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THE IMPACTS OF INTEREST EXPENDITURE ON INCOME DISTRIBUTION AND AN APPLICATION ON THE FACTORS DISTORTING INCOME DISTRIBUTION: AN EMPIRICAL ANALYSIS FOR TURKEY

İbrahim Halil SUGÖZÜ - Savaş ERDOĞAN** - Esra ULAŞAN****

ABSTRACT

Income inequality and poverty have emerged as the most important socio-economic problems for these times. Turkey, since the 1980s, meets public sector deficits by internal borrowing. To meet interest costs incurred for borrowing with tax revenues, which is an important source of the government, and gradually increase the share of the indirect taxes in tax revenues is an accurate indicator of an income transfer from public to the owners of capital. This study will focus on internal borrowing interest payments. The distribution of the recipients of internal borrowing, the share of interest payments in domestic debt stock of the state are evaluated, and by examining the course of interest payments over the years, will be focused on the effect on income distribution. In addition, the effect of the distribution of tax burden on income distribution will also be analyzed. And finally, in this study, the factors distorting the income distribution will be analyzed and the Topsis Model which is conducted over the period 2002-2015. Findings are in accordance with the Gini Coefficient results. Accordingly, income distribution indicated a more equitable distribution during the period when the domestic debt interest payments, unemployment rates, the share of indirect taxes, inflation and interest rates were decreasing.

STRUCTURED ABSTRACT

The debt crisis experienced in some developed and developing countries, following the global financial crisis, has made it a must to question, in particular, the recent borrowings quickly resorted to for the financing of public deficits as a regular source of financing.

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It is known that the macro-economic effects of borrowing generally have an adverse impact. However, internal borrowing and foreign indictment and interest payments, which are the cost of these borrowings, do not have the same effects on the economy. Internal debt interest payments are largely being paid to the banks. A natural reason for this is that the majority of buyers of internal debt are banks. High interest rates make the borrowing attractive in Turkey. Therefore, high levels of borrowing, and banks are being the main buyers of borrowing, entire debts belonging to the public sector, taxes being the financing source of the public sector and a high level share of indirect taxes in tax revenues reveal the results of transferring income from the public to the owners of capital. External debt interest payments due to the external debt recipients are foreign leads to a loss of prosperity rather than deterioration of income distribution. But because of the most important source of foreign indebtedment for financing the borrowing, the impact of external borrowing to income distribution is indirect.

This study will focus on internal borrowing. The distribution of the recipients of internal borrowing, the share of interest payments in domestic debt stock of the state are evaluated, and by examining the course of interest payments over the years, will be focused on the effect on income distribution. In this study, the effect of the distribution of tax burden on income distribution will also be analyzed. In the last section, the Topsis Model will be applied to factors distorting income distribution, and the model results will be compared with the Gini Coefficient.

The study included data on the Consumer Price Index (TUFİE), the share of indirect taxes within total tax revenues (D), unemployment rates (İSS), the share of domestic borrowing interest payments within budget expenditures (İBF) and interest rates (F) taken from the internet data base of the Republic of Turkey Ministry of Finance and TUIK.

To measure the economic performance criteria of the countries, the Topsis Method has been used, which is one of the multicriteria decision making methods. With this method, the aim is to calculate a single performance score based on four variants and to list the performance sizes accordingly.

When the performance table are examined, the first three years with the fairest income distribution considering five data are 2013, 2012 and 2014. On the other hand, 2002, 2003 and 2004 are the years with the worst performance of income distribution. 2002, the worst year in terms of performance, is underlined with the inflation ratio, share of indirect taxes within the total tax revenues, and a high share of the outstanding domestic debt and domestic borrowing interest payments within the budget expenditure and interest rates.

