on production factors such as capital and wages. Taxes on capital with a higher tax base mobility and tax burden of which has less mobility will be compared.

Empirical analysis of the effects of macroeconomic variables on tax burdens, as well as the calculation of tax burdens and economic integration, fiscal decentralization, will be included in the econometric study section, which is the fourth chapter of this study.

With panel data analysis in the fourth section of this thesis tax burdens of new EU-15 will be described in a globalization process. The effects of the tax structures of the countries and the effects of economic integration on these taxes will be investigated. After summarizing the previous studies on globalization and taxation, the importance of economic integration and fiscal decentralization degrees, which are the determinants of the model, will be emphasized. The tax burden in Turkey and EU member states for capital, wages will be calculated separately in terms of average effective tax rate. In addition to the European Commission studies, OECD statistics, this thesis uses different academic studies in order to calculate average tax rates. As an explanatory variable, macroeconomic data such as government expenditure will be used as control variables in addition to economic integration and fiscal decentralization variables.

Empirical results will be reached with panel data model after reviewing individual tax structures. How do globalization and high economic integration mobility affect high and low tax bases? Is there an intra-EU tax competition in tax revenues with high international mobility, such as capital? How does the tax burden on labor income

and the share of consumption taxes, which is an unequal taxation method, change in public revenues? In this thesis, these questions will be searched by a panel data econometric model, which takes into account the revenue side fiscal structures of EU countries. As an extension of the EU's economic policies, recommendations will be made on what actions should be taken to bring the tax revenues closer to the optimum point for both in EU level and state level.



CHAPTER I

Fiscal Federalism and Theory of Taxation

1.1. Conceptual Framework of Fiscal Federalism

Although taxation dates back to ancient times, the implementation of fiscal federalism has begun to emerge with globalization. The discovery of the new continent and the establishment of colonial empires after the geographical discoveries brought about the problem of the fiscal and economic dependence of these overseas colonial countries. These interdependencies have formed more complex and government structures.

The acceleration of the colonialism since the 17th century and the development of international trade have led to the interdependence of the financial structures of countries. The great powers that deserved to acquire new colonies and make them financially dependent had sought to accommodate the increasing public spending with taxation and resources derived from these new colonies. The increase in war expenditures, the emphasis on infrastructure services brought by industrialization increased the public external debt stock in the world. Especially the countries that remained behind in industrialization could not finance their public expenditures with taxation and they intend to borrow externally which causes high debt stocks in those countries.

Along with these changes in public finance, the increasing international trade volume and the international economic integrations which started in Europe have led to regional integrations in the world. The formation of national states in countries such as Italy and Germany has been made possible by the economic integration of city-states. This process, which occurred in Italy and Germany as the formation of the domestic market, developed in England and France based mainly on foreign colonies, and the financing of industrialization was through natural resources collected from the colonial countries. Regional economic integrations first represented themselves as a common currency. The customs union established between the city states of Germany (Prussia)

and the common currency established in Latin America constitute the first examples of regional integration. This historical background is the emergence of Germany as a federal state.

In the United States of America, unlike continental Europe and Latin America, the foundations of the country based on a federalist structure since the 18th century. Although inter-state financial relations were at a minimum in the beginning, a central treasury has established over the years, the central currency of the US dollar linked to the Treasury's borrowing authority, the creation of a federal budget was the foundation of fiscal federalism, and it is still one of the most effective fiscal federalism systems.¹

Although the concept of fiscal federalism is part of a country's political organization, in some cases, as in the case of France, there is a fiscally centralized political structure in the political sense. One of the most important indicators of the application of fiscal federalism in a country is whether the taxation authority is shared with the local authorities and the lower levels of the state. It is possible to mention about the federalist-dominated forms of governance where the authority of collecting taxes is centralized, and only a small part of this competence may be managed from the center. On the other hand, in many countries, there are state formations where the authority is shared with the local governments and regions, as well as those governed by local authorities and regional administrations.

France and the United Kingdom (UK) are good examples of countries where political federalism differs from fiscal federalism. Although the UK is a federally organized country, fiscally it is one of the most centrally located in the EU. The central government in the UK collects most of the taxes and the redistribution mechanism is limited between countries such as Northern Ireland and Wales. However, although France is a politically centralized, it is an administrative structure with a high share of

¹ Richard Sylla, (June 2014), "Early US Struggles with Fiscal Federalism: Lessons for Europe?," *Comparative Economic Studies*, 56, no. 2, pp. 157–175.

spending powers by the taxes collected by the different fiscal levels and by the local administrations.²

In this study, taxation considered as an important indicator of fiscal federalism. The impact of the collection of taxes in the central or local administrations on tax revenues and an effective tax system will be evaluated in terms of fiscal federalism. Tax competition in the globalization process can adversely affect the tax revenues and thus the financial structures of countries, and that the creation of a central federal budget in the EU in order to reduce this harmful tax competition is an important part of the goal of achieving a more stable European economy. The European federal budget will decrease the financial instability in Europe and the countries where harmful tax competition will be minimized will have a more sound fiscal structure for the EU.

1.1.1. The Concept of Fiscal Federalism and Fiscal Equalization

Fiscal federalism defined as the division of state's responsibilities of collecting and spending between different layers of state.³ In the multi-layered state structure, as in the federal states, the theory of fiscal federalism investigates the optimal expenditure and tax system. On the other hand, the construction of fiscal relations between the local administrations and the central administrations in unitary states is another application area of the theory of fiscal federalism. As discussed in detail in this study, the theoretical background for delegation of authority to supranational administrative authority in monetary and economic unions should be taught in the framework of fiscal federalism.

Although Musgrave (1959)⁴ was the first to use the concept of financial autonomy, Tiebout's empirical study on public spending is known to lead to the development of this concept.⁵ Tiebout explained the competitiveness and labor mobility of local administrations in local public spending in his empirical study. With this work,

² Boriss Siliverstovs and Ulrich Thiessen, (March 2015), "Incentive Effects of Fiscal Federalism: Evidence for France," ed. Caroline Elliott, *Cogent Economics & Finance*, 3, no. 1, pp. 2-4.

³ Jean Hindriks and Gareth D. Myles, (2006), "Intermediate Public Economics" MIT Press, p. 542.

⁴ Richard A. Musgrave, (1959), "The Theory of Public Finance: A Study in Public Economy" (McGraw-Hill), p.181.

⁵ Charles M. Tiebout, (1956), "A Pure Theory of Local Expenditures," *The Journal of Political Economy*, Vol.64, No.5, pp. 416-424.

he put forward the fiscal relations between different administrative authorities with an economic model and laid the foundations of the study of fiscal federalism.⁶

Oates (1972), known for his works in the field of fiscal decentralization, reinforced the theoretical background of the subject with his book on fiscal federalism.⁷ According to Oates, fiscal federalism explains the division of different public services between different layers of the state and giving the necessary instruments to multi-layered administrative structures.⁸ This structure can be fiscal decentralization or centralization in terms of international cooperation and monetary union. This structure refers to fiscal federalism, as multilayered administrative countries, which are mostly seen in federal states.

According to Tiebout (1956); fiscal federalism briefly explores financial relations between local and central governments.⁹ Fiscal federalism does not only include the fiscal autonomy efforts of local governments, but also includes studies on the collection of some expenditure and income items in a centralized fiscal structure.¹⁰ For instance, the collection of the corporate tax by the central authority or the execution of some public services such as defense by the central administration means the realization of a more effective public administration organization in the economic sense. In this context, the use of the term multilevel governance will be theoretically more meaningful than the term of fiscal federalism.

Fiscal federalism, as explained earlier, refers tax collection and expenditure authority, which these competencies are distributed between the different layers of the state. In some countries, this division of authority in the area of public finances, fiscal decentralization is higher, however in some countries, especially in the field of taxation, fiscal federalism requires centralization of revenues. In the literature, although fiscal federalism indicates decentralization in the sense of public expenditures, in supranational intergovernmental organizations, fiscal federalism refers to fiscal

⁶ Tiebout, p.417.

⁷ Wallace E. Oates (1972), *Fiscal Federalism*. New York: Harcourt Brace Jovanovich, pp. 1-256.

⁸ Wallace E. Oates (2001), "Fiscal Competition and European Union: Contrasting Perspectives," *Regional Science and Urban Economics*, 31, no. 2, pp.133–145.

⁹ Tiebout, pp. 416–424.

¹⁰ Oates, "Fiscal Competition and European Union: Contrasting Perspectives", pp. 133–145.

cooperation and transferring limited portion of the tax revenues to the central organization.

The political and economic structure of countries in terms of the implementation of fiscal federalism is crucial. The distribution of the country's resources and the country's geographical, historical, ethnic and cultural structure affects the fiscal system of the country. For instance, many of the Eastern European countries have socialism background and therefore had a centrist government organization. Due to the different ethnic identities, UK is a federal state in political sense, though in the fiscal sense, especially taxation it has a centrist structure. Developed countries also has developed local administrations and these countries have better local democratic point of sense. Therefore, developed countries have a more decentralized structure in the field of public expenditure. However, developing countries have a more centralized fiscal organization.

Considering the practices in the world, there are central government, local administrations or federative organizations in multi-level public administration. The governments should decide in the light of the economic studies that carried out on which expenditure items must be realized or which revenues (tax, etc.) will be collected. Fiscal equalization mechanism is an important part of fiscal policy in modern public finance. The redistribution of income and reducing imbalances between regions within a country are the parts of fiscal equalization mechanism. This mechanism also creates more resilient economies in fiscal unions.

According to Broadway and Shah (2009), the administrations are divided into three groups as unitary, federal and confederal. In the unitary state, the central authority collects a large part of the functions of the government, and the powers of local administrations are very limited. In the federal states, the decision-making process is shared between different administrative authorities (local government and federal). In the federal state structure, local governments have many powers and receive this power from the constitution.¹¹ In the confederal states, the central authority works as an agent

¹¹ Robin W. Broadway and Anwar Shah, (2009), *Fiscal Federalism Principles and Practices of Multiorder Governance* (Cambridge; New York: Cambridge University), pp. 4-6.

of local states and does not have full independence. Confederal structures are present in weak units and the current structure of the EU is a good example to this system.¹²

Another important characteristic of fiscal federalist states is that fiscal autonomy of local administrations is higher than unitary states. First generation theorists of fiscal federalism argue that fiscal decentralization has some advantages and costs of decentralization are very limited. Second generation theorists explain some costs of uncontrolled decentralization such as increasing public expenditures.¹³

Musgrave stated that in unitary states, expenditures and taxes should be carried out in the region where the benefit is created, and the central government should carry out those policies such as financial stability and fair income distribution.¹⁴ In federal states, fiscal policy is becoming more complicated, while the unified structure of the federal state is preserved, the provision of public services in local governments and the financing of these services emerges. The sharing of taxation authority between the central administration and local administrations raises the problem of tax authorizations. On the other hand, the search for economic efficiency, such as defense and large infrastructure expenditures, by the central government and other local services by local administrations, is another problem where the federal states seek solutions.

According to Musgrave (1999), in a federal structure, the authority to collect income tax and corporation tax should be in the federal state, in the value added tax the principle of origin¹⁵ should be applied, and the real estate taxes should be in the jurisdiction of local administrations.¹⁶ Since the real estate tax base is a type of tax that does not have mobility between different local administrations, it can be used as a means of financing by local authorities without any problems. Income and corporate tax revenues collected in the federal state can be used to reduce inequality of income distribution across different regions and to ensure fiscal stability.

¹² Broadway and Shah, pp. 4-6.

¹³ Önder Çalcalı (2018), "Kamu Ekonomisi Teorisinde Yerelleşme Rasyoneli ve Kuşaklar Arası Mali Federalizm Teorilerinin Karşılaştırılması" *Uluslararası Ekonomi, İşletme ve Politika Dergisi* 2, no. 1: pp. 21–42.

¹⁴ Richard Musgrave (1999). "Fiscal Federalism". In James M Buchanan and Richard A. Musgrave, *Public Finance and Public Choice: Two Constructing Visions of the State* (The MIT Press, Cambridge Massachusetts) p. 160.

¹⁵ Principle of Origin: In taxation, which government has a taxing authority should be decided according to principle of origin or destination. Principle of origin refers that taxation of goods and services should be implemented by the country where goods are produced and services are provided.

¹⁶ Musgrave, pp. 165-167.

Recent developments in public finance have also brought international cooperation on issues such as environmental issues and international taxation. International cooperation is essential, in particular, to ensure that public services, such as prevention of environmental pollution and international terrorism. A country's environmental policy can create negative externalities internationally, or international cooperation in the tax area can create a tax-enhancing impact by reducing the harmful tax competition. Externalities in public goods, which are the main areas of government intervention, are emerging internationally, but the tax policy of a single country to these externalities is not effective to struggle with side effects of globalization.

Recent studies in the field of fiscal federalism argue that creating a structure that will provide global coordination in the field of public finance is a necessity. The proposal made by Tanzi (2009) states that the formation of an international tax authority to prevent externalities such as international tax competition will be mandatory overtime.¹⁷ The gradual decline in tax control of nation-states and the detrimental tax competition increase the impact of international organizations on international taxation. Efforts to harmonize the tax base of institutions such as the Organization of Economic Cooperation and Development (OECD) and the United Nations (UN) are the result of this trend.

The acceleration of international goods, services and capital mobility gives rise to the taxation trend of which untaxed income and the illicit gain of the profits, of which multinational companies transfer to the tax havens. This situation brings to the agenda of the world as a necessity of inter-state cooperation to struggle with money laundering and tax evasion. The main agenda discussed at international meetings is to ensure the taxation of the eroded tax revenues in countries where the value or income is created. International taxation needs through international cooperation and exchange of information, and supranational organizations should combat the money laundering activities and tax evasion, especially in developing countries.

¹⁷ Vito Tanzi (September 2008), "The Future of Fiscal Federalism," *European Journal of Political Economy*, 24, no. 3, pp. 705–712.

Historical development of the theory of fiscal federalism shows that there is a focus on how the fiscal organization forms should be in order to ensure the economic efficiency of the nation states. In particular, Musgrave (1959), Oates (1972), and Tibeout (1961) discussed how tax authorizations of national states between local governments and central government and how public spending should be done in multilayered structures. The fiscal centralization trend has increased in public finance due to the increasing public expenditures until the 1970s. However, after the 1970s, privatization and fiscal localization became the main fiscal policy of the countries. Finally, regional economic integrations and the increase of international goods and services mobility have initiated debates on whether to grant financial powers to supranational structures globally.¹⁸

In the light of these explanations, the theory of fiscal federalism should focus on economic efficiency and should be kept away from international political conflicts. However, national governments realize public expenditures, collect revenues and within country, distribution of income points at national interest, the debates on fiscal federalism lead to the gathering of more international political economy. We can divide the work of fiscal federalism into two as decentralization in spending and centralization in taxation. In recent years, the debate on fiscal union in the EU has increased the importance of the theory of fiscal federalism.

1.1.2. Fiscal Union and Fiscal Federalism in the EU

In 1951, six countries, Belgium, Federal Germany, France, Italy, Netherlands and Luxemburg, have established European Coal and Steel Community (ECSC). Next to the ECSC, those countries have ratified the “Treaty of Rome” for the purpose of establishing the “European Economic Community” (EEC) based on the free movement of labor and goods and services. The Treaty of Maastricht was signed in 1991 as European Union agreement to the creation of European citizenship, completion of

¹⁸ Roland Vaubel, (2009), “The Future of Fiscal Federalism and the Need for Global Government: A Response to Vito Tanzi,” *European Journal of Political Economy* 25, no. 1: pp. 133–36 and Vito Tanzi, (2009) “The Future of Fiscal Federalism and the Need for Global Government: A Reply to Roland Vaubel,” *European Journal of Political Economy*, 25, no. 1, pp.137–139.

Monetary Union, common foreign policy and it was decided to go to cooperation in security and homeland affairs.

On the road to EMU on 1 January 2002 the “European Common Currency”, the Euro, go into circulation and 12 countries have begun to use this currency. Today, EU’s enlargement cycles have created political and economic organization, which is consist of 28 member states.

The fact that European economic integration gained momentum in the 1990s and turned into a monetary union in the early 2000s eliminated the possibility of the countries of the Euro area to implement independent monetary policy. More importantly, due to the differences in productivity between countries the possibility of balancing external deficits automatically with an exchange rate has been disappeared. The increasing external deficit also raised the debt of the private sector and the indirect financing of the private sector debt by the government enhanced the public debt stock.

These structural problems of European integration have become even more common with the global financial crisis and we may conclude that ECB's common monetary policy cannot eliminate these imbalances. At this stage, the common fiscal policy, which European Commission will probably design in the future, will be useful to create a stabilizing effect against asymmetric shocks as expected in various countries. In this context, the budgets of the member states and Stability and Growth Pact (SGP), which aims controlling national budget deficits have been reinforced. However, the biggest obstacle to a common fiscal policy is that the EU does not have common tax revenue similar to national budgets.

Contrary to national budgets, revenue side of the EU budget is not based on continuous tax revenues like income tax. European institutions and academics make proposals for the establishment of this fund and efforts are underway to ensure European fiscal union. The theoretical reason behind the creation of a stabilization fund against the financial crises at the EU level or the establishment of a stabilization fund is the argument that fiscal federalism will be more effective at gathering some revenues at

the central budget. Financial transaction tax and environmental taxes, especially those considered as EU tax, are the product of a joint EU income strategy.

Discussions on creating a fiscal capacity for economic and monetary union focused on international taxation. In order to ensure that the EU budget has a sustainable income, two directive proposals, namely the financial transaction tax that envisages the taxation of financial transactions tax and taking into account the greenhouse gas emitted to the environment the common environmental tax have been discussed. Another point of view is to extend the corporate tax base to the whole EU, rather than to create a common tax, and to propose a directive from the EU to take a share of this tax base.¹⁹ The establishment of a common tax base is based on the year 2011 which is proposed as a common combined tax base, is considered as two stages: creating a common tax base and consolidating the corporate tax base of the member countries. However, the establishment of a common tax base seems to be difficult at this stage, as it would directly affect the sovereignty rights of the member states. On the other hand, it is seen as a more realistic approach to harmonize corporate taxes and to consolidate at the end of the year in order to prevent tax base shifts between countries.

The income dimension of the debates on fiscal union will be raised even more in the coming period. The foundation of efforts to create a common resource for EMU is based on the theory of fiscal federalism. We may conclude that European Fiscal Union (EFU) is an integral part of well-functioning EMU. Vallee (2014) argues that the EU's fiscal governance, which has a risk sharing dimension before the crisis, has evolved towards fiscal federalism after the crisis, especially the widening of the SGP has brought the EU closer to fiscal federalism.²⁰

1.2. Public Revenues and Theory of Taxation

Parallel with changing functions of the State, increasing public expenditures have been financed by different ways. Discretionary fiscal policy, which means that controlling and limiting budget deficits may be achieved by increasing public revenue

¹⁹ Anna Iara, (2015), "Revenue for EMU: a contribution to the debate on fiscal union", *Taxation Papers* No:54 European Commission, pp.8-10.

²⁰ Shahin Vallée, (August 2014), "From Mutual Insurance to Fiscal Federalism: Rebuilding the Economic and Monetary Union after the Demise of the Maastricht Architecture," *International Economics*, 138, pp. 49–62.

such as printing money (seigniorage), borrowing or taxation. We may classify basic public revenue as taxes, tax-like public revenue, borrowing and seigniorage. Tax revenues are more important than other type of public revenues since it has a stable and long-term structure. Although monetary expansion or borrowing may fix fiscal imbalances in short-term, they create other problems such as inflation.

Borrowing which Treasury refers to form of financing in short-term may affect interest rates and this activity usually affects total public debt. In case of a strong financial structure of State, borrowing from the market, while interest rates are low which also indicates a low risk premium is lower levels, is an appropriate way of public finance. However, 2008 financial crisis shows us that high interest rates of government bonds will rise public debt and budget deficits in the economy. Countries where government-borrowing conditions are affected by financial markets directly need to have a more robust tax system.

Another source of public revenue seigniorage means an expansionary fiscal policy and it creates inflation at long run. For this reason this kind of public finance is not pleasant for central banks. Despite the negative aspects of borrowing and seigniorage, tax revenue has a more stable and sustainable structure and it is the most important indication of a strong fiscal system. In addition to be a public financing tool, tax policy also promotes growth and reduces of social injustices in the country as well as other functions.

When we make a comparison between taxation and other public revenues, tax revenues have a more stable and long-term structure and robust tax system of a country represents resilient fiscal system. In addition to these characteristics, taxation is a useful tool for reducing income inequalities and encouraging economic growth in a country. In order to maintain fiscal sustainability, taxation is one of the most important policy tools of a country.

In historical context, the right and duty to tax, which is an important part of the state mechanism, has been one of the most important factors affecting the social life since ancient times. Taxation has been the most important part of public finance and its

functions have enlarged with increasing roles of government in a society. Different tax types have sustained the balance between government expenditures and revenues. In addition to classical functions of taxation, governments use tax policy for different aims such as fair income distribution and creating more growth-oriented economy. As a part of fiscal policy, taxation has played a crucial role in public administration.

The financing of public expenditures, which are increased as a result of the organization of societies in a centralized structure, is only possible by the taxes collected by those holding the authoritative power. The most important indicator of the control of a specific region is to taxing the people of the region after being captured by the war in the classical period of the Roman Empire and the Ottoman Empire.

The most important feature that differentiates the tax from other economic phenomena is the inevitableness to pay tax and the many taxes affect the life of the community directly. For these reasons, taxation has been used as the most important tool for policy making since ancient times.

In the classical period of the Ottoman Empire, while the Muslim subjects had tax-like obligations based on military power, such as serving the state, non-Muslims had the obligation to pay a certain amount of taxes. Later, similar to the payment of a certain portion of income to the state, these obligations laid the foundations of modern income tax. Today, income tax performs an important function in the provision of social justice, while taxes on consumption are used as an important tool for fiscal policy.

In today's public finance, where governments use tax types under the name of tax policy in order to achieve different goals, optimal taxation is an important public choice topic. Optimal taxation refers to the arrangement of different tax types to ensure economic efficiency and justice in income distribution, an ideal situation where economic growth is positive at the same time.

The main features that should be in a good tax system are economic efficiency, administrative simplicity, flexibility, reflecting political preferences and fairness. In other words, the optimal tax policy should simultaneously ensure fairness and fair income distribution in an economy. However, by using tax policy instruments in the

economy, it is often not possible to provide both equitable income distribution and economic efficiency.

Efficiency in taxation is made possible only by two important functions of the tax policy that are the effective financing of the budget and making the income distribution fair. In addition to these two important functions of tax policies, the tax system needs to perform the automatic stabilizer function against economic fluctuations.

David Ricardo (1817), in his breakthrough book "On the Principles of Political Economy and Taxation", categorized taxes on various sources of production and explained the features of the ideal tax system in detail. Taxes on raw materials are classified as rent tax, salary, profit, gold and taxes on houses. Stated that taxes on raw materials would raise wages and reduce profits Ricardo, examined the impact of taxation on different social classes in terms of political economy.²¹

The classical economists analyzed the effect of taxation on the real value of goods, and showed that the elasticity of the demand and supply of a good according to the price was effective in reflecting the tax imposed on that product by the producer to consumer. Classical economists have argued that taxation has caused problems such as disrupting the supply-demand balance on markets and transferring income between different classes. They argued that taxation in foreign trade significantly reduced the prosperity of countries as a part of classical trade theory.²²

Keynes argued that expansionary fiscal policy is useful to promote economic growth and revitalization process in recession periods, which means increasing public spending or lowering taxes. Despite high economic growth with an expansionary fiscal policy, it has been the subject of discussion on how to finance increasing public expenditures. Rising public spending can only be financed by increased taxes or expansionary monetary policy. The financing of public expenditures by taxation means government intervention to the economy, which will affect the spending capacity of individuals and will create crowding-out effect. Monetary economists therefore opposed

²¹ David Ricardo, (1817), " *On the Principles of Political Economy and Taxation*" (Kitchener ; Ontario: Batoche Books, 1817 third edition: 1821) pp.104-177.

²² Ricardo, pp.104-177.

the expansionary fiscal policies and argued that these policies would ultimately result in inflation.²³

Classical economists have insisted on the microeconomic effects of taxation, while Keynesians have concentrated on tax cuts as an important part of public finance. Nowadays, different tax types have different effects on economy; income tax affects more income distribution, while taxes on expenditures have an effect on the market structure and economic behavior of individuals. Therefore, governments should apply tax policy in a mixed and holistic approach in ensuring economic efficiency.

This holistic approach, called optimal taxation in theory, can also lead to distortions in the economy. Optimal taxation means that the choice between economic efficiency and equality in income distribution in line with the general tendency of society and maximizing social welfare. This is only possible through a choice between economic activity and social justice, which are two important objectives of taxation.²⁴ However, as mentioned before, each tax imposed by the government also implies an intervention in the natural functioning of the economy.

By analyzing the economic effects of taxes, governments should design the whole tax system in terms of economic efficiency and social justice.²⁵ The most important problem in the design of the tax system is the neutrality of the tax specified by the classical economists, the fact that the economic system does not interrupt and the efficiency-providing features are extremely difficult to achieve. It is extremely difficult to achieve two important goals at the same time, such as increasing public revenues and ensuring justice in income distribution at the same time. Therefore, different tax types creates different economic effects and the tax system should be designed in a structure that minimizes the operation of the whole economy but increases the justice in income distribution.

²³ Simon James and Christopher Nobes, (2011/12), *The Economics of Taxation*, Eleventh edition, Fiscal Publications, Birmingham, UK, pp.110-112.

²⁴ Joseph E. Stiglitz (1986), *Economics of the Public Sector*, (W.W. Norton& Company New York), p.389.

²⁵ James Mirrlees, Stuart Adam, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles and James M. Poterba, (2011), *Tax by Design: The Mirrlees Review* (Oxford University Press), pp. 2-3.

The search for an effective tax system has led to the emergence of different theories in taxation. These theories aiming at maximizing the social benefit of taxation as well as the objective of financing the state expenditures and the effective use of fiscal policy under the heading of "Optimal Tax Theory" will be explained in detail. This thesis, focuses on the classical function of the tax which is a simple way of collecting income, the effect of tax revenues against economic fluctuations, the effect of economic globalization on tax revenues and tax burdens with an econometric study. Before explaining the tax theories developed for each type of tax, we will explain classification of the taxes in detail.

1.2.1. Classification of Taxes

A. Bénassy-Quéré et al (2010) classifies tax types in three different ways according to who pays the tax, how the tax is paid, and which administrative unit collects the tax.²⁶ Since there are differences between countries according to the collection of the tax by the local or central administration, it is not possible to make a universal distinction according to this criterion. In particular, differences in the federal, central government and the degree of fiscal decentralization lead to the collection of tax types by different administrations.

OECD tax statistics calculate the country's tax revenues by dividing them by the Gross Domestic Product (GDP) for different tax types. According to these statistics²⁷; the total tax revenues to GDP (total tax/ GDP) ratio of the unitary states and federal states does not differ significantly. For example, in Germany, which is a federal state, the total tax / GDP ratio is 36% for 2014 and 32% for the UK, which is a fiscally unitary state. For the US, the total tax / GDP ratio is 26% for 2014 as well. As can be seen from these data, the total tax / GDP ratio is not an accurate statistic to measure the tax performance of the countries since it does not cover different type of taxation. Moreover, this ratio does not provide any explanatory information about the tax burden on countries, sectors and production factors.

²⁶ Agnes, Benassy-Quere, Benoit Coeure, Pierre Jacquet and Jean Pisani-Ferry, (2010), "*Economic Policy: Theory and Practice*" (Oxford University Press), pp.539-545.

²⁷ OECD, (2015), Revenue Statistics, 1965-2014, p.25.

According to the method of tax collection; the two main classification in the form of direct and indirect taxation accepted in tax literature. Usually, based on the income tax declaration system, corporate tax and inheritance tax, sometimes referred to as direct taxes. If a transaction or a consumption is charged depending on the treatment, this process referred to as indirect taxation. Consumption obtained through taxes is also referred to as indirect taxation and all such taxes lead to defections on income distribution. The advantage of this type of tax; only for goods or services can be received over a certain, reducing the consumption of products harmful to health or damage to the environment resulting in the form of negative externalities for the purpose of reducing their adverse effects.

When we look at taxation in terms of production factors (tax base), we face the taxes on capital taxes (including corporate tax) and wages. There are different studies on the calculation of the tax burden on capital and wages. While the OECD statistics do not include effective tax rates, the "Taxing Wages" study, which calculates the tax burden on wages, makes international comparisons on the taxation of wage earners.²⁸ In addition, implicit tax rates (ITR) covering the post-2000 period and published by Eurostat compare the tax burden on different factors in EU countries.²⁹

When we examine the taxation from subject perspective, consumption taxes are gaining importance. In the light of explanatory information about tax types and taking into consideration the importance of these taxes for economic integration, the studies about consumption taxes in the literature are given in the following sections of this thesis. In the econometric study section of our thesis, the effective tax rates on capital and wages will be taken into consideration while investigating the tax burden. On the other hand, since the existing harmonization efforts in the EU are in the areas of Value Added Tax (VAT) and Corporate Tax, the harmonization studies in the corporate tax area and the harmonization in VAT rates will be examined in the second chapter.

²⁸ OECD, (2016), *Taxing Wages 2016*, OECD Publishing, Paris. Accessed on 01.04.2019 from http://dx.doi.org/10.1787/tax_wages-2016-en

²⁹ EUROSTAT (2016). *Implicit tax rate on labour - Ec.europa.eu*. Accessed on: 15 June 2016, from <http://ec.europa.eu/eurostat/web/products-datasets/-/tec00119>

The main area where the academic studies are concentrated is the corporate tax where the companies decide on the selection of the investment center and the studies on this subject are included in a separate section. Corporate tax constitutes a financial burden on capital income in terms of structure. Therefore, corporate taxation is a main factor in the calculation of the tax burden on capital. In addition to capital taxation section this thesis examines corporate taxation in a separate section. The tax burden on wages is a separate research topic as it is included in OECD statistics.³⁰ Finally, the economic integration studies on excise taxes, a type of tax from a resource that have limited international mobility, are currently underway in the EU.

1.2.2. Optimal Taxation Theory

In the tax literature, academics have developed theories for different types of taxes, and different economists have explained the role of taxes on the formation of prices in the market, the reflection of taxes, income distribution and fiscal policy. We described the view of classical and Keynesian economists in tax theory in previous sections. This section focuses on optimal tax theory within the framework of modern approach.

The problem of optimal taxation was first examined in detail by Mirrlees *et. Al.* (1971) and analyzed mathematically in their seminal work.³¹ According to Mirrlees, the optimal tax theory explains how governments choose between different tax systems in order to achieve justice in income distribution and at the same time to achieve revenue targets. The tax policies applied to achieve this goal cause some loss of income in income distribution or tax revenues. The purpose of an effective tax policy is to minimize these losses.³² In other words, taxation, which means of intervention to the economy, is a move away from the ideal situation where there is perfect competition. A tax system in which all these alternative policy options are designed in line with the objectives is the working area of the optimal tax theory.

³⁰ OECD (2019), *Taxing Wages 2019*, OECD Publishing, Paris. Accessed on 01.04.2019 from http://dx.doi.org/10.1787/tax_wages-2019-en

³¹ Matti Tuomala, (2016), *Optimal Redistributive Taxation*, First edition (Oxford, United Kingdom: Oxford University Press), pp.1-2.

³² Mirrlees and others, *Tax by Design*. p.36.

The three main areas of interest are the taxation of goods and the taxation of production factors such as labor and capital. Public economists classify taxes on goods and services as indirect taxes and are considered as a type of intervention to the market as taxation of consumption. While analyzing the economic effects of taxes on goods and services, the theory focuses on finding the tax rate in which tax revenues and social benefits are optimal which also means that governments collect tax revenues most effectively.

On the other hand, the tax burden on labor, namely taxes on wages, is important in terms of income distribution and demand and supply conditions. Taxation of the labor income falls within the scope of direct taxes, and taxes on wages directly affect income distribution. Taxation of the capital is also directly within the scope of direct taxes, and the taxes on corporate profits or partnership shares are included in this scope. Financial assets that we can evaluate as capital gains are important to calculate the capital tax burden.

Income tax addresses return on capital and labor income. Individual dividends from corporate profits are subject of individual income tax but corporate profits generally are subject of corporate tax in many countries. Wealth taxation is another topic of which optimal tax theory tries to find answers to research questions. Taxation of individuals also covers wealth taxation. Taxation of wealthy persons has a mitigating effect on unfairness in income distribution. This thesis classifies taxation methods as direct and indirect taxation and tries to measure effects of tax methodology on revenues. Moreover the impact of macroeconomic indicators, economic integration and taxation methodology on labor and capital tax burdens.

1.2.3. Indirect Taxation

Indirect taxation is a kind of public revenue which imposes on consumption of a product or service rather than income or wealth. Value Added Tax (VAT) and Excise Tax are the most common examples of indirect taxation. Usually, all products and services are the subjects of VAT however Excise Tax is imposed on specific goods such

as alcoholic beverages or tobacco. VAT also includes many exemptions and reduced rates for specific goods.

The problem of optimization of tax revenues in a simple economy with two single consumers with regard to the taxation of goods is solved by the Ramsey rule. Ramsey's rule focuses on the taxation of goods more than the income distribution. The tax rates that will minimize the social loss through a public income are called Ramsey taxes.³³ The Ramsey rule does not focus on the problem of equity in income distribution, which is one of the aims of taxation.

As a result, the Ramsey rule argues that in a simple economy of two commodities and single consumer, the tax burden should be concentrated on the goods with the lowest price elasticity. As the price elasticity of luxury goods is higher, it will reduce the tax consumption on these goods and lead to tax loss for the government. Such a tax system will result in the tax burden concentrating on low-income individuals when the single consumer assumption is abolished. Therefore, the tax optimization of the Ramsey rule only takes into account the problem of efficient collection of the tax and does not include the criteria for equality in taxation.³⁴

Graphic 1 presents optimal commodity taxation problem in a simple economy. If the price elasticity of the demand is high, a fixed tax on the consumption of the goods will reduce the supply of the goods and increase the price. In case the demand elasticity is low, the supply will decrease and the price will increase. However, the demand for goods with high price elasticity will have a greater deadweight loss than goods, which have lower elasticity. Because in the state of higher demand elasticity of price which is represented in Graphic 1(1), producer will not reflect tax increase to the consumer. Instead of increasing prices the producer will decrease quantity of the product. Graphic 1(2) represents lower demand elasticity which also means higher prices and tax reflection.

³³ Stiglitz, *Economics of the Public Sector*, p. 403.

³⁴ Hindriks, Jean and Gareth D. Myles, *Intermediate Public Economics*, p.459.

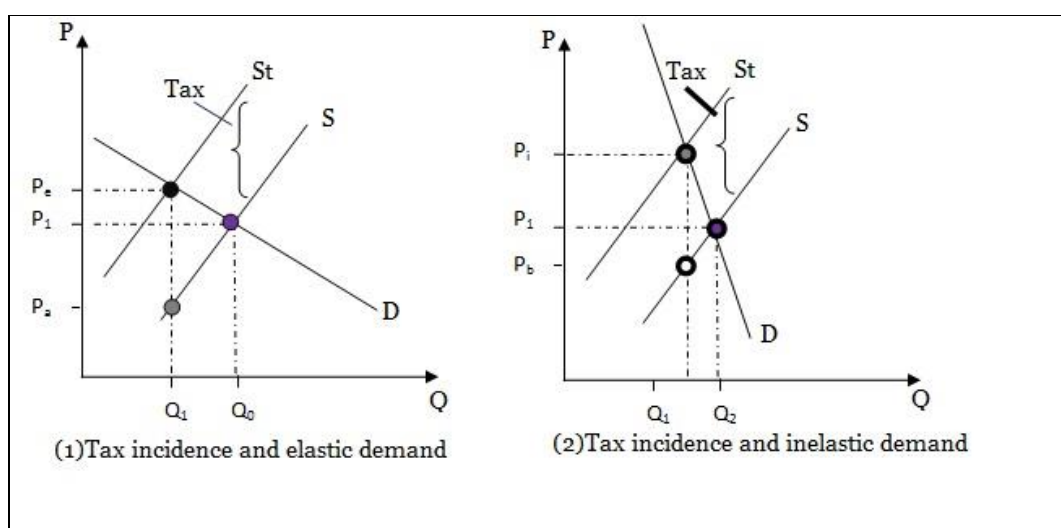


Figure 1. Tax Incidence

Resource: "Elastic And Inelastic Demand | Finance & Economics" Justdan93.wordpress.com., 2019. Accessed on 11/01/2019.

However, there is not only one consumer in real life and policy makers use indirect taxes to provide justice in the distribution of income. The best example is the excise tax on luxury goods. The modern tax system imposes taxes on products that are harmful to human health (cigarettes, alcohol, sugar, etc.) as well as the target of maximizing tax revenues. The tax burden on basic supplies is also reduced in order to protect low-income groups.

The taxation of goods and services requires differentiated tax rates for each property to ensure efficiency and compliance with the principle of equality. Differentiated tax rates lead to distortions in the economy. In addition, differentiated tax rates can lead to the emergence of a tax system that is difficult to manage and privileges certain goods in the economy.³⁵ Considering the price elasticity of demand, applying differentiated tax rates means intervention to the market economy. Changing supply and demand conditions according to tax revenue optimization may result with market failure and divergence from perfect competition.

Another characteristic of indirect taxation is that this type of taxes do not take into account individual income. Fixed tax rates are applied for all consumers who spend on goods independently from income. This situation also called regressive taxation by economists. Regressive taxation means high income groups spend lower portion of their

³⁵ Stiglitz, *Economics of the Public Sector*, p.402-403.

income to same product. However individuals in low income levels spend higher portion of their income in order to pay same amount of tax.

The analysis of optimal commodity taxation is in search of efficiency in taxation and ignores the equality between different levels of income of society. For this reason, while designing the tax system, it should be emphasized that more equitable taxes, which contain not only taxes on the goods and services covered by the indirect tax but also the progressive income tax, should be given weight.

