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The Relationship Between Tax Structure and Economic Growth in Turkey

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1. Introduction

Taxes constitute individually a large portion of public revenues which is one of the tools of fiscal policy. As is known, the growth rate affects tax revenue in an economy, while choices of tax policy also affect economic growth. Consequently, there is a strong relationship between tax structure and economic growth. Therefore, it is important to test empirically the causality relationship between components of tax structure and economic growth.

The main purpose of this study is to analyze for the causality relationship between economic growth and tax structure using time series analysis for the period 1980-2015 in Turkey. In this context, its tested relationship between total tax revenues, direct taxes, indirect taxes, income taxes, corporation taxes, value added taxes and economic growth using Granger (1969), Toda-Yamamoto (1995) and Breitung and Candelon (2006) Frequency Domain causality tests.

2. Tax Structure and Its Economic Effects

Tax structure is a concept that reveals the relation between share of the tax types constituting the tax system in the variables such as total tax revenues and national income and the special characteristics of the economy, and thus allows us understand the economic, social and political effects of the tax types.

Hicks (1946) argued that taxes must be properly categorized to understand the structure of a tax system. According to Hicks (1946: 38), divides taxes into two as directly and indirectly, it is natural that the composition of tax structures changes from age to age, and therefore the use of these concepts must be changed. A tax type that is considered to be a direct tax in a certain period can be considered as indirect tax in the circumstances of another period. For this reason, it is essential to clarify the indirect and direct taxation within the tax structure of the current era and examine their economic effects. There are many different definitions in the literature and in common use. According to Atkinson (1977), three different criteria can be mentioned. The first one is the method of administration. The second criterion concerns the final incidence of the tax. The third criterion is that whether the tax is adjusted to the individual characteristics of the taxpayer or not.

There may be some theoretical expectations about the economic impact of taxes. For example an increase in direct taxation can slow down economic growth as it reduces people's disposable income. And even the increase in direct taxes can reduce indirect tax revenues because of the potential consumption reducing effect. An increase in indirect taxes is expected to contribute positively to economic growth through investment by reducing consumption and

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increasing savings. Of course, there is no guarantee that savings will always transform to investment. For this reason, theoretical expectations should be empirically tested.

3. Empirical Literature

When we look at foreign studies on the existence or level of the relationship between taxation and economic growth, we see that there is a large literature. King and Rebelo (1990), Widmalm (2001) and Poulson and Kaplan (2008) have found an inverse correlation between taxation and economic growth in their analysis for various periods. From the perspective of causality analysis, Anastassiou and Dritsaki (2005) and Mishra (2011) have found a one-way causality relationship from taxation to economic growth; Taha, Nanthakumar and Colombage (2011) have identified a one-way causality relationship from economic growth to taxation.

Studies for Turkey's economy offer a variety of results. While Durkaya and Ceylan (2006) found a one-way relationship from economic growth to taxation and found a two-way causality relationship between direct taxation and growth; Mucuk and Alptekin (2008) found a one-way causality relationship from direct taxation to growth. Temiz (2008) and Erdoğan, Topcu and Bahar (2013) found a two-way causality relationship between both total tax revenues and direct tax revenues and growth. Ünlükaplan and Arisoy (2011) found a one-way causality relationship from tax mix and tax burden to economic growth. Paksoy and Bakan (2010) did not find a significant relationship between growth and taxes; Göçer, Mercan, Bulut and Dam (2010) found a positive relationship between indirect and direct taxes and growth.

4. Econometric Analysis of the Relationship between Tax Revenues and Economic Growth in Turkey

In this study, we focused on the relationship between the tax types that composes the tax structure and economic growth for Turkey's 1980-2015 periods. In this context, Johansen (1991) cointegration test, Granger (1969) causality test, Toda-Yamamoto (2001) causality test and the frequency-domain causality test developed by Breitung and Candelon (2006) were used. The results indicate the existence of a long run relationship between total tax revenues, indirect taxes, direct taxes, income taxes and economic growth. All causality results are shown in Table 1.

Table 1. Results of Causality Tests

	Granger Causality	Toda-Yamamoto Causality	Breitung-Candelon Frequency Domain Causality		
			Short Term	Middle Term	Long Term
$\ln GSYH \Rightarrow \ln TVG$	\nRightarrow	\nRightarrow	\nRightarrow	\Rightarrow	\Rightarrow
$\ln TVG \Rightarrow \ln GSYH$	\nRightarrow	\nRightarrow	\nRightarrow	\Rightarrow	\Rightarrow
$\ln GSYH \Rightarrow \ln DLVG$	\nRightarrow	\nRightarrow	\nRightarrow	\nRightarrow	\nRightarrow
$\ln DLVG \Rightarrow \ln GSYH$	\nRightarrow	\nRightarrow	\nRightarrow	\nRightarrow	\nRightarrow
$\ln GSYH \Rightarrow \ln DLSVG$	\Rightarrow	\Rightarrow	\Rightarrow	\Rightarrow	\Rightarrow
$\ln DLSVG \Rightarrow \ln GSYH$	\Rightarrow	\nRightarrow	\Rightarrow	\Rightarrow	\Rightarrow
$\ln GSYH \Rightarrow \ln GVG$	\Rightarrow	\Rightarrow	\nRightarrow	\Rightarrow	\Rightarrow
$\ln GVG \Rightarrow \ln GSYH$	\nRightarrow	\nRightarrow	\Rightarrow	\nRightarrow	\Rightarrow
$\ln GSYH \Rightarrow \ln KDVG$	\nRightarrow	\nRightarrow	-	-	-
$\ln KDVG \Rightarrow \ln GSYH$	\nRightarrow	\nRightarrow	-	-	-
$\ln GSYH \Rightarrow \ln KVG$	\nRightarrow	\nRightarrow	-	-	-
$\ln KVG \Rightarrow \ln GSYH$	\nRightarrow	\nRightarrow	-	-	-

Note: Where $\ln GSYH$ is Gross Domestic Product; $\ln TVG$ is total tax revenue; $\ln DLVG$ is indirect tax revenue; $\ln DLSVG$ is direct tax revenue; $\ln GVG$ is income tax revenue; $\ln KDVG$ is value-added tax revenue; $\ln KVG$ is corporation tax revenue. “ \nRightarrow ” notation means that there is no causality. “ \Rightarrow ” notation means that there is causality. “-” notation means that there is no cointegration between the variables and therefore no causality test is performed.

5. Conclusion

The impact of both direct-indirect tax distinction and specific tax types on economic growth can change from country to country and even over time in the same country. For this reason, we aimed to examine the relationship between total taxes, indirect taxes, direct taxes, income taxes, corporate tax, value added tax and economic growth for the 1980-2015 periods in Turkey.

In our study, it was determined that total tax revenues, indirect taxes, direct taxes and income tax have a long-term relationship with economic growth. Using the Granger causality test, the Toda-Yamamoto causality test and the frequency-domain causality test developed by Breitung and Candelon, the conclusions have been reached that only total tax revenues, direct taxes and individual income tax have a causality relation with economic growth.

Key Words: Tax Structure, Indirect Tax, Direct Tax, Economic Growth.

JEL Codes: C22, H20.

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