When the graph and the correlation coefficient of 68% are both examined, it is seen that the results of the performance and the Gini coefficient demonstrate a parallel development at a high rate. Despite the improvement in the performance values, the Gini coefficient is likely to be the result of a sudden increase in 2006 due to a change in research methodology. While in 2005 and earlier years calculations were made according to Household Budget Survey, Income and Living Conditions Survey has started to be done since 2006. When the correlation coefficient is recalculated accordingly, the relationship between the

performance results and the Gini coefficient results becomes even clearer. The correlation coefficient is calculated as 98.7% prior to 2006 while it has been calculated as 71.6% since 2006. Consequently, the new results indicate that the relationship between the performance results and the Gini Coefficient is much stronger in Turkey in the period of 2002-2015.

The reduction in the investments and in national income caused by the high interest rates is the most important negative result in terms of economic growth and income per person. Allocating an important part of the budget expenditure to interest spending will give the same results.

High interest payment causes an imbalance creating an income transfer from people to capital owners. The high ratio of the indirect taxes to total taxes deepens this imbalance. Other important reasons of unfair income distribution are high interest, inflation and unemployment ratios.

The period of 2002-2015 has been a year of fluctuation of income distribution in Turkey. When we look at the performance values in this period, it is possible to conclude as follows. Income distribution has been fairer in periods when the share of domestic borrowing interest payments in the budget expenditures started to decrease, when the unemployment rate was less, the share of the indirect taxes within total taxes started to decrease, and when the consumer price index (inflation rate) and interest rates started to decrease.

Keywords: Income Distribution, Interest, Inflation, Unemployment, Topsis Model

FAİZ HARCAMALARININ GELİR DAĞILIMINA ETKİSİ VE GELİR DAĞILIMINI BOZAN FAKTÖRLER ÜZERİNE BİR UYGULAMA: TÜRKİYE ÖRNEĞİ

ÖZET

Gelir dağılımında yaşanan adaletsizlik ve ülke nüfusunun önemli bir kesimini kapsayan yoksulluk, özellikle son dönemde en önemli sosyo-ekonomik sorunlar olarak kendini göstermektedir. Türkiye, 1980'li yıllardan itibaren kamu kesimi açıklarını olağanüstü finansman yollarından olan iç borçlanma yoluyla finanse etme yoluna gitmiştir. Borçlanma için katılan faiz maliyetinin devletin önemli gelir kaynağı olan vergi gelirleri ile karşılanması ve vergi gelirlerinde de dolaylı vergilerin payının gittikçe yükselmesi, halktan sermaye sahiplerine doğru bir gelir transferi yaşandığının en önemli ekonomik göstergelerinden bazılarıdır. Bu çalışmada öncelikle gelir dağılımı üzerinde en önemli etkiye sahip olan makroekonomik faktörlerden iç borç faiz ödemeleri ve faiz oranlarına odaklanılmaktadır. Çalışmada iç borçlanmanın alıcılara göre dağılımı ve devletin iç borç stoku içinde faiz ödemelerinin payı incelenmekte, faiz ödemelerinin yıllar itibarıyla seyri incelenerek gelir dağılımına etkisi üzerinde durulmaktadır. Bununla birlikte vergi yükündeki dolaylı ve dolaysız vergi dağılımının gelir dağılımına etkisi de incelenmektedir. Çalışmada son bölümde gelir dağılımını bozan faktörler ile 2002 – 2015 dönemi için Topsis Model uygulaması yapılmıştır. Elde

edilen sonuçların Gini Katsayısı sonuçlarına uygun çıkıp çıkmadığı araştırılmıştır. Yapılan ampirik uygulama ile elde edilen sonuçların Gini Katsayısına uygun çıktığı görülmüştür. Buna göre iç borç faiz ödemelerinin, işsizlik oranlarının, dolaylı vergilerin payının, enflasyonun ve faiz oranlarının azalmaya başladığı dönemlerde gelir dağılımı daha adil bir dağılım sergilemiştir.

Anahtar Kelimeler: Gelir Dağılımı, Faiz, Enflasyon, İşsizlik, Topsis Modeli

1. Introduction

The debt crisis experienced in some developed and developing countries, following the global financial crisis, has made it a must to question, in particular, the recent borrowings quickly resorted to for the financing of public deficits as a regular source of financing.