1.2.3. Direct Taxation

Direct taxation is a source of public revenue, which is imposed on wealth or income rather than consumption. Usually the source of direct taxation comes from wages, dividends or assets. Different income components such as wages, self-employed income, capital income, rent and agricultural profits consist subjects of total income tax base. In addition to income taxation, wealth taxes are other sort of direct taxation which is imposed on income directly. Usually progressive income tax considers different income groups in society.

The fact that taxes on goods and services have caused some deviations in the economy and disrupting market structure and not taking into account the income distribution of indirect taxes increased the importance of well-designed income tax in a good tax system. The income tax considered as direct tax may include such features as increased proportionality or the exclusion of the minimum wage. Because of these characteristics, income tax is a tax policy tool that directly affects revenue distribution and governments may use this policy for different purposes.

While progressive income tax provides social justice, high taxes applied on high wages can reduce the desire of people to work and cause their choice between leisure and working time. This situation, which reduces social welfare, leads to a decrease in the supply of qualified labor and inefficiency in the labor market.

Governments can reduce inequality and increase economic inefficiency. Countries can make different choices between the social justice and social welfare dilemma.³⁶

The magnitude of the loss of social welfare resulting from the progressive rate of income tax depends on the flexibility of the labor supply curve. The high sensitivity of labor supply to wage changes, which also means high elasticity, may lead to reductions in labor supply as a result of high income tax. In parallel with the rising tax rates, the decrease in labor supply and production will cause a drop in revenue after a point. Increasing income tax rate may reduce net wage rate and labors prefer more working hours to leisure time. This process does not work in high income levels because of income effect and labors prefer leisure to working. Income and substitutions effects are important to analyze income taxation and labor supply. Graphic 2 explains the labor supply mechanism.

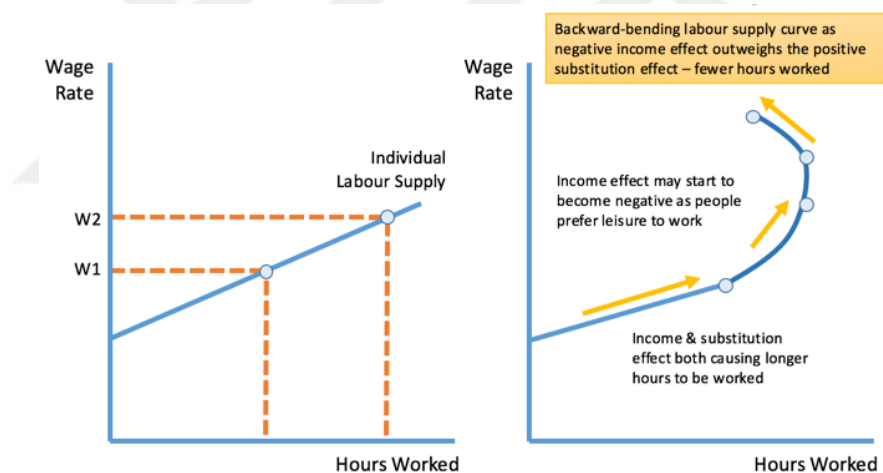


Figure 2. Labor Supply

Source: Geoff Riley (2019), "Wage Rises - Income & Substitution Effects (Labour Markets)", <https://www.tutor2u.net/economics/reference/income-substitution-effects-of-wage-rise>. Accessed on 03/04/2019.

Graphic 2 represents labor supply in different income levels. Until w_2 labors prefer working hours because of substitution effect. However in high wage rates (higher than w_2) people increase leisure time and prefer less working.

³⁶ Stiglitz, *Economics of the Public Sector*. p.390.

For these reason income taxation affects labor supply directly and different tax rates must be applied in order to encourage working instead of leisure time. Progressive tax is a kind of tax which government imposes higher tax rates for high-income earners. Since higher wages discourage labors to work, governments should apply higher tax rates for high wage-earners.

If a government that aims to maximize tax revenues should implement a progressive income tax, flat tax rates may result in loss of production and social welfare that provided by high-skilled workers. In this case, the tax rate applied at each income level should be determined correctly. On the other hand, it is a fact that inequality in income distribution will decrease when governments apply progressive income tax correctly.

The approach of supply-side economics in business tax-related aspects of taxation first appeared with American economist Arthur Laffer's taxation theory, which states the relationship between tax rates and collected tax revenues. According to Laffer Curve the higher tax rates mean the higher tax revenue until a maximum rate. A higher tax rate than this optimal rate both social welfare and the collected tax revenues start to diminish. The curve, which explains this relationship is called Laffer Curve and presented in Graphic 3.³⁷

³⁷ Arthur B. Laffer, Stephen Moore and Peter J. Tanous, (2008) *The End of Prosperity: How Higher Taxes Will Doom the Economy - If We Let It Happen* (New York, NY: Threshold Eds.), p.30.

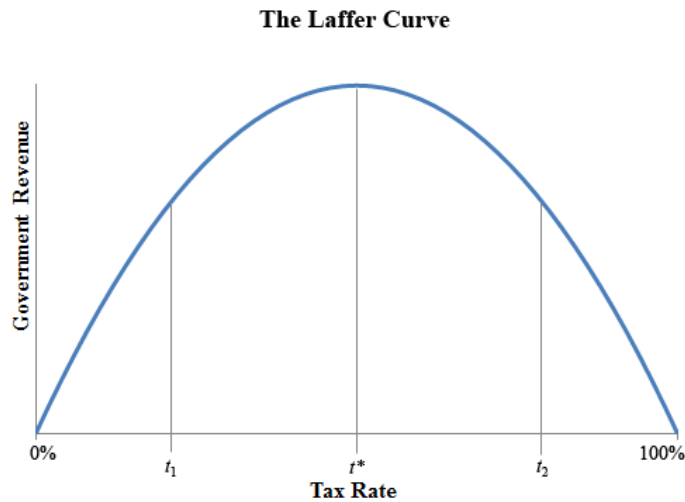


Figure 3. Laffer Curve

Source: Arthur B. Laffer, Stephen Moore and Peter J. Tanous, (2008) *The End of Prosperity: How Higher Taxes Will Doom the Economy - If We Let It Happen* (New York, NY: Threshold Eds.), p.30.

Graphic 3 represents that the progressive tax rates increase tax revenues to some extent, but tax revenues will begin to decrease after a certain point. This point, where tax revenues are maximum (t^*), also refers where the government revenues are maximum. Since government spending capacity is also maximum at this point, social benefit of taxation is higher in this tax rate. Politicians should choose most effective tax rate in order to maximize social welfare. On the other hand a tax rate higher than t^* will reduce social benefit and producers will start reducing their supply. Moreover workers will be no longer eager to work at high income tax rates.

While a flat-tax application of a government following supply-side economic policy is a more appropriate policy, it ignores the equity principle of taxation. If a government aims to sustain justice in income distribution for that government, progressive income tax practice is a more accurate policy. However, it is necessary to determine the income rate brackets correctly and to encourage the qualified labor supply in an economy.

Considering the positive and negative aspects of taxes on income and goods, it is necessary to establish an effective tax system in which different tax types are used together. The search for an effective tax system, in which the optimal tax theory seeks

an answer, should resolve the different socioeconomic structures of the countries in a different manner based on each country.

In addition to income tax, another type of direct taxation, wealth taxes are imposed on assets rather than variable income. The most important difference between wealth and income is that wealth is a stock variable and usually appears in different forms such as property or share certificate. For this reason, taxation of wealth differs from income taxation. A share certificate refers to wealth taxation, however profit share of a certificate is the subject of income taxation.

Because of this unique properties of wealth taxation, it varies from income and consumption taxation. The taxation of wealth may occur as a subject of real estate, as securities of fund or stock shares. Valuation of stocks and bonds or transactions of these assets may be matter of taxation. On the other hand, inheritance tax is another type of wealth taxation which imposed in many countries.

In addition, real estate or property tax may occur as a result of having resident in a specific region or transaction of a real estate. In many countries, property taxes are collected by local administrations and it is seen as a tribute to local services. Inheritance and gifts are also seen unfair enrichment and therefore inheritance and gift tax is used for reducing injustice.

When we look at in terms of optimal taxation, wealth tax aims to reduce social injustices which income and excise taxes can not fix adequately. The disparity in income distribution, especially capital inequality, is a result of transferring wealth between generations. Wealth taxation, which is used to decrease social injustices, focus on reducing inequalities rather than collecting tax revenue for the government.

Despite the wealth tax purposes such as the provision of Justice in taxation, the accumulation of capital may escape to other countries where there is no wealth taxes or impose lower tax rates. These negative aspects of wealth taxes make difficult to tax securities and capital accumulation which have a higher international mobility. In addition, the identification of the wealth and availability of hiding capital transfers make this type of taxation more problematic. Easy transfer of capital to tax havens make tax

authorities more sensitive to wealth taxation. Although there is an increase in international cooperation and intergovernmental audits, still there is a huge amount of hidden wealth in tax havens.

1.3. Tax Applications of Fiscal Federalism

One of the important research areas of the theory of fiscal federalism is taxation among different jurisdictions. The fact that tax revenues, collected by the central government or by the local authorities, is a major problem of public financial management. In order to solve this problem, governments should regulate optimal taxation and tax assignment in well-functioning economy. In the first instance, it was proposed that the local authorities would collect the taxes collected on the immovable property such as property tax, whereas the central government would collect the taxes such as corporate tax. However, Oates argues that it would be a more optimal method of taxation which governments impose taxes according to benefit principle where the services or public goods are provided.³⁸

Fiscal federalism theory investigates the competition between different tax jurisdictions and the economic integration of different countries. In order to reduce the harmful consequences of international tax competition, it is a matter of interest to the fiscal federalism theory in which such countries protect themselves in terms of what kind of taxes will be harmonized and what is the best structural organization of multilevel governance.

Three factors reduce the economic efficiency of decentralized tax systems on economic and monetary associations. First, different tax rates between different local governments increase tax competition and have a negative impact on the single market. Second, different tax systems increase the administrative and compliance costs of companies. Tax planning of companies and their orientation towards regions with low tax rates increase transaction costs for firms.³⁹ Thirdly, it makes difficult to reduce the tax rates applied to the production factors with a high level of competition among the

³⁸ Wallace Oates, (September 1999), "An Essay on Fiscal Federalism", *Journal of Economic Literature*, Vol. 37, No. 3, pp. 1120-1149.

³⁹ Broadway and Shah, pp.161-162.

neighboring regions and to implement a single tax system on a country basis. This situation will also erode the tax revenues from mobile production factors such as capital.⁴⁰

The results of the academic studies show that; intense economic integration leads to a reduction of the revenues of centralized budgets, resulting in less central expenditure and higher local taxation. The increase in economic integration accelerates the localization of public finance.⁴¹

The theory of fiscal federalism approaches taxation in terms of different tax types for different tax jurisdictions. This thesis analyzes different layers of the state and supranational organizations such as EU in terms of tax assignment within the scope of the study of fiscal federalism theory. Moreover, the impact of tax policies on income distribution and tax base shifts varies according to the fiscal structures of countries.

1.3.1. Income Taxation

Taxation of wages does not only constitute an important source of revenue for the government, but also acts as an important social policy instrument. Governments use tax policies, particularly as a progressive taxation policy, as a means of ensuring social justice in society. While many countries implement the policy of reducing the tax burden on low-income employees, the tax burden in the historical process is shifting towards wage income from capital returns. The emergence of this situation depends on limited wage tax base shifting due to less mobility of labor force.

Another reason for increasing the tax burden on labor side is that taxes on consumption indirectly create a separate tax burden on wages. It is an important reason for increasing the tax burden on the labor force, especially in the case of regressive characteristic of taxes such as VAT and excise tax that low-income earners feel the burden heavily, but the fact that high-income people make such taxes a small fraction of income.

⁴⁰ Broadway and Shah, p.162.

⁴¹ Paolo Liberati and Antonio Sciala, (December 2011), "How Economic Integration Affects the Vertical Structure of the Public Sector," *Economics of Governance* 12, no. 4, pp. 385–402.

The downward trend in corporate tax rates and the incentive policies of governments that want to attract international foreign direct investments to their own countries have caused the tax burden to shift to wage earners from companies. The fact that the collection of taxes from wage earners is easier than the other taxes and the international labor mobility is lower than the capital mobility has made wage taxes attractive for governments. However, the high taxation of wages can lead to the leisure time of the population who want to work, and their leisure time. For this reason, governments should avoid high taxes to increase unregistered employment considering the flexibility of labor supply to wage.

Increasing the tax burden on the labor market will adversely affect labor supply and thus economic growth. The European Commission considers that the tax policy should be inclusive and encouraging sustainable growth. An inclusive, smart and sustainable economic growth is only possible with efficient labor markets. Inclusion is the intensification of international capital, while reducing the tax burden on the labor force. Tax reforms have a crucial role in achieving fairer functioning of labor markets and social justice.⁴²

According to Haufler *et. al.* (2009); in parallel with the increase in public expenditures, wage taxes also increased. According to the same study, the reason behind this situation is that the burden of tax increases on capital is sharper and this burden not only decreases the capital stock but also decreases the wage incomes.⁴³ The high level of taxation of capital makes the countries disadvantaged in an environment where tax competition is intense. Capital escape also affects the wage incomes negatively.

An important issue about the taxation of wages is that the duty of redistribution of income taxes. In many countries, the fact that the minimum wage is exclusive from income tax or benefit from some incentives such as very low tax rates and family benefits on the other hand, has increased the social significance of these taxes. The taxation of individuals in different income zones at different tax rates is an application

⁴² European Commission, (2015), Directorate-General for Economic and Financial Affairs, and European Central Bank, *Tax Reforms in EU Member States 2015 Tax Policy Challenges for Economic Growth and Fiscal Sustainability*, (Luxembourg: Publications Office), p.15.

⁴³ Andreas Haufler, Alexander Klemm and Guttorm Schjelderup, (March 2009), "Economic Integration and the Relationship between Profit and Wage Taxes," *Public Choice*, 138, no. 3–4, pp. 423–446.

of the principle of fairness in taxation and it is important for eliminating inequality in a society. A tax system aimed at improving equity should be progressive and should provide some benefits to people in low-income groups.

The OECD's annual report on taxation of wages provides detailed information about the tax burden on labor in OECD countries. The tax burden on labor is derived by deducting social supports from the total wages and social security contributions from wages and by proportioning the wage costs to that amount. Accordingly, wage tax burden decreased in only eight of OECD countries, while tax burden on wages increased in 24 countries. While the OECD average tax rate increased between 2011 and 2014, this average remained stable in 2015 and it was 35.9%.⁴⁴

In addition to the OECD study, microsimulation models are used to calculate the tax burden on wages. EUROMOD microsimulation model⁴⁵ developed for European countries measures the tax burden on 28 member states' households and carries out the economic analysis of tax policy changes. In order to measure macroeconomic impact of tax and benefit policies of 28 EU member states, European Commission develops general equilibrium models.⁴⁶

The macroeconomic calculation of the tax burden is the average tax burden on all labor force in a country, based on national income statistics and national tax statistics. Microsimulation models and OECD calculations at micro level; while calculating the tax burden based on individuals and households, the average effective tax burden is calculated from macroeconomic data. This thesis explains methodological discussions on the calculation of tax burdens in the econometric analysis section. It is also be given in detail in the third chapter of the thesis, the average effective tax rate and the calculation method, which is used in calculating Turkish average tax rates.

⁴⁴ OECD, (2016), Taxing Wages (OECD Publishing), http://www.oecd-ilibrary.org/taxation/taxing-wages-2016_tax_wages-2016-en.p.11. Accessed on: 26/07/2017.

⁴⁵ Holly Sutherland and Francesco Figari, (2013), "EUROMOD: the European Union tax-benefit microsimulation model." *International Journal of Microsimulation*, 6(1), pp. 4–26.

⁴⁶ Salvador Barrios, Mathias Dolls, Anamaria Maftai, Andreas Peichl, Sara Riscado, Janos Varga, Christian Wittneben, (October 2017), "Dynamic Scoring of Tax Reforms in the European Union," *Euromod Working Paper Series*, EM 14/17, pp.1-62.

1.3.2. Corporate Taxation

The corporate tax taken on the net profit of the companies and the conceptual differences between the capital taxes of the individuals and companies on the stock of capital are important for our study. In literature, two concepts are frequently used, and in many studies, capital taxes are taken into account as the effective tax rate calculated by including corporate tax.⁴⁷ In order to clarify the subject and summarize the academic studies on this topic, this thesis examines corporation tax under a separate title, but as discussed in fourth chapter, econometric studies will use only factor analysis of the tax burden on capital. We take into account the effective tax burden on capital, which is calculated for the EU and Turkey from national income statistics.

Tax harmonization activities in the EU usually gathered on the taxation of corporate income. There are also econometric studies, which predict the explanatory variables of corporate tax revenues in EU countries, which constitute the theoretical background of these studies. Monteriro *et.al.* (2011) analyzed the 12-year data of 27 countries with a panel data analysis and it was concluded that macro variables such as GDP, public deficit had an impact on tax revenues and that the country's trade openings had a negative impact on tax revenues when high tax rate was applied.⁴⁸ Trade openness also leads to tax competition in many developing countries. For the EU member states, the intensity of intra-EU trade and the foreign direct investment flows indicate a higher degree of economic integration and the level of openness to trade.

Krogstrup (2004) examines the impact of tax burden on tax competition, and concluded that high capital mobility reduces tax burden on capital and causes tax competition among countries. However, this tax competition is not at a level to create a “race to the bottom effect”.⁴⁹ It was also emphasized in this study that other factors, rather than capital mobility, affected tax revenues and that tax harmonization should be

⁴⁷ Michael P. Devereux and Rachel Griffith, (2003), “Evaluating Tax Policy for Location Decisions,” *International Tax and Public Finance* 10, no. 2, pp. 107–126.

⁴⁸ Marta Rodrigues Monteiro, Elísio Fernando Moreira Brandão, and Francisco Vitorino da Silva Martins, (2011), “A Panel Data Econometric Study of Corporate Tax Revenue in European Union: Structural, Cyclical Business and Institutional Determinants”, Unpublished Thesis (Universidade do Porto, Faculdade de Economia do Porto), p.33.

⁴⁹ Race to the bottom: International tax competition over production factors such as capital, which has an international mobility, may force countries to reduce tax rates on capital. This race among countries may continue until the tax rate reaches the lowest level.

applied to eliminate this situation.⁵⁰ According to Baldwin and Krugman (2004); economic integration due to the impact of the clustering effect does not reveal a race to the bottom between countries' tax rates, but the tax rates move upward in developed countries.⁵¹

Clausing (2007) predicted the determinants of corporate tax rates and revenues in his article. According to this study, international economic integration reduces tax rates and lower tax rates yield more tax revenues for open economies.⁵²

Overesch and Rincke (2011) forecast explanatory variables of corporation tax rates with an econometric model for EU. It is explained that corporate tax rate will be 12,5 points higher in the model where there is no tax competition.⁵³

Articles on tax revenues and economic integration are mostly focused on corporate taxation.⁵⁴ In addition, there are articles focusing on indirect taxes such as VAT. If we look at taxation from the standpoint of the European single market, the harmonization of indirect taxes is inevitable for the formation of a single market. The harmonization studies in corporate tax remained limited despite the intensive work of the European Commission. Considering that the corporate tax is collected from the tax resources, which have high mobility, the volatility of corporate tax revenues is expected to increase among the countries in the process of economic integration.

In brief, it is observed that the corporation tax rates are lower in Central and Eastern European countries after 2004, but the corporate tax rates are higher in EU-15 countries. Considering the corporate tax rates and revenues, there is a tax competition especially in the new member states but it does not exist in EU-15 because of

⁵⁰ Signe Krogstrup, (2004), "Are Corporate Tax Burdens Racing to the Bottom in the European Union?" (*EPRU Working paper series*), p. 27.

⁵¹ Richard E. Baldwin and Paul Krugman, (February 2004), "Agglomeration, Integration and Tax Harmonisation," *European Economic Review*, 48, no. 1, pp. 1–23.

⁵² Kimberly A. Clausing, (2008), "Closer Economic Integration and Corporate Tax Systems," *Global Economy Journal*, 8, no. 2, pp.1-28.

⁵³ Michael Overesch and Johannes Rincke, (April 2011), "What Drives Corporate Tax Rates Down? A Reassessment of Globalization, Tax Competition, and Dynamic Adjustment to Shocks," *Scandinavian Journal of Economics*, 113(3), pp. 579-602.

⁵⁴ Christian Bauer, Ronald B. Davies, and Andreas Haufler, (February 2014), "Economic Integration and the Optimal Corporate Tax Structure with Heterogeneous Firms," *Journal of Public Economics*, 110, pp. 42–56.

agglomeration effect.⁵⁵ Due to the strong economic infrastructure of countries such as Germany and France and the intense intra-industry trade in these regions, these countries do not enter into a capital tax competition as distinct from the new member states.

1.3.3. Taxes on Capital

Has the increased capital mobility as a result of the creation of the European single market started a harmful competition to the base among EU member states in taxes on capital? Academics answer to this research question differently from different perspectives. According to the findings of the empirical study by Mendoza and Tesar (2005), there is no “race to the bottom” between the EU countries in terms of reducing tax rates to zero.⁵⁶

Rodrik (1997) found a negative correlation between the tax burden on capital and globalization in the article, which explains the effect of globalization on the taxation of capital. In his study of 19 OECD countries, Rodrik demonstrated that commercial openness reduces capital taxes and increases wage taxes. Increasing tax competition on capital taxation is also called as efficiency hypothesis.⁵⁷

A. Adam et al. (2013) indicates that there is no significant negative relationship between economic integration and capital taxation and they concluded that the countries with high economic integration did not reduce capital taxes by the meta-regression analysis. In the literature, there are studies showing that economic integration does not decrease the tax rates taken over capital, but there are also studies showing the situation that there is a positive relationship between capital taxation and globalization. These ambiguous results in literature depend on from differences in method of measuring globalization.⁵⁸

⁵⁵ Baldwin and Krugman, p.22.

⁵⁶ Mendoza and Tesar, (2005), “Why Hasn’t Tax Competition Triggered a Race to the Bottom?” *Journal of Monetary Economics*, 52, pp.163–204.

⁵⁷ Dani Rodrik, (January 1997), "Trade, Social Insurance and The Limits of Globalization" *NBER Working Paper N. 5905*, p. 20.

⁵⁸ Antonis Adam, Pantelis Kamas, and Athina Lagou, (March 2013), “The Effect of Globalization on Capital Taxation: What Have We Learned after 20years of Empirical Studies?,” *Journal of Macroeconomics*, 35, pp. 199–209.

Rising of capital mobility and the recent financial crisis show us that there is a need of discussing harmonization of capital at the EU level. In the light of the theoretical studies on this subject, we may conclude that the method of measuring economic integration is important for the taxation of capital. If we evaluate economic integration only in terms of the volume of trade between countries, we will not fully explain the integration. In addition, the inclusion of variables such as foreign direct investment and capital mobility in the integration index will provide results that are more accurate.⁵⁹

The globalization index developed by Dreher (2006) includes not only economic variables but also political and social variables. In his study, Dreher (2006) used the KOF index to measure globalization and concluded that economic integration increased the proportion of taxes on capital due to the clustering effect.⁶⁰

It is seen that different empirical studies in the literature have reached different results about whether the economic integration increases the tax burden on capital. The main reason for these different results in academic studies is the different methods used to measure globalization. In studies using variables such as trade openness and capital constraints, a negative relationship exists between capital tax burden and globalization.⁶¹

Similarly, it affects the outcome of econometric studies in different approaches to measuring tax burden on capital. Tax burden on capital can be measured as the ratio of total capital tax to GDP ratio or average effective tax rates on capital, such as Mendoza *et. al.* (1994).⁶² Difficulties in calculating the tax burden on capital have led to the development of this formula, which uses national income statistics and administrative tax statistics together.

Another type of average tax rate, the “marginal effective tax rates” developed by Devereux and Griffith have been calculated as a ratio that affects the location

⁵⁹ Adam, Kamas, and Lagou, p.208.

⁶⁰ Axel Dreher, (March 2006), “The Influence of Globalization on Taxes and Social Policy: An Empirical Analysis for OECD Countries,” *European Journal of Political Economy*, 22, no. 1, pp. 179–201.

⁶¹ Adam, Kamas, and Lagou, p.200.

⁶² Enrique G. Mendoza, Assaf Razin and Linda L. Tesar, (1994), "Effective tax rates in macroeconomics Cross-country estimates of tax rates on factor incomes and consumption", *Journal of Monetary Economics*, 34, pp. 297-323.

preferences of the investing firms.⁶³ The marginal average effective tax rates based on the national income accounts, represent the tax burden in the macroeconomic sense and their calculation is important for investment decisions. The marginal effective tax rate takes into account the present value of the after-tax profits of the investing firms.

As it is seen in the literature, different calculations for measuring economic integration and globalization also affect the outcome of econometric models. There are difficulties in calculating the tax burden on capital for two main reasons. The first is the classification of the tax types of the OECD and these statistics are not decomposed such as capital or labor, but they are decomposed according to the type of declaration. The second reason is the collection of wages and capital revenues collected in the personal income tax returns in the national tax systems and it is not always possible to separate them. The European Commission publishes the implicit tax rates for many EU countries.⁶⁴ However, there are limited studies about calculating average tax rates for Turkey.⁶⁵ Capital and wages tax burden will be calculated for Turkey as an average effective tax rate which reflects macroeconomic tax burden in Turkey, other average effective tax rates will be utilized from EU countries' statistics and implicit tax rates which Eurostat calculated with national statistics.

Taxation of capital and labor is important for fiscal federalism when we classify tax revenues according to their economic functions. The increased capital mobility within the monetary union, where economic integration is intense, has affected the tax burden on capital. EU-wide harmonization and co-ordination on taxes on capital will ensure efficient functioning of the single market and prevent harmful tax competition. Labor, which is another factor of production, is a lower factor of mobility than capital, and the tax burden on wages varies widely among member countries.

⁶³ Devereux and Griffith, pp.107-126.

⁶⁴ European Commission (2016), "Implicit Tax Rates By Economic Function (Gov_A_Tax_Itr)". *Ec.Europa.Eu*. <http://ec.europa.eu/eurostat/cache/metadata/>. Accessed on 15/06/2016.

⁶⁵ İlter Unlukaplan and İbrahim Arisoy, (2010), "Türkiye Ekonomisi İçin Efektif Vergi Oranlarının Hesaplanması," (*Discussion Paper*, Turkish Economic Association), pp.1303-1312.

1.3.4. Consumption Taxes

VAT, a phased tax type commonly used worldwide, is a transaction tax received at each stage of production and services. The calculation of the tax burden on consumption is easier than the tax burden on capital and wages. Transition in capital and labor revenues, that is, when an individual obtains both capital income and wage income at the same time, is not in question in excise taxes.

Excise tax is mostly classified as paternalistic taxes or sin taxes are used to decrease bad health effects of some products. Consumption tax on tobacco products and alcohol comes at the beginning of these taxes. On the other hand, the taxation of environmentally harmful fuels in order to reduce carbon emission is another example of such taxes. One of the research areas of fiscal federalism is the application of the consumption taxes at the level of the state.

The share of taxes on consumption or indirect taxation in total tax revenues is increasing. The advantage of such taxes is that governments may use these taxes to reduce the negative effects of negative externalities resulting from the reduction of consumption of harmful products or damage to the environment. However, indirect taxes are also increasing inequality because of their regressive characteristic, which means that these taxes impose at the same rate for all income groups. Therefore, the tax burden on products such as basic foodstuffs must be carefully determined during the policy determination of consumption taxes. For each commodity, the price elasticity of the demand and the income level of the consumer is important to analyze who burdens the tax.

Alignment of taxes on consumption within the EU's economic integration is extremely important in terms of strengthening the single market. The EU directives determine the minimum levels of VAT and excise taxes within the EU, and make explanations about the exceptions through these minimum rates. Thus, it is aimed to prevent smuggling within the EU and to ensure harmonization of different rules among different nations.

Directives on excise taxes on alcoholic beverages are good example of the excise tax practices in the EU. The EU legislation on taxation of alcoholic beverages has two main regulations. The first is the EU Directive 92/83 / EEC⁶⁶ and the second is 92/84 / EEC. Directive 92/83 / EEC includes explanations of the nature of excise tax on alcohol and alcoholic beverages, classification of alcoholic beverages and calculation of the tax base. In addition, the implementation of low rates to some geographical regions, the exclusion of certain types of drinks and the imposition of exemptions for small producers constitute the scope of the first directive.

The second directive 92/84 / EEC sets minimum tax rates. These rates regulate EU-wide taxation rules, although certain Greek islands and regions, certain regions of Italy and some regions of Portugal will not apply these minimum rates because subsidiarity principle.

The EU aims to prevent the harmful tax competition between countries by setting minimum rates for excise tax on alcoholic beverages and wants to prevent cross-border illegal alcoholic trade. Similarly, European commission tries to harmonize VAT rates among member states.

As in the case of the taxation of alcoholic beverages, it is necessary to determine jointly the rules and to ensure minimum tax rates by regulations in the fight against smuggling in consumption taxes. In the field of VAT and excise tax in the EU, it has been tried to reduce the differences between the member countries in consumption taxes since the jurisdiction where the products are consumed is valid for taxation, which means that VAT, and excise tax systems are based on destination principle more than origin of a certain product.

Another type of indirect taxes is environmental taxes, which are widely used today. Excise tax based on carbon-emission high calorie energy products is a type of tax applied traditionally in many EU member states in order to reduce negative externalities of some sectors. In addition, the European Union Emissions Trade System (ETS), which

⁶⁶ Official Journal of the EU (1992), *Eur-lex.europa.eu*.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0083>. Accessed on 17/08/2018.

is an integral part of the EU's sustainable energy policy in recent years, is an alternative model to transfer the resource to the EU budget and create a significant capacity for strengthening the fiscal union.⁶⁷ ETS, which is a part of European environmental policy, is a system that enables carbon emissions of companies to be gathered under one roof and that those companies pay the greenhouse gas released to the environment. Countries exceeding the emission limit set in this system are required to purchase credit and fulfill the requirements of this system. The aim is to promote the development of more environmentally sensitive production technologies and to harmonize different environmental policies within the EU.

When we look at the fiscal federalism theory, centralization at the level of unity is important for the effective functioning of the single market in determining the exception and tax rates, although not in the collection of consumption taxes. The transfer of a low amount of VAT collected by the member countries within the EU to the EU central budget increased the importance of harmonization studies in excise taxes.

1.4. Public Expenditure and Fiscal Federalism

Achieving efficiency in expenditures is a problem in which public services will be provided by which administrative structure. The models developed by Tiebout (1956) explain this problem and in his article on fiscal federalism stated that the problem of free trade in the distribution of public goods cannot be solved by the market economy, and that the mobility of consumers is important in preferences. Tiebout explained the competition on the presentation of public goods between local administrations with the mentioned study and examined the consumption of utility goods as well as optimization of utility taxes.⁶⁸ In addition to Tiebout's study, Mancur Olson (1969) argued that public services can be presented in a multilevel administrative organization, with the exception of the revenue aspect of fiscal federalism, in terms of the provision of public goods and services.⁶⁹ The competition between local

⁶⁷ Anna Iara, (2015), "Revenue for EMU: a contribution to the debate on fiscal union," p.15.

⁶⁸ Tiebout, "A Pure Theory of Local Expenditures," p.424.

⁶⁹ Robin Boadway and Jean-François Tremblay, (December 2012), "Reassessment of the Tiebout Model," *Journal of Public Economics*, 96, no. 11–12, pp.1063–1078.

administrations takes place in the analysis as an effect enhancing the quality of public services. In this model, households with high mobility will head towards the local centers where they can receive the best services with minimum tax. This will create a competition for the best service among local administrations. However, the most important problem in the model is that assumptions are far from real life. The economic rationality in which the full mobility and decision makers have full knowledge in the labor force are the weaknesses of the model. The issue of the sharing of expenditures, which is an important problem of the public economy, between central administration and local administrations will be limited due to the scope of our thesis.

Oates (1972) argues that fiscal decentralization is a more effective form of fiscal management, and that taking local decisions by public administrations in a setting where externalities and economies of scale are lacking. This kind of governance is more effective.⁷⁰ Increasing the powers of local administrations and the idea of financial autonomy have changed over time, central governments should regulate the areas where externalities such as the environment and large public expenditures like defense.

Wallis and Oates (1988), by their US based econometric work, have showed that the importance of the central government in the public sector. Increasing importance of public sector in the economy created new spending areas such as infrastructure services, which should be carried out by the central government. Increasing population and urbanization have also increased major public investments such as highways, leading to centralization in public spending.⁷¹

The idea of the economic efficiency of decentralization developed by Oates (1972) was criticized for reasons such as the increase in centralization and the necessity of some central public services such as education and defense to be met by the central government. According to Calsamiglia *et al.* (2013), the central government minimizes

⁷⁰ Oates, *Fiscal Federalism*, p.18.

⁷¹ John Joseph Wallis, and Wallace E. Oates, (1988), "Decentralization In The Public Sector: An Empirical Study Of State And Local Government", In *Fiscal Federalism: Quantitative Studies*, 1st ed., 24. Chicago: The University of Chicago Press, pp.5-33.

public economies and their services and the local administrations will work with their own financial resources to raise this minimum level more economically.⁷²

When we consider the duty of providing economic stability and the duty of sustaining efficiency of fiscal policy, it will be economically more efficient to provide this service by the central government in a way that does not cause harmful tax competition among the local administrations. From this point of view, fiscal centralization is important in terms of ensuring financial stability. In the context of the EU, the efforts of the member states are not considered sufficient, as is the responsibility of the individual member states to ensure financial stability in the euro area. The fact that the crisis in the Euro area was effective in the region in a short period necessitated the coordination of fiscal policies, the European Commission closely monitoring the financial conditions of the member countries and demanding the necessary measures, which countries need to take into consideration. When it comes to the distribution of public services between different administrative layers, central government should deliver the task of achieving financial stability or even to a supranational authority should take responsibility as in the case of the EU.

On the other hand, fiscal federalism is also important in terms of ensuring inter-governmental transfers, risk sharing and insurance and maintaining financial stability. Achieving such objectives as the provision of such public services by the central government and elimination of injustice in income distribution is directly related to the issue of fiscal structure. There are many studies on the relationship between fiscal policy harmonization and financial stability. In particular, the study of general equilibrium model, Keynesian equilibrium and fiscal policy were re-examined within the monetary union.⁷³ The functioning of such equilibrium models in economic and monetary unions and the equilibrium of markets are different from the classical open economy macroeconomics. This thesis will focus on the public revenue policy and

⁷² Xavier Calsamiglia, Teresa Garcia-Milà, and Therese J. McGuire, (June 2013), "Tobin Meets Oates: Solidarity and the Optimal Fiscal Federal Structure," *International Tax and Public Finance* 20, no. 3, pp. 450–473.

⁷³ For a useful analysis see Michael Carlberg, (2011), *Dynamic Policy Interactions in a Monetary Union* (Berlin, Heidelberg: Springer Berlin Heidelberg & Oscar Bajo-Rubio and Carmen Díaz-Roldán, (2011), *Macroeconomic Analysis of Monetary Unions*, SpringerBriefs in Economics (Berlin, Heidelberg: Springer Berlin Heidelberg).

taxation, which is an important pillar of fiscal policy, rather than how governments should achieve financial stability in EMU.

1.5. Cost and Benefits of Fiscal Federalism

Fiscal federalism means that the state's tax collection and spending powers are distributed among different layers of government, as previously explained. This division of tasks in the field of public finance has created a structure in which fiscal decentralization is high in some countries, while in some countries it has caused a centralized organization, especially in the field of taxation. Although fiscal federalism usually means decentralization in the literature, fiscal federalism in supranational organizations requires intergovernmental fiscal cooperation and a limited portion of tax revenues transferred to a central authority.

A fiscal federalist structure will have economic benefits and costs. Establishing a central authority in which some of the tax revenues are collected in the central budget, implementing a fiscal policy, and using the fund to provide financial stability means creating a federalist structure on the income side. In the expenditure side, public spending must be limited and central authority should create only a risk mechanism and to ensure financial stability.

The decentralized tax system adversely affects the functioning of economic associations, increases the cost of compliance of companies and leads to the emergence of harmful tax competition among countries.⁷⁴ The independent act of each country in terms of tax collection reveals a costly structure. The implementation of a fiscal federalist structure (fiscal union) will reduce some of these costs.

The most important cost of a federalist structure to be formed in a fiscal union is that member states' some part of taxation sovereignty should be given to supranational organizations. This situation may cause reactions to the public opinion in the sense of democratic representation, and further restrict the fiscal capacity of the countries with high debt stock. The centralization in the expenditures section is not very desirable in federalist structures, but it is a decision to be decided by the costs of

⁷⁴ Boadway and Shah, pp.161-162.

uniformity analysis to be made on each expenditure basis. Expenditure, such as defense, can be centralized, but it is possible to fully localize expenditures such as education. Therefore, the central budget must cover the goods in which the preferences are common.⁷⁵

In cases where the preferences are not homogenous, collecting tax revenues at the central budget will affect the fiscal preferences of the countries. For example, the fact that all countries' income taxes are not uniform and if it is managed by the central authority will bring them serious problems. A federalist structure in revenue collection will also reduce the possibility of implementing a micro-level tax policy.

The situation of where the collection of some of the tax revenues at the central budget but almost all of the expenditures being made within the scope of the powers of the member states, which means that the localization of expenditures and centralization of some part of revenues, may result with the elimination of accountability. Local authorities can increase their spending in order to better serve the public services, but the fact that the authority to collect taxes is in the member states or some of them are transferred to the central budget can bring with them big problems. Local administrations and member states may find it difficult to finance increasing public spending, leading to an increase in debt stock.

Despite all these costs and disadvantages, a fiscal federalist structure that explained above will allow countries to reduce the risk of financial crisis and create an insurance mechanism against crises. A fiscal structure that will minimize the financial imbalances between the countries in times of crisis and can make funding when needed will provide an economically stable union. As a complementary component of monetary unions, the implementation of fiscal policies in a coordinated manner, the convergence of the fiscal policies of the member countries, and the close monitoring of the budgets of the member states in the excessive deficit procedure are important steps to be an economic and fiscal union.

⁷⁵ Hindriks and Myles, "*Intermediate Public Economics*," pp. 545-546.