It is known that the macro-economic effects of borrowing generally have an adverse impact. However, internal borrowing and foreign indictment and interest payments, which are the cost of these borrowings, do not have the same effects on the economy. Internal debt interest payments are largely being paid to the banks. A natural reason for this is that the majority of buyers of internal debt are banks. High interest rates make the borrowing attractive in Turkey. Therefore, high levels of borrowing, and banks are being the main buyers of borrowing, entire debts belonging to the public sector, taxes being the financing source of the public sector and a high level share of indirect taxes in tax revenues reveal the results of transferring income from the public to the owners of capital. External debt interest payments due to the external debt recipients are foreign leads to a loss of prosperity rather than deterioration of income distribution. But because of the most important source of foreign indebtedment for financing the borrowing, the impact of external borrowing to income distribution is indirect.

This study will focus on internal borrowing. The distribution of the recipients of internal borrowing, the share of interest payments in domestic debt stock of the state are evaluated, and by examining the course of interest payments over the years, will be focused on the effect on income distribution. In this study, the effect of the distribution of tax burden on income distribution will also be analyzed. In the last section, the Topsis Model will be applied to factors distorting income distribution, and the model results will be compared with the Gini Coefficient.

2. A brief literature review

There are a number of studies available examining the effects of the size of domestic borrowing on macroeconomic indicators (growth, inflation, interest rates, exchange rates) in the economic literature. In general, researchers focused on the most significant issues: why the need for internal debts, how debts are paid, impacts on the economy and whether debts are sustainable. However, there are scarcely any studies examining the effect of internal borrowing on income distribution compared to other factors.

According to Keynes, lowering interest rates will reduce the income of the rentier, diminish the imbalance in income distribution, and prepare the environment to relieve the problem of underemployment by increasing investments. Keynes sees the imbalance in income distribution as a fundamental flaw in the world of economics, also, with the other flaw being unemployment, the main reason for both flaws is the high interest rates according to Keynes (Denis, as cited in Ersoy, 2008: 572).

Analysis conducted by Coban, Doganalp and Uysal (2008) has drawn attention to internal borrowing, often referred to as a financing implement, in recent years as creating a source of problems in economies. Reusing the resources acquired by internal borrowing for principal and interest payments indicates that it is in a vicious circle of internal debt-interest spiral.

Ulusoy and Cural's study in 2006 on the sustainability of internal debts after the period of 1980 in Turkey reached a conclusion of unsustainable internal debt. Unsustainable debt distorts price stability, inhibits economic growth, and makes it difficult to achieve long-term macro-economic plans. It is concluded that the size of domestic public debt stock constitutes the reason for many macro-economic problems, including high inflation and income inequality.

Ozgen (1999) refers to the importance of domestic debt problems and specifies that domestic debt interest payments are the most significant expense item, emphasizing limiting domestic borrowing by drawing attention to the negative effects on income distribution.

Bedir and Karabulut (2011) examined the effects of domestic debt on income distribution and found that the changes between debt indicators and income distribution indicators appeared in the same direction.

Guvemli (2004) regards using a large proportion of collected taxes in order to pay the interests of domestic public debts as distorting the equity of income distribution and increasing poverty.

In a study researching the economic and social effects of domestic borrowing after 1980, Bayraktar (2009) states that public sector borrowing from the market with high interest rates narrows the possibility of funding for the private sector, and so the real economy is negatively caused to shrink, which in turn causes increases in unemployment that have a distorting effect on income distribution. Especially in inflationary periods, borrowing policies pursued lead to a serious deterioration in income distribution against sectors which are not creditors of the government.

Ceyhan (2009) emphasized in his study on public debts in 2005 that the increase in public budget in terms of GDP, the decrease in personal income with domestic debt interest payments bringing a burden on the budget, and disruption in income distribution has led to problems, even to the point of threatening national security.

Demir and Server (2008) asserted in their study in 2008 that public domestic debt deepens the current inequalities of income distribution. These adverse effects occur during interest and principal payments.

Bulut and Canpolat's (2003) econometric analysis of public deficits, inflation, interest rates and exchange rates relations exerts that public debt has an impact in direct proportion to the other variables. They also deduced that high levels of interest rates raise borrowing and cause an inequitable income distribution.

In Cataloluk's (2009) study on public borrowing, the government eventually paying these debts that have been taken from the other sectors with the interest payments by tax revenues would mean an income transfer from the lower classes to the wealthy classes who are the owners of bonds and equity. Public borrowing creates an income distribution inequality against the weaker classes and derogates social balance.

A different approach to the issue brought by Akdis (1995) reveals the vicious cycle of lack of income-borrowing-lack of income. A government that applies for borrowing due to the scarcity of income also incurs the lack of revenue again as a result of the provisions of advantages and exemptions (tax) which satisfies the need of the government by individuals and corporations. In

addition, Akdis emphasized in his study that the effect of the need of government reduces government revenues in addition to the existence of disruptive effects on income distribution.

Gokcen (2002) has deduced in his study, which assess the debts in the Turkish economy, that the significance of internal debts disturbs the income distribution. One of the most important effects of the domestic debt stock is debt burden. If the real interest rate is above the growth rate in an economy, debt burden increases. Accordingly, debt burden will become a larger proportion of GNP and increase the burden of interest payments. This situation leads to the deterioration of income distribution and the use of resources for more speculative purposes.

Bulbul, Ejder and Sahan (2006) highlighted in their study based on the years 1990-2004 that the burden of interest has become a large proportion of tax revenues in the consolidated budget and tax increases (especially indirect taxes) leads to worse results in terms of social aspects.

3. The economic impact of interest payments

There are five financing methods of public sector deficits, such as monetizing money, excising new taxes, and using foreign exchange reserves, including internal and external borrowing. It can be seen that foreign exchange reserves are not sufficient to finance the budget deficits by using foreign exchange reserves, due to the inflationary effects of resourcing the financial method of monetizing, and also financing internal and external debts, instead of excising the new taxes (Isik, Karayilmazlar, Organ, Isik, 2005: 63; Uluatam, 1999: 533).

Financing of public deficits maintains the significance of internal borrowing, brings much negativity on the economy. These effects have a crowding out effect and lead to inequality of income distribution (Gok, 2003: 134-135; Sugoza, 2010a: 43-58). Public debts can also have distorting effects on macro-economic variables such as interest, interest and growth and can lead to a spiral of debt (Demir and Sever, 2008: 177). Before examining the effects of interest payments on income distribution, other economic effects will be briefly examined in this section.

Increasing internal borrowing exacerbates the interest burden on the budget. The interest burden on the budget appears to be a product of inflation. Savers and investors claim a risk premium to maintain the return on investment from inflation risk when inflation occurs in high and fluctuating economies. That is, they claim a higher return obtained by investments than it should be. This also causes an increase in real interest rates. Therefore, the amounts paid to the risk premium leads to a further increase in public deficit; moreover, as a result of the rising costs of investments, the real economy will be adversely affected by this situation (Onder, 2005: 7).

Thus, increasing public deficit consistently causes a vicious cycle. Hence, public deficits-inflation-interest rates- exchange rate again consists of the spiral public deficits (Bulut and Canbolat, 2003: 17).

In Peker and Acar's study (2010) examining the relationship between budget deficits and internal borrowing interest rates it has been concluded that the factor affecting the budget deficits in Turkey and borrowing with high interest rates increases the budget deficits more.

On account of budget interest payments being the result of borrowing, studies are made in the context of the effects of internal and external borrowing. There are researchers arguing the inflationary effects of internal and external borrowing, as well as researchers propounding the deflationary effect. A common idea is that borrowing creates inflationary pressure (Sugoza and Yiyit, 2010: 367).