CHAPTER II

EUROPEAN ECONOMIC INTEGRATION FROM A FISCAL FEDERALISM PERSPECTIVE

Since the fiscal federalism theory finds its first major field of application in the United States, American economists have studied the study of federalism in detail. In this sense, the EU learns from the experiences of American federalism in a relatively new supranational organization. The weakness of the central government is not a successful form of organization, but some taxation powers must be in the hands of the central government in order to establish a perfect union between member states.⁷⁶ Increasing the share of the EU central budget and collecting some taxation powers at the headquarters, such as the common corporate tax base, is necessary for a stronger economic union.

Tax harmonization efforts, which were initiated in order to strengthen the single market in the EU, were transformed into efforts to increase tax revenues in order to strengthen the weakened public finance system after the Euro-zone crisis. The necessity of supporting the monetary union with the common fiscal policy after the crisis has also raised new debates. Inter-country shifts in tax base and unstable tax revenues in southern European countries also require a supranational tax authority in order to stabilize fiscal fluctuations.

According to fiscal federalism, governments must establish the central budget system in order to form a federal structure for all member states. For the EU, the development of a central budget and the creation of a fiscal mechanism where resources are automatically shared is essential.⁷⁷ According to Musgrave; increased intra-European cross-border economic transactions and the acceleration of capital and labor

⁷⁶ Sylla, "Early US Struggles with Fiscal Federalism." p. 173.

⁷⁷ Mark Baimbridge and Philip Whyman, (2004), *Fiscal Federalism and European Economic Integration* (London; New York: Routledge), p.18.

mobility will necessitate the strengthening of the central budget and will require tax harmonization.⁷⁸

The collection of some of the tax revenues at the central authority and the establishment of a common stabilization fund will increase efficiency in the fight against financial crises. For instance, in a supply-side crisis in Greece, Greek contribution to tax revenues and the central budget will also decrease. On the other hand, the stabilization funds and financial aid packages transferred to Greece will help to recover from the crisis. Thus, the collection of some of the tax revenues by the EU, in other words, the expansion of the EU revenue budget will have the opportunity to effectively struggle to the financial crisis.

European economic integration is closely related to legislation on tax revenues in the EU. Taxation, which is a fiscal governance tool, has become an EU-wide tax policy, which is not only a policy tool that can be realized within the administrative systems of the member states but also with the decision-making mechanism of the supranational governing bodies. However, the EU's directive on taxation needs a unanimous decision by the Council, and it is only through certain boundaries that it makes recommendations to the member states. This type of decision-making process in tax issues indicates that the EU has a long way to go for a complete fiscal federalist structure.

2.1. Historical Approach to European Economic Integration

The stages of economic integration since the establishment of the EU have also shaped the fiscal structure of the EU. The European Coal and Steel Community (ECSC), which is founded by Belgium, Netherlands, Luxemburg, Italy, Germany and France in 1951, had an administrative budget. With the Treaty of Rome signed in 1957, the European Economic Community (EEC) was established and a single budget was established. The Merger agreement, signed in 1965, convened the ECSC and The European Atomic Energy Community (Euratom)⁷⁹ budgets under the sole budget of the

⁷⁸ Buchanan and Musgrave, p. 174.

⁷⁹ Euratom is an international organization which consists of European member states. It was established on 25 March 1957 by EEC with Rome agreement.

EEC. The Luxembourg agreement, signed in 1970, transferred the research budget of Euratom to the EEC and the EEC gained its own resources, regardless of the contribution of the member states.⁸⁰

Although the EEC has implemented a budget between 1970 and 1988, many problems were encountered in the management of the budget due to inter-institutional conflicts. Due to the increasing spending of the EEC on this situation and the transition to the single market economy, customs taxes, which are the main income sources of the EEC in that period, and the increasing depreciation of VAT revenues are the main sources of income.⁸¹ Most of the expenditures side of EU budget was agricultural incentives. Another reason for the increase in EU spending is the EU enlargement process that accelerated in the 1980s. Greece joined the EEC in 1981, Portugal and Spain in 1986, and the limited contribution of these countries to the budget created an imbalance between budgetary revenues and expenditures. This imbalance was tried to be overcome by the reforms made in line with the Delors Report published in 1987. Delors package, which was prepared in order to eliminate these disruptions in the implementation of the central budget, consists of two pillars, single market agreement and the financing of the EEC budget. The decisions taken by the Brussels European Council have enabled the EEC to reach stable, sufficient and guaranteed budgetary resources. In 1984, the Fountainebleau European Council increased VAT-based budget revenues and the UK was entitled to extradite extra budgetary contributions as a result of its application. In this package covering the years 1988-1992, the VAT revenue limit of the EEC was increased from 1% to 1.50% of the community GDP.⁸²

Until 1992, the increasing spending of the EEC and the fact that it did not reach its sources of income continuously made it difficult to finance the common agricultural policy of the EEC. In order to accelerate the process of transition to monetary union after 1992, the EEC has not only financed its own budget but also harmonized the fiscal policies of the member countries and supervised them.

⁸⁰ European Commission and Directorate-General for the Budget, (2014), *European Union Public Finance* (Luxembourg: Publications Office), p.20.

⁸¹ European Commission and Directorate-General for the Budget, pp.30,31.

⁸² European Commission and Directorate-General for the Budget, p.33.

The second Delors Package covers the reforms of 1993-1999 and aims to implement the Maastricht Treaty signed in February 1992 and entered into force on 1 November 1993. A number of reforms are needed to achieve the monetary union stipulated by the Maastricht Treaty.⁸³ These rules, which are known as Maastricht convergence criteria, form the basis of the EU's structure of economic governance. The Maastricht Treaty sets five convergence criteria for member states to enter the European Monetary Union. Two of these five criteria impose restrictions on public finance and we classify them as fiscal rules. The Maastricht Treaty envisages a shift in the exchange rate mechanism (ERM), which entails certain criteria for national currency exchange rates, as well as introducing criteria for the expansion of macroeconomic variables such as inflation and long-term interest rates. There are 5 convergence criterion in order to enter EMU which consist of two public financial criterion and three macroeconomic variables. Maastricht Treaty foresees a convergence among member states about inflation, long term interest rate and exchange rate fluctuations. ERM, which is an transition period, requires fluctuations of national currencies within certain boundaries. According to price stability criteria, inflation must be at most 1,5% higher than the average of three countries which have lowest inflation rates. Long term interest rates of Eurozone member states must be at most 2% higher than the rates of three countries which have the lowest interest rates.

Regarding public finance, the ratio of annual public deficit to GDP is limited to 3%. Secondly, the ratio of public debt stock to GDP should not exceed 60%. The criterion for budget and public debt stock is also aimed at establishing a public finance that is more resistant to financial crises by member states.

The second “Delors Package” has brought some changes to revenue budget items. The upper limit of central budget has been increased from 1,20% to 1,27%. of the GNP of EEC between 1993 and 1999. EEC’s common agricultural policy and expenditures to create and strengthen EMU have enlarged EEC’s central budget. As a results of increasing public expenditures, EEC has tried to find new own resources in

⁸³ Official Journal of the EU (1992), EUR-Lex - xy0026 - EN - EUR-Lex. (2016).Eur-lex.europa.eu. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:xy0026>. Accessed on 14/06/2016.

order to finance EEC's extra spendings. Second Delors package has been the driving force in the preparation of common policies because of increased spending on EEC's public finance. However, to achieve the goals which is set out in the Maastricht Treaty, the second Delors package has met the need to reach new revenue sources in the community.

The fiscal rules of the SGP debt stock and the budget deficit restrictions introduced by the European Council in 1997 were further developed. The implementation of the decisions taken in the 1992 Maastricht Treaty, the SGP also constitutes the fiscal policy pillar of the monetary union implemented in 2000. However, these rules support the transition to EMU and the EU does not yet have a federalist structure, therefore does not have the capacity to implement a separate fiscal policy, and only supervises the fiscal rules as merely audit monetary union criteria. The fiscal rules of the SGP came into force in 1998. In 2005, these rules were strengthened and some sanctions were introduced to countries that did not comply with the rules. However, this situation has been changed after the global financial crisis and the recommendations of the European Commission have been put into a more rigorous inspection and sanction mechanism after 2011.

After the 2008 global financial crisis, significant changes occurred in the fiscal structures of EU member states. The economic integration of Europe accelerated the movement of foreign capital between the member states while increasing the mobility of goods, services and capital. In particular, increased tax competition began to pull down tax rates, a major source of public revenues. Peripheral countries such as Greece, Spain and Italy, whose financial structures are fragile, have begun to move away from the Maastricht criteria by experiencing serious difficulties in providing public finance. After the crisis, *the six-pack* regulation in 2011, *the two-pack* and the *fiscal compact* were regulated in 2013, the financial problems of the crisis emerged to correct the portion of the difficulties. In 2014, European Commission revised these packages, and in 2015, some flexibility was brought to the SGP and the fiscal rule practices were relieved for the countries that were difficult and for some investment expenditures.

The legal strengthening of the SGP program with *six-pack* and *two-pack* packages and the transfer of fiscal rules by the member states to their own legislation are the result of reform efforts in the EU. These reform packages incorporate rules of fiscal tightening and some flexibility for investment projects. However, this flexibility did not provide relief for the countries with weak fiscal structures and the fragile public finance systems of the southern European countries continued to increase. While economic integration aims to bring the fiscal governance of the countries closer, fiscal fragility has continued or even deepened. From a taxation perspective, the inter-country tax competition reduced tax rates, the weakness of the tax authorities in the southern countries and the inability to combat tax evasion created an environment in which tax revenues diminished in periphery countries. If we look at this situation in terms of fiscal federalism, fiscal decentralization has led to differentiations in fiscal structures in monetary and economic unions according to centralization, and has shown a situation which is especially turned against of periphery countries especially against GIIPS.

In countries with a federal state structure, governments transfer a limited proportion of tax revenues (such as property taxes) to local governments as in the case of Germany. Limited localization is also a democratic structure in which decisions are taken by smaller units within the borders of the country. The federal government, on the other hand, fulfills its central budget revenues and re-distributes these funds, albeit to a limited extent, in terms of income inequalities among states. Especially in times of crisis, the central budget redistribution mechanism serves as an insurance mechanism.

However, in the case of many countries that are entering the single market economy such as happened in the EU, different tax rates and incentives complicate the functioning of the single market, and tax losses and weaknesses in combating smuggling also reduce tax revenues (especially in indirect taxes). In the economic integration processes, tax policy, which foresees a harmonization of tax rates and their supervision by the central authority for the functioning of the monetary and economic unions, is a better way than determining tax policy of each country. Partially collected in the center, these revenues can be spent in areas such as economic stability and the

promotion of strategic investments. Thus, the central budget of the EU gets a stable revenue and creates a suitable policy tool for the central authority.

2.2. Transition to Common Tax Policies in the EU

On 08.07.2015, the European Parliament proposed a series of amendments on taxation in the EU. This proposal, prepared in the form of amendments and additions to the previously issued directives, appears as part of the Action Plan for Fair and Efficient Corporate Taxation in the EU, published on 17.06.2015, by the European Commission.⁸⁴

Common Corporate Tax Base (CCTB), which was proposed in 2011 but not adopted by the member countries, is being brought up again with this action plan. The studies on the harmonization of corporate tax rates have been based on very old ones in the EU, but have not been put into practice since the countries are related to their own sovereignty areas and unanimous changes have been made. Instead, based on the Base Erosion and Profit Shifting (BEPS)⁸⁵ rules prepared by the OECD, a way to combat tax evasion, transfer pricing and other tax erosion practices has been adopted. Although the legislation on tax rates is in the jurisdiction of the national parliaments of countries, efforts are still underway to develop cooperation in the fight against tax havens and exchange of information about tax issues.

In the EU, it is aimed to implement growth-supported tax policies, and in this direction, it is aimed to bring a fairer taxation system throughout the EU by reducing the tax burden on wages. In the field of corporate tax, the reduction of harmful tax competition among member countries and the increase of information sharing with tax havens is part of EU's harmonization efforts. Fair tax policy is a means of implementing the investment plan and inclusive growth. Country specific recommendations on tax

⁸⁴ European Commission (2015), Ec.europa.eu. (2018). Available at: https://ec.europa.eu/taxation_customs/sites/taxation/files/docs/body/ppt_action_plan.pdf. Accessed on 27/09/2018.

⁸⁵ According to OECD definition; “Base erosion and profit shifting (BEPS) refers to tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. Under the inclusive framework, over 100 countries and jurisdictions are collaborating to implement the BEPS measures and tackle BEPS.” (Accessed on 10/04/2019 from <http://www.oecd.org/tax/beps/about/>)

policy published each autumn each year and are an important policy tool of the European Semester.

With the tax reforms proposed by the European Commission, it is aimed to ensure efficiency in taxation throughout the EU by implementing tax policies for growth, increasing employment and macroeconomic stability. Achieving sustainable growth, increasing employment and ensuring social justice are the main objectives of the proposed tax reforms in the EU.⁸⁶ European Commission publishes country specific recommendations about tax policy as a part of European Semester.⁸⁷ These proposals are grouped under three headings: reducing the tax burden on the labor force, expanding the tax base and cooperating in the fight against tax evasion. The main objective of the proposals is to establish a smart tax system that encourages growth. Taxation is one of the main policy instruments that the European Commission observes and is an important part of the European public financial supervision mechanism.

As a result, EU fiscal governance has been developed in the process of European economic integration and is not a federal structure in the fiscal sense. A more centralized economic governance has emerged, with the aim of eliminating barriers in the single market, with the aim of combating financial crises and the European Commission having the right to recommend member states' tax policies. One of the key policy recommendations of the European Semester, the most important instrument of EU financial governance, is country-based tax advice. These recommendations are based on a growth-oriented system and support enlarging tax base in member states. The importance of the EU central government has increased in this new framework in order to achieve this fiscal governance effectively to struggle with the financial crises.

2.3. EU Central Budget

A large part of the EU central budget constitutes a common agricultural policy. Since its inception, the EU budget has been in search of permanent revenue to create

⁸⁶ European Commission, Directorate-General for Economic and Financial Affairs and European Central Bank, (2015), *Tax Reforms in EU Member States 2015 Tax Policy Challenges for Economic Growth and Fiscal Sustainability*, p.15.

⁸⁷ European Commission (2016), *European Semester - Ec.europa.eu*.
http://ec.europa.eu/taxation_customs/taxation/. Accessed on 14/06/2016.

fiscal capacity and the continuity of the budget has become a necessity for long-term planning and budgeting. The transition from annual budget plans to multi-annual budgeting is a reflection of the budget's long-term EU strategies, and increasing the functions of the budget by encouraging investments, in particular, has made the EU budget more important in recent years. In addition to the growth targets of the EU, the EU's efforts to form a fiscal insurance mechanism and the search for a fiscal union European Commission has initiated new regulations. Following the financial crisis, central budget has not only been a management tool to meet the administrative expenditures of the EU budget, but also increased the possibility that the future EU fiscal policy could become an important part of economic governance.

The multi-annual financial framework has been implemented to cover the Council Regulation (EU, Euratom) No 1311/2013, which took effect in December 2, 2013, and 2014-2020. In the last period, the EU budget has been prepared in the scope of the multiannual financial term, in contrast to the classical approach. The first multi-year budget framework of the EU covers 2007-2013 periods. The multi-year budget for the smart, inclusive and sustainable growth target of the Europe 2020 European Growth Strategy covers the years 2014-2020. The priorities of this budget, which is still in force, can be grouped under five headings;⁸⁸

- i. To ensure the financing of the EU's common policies (common agricultural policy), to fulfill the general functions of the EU in defending the common interests of the EU,
- ii. Supporting the less developed regions of Europe,,
- iii. Strengthening and completion of the single market, harmonization of regulations,
- iv. Supporting projects in the fields of research, innovation and justice, building partnerships and creating a synergy,
- v. Develop a common European approach in areas such as climate change, demographic changes and social disasters.

⁸⁸ Official Journal of the European Union (2011), "EUR-Lex - Bu0001 - EN - EUR-Lex". from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3AAbu0001>. Accessed on 28/06/2016.

The last multiannual budget framework of the EU is different from other budgetary plans, for keeping smart, inclusive and sustainable growth at the forefront and allocating more funds to research activities. In this study we will examine the creation of the EU budget under two headings as sustainable access to its own resources of revenue and changes in the content of expenditures.

2.3.1. Revenue Budget

Compared to the tax revenues of the national states, the revenue part of the EU budget consists of tax-like items with the contribution of the member states, and differs from the traditional income budget. By the 1970 Luxembourg agreement, the EU reached its own budget revenues.

The budgetary resources of the EU are composed of three main headings: traditional resources, self-resources based on VAT revenues and own resources based on the total national income of countries (GNI). The first of the EU budget revenues is traditional revenues; customs duties and sugar levies.⁸⁹

The second source of income is VAT (0.3%) of each member country's VAT revenue. In order to collect these revenues fairly, the VAT rates must be harmonized and the VAT evasion should be at a minimum level. The VAT gap, which reflects the difference between the potential VAT revenue and the amount collected in some member countries, is still very high. According to the latest study by the European Commission; the total VAT deficit of 26 EU countries is 168 billion Euro and the country with the highest VAT deficit is Romania with 41%. The lowest VAT deficit is Sweden, the Netherlands and Finland, with deficits below 5%. This also highlights the importance of cooperation in the fight against VAT evasion across the EU.⁹⁰

The third income source of the EU budget consists of a certain proportion of the gross national income of the member states. By signing a single market agreement

⁸⁹ European Commission, (2016)
"Multiannual Financial Framework- European Commission", *Ec.Europa.Eu*.
<http://ec.europa.eu/budget/mff/resources/index>. Accessed on 16/06/2016.

⁹⁰ Luca Barbone, Mikhail Bonch-Osmolovskiy, and Grzegorz Poniowski (2015), "Study to Quantify and Analyse the VAT GAP in the EU Member States," *CASE Network Reports*, no. 124, pp.1-64.

in 1988, 0.5% of the GDP of the member countries was decided to be transferred as a source to the EU central budget. This resource has gradually become the largest budget revenue of the EU. In 2013, the ratio of GNI-origin budget revenues to the EU's total budget revenues was 73.8%.⁹¹ When calculating the GNI, the national income accounting systems of countries were harmonized and the ESA2010 account system was introduced.

The EU budget revenues total could not exceed 1.23% of the EU total national income by the decision of the Council of Europe on 7 June 2007. A reduced rate is applied for Austria, Germany, the Netherlands and Sweden. This rate is determined as 0.15% of the total VAT income.

Although the public criticism about the high public expenditure, the EU budget is still around 1% of the total national income of the member states. This rate will not exceed 1.23%. The limited income portion of the EU's central budget remains an obstacle to the evolution of the EU's fiscal structure to federalism. In terms of fiscal governance, it seems difficult for the EU budget to provide financial assistance to countries affected by the financial crisis during hard times and to fulfill a financial insurance mechanism function. Despite these advantages of the central budget, member states do not seem willing to expand the EU's central budget.

The European Commission regularly publishes statistics on EU revenues.⁹² According to these statistics, the share of GNI-based country contributions within the EU's total revenues is increasing. The revenues of the EU have increased on a regular basis in Euro terms but have not yet reached the capacity to form a common fiscal policy at all. EU's revenue sources are listed on Table 1.

⁹¹ European Union - European Commission, (2016), "Budget". https://europa.eu/european-union/topics/budget_en. Accessed on 21/07/2017.

⁹² European Commission (2014), "Financial Report 2014" - Ec.europa.eu. http://ec.europa.eu/budget/financialreport/2014/revenue/index_en.html. Accessed on 01/04/2019.

Table-1 EU Central Budget Revenue

Income	2015 (Euro)	2015 (%)	2016 (Euro)	2016 (%)	2017 (Euro)	2017 (%)
Sugar Levy	123.717.167	0,0009	124.700.000	0,0008	124.700.000	0,0009
Customs Duties	18.606.636.770	14	18.465.300.000	13	20.000.500.000	15
VAT	18.268.893.143	14	18.812.783.576	13	19.376.814.450	15
GNI	94.008.966.506	72	103.516.693.721	73	93.686.520.505	70
Total	131.008.213.586		140.919.477.297		133.188.534.955	

Resource: High Level Group on Own Resources (2016). "Future Financing of the EU" database.

In the EU, economic and fiscal management evolves into a federalism-like structure and a single fiscal harmonization policy is not sufficient to create a full fiscal union; it is not possible for the EU to establish a common fiscal capacity and to follow a common fiscal policy without having a healthy and continuous revenue.

For this purpose, a study group was formed in 2014 by working with the academic members of the High Level Group on Own Resources (HLGOR).⁹³ In this report; the HLGOR has assessed the impact of nine⁹⁴ different own tax proposals such as carbon pricing, financial transaction tax, EU corporate income tax or electricity tax-based own resource. After analyzing tax systems of member states, we will focus on optimal EU taxation for providing smart, inclusive and sustainable growth in the EU.

According to HLGOR report, tax reform that creates own resources for the EU should be based on principles such as “subsidiarity”, “budget neutrality” and “unity of budget”. Subsidiarity principle means the decisions about taxation of which base has a higher international mobility, must be taken in EU level. Since tax bases which have higher mobility may cause international tax competition among member states. Budget neutrality aims decreasing the GNP based contributions of member states in order to provide flexibility to national budgets. On the other hand, EU budget revenue and expenditure items are unified as a central EU budget which means that it has a unitary structure. Moreover, created new own resources must be produce European added value

⁹³ The report was published on 17 January 2017 and is available at the following address, together with the translations in all EU languages of its executive summary and recommendations: http://ec.europa.eu/budget/mff/hlgor/index_en.cfm. Accessed on 21/04/2019.

⁹⁴ Nine possible revenue source are; carbon pricing, Emmission Trading Scheme (ETS), Motor fuel levy, electricity tax, EU corporate income tax, financial transaction tax, bank levy to financial transactions, VAT own resource and seigniorage.

and must help to achieve European goals such as external issues. This new budget should not result with an extra tax burden on European tax payers. In addition, this new budget should not result with an extra tax burden on European taxpayers.⁹⁵

It is difficult to establish new own resources for EU's central budget of which all expected specifications satisfied in a single budget. Instead of creating own central revenues EU aims to develop banking union and transforming European Stability Mechanism (ESM) into the European Monetary Fund (EMF) as a first step. Establishing EMF will ensure resilient EMU structure against financial shocks. Though EMF will not replace EU's own revenue budget it will create necessary fund in order to maintain financial stability within the EU. As we will mention in next chapters, two big powers of the EU, France and Germany have different point of view to fiscal union debates. For this reason, creating own resources for the EU is a big challenge for countries compromising in near future.

2.3.2. Expenditure Budget

Since the 1970s, a significant portion of the EU budget was spent on financing the common agricultural policy. However, in recent years, the share of education, innovative research and development activities and significant investment projects have been increasing. According to Baldwin and Wyplosz (2012), although the terminology has changed, a large part of the EU budget is still in agriculture and low-income areas. More than half of the EU budget still goes to agriculture and the aid to the agricultural sector is included in the budget expenditure items under the name of "conservation and management of natural resources". Expenditures to the regions with low income level correspond to approximately one third of the total budget.⁹⁶

10 percent of the budget expenditures consist of domestic policy, 10% foreign policy and 7% administrative expenses. While a large part of domestic policy expenditures go into research and development, foreign policy expenditures consist of

⁹⁵ European Commission (2016), *Ec.europa.eu*.

http://ec.europa.eu/budget/mff/hlgor/library/reports-communication/hlgor-report_20170104.pdf. Accessed on 28/05/2018.

⁹⁶ Richard Baldwin and Charles Wyplosz (2012), *The Economics of European Integration*, 4th edition (UK: Mc Graw-Hill Higher Education), p.78.

assistance to developing countries, neighborhood policy appropriations and pre-accession financial assistance. Approximately 6% of the EU budget is composed of personnel and administrative expenses in EU institutions.⁹⁷ As can be seen, the expenditure of the EU bureaucracy, which is highly criticized by the member states, has a relatively lower share in the EU budget. On the other hand, the support of the agricultural sector of the member countries and the aid to the less developed regions constitute 80% of the budget.

With the multi-annual financial framework, budget expenditure items were renamed. The first item consists of **expenditures to finance smart and inclusive growth**. The first title consists of two sub-titles: **competitiveness for growth and employment**, and **economic, social and territorial cohesion**. The second main expenditure item is **sustainable growth**, which includes agricultural policy that is the highest expenditure item in the EU. The third heading covers domestic policy but it does not include security and citizenship services, which are previously covered by domestic policy. The fourth heading covers expenditure on foreign policy under the name of **global Europe**. EU institutions and personnel expenditures are collected under the title of administration. Finally, the sixth budget expenditure item covers compensation payments to new member states after EU enlargement.⁹⁸ Table 2 represents the details of expenditure side of EU budget.

Table-2 EU Central Budget Expenditure

Expenditure	2015 (EUR million)	2015 (%)	2016 (EUR million)	2016 (%)	2017 (EUR million)	2017 (%)
Competitiveness for growth and jobs	16.801,9	12	18.461,2	14	21.375,8	16
Economic, social and territorial cohesion	51.207,3	35	37.803,8	28	35.654,2	26
Sustainable Growth: Natural Resources	58.065,5	40	57.411,8	42	56.742,7	41
Security and Citizenship	2.018,5	1	3.077,3	2	2.866,9	2
Global Europe	7.884,4	5	10.277,1	8	9.792,7	7
Administration	8.977,6	6	9.324,2	7	9.656,2	7
Total	145.243,2		136.416,4		137.379,1	

Resource: European Commission (2019), "EU Expenditure And Revenue 2014-2020". Retrieved 04/04/2019, from http://ec.europa.eu/budget/graphs/revenue_expenditure.html

⁹⁷ Baldwin and Wyplosz, p.78.

⁹⁸ European Commission and Directorate-General for the Budget, *European Union Public Finance*, pp.199-200.

The EU budget was initially based on single-year and common agricultural policy, but has been harmonized with new regulations and it has transformed to multi-annual plan and complied with EU strategic plans. For instance, in line with the “Europe 2020 Strategy”⁹⁹, which sets the EU's 10-year growth strategy, budget items have begun to be examined under two main headings: smart, inclusive growth and sustainable growth.

Although the EU's revenue and expenditure budgets have improved since its inception, it is still at 1% of the EU GDP, and it does not affect the asymmetrical shocks and financial imbalances among the member states. Therefore, the redistribution mechanism, which is one of the general functions of the budget, does not operate properly and the EU budget does not have the characteristics of being a fiscal policy tool in the fight against economic crises. However, as will be explained in detail in the next section, the European Commission fulfills its duty to oversee the implementation of national budgets of member states and aims at harmonizing fiscal policies by setting fiscal rules on an intergovernmental scale.

2.4. Fiscal Harmonization in the EU

The EU's tax harmonization efforts and the aim of establishing fiscal union are part of a policy of bringing fiscal policies closer to each other after the crisis. The fiscal discipline framed by the Maastricht criteria and supported by the 1997 “European Stability Fund” and the policy of reducing the debt stock were not considered sufficient after the global financial crisis. Only the budget deficits and the ratio of the debt stock to the gross national product are not sufficient to measure the fiscal performance and countries need to undertake structural reforms in order to be less affected by the economic crisis and to establish a common insurance mechanism based on the sharing of financial risks. For this reason, this thesis examines the fiscal harmonization efforts by taking into account the pre-crisis and post-crisis period, as the harmonization of fiscal policies in the macroeconomic area and tax harmonization.

⁹⁹ Official Journal of the European Union (2010). *Eur-Lex.Europa.Eu*.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF>. Accessed on 12/04/2019.

In the aftermath of the 2008 debt crisis, many articles and academic research have been published on fiscal federalism and EU practices as well as discussions on fiscal union that have begun in the EU. Florin (2010) argued that the EU's intergovernmental structure is compatible with fiscal federalism, but it is necessary to have some degree of centralization in favor of the interests of the member states.¹⁰⁰ In evaluating EU institutions and fiscal governance, the theory of fiscal federalism will be largely guiding.

According to Vallée (2014); monetary union is not able to achieve success with the current system without redesigning the collection of resources in a single roof in the sense of fiscal federalism.¹⁰¹ The monetary policy was taken into account when creating monetary union, and the results of the lack of fiscal differences and a common fiscal policy were better understood by the Eurozone debt crisis. Evers (2015) concluded that financial transfers between countries will lead to fluctuations in consumption within the EU, but the presence of a central fiscal authority will reduce the fluctuations in consumption and increase the efficiency of risk sharing mechanism.¹⁰² As it is seen from these studies, a fiscal centralization and coordination will ensure that monetary union is more resistant to financial crises. After the crisis clearly seen, European economic integration has lessons learned from the theory of fiscal federalism.

After 1997, the fiscal rules formed by the Maastricht criteria, which were aimed at bringing together the fiscal structures of the countries which are the members of the monetary union, evolved over time and turned into a control and correction mechanism, which the countries transferred to their internal laws. This system is particularly important for fiscal federalism, in which the European Commission states the process of budgeting and which makes recommendations as a European Semester process.

Although the differences in tax policy practices are not basic reasons of the Euro-zone crisis, the policy tools proposed after the crisis include tax reform and a

¹⁰⁰ Oprea Florin, (December 2010), "Fiscal Federalism and Fiscal Decentralization in an Enlarged European Union," *Annals of the University of Oradea, Economic Science Series*, 19, no. 2, pp. 623–628.

¹⁰¹ Vallée, p.9.

¹⁰² Michael P. Evers, (September 2015), "Fiscal Federalism and Monetary Unions: A Quantitative Assessment," *Journal of International Economics* 97, no. 1, pp. 59–75.

stable structure of tax revenues under the title of structural reforms. Norregaard et.al. (2014) stated in his review on whether the wrong tax policies contribute to the crisis, allowing the deduction of the interest expenses from the tax base eroded the tax bases by means of more borrowing and interest payments rather than shifting from the equity of the firms. The fact that financial structures of firms are based on borrowing rather than equity due to the current tax system increased the private debt stock and increased the fragility of the member countries against crises.¹⁰³

Although the harmonization of tax policies is intended to be implemented in order to eliminate the disruptions in the functioning of the single market before the crisis, the harmonization efforts after the crisis have started to be made in order to have a more sound revenue system. This policy is more urgent for the countries, which have financial difficulties. European Commission tries to create a common budget based on risk sharing within the EU. This thesis discusses the harmonization of fiscal policies as a macroeconomic policy tool within the framework of SGP. It will then investigate the issue of tax harmonization as a means of structural reform and in terms of fiscal federalism.

2.4.1. Fiscal Regulations

2008 financial crisis has started in the US but spreads to EU in particular, in countries without strong public finances. Global financial crisis has affected EU-wide financial governance and European Commission has started new regulations about EU's fiscal governance. EU countries have very different fiscal systems and fiscal policy harmonisation is needed which designs a new fiscal framework for the EU.

When we examine the fiscal policy the weight given directional fiscal policy tools such as reducing budget deficit and debt burden in all member states. Since revenue side fiscal policy is under national government's sovereignty, European institutions were usually uncommitted to tax policy. Although harmonisation of tax policy and tax revenue aspects of the public finance have a secondary role in dealing with the crisis, after analyzing the revenue side of fiscal structures, we may conclude

¹⁰³ John Norregaard, Aqib Aslam, Dora Benedek, and Thornton Matheson (2014), "Has Taxation Contributed to the Crisis?" *Post-Crisis Fiscal Policy*, pp. 227-251.

that tax policy is crucial for fiscal sustainability and it directly affect financial stability in the EU.

2.4.1.1. Stability and Growth Pact

In accordance with the provisions of the Maastricht treaty signed in 1992, the stability and growth pact that come into force in 1997, imposes certain limitations on the debt stock and budget deficits of the member states. As a criterion for the transition to monetary union at the beginning, the ratio of budget deficit to GDP ratio was 3% and the rate of public debt to GDP was 60%. These fiscal rules have become a part of multilevel fiscal governance in the EU. While Stability and Growth Pact includes precautionary measures and corrections, it also brings various sanctions in the case of non-compliance with these principles.

The preventive arm requires that the 3% budget deficit target and the debt stock be kept within certain limits. In 2011, the target for all countries has been determined as a medium term budgetary framework with the changes made in 2011 for each country. The medium term budgetary deficit target is a ratio determined by considering the cyclical fluctuations of each country and the fiscal structure of each country. Each country in the Euro-zone region is consistent with presenting the Stability Report, which sets out the medium-term budgetary framework, while the other countries are more likely to submit the Convergence Report to the European Commission. The European Commission as part of the European Semester process evaluates these reports.

The restraints were revised again with the 2011 changes. The countries that do not comply with the fiscal rules as a result of the evaluation of the stability and convergence reports by the European Commission are subject to excessive deficit procedures. Excessive deficit procedure is taken into account if 3% budget deficit rule is suspended and / or if the ratio of debt stock to GDP exceeds 60%. If these requirements for the Euro-zone area does not meet sanctions may be applied to those countries. These sanctions are a fine of 0.2% of GDP and a fine of 0.5% in case of repetition of these violations to the countries, which do not take preventive and restraining measures. In addition, countries that do not comply with the excessive deficit procedures can be

prevented from benefiting from European Construction and Investment funds. In order to apply these sanctions, it was stated that sanctions will be taken in to force unless qualified majority no vote of the European Council.

After the financial crisis, a number of flexibility has been introduced to these fiscal rules with the changes made in 2015. At the beginning of these changes, in line with the EU's Europe 2020 strategy, the expenditures on strategic investment expenditures and structural reforms are excluded from the rule of the law. In addition, the European Commission in drafting the performance of public finance will consider the conjuncture conditions.

2.4.1.2. Six Pack, Two Pack and Fiscal Compact:

The six-pack, introduced in 2011, foresees a number of innovations about budget and economic policies of the countries and demonstrates the boundaries of the EU's fiscal governance. The six-pack consists of five regulations and an EU directive. The first regulation of the six-pack (**Council Regulation No: 1173/2011**) describes in detail the control of the member countries, but describes the preventive and corrective arm approach. It also aims to ensure that statistics and budget Graphics are kept in a transparent and accurate manner. Arrangements for increasing the dialogue between Member States and EU institutions on matters relating to budget formation and punishing countries that do not comply with the financial rules are included in this regulations.¹⁰⁴

The second arrangement of the six-pack (**Council Regulation No: 1174/2011**) describes the fiscal measures for the correction of macroeconomic imbalances in the euro area. The aim of this regulation is to direct the countries that give the excessive deficit to correct this situation and to punish them in the case of continuation of the excessive deficit situation. However, this sanction procedure will only be applied to the countries in the Euro area and the monitoring of economic policies and budgets of other

¹⁰⁴ Official Journal of the European Union, (2011), EUR-Lex (2018), p.306/1-7.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:306:0001:0007:en:PDF>. Accessed on 10/04/2018

member countries is important in terms of convergence criteria. The Council is required to take a decision on the decision of qualified majority vote.¹⁰⁵

Third, the Regulation (**Council Regulation No: 1175/2011**), which envisages the closer monitoring of the budget-making process of the member states, came into force. These regulations were gathered under the heading of strengthening the supervision and monitoring of economic policies and also control the member countries' budgetary processes. Stability reports prepared according to the accurate statistics for the coordination of economic policies will be provided by the European Commission and making recommendations. The regulations regarding the European Semester, which means monitoring of the budgeting process by the EU, are also made by this regulation.¹⁰⁶

The fourth regulation in the scope of the six- pack is the regulation on the prevention and correction of the macroeconomic imbalances of the member states (**Council Regulation No: 1176/2011**). According to this Regulation; The countries which have macroeconomic imbalances should be evaluated by the European Commission and reported to the Council, the Parliament and the Eurogroup. As a result of the excessive deficit procedure initiated in this way, the member state must provide the Council with a corrective action plan and schedule. European Commission and the Council closely monitor the operation of this action.¹⁰⁷

In the fifth regulation (**Council Regulation No: 1177/2011**), the excessive deficit procedure to be applied against the countries that are in the open position is explained and the acceleration of this process is explained.¹⁰⁸

¹⁰⁵ Official Journal of the EU (2011), Eur-lex.europa.eu. (2016). 306/pp.8-12.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:306:0008:0011:en:PDF>. Accessed on 11/08/2016

¹⁰⁶ Official Journal of the EU (2011), Eur-lex.europa.eu. (2016). 306/pp.12-24.

Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:306:0012:0024:en:PDF>. Accessed on 11/08/2016.

¹⁰⁷ Official Journal of the EU (2011), Eur-lex.europa.eu. (2016). 306/pp. 25-32.

Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:306:0025:0032:en:PDF>. Accessed on 11/08/2016.

¹⁰⁸ Official Journal of the EU (2011), Eur-lex.europa.eu. (2016). 306/pp.33-40.

Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:306:0033:0040:en:PDF>. Accessed on 11/08/2016.

The final arrangement of the six-pack consists of the **Council Directive 2011/85/EU**, which aims to bring the budgets of the member countries to a standardized structure.¹⁰⁹ This directive, which can be called as the budget directive, requires the harmonization of the public accounting standards of the member countries and the arrangement of the bill to cover all income and expense items. The budget making process has to be checked and audit independently. According to the budget directive; Publication of financial data to the public and the data of local administrations should be disclosed to the public accounts every four months and the fiscal data of the central government should be announced to the public every month.

In addition, the estimation of macroeconomic variables and budget should be made in a real way by using the latest data in financial planning. These estimates should be made to include estimates of the European Commission and an independent research organization. In addition, in accordance with the EU rules, it is necessary to determine the fiscal rules for the total budget and to comply with the EU rules of public debt. Compliance with these rules must be audited by independent organizations. The medium-term budgetary framework should be a reliable, effective goal and sit on a 3-year plan. The long-term public finance is based on the sustainability of debt stock to GDP ratio. Finally, the accounting rules must be in harmony and coordination in all areas where the public is active.¹¹⁰

The two-pack regulation was taken over by the EU in 2013, aiming to monitor the economic policies of the countries more closely and to increase the coordination between member states. The most important innovation brought by the two-pack is that the Euro-zone member states should present the draft budget and its requirements will be submitted to the European Commission by October 15, and the Commission has realized the scope of the SGP and has made the necessary improvements. This inspection mechanism, which directly affects the budget making process of member

¹⁰⁹ Official Journal of the EU (2011), *EUR-Lex - 32011L0085 - EN - EUR-Lex*. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0085>. Accessed on 11/08/2016.