Indeed, Saracoglu's (1998) study on the years between 1980-1995 shows that the main reason for inflation is the extent of the public sector borrowing requirement (Bayraktar, 2009: 292). The

idea of a deflationary effect on the economy does not survive because an increase in government debts depreciates the value of current debt stock (Cataloluk, 2009: 251).

While the resources obtained from the taxes decrease, the government would want to increase revenues by raising the ratio of the indirect taxes. This increases costliness and reduces purchasing power (Guvemli, 2004: 24).

Financing high public sector deficits by internal borrowing will further increase public debt. Interest that is being used for government debt securities will direct savings, which is already inadequate for speculative profits. Capital that is in pursuit of high profits aspires to provide risk-free return. This case crowds out the investments and has a negative impact on the real sector and growth. Reduction of investments or current debts that are not being used in areas which have not high yields will result in reduced tax revenues. Declining of public revenues that are not sufficient for interest and principal repayments has increased the new borrowings. In consequence, borrowing resolves that debt financing by debts (refinancing), appears to be a permanent source of financing (Meric, 2003).

High interest rates paid for public debt instruments will push the private sector to provide risk-free and high returns by leaving the main areas of activity rather than investing. In other words, the seizure of the private sector on savings through internal borrowing subjects the private sector to a crowding out effect (Tunca, 1993). In other words, the government budget has now turned into an instrument of realignment that transfers the resources to financial markets rather than social infrastructure and economic growth (Yeldan, 2004: 6).

4. The effect of interest payments on income distribution

A concentration of sources which can be used in real investments in financial investment causes a rent economy and reduction of tax incomes due to the decrease in production. This has an effect on the wealth concentration in certain segments and has therefore a distorting effect on income distribution (Guyen, 1983: 107).

Failure to expand the tax base and underground economy are the causes of the increase in budget deficits. In Turkey, interest increases as debts increase, inflation increases as interest increases, and income distribution becomes distorted as inflation increases (Altuğ, 1999: 14). The state carries out source transfer from the poor to the rich among the segments of the society through domestic borrowing. The funds required for the back payment of the debts received by the state and the interest payments are provided from taxes, which are the main source of revenue of the state. That is, through legal obligations, it collects under the name of tax shares from the spending made, revenues obtained and wealth possessed. It distributes this source as interest to people or organizations who voluntarily lent money to it (Erdem, 2006: 155). Therefore, the state collects tax from the poor and distributes it to the high income group which means the transfer of sources. This indicates that the income distribution develops in favor of the few high income and wealth groups holding high deposits at banks (Bilen ve Es, 1998). The financing burden of the public sector spending is faced by the low and medium income groups who have no actual possibility of savings and who cannot buy government debt securities (Sahin, 2009: 584).

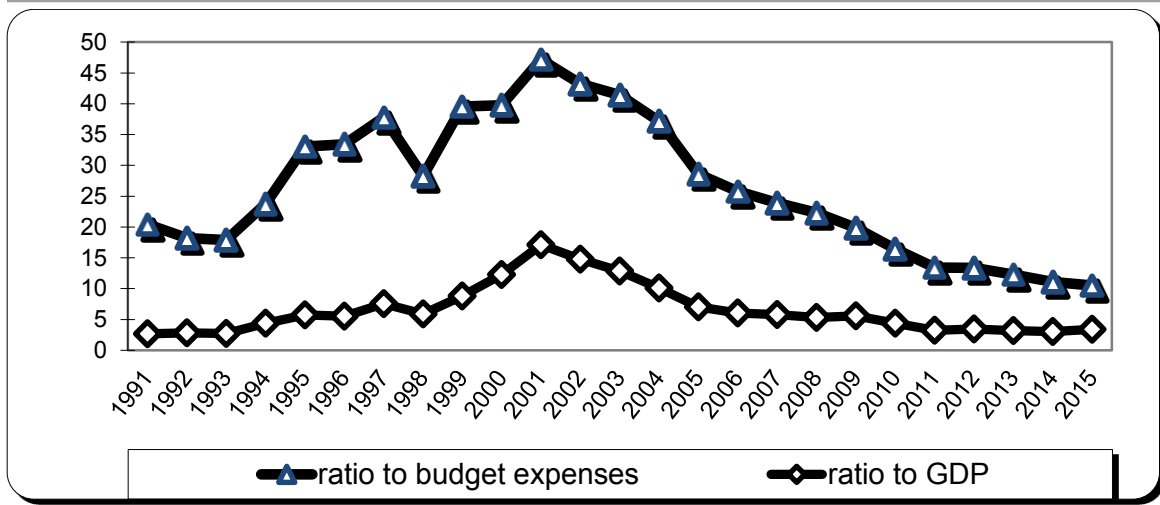


Fig. 1. Ratio of domestic borrowing interest payments to budget expenses and GDP (1991-2015, %).

Source: Undersecretariat of Treasury, Ministry of Finance of Turkey Republic

The increase in the ratio of Outstanding Domestic Borrowing/Gross National Product means an increase in the weight of domestic borrowings in the economy. Briefly, the ratio of Outstanding Domestic Borrowing to Gross National Product was realized as 11% in 1990. However, there has been a gradual increase since 1996. In 1996, this ratio reached its highest of 51% by an extraordinary bounce due to the crises in that period (Koçak, 2009: 74). 2001 is the year with the highest outstanding domestic borrowing among the years covered in this paper. In the subsequent years, the outstanding domestic borrowing decreased due to growth in economy, primary surplus of the budget, and loans provided by the IMF (Bulbul, Ejder ve Sahan, 2006: 116). After 2001, this ratio gradually decreased and the concerned ratio was 29% in 2008. Within the framework of the EU Maastricht criteria, outstanding domestic borrowing cannot exceed 20% of the Gross National Product. When examined over the years, the ratio of outstanding domestic borrowing to Gross National Product has been over this limit since 1999. After the global financial crisis, this ratio increased again to 35% causing an increase in the burden of debt.

Another issue that must be dealt with is how to cover the principal and interest amounts of borrowing from the budget. The share of interest payments within the consolidated budget corresponds to an important share of indirect taxes, which indicates that domestic borrowing payments are a burdened on low income and paid groups (Bulbul, Ejder ve Sahan, 2006: 116). Thus, income is redistributed from riches towards poor's (Pehlivan, 2009: 36), as reported in Table 1.

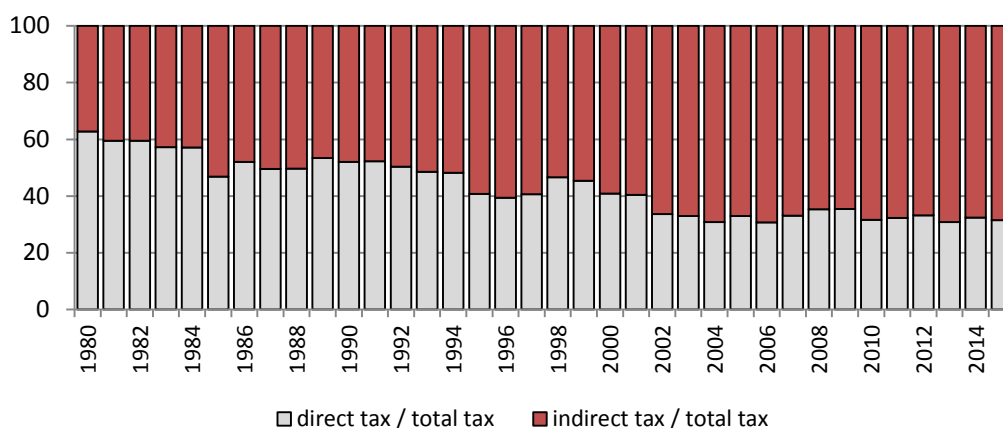


Fig. 2. Ratio of direct and indirect taxes to total tax in the period between 1980 – 2015.
Source: State Planning Organization of Republic of Turkey (DPT)

When compared over the years, there has been a shift from direct taxes indirect taxes in the Turkish Tax System, especially in the last 30 years. While the ratio of the direct taxes was 65 percent and the ratio of indirect taxes was 35 percent 30 years ago, this ratio is reversed today with 31% direct taxes and 69% indirect taxes in 2015.