¹¹⁰ Official Journal of the EU (2011), "EUR-Lex - Ec0021 - EN - EUR-Lex", 2019.*Eur-Lex.Europa.Eu*. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1412158671390&uri=URISERV:ec0021>. Accessed on 19/04/2016.

states, is called the European Semester. The European Semester was first introduced with the **Council Directive 1175/2011** and the details and annual calendar of this process were determined by a dual package. Especially in Euro-zone countries, there is a need for a more tight inspection to reduce the spread of the financial crisis. The implementation of the macroeconomic adjustment program is part of the two-pack, with financial assistance from countries approved by the European Council. After the macroeconomic adjustment program, the audit is continued and countries, which have macroeconomic imbalances, may be asked to take additional actions.

Important changes have been made by two pack regulations in the European economic governance and these regulations have deeply affected the public finances of the countries. Accepted by the national parliaments of the countries in the national regulations to adopt the fiscal rules of the EU fiscal compact requires harmonization of national legislations about fiscal governance. The fiscal compact, which constitutes the financial stance of the Stability, Coordination and Governance agreement signed between the countries, requires that the GDP approach towards the medium term budgetary framework should be accompanied by a 0,5% structural deficit limit. The medium-term budgetary target set by the countries should be in line with the EU's fiscal rules and a correct financial plan should be prepared. On the other hand, the ratio of structural gravity to GDP should not exceed 0.5%, and this ratio is 1% for the countries with public debt stock below 60%. In addition, these financial rules should be transferred to the constitution or independent institutions should audit laws of the countries and the medium term budgetary program. The European Court of Justice has the authority to apply as much as 0,1% of the GDP of those countries that do not comply with the fiscal rules prepared by the EU.

Fiscal governance in the EU has changed drastically with the arrangements after the crisis, but the close supervision of the process of making countries has also brought about discussions of violations of the sovereign rights of the countries. In addition, despite the flexibility introduced to the fiscal rules in 2015, the implementation of fiscal discipline rules broadened the austerity packages in the EU. The idea that the person responsible for the crisis was more likely to be brought to the

public finances and that the monetary union could only be realized by the harmonization of fiscal policies which means that structural differences observed in member states are crucial to solve the problem. The frustration of the EU has made it impossible to implement a federal fiscal policy across the EU. On the other hand, the monitoring, supervision and revision of the goods brought by the crisis and advice of Finance Minister by the presence in EU-wide discussions of whether necessary has been proposed in the EU.¹¹¹

2.4.1.3. European Semester

It is an important part of the fiscal harmonization efforts in the EU and has been transposed into the legislation of the countries in compliance with the European Semester fiscal compact, has a crucial role in EU fiscal governance. The basis of the EU's common economic policy is the establishment of the so-called *European Semester*, which closely follows the fiscal policies of the member states. This process starts with the publication of the Annual Growth Report. The annual growth report is prepared by the European Commission as a result of observing the economic policies of the countries in line with the priorities of the EU. Although these priorities vary from year to year, growth-oriented fiscal consolidation for 2015 consists of three pillars, which are accelerating structural reforms and increasing investments. In line with these recommendations, the European Commission makes recommendations on a national basis and the European Council approves these recommendations in July.

Until October 15 each year, member states send draft texts to the European Commission. The Commission submits its opinions and recommendations to the countries concerned. In December and January, these statements are discussed in the European Commission and are finalized and approved by the annual growth report and warning mechanism report for the time. The national circles, which have been finalized in accordance with these recommendations, enter the country in the national parliaments. In February, the Commission shall prepare a national report for each country. In these reports, the financial structure of the countries is taken into

¹¹¹ Guntram B. Wolff, (2017), “What Could a Euro-Area Finance Minister Mean? | Bruegel,” <http://bruegel.org/2017/05/what-could-a-euro-area-finance-minister-mean/>. Accessed on 22/08/2017.

consideration and it is determined whether they are subject to the excessive deficit procedure. The Council of Europe determines the growth priorities in March every year, and as a result of bilateral negotiations with the countries in April, the countries submit national reform programs and stability or convergence reports to the Commission. In May, country-based recommendations on the evaluation of economic policies are published. In June and July, country specific recommendations are discussed in the European Council and take the final form in July. As of September, when the draft of the budget of countries is presented to the European Commission, the European Semester process starts again.

The growth priorities of the European Council are generally compatible with the multi-annual budget program and are an extension of the Europe 2020 growth strategy. Growth, investment and structural reforms identified in 2015 are directly related to the tax policy. Part of the structural reforms is the more efficient operation of the tax system of countries. In addition, in order to achieve a sustainable and inclusive growth target, it requires stable tax revenues and a well-functioning tax system that ensures healthy financing of the growth. For the financing of large infrastructure investments and for foreign investments, tax policy should be designed well. Tax design aims to reach two different goals like encouraging economic growth and ensuring income inequality in a country. The European Commission is therefore concerned with a substantial part of the tax policy of the European Commission during the European Semester process.

Although there are some tax evidences on the countries, it is not always possible to adopt these amendments by national states and to change their fiscal structures in a fast way. In particular, the tax and benefit systems that can be perceived in the form of decentralized rights of sovereignty, can only be applied across the EU in coordination. In the next section, the tax harmonization studies carried out in accordance with the country-specific tax requirements will be included.

2.4.1.4. European Stability Mechanism

As discussed in the early chapters of the thesis, EU needs a fiscal stabilization mechanism in order to fight against asymmetric shocks and support structural reforms in member states. For this reason, creating a fiscal capacity such as central EU revenue is an obligation to accomplish stabilization mission of EU economic governance.

For this purpose, the European Financial Stability Facility was first established in 2010 and then in 2012 European Stability Mechanism (ESM) was established. This mechanism creates resources for countries in need of financial resources during crisis periods. When creating this fund, the taxpayers in the member states are not financing the mechanism but the capital holders from all over the world are the lenders. During the crisis, this fund was used to support countries where has a weak fiscal position such as Greece.

Supporting strategic investments is one of the important steps taken in this regard, but it includes the part of the subject related to structural reforms. However, in order to take an important step regarding the fight against asymmetric financial crises, a serious European fund must be established. There are different views in the EU on this issue. The proposals of the EU to apply to tax-like sources of income in order to create their own central resources, to establish a common unemployment fund, to transfer some of the carbon taxes to the central budget and to use financial transaction tax revenues are proposed by various institutions.¹¹²

The European stabilization fund is a fund to struggle with financial crises and despite some shortcomings; it has an important mission in the EU's fiscal governance. A consensus has been reached that the EU should have its own sources of revenue in order to cope with the financial crises and to support structural reforms and harmonization policies in the member countries. Nevertheless, since the main sources of ESM are borrowing and having permanent sources of income means sharing the taxation powers of the member states with a higher authority, the debate on whether a central EU budget is to be established remains controversial. The ESM should be

¹¹² Iara, pp. 8-14.

further strengthened and should go to a finance ministry-like structure that provides stability in the euro area.

However, the point of discussion here is that these sources of income will have the same tax-like resources as the federal countries, or common revenue with the voluntary contributions of the member states such as the unemployment fund or stabilization fund. It is clear that practices such as the EU-based financial transaction tax or the carbon tax to be transferred to the headquarters will lead to the response of the member states and the sharing of sovereignty rights based on taxation. For this reason, it is more feasible and more acceptable for member countries to create more common funds than the full federal structure and to transfer them to structural transformations such as strategic investments and to structures such as banking union and stabilization. However, these convergence and efforts to harmonize different legislation will never be able to achieve a stable fiscal strength that will be created by a complete fiscally federal structure. For this reason, later in this thesis, tax harmonization studies will be examined within the framework of fiscal federalism, the fiscal structures of the member states will be analyzed and finally the common budget for EU proposals will be discussed.

Fiscal union is one of the most important components of economic integration in the EU after monetary union. Table 3. Summarizes fiscal harmonization efforts in the EU.

Table 3. Fiscal Harmonization in the EU

	Stability and Growth Pact	Six Pack (2011)	Two Pack (2013)	Fiscal Compact (2013)	European Semester(2011)	European Stability Mechanism (2012)
Aims	Strengthening Eurozone fiscal structure and identification of convergence criterion.	Fiscal harmonization in the EU, Revision of SGP.	Coordination and supervision of national budgets.	Transfer EU regulations to national legislation.	Supervision of national budgets and making country specific recommendations	Maintaining stability by using EU-wide fund against financial crises.
Achievements	Setting inflation target, ERM and long-term interest rate target. Limiting public debt to GDP ratio and budget deficit within the EU	Following national budgets, preventive arm and excessive deficit (corrective arm) procedures.	Common budgetary timeline and enhancing six pack	Transfer of six pack and two pack regulations to national legislation	Starting from 15 October budget preparation and publishing stability and growth reports. Supervision of national budgets. Making country specific recommendations.	European Stability Fund (ESF) and ESM. Maintaining stability within the EU with a borrowing mechanism.

Source: Summary of “Fiscal Harmonization in the EU” chapter and crated by the Author.

2.4.2. Harmonization of Tax Policies

Before summarizing the EU-wide studies on taxation, there is a need to explain the conceptual framework for tax harmonization. As in the establishment of the EU, there are economic integration theories that form the basis of tax harmonization. One of the most important of these theories is the inter-governmental approach, which is effective in the establishment of the EU and foresees inter-governmental cooperation without interfering with the sovereignty rights of countries. Another theory is the theory of federalism in which the inter-country economic boundaries have disappeared and a significant portion of the powers of the member states have been transferred to a multinational central administration. The United States, Switzerland and Germany are good examples of federal countries. EU is a union where established with a functionalist approach and its fundamental approach is intergovernmental cooperation. However, in recent years, the idea of the formation of a form of government close to federalism against financial crises and this new structure needs high level of economic integration.¹¹³

In order to examine the approaches to formulate common tax policies in the EU, we need to consider theories of economic and monetary union formation in terms of taxation. In this context, the concepts of Bénassy-Quéré *et. al* (2015)¹¹⁴ is taken into consideration for the classification of taxes related to harmonization issues.

2.4.2.1. Tax Cooperation

In an intergovernmental organization, tax decisions are taken by the member states unanimously and the binding of these decisions by the member countries is called as cooperation in taxation. Common customs tariffs are kind of an example for tax cooperation.¹¹⁵ Member states implements tax policy jointly and the taxation authority of the member states is transferred their competence to an upper administrative authority such as European Commission.

¹¹³ Vallée, “From Mutual Insurance to Fiscal Federalism.” p. 9.

¹¹⁴ Agnès Bénassy-Quéré, Alain Trannoy, and Guntram Wolff, (2015), “Tax Harmonization in Europe: Moving Forward.” p.2, <http://www.cae-eco.fr/IMG/pdf/cae-note014-en.pdf>. Accessed on 16/03/2015.

¹¹⁵ Bénassy-Quéré, Trannoy, and Wolff, p.2.

Since cooperation in taxation limits the power of member countries to determine the tax policy alone, cooperation emerges in exceptional cases such as Custom tariffs. Although the minimum rates in the value added tax rates are mandatory in line with the EU directives, there is no full cooperation. Similarly, cooperation approach is not possible in the short term in determining corporate tax rates. However, tax coordination and harmonization continue in all tax types.

2.4.2.2. Tax Coordination

The coordination will increase the communication between the institutions of the member states, identify common rules and exchange information between the EU countries. For instance, the commitment to change the information on corporate tax and compliance with the rules of fair taxation is a result of the coordination of taxes within the EU.¹¹⁶ The fact that the full coordination of tax policies in the monetary union, where the goods and services movements are intense is not possible all the time, this situation is seriously interrupting the functioning of the single market.

The most important product of the efforts to increase the coordination in taxation is the introduction of the country-based reporting system in the corporate tax and increasing the exchange of information about tax issues. The OECD aims to reduce the transfer of profits and prevent the erosion of the tax base. EU has also plans to reduce harmful tax competition within the EU.

2.4.2.3. Tax Harmonization

Harmonization implies equalization of tax bases and tax rates among member states in an economic union. The minimum VAT rates are also harmonized across the EU except some regional differences.¹¹⁷ Another example of tax harmonization efforts is that the European Commission proposed the Common Consolidated Corporate Tax Base (CCCTB) in 2016. The common corporate tax base aims to collect corporate tax revenues across the entire EU and not across countries, and to distribute these revenues to the member states through various keys such as the employed labor force. Unlike

¹¹⁶ Bénassy-Quéré, Trannoy, and Wolff, p.2.

¹¹⁷ Bénassy-Quéré, Trannoy, and Wolff, pp. 3-6.

cooperation in tax harmonization, a common tax policy is not applied and it is aimed to minimize the differences between the tax base and rates.

2.4.2.4. Convergence

The convergence in taxation means that regulations such as exemption and transfer pricing are simulated by the approximation of the legislation of the member states. When calculating the effective tax rates, not only the applicable corporate tax rate, but also exceptions, incentives and other factors that determine the tax burden on firms should be taken into consideration. The convergence of the regulations that determine these factors among the member countries is as important as the harmonization of the tax rates.

2.4.2.5. Corporate Tax Harmonization

The corporate tax rate in the EU averages 21,3% in 2018, though this rate differs among member states. On 08.07.2015, the European Parliament proposed a series of amendments on taxation in the EU. This proposal, prepared in the form of amendments and additions to the previously issued directives, appears as part of the Action Plan for the Fairer Corporate Tax published in the EU on 17.06.2015, prepared by the European Commission.¹¹⁸

According to the action plan; The Common Corporation Tax Base (CCTB), which was proposed in 2011 but not adopted by the member states, is being brought up again with this action plan. The studies on the harmonization of corporate tax rates have been based on very old ones in the EU, but have not been put into practice since the countries are related to their own sovereignty areas and unanimous changes needed to take action in the EU. Instead, based on the BEPS rules prepared by the OECD, a way to combat tax evasion, transfer pricing and other tax erosion practices have been adopted. Although the legislation on tax rates is in the jurisdiction of the national

¹¹⁸ European Commission (2015), "A Fair and Efficient Corporate Tax System in the European Union: 5 Key Areas for Action", Communication from the Commission to the European Parliament and the Council. https://ec.europa.eu/taxation_customs/business/company-tax/action-plan-corporate-taxation_en. Accessed on 01/04/2019 .

parliaments of countries, efforts are still underway to develop cooperation in the fight against tax havens and exchange of information.

On 1.06.2015, the European Commission submitted to Parliament and the European Council a plan¹¹⁹ which foresees five actions about corporate taxation which must be realized by the EU. The main objective of this action plan, which European Commission has introduced in order to establish a fairer and more effective corporate tax system in Europe, is the more efficient functioning of the European single market. The five actions that are expected to be implemented in 2016 and 2017 are as follows;

a) Restoring the Common Corporate Tax Base Directive

In 2011, the opposition of the member states did not support the proposal for the directive, and a long-term corporate tax base regulation could not be implemented. Taxation of companies in the country where they operate, aims to re-establish the relationship between the area of activity and tax. In the event that the CCTB regulation is adopted by the member states, the tax legislation differences between the member states will be eliminated, the tax base shifts will be prevented and the single market economy will become stronger. In 2016, the European Commission aims to establish a common tax base by introducing a new CCTB proposal gradually. However, as stated in the action plan, the implementation of this regulation seems to be extremely difficult due to complex tax practices and legislative differences between the member states.

b) Fair taxation of income at the place of acquisition

The ongoing tax competition in the EU has led some countries to become extremely advantageous in terms of taxation. For this reason, companies make aggressive tax planning and organize the company's supply chain management according to low-tax countries or tax havens. Prevention of this situation requires compliance with international cooperation and OECD's BEPS action plan. Controlled foreign institution, "permanent settlement" and transfer pricing regulations are aimed at taxation in the main activity area. If an overseas company has an entity abroad and it

¹¹⁹ European Commission (2015), "A Fair and Efficient Corporate Tax System in the European Union: 5 Key Areas for Action", p.4.

has an organic relationship between them, this entity which is established in another country is called “controlled foreign institution”. OECD’s BEPS plan also covers controlled foreign institutions activities and the taxation right belongs to the country where domestic company has a permanent establishment. Place of “permanent establishment” means that where the most of the activities of a company is intensified rather than where the overseas company is settled on legally. Finally, the transactions between domestic companies and international connected firms must be examined according to transfer pricing rules which are explained in OECD’s BEPS rules.

c) Creating a better business environment

Different tax practices and intensive tax competition within the Union interrupt the operation of the European single market. It is planned to establish a double taxation dispute settlement mechanism until CCTB is made compulsory. In this way, it is aimed to create a tax structure focused on economic growth. Later as an extension of the single market within the EU, economy experienced disputes in taxation issues and European Court of Justice (ECJ) gives decisions about these disputes as a last resort. ECJ takes in to consideration “non-discrimination” principle and competition rules when making decisions about taxation disputes. European Commission aims to establish a well-functioning single market with these regulations.

d) Increasing transparency

In order to increase transparency, EU countries need to develop a common approach to countries that are not compatible with international information sharing about tax issues. In this context, the European Commission has published a black list of countries that do not cooperate on tax issues since 2014. The European Commission will regularly update this list, taking into account the lists of each member states. In this context, economic impact analyzes are made on different options, including country-based reporting.

e) Increasing coordination within the EU

European Institutions plan to increase the coordination between the revenue administrations of the EU member states and in particular the tax inspection units and even to conduct tax inspections across the EU. In addition, it is currently expected to reform the formations such as the “Code of Conduct for Business Taxation and the Good Tax Governance” on the subject of taxation in the EU. It is aimed to increase the corporation tax harmonization by using the connections of such platforms with the member states and business world.

Most recently, on 28.01.2016, the European Commission has prepared a proposal of directive under the heading "Rules against tax avoidance actions directly affecting the functioning of the single market".¹²⁰ The Council and the European Parliament are currently evaluating the proposal which is based on the action plan and is referred to as the "Preventing Tax Avoidance Directive". The Directive has taken into consideration the OECD's BEPS rules and argued that these rules should be transposed into the EU's own domestic law. In addition, Arrangements for the immediate implementation of the CCTB are also included in this proposal. The most important of these recommendations is the fact that international firms are required to report on a country basis and are part of the OECD's action plan. Member states examine the CCTB proposal in terms of its economic impacts and the adoption by the European Parliament is not seen in the short term.

Corporate tax is a type of tax that is still harmonized throughout the EU and the common rules are brought to the agenda. More than fiscal federalism, corporate taxation based on cooperation between Member States; it continues with cooperation studies such as country based reporting, common tax base and information exchange. However, unlike VAT, there is no harmonization in corporate tax rates, and instead a competitive environment has emerged in which member countries can easily determine the corporate tax rates and incentives in their own sovereignty areas. However, tax rules

¹²⁰ European Commission (2016), "Proposal For a Council Directive: laying down rules against tax avoidance practices that directly affect the functioning of the internal market", Brussels, 28.1.2016 COM(2016) 26 final 2016/0011 (CNS).
http://ec.europa.eu/taxation_customs/resources/documents/taxation/company_tax/anti_tax_avoidance/com_2016_26_en.pdf. (Accessed on 25/07/2017).

are adopted by considering OECD principles, and coordination among member states is enhanced.

2.4.2.6. VAT Harmonization

Since the VAT, which is included in the taxes on consumption, is a variable that directly affects the functioning of the single market, the EU directives regulate VAT harmonization. In order to remove barriers to trade within the Union, minimum rates for VAT were determined and no harmful tax competition was allowed in this area. In this context, excise tax is covered and harmonized within the scope of consumption taxes.

The EU directive **2006/112/EC** of the EU, which was the main regulation on VAT, was enacted in 2006 and adopted taxation of the tax in the country of supply of goods or services, in other words the origin of the country is important in this type of tax system. However, for goods imported in or outside the EU, the principle of taxation in the country of destination applies. Services are taxed according to the type of service, but mainly in the country where the service is offered. In the country where the tax real estate is located, taxation can be made in the country where the restaurant is located. Exceptions may be made to the principle of service delivery in areas such as culture, sports, education and entertainment.¹²¹

The common VAT system directive 2006/112 / EC of 28 November 2006 aims to bring a common system in EU transactions where the trade of goods and services is intense and aims to prevent the single market economy from being interrupted. The VAT charged within the EU for this purpose may be deducted from the VAT arising from the sales transactions in that country. Some goods and service transactions may be exempted from the minimum rate application under the VAT directive.

Although the VAT practices in the EU are largely aligned, trafficking in cross-border trade has not been prevented. According to the action plan published by the

¹²¹ Official Journal of the EU (2006), Eur-lex.europa.eu. (2016). Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3A131057>. Accessed on 16/08/2016.

European Commission on 7 April 2016¹²²; the establishment of a single VAT system within the EU is important for combating smuggling and strengthening the single market. In this action plan, European Commission plans to close the VAT deficits of the countries, to establish a VAT system that is compatible with the digital economy and suitable for the needs of Small and medium enterprises (SME) s. In addition, the aim is to make cross-border goods and service offerings according to EU rules and harmonize the VAT rates in order to create a single European VAT area.

VAT action plan, current and on-going policy topics, urgent measures to reduce the VAT deficit, steps to build a strong European single VAT area and modernized VAT tax rates are examined under four headings. In line with the VAT action plan, brief explanations of these four headings are given below.

a) Current and Ongoing Policies:

In 2011, the European Parliament and the Council adopted the principle of taxation in accordance with the principle of origin, abandoning the principle of taxation according to the origin (source) of all cross-border transactions between the Member States. In this context, "Urgent Reaction Mechanism" was created to combat trans national tax evasion. Secondly, the new supply location rules and "One Stop Shop" application were introduced in the telecommunication, broadcasting and electronic services offered to end-users, and compliance with the destination principle was achieved. The latter is to create a new more transparent EU VAT governance system with the participation of all parties. EEU taxation has revised place of taxation from consumption to "supply of goods and services". "One Stop Shop" means that imposing tax only in one place where the goods are produced and services are provided. VAT payers may deduct their burden of tax from goods which consumed in another jurisdiction. In this framework, telecommunication services providers, radio and TV broadcasters and companies who sells products electronically should register to system of "One Stop Shop". This process is also a part of digital single market in the EU.

¹²² European Commission (2016) Ec.europa.eu. (2016). http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/action_plan/com_2016_148_en.pdf. Accessed on 9/08/2016.

b) Emergency measures to reduce the VAT deficit

The first of these measures is to increase cooperation and exchange of information between tax authorities and VAT issues between EU countries and non-EU countries. The role and impact of the EUROFISC formation, which consists of the members of the EU, should be strengthened and access to the VAT information systems of different countries should be ensured. EUROFISC is an organization which tries to reduce EU-wide VAT fraud by strengthening multinational cooperation among member states. Moreover, it is aimed to establish exchange of information mechanism between tax administrations, which enables effective fight against tax fraud in terms of country scale. Increasing the voluntary compliance with the tax and increasing the tax collection facilities especially in the field of e-commerce are also among the planned emergency measures to reduce the VAT deficit.

c) Steps to build a strong European single VAT area

As a measure of the reduction of the VAT deficit, steps should be taken to strengthen the single VAT area. The only strengthened VAT area will be made by individual countries evaluating all intra-EU goods and services movements within country. In this way, the differences between countries will be reduced and a more robust system will be created in the fight against cross-border VAT smuggling.

d) Modernized VAT tax rates policy

This plan aims to review the tax rates and to arrange them according to the conditions of the day. In line with the previously issued VAT directive 2006, the minimum tax rate has been determined to be 15% and the reduced tax rate is 5%. For some member states, a tax rate of less than 5% can be used to support privileged sectors. It is an example of this practice to encourage the production of olive oil for Spain or to determine whether the VAT on wine in Italy is too low or zero. However, these tax rates are planned to be updated in line with developing technology and EU tax policy priorities. According to the action plan, it is aimed to review the minimum tax rates of products such as electronic books and e newspapers evaluated within the scope of "Digital Single Market". While determining the VAT rate according to the countries'

own preferences allows localization on the one hand, this situation causes harmful tax competition, income inequalities and disruptions in the domestic market. Therefore, in determining common minimum tax rates, all political preferences should be taken into consideration with the participation of all parties. However, this requirement extends the revision of the VAT rates and this tax rate differences may cause an increase in the ongoing cross-border tax evasion.

2.4.2.7. Capital Taxation

As detailed in the previous sections, we may classify taxes levied on capital as corporate tax and individuals' profit share, interest gains or gains from portfolio investments. When calculating the effective average tax burden due to this distinction, the calculation of the tax burden on capital becomes more complex than the calculation of the consumption tax burden. In EU countries, the regime of taxation of capital has different specifications. However, the EU has arranged the taxation of intergovernmental capital movements in order to prevent capital flows within the EU and the efficient functioning of the EMU.

The most important regulation on the taxation of capital movements within the EU is the **2003/48 / EC** directive issued in 2003.¹²³ According to this directive, while interest or dividend from an EU country is taxed in another EU member state, tax laws in the country of interest of the recipient shall be taken into account. This directive requires the sharing of information on personal savings and revenues among the member states. However, this regulation became ineffective with the Council directive on automatic information exchange between the tax authorities of 2014/107 / EU, which was enacted in December 2014 and entered into force on 1 January 2016.¹²⁴ The scope of the directive on information sharing in 2014 has been determined as interest, profit share and any other income and has become an important pillar of the European Commission's tax transparency package. The directive issued in 2014 has repealed the

¹²³ Official Journal of the EU, (2003), Eur-lex.europa.eu. (2016). <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:157:0038:0048:EN:PDF>. Accessed on 17/08/2016.

¹²⁴ Official Journal of the EU, (2014), Eur-lex.europa.eu. (2016). <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0107>. Accessed on 17/08/2016.

savings directive of **2003/48/EC** on November 10, 2015 because the savings were more comprehensive in 2014 directive than it is in the 2003 directive.

The Council directive on automatic exchange of information between the tax authorities of **2014/107/ EU** is not only concerned with the taxation of capital revenues, but also includes the exchange of information on corporate tax in the member states and cooperation on fighting with tax evasion. In this sense, the EU has started to reorganize its tax rules in parallel with the regulations set by the OECD and it aims to reduce the erosion of tax revenues in the member states. The corporate tax action plan is also an indication that the international rules on taxation of capital will become effective in the EU parallel to OECD's Base Erosion and Profit Shifting (BEPS) plan.

Another regulation on the taxation of capital is that the proposal of "financial transaction tax" which is also called a type of Tobin tax.¹²⁵ First proposed in 2011, the financial transaction tax was formally proposed by the European Commission as a Council Directive on February 14, 2013.¹²⁶ The purpose of the Directive is to harmonize indirect taxes on financial transactions between member countries, to eliminate the shortcomings in the single market economy and to provide European Commission own fiscal resources to cover the wounds of the crisis. With this tax on capital markets, EU takes a measure against future financial crises.

For this purpose, it is recommended to receive a tax rate of 0.1% from stocks and bills transactions in the EU countries and 0.01% from options futures and swaps. However, this proposal continues with negotiations between numbers of EU countries, which were not accepted as unanimously. However, the limited economic impacts and the limited restriction of the intra-EU capital movements will jeopardize both the legitimacy and applicability of this proposal. UK, in particular, has been opposed to this proposal since the beginning.

¹²⁵ Fluctuations in international capital movements may cause financial instability. To reduce the volatility of capital movements, the proposed tax is called Tobin's tax, referring to economist James Tobin, who proposes this tax. Capital flight from a country may be eliminated by a financial transaction tax in financial crises. By this way, current account deficits may be reduced and exchange rate volatility may be lower.

¹²⁶ European Commission (2013), Ec.europa.eu. (2016).

Available at: http://ec.europa.eu/taxation_customs/resources/documents/taxation/com_2013_71_en.pdf. Accessed on 17/08/2016.

In order for the capital markets to function effectively, tax harmonization efforts within the EU continue in the field of transparency, information exchange and tax evasion by taking into account OECD regulations. However, it is still a fact that a common capital taxation regime covering all EU countries cannot be established and this situation has caused disruptions in the functioning of the internal market.

2.4.2.8 Environmental Taxation

EU implementation of environmentally compatible tax policies is an extension of sustainable growth target. The environmental taxation, which started with the carbon tax, gained a different dimension with the European Emissions Trading System (ETS). Although the ETS is not technically considered a tax, it imposes a limitation on certain emissions of heavy industry by the polluter pays principle. Countries exceeding this limit must purchase emission rights from other countries.

In general, EU member states have higher fuel tax rates than the US. In the US, fuel taxes are much lower compared to the European average. This is due to the high fuel consumption in the US and the fuel-dependent lifestyle. According to the EU directives; the polluter pays principle is valid. Therefore, owners of vehicles using fossil fuels are exposed to high consumption tax. On 27 November 2003, the Council of Ministers of the European Union issued the **Directive 2003/96 / EC**, which laid down the basic framework for the taxation of energy products and electricity. This directive aims at harmonizing the differences in energy taxation of different EU countries and taxing fossil fuels. According to the first article of the Directive, Member States shall comply with this directive in the taxation of energy products. The EU has introduced strict rules on the taxation of energy products and has kept high indirect taxes on energy products, which have harmful effects on environment. Following table 4 summarizes the process of tax policy harmonization according to different tax types.

Table 4. Tax Policy Harmonization

Policy recom./Tax Type	Capital	Labor	Consumption
Harmonization	Adoption of rules to prevent tax competition	Preventing double taxation in the sovereignty of the member states.	Harmonization of VAT and Excise duty rules
Common rate and tax base	Common corporate tax and financial transaction tax because of its high mobility	A fair tax system proposal that encourages growth.	Determination of lower limits of VAT rates, reduction of evasion
EU central budget revenue	Transfer of some of the financial transaction tax to the central budget	It is growth-oriented in the way of preventing double taxation in the sovereignty of the member states.	Transfer of some of the environmental taxes to the central budget

Source: The author has composed this table and it is a summary of “Tax Policy Harmonization” chapter.

2.5. Costs and Benefits of a Fiscal Union in the EU

According to Musgrave, in a unitary state public funds must be spend and taxes must be collected with respect to utilization principle. On the other hand financial stability and income redistribution mechanism must be assigned to central government.¹²⁷ In a federal state sharing of these duties are more complicated than it is in a unitary country. In our case some degree of centralization of tax revenues may increase the possibility of successful fiscal and economic governance of the EU.

For a supranational organization such as the EU, fiscal federalism means sharing some part of tax power with a central authority. Central decision making process and creating a system which macroeconomic imbalances will be minimized, will converge EU system to fiscal federalism approach. However EU does not have competence in many areas, “the subsidiarity principle” defines taking decisions in EU level if it is preferable to member states’ decisions.

In taxation, member states should cooperate in order to minimize harmful effects of tax competition. Moreover, some tax revenues must be directed to central authority for creating EU’s own resources against economic fluctuations. A central

¹²⁷ Buchanan and Musgrave, "Public Finance and Public Choice," p. 174

budget and an authority such as “European Finance Ministry” which created by national compensations will probably complete fiscal union.

In intergovernmental organizations such as the EU, fiscal federalism means that member states share some of their tax sovereignty with the central authority. The creation of a centralized fiscal decision-making mechanism and a financial system to minimize inter-country fiscal imbalances will mean the EU shift towards fiscal federalism. In the taxation part, there is a need to establish a balancing fund against financial instability and crises by gathering some tax revenues in the central government and harmonizing some tax types by minimizing different tax applications within the EU. For the management of the fiscal capacity to be established at the EU level, a structure similar to the EU Ministry of Finance should be established.

In the case of the EU, financial stability mechanism should be governed from the EU central budget otherwise different policy implications may deepen financial instability in crisis times. The creation of a finance ministry-like structure that will manage this budget at the EU center and coordinate fiscal policies is an important step towards fiscal federalism. The fact that the EU Ministry of Finance structure is far from democratic representation, elected institutions such as the European Parliament will also increase accountability and democratic representation in the EU.

A limited collection of tax revenues in central authority, while the expenditures are shared between local administrations and member states according to the analysis of costs of uniformity will increase the efficiency in the EU. Financial stability function and common agricultural policy as a small number of expenditure items which are governed from the central budget will increase economic efficiency in the EU. The greatest benefit of such a fiscal federalist structure is the co-ordination of fiscal and economic policies, and the establishment of a stable structure that is complementary to a stronger EU against crises. Moreover, it will be possible to prevent harmful tax competition and to ensure efficiency in the operation of the single market economy. This organization, which can be called the fiscal union, should be built on the general principles of fiscal federalism theory.

CHAPTER III

EU MEMBER STATES AND TURKEY'S TAX SYSTEMS

3.1. Taxation Systems in the EU

In EU member states, the ratio of tax revenues to GDP is 38,7%¹²⁸ on average and is above the OECD average rate (%34,2). There are serious differences between the tax systems of the countries within the EU. Some country tax systems are based on social security contributions, while others have a system based on direct taxes, in particular developed countries' tax systems are based on direct taxation. For instance, in Denmark, France and Belgium, the ratio of tax revenues to GDP is over 45%, while in Romania, Bulgaria and Ireland this rate is below 30%. In Belgium, Austria and Germany local administrations such as federal states have a very high level of fiscal autonomy, which is also named fiscal decentralization, while UK and Ireland have a tax system based on central government tax revenues up to 90%. In addition, the shares of social security contributions in tax revenues also vary widely between countries. Denmark is a different revenue system by financing a large part of the social security system with income tax revenues.¹²⁹ These differences among countries show that how difficult to establish a common tax policy in the EU, and that a common fiscal policy is a path full of political and economic barriers. Another important result of these differences is that the EU central economic governance must create its own funds to form a unity in the fiscal sense. However, if European Commission creates a fiscal capacity, structural transformations can be accelerated and asymmetric shocks can be absorbed by this way.

This thesis examines the method of collecting tax revenues of 15 EU member states, which were members before the 2004 enlargement process. This will take into consideration the centralization degree criteria frequently used in the literature of fiscal

¹²⁸ European Commission - Directorate General Taxation and Customs Union and Eurostat (2017), *Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway*. (Luxembourg: Publications Office of the European Union), p.16.

¹²⁹ European Commission, (2017), "Taxation trends in the European Union", p.17.

federalism. It is important in calculating how much of the tax revenue is centralized to the extent to which the central budget is collected by federal states or local authorities.

In terms of tax rates, tax competition is experienced more intensively in order to attract foreign capital in the Central and Eastern Europe New Member States (CEEMS), and in particular, the corporate tax rates are low. Estonia and Lithuania implies flat tax rates, a simple and attractive tax system for multinational companies. However, apart from the CEEMS, the former member states such as the Netherlands and Ireland are also applying favorable corporate tax rates to attract foreign investments. In addition to these two different country groups, Cyprus, Malta and Luxembourg do not show any compatibility with respect to tax transparency. Finally yet importantly, Switzerland is a country that has a distress in terms of taxation due to its secret banking information, but is a non-EU country that is financially interrupted due to the fact that it is part of the European Economic Area.

One of the most important documents prepared in a normative perspective on the objectives of tax policy in the EU is the Tax Policies in the EU report prepared by the European Commission.¹³⁰ In this report, priorities of the tax policies that are required to be met by the countries to reach EU growth targets are listed. This document, which was published in November, is in preparation for the European Semester of the following year on the tax policy of the European Commission 2020 for sustainable and inclusive growth targets. The country-specific policy recommendations report, issued in February, is expected to reimburse the fiscal section of the fiscal policies of countries with taxes and to harmonize tax policies with the EU's growth strategy. With the impact of the 2008 financial crisis, a more sustainable structure of tax policies of countries has laid the foundations for the establishment of a strong EU fiscal structure against crises.

¹³⁰ European Commission and Directorate-General for Taxation and Customs Union, (2017), "*Tax Policies in the European Union 2017 Survey*", p.3.

The publication of “Taxation Trends”¹³¹, the results of the tax policies of the EU countries and the revenue statistics in the EU annually, gives us an overview of the taxation of EU countries. In light of these studies, this thesis will address EU-15 and new member states' tax systems and also Turkey's tax system will be examined in a detail. This thesis also explains member states position against fiscal union debates.

3.2. Tax Revenue Systems of EU-15

EU-15 countries cover two different country groups, which have very diverted public finance systems. Some parts of EU-15 such as Germany and France have very strict fiscal systems and fiscal discipline is the indispensable part of economic governance in these countries. However, in GIIPS countries budget deficits and public debt to GDP ratios are higher than other developed countries in EU-15. Some part of these differences arises from taxation component of public finance. This thesis assumes that sustainability of public debt stock depends on real interest rates, economic growth and primary budget surplus. As a structural part of public finance, primary surplus or deficit indicates taxation when we assume that public expenditures are constant in the end. For this reason, taxation is crucial in order to analyze structural fundamentals of fiscal policy in an economic integration process.

European Commission calculates implicit tax rates in a way similar to the average tax rates in the model included in this thesis. These tax rates are important to demonstrate the tax burden on labor and capital in the EU. Secondly, tax / GDP ratios and different tax burden calculations in OECD statistics¹³² will be taken into consideration. Finally, we use ICTD database¹³³ for countries not included in OECD and European Commission statistics. The ICTD Government Revenue Database gives us detailed information about the tax systems of the developing countries. This minimizes the differences in database income statistics as well as OECD tax statistics and the IMF's Government Finance Statistics and country reports. The disparity of these

¹³¹ European Commission - Directorate General Taxation and Customs Union and Eurostat (2018), *Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway*. (Luxembourg: Publications Office of the European Union).

¹³² OECD, (2017), Revenue Statistics: 1965-2016, *OECD Publishing*, Paris.

¹³³ ICTD/UNU-WIDER, (2018), 'Government Revenue Dataset', Retrieved 01/04/2019 from <https://www.wider.unu.edu/project/government-revenue-dataset> & Prichard, W., Cobham, A., and Goodall, A., (2014) 'The ICTD Government Revenue Dataset', ICTD Working Paper 19.

statistics, which have high comparability between countries, does not reveal the macroeconomic tax burdens on labor and capital. All these statistics will be taken into consideration and EU-15, the new member states and the Turkey's tax systems will be evaluated.

Although the share of indirect taxation such as environmental taxes is increasing in total taxation, direct taxation is a stable and sustainable source of revenue for the EU-15. This type of taxation is important for fighting with the impact of financial crisis, ensuring justice in taxation and also indicates improved tax collection system for some EU-15 countries. On the other hand, GIIPS countries, which are also, named periphery countries, have more indirect tax oriented revenue system, which is a deviation from other EU countries such as Germany and France.