Table 1. Budget Revenues, Domestic Borrowing Interest Payments, Unemployment and Interest Rates

Years	Indirect Taxes*	Total Tax Revenues	Budget Revenues	Domestic Borrowing Interest Payments	Budget Expenditures	Unemployment	Interest Rates**
2002	39.571	59.632	79.420	43.469	119.604	10,3	54,2
2003	56.536	84.316	101.040	52.719	141.248	10,5	42,5
2004	69.892	101.039	122.964	50.053	152.093	10,3	24,4
2005	88.867	120.935	152.784	39.270	159.687	9,5	18,5
2006	103.937	142.353	173.483	38.659	178.126	9,0	16,4
2007	113.625	156.815	190.360	41.540	204.068	9,2	18,0
2008	122.741	172.645	209.598	44.516	227.031	10,0	17,8
2009	124.811	176.589	215.060	46.762	267.275	13,1	14,4
2010	143.967	210.532	254.028	41.900	294.359	11,1	9,3
2011	171.709	253.765	295.862	35.064	314.607	9,1	9,2
2012	186.231	278.751	331.700	40.800	361.887	8,4	10,0
2013	225.728	326.169	389.682	39.072	408.225	9,0	8,1
2014	238.093	352.514	425.383	39.258	448.752	9,9	9,9
2015	278.950	407.475	483.386	39.775	505.992	10,3	9,9

*Amounts including local administration, fund shares and returns.

** Weighted average interest rates for deposits in Turkish Lira by banks, up to 1 year.

Source: Republic of Turkey Central Bank (TCMB), Ministry of Finance, Undersecretariat of Treasury

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Effective taxation of the groups with high income cannot be achieved. The state has difficulties in collecting direct taxes. It is inevitable that the revenue distribution will be unbalanced if there is no effective taxation as the burden is always on the indirect tax payers.

In the Turkish tax system, the great increase in the share of indirect taxes within tax revenues, especially in recent years, disturbs the tax burden distribution against the people with low and fixed incomes (Sugozu, 2010: 168). Hence, the relative decrease in education and health spending, which directly effects the income distribution and negative change in the quality of tax, damages the income distribution against the poorer classes (Palamut ve Yuçe, 2001).

To be more precise, financing the interests of state debts with taxes negatively affects the poorer classes who have to participate in the financing of interest, especially through consumption taxes (Aktan ve Vural, 2002). Thus, the forced savings created by deducting from income and consumption of the masses do not return to the economy through investment, and the decrease in the labor share does not serve the growth (DPT, 2001: 75).

Another way to see the effect of interest payments on income distribution is to check the real interest payments paid for government debt securities. Banks, who buy the majority of government debt securities, play an important role in determining interest payments. Banks have a kind of monopsonist structure (Gök, 2003: 131). This also leads to a substantial amount of the bank resources being used in public debt financing. However, the real interest ratio should not exceed the growth rate to ensure income distribution is not damaged (Karluk, 2005: 145). The negative impact of the short and long term interest ratios on economic growth has been proven with studies (Yamak ve Tanrıöver, 2008: 11), while the debt burden of the tax payers will increase if the growth rate is below the real interest ratio (Gökçen, 2002). Debt burden causes an increase in shares within the Gross National Product and in interest payments. Payments made to borrowing interests turn to a revenue transfer from the tax payers to the holders of government debt securities (Isik, Karayilmazlar, Organ ve Isik, 2005: 82). This further damages the income distribution and is described as social injustice (Cataloluk, 2009: 253).