According to the latest statistics published by the OECD in 2016, the ratio of total tax revenues to GDP of 15 EU countries is summarized in the following table 5:

Table 5. Tax Revenues as % of GDP (EU-15)

Indicator	Tax revenue as % of GDP					
Year	2000	2005	2010	2015	2016	
Country						
Austria	42,1	40,9	40,8	43,5	42,7	
Belgium	43,5	43,2	42,6	44,8	44,2	
Denmark	46,9	48,0	45,1	46,6	45,9	
Finland	45,8	42,1	40,8	44,0	44,1	
France	43,1	42,8	42,0	45,5	45,3	
Germany	36,2	33,9	35,0	36,9	37,6	
Greece	33,4	31,2	32,2	36,8	38,6	
Ireland	30,8	29,4	27,1	23,6	23	
Italy	40,6	39,1	41,9	43,3	42,9	
Luxembourg	37,2	38,2	38,0	37,0	37,1	
Netherlands	37,2	35,4	36,1	37,8	38,8	
Portugal	31,1	30,8	30,4	34,5	34,6	
Spain	33,4	35,3	31,5	33,8	33,5	
Sweden	49,0	46,6	43,2	43,3	44,1	
United Kingdom	32,8	32,5	32,5	32,5	33,2	
OECD - Average	34,0	33,6	32,6	34,3	34,3	

Source: OECD Statistics Accessed on 22 Ara
2018, OECD, Stat

As shown in the table5; Northern countries such as Finland, Sweden and Denmark have a higher tax income/ GDP ratio than the southern countries such as Greece, Portugal and Spain, especially periphery, and their tax income / GDP ratio is above the OECD average. In terms of development, the ratio of tax revenues to GDP is higher than that of countries with relatively less per capita national income in Germany, France and northern countries.

OECD tax statistics show us that the tax to GDP ratios of countries such as England and Germany do not show great changes, but the ratio of the tax revenues of countries like Italy to GDP is greatly increasing and their volatility is higher. The reason for this is that the decline in GDP and the tax systems in these countries are more sensitive to economic activity due to the deep crisis experienced by these countries in 2008. We will discuss this topic in detail in econometric analysis section. In short, the tax rate on consumption is more sensitive to economic fluctuations than direct taxes. In the GIIPS countries affected by the crisis, the share of indirect taxes is higher. Ireland is the country that is most affected by the crisis but it is shown as the most recovering country after the crisis. When we look at the macroeconomic tax burden in Ireland, the share of tax revenues over the GDP is decreasing. The effects of the post-crisis austerity measures have been more evident in countries such as Greece, and the fiscal structure of these financially distorted countries is further deteriorated by the tax. The reason why Ireland is not in this situation is that fiscal system affects the tax structure more positively than the economic activity and the taxes are improving the automatic stabilizer function in crises times.

If we look at tax statistics in more detail in terms of tax types, it is the measurement of the share of various tax revenues in GDP, which is another important statistics in terms of our analysis. According to ICTD-GRD statistics¹³⁴; the ratio of (directly or indirectly) tax revenues to total tax revenues classified according to the form of taxation is summarized in the following table 6 for EU-15.

¹³⁴ ICTD/UNU-WIDER, 'Government Revenue Dataset', June 2016, <https://www.wider.unu.edu/project/government-revenue-dataset>'.

Table 6. Structure of Tax Revenues (EU-15) (%)

	Social contributions/GDP		TotTax/ GDP		Direct/GDP		Indirect/GDP	
Country	1980	2016	1980	2016	1980	2016	1980	2016
Austria	12,14	14,85	27,12	27,82	14,16	15,15	12,95	12,55
Belgium	12,02	13,70	41,67	44,18	17,70	18,21	11,95	11,90
Denmark	0,18	0,06	40,98	45,88	24,71	30,58	16,27	15,16
Germany	12,50	14,15	23,90	23,41	13,83	12,65	10,07	10,59
Spain	10,80	11,43	11,44	22,05	6,01	11,34	5,43	10,54
Finland	8,24	12,81	27,07	31,32	14,03	16,29	13,04	14,95
France	16,82	16,73	22,58	28,54	8,90	15,62	13,68	12,84
UK	5,24	6,28	26,17	26,93	16,75	15,23	9,41	11,53
Greece	6,83	10,99	13,92	27,57	4,74	11,67	9,19	15,78
Ireland	4,38	3,92	26,27	19,15	12,42	10,88	13,84	8,09
Italy	10,76	12,97	17,54	29,90	9,06	15,42	8,48	14,34
Netherlands	15,64	14,84	25,44	24,01	14,60	11,80	10,84	11,88
Portugal	6,52	9,16	15,57	25,22	4,99	10,71	10,58	14,42
Sweden	12,77	10,04	31,58	34,08	20,66	21,16	10,92	12,77

Source: Gathered from ICTD/UNU-WIDER, ‘Government Revenue Dataset’

If we examine the change between 1980 and 2016, it is seen that the share of indirect taxes, in other words, the share of consumption taxes on GDP increased in a large part of the EU-15 countries and decreased in Ireland, France and Austria. Ireland, the country with the highest decrease of indirect taxes in GDP, was also affected by the 2008 financial crisis but was able to get out of the crisis in a strong manner. In all of the countries affected by the crisis, the share of indirect taxes in GDP has increased markedly, especially from 9% to 15% in Greece, from 5% to 11% in Spain and 8% to 14% in Italy.

Another important point in the change in tax structures between the years 1980-2016 is that the share of social security contributions in GDP is increasing in almost all countries. Social security contributions aim to finance public expenditure of health and pensions. However, in many countries, social security contributions are the part of general budget revenue. According to OECD statistics, tax revenue share of GDP also covers social security contributions. On the other hand, ICTD statistics scrutinize sub sectors of tax revenues such as individual or corporate income tax.

The share of social security contribution in GDP declined only in Sweden, the Netherlands and Denmark. Denmark is a distinctive character among EU-15 countries as a country where the social security system is financed by personal income tax. Since income tax revenues are very high in Denmark, the government does not need to collect individual or corporate contributions to finance the system.

Another important inference from tax structures of member states is that changing composition of income tax towards higher individual tax share in comparison to corporate tax share. Main reason of increasing individual taxation instead of corporate taxation is that tax competition among countries continues over corporate taxation. Multinational corporations' mobility across countries is higher than labor's mobility and countries, which aim to attract foreign direct investment, reduce corporate tax rates instead of labor tax rates. *First*, tax competition among countries is based on companies that are international representatives of capital, not labor-based taxation, which has lower mobility.

Secondly, taxation of individuals instead of companies is a preferred method by the countries because it is easier to follow up the records and make the collection easier. The tax cuts made by the companies from individual labor income is an important source for countries and the collection of income tax is easier than it is in corporate tax which is based on the declaration method. Additionally, taxation of individual consumers is easier from collecting and audit perspective. Wage tax, which is an important source of public revenue, is usually collected by deductions from wages and following up these tax revenues is simpler comparison to corporate taxes which are mostly based on declaration.

Finally, in many countries of the EU-15, there are many exemptions and reductions to be applied to the corporate tax base, and a number of arrangements for the promotion of the corporation reduce the corporate tax base. The best example of this situation is that corporations may deduct interest payments from corporate profit before taxation. However, interest payments of individuals may not be deducted from personal income tax in many countries. This kind of taxation encourage corporate borrowing intentions instead of individual credits. One of the most relevant example of this tax

base erosion is that interest deductions from corporate tax base but distribution of profit or financing from equity is not as advantageous as thin capitalization. Many countries prefer taxing sharing of profits instead of taxing corporate profits directly.

The tax structures of 15 EU countries are similar, but in countries such as France, Belgium and Germany, the ratio of social security contributions to GDP is higher than it is in other countries. The common feature of all countries is that direct taxes have a significant share in taxation. In recent years, direct taxation is still an important source of income for the EU-15, in spite of general trend of indirect taxation such as environmental taxation in the world. While this is important in terms of providing justice in taxation, it shows that the direct tax based system of EU-15 have an advanced tax collection system, although collection direct taxes is more difficult than it is in indirect taxes. On the other hand, Greece, Spain and Portugal, which are called periphery countries, have a lower direct tax / GDP ratio compared to other countries.

Statistics on the share of central government in total tax revenues are important for measuring the degree of centralization in this thesis. Centralization can be measured from the point of expenditure, as can be calculated from the point of view of collection of income as explained in detail. In the unitary states, the central government collects a large part of the tax revenues and local governments collect the remaining part of the revenue. The table 7 presents the share of the tax revenues collected by the management units under the central government level of the 15 EU countries in total tax revenues.

Table 7. Fiscal Centralization Degrees (EU-15) (%)

Level of government	Federal or Central government							
Indicator	Tax revenues of sub-sectors of general government as % of total tax revenues							
Year	2000		2005		2010		2015	
Country								
Austria		66,7		66,9		66,2		66,8
Belgium		61,8		58,3		56,4		54,6
Denmark		67,6		69,0		72,7		72,7
Finland		53,0		51,8		45,9		47,1
France		41,9		39,7		35,4		33,2
Germany		30,6		30,5		31,3		30,8
Greece		68,9		64,3		63,3		67,8
Ireland		86,2		84,9		81,3		82,9

Italy	55,8	52,3	53,2	53,3	54,3
Luxembourg	68,6	68,2	67,3	68,4	68,2
Netherlands	57,0	60,7	59,3	56,7	57,3
Portugal	69,7	68,6	66,7	67,7	67,3
Spain	49,0	44,6	40,6	42,8	41,6
Sweden	60,0	56,4	52,3	50,8	51,9
United Kingdom	78,4	75,9	75,2	75,9	75,7

Source: Data extracted on 22 Dec 2018 14:06 UTC (GMT) from OECD.Stat

According to the results of the statistics on the degree of centralization, the most centralized governments in terms of the distribution of tax revenues are seen as United Kingdom and Ireland. On the other hand, Germany has a less centralized, federal fiscal structure and the central government share of tax revenues is at 30%. Another result of the table 7 is that Finland and Sweden have regularly increased the share of tax revenues from local governments. The evaluation of this tendency, which is called fiscal decentralization, also affects fiscal policy in terms of fiscal discipline. Increasing decentralization may cause higher public expenditures in local administrations.

In addition to the OECD statistics, the DG Taxation and Customs Union issues central government tax revenues share in total taxation. Table 8 represents the share of central tax revenues in total tax revenues of 15 EU countries.

Table 8. Central Government Share in Total Taxation EU-15 (%)

										Difference (1)
	2003	2005	2010	2011	2012	2013	2014	2015	2016	2003 to 2016
EU (Average)	53,6	54,5	52,7	52,2	52,2	52,2	52,6	53,3	52,4	1,2
Belgium	57,2	58,0	56,3	56,4	57,1	57,1	57,4	54,3	50,5	6,7
Denmark	66,3	69,0	72,8	72,8	73,2	73,3	74,9	73,3	72,8	-6,5
Germany	29,0	28,6	30,3	30,7	30,6	30,2	30,1	29,7	28,9	0,1
Ireland	97,4	97,3	96,2	96,3	96,1	96,4	96,8	97,1	97,2	0,2
Greece	63,0	64,5	64,2	66,6	67,0	67,5	68,7	68,6	69,6	-6,6
Spain	44,1	44,6	40,5	39,0	37,2	41,7	42,3	42,7	41,7	2,4
France	39,9	40,3	36,4	34,0	34,3	34,8	34,2	34,5	34,3	5,6
Italy	54,0	53,3	53,7	53,8	54,4	54,6	54,5	54,8	55,6	-1,6
Luxembourg	66,4	68,3	67,3	66,9	67,7	68,3	69,1	68,6	68,1	-1,7
Hungary	58,1	57,3	62,8	59,1	60,6	60,2	60,8	60,5	60,3	-2,2
Netherlands	58,4	60,6	59,1	56,9	54,4	54,5	55,6	57,4	57,1	1,3

Austria	68,1	67,4	66,7	66,8	67,0	66,9	66,8	67,1	66,0	2,1
Portugal	69,1	68,6	66,7	67,5	66,6	68,0	67,8	67,8	67,4	1,7
Finland	52,1	51,8	45,9	47,9	47,5	47,6	47,4	47,1	47,6	4,5
Sweden	59,2	61,1	62,7	62,3	61,3	61,2	61,8	62,6	62,8	-3,6
United Kingdom	94,7	94,7	94,4	94,6	94,6	94,5	94,5	94,6	94,5	0,2

Source: DG Taxation and Customs Union, based on Eurostat data

(1) In percentage points,

As can be seen from the Table 8, Germany is the country where local governments are the most powerful in terms of income collection in the EU-15. In Germany, a large proportion of taxes (about 70%) are collected outside the central government. An important task of the central government is to ensure the fiscal alignment between federal administrations and to implement the redistribution system. After Germany, Belgium is a country with strong local authorities in revenue collection. Although France has a unitary and centralized structure in terms of political governance, it is a country close to federalism in fiscal terms as 34,3 % of tax revenues are collected in the central government in 2016. In the EU-15, after Germany and Belgium, France and Spain are the countries where fiscal federalism is applied and sub-central authorities are powerful in collecting taxes.

Unlike other countries, France has a politically centrist structure, but it is one of the countries in which fiscal federalism is well implemented. Local governments have their own tax revenues and interregional financial transfers have a positive impact on economic growth across France.¹³⁵

Besides Germany, France and Belgium, local governments are powerful in Finland and Spain. The most centralized states in terms of tax revenues are Ireland and England after Malta. Other fiscally centralized countries within the EU-15 are Denmark and Greece where tax revenues are mostly collected by central government.

Average tax rates are important for calculating the tax burden on the labor force and the capital, which are the main subjects of our thesis, by using macroeconomic data and estimating the determinants of tax revenues in a

¹³⁵ Boriss Siliverstovs and Ulrich Thiessen, (2015), "Incentive Effects of Fiscal Federalism: Evidence for France," ed. Caroline Elliott, *Cogent Economics & Finance* 3, no. 1, pp. 2-4.

macroeconomic model. European Commission DG Taxation and Customs Union publishes “Implicit Tax Rates” (ITR) on a regular basis and makes them available to researchers. For more information on calculating these rates, see Taxation Trends.¹³⁶ The ITR, published for all EU countries, are shown below for the period 2005-2016.

Table 9. Implicit Tax Rates on Labor (EU-15) (%)

	2005	2010	2011	2012	2013	2014	2015	2016	Difference (2005 to 2016)
EU-28	35,2	35,1	35,6	35,8	36,0	36,0	35,8	36,1	-0,9
Belgium	43,5	43,2	43,5	43,3	43,6	43,5	43,6	42,4	1,1
Denmark	35,8	33,6	33,6	34,1	33,6	33,1	33,9	34,6	1,2
Germany	37,2	36,9	37,1	37,4	37,6	37,7	38,0	38,2	-1
Ireland	26,4	28,7	30,9	31,7	32,0	33,3	33,1	32,7	-6,3
Greece	37,5	35,2	35,8	40,8	40,3	39,1	39,8	41,0	-3,5
Spain	31,3	30,3	30,9	31,4	31,3	31,9	30,7	30,9	0,4
France	38,9	38,5	39,2	40,2	40,8	41,1	41,2	41,2	-2,3
Italy	42,2	43,9	43,4	44,0	44,1	43,6	43,4	42,6	-0,4
Luxembourg	28,5	29,8	30,4	31,0	32,3	32,2	32,3	32,2	-3,7
Netherlands	29,9	31,9	32,3	32,4	32,2	32,2	32,9	32,9	-3
Austria	41,8	41,5	41,8	42,0	42,4	42,7	42,9	41,2	0,6
Portugal	23,8	24,5	26,1	25,8	28,8	29,4	29,7	29,0	-5,2
Finland	40,6	38,3	38,9	39,5	39,7	40,3	40,3	40,7	-0,1
Sweden	43,5	39,2	39,1	38,9	38,8	38,6	39,1	40,2	3,3
UK	26,3	25,9	26,2	25,4	24,9	24,9	25,0	25,7	0,6

Source: European Commission, DG Taxation and Customs Union, based on Eurostat data

The implicit tax rate, which measures the tax burden on labor, has increased, albeit limited in many countries, between 2000 and 2016. The country with the highest rate is Italy and Belgium for 2016. Countries where the average tax burden is decreasing are Belgium, Denmark, Sweden and the UK. Implicit tax rates on labor is the lowest in the UK among EU-15. The tax burden on labor in Ireland, Greece and Portugal has increased significantly.

As a pillar of the EU 2020 strategy, it aims to reduce the tax burden on wage earners and establish a greener tax system by using environmental taxation. After the crisis in Greece, the tax burden on wage earners increased significantly, from 35% to 41%. This rate increased by 5.7 points in Portugal and rose from 27% in Ireland to 33%.

¹³⁶ European Commission - Directorate General Taxation and Customs Union and Eurostat, (2018), *Taxation Trends in the European Union*, p. 30.

Another statistics, which European Commission publishes¹³⁷ regularly, is implicit tax rates on capital are presented on table 10.

Table 10. Implicit Tax Rates on Capital (EU-15) (%)

	2005	2010	2011	2012	2013	2014	2015	2016	2005 to 2016
Belgium	31,2	27,4	29,6	34,4	37,4	37,2	37,5	36,5	5,3
Denmark	45,8	38,9	36,8	37,8	33,8	40,2	35,2	37,0	-8,8
Germany	20,4	19,2	20,9	22,7	23,4	23,4	24,0	26,0	5,6
Ireland	22,0	15,7	15,1	15,0	14,7	15,3	13,3	13,4	-8,6
Greece	16,9	17,2	19,9	19,2	20,2	20,8	22,1	23,9	7
Spain	35,9	26,2	25,8	27,6	27,6	28,6	30,9	29,1	-6,8
France	44,1	43,5	45,5	51,3	54,4	53,5	52,2	52,8	8,7
Italy	24,7	28,6	28,9	33,7	34,6	33,4	33,8	32,0	7,3
Luxembourg	7,7	9,4	9,0	6,7	5,6	7,9	6,4	6,8	-0,9
Netherlands	13,9	10,9	8,8	9,7	9,8	11,5	12,1	14,4	0,5
Austria	23,9	23,2	23,6	23,5	26,9	27,0	28,5	29,0	5,1
Portugal	24,4	25,4	27,7	25,6	27,5	25,4	25,7	26,0	1,6
Finland	28,6	29,2	28,6	29,3	33,5	30,6	29,8	30,9	2,3
Sweden	31,7	27,8	28,4	27,5	29,8	28,8	28,9	29,0	-2,7
United Kingdom	35,1	32,9	31,9	31,9	31,5	29,9	32,1	33,2	-1,9

Source: DG Taxation and Customs Union, based on Eurostat data

Based on the year 2005, the tax burden on capital increased except for countries such as Finland, Ireland and the Netherlands. We may conclude that the tax burden on capital in France has increased continuously and the highest implicit tax rate for 2016 is in France. In countries such as Ireland, the Netherlands and Greece, the tax burden on capital is lower. Regarding corporate tax, the fact that countries such as Ireland and the Netherlands apply very low tax rates, as well as the fact that these countries give some tax benefits to multinational companies is effective in reducing this rate.

Greece has a relatively low implicit tax rate as the country most affected by the crisis. Although the tax burden on capital has decreased in the crisis period, it is important that which one of two important adverse effects are dominant. Although there is some capital outflow in times of crisis, the decrease in profits of companies is observed at the same time. While the tax base shifting to other countries decrease

¹³⁷ European Commission - Directorate General Taxation and Customs Union and Eurostat (2018), *Taxation Trends in the European Union*, p. 47.

capital stock, the loss of profits may also reduce tax revenues. In such cases, the tax burden on capital may change positively.

Increasing tax burden on capital has a negative impact on foreign investments. In a contrast, decreasing tax burden creates more attractive environment for foreign capital. Tax revenue elasticity of capital is important at that point. If the sensitivity of government revenues against capital tax burden is high, in crisis times capital flight may affect government revenues negatively. This effect is more severe if the revenue elasticity of capital tax base is higher.

3.3. Selected EU Member States' Tax Systems and Fiscal Union Debates

3.3.1. Germany

Germany has an important role in the formation of the EU's fiscal structure and the EMU. While establishing the ECB, the Bundesbank was taken as a model and ECB is a central bank, which implements a tight monetary policy, was established. The German fiscal structure is rule-based and traditionally supports strict monetary policy. In addition, the federal structure and tax collection system of Germany are important for the evaluation of a practical example of the theory of fiscal federalism.

As can be seen from the statistics in the previous section, the share of Germany's total tax revenues in GDP was 36,2% in 2016. Germany, which has a highly localized structure for fiscal federalism, collects a large part of its tax revenues in local governments. This situation arises as a product of the rule-based monetary policies in the German economy, by keeping the expenditures of central governments away from populist tendencies.

3.3.1.1. German Tax System

In Germany, the ratio of indirect taxes to GDP was 10,59% in 2016, while the rate of direct taxes was 12,65%. These rates show that Germany has a tax system that is more direct tax-based and transaction taxes are limited compared to developing countries. As it is seen from the tables of tax burden rates, implicit tax rates do not show high fluctuations over the years and follow a relatively stable course (Table 9, 10).

In Germany, 2% of the income tax, which is 12% of the total, is derived from the corporation income tax and 10% from the individual income tax. The highest tax revenue share in GDP is social security contributions with 14%. Germany has a stable tax system in which the proportional share of excise taxes is low, although it is organized in a federalist structure in fiscal manner.

In Germany, states do not have full autonomy in taxation. Parliament puts taxes and removes it by law and most of the decision-making process is centrally organized. However, each province has a revenue administration and the state administrations are responsible for the well-functioning of the revenue administrations.¹³⁸

When we look at the implicit tax rates, the tax burden on consumption is 10.4% for 2015, the tax burden on labor is 38.2% and the tax burden on capital is 26% (Table 9 and 10). As can be seen from these rates, Germany's tax system is a fair tax system with strong social security contributions predominant, where the tax burden on consumption and capital is relatively low.

3.3.1.2. German Point of View to Fiscal Union

Germany is politically oppose to closing the budget deficits of the member states by a central fund which is established with own resources of the EU or EU's central Treasury. It advocates the protection of the independence of the ECB and the elimination the harmful effects of global financial crisis by increasing their efficiency and protecting the fiscal discipline in public finance. The ECB's policy priority should be price stability rather than economic growth or debt reduction. They think that the rescue of the member states that have financial difficulties and bailing out them with EU funds will reveal the moral hazard problem.

However, the debt crisis in the EU in 2010 showed that the fiscal imbalances experienced in any of the countries where the financial crisis was realized at a high level affected the spread of all EU countries with the contagion effect. The growth rates of all EU countries, not only in the countries with high debt stock, has decreased after the

¹³⁸ Johannes Becker and Clemens Fuest, (April 2010), "Internationalization and Business Tax Revenue—evidence from Germany," *International Tax and Public Finance*, 17, no. 2, pp.174–192.

crisis. For this reason, troika rescue programs prepared by the IMF, the European Commission and the ECB have been prepared and various measures have been taken to ensure the strengthening of the fiscal structures of the countries affected by the crisis. In short, the financial crisis in the EU has led to an urgent debate on the policy of independent price stability policy of the ECB, which is defended by Germany. In addition to the inflation target, the ECB had to fulfill the “lending of last resort” mission to provide financial stability as well as various funds such as ESM.

3.3.2. France

In contrast to Germany's rule-based fiscal governance and the liberal policies of Britain, France has a more interventionist public economic system and differs from other central countries, particularly in terms of high tax burden. In the Fiscal union debates, although France makes more taxation-oriented recommendations, it also has a strict stance on the taxation of wealth within France.

Together with Germany, it is clear that France's attitude toward formation of fiscal union and its attitudes towards taxation in the EU will be effective in shaping the EU's economic governance. French President Emmanuel Macron, who came to power in 2017, stated in his speeches that in addition to the reforms in the labor market, the European common budget should be formed and a higher level of fiscal integration should be passed.¹³⁹ It will be seen how Macron's ideas on the EU's fiscal governance will be reflected in the future as the need to accelerate integration in the EU. France's goal of creating a more interventionist and common fiscal policy and completing the fiscal footing of the incomplete European economic union is not exactly consistent with Germany's strong ECB opinion. However, a common form of economic governance, which will be established if these two countries reach consensus, will play an important role in the future of the EU and the EMU.

¹³⁹ Sebastian Diessner, (2017), “The Macroeconomic Consensus Underpinning EMU Is Shifting. Could It Pave the Way for a Completion of the Eurozone?,” *EUROPP*, <http://blogs.lse.ac.uk/europpblog/2017/12/13/the-macroeconomic-consensus-underpinning-emu-is-shifting-could-it-pave-the-way-for-a-completion-of-the-eurozone/>. Accessed on 13/12/2017.

3.3.2.1. French Tax System

Tax policy in France is also a reflection of French economic policy which is more state oriented than German economic policy. Total tax revenue share of GDP has increased from 23% to 27% between 1980 and 2016. If we add social security funds to this ratio French tax revenue share of GDP reaches 45,3%. The share of direct taxation in GDP is higher than indirect taxes' share, which is more compatible with EU's fair taxation rules.

I use statistics from the country chapters of "Taxation Trends 2018" report of European Commission in order to analyze tax system of member states. France has a distinctive tax system which gives importance to taxation of corporate and capital. The share of social security funds in total public revenue consists 52.8% in 2016. Although France is a politically centralized state, the share of central government's tax revenue is very limited (34.5%) in total tax revenue. Since local government have a strong revenue sources and there is a fiscal equalization mechanism in France, the weight of central budget in general taxation looks smaller than other unitary states' central tax revenues. That kind of public revenue policy also means high amount of fiscal transfers among regions in France.¹⁴⁰

The big share of social security contributions is paid by employers which mean that it is an extra tax burden on corporates and capital. In order to reform French tax system income tax must be redesigned and VAT would be raised to EU standards.¹⁴¹

Implicit tax rates of France are listed in Table 9 and Table 10. According to these tables French capital taxation is the densest one among EU nations, since implicit capital tax rate is 52.8% which is the highest rate in the EU. On the other hand implicit tax rate on labor is 41.2% in 2016 which is the third highest rate after Belgium and Italy's rate. For these reasons French tax system is stricter than other member states' system. Contrary to capital and labor taxation, French implicit tax rate on consumption is 21.1% which is lower than many European countries.

¹⁴⁰ Siliverstovs and Thiessen, "Incentive Effects of Fiscal Federalism." p.p. 2-4.

¹⁴¹ Catherine Mathieu and Henri Sterdyniak (2013), "Can the New French Economic Policy Be Successful?," *European Journal of Economics and Economic Policies*, Vol. 10, No. 2, pp. 175–192.

We may conclude that, tax revenues are less sensitive to economic fluctuations since it is based on direct taxation and social security funds. Consumption tax burden is lower than tax burden on capital. Moreover, property tax revenue share of GDP is 4.6% which is the highest among member states. All these properties of French tax system make tax revenues of government more sustainable and stable.

3.3.2.2 French Point of view to Fiscal Union

Though French tax system, is revenue oriented and reflects the rules of fair taxation it is also open to foreign tax competition. We may predict the side effects of high capital tax burden easily. However, France needs to attract foreign investments with high capital tax burden, which is very difficult to succeed. In order to reduce unpleasant effects of high tax burden, France imposes a tax reform which aims to reduce tax burden on labor and redesign consumption taxes. According to Kalyva *et.al.* (2016) there are many exemptions and reduced tax rates for some specific goods. VAT base must be widen by eliminating reduced rates for certain goods and exemptions.¹⁴² Increasing the efficiency of consumption taxes will also reduce the damaging impact of high tax burdens on capital and labor.

Because of these problems, France always defend tax cooperation among member states and fight tax avoidance. Created by a central EU budget, fiscal union will help redesigning public finance of all member states. The main idea behind this policy is decreasing harmful tax competition in Euro area.

3.3.3. United Kingdom

United Kingdom (UK) has a unitary structure from fiscal federalism perspective and the central government collects most of its tax revenues. In addition to this unitary structure of the UK, the share of total tax revenues in GDP is below the OECD average, indicating that it has a more liberal economic system than other EU countries. Due to the referendum in the UK during the writing of this thesis, the EU has decided to leave and negotiations with the European Commission continue. However,

¹⁴² Kalyva, Athena, Hans Naudts and Savina Princen, (July 2016), "The French VAT System and Revenue Efficiency" *Economic Brief*, No. 015, p.20.

due to its historical and deep-rooted relations, UK's tax system will be examined in the context of EU-15.

Britain's advanced financial system and its importance in the world banking system have also affected the tax policy applied in this country. The close ties of Britain with some of the developing countries stemming from the history of the colonial empire increased the financial efficiency of this country in the international arena. As a developed financial hub, UK has played a crucial role in EU's economic development. UK also facilitated transatlantic trade between continental Europe and US historically.

Social security contributions are lower than EU average and implicit tax rate on capital is 33,2% in 2016 which is lower than France but higher than Germany. The main characteristic of UK's tax system is low tax burden on labor. Implicit tax rate on labor is the lowest among 28 member states. Another important feature of UK's tax system is that central government collects most of the tax revenues. Only social security system is out of central government's consent. Property tax revenue share of GDP is around 4.1% in 2015 which is relatively higher than EU average. Moreover Implicit tax rate on consumption is around 18%, which means low tax burden on labor and high property taxes and consumption tax revenues compensate capital.

After Brexit, UK's distinctive public finance system will be more independent than EU's economic governance. Though Brexit means a trade divergence between EU and UK, making decisions about common fiscal policy and creating a new common fiscal framework will be easier without UK. British financial system and attractive banking sector was an obstacle to financial transaction tax and other tax related issues such as transparency.

3.3.4 Austria

Tax structure of Austria is equally based on direct and indirect taxation. Total tax revenue share of GDP has reached 42,7% in 2016. The share of direct taxation in GDP is higher than indirect taxes' share and indirect tax share is 12,55 % according to ICTD statistics (Table 6).

Austria is a centralized country from fiscal and political perspective, the share of central government's tax revenue in total taxation was around 66% in 2016. Capital tax burden increased to 29% in 2016 and labor tax burden is around 41,2 % which is higher than capital tax burden in 2016.

3.3.5. The Netherlands

Netherlands is one of the most liberal countries in the EU-15 from taxation perspective. Total tax revenue share of GDP is around 38,8% in 2016. Netherlands has a liberated tax system, which gives competitive advantages to corporates about taxation, and this system creates more capital-oriented environment. Implicit tax rates of the Netherlands are listed in table 9 and table 10. According to these tables Dutch capital tax burden on capital is the lowest one among EU nations, since implicit capital tax rate is 14,4 % in 2016 which is the third lowest rate in the EU-15 after Luxemburg and Ireland. On the other hand implicit tax rate on labor is 32,9 % in 2016 and that is the still the lowest one in the EU. For these reasons Dutch tax system is one of the most attractive systems in the EU and it is very competitive among EU member states.

Tax revenues of sub sectors of general government as percentage of total taxation is 57,3% in 2016 which indicates that Netherlands has a centralized budget. This ratio is higher than EU average which is 52,4 % in 2016 (Table 7, 8).

3.3.6. Belgium

Although Belgium is very close to Netherlands geographically, its tax system is very far from the Dutch tax system. Total tax revenue share of GDP is around 44,2 % in 2016 (Table 5). Central government's tax revenues of sub-sectors of general government has decreased from 61,8% in 2000 to 50,6% in 2016 which means a fiscal decentralization for Belgium (Table 5). Implicit tax rates of the Netherlands are listed in Table 9 and Table 10. According to these tables Belgian capital tax burden on capital is 36,5% in 2016 which is much higher than Dutch capital tax rate. On the other hand implicit tax rate on labor is 42,4% and that is the still the highest one in the EU. For these reasons, Belgian tax system is not very attractive for labor and for capital

mobility. From this perspective Belgian tax system is closer to French one by comparison with Dutch tax system.

3.3.7. Northern Member States

When the ratio of tax revenues to GDP is taken into consideration, the share of public in the economies of Finland, Sweden and Denmark is quite high. In these countries, the average tax revenues as percentage of GDP is around 44,7% in 2016 (Table 5). From Nordic countries countries, only Norway is not a member of the EU. Denmark is not included in the Eurozone and is part of the EU exchange rate mechanism called ERM II.

Although the tax burden in Northern European countries is above the OECD and the EU average, the voluntary adjustment of taxation of the community is higher than the other countries when the social services and public expenditures in these countries are taken into consideration. When we look at taxation in terms of utilizing public services and social benefits, the ratio of tax revenues to national income is insufficient to measure the tax burden on the citizens of that country. Therefore, tax and benefit microsimulation models have been developed in recent years and are widely used to measure the effectiveness of tax policy, especially in EU countries.

Since the return of public revenues generated by taxation in the northern European countries to the community is high, the tax burden felt in these countries is less than in developing countries. In general, when the share of direct taxes is higher than indirect taxes, a fairer tax system emerges. In addition, these countries' use of taxation as a social policy tool also increases. In particular, Swedish tax system is dominated by a high (21,16%) direct tax share, while Denmark comes to the fore with income tax system instead of social security system.

According to Table 8, central government share in total taxation is around 72,8% in Denmark in 2016. This ratio is 47,6% in Finland and 62,8% in Sweden. We may conclude that Nordic countries have a centralized public revenue system except Finland.

Implicit tax rates on labor is around 40% in Finland and Sweden. This ratio is lower in Denmark which is 34,6% in 2016. When we examine implicit tax rates on capital Denmark's capital burden which is 37% in 2016, is higher than it is in Finland and Sweden. Capital tax burden is 29% in Sweden and 30,9% for Finland in 2016 (Table 8,9). Denmark has a more labor friendly tax system when we compare the implicit tax rates of Nordic countries.

3.3.8. Central Eastern European Member States (CEEMS)

Most of the new member states of which economic system is based on central planning before independence, has changed public finance and became integrated with the EU's fiscal system. From this perspective, analyzing public revenue system of these countries that gain full membership status after 2004, is also crucial to explain the relationship between economic integration and tax revenues.

CEEMS that became member of the EU after 2004 have transformed their economy from central planning to liberal market economy and this transformation also affected public revenue system dramatically. Although these countries have common features with tax systems, after independence, tax structures of new member states differentiate significantly. Vito Tanzi (2005) mentioned that these countries have unexpected commonalities between tax systems. *Firstly*, all of new member states have very high total tax to GDP ratio, around % 40, like many developed countries. In 2005, this ratio was above OECD average and higher than many EU-15 countries. *Secondly*, these countries have high budget deficits except Estonia, in spite of high tax revenues.¹⁴³ High budget deficits in new member states mean violation of Maastricht Criteria and this situation continues in most of the CEEMS after 2004 full membership.

Thirdly, tax burden on labor is very high in these countries due to high social security contributions and wage tax. High tax burden on labor also incites informal economy. Fourth, those countries decentralize their tax and benefit systems after highly centralized public finance system. Finally, environmental taxation in those countries is

¹⁴³ Vito Tanzi, (2005), in Bernardi, L., Chandler, M. and Gandullia, L. (2005). *Tax systems and tax reforms in New EU member states*, 1st ed., New York: Routledge, pp. xvi-xvii.

on rise and they aim to reduce side effects of industrialization aftermath of central planning.¹⁴⁴

According to OECD statistics tax revenue share of GDP is decreasing in seven new member states of the EU according to base year 1995. Due to the impact of liberalization from state oriented economy, seven member states' government share of GDP is diminishing, though increasing trend of tax revenue to GDP ratios in OECD countries. Limited data availability in Central and Eastern European countries that became full member after 2004, makes data analysis for these countries difficult. Only Malta and Cyprus have available tax revenue data and other economic indicators from 1980 to 2015. In our analysis, we will use data from 1995 to 2016 for seven new member states as shown on Table 11.

Following Table 11 shows seven of new member states' tax to GDP ratios between 1995 and 2016. We may conclude that after full membership many Eastern European countries' tax to GDP ratios are decreased below OECD average (34,3%) except Hungary and Slovenia.

Table 11. Tax Revenues as % of GDP (CEEMS).

Year	1995	2000	2005	2010	2014	2015	2016
Country							
Czech Republic	34.9	32.5	34.5	32.5	33.1	33.5	34.0
Estonia	36.0	31.1	30.0	33.2	32.4	33.6	34.7
Hungary	41.0	38.6	36.7	37.5	38.2	39.0	39.4
Latvia	29.7	29.1	27.9	28.1	28.9	29.0	30.2
Poland	37.7	32.9	33.1	31.1	32.1	32.4	33.6
Slovak Republic	39.6	33.6	31.3	28.1	31.2	32.3	32.7
Slovenia	38.4	36.6	38.0	36.9	36.5	36.6	37.0
OECD - Average	33.3	34.0	33.6	32.6	34.2	34.0	34.3

Source: Data extracted on 02 Jan 2018 from OECD Statistics.

Though OECD countries' tax to GDP ratio average is increasing, seven CEEMS' tax to GDP ratio is falling except Latvia after 1995. As this data from seven new member states, decreasing tax to GDP ratios according to base year means diminishing government intervention to the market economy. The economic role of the state in these countries, parallel to the decrease in tax revenue share in the economy, is

¹⁴⁴ Tanzi, (2005), in Bernardi, L., Chandler, M. and Gandullia, L. (2005), *Tax systems and tax reforms in New EU member states*, pp. xvi-xvii..

declining. Implicit tax rates on capital and labor are shown us distributional impact of taxation in these countries. Table 12 covers implicit tax rates of selected CEEMS countries.

Table 12. Implicit Tax rates on Capital (CEEMS) (%)

	2000	2005	2010	2011	2012	2013	2014	2015	2016
Czech Republic	19,0	19,9	16,9	17,1	17,7	18,6	17,2	17,3	17,9
Estonia	7,0	8,4	9,4	7,4	7,9	8,9	9,4	12,6	
Hungary	17,8	17,9	21,8	19,5	22,0	17,6	17,5	18,3	
Poland	20,2	19,5	18,3	18,2	19,3	19,5	19,0	19,6	21,6
Slovakia	18,5	13,8	10,2	10,2	10,8	12,9	14,3	15,6	15,4
Slovenia	18,0	25,2	25,3	23,6	25,4	22,6	21,8	21,3	21,8

Source: DG Taxation and Customs Union, based on Eurostat data (Taxation Trends)

Baltic countries such as Estonia and Lithuania have the lowest capital tax burden among new member states. Romania and Bulgaria joined the EU in January 2007, are very competitive from capital taxation perspective. In addition to Baltic States, new Western Balkan member states have attractive tax systems for international companies. Poland and Slovenia's tax burden on labor are higher than the other new member states tax rates.

Table 13 shows the implicit tax rates (ITR) on labor in selected CEEMS countries. Contrary to capital taxation, there is no important labor tax competition in new member states. As well as ITR on labor, progressivity of income taxation is also important to analyze labor supply and demand conditions. However, progressive income tax rates of each member states are out of the scope of this thesis.

Table 13. Implicit Tax Rates on Labor (CEEMS) (%)

	2005	2010	2011	2012	2013	2014	2015	2016
EU-28	35,2	35,1	35,6	35,8	36,0	36,0	35,8	36,1
Czech Republic	41,2	38,4	39,0	38,6	39,1	39,4	39,2	39,8
Estonia	33,9	36,6	35,8	34,7	34,8	34,5	34,0	34,1
Hungary	37,6	38,1	37,9	39,2	39,2	39,8	41,9	41,6
Poland	33,0	29,0	30,2	31,4	31,3	31,6	32,7	32,6
Slovakia	34,1	33,5	32,8	33,5	35,8	35,9	36,5	36,5
Slovenia	37,5	34,9	35,2	35,3	35,0	35,3	35,9	35,6

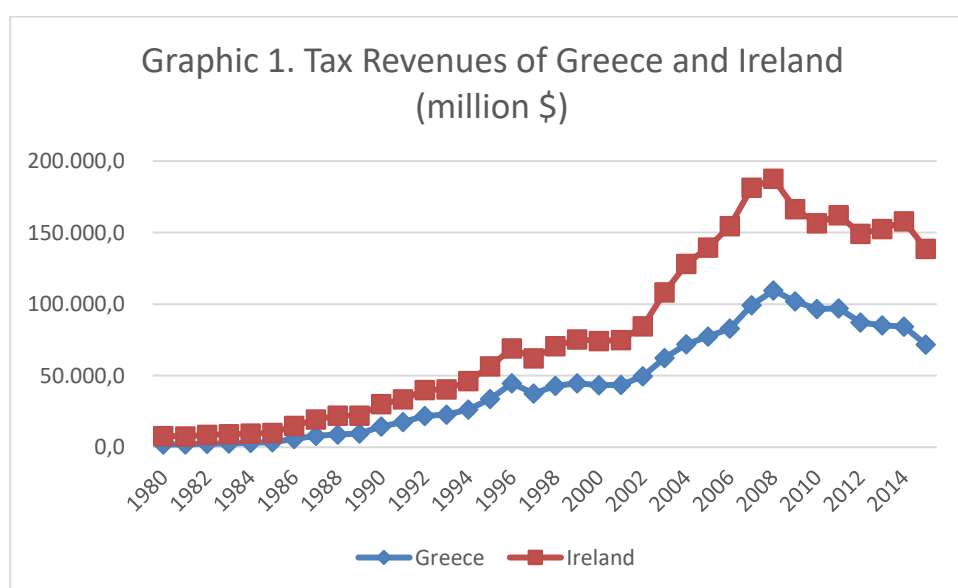
Source: DG Taxation and Customs Union, based on Eurostat data (Taxation Trends)

Central planning model of these new member states made the tax systems labor oriented since most of the capital was belong to government before independence. Only in Poland labor oriented taxation has remained stable until 2012. Hungary and Czechia have the highest ITR on labor and these rates higher than the EU average.

Bigger countries such as Poland and Hungary have a higher tax burden on both capital and labor. Baltic nations, Latvia, Lithuania and Estonia are highly competitive about capital taxation. We may conclude that economic size has a significant effect on capital taxation but labor taxation does not change too much according to size.

3.4. Tax Revenue Systems of GIIPS and Financial Crisis

Although the share of indirect taxes, which is based on consumption, is higher than the share of direct tax in GIIPS countries, Ireland, where quickly recovered from the crisis, becomes separated from other countries with a unique tax system. Unlike other GIIPS countries, Irish tax burden, calculated by using macroeconomic data, is decreasing steadily. Aftermath of the financial crisis the impact of austerity packages also affects collected tax revenue but this effect is more severe in countries such as Greece relative to Ireland. The comparison of tax revenues in Ireland and Greece presented in Graphic (1).



**Graphic (1): Tax Revenues of Greece and Ireland
(In million \$, 1980-2015)**

Source: OECD revenue statistics.

In countries, which have high debt stocks, fiscal structure is even getting worse with diminishing tax revenues with the effect of recession. This deterioration in revenue side of budgets make the impact of the crisis more damageable for public finance system of GIIPS. Fiscal austerity packages implemented after the crisis have worsened revenue side of fiscal structures of countries, which have high debt to GDP ratios. However, this fiscal impact has changed public financial system of countries in different levels because of heterogeneity of revenue elasticity in different countries. This is the case of Ireland and the reason why Ireland's tax revenues have been depressed by the crisis that Irish tax revenue elasticity is higher than it is in other GIIPS countries. On the contrary the recovery of Irish tax revenues is much better than it is in Greece.

In addition to tax revenues, implicit tax rates are good indicators in order to assess macroeconomic impact of globalization especially financial crisis. Moreover, implicit tax rates give opportunity to examine tax burdens on different production factors such as labor and capital. The graphics of average effective tax rates (AETR) on capital and labor are listed in Appendix I from 2001 to 2015. Mc Daniel (2007), has calculated AETR for 10 selected EU-15 countries.¹⁴⁵ The database, which this thesis uses in econometric analysis, covers the years from 1980 to 2015.¹⁴⁶

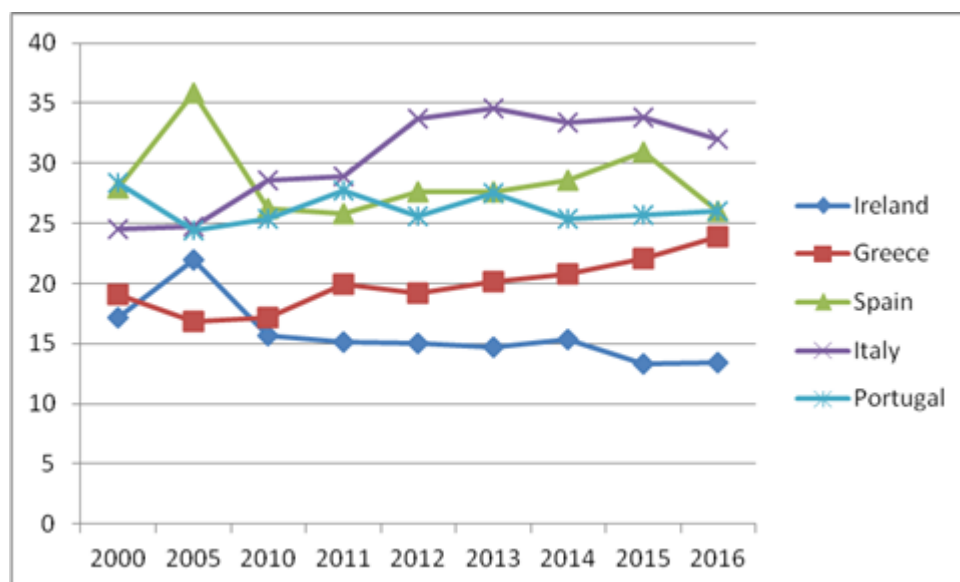
Closer examination of the changes in taxation trends from 1980 to 2016 shows us that revenue shares in GDP are increasing steadily in all EU-15 countries except Ireland, France and Austria. In countries, which have relatively low indirect taxes to GDP ratio, the impact of the financial crisis is more severe than the other countries of which tax system is based on direct taxation. Ireland, which has the lowest indirect taxes to GDP ratio, is affected by the financial crisis deeply but Ireland also seems has the most resilient economy among GIIPS countries aftermath of the financial crisis. In other GIIPS countries, indirect taxes share of GDP has increased steadily. For instance,

¹⁴⁵ Cara McDaniel, (2007), "Average Tax Rates on Consumption, Investment, Labor and Capital in the OECD 1950-2003," *Manuscript, Arizona State University*, pp. 1-37.

¹⁴⁶ For detailed AETR for many OECD countries from 1950 to 2015 may be obtained from McDaniel, C. Research Papers - www.caramcdaniel.com. Retrieved 01/03/2019 from <http://www.caramcdaniel.com/researchpapers>.

in Greece this ratio has reached 15% in 2015 from 9% in 1980. In Spain and Italy, this trend of increase also continues like in many developing countries.

The financial crisis that began in the United States in 2008, affected European economic governance and member states' public finance, particularly in the economies of GIIPS. Increasing tax revenues of GIIPS and maintaining tight fiscal policy are important tools for reduction of debt stock. In crisis time, increasing of implicit tax rates on labor and decrease or stability of implicit tax rates on capital may be observed from revenue statistics. The depreciation of the company profits in times of crisis, increasing debt burden due to high interest rates and falling stock markets result with lower tax burden on capital. Since taxation of corporate taxes based on profit declaration, increasing company losses also affect actual and future capital tax bases negatively. Briefly, financial problems in times of crisis causes erosion of tax capital bases and decreases declared profits in addition to collected tax revenues. However, in some countries reduction of collected tax revenues exceeds tax base erosion. In other words, erosion of capital tax base causes decline of tax revenues from capital according to tax revenue elasticity. For instance, in Ireland and Portugal, implicit tax rate on capital has decreased but in other GIIPS countries, this ratio has increased.



Graphic 2: Implicit Tax Rates on Capital (GIIPS) (%)

Source: European Commission DG Taxation and Customs Union, 2018, p.47.

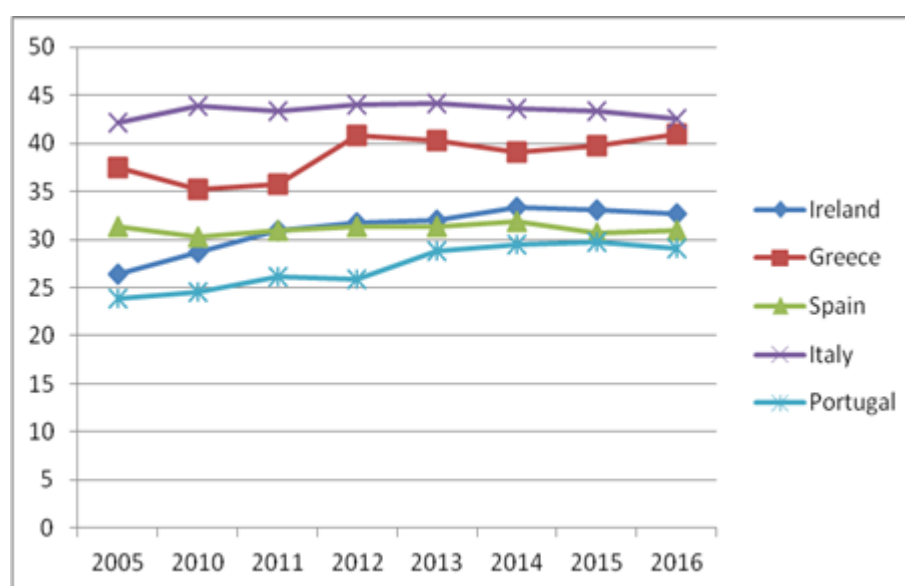
Graphic 2 shows that after the financial crisis, implicit tax rates rise except Portugal and Ireland where capital tax bases decrease but tax revenue depreciation is higher than tax base erosion. These rates are important for explaining the effect of crisis on capital taxation. Ireland has an easier tax system, which allows deductions and has many exemptions according to other GIIPS. That is why companies benefit from these tax advantages instead of moving to another country in crisis times.

Graphic 2 also represents that capital tax bases of Greece, Italy and Spain are more sensitive to economic fluctuations than they are in Ireland and Portugal. From previous section, we may conclude that Irish tax system is more responsive to financial crisis and it reduces the impact of financial shocks.

As shown in charts, implicit tax rates on capital, which indicates the tax burden on capital, are decreasing but tax burden on labor is in upward trend especially in Greece, Ireland and Portugal. This tendency in public finance shifts tax burden from capital to labor in countries, which apply fiscal austerity packages. In addition, due to the ease of its collection and other benefits, rising consumption taxes indirectly affect the tax burden on labor.¹⁴⁷ Fiscal austerity packages caused higher tax burden on labor than it is on capital in GIIPS.

EU's long-term growth strategy is built on reducing tax burden on labor and combating international tax competition, which causes tax base erosion in periphery countries. Moreover using consumption taxes smartly in order to minimize tax distortions in the market. However, trends on implicit tax rates show us this strategy is unrealistic with tight fiscal policy, which aims to increase tax revenues. This type of revenue policy increases tax burden on labor via consumption taxes as shown in Graphic 3.

¹⁴⁷ “The ITR on employed labor is defined as the sum of all direct and indirect taxes and employees’ and employers’ social contributions levied on employed labor income divided by the total compensation of employees working in the economic territory.” For the methodology of calculating implicit tax rates: European Commission (2017) Taxation trends in the European Union | DG Taxation and Customs Union.p.257.



Graphic 3: Implicit Tax Rates on Labor (GIIPS) (%)

Source: European Commission DG Taxation and Customs Union, 2018, p.30

Aftermath of the crisis tax burden on labor has risen in GIIPS except Italy and Spain. In Italy, tax burden on labor is already very high, around 40% which is above the EU average. But in Spain labor tax burden is around 30% which is lower than EU average (36% in 2015). In a comparison between tax burden on labor and on capital, we may also conclude that volatility is higher in capital taxation due to high capital mobility in the EU.

Euro-zone financial crisis demonstrate us that tax revenue elasticities gain more importance in crisis for recovery. The higher revenue elasticity means the lower tax burden on labor since high elasticity gives rise to tax progressivity. However high revenue elasticities also reduces tax revenues in economic depression, the recovery from the crisis is much affective in those countries, which have a high tax revenue elasticity such as Ireland has. High tax revenue elasticity decreases the impact of financial crisis in countries, which has lower labor tax burden.

3.5. Turkish Tax System and Economic Integration

Triggered by a global financial crisis, Euro-zone crisis has shown us that monetary policy conducted by ECB is not a convenient policy unless it is supported by

fiscal coordination of member states' policies. Tax policy is an indispensable and important component of fiscal policy and usually most of the countries are reluctant to reform tax systems in short term. However, in an economic integration process tax revenues of member states and candidate countries depend on supranational economic governance and other member state's own tax policy.

High degree of economic integration gives rise to factor mobility and affects public finance models and tax system of a specific country. As a unitary state Turkey, has a long relationship with the EU, which started formally in 1961 with an Ankara Agreement. Customs Union was established between Turkey and the EU in 1996. We will focus on economic convergence among Turkey and EU member states after 1990. Turkish AETR estimations will be tested whether there is a direct relationship between AETRs and economic integration indicators.

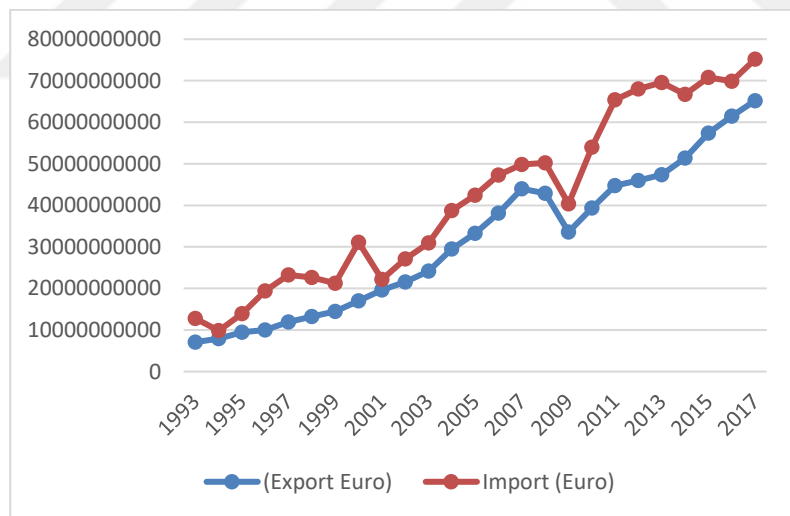
Turkey's financial liberalization has accelerated since 1980 government decisions on exchange rate regime and especially on capital movements. In 1980, exchange rate regime changed rapidly, import substitution model replaced by export-oriented growth model and free movement of capital established by the government. Turkish VAT became law in 1984, which is the main tax revenue source of the government and a significant tax burden on consumption. Decreasing import tax revenues, due to 24th of January 1980 decisions, have caused a new type of taxation for Turkey in order to compensate revenue loss of Turkish government.

Turkish Parliament has accepted "Excise Tax Law" as a part of EU accession reforms in 2002. Having first applied "Excise Tax Law" has changed Turkish Tax system deeply. The share of consumption has increased relative to capital and labor taxation. Turkey, as a candidate for a full EU membership since 2004, has already been affected by EU's economic conditions and European tax policies. These interdependencies are more effective after 1995 Customs Union Decision. Turkey has followed European economic integration path as a financial and policy tool of trade liberalization. This economic anchor also means opening Turkish markets to international trade. Moreover, this policy accelerated liberalization of capital/ good markets of Turkey in a global environment.

3.5.1. Economic Integration of Turkey to the European Single Market

After liberalization policy of trade and capital movements of Turkish government trade and capital movements, the volume and variety of trade between Turkey and EU has increased. Customs Union Decision in 1995 has changed EU-Turkey trade patterns directly.

Graphic 4 shows that Turkey's import and export volume from and to the EU, has changed dramatically after 1995 decision which removes trade barriers on industrial goods between Turkey and the EU. First, the gap between import and export has increased after 1995 but it has stabilized in 2001. Export performance of Turkey has accelerated after Customs Union decision not only to the EU but also to EU's trade partners. We may also conclude from the graph that in crisis times merchandise trade gap increases because of exchange rate fluctuations. Graphic 4 represents the effect of 2001 Turkish financial crisis and 2008 global financial crisis.



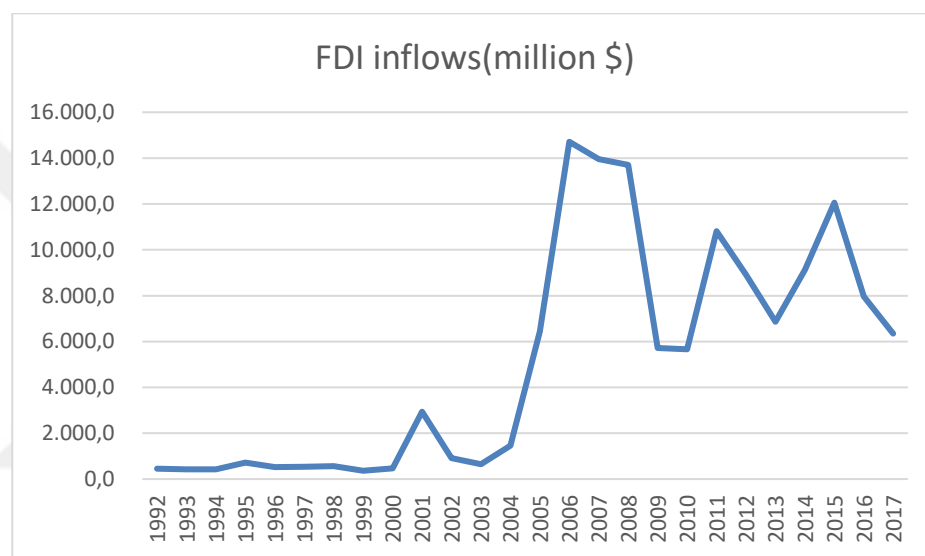
**Graphic 4: Turkey's Exports and Imports with the EU
(In billion Euro)**

Source: Turkish National Statistics Agency, "Trade Statistics". Retrieved from http://www.tuik.gov.tr/PreTablo.do?alt_id=1046 on 03/06/2018.

Another important indicator of economic integration is FDI flows between two trade partners. Determinants of FDI flows are more complicated than trade flows since FDI's are not only affected by economic conditions but also legal system, political

conditions and socioeconomic structure of any country. Moreover, FDI flows may occur in different forms as a market entry option and these forms are affected by different economic and political conditions. For instance, merger and acquisitions are more dependent on economic fluctuations contrary to green-field investments.

FDI flows between Turkey and Europe have been evolved in Turkish accession process to the EU. Graphic 5 represents the FDI flows between EU-27 and Turkey from 1992 to 2017.



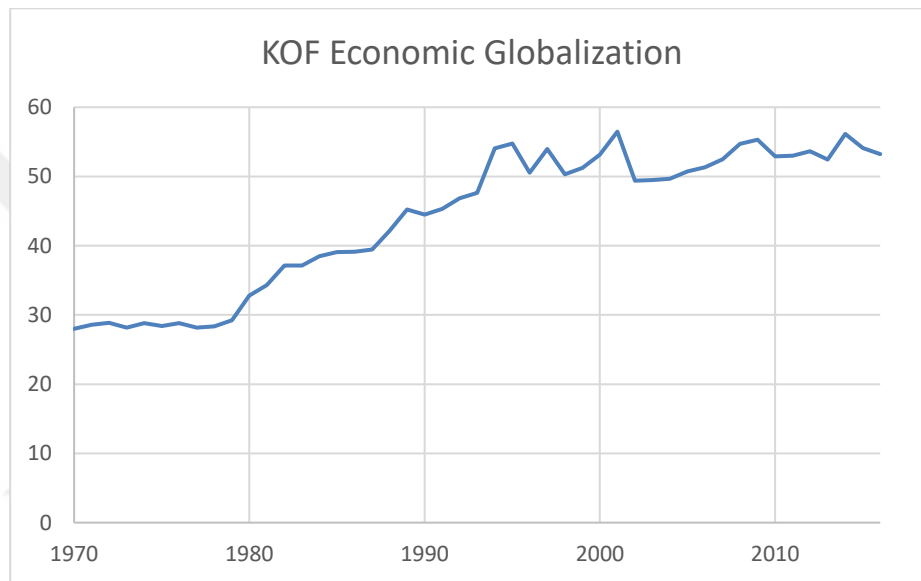
Graphic 5: FDI Flows From Europe to Turkey in Million \$ (1992-2017)

Source: OECD Statistics, Data extracted on 04 Aug 2018 from OECD.Stat

FDI flows are more sluggish until 2002 due to still existing technical barriers and the determinants of FDI flows are more dependent on institutional factors. Accelerating EU accession reforms resulted with higher FDI inflows from the EU. We may follow 2001 Turkish financial crisis and 2008 global crisis effects from the diagram. Falling asset prices caused higher FDI inflows, however global crisis have affected Turkish FDI inflows from the EU negatively.

In addition to these integration indicators, economists measure economic and political convergence among nations use different indexes. For instance, Konjunktur

Für Schungsstelle (KOF) index¹⁴⁸ measures economic, social and political dimensions of globalization. We will use Turkish economic globalization index in order to assess economic integration of Turkey with the rest of the world. Since Turkey's integration to the EU is also a part of Turkish trade liberalization and economic globalization, using KOF index is an appropriate approach for our analysis. KOF index of globalization measures economic globalization by using actual flows and trade restrictions among countries. Turkey's KOF globalization index from 1970 to 2013 is as seen on Graphic 6.



Graphic 6: KOF Economic Globalization Index of Turkey

Source: KOF Index of Globalization, ETH Zurich¹⁴⁹, Data extracted on 30 Jan 2019 from <http://globalization.kof.ethz.ch/query/>

Turkey has reached its highest economic globalization rate in 2005 after economic reforms, which is taken by the government to comply with EU's regulations. The impact of these reforms may be seen on trade flows and foreign direct investments as well as economic globalization index. Another important inference from the Graphic 9 is that 1995 Customs Union decision leads to lower economic restrictions and higher trade and investment flows between EU and Turkey. On the other hand, Turkey's

¹⁴⁸ Axel Dreher, (2006), "Does Globalization Affect Growth? Evidence from a new Index of Globalization", *Applied Economics*, 38, 10, pp.1091-1110. Updated in: Dreher, Axel, Noel Gaston and Pim Martens (2008), *Measuring Globalisation – Gauging its Consequences* (New York: Springer).

¹⁴⁹ Savina Gygli, Florian Haelg, Niklas Potrafke and Jan-Egbert Sturm (2019): The KOF Globalisation Index – Revisited, *Review of International Organizations*, Retrieved 01/03/2019 from <https://doi.org/10.1007/s11558-019-09344-2>.

economic globalization index is still very low relative to other countries. According to KOF index Turkey is still 107th in 2016 among 207 countries.

3.5.2. Turkish Tax System

Total tax share of public revenues is around 80 percent in Turkey and tax revenues are consist of 25,3 % of GDP in 2016. This ratio is lower than OECD and EU member states' average.¹⁵⁰ The biggest share of total tax revenues comes from consumption taxes such as VAT and excise taxes.

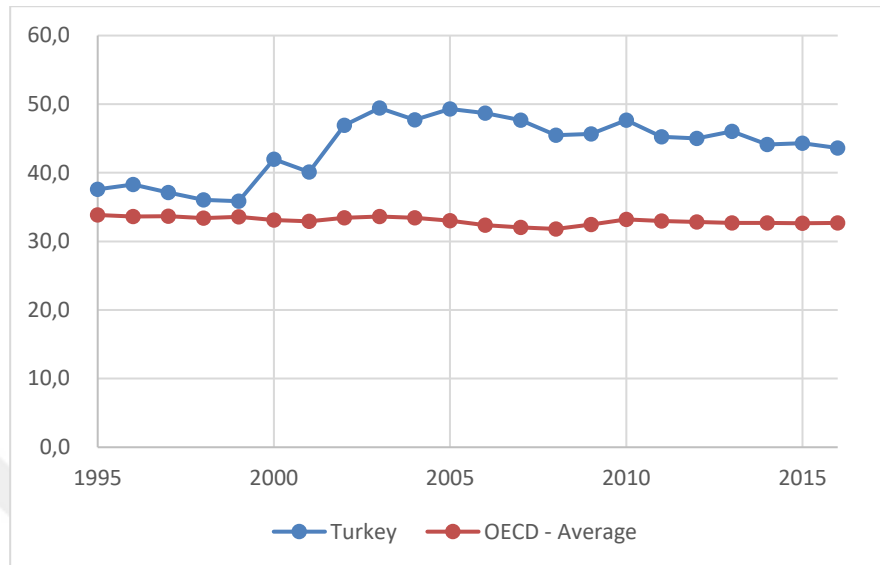
Measurement of tax burden differs in various research papers. Calculating tax burdens on factor incomes is a common way to analyze macroeconomic impacts of taxation. Our calculations for Turkish AETR on capital and labor reflects this common approach. Other options such as tax revenue levels in constant prices or in dollar, tax to GDP ratios, tax type to total tax revenue ratios help to assess tax system of countries but in econometric studies these tax burdens may result with biased estimations of the impact of macroeconomic variables.

OECD's Turkish detailed tax statistics (1980-2016) show that the share of indirect taxes has increased from 3.84 percent to 13.98 percent, direct taxes such as corporation and income tax revenues remained 5.4 in 2015 and this value is relatively low compared to consumption tax burdens. Moreover, social security contributions have a significant revenue for Turkey in 2000's and the share of those revenues to GDP ratio rises to 7.02 percent in 2015. Higher indirect tax burden and increasing social security payments mean unfair public revenue system for any country. The main problem that developing countries face is financing their economic growth with ineffective and unfair tax systems. That type of public revenue systems do not only create unpleasant income distribution but also cause distortions on the functioning of market economy.

We may follow these changes on Graphic 7, which shows Turkish consumption tax share of total taxation versus OECD average from 2000 to 2014. Type

¹⁵⁰ OECD (2018), *Revenue Statistics 2018*, OECD Publishing, Paris, Retrieved 01/03/2019 from https://doi.org/10.1787/rev_stats-2018-en.

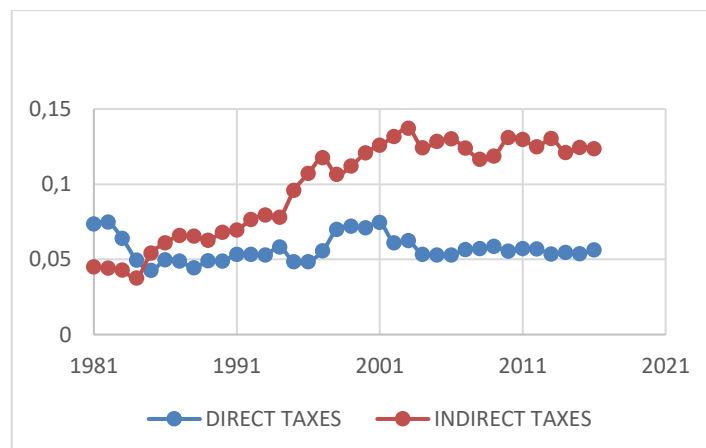
of tax revenues to total taxation from 1995 to 2016 for Turkish economy is shown below in Graphic (7).



**Graphic 7: Tax Revenue from Goods and Services
As Percentage of Total Taxation (%)**

Source: OECD detailed tax statistics, Data extracted on 30 May 2018 from OECD.Stat

Introduction of “Excise Tax Law” has changed tax structure of Turkey after 2001. The share of taxes on goods and services has increased and it is still above the OECD average. Graphic 8 shows the share of direct, indirect taxes and social security contributions as a share of GDP.



Graphic 8: Direct and Indirect Tax Revenues as Percentage of GDP

Source: ICTD/UNU-WIDER, ‘Government Revenue Dataset’, 2018, Accessed on 30/01/2019 from <https://www.wider.unu.edu/project/government-revenue-dataset/>

According to the Graphic (8) the share of indirect taxes in total tax revenues is increasing dramatically after 1990's. This trend is similar for social security contributions contrary to direct taxation.

OECD also publishes tax wedge data yearly but these statistics are calculated for typical households such as one-earner married couple who have two children. In order to analyze tax revenues in macroeconomic models we must aggregate labor force or capital gainers as a production factor. Average effective tax rates are useful to develop macro-econometric models that evaluate macroeconomic impacts of tax policy.

Calculating average effective tax rates for Turkey is a complicated issue due to limited data availability. In a hypothetical household, members of the family can be related to different part of production factors like capital gains or labor income. These income parts may be included in a single unified income statement, which is declared to tax authority by an individual taxpayer or a household.

3.5.3. Measuring Average Effective Tax Rates of Turkey

In order to calculate tax burden of a country or a group of different jurisdictions, different methods have been used by academics. OECD publishes tax revenues to GDP ratio statistics, certain type of tax revenue to total tax revenue ratios yearly and those statistics give deep inside for revenue side fiscal performance of OECD member countries. Contrary to developed countries, developing countries such as Turkey has lower tax to GDP ratios. In order to analyze tax burden on income factors we need more detailed national account statistics. For Turkey, there is no separate statistic for tax burden on labor other than tax to GDP ratio.

Secondly Mendoza *et. al.* (1994) developed a new indicator of tax burden in a country.¹⁵¹ Devereux and Griffith (2003) analyzed location choice of multinationals by using effective average tax rate (EATR) as an explanatory variable. In this seminal work, Devereux and Griffith developed a new method for EATR and calculated

¹⁵¹ Enrique G. Mendoza, Assaf Razin and Linda L. Tesar (1994), "Effective tax rates in macroeconomics Cross-country estimates of tax rates on factor incomes and consumption", *Journal of Monetary Economics*, 34, pp. 297-323.

effective marginal tax rate (EMTR) for multinationals' decision of location choice. EMTR is related to investment profitability and multinationals' location decisions.¹⁵²

In this thesis, tax burden on capital and labor are used for analyzing the impact of economic integration on tax burdens on production factors. Our calculation is based on Mc Daniel (2007) study of measuring average effective tax rates of 15 OECD countries. Mc Daniel (2007) has developed a new formula in order to calculate AETRs. Formula (1) denotes AETR on labor and formula (2) denotes AETR on capital.

Basic Formulas of Mc Daniel (2007)¹⁵³;

$$\tau h = \frac{SS + HHTL}{(1 - \theta)(GDP - (TPI - Sub))} \quad (1)$$

$$\tau k = \frac{HHTC + CT + \mu TPI}{(\theta(GDP - (TPI - Sub)) - GOVOS)} \quad (2)$$

τh = average tax rates on labor

SS = Social security contributions

HHTL = Total taxes on income of the households

(1 - θ) = Share attributed to labor

GDP = Gross domestic product

TPI = Taxes on production and imports

Sub = Subsidies

τk = average tax rates on capital

HHTC = Total capital tax revenue collected from household

CT = Corporate Taxes

μ = Share of property taxes paid by other entities (assumed 0)

GOVOS = Gross operating surplus earned by the government

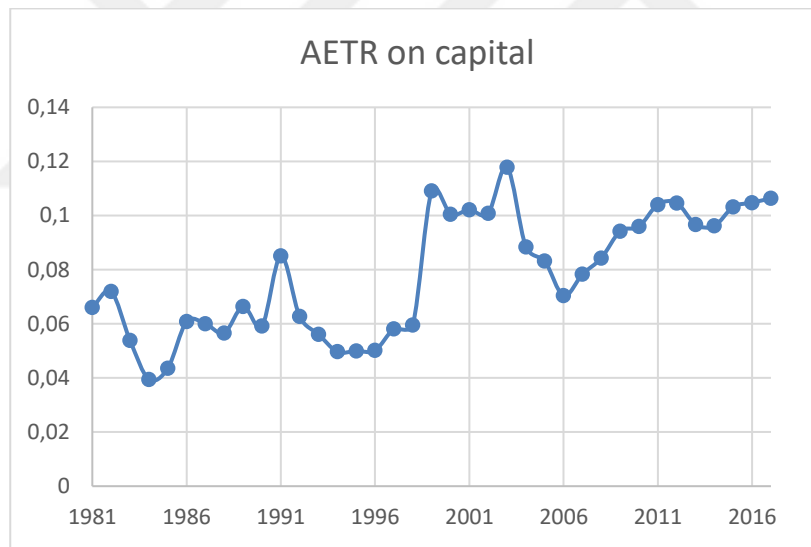
¹⁵² Devereux and Griffith, pp. 107-126.

¹⁵³ McDaniel, pp. 1-37.

Basic assumption of the formula is that the tax rate on household labor income is the same as the tax rate on household capital income since national account statistics are not available. To compute $(1-\theta)$ we should know the operational surplus of unincorporated enterprises (OSPUE). We will use as $(1-\theta)$ International Labor Organization's predictions of labor share of national income of Turkey.¹⁵⁴

3.5.4. Economic Integration and Turkish Average Effective Tax Rates

Globalization gives rise to economic convergence among nations also it changes public revenue systems of countries. Parallel to removing governments' control on capital, taxation of capital movements is more difficult than before. According to our calculations, AETR on labor is increasing but AETR on capital is changing parallel to business cycles and it is more volatile than AETR on labor (Graphic 9 and Graphic 10).

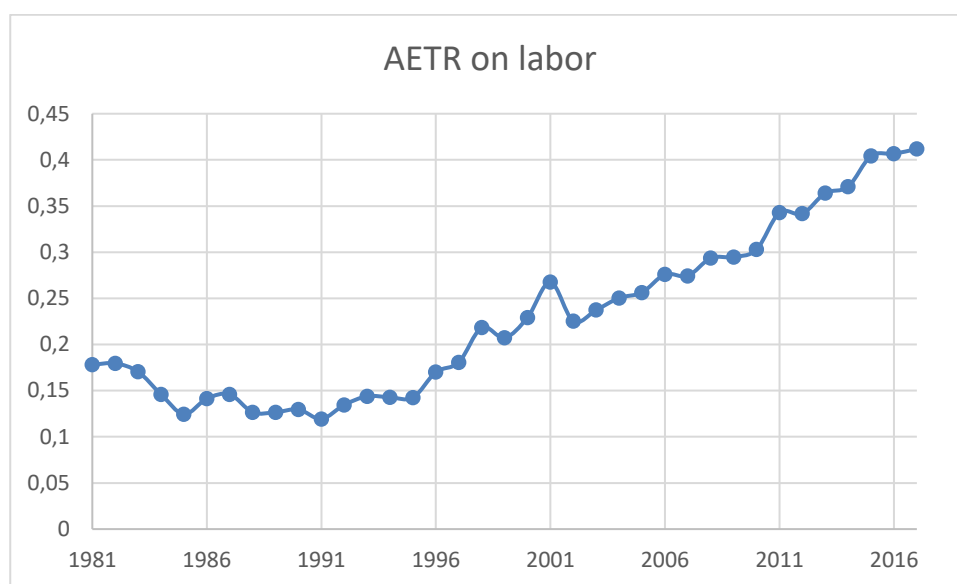


Graphic 9: AETR on Capital in Turkey (%)

Source: Authors' calculations via OECD statistics

This paper suggests that in Turkey higher economic integration has caused higher tax burdens on labor relative to capital tax burdens. These results are contradicting to EU's inclusive growth target and labor friendly tax policy in order to reach sustainable growth.

¹⁵⁴ Başak Tanınmış Yücememiş and Kazım Okan Erol, (2017), "Average Effective Tax Rates of Turkey in EU Accession Process," *İstanbul Üniversitesi İktisat Fakültesi Mecmuası*, 67, no. 1, pp. 24–42.



Graphic 10: AETR on Labor in Turkey (%)

Source: Authors' calculations via OECD statistics

Studies for specific countries such as Czech Republic¹⁵⁵ and for India¹⁵⁶ show that tax revenues are dependent on growth rates and regional GDP levels. Another study about Turkey concludes that tax revenues in Turkey have been affected by business cycles.¹⁵⁷

Our first hypothesis is that closer economic integration changes public revenue levels and increases volatility of public revenues. Especially tax revenues that have high degree of mobility cross borders are connected to economic integration process. Our second hypothesis claims that tax revenues, which have been collected from mobilized production factors, are more dependent on economic integration and have higher volatility than immobile factors. We will test these hypotheses with calculating average effective tax rates of labor and capital for Turkey.

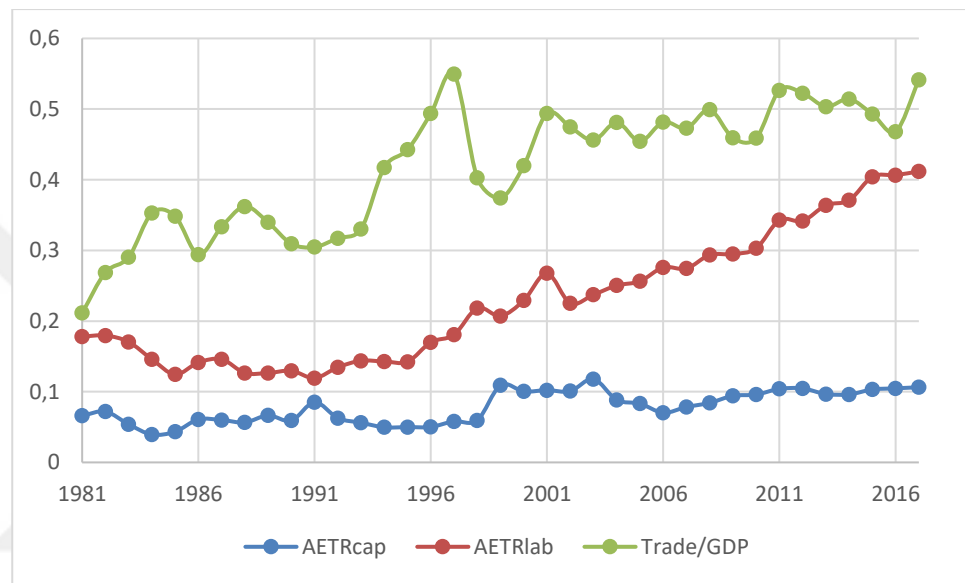
As a result of correlation analysis we may conclude that consumption part of total tax revenues is increasing since 1980's. This trend also affects labor share of

¹⁵⁵ Jarmila Zimmermannova, Jolana Skalickova, Jan Siroky, (2016), What Can Tax Revenues Tell us about the Economic Activity of Regions? *Economics and Sociology*, Vol. 9, No 1, pp. 114-128.

¹⁵⁶ Poonam Sharma and Jaspal Singh, (2015), "Determinants of Tax-Revenue in India: A Principal Component Analysis Approach," *International Journal of Economics and Business Research* 10, no. 1, pp.18-29.

¹⁵⁷ Ali Aşkın Çulha (2012), Türkiye'de vergi gelirlerinin iktisadi döngülere duyarlılığı, *Ekonomi Notları*, 2012-34. TCMB, pp.1-10.

national income indirectly. Decreasing labor share of income and higher consumption taxes give rise to higher average effective tax rates on labor. We have calculated tax burdens on labor and capital based on Mc Daniel (2007) approach, which uses Mendoza and Tesar (1994) method. Rising share of consumption taxes, social security contributions and decreasing income share of labor changes tax burden of capital and labor.



Graphic 11: Correlation between Trade Openness and AETR in Turkey
Source: World Trade Organization and World Bank GDP estimates, Author's calculations.

Simple correlation coefficient for AETR labor and trade/GDP is 0.86 which means strong positive correlation between economic integration and AETR on labor. For AETR on capital and trade relationship is (0.54). Theory suggests that high mobilized income factor is less dependent on economic integration. High positive correlation among AETR on labor and trade volume shows us immobile production factor is more related to economic integration than it is on mobile income factor.

These results are similar for KOF economic globalization index. Higher economic globalization increases tax burden on consumption and labor. The correlation coefficient for AETR on labor and KOF economic globalization index is 0.62 and it is 0.52 for AETR on capital. Since KOF economic globalization index includes some

trade restriction measures the correlation coefficients for KOF index are lower than it is for trade/GDP indicator.

3.5.5. Conclusion and Policy Recommendations for Turkey

According to our estimations with generated data, there is a strong positive correlation between trade to GDP ratio, which is an important economic integration indicator, and labor tax burden in Turkey. As a result of simple statistical analysis it can be inferred that consumption part of total tax revenues is increasing since 1980's. Immobile production factor, labor is affected by globalization with high tax burden. This trend also affects labor share of national income indirectly. Decreasing labor share of income and higher consumption taxes give rise to higher average effective tax rates on labor. Turkish income tax system is progressive but it is not enough in providing equal income distribution system.

Turkish accession to the EU process continues along with trade liberalization policy and consequently with economic globalization. Turkish economic integration to the EU and to other parts of global economy, have also changed Turkish tax system significantly. Because of global trend of increasing debt burdens, countries started to finance their increasing public expenditures with indirect taxes such as VAT and excise tax. Although these consumption taxes are easy to collect, indirect taxes create distortions in economy. Moreover, these type of taxes cause unfair income distribution.

In the case of Turkey, as a result of globalization the share of consumption taxes is increasing in total taxation and this process resulted with higher tax burden on labor indirectly. AETR on capital is changing more rapidly with business cycles but there is no strong evidence of higher tax burden on capital. Since computation of corporate taxes are more complicated and there are many loopholes in an economic depression capital tax revenues may depreciate rapidly. Nevertheless, labor taxation is more independent from business fluctuations.

EU's inclusive and sustainable growth policy suggest that more labor friendly taxation is a suitable policy for member states. Turkey should apply more effective consumption taxes such as sugar tax and carbon based taxation and reduce labor tax

burden by implementing efficient income tax and benefit system. Increasing the efficiency of social security system will also help ensuring more labor friendly tax system in Turkey.



CHAPTER IV

TAX REVENUE GROWTH MODEL and AVERAGE TAX RATES

4.1. Aim of the Application

As explained in the previous sections, in this thesis, tax revenues are considered as a part of effective fiscal policy. The effects of taxation on income distribution and the creation of a fair tax system are measured in macroeconomic terms by measuring the tax burden on labor and capital in this study. In addition to changing tax revenues over the years due to economic fluctuations, changes in public expenditures, inflation and fiscal structure of countries directly affect tax revenues. The impact of the increase in national income on tax revenues is also referred to as tax revenue elasticity.¹⁵⁸ The effect of economic growth on tax revenues and other selected macroeconomic variables will be measured in the tax revenues model.

In addition to the tax revenue elasticity, the impact of the integration to world economy of countries, public expenditures, inflation, economic size and fiscal centralization on tax revenues will be estimated by using panel data. In this model, economic integration is the main determinant variable and other variables are in the model as the control variable. In order to measure the effects of the crisis, dummy variables will be used especially for GIIPS countries.

When constructing econometric model, EU-15 countries' revenue growth and AETR rates will be estimated in this thesis. In terms of the data set, the data of the countries covering the years 1980-2015.¹⁵⁹ In this thesis for reflecting the larger data sets and in order to ensure the integrity of the study for tax burden Mc Daniel (2007)¹⁶⁰ dataset have been used as dependent variable. Tax revenue is estimated for 15 EU countries.

¹⁵⁸ Gilles Mourre and Savina Princen (2015), *Tax Revenue Elasticities Corrected for Policy Changes in the EU* (Luxembourg: Publications Office of the European Union), p.3.

¹⁵⁹ McDaniel (2007) AETR estimations are expanded by the Author until 2015 and the latest available data is 2015 for AETR in this study.

¹⁶⁰ McDaniel, C. Research Papers - www.caramcdaniel.com.
<http://www.caramcdaniel.com/researchpapers>. Accessed on 01/03/2019.

We will apply panel data econometric methods to understand impact of globalization on national budgets. First, fixed effects and random effects models for the EU member states will demonstrate the change of fiscal structure of 15 member states from 1980 to 2015. We will also use the similar model for 10 member states in order to explain the impact of economic integration process on capital and labor tax revenues.

Yearly data from 1980 to 2015 is collected from OECD, World Development Indicators and ICTD- Government Revenue Database. First, we will apply panel unit root tests to our dependent variables such as average effective tax rates tax and tax revenues. In addition to globalization indicators such as trade openness and FDI inflows we will also test the significance of centralization degrees.

With a panel data analysis, a new model will be created in estimates the growth model of tax revenues which the tax burdens on labor and capital are dependent variables and the predictors of tax burdens on labor and capital will be estimated using the same independent variables. Before panel regression estimations are made, unit root tests of dependent and independent variables will be made and the existence of long-term relationship between economic integration and tax burdens will be investigated.

4.2. Literature Review of the Application

Empirical results of studies about the relationship between globalization and taxation show that there is a complicated association between economic integration and tax rates on mobile production factors. According to previous studies, tax competition among countries to attract FDI and other kind of investments to their countries, does not exist in selected OECD countries with an agglomeration effect of trade.¹⁶¹ On the other hand some academics argue that there is a significant negative relationship between corporate tax rates and globalization.¹⁶²

Tanzi (2009) claimed that as international tax competition increased the formation of international tax authority will be required over time in order to prevent from negative externalities of tax competition. Nation States' efforts to reduce tax rates

¹⁶¹ Baldwin and Krugman, p.21; Rainald Borck and Michael Pflüger, (April 2006), "Agglomeration and Tax Competition," *European Economic Review* 50, no. 3, pp. 647–68.

¹⁶² Lucas Bretschger and Frank Hettich, (2005), "Globalization and International Tax Competition: Empirical Evidence Based on Effective Tax Rates," *Journal of Economic Integration*, 20, no.3, pp. 530–542.

and to minimize the impact of harmful tax competition increase the international organizations' role in the field of international taxation.¹⁶³ The OECD and the UN's efforts for harmonization of different national tax rules are the results of this trend. EU is also trying to establish common rules for the single market in the area of commodity taxation and income taxation. Since these institutional struggles have started and accelerated with the pace of globalization, the literature about taxation and globalization has enlarged distinctively.

The relationship between globalization and taxation is examined by academics as an interesting research topic. These studies concentrate on tax competition about corporate taxation, assessing average tax rates within panel data estimation and tax revenue determinants of countries. Empirical results of studies show that there is a complicated association between globalization and tax on mobile production factors. A brief summary of literature about taxation and globalization is shown in following table 14.

Table 14. Literature Review (Tax and Globalization)

Tax Competition (Capital to Labor)	No Tax Competition	Determinants of Tax Revenues
Rodrik (1997) capital tax negative and labor tax positive	Baldwin & Krugman (2004) (no capital tax competition)	Takashima (2007) No labor or capital but openness leads high consumption tax
Carey and Tchilinguirian (2000)	Borck & Pflüger (2006), Dreher (2006) Haufler (2008)	Clausing (2008) (bigger countries and high income tax choose higher captax)
Bretschger and Hettich (2005) (globalization has negative impact on capital tax)	Hafner (2015), No tax competition for labor but skilled ones.	Aizenman and Jinjara (2009) (easy to collect taxes)
Neumann et. Al. (2009), increasing mobility,	Egger et. al. (2016) globalization means high labor taxation (high skilled workers)	Onaran and Bösch (2010) ITR on labor and capital. Negative impact on capital ITR in postcom.

¹⁶³ Tanzi, "The Future of Fiscal Federalism," p.709.

Davies and Voget (2009) membership	Adam et. Al. (2013) meta-analysis reject globalization...	Monterio and da Silva (2011) (enlargement has no effect, openness)
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Source: Author's literature review.

According to game theoretical approach, tax competition among countries to attract FDI and other kind of investments to their countries, does not exist in selected OECD countries with an agglomeration effect of trade.¹⁶⁴ However, in some countries partial agglomeration exist and there is a limited tax competition in developing countries. On the other hand, some academics argue that there is a significant negative relationship between corporate tax rates and globalization.¹⁶⁵ According to Haufler *et. al.* (2008) corporate tax rates are decreasing because of tax competition about capital attractiveness relative to labor taxes with an effect of multinational companies.¹⁶⁶

Aizenman and Jinjark (2009), categorized public revenues as "hard to collect taxes" (VAT, income taxes, sales taxes) and "easy to collect taxes" (tariffs, inflation tax and financial repression). They find that there is a positive correlation between openness and "hard to collect" taxes but this relationship is negative for easy to collect taxes. The higher trade openness gives rise hard to collect taxes. Globalization has forced countries to reduce their trade barriers such as tariffs and custom duties. However this trend also increased Value Added Tax (VAT) and sales taxes.¹⁶⁷

Rodrik (1997) explains the effect of globalization on capital taxation and finds negative correlation between capital taxation and globalization, conversely globalization increases tax burden on labor which is also called efficiency hypothesis.¹⁶⁸ According to Monteiro and da Silva (2011) open economies' tax revenues are more sensitive to tax

¹⁶⁴ Baldwin and Krugman, p.22; Borck and Pflüger, "Agglomeration and Tax Competition," p. 648.

¹⁶⁵ Bretschger and Hettich, "Globalization and International Tax Competition," p.540.

¹⁶⁶ Andreas Haufler, Alexander Klemm, and Guttorm Schjelderup, (March 2008), "Redistributive Taxation, Multinational Enterprises, and Economic Integration," *European Journal of Political Economy* 24, no. 1, pp. 249–255.

¹⁶⁷ Joshua Aizenman and Yothin Jinjark, (May 2009), "Globalisation and Developing Countries – a Shrinking Tax Base?," *Journal of Development Studies*, 45, no. 5, pp. 653–671.

¹⁶⁸ Rodrik, p.21.

rates compare to less open economies. However, European enlargement does not have impact on tax revenues of member states.¹⁶⁹

According to quantitative analysis of Neumann *et. al.* (2009) increasing mobility causes depreciation of tax revenues but the governments are still have enough power to collect revenues.¹⁷⁰ Krogstrup (2004) also states that capital mobility causes tax competition and reduction of corporate tax rates of countries. The higher public expenditures are meeting with the higher labor taxation.¹⁷¹ Parallel to this result; Bretschger and Hettich (2005) explains that globalization affects capital tax rates negatively with a panel data estimation for 12 OECD countries.¹⁷²

The impact of globalization on taxation studies intensify on specifically capital taxation. Adam, Kammas and Lagou (2013), have summarized 20 years of empirical studies about the relationship between globalization and capital taxation meta-data regression model. They concluded that results might differ depending on the measurement of capital tax burden and globalization.¹⁷³

Another article about tax burdens and globalization finds that globalization increases implicit tax rates on capital and national economic policies are not independent from global trends.¹⁷⁴ On the other hand governments still powerful about collecting taxes although labor and capital mobility strains ability to collect tax.¹⁷⁵

Onaran, Boesch and Leibrecht (2012) investigates the effect of globalization on public expenditures and tax burdens (capital, labor and consumption) of EU-15 and Central and Eastern Europe (CEE), new member states (NMS). They contribute the existing literature by using ITR and KOF index for two different types of welfare states. EU integration dimension is omitted and ITRs are based on European Commission method, which is an extension of Mendoza, and Tesar (1994) method. According to this

¹⁶⁹ Monteiro, Brandão, and da Silva Martins, "A Panel Data Econometric Study of Corporate Tax Revenue in European Union," p.34.

¹⁷⁰ Rebecca Neumann, Jill Holman, and James Alm, (August 2009), "Globalization and Tax Policy," *The North American Journal of Economics and Finance* 20, no. 2, pp. 193–211.

¹⁷¹ Krogstrup, "Are Corporate Tax Burdens Racing to the Bottom in the European Union?", p.27.

¹⁷² Bretschger and Hettich, p. 530.

¹⁷³ Adam, Kammas, and Lagou, "The Effect of Globalization on Capital Taxation," p.199.

¹⁷⁴ Dreher, "The Influence of Globalization on Taxes and Social Policy," p.197.

¹⁷⁵ Neumann, Holman, and Alm, "Globalization and Tax Policy," p.195.

study globalization increases tax burden on labor but there is no direct relationship between tax burden on capital and globalization in EU-15. On the other hand, in CEE and NMS this negative effect does not exist for labor and capital.¹⁷⁶

Micro data is also used to analyze the impact of fiscal policies on income distribution. Dolls *et. al.* (2013) used EUROMOD micro-simulation model and estimated the possible results of a joint tax and transfer system in Euro area. In addition, they simulated a system of fiscal equalization and concluded that a joint tax and transfer system will be beneficial for Eastern European countries; this system has a stabilizing effect in a contrast with fiscal equalization mechanism.¹⁷⁷

Table 15 shows full list of literature about taxation and economic integration.

Table 15. Literature Review (Tax Revenues)

Study (Author, Year)	Data/ Period	Dependent Variable	Econometric Method	Results
Rodrik, Dani (1997)	Most of OECD countries (18)/ 1971-1990	EATR	Panel data regression	High tax burden on labor
Carey and Tchilinguirian (2000)	OECD countries/ 1980-1997	AETR	Re-calculation of AETR	New AETR estimates
Bretschger and Hettich (2002)	14 OECD countries/1967-1996	Effective Corporate Tax and labtax/cortax	Panel corrected standart errors (Beck/Katz)	Capital tax competition/ high tax burden on labor
Devereux and Griffith (2003)	USA, France, Germany, UK/ 1979-1999	EATR, EMTR	Calculation of tax rates	New EATR estimates affect investment decisions
Mendoza and Tesar (2003)	UK and continental Europe/ 1979-1996	AETR	Two country model	"Race to the bottom" in capital taxes
Baldwin and Krugman (2004)	16 OECD countries/ 1982-2001	Corporate tax revenue/ GDP	Tax competition model	No tax competition because of agglomeration
Krogstrup, 2004	Panel data of 14 EU members/ 1980-2000	EATR	FGLS	Reduction of corporate tax burdens
Bretschger and Hettich (2005)	12 OECD countries/ 1967-1996	Effective tax rates	Panel corrected standart errors (Beck/Katz)	Globalization has negative impact on capital tax
Borck, Flüger (2005)	Game theory approach	Corporate tax rates	Tax competition model	"Race to the top" in partial agglomeration
Mendoza and Tesar (2005)	US, UK, Germany and France/ 1970-1996	AETR	Tax competition model	Capital tax competition if consumption taxes are high
Dreher (2006)	OECD countries/ 1970-2000	EATR	Panel regression	Globalization increased capital tax rates
Guntram (2006)	25 EU countries/ 1990-2004	EATR	Calculation of tax revenues by Mendoza	Newly computed tax rates
Mc Daniel (2007)	15 OECD countries/ 1950-2003	Re-calculation of AETR	Calculation of tax revenues by Mendoza	Newly computed tax rates
Sen Gupta, (2007)	105 developing countries/ 1980-2005	Tax Revenue/ GDP	Panel regression FE, RE (GMM)	Structural factors affect revenue performance

¹⁷⁶ Özlem Onaran, Valerie Boesch, and Markus Leibrecht, (2012), "How Does Globalization Affect the Implicit Tax Rates on Labor Income, Capital Income, and Consumption in the European Union?" *Economic Inquiry* 50, no. 4, pp. 880–904..

¹⁷⁷ Mathias Dolls, Clemens Fuest, Dirk Neumann, Andreas Peichl, (2013), "Fiscal Integration in the Eurozone: Economic Effects of Two Key Scenarios," *ZEW-Centre for European Economic Research Discussion Paper*, no. 13–106, pp.1-23.

Takashima, (2007)	OECD countries/ 1970-1995	AETR	Panel regression FE, RE (GMM)	Trade openness leads high consumption taxes
Cassette and Paty (2008)	EU-27/ 1995-2005	statutory corporate tax rate	GMM	Tax interdependence within the Western EU
Clausing, 2008	36 OECD and EU/ 1979-2002	Corporate tax rates+Tax Revenue/ GDP	Panel regression	More integrated countries chose lower corporate tax rates
Haufler et. Al. (2008)	23 OECD countries/ 1980-2004	the ratio of corporate to wage taxes	Sensitivity analysis	No tax competition for labor
Aizenman and Jinjark (2009)	Over 60 countries/ 1980-1999	Tax Revenue/GDP	Panel data regression	Easy to collect taxes decrease due to globalization
Davies and Voget (2009)	EU member states/ 1980-2005	EATR	Tax competition model	EU membership affects tax competition positively
Haufler et. Al. (2009)	23 OECD countries/ 1980-2004	corporate taxes to wage taxes	Panel regression model	Countries reduce their corporate tax rate, relative to the wage tax
Neumann et. Al. (2009)	US and OECD/ post WWII period	Tax rates	Two country model	Increasing mobility causes tax competition
Onaran and Bösch (2010)	EU-15, CEE NMS	ITR's on capital, labor	Panel data, GMM	Negative impact on capital ITR in CEEMS
Monteiro et. al., 2011	Panel data of 27 EU members/ 1998-2009	Tax Revenue/ GDP ratio+EATR+EMTR	Feasible Generalized Least Squares (FGLS)	EU enlargement has no effect but trade openness on tax revenues
Ünlükaplan (2011)	Turkey/ 1980-2006	EATR (Mendoza et.al., 1994)	Calculation of tax revenues by Mendoza	Measuring AETR of Turkey
Culha, 2012	Turkey/ 2002-2012	Tax revenue	Granger causality	Economic fluctuations affect tax revenues in Turkey
Adam et. Al. (2013)	Metadata analysis	Different tax revenues	Metadata analysis	Different tax rates and globalization variables change the result of tax models
Gastaldi et al. (2013)	16 countries/ 1975-2005	implicit tax rates	FGLS Model	Economic integration causes a decline of the ITR on mobile capital
Angeles Castro and Ramirez Camarillo (2014)	34 OECD countries/ 2001-2011	Tax Revenue/ GDP	Panel regression FE, RE (GMM)	FDI has a negative impact on tax revenue
Üngör (2014)	Turkey/ 1998-2012	Consumption EATR	Calculation of tax rates by Mendoza	Measuring AETR of Turkey
Sharma and Singh, (2015)	India/ 1999-2012	Tax revenue generation	Multiple regression analysis (principal c.a.)	three factors influence tax revenue performance in India
Egger, P. H., Nigai, S., & Strecker, N. (2016)	65 countries/ 1980-2007	Tax rates, tax revenues	Panel regression	Globalization means high labor taxation
Zimmermannova et. Al., 2016	Czech Republic/ 2005-2012	Tax revenues	Pearson's and the Spearman's correlation	Positive relationship between regional GDP and VAT revenues

To our best knowledge in literature there is no specific study about revenue sided fiscal centralization degree of member states and its effect on average effective tax rates. This thesis will contribute three important factors to explain average effective tax rate differences in the EU. First fiscal centralization degree will be used as an explanatory variable. Secondly, indirect to direct taxation ratio will be used as an explanatory variable. Finally, country specific dummies for 2008 financial crisis and

economic integration levels will be used in order to scrutiny tax burdens in an economic union.

This thesis is developed in two different theoretical approaches to economic integration. In first approach, academics concentrate on some degree of fiscal centralization and transferring of national budget sovereignty from member states to EU's central fiscal authority. Although federalism is used for decentralization in literature, in our case, fiscal federalism relates to transfer fiscal sovereignty from member states to central EU budget. Federalism also indicates unionist approach instead of intergovernmental one for the EU. Second theoretical approach illustrates fiscal coordination or harmonization of national fiscal policies in the EU. Between these two different approaches, we will scrutinize public revenue structure of the EU member states.

4.3. Econometric Model

4.3.1. Tax Revenue Model and Data

Panel data analysis will be used to understand impact of globalization on national budgets. We run ordinary least squares method for the EU and demonstrate the change of tax structure of member states and the EU. Yearly data from 1980 to 2015 is collected from OECD, World Development Indicators and Swiss Economic Institute Database. First, we will apply panel unit root tests to our dependent variables such as average effective tax rates. In addition to globalization indicators such as trade openness and FDI inflows, we will also test the significance of centralization degrees.

Short-term determinants of stationary dependent variables; tax revenue growth rate and average effective tax rates (AETR) will be estimated by panel data estimation methods. In order to illustrate short-term revenue determinants we will use revenue growth rate as a dependent variable.

The model to be used for the panel estimator showing the short term relationship is formulated below. The results of unit root tests show us that stationary dependent variables and independent variables were used in the model.

Tax Revenue Growth = f (trade, FDI inflows, kof, political, growth, govexp, inflation, size, centralization, inddirect, crisis dummy)

Static model;

$$\text{Revgrow}_{it} = a_{it} + \beta X_{it} + n_i + e_{it} \quad i=1, \dots, N \quad t=1, \dots, T_i \quad (1)$$

Dynamic model;

$$\text{Revgrow}_{it} = b_i \text{revgrow}_{i,t-1} - \beta X_{it} + n_i + e_{it} \quad i=1, \dots, N \quad t=1, \dots, T_i \quad (2)$$

Where,

a_i ($i=1 \dots N$) is the constant variable for each country,

b_i ($i=1 \dots N$) is the unknown intercept for each country,

Revgrow_{it} is the dependent variable where i = countries and t = time

X_{it} represents the vector of independent variables

β is the vector of coefficients for independent variables

n_i is the country specific effects

e_{it} is the error term.

Explanatory and dependent variables and their definitions are listed in Table

15.

Table 16. Dependent and Explanatory Variables

Dependent	Explan. var.	Definition	Source
Revgrow		Tax revenues in million dollars growth rate	OECD
AETRcap		Average effective tax rates on capital	(McDaniel, 2007)
AETRLab		Average effective tax rates on labor	(McDaniel, 2007)
	Trade	Trade in goods and services/ GDP	WDI
	FDI inflows	Net foreign direct investment inflows/ GDP	WDI
	Growth	GDP growth (annual %)	WDI
	Govexp	Government expenditure/GDP	WDI
	Inflation	GDP deflator, yearly	WDI
	Size	National GDP/ world GDP	WDI
	Centralization	Tax revenues of general government/ Total tax	OECD
	KOF	Economic globalization index	Swiss Economic Institute
	Political	Economic globalization index	Swiss Economic Institute
	Inddirect	Indirect tax revenues to direct tax revenues ratio	OECD

Since ordinary least squares (OLS) method causes biases in panel data analysis, we have also applied Generalized Method of Moments (GMM) to explain tax revenue determinants in EU countries. Pooled OLS, random and fixed effects models are tested separately and tested which one is more accurate to estimate. OLS method may cause endogeneity problem in panel data models. GMM estimator developed by Arellano and Bond (1991)¹⁷⁸ is based on moment equations constructed from further lagged levels of dependent variable and the first-differenced errors. In our tax revenue model, total tax revenue growth is the dependent variable; total tax revenue data is gathered from OECD statistics in million dollars and calculated with growth formula. Moreover, we test the significance of direct and indirect tax to GDP ratio as dependent variable. In order to control tax structures of countries, indirect tax revenue to direct tax revenue ratio has been used in the model. Other dependent variables average effective tax rate (AETR) on capital and labor are also tested with panel data unit root tests. The dataset which is used in the model summary statistics of dependent and independent variables are presented below in table 17.

Table 17. Summary Statistics of Dependent Variables (EU-15)

	Mean	S.D.	Min	Max
growth	2.188	2.786	-9.132	26.276
fdiin	4.923	14.957	-58.323	252.308
tradegdp	86.592	57.113	31.592	419.529
govexp	20.222	3.226	12.549	27.935
inflation	4.1	4.609	-5.256	27.213
centr	59.154	13.455	29.241	86.209
size	1.426	1.57	0.043	6.602
inddirect	0.972	0.379	0.493	2.544
revgrow	6.778	12.859	-26.271	71.716
kof	78.137	12.428	43.18	99
social	75.288	13.505	34.95	92.4
political	87.347	11.923	44.55	98.41

Growth rates of annual tax revenues in dollar terms are considered as dependent variables in this study. FDI, total goods and service flows, and KOF indices are the explanatory variables in the model. As can be seen from the correlation matrix,

¹⁷⁸ Manuel Arellano and Stephen Bond (April 1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *The Review of Economic Studies* 58, no. 2, p.277.

the relationship between these variables is high and the significance of individual globalization indicators will be tested in this study. In the model, the relationship between growth, public expenditures, inflation, the degree of centralization and the variables of economic size as control variables is tested by correlation matrix.

Table 18. Correlation Matrix

	growth	fdiin	tradedgdp	govexp	inflation	centr	size	inddirect	revgrow	kof	social	political
growth	1											
fdiin	0.1	1										
tradedgdp	0.22	0.51	1									
govexp	-0.33	-0.05	-0.14	1								
inflation	0.0	-0.1	-0.22	-0.32	1							
centr	0.2	0.13	0.32	-0.21	0.17	1						
size	-0.08	-0.16	-0.44	-0.08	0.01	-0.51	1					
inddirect	-0.08	-0.11	-0.32	-0.29	0.49	0.13	-0.1	1				
revgrow	0.24	-0.08	-0.09	-0.24	0.32	0.11	0	0.26	1			
kof	0.16	0.32	0.65	0.15	-0.6	0.29	-0.33	-0.43	-0.22	1		
social	-0.07	0.19	0.25	0.39	-0.8	-0.14	-0.1	-0.46	-0.32	0.67	1	
political	-0.22	-0.02	-0.27	0.5	-0.38	-0.06	0.01	-0.19	-0.23	0.13	0.5	1

When the correlation coefficients are taken into consideration, it is observed that the data sets such as trade openness, social and political integration and KOF index, which we add to the model as economic variables, have high correlation as expected. Since economic integration variables have positive correlations within themselves, attention has been paid not to use more than one economic integration component in tax revenue growth model. Moreover, inflation is not used as an explanatory variable since there is a high correlation between inflation and globalization variables in EU-15 countries.

4.3.2. A Panel Data Analysis of Tax Revenues

Measurement of macroeconomic tax burdens differs in various studies. In this thesis, the economic classification for determining tax burdens on capital and labor will be used. Tax revenue levels and revenue growth in constant prices, tax to GDP ratios, tax type to total tax revenue ratios and effective tax rates are used in order to analyze tax burden. In addition, revenue growth mode includes macroeconomic variables as control variables. Most of the tax to GDP ratios exist in OECD and ICTD statistics. However,

we use MC Daniel (2007) approach in order to analyze AETR on labor and capital. Because implicit tax rates which European Commission calculates does not include the years before 1995.

In the EU, average tax revenues to GDP ratio consists of 38.7% and it is above the OECD average. There are significant differences between tax systems of member states. For instance, some countries' public revenues are based on social security contributions, others, especially developing ones' tax systems, are based on indirect taxes and this heterogeneity also exist in the EU. For example, in Denmark, France and Belgium tax revenue to GDP ratio is around %45 and more, while in Romania, Bulgaria and Ireland, that ratio is under 30% in 2017. Belgium, Germany and Austria are in a very high level of financial autonomy, which means that these countries impose fiscal decentralization while in United Kingdom and Ireland tax revenue share of central government is around 90% which is very high relative to other EU member states.

In addition, share of social contributions in public revenues differ from country to country significantly.¹⁷⁹ These differences make common harmonized tax policy unrealistic and there are many political obstacles on creating common fiscal policy in the EU. Moreover, lack of harmony in tax policies blocks creating fiscal union unless bring out a centralized, common EU budget. Only creating this type of fiscal capacity may reduce the negative impact of financial crises and accelerate structural reforms in the EU.

If tax rates concerned, new member states impose lower tax rates, especially lower corporate tax rates, in order to attract foreign investment and there is a certain amount of tax competition among new member states. An attractive tax policy for capital flat tax rates are implemented by Baltic sites such as Estonia, Lithuania and Latvia. In addition to these countries, Cyprus and Luxemburg are considered as tax haven according to Oxfam research paper.¹⁸⁰ Finally, Switzerland with a high level of banking secrecy, a loophole in the middle of the EU, although it is not a member of the

¹⁷⁹ European Commission, (2017), *Taxation trends in the European Union* | DG Taxation and Customs Union, p. 14.

¹⁸⁰ Oxfam International (2016), "Tax Battles: The dangerous global Race to the Bottom on Corporate Tax". *Oxfam.org*. p.4, <https://www.oxfam.org/sites/www.oxfam.org/files/bp-race-to-bottom-corporate-tax-121216-en.pdf>. Accessed on 04/10/2017.

EU, Switzerland is within the European Economic Area and this situation also affect functioning of single market.

Calculating tax burdens on factor incomes is a common way to analyze macroeconomic impacts of taxation. Our calculations of AETR on capital and labor reflects this common approach. Other options such as tax revenue levels in constant prices or in dollar, tax to GDP ratios, tax type to total tax revenue ratios help to assess tax system of countries.¹⁸¹

In order to calculate tax burden of a country or a group of different jurisdictions, different methods have been used by academics. OECD publishes tax revenues to GDP ratio statistics, certain type of tax revenue to total tax revenue ratios yearly and those statistics give deep inside for revenue side fiscal performance of OECD member countries. According to OECD's Revenue Statistics, total tax revenue divided by GDP measures government share in an economy. In northern countries such as Denmark, Norway tax to GDP ratio is very high. Contrary to developed countries, developing countries such as Turkey has lower tax to GDP ratios. In order to analyze tax burden on income factors we need more detailed national account statistics.

In this thesis, we will use tax burden on capital and labor for analyzing the impact of economic integration on tax burdens on production factors. The calculation of Turkish AETR is based on McDaniel (2007) study of measuring average effective tax rates of 15 OECD countries. Mc Daniel (2007) has developed a new formula in order to calculate AETRs.¹⁸²

4.3.2.1. Panel Unit Root Tests of Dependent Variables

Panel unit root tests for revenue growth and average effective tax rates for EU-15 are applied in order to determine stationary process of these series. Revenue growth rates are stationary according to common individual first generation unit root tests for. In addition to classical unit root tests we have also applied Pesaran's cross sectional

¹⁸¹ Yücememiş and Erol, pp. 24–42.

¹⁸² McDaniel, C. (2019). Research Papers - www.caramcdaniel.com.
<http://www.caramcdaniel.com/researchpapers>. Accessed on 04/03/2019.

dependence augmented Dickey Fuller test (PESCADF)¹⁸³ in presence of cross sectional dependence. Dependent variables are also tested for cross sectional dependence and the presence of dependence detected in most of them. Revenue growth variables have a cross sectional dependence according to cross-section dependence test.¹⁸⁴ In the presence of cross sectional dependence revenue growth data is still stationary according to results table 19 that is presented below.

Table 19. Unit Root Tests

Variables	Levin, Lin & Chu*	Im, Pesaran & Shin*	ADF-Fisher*
Revgrow	-7.6369 (0.0000)	-9.9382 (0.0000)	237.6512 (0.0000)
AETRlab	-3.3573 (0.0004)	-2.4113 0.0079	40.1028 0.0048
AETRCap	-2.8086 (0.0025)	-2.1004 0.0178	35.7648 0.0164
KOF	-4.6368 (0.0000)	-3.5634 (0.0002)	67.5013 (0.0001)
Inddirect	-1.5891 (0.0560)	-1.6287 (0.0517)	38.9682 (0.0814)

* Null hypothesis for Tests: Unit root

First generation unit root tests such as Levin, Lin and Chu (2002)¹⁸⁵ and Im, Pesaran and Shin (2003)¹⁸⁶ show that both AETRlab and AETRCap variables are stationary. According to Pesaran (2004) test revgrow variable is cross sectionally dependent. We have applied PESCADF¹⁸⁷ test which is more effective in the presence of cross-section dependence. The results of PESCADF test are listed on table 20.

¹⁸³ Jorg Breitung and M. Hashem Pesaran, (October 2005), "Unit Roots and Cointegration in Panels," *CESifo Working Papers*, no.1565.

¹⁸⁴ Pesaran, M. Hashem (2004) General Diagnostic Tests for Cross Section Dependence in Panels', *IZA Discussion Papers*, No. 1240.

¹⁸⁵ Levin, Andrew & Lin, Chien-Fu & James Chu, Chia-Shang, (2002). "Unit root tests in panel data: asymptotic and finite-sample properties," *Journal of Econometrics*, Elsevier, vol. 108(1), pp. 1-24.

¹⁸⁶ Im, Kyung So & Pesaran, M. Hashem & Shin, Yongcheol, (2003). "Testing for unit roots in heterogeneous panels," *Journal of Econometrics*, Elsevier, vol. 115(1), pp. 53-74.

¹⁸⁷ Author of the code: Piotr Lewandowski, Warsaw School of Economics, Institute for Structural Research, Poland.

Table 20. PESCADF Tests for Dependent Variables (EU-15)

	Pesaran's CD Test*	Pesaran CD ADF Test**
	P values	P values
Revgrow	0.000	0.001

*Null hypothesis for Pesaran CD: There is no cross sectional dependence

**Null hypothesis for Pesaran CD ADF: Unit root

In EU-15 tax revenue growth series are stationary even the existence of cross sectional dependence. The results show that dependent variables do not have unit root which means that these variables are stationary. Even in the presence of cross sectional dependence tax revenue growth series are stationary. Panel unit root tests for dependent variables also shown in Appendix 2 in detail.

4.3.2.2. Economic Integration Indicators

Globalization gives rise to economic convergence among nations also it changes public revenue systems of countries. Parallel to removing governments' control on capital, taxation of capital movements is more difficult than before. Our research focus on that whether higher economic integration has caused higher tax burdens on labor relative to capital tax burdens.

The relationship between globalization and taxation is examined by academics as an interesting research topic. We have tested the significance of different integration variables such as trade volume, FDI and globalization (economic and political) index. Panel unit root tests that are used show only the trade to GDP ratio has a unit root processes, other globalization indicators have a stationary process according to first generation unit root tests.

In this thesis, we have used five different economic integration indicators. As explained in third chapter, trade volume and FDI inflows are the main determinants of economic globalization in literature. In addition to these variables KOF index¹⁸⁸ calculates different globalization indicators. We have tested the significance of flows index (harmonization of FDI and trade to GDP ratio), economic globalization index (KOF) and political globalization index (political) in the model.

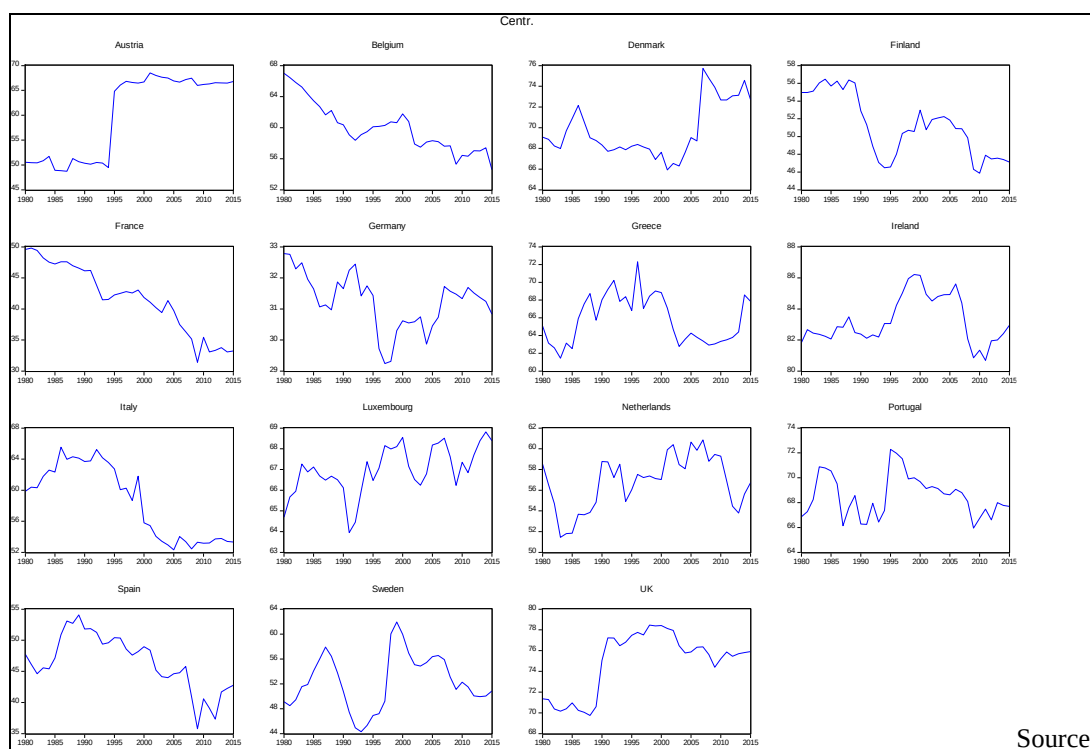
¹⁸⁸ KOF Swiss Economic Institute, (2017), *KOF Index of Globalization*, <http://globalization.kof.ethz.ch/query/>. Accessed on 01/04/2019.

KOF index differs from flows because it covers restrictions such as trade barrier. Political globalization has different characteristics and we have added to the model in order to include non-economic aspects of globalization. The long-term relationship between non-stationary series of economic integration and AETR on labor or capital will be investigated in this thesis.

4.3.2.3. Fiscal Centralization Degree

OECD's tax revenue statistics involve tax revenue share of central government in total tax revenues. In tax revenue model, panel data is estimated by the impact of centralization on AETR. Since each member state has a peculiar tax system, centralization degrees differ among EU-15 and new member states. Centralization degree also indicates new member states central planning oriented tax system. After 1995, these countries started to decentralize their public revenue system. In EU-15, there is heterogeneity among member states about fiscal centralization. Graphics of each member states' centralization degrees are shown below.

Graphic 12. Tax Revenue Centralization (EU-15)

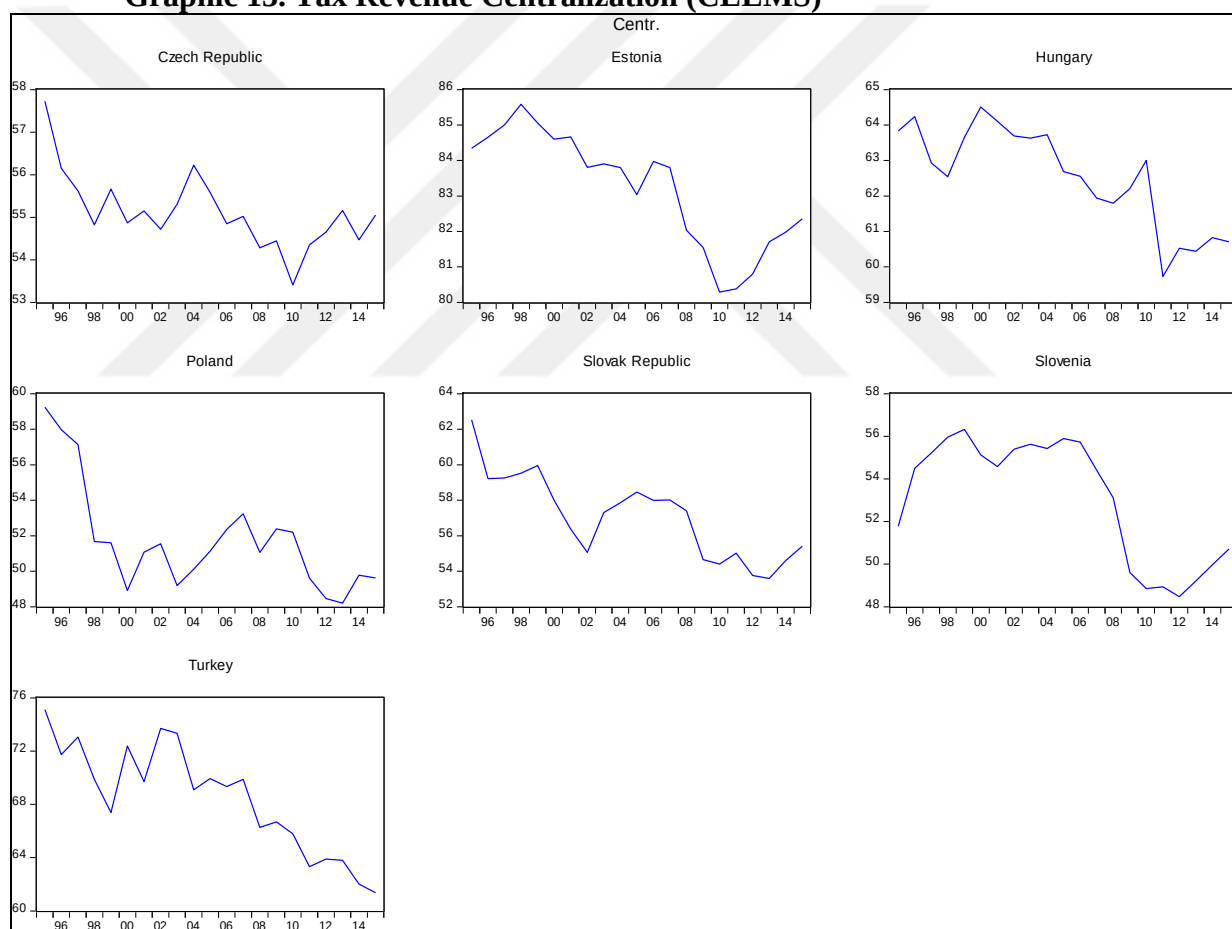


OECD, (2018), Tax Revenue Statistics.

There is a fiscal decentralization trend in EU-15 except in Austria, Denmark and UK. The most centralized tax systems exist in Ireland and UK. In a contrast, France has a politically centralized system but collection of taxes is decentralized. There is a significant tax decentralization in Italy, France and Belgium.

Contrary to central planning past, most of the new member states are decentralizing their tax collecting system. The share of tax revenues collected by central government is decreasing after 1995. However, this trend has reversed after 2010 in new member states. Graphic 13 shows tax revenue centralization degree in CEEMS.

Graphic 13. Tax Revenue Centralization (CEEMS)



Source: OECD, (2018), Tax Revenue Statistics.

In Turkey, centralization degree has reached around 60 percent in 2015 from %78 in 1995. There is a certain amount of decentralization in Turkey after Customs Union declared in 1995. In a contrast the decentralization trend has changed in Estonia, Czechia and Slovenia after 2010.

According to panel unit root tests in Appendix 3 tax centralization is non-stationary in EU-15 and new member states. According to panel unit root tests, 10 EU countries' AETR series have a non-stationary process and panel data estimation of these series are biased according to unit root tests.

4.3.2.4. Direct versus Indirect Taxation

According to tax collection method, two main categories of direct and indirect taxation are accepted all over the world. Income tax, corporate tax and inheritance tax, which are generally based on the declaration system, are called direct taxation. If taxes are collected on the basis of a transaction or consumption of the property, the method is called indirect taxation. This classification gives detailed information about the tax structures of countries.

Taxes on goods and services in an economy may lead to a number of deviations from the market structure characteristics and indirect taxes do not take into account sufficiently the fair distribution of income from inequality perspective. For this reason, as a progressive method, the importance of income taxation has increased. Direct tax assessed on progressive income tax or increasing the minimum wage can be in features such as taxes. Due to these properties, income taxation directly affects the distribution of income and progressivity is one of the most important components of an effective tax policy that can be used for different purposes.

In order to analyze taxation systems in the EU, indirect tax revenues divided by direct tax revenues is used in our tax revenue growth model. Indirect taxation oriented revenue system has an advantage of easy collection but the higher indirect tax to direct tax revenue means the higher volatility and unequal system.

4.3.2.5. Determinants of Tax Revenue Growth

In this thesis, an econometric model has analyzed the impact of globalization on tax revenues. In addition to economic integration, economic growth and government expenditures adapted in to the model as control variables to analyze tax revenues. Moreover, Euro-zone economic crisis has also affected tax revenues in EU member

states. We have added dummy variables for periphery countries such as Greece, Ireland, Italy, Portugal and Spain. Other control variables as listed on table 16 are government expenditure share of GDP and economic size of member states.

Another important factor of tax revenue growth model, tax centralization degree indicates the share of central governments' tax revenues in total tax revenues. Fiscal federalism theory tries to find an optimal solution to tax assignment problem. Tax collection process may be performed by different levels of government and redistribution of income also changes the disposable income of individuals. This thesis tests the importance of centralization on tax revenues separately in EU-15 also evaluates the impact of centralization on average tax rates on labor and capital.

4.3.3. Results for EU-15

In the following table 21, the effect of economic integration on tax revenues was investigated by the random effect and fixed effect model. First of all, trade volume and FDI inputs, which are indicators of trade openness, were estimated and it was determined that these two variables were affected in the same direction but these coefficients were insignificant. Then, the variables of flows (trade and FDI) and the effect of KOF were tested. It is concluded that the impact of economic globalization on tax revenues is negative and significant at 10% level in random effect model. Nevertheless, political integration is more important for tax revenues in all three models.

Table 21. Results of Tax Revenue Growth Model

	Random Effect	Fixed Effect	GMM
VARIABLES	revgrow	revgrow	revgrow
L.revgrow			0.131*** (0.0418)
growth	0.935*** (0.208)	0.766*** (0.237)	0.757*** (0.226)
kof	-0.195*** (0.0521)	-0.0997 (0.0803)	-0.0427 (0.0911)
political	-0.119** (0.0502)	-0.166** (0.0832)	-0.198** (0.0977)
govexp	-0.0165 (0.234)	-0.365 (0.425)	-0.292 (0.493)

indirect	5.591*** (1.671)	15.36*** (3.511)	16.23*** (3.769)
size	0.122 (0.403)	0.650 (1.577)	0.355 (1.681)
centr	0.109** (0.0500)	0.180 (0.150)	0.179 (0.177)
crisisdummy	-10.18*** (3.846)	-8.190** (3.985)	-6.041* (3.651)
Constant	18.97** (7.784)	8.411 (14.65)	3.692 (17.59)
R-squared	0.193	0.189	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In table 21, the effect of different explanatory variables on tax revenues was investigated with three different panel data methods. Here, it is seen that political integration, which is an indicator of globalization, negatively affects tax revenues and its coefficients are significant at 5% level. In the estimations using the KOF and political integration index instead of FDI and trade openness data, the negative impact of political integration on tax revenues is observed in the model. Political globalization index has a negative effect on tax revenues in all models.

As seen from the table 21, the lagged value of the dependent variable was found to be positive in dynamic model and the effect of growth on tax revenues decreased. In all models, there is a significant positive indirect taxation effect. The more indirect taxation oriented economies means the more potential to create tax revenues. The fact that political integration coefficient is negative means that political convergence among nations negatively affects tax revenues in short-run. In addition, dummy variables related to the crisis show that tax revenues are negatively affected during the crisis period. In other words, dummy variables related to the crisis were found to be significant and negative.

4.3.4. AETR, Trade Openness and Centralization in EU-10

a) Capital taxation

Ten EU member states' average effective tax rates have been analyzed by panel data estimation methods. In addition to political and economic globalization index, we have added the indirect to direct tax revenues ratio in order to measure short term relationship between tax structures and AETR on capital. Table 22 presents panel data estimation results for 10 EU member states.

Table 22. AETR on Capital (Results)

	POLS	RE	FE	GMM
VARIABLES	aetrcap	aetrcap	aetrcap	aetrcap
L.aetrcap				0.619*** (0.0377)
growth	0.427*** (0.0890)	0.118* (0.0656)	0.0819 (0.0651)	0.102** (0.0418)
kof	0.0760*** (0.0171)	0.164*** (0.0152)	0.173*** (0.0153)	0.0335*** (0.0125)
political	0.0389 (0.0252)	-0.0791*** (0.0225)	-0.0797*** (0.0227)	-0.0272 (0.0177)
inddirect	-13.86*** (1.011)	-7.959*** (0.970)	-7.573*** (0.962)	-5.465*** (0.752)
govexp	0.732*** (0.0754)	-0.0853 (0.0983)	-0.199* (0.101)	-0.188*** (0.0710)
centr	0.111*** (0.0174)	0.0282 (0.0255)	-0.000744 (0.0277)	0.0123 (0.0191)
size	0.544*** (0.126)	0.0613 (0.270)	0.310 (0.315)	-0.450** (0.223)
crisisdummy	-1.925 (1.673)	-0.0827 (1.120)	0.0444 (1.095)	-0.544 (0.663)
Constant	1.754 (2.765)	23.64*** (3.429)	26.13*** (3.364)	17.11*** (2.813)
Observations	360	360	360	340
R-squared	0.659		0.431	
Number of countries		10	10	10

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Results of three models show us that there is a negative relationship between indirect taxation and capital tax burden. KOF has a positive significant effect on capital

tax burden. GMM estimation confirms the positive relationship between KOF and tax burden on capital in 10 selected EU member states. According to GMM one percent increase in economic globalization index generates 0.03 increase in AETR on capital. To summarize, economic integration in 10 selected EU member states produces the higher capital taxation and indirect taxation oriented systems reduce tax burden on capital in short run.

b) Labor taxation

AETR on labor in 10 EU member states is also affected by KOF index, which is used as an economic integration indicator. Both economic and political globalization index affect labor tax burden positively. In labor taxation, government expenditures increase tax burden and political or economic integration give rise to labor taxation in 10 selected EU member states.

Table 23. AETR on Labor (Results)

	POLS	RE	FE	GMM
VARIABLES	aetrlab	aetrlab	aetrlab	aetrlab
L.aetrlab				0.853*** (0.0251)
growth	0.223* (0.114)	0.241*** (0.0743)	0.167** (0.0692)	0.0305 (0.0305)
kof	0.0335 (0.0220)	0.0481*** (0.0171)	0.0548*** (0.0162)	-0.0270*** (0.00808)
political	0.0889*** (0.0324)	0.1000*** (0.0248)	0.116*** (0.0241)	0.0333** (0.0148)
inddirect	-4.159*** (1.299)	-5.001*** (1.087)	-5.916*** (1.023)	-0.783 (0.501)
govexp	0.915*** (0.0970)	0.658*** (0.102)	0.492*** (0.108)	0.130** (0.0515)
centr	-0.188*** (0.0224)	-0.0840*** (0.0247)	-0.0212 (0.0294)	0.0263* (0.0144)
size	-0.283* (0.162)	0.106 (0.235)	0.407 (0.335)	-0.00718 (0.160)
crisisdummy	-3.354 (2.151)	-0.641 (1.306)	0.152 (1.164)	-0.258 (0.485)
Constant	19.70*** (3.555)	17.28*** (3.618)	15.70*** (3.576)	0.941 (2.005)
Observations	360	360	360	340
R-squared	0.471		0.336	

Number of countries		10	10	10
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Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

GMM estimation indicates there is a negative relationship between indirect taxation and tax burden on labor in 10 EU member states. Another inference from the table 23 is that political integration increases tax burden on labor. Nevertheless, the impact of indirect taxation is limited in labor tax burden according to capital taxation. Finally, revenue centralization coefficient is negative and statistically significant except the result of GMM estimation.

4.4. Results

According to our estimations with available data in E-15, there is a negative relationship between political integration, which is an important indicator of globalization, and tax revenues. The more politically integrated economies means the less capability to collect tax revenues of member states in short run. As an indispensable part of globalization, financial crises also affect tax revenues negatively in EU-15. GIIPS countries' tax revenues have been affected by financial crisis and tax burden on labor has increased except the AETR of Italy and Spain.

Because of global trend of increasing debt burdens, countries started to finance their increasing public expenditures with indirect taxes such as value added tax and excise taxes. Although these consumption taxes are easy to collect, indirect taxation creates distortions in an economy. Moreover, these type of taxes cause unfair income distribution.

Increasing indirect taxation part of public revenue system also has created new potential for EU member states. Moreover, there is a negative relationship between indirect taxation and tax burden on both capital and labor, which is a more attractive policy for governments. However, the higher indirect taxation results with much lower tax burden on capital than it is on labor.

AETR on capital is increasing parallel to economic integration in 10 selected member states. Financial crisis is neutral about tax burden on capital and labor.

Nevertheless, tax collection efforts of member states, especially in times of global financial crisis, are tended to be regulated by indirect taxation. Indirect taxation is more capital friendly policy and it reduces tax burden on capital. Due to globalization, the share of consumption taxes is increasing in total taxation and this process resulted with higher tax burden on labor indirectly. Another result of the model is that centralization has a negative influence only AETR on labor. We may conclude that fiscal centralization is more labor friendly policy for governments.

Different taxation systems and heterogeneity of tax structures increased the impact of asymmetric shocks. EU's inclusive and sustainable growth policy suggests that more labor friendly taxation is a suitable policy for member states. GIIPS should apply more effective tax policies and should increase the share of direct taxation. Implementing efficient income tax and benefit system and increasing the efficiency of social security system will help ensuring more labor friendly taxation system and provide steadier tax revenues.

CONCLUDING REMARKS

The idea that the missing part of the puzzle is a fiscal union within the EU for the completion of the European Monetary and Economic Union has become the dominant thought in the European economic governance in recent years. The global financial crises, experienced by the EU, brought new ideas such as a stronger fiscal integration to build a strong structure against these crises. The reaction of the member states against the political union is an indication that the EU integration in the future will be fiscal and economic than it is political. The monetary union, which gained momentum at the beginning of the 2000s, brought about a divergence between the member states, especially the core member states and the periphery countries. The fact that the monetary union has no preventive effect on the crisis, has caused the crisis to deepen and to spread rapidly within the EU, thus bringing together the necessity of a common fiscal policy.

The main condition for establishing a common fiscal policy in the fight against the crisis is to strengthen the central budget of the EU. Currently, the EU central budget has no capacity to withstand financial shocks. In the first phase, closely monitoring the budgetary processes of countries and ensuring harmonization of revenue policies will form the basis of the common central budget. However, it is not possible for the central budget to obtain sustainable and sufficient revenue sources in the short term. The EESF and its ESM, which were created instead, is thought to be effective in the fight against the crisis in the short term. In our view, in order to create a more stable fiscal union in the long term, the EU central budget should reach sufficient size of its own tax revenues, bring the tax policies of the member countries closer together and transfer some of the member tax revenues to the central budget as a part of this tax harmonization.

In the light of the econometric study of this thesis, the determinants of the tax revenues of the EU-15 countries were specified as economic growth, political integration, economic integration and indirect taxation. On the other hand, the financial

crisis has been shown by using a dummy variable in which countries can significantly reduce tax revenues. According to this analysis, it is seen that the global financial crisis reduces the revenues of EU-15 countries. Financial crises, which have been observed in the EU-15 countries after 2008, both, reduce economic growth and tax revenues. The extent of this reduction in tax revenues depends on the decrease of tax burdens, which is also called automatic stabilization. However, the econometric forecasting shows that the different tax structures between the member states do not always show this feature of the automatic stabilization effect of taxation. For instance, while tax revenues of Greece and Ireland declined during the crisis, tax burdens on labor and capital in Ireland decreased further than it is in Greece.

Economic globalization has limited tax collection capacity of EU-15, with increases in economic and political integration negatively related to tax revenues. On the other hand, tax burdens on capital and labor of member states were not affected by globalization in short and long-term analyzes. In line with the econometric work, no tax competition was aimed to attract capital for EU-15 countries. Fiscal decentralization is another factor that reduces tax revenues. In other words, as the share of the central budgets in total tax revenues increases, the tax collection capacity also increases. Moreover centralization of tax revenues decreases labor tax burden in our model.

Globalization affected tax revenues in different directions. Foreign direct investments affected the tax revenues positively but the trade deficit negatively. On the other hand, it was concluded that economic globalization in the long term reduced the tax burden on capital and that there was a tax competition among the new member countries in the long run. It is determined that the tax burden on labor increases parallel to economic growth and this increase is more common in small countries, however capital tax competition is more intense in small countries. To sum up, economically small countries have higher labor tax burdens with lower capital tax burdens which means that tax competition over capital in these countries is higher than EU-15.

Turkey is a candidate country which is the weight of indirect taxes is higher in terms of the tax system, the implementation of the progressive income tax and a country where the implementation of significant incentives in the taxation of capital investment.

The Turkish tax system, which has undergone significant changes in the economic integration process, was designed to close the budget deficits rather than a growth-oriented and fair tax system. In this thesis increasing the progressivity of the income tax, which is fairer for income distribution, in contrast rising tax rates of indirect taxes on which has a harmful effect on environment and public health, are recommended for Turkish tax system. Tax and benefit system must be redesigned to ensure fairness in the distribution of income by using social assistance programs and progressive taxation together.

When we approach the issue in terms of monetary and economic union, harmonization in the EU fiscal system needs to be focused on taxes such as corporate tax and financial transactions tax, and arrangements should be made to remove international capital movements from being speculative. The proposal to establish a common corporate tax base and to tax the financial transactions between the Member States is an important step in this direction. In addition, the collection of some of the environmental taxes at the EU center is also proposed by different studies.

The fiscal structures of the member states, especially the tax systems, are very different. International goods and services flows accelerate due to globalization, and a tax competition over capital is experienced especially in the new member states. The taxation of capital needs to be regulated at the EU level, and the income tax should be left to the savings of the member states. Indirect tax rates should be defined as the lower limit in some sectors, as in the existing regulations, and the reduction of international tax evasion is required. We believe that it would be beneficial to increase inter-country cooperation to reduce VAT tax evasion due to the fact that some of the VAT revenues are collected in the central budget.

On the other hand, it is necessary to strengthen the central budget of the EU in the long term and to create a financial structure more resistant to crises. With the EU stabilization fund established in the first stage, it is thought that the debt dynamics of the member countries will be closely monitored in the short term and that the fiscal structures of the member states in the long term can cause new crises. For this reason, we think that fiscal decentralization in economic and monetary unions where

centralization is financially distorting budget discipline and that central fiscal capacity will complete the missing piece of economic union in the end.

As a supranational structure for the theory of fiscal federalism, the EU needs to have a certain central budget and to fulfill its central treasury duty as well as the redistribution mechanism between the member states. The coordination of fiscal policies, which constitute an integral part of the monetary union, and the financial stability, can be fulfilled by the central budget to be established at the EU headquarters.

When we consider the issue of taxation at EU level in terms of fiscal federalism, it is necessary to coordinate a number of taxes in the center and harmonize to eliminate the differences between countries, some taxes should be left under the sovereignty of the member states and these areas should not be interfered.

In the process of creating fiscal union of the EU, making different arrangements for each tax type will be an important step in realizing the goal of forming a more stable and growth-oriented economic union. According to this new model of economic governance; the corporate tax that we classify as taxes on capital is subject to the EU common tax base; financial flows must be observed with an international financial transaction tax and tax revenues of the financial transactions should be transferred to EU central budget.

Taxes on labor should be regulated in a way that eliminates injustice in income distribution and promotes skilled labor, in line with the EU's long-term, inclusive and sustainable growth target. On the other hand, in the taxation of income derived from wages and professional income earnings, the authority should be the monopoly of the member states and double taxation measures should be taken into consideration parallel to OECD's BEPS plan.

Finally, it is necessary to arrange in order to respond to the needs arising from the increased movement of goods and services in excise duties and to lower the tax rates in order to prevent competition in some sectors. In order to reduce environmental damages, the transfer of some of the EU-wide emission taxes to the EU budget is also on the agenda. On the other hand, the tax sovereignty to member states should be

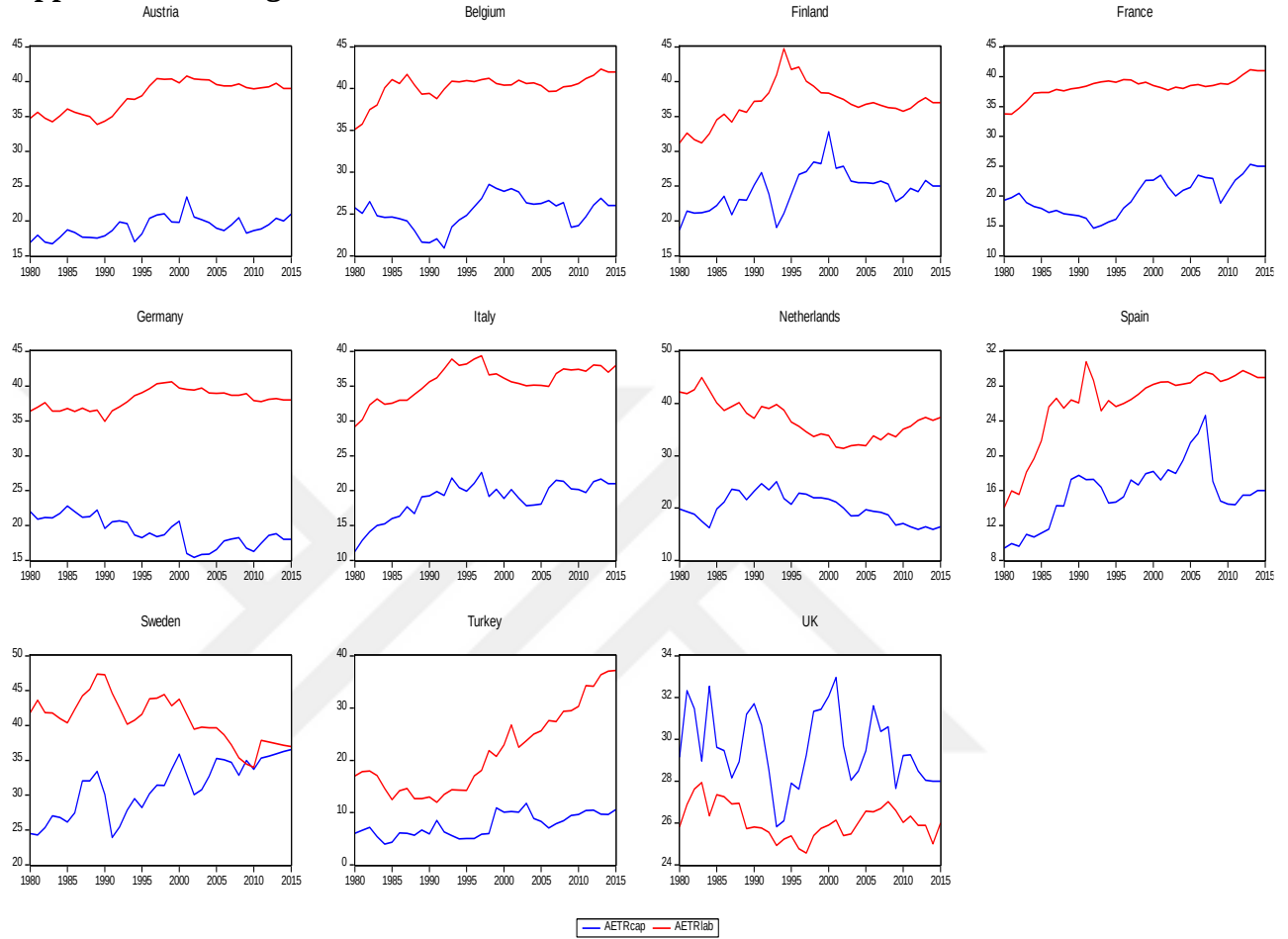
maintained for the agricultural products that the member states attach a strategic importance to and the kinds of goods accepted as cultural heritage. Fiscal centralization of EU's own resources will increase effectiveness of central authority and it will reduce different tax implications of member states. Moreover this kind of centralization will lower tax burden on labor.



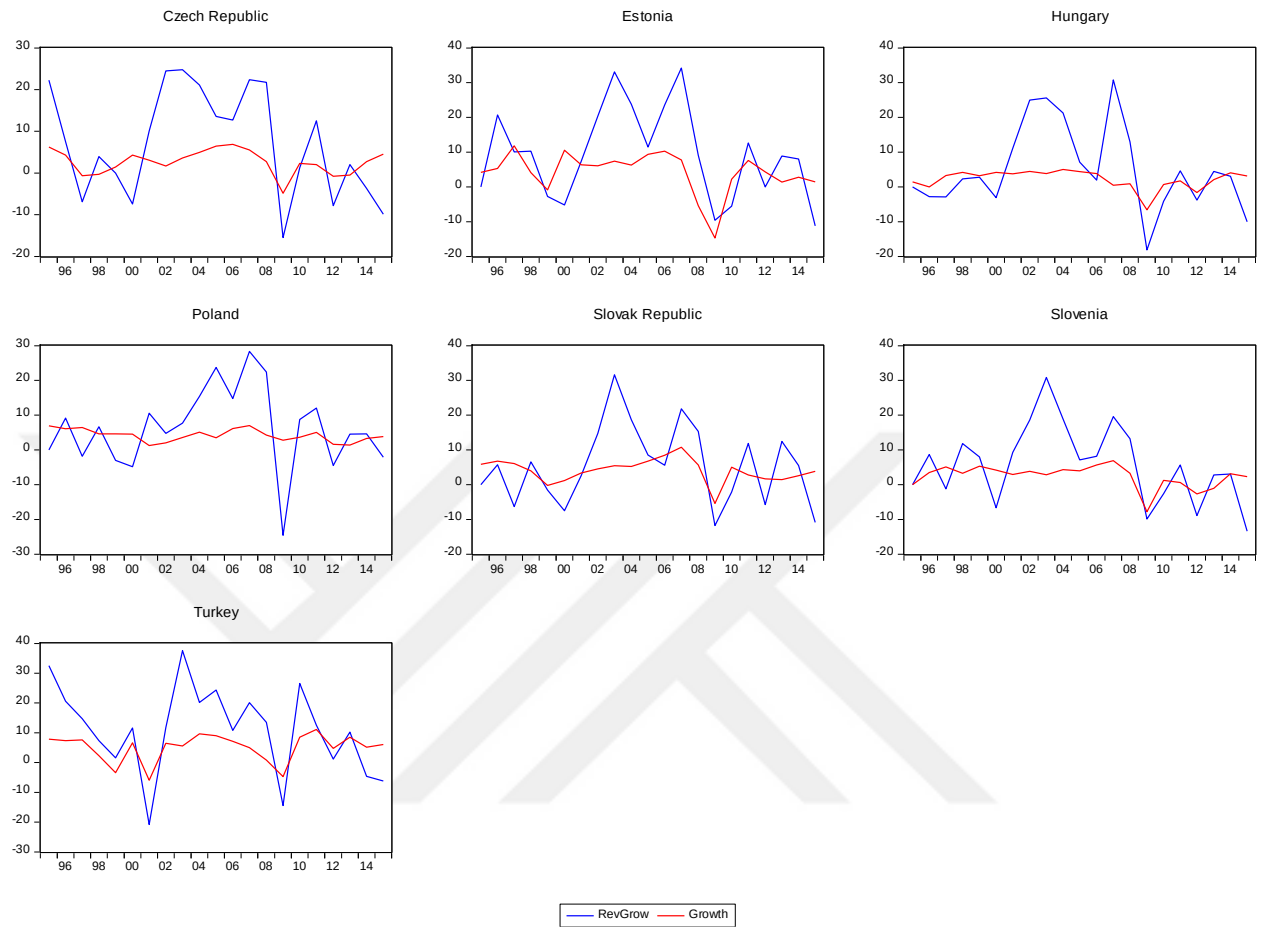


APPENDIXES

Appendix 1. Average Effective Tax Rates



Appendix 1. (Continue)



Appendix 1. (Continue)



Source: Cara McDaniel, (2007), "Average Tax Rates on Consumption, Investment, Labor and Capital in the OECD 1950-2003," *Manuscript, Arizona State University*, pp. 1-37.

Appendix 2. Panel Unit Root Tests of Dependent Variables

EU-15 Revgrow

Panel unit root test: Summary

Series: REVGROW

Sample: 1980 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.1971	0.0000	15	510
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-9.10230	0.0000	15	510
ADF - Fisher Chi-square	140.431	0.0000	15	510
PP - Fisher Chi-square	192.200	0.0000	15	525

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

EU-10 AETR

Panel unit root test: Summary

Series: AETRLAB

Sample: 1980 2015

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.31150	0.0005	10	340
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.50482	0.0061	10	340
ADF - Fisher Chi-square	38.3263	0.0081	10	340
PP - Fisher Chi-square	45.7469	0.0009	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Appendix 2. (Continue)

Panel unit root test: Summary

Series: AETRCAP

Sample: 1980 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.75799	0.0029	10	340
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.00069	0.0227	10	340
ADF - Fisher Chi-square	31.4949	0.0490	10	340
PP - Fisher Chi-square	38.1104	0.0086	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: AETRCAP

Sample: 1980 2015

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.66897	0.0001	10	340
Breitung t-stat	-2.99422	0.0014	10	330
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.91778	0.0276	10	340
ADF - Fisher Chi-square	31.7826	0.0457	10	340
PP - Fisher Chi-square	26.8347	0.1400	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Appendix 2. (Continue)

Panel unit root test: Summary

Series: REVGROW

Sample: 1995 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.38358	0.0000	7	140
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.22373	0.0000	7	140
ADF - Fisher Chi-square	41.9015	0.0001	7	140
PP - Fisher Chi-square	41.5601	0.0001	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: AETRLAB

Sample: 1995 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.81768	0.0346	7	133
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.64083	0.0504	7	133
ADF - Fisher Chi-square	23.1159	0.0584	7	133
PP - Fisher Chi-square	19.4707	0.1477	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: AETRLAB

Sample: 1995 2015

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.17645	0.4300	7	133
Breitung t-stat	-0.99146	0.1607	7	126

Null: Unit root (assumes individual unit root process)

Im, Pesaran and Shin W-stat	-1.09625	0.1365	7	133
ADF - Fisher Chi-square	18.9988	0.1650	7	133
PP - Fisher Chi-square	30.8743	0.0058	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: AETRCAP

Sample: 1995 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.10217	0.0178	7	133
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.05464	0.1458	7	133
ADF - Fisher Chi-square	17.6645	0.2225	7	133
PP - Fisher Chi-square	29.5022	0.0089	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: AETRCAP

Sample: 1995 2015

Exogenous variables: Individual effects, individual linear trends

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.18300	0.4274	7	133
Breitung t-stat	0.04383	0.5175	7	126
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.55628	0.7110	7	133
ADF - Fisher Chi-square	10.6233	0.7153	7	133
PP - Fisher Chi-square	9.78060	0.7780	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Appendix 3. Panel Unit Root Tests of Fiscal Centralization

EU-15

Panel unit root test: Summary

Series: CENTR_

Sample: 1980 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.14928	0.1252	15	521
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.06571	0.1433	15	521
ADF - Fisher Chi-square	36.6492	0.1876	15	521
PP - Fisher Chi-square	32.5542	0.3422	15	525

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

EU-10

Panel unit root test: Summary

Series: CENTR_

Sample: 1980 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.71832	0.2363	10	340
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.28459	0.3880	10	340
ADF - Fisher Chi-square	21.3786	0.3752	10	340
PP - Fisher Chi-square	15.5177	0.7461	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Appendix 3. (Continue)

CEEMS

Panel unit root test: Summary

Series: CENTR_

Sample: 1995 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.00931	0.1564	7	133
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.27202	0.3928	7	133
ADF - Fisher Chi-square	15.3046	0.3577	7	133
PP - Fisher Chi-square	23.3108	0.0554	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Appendix 4. Panel Unit Root Tests of Economic Integration

Panel unit root test: Summary

Series: FDIIN

Sample: 1980 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.05225	0.0011	10	340
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.06499	0.0011	10	340
ADF - Fisher Chi-square	38.6211	0.0074	10	340
PP - Fisher Chi-square	88.5124	0.0000	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: TRADE_GDP

Sample: 1980 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.35285	0.6379	10	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	2.79976	0.9974	10	350
ADF - Fisher Chi-square	4.63500	0.9998	10	350
PP - Fisher Chi-square	4.03856	0.9999	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: FLOWS

Sample: 1980 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				

Levin, Lin & Chu t*	-7.22394	0.0000	10	350
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Null: Unit root (assumes individual unit root process)

Im, Pesaran and Shin W-stat	-2.99051	0.0014	10	350
ADF - Fisher Chi-square	44.7591	0.0012	10	350
PP - Fisher Chi-square	54.5194	0.0000	10	350

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

CEEMS and Turkey

Panel unit root test: Summary

Series: TRADE_GDP

Date: 03/08/18 Time: 17:03

Sample: 1995 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.08439	0.1391	7	140
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.90724	0.8179	7	140
ADF - Fisher Chi-square	10.6382	0.7142	7	140
PP - Fisher Chi-square	10.3261	0.7380	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: KOF

Sample: 1995 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.54237	0.0000	7	140
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.22856	0.0006	7	140
ADF - Fisher Chi-square	34.1732	0.0019	7	140
PP - Fisher Chi-square	47.6288	0.0000	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: FDIIN

Sample: 1995 2015

Exogenous variables: Individual effects

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.13541	0.0000	7	138
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.42170	0.0003	7	138
ADF - Fisher Chi-square	36.6127	0.0008	7	138
PP - Fisher Chi-square	34.9849	0.0015	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary

Series: FLOWS

Sample: 1995 2015

Exogenous variables: Individual effects

User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross- sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.63898	0.0000	7	133
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.95725	0.0016	7	133
ADF - Fisher Chi-square	35.8421	0.0011	7	133
PP - Fisher Chi-square	61.9158	0.0000	7	140

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

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