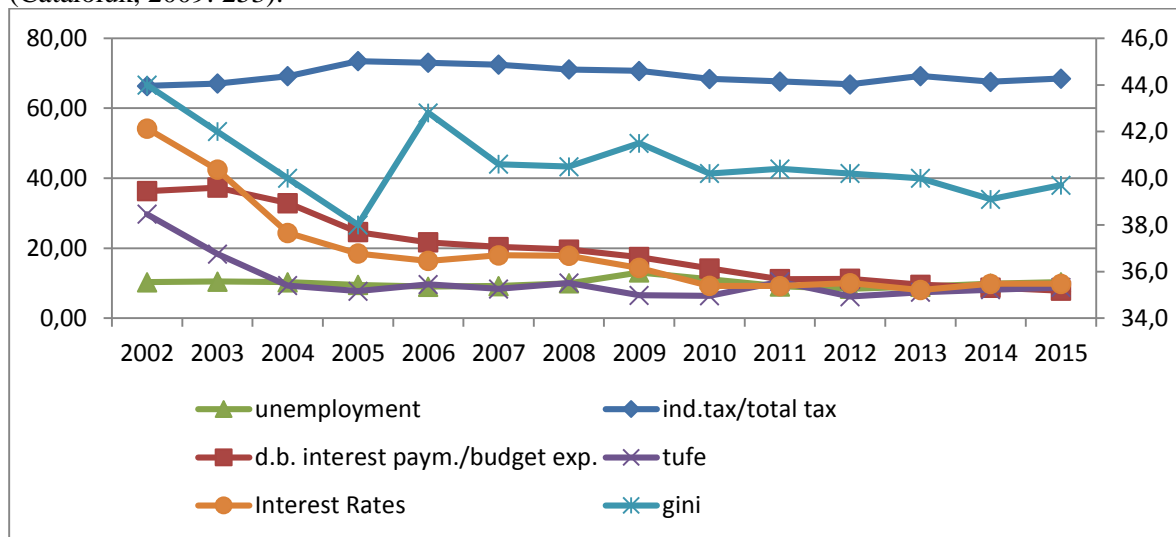


Fig. 3. Unemployment rates, the share of indirect taxes within total tax revenues and the share of domestic borrowing interest payments within budget expenditures, Consumer Price Index (TUFİE), interest rates and the Gini Coefficient (2002-2015,%). Gini Coefficient values are on the right-hand side of the figure axis.

Source: TUIK, Undersecretaries of Treasury, DPT, TCMB

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Unemployment rate is 10.30 percent in both 2002 and 2015. The ratio of indirect taxes to total tax increased from 66,36 percent to 68,46 percent in the period 2002-2015, while the ratio of domestic borrowing interest payment to budget expenditures decreased from 36,34 percent to 7.86 percent. The ratio of the total borrowing interest payments to budget expenditures was 10.5 percent in 2015. The Gini Coefficient has been similar to these positive developments in the interest service ratios from 2002 to 2015. Despite this fact, the Gini Coefficient was 0.397 in 2015, which is higher than 2005 when it was 0.380 and 2014 when it was 0.391.

The share of the interest payments within the national income experienced a gradual decrease between 2002-2015. The fact that the interest payments within budget expenditures in 2009 covered 6% of the Gross National Product caused a deduction in other social spending (Ulusoy ve Cural, 2006: 6). It is also possible that the interest payments put pressure on other expenditure items (Önder, 2001: 30-33). A narrowing in the social service investments can only provide primary surplus measuring the debt payment capacity of the state. It is clear that this causes a welfare loss.

There is another aspect of the interest payments with respect to tax. When the interest of Treasury bond is obtained with high amounts, there is no tax obligation related to these amounts but there is a 30-50% tax burden when an investment is made, a production is involved, business is conducted by establishing a company, and employment is provided. This does not ensure justice, it causes injustice (Sugozu, 2010: 168).

Therefore, interest payments, especially domestic borrowing interest payments, are important factors damaging the justice aspect of income distribution (Ersezer, 2006: 265). In the event that the injustice of income distribution cannot be eliminated, it is clear that this problem will gradually increase and negatively affect peace in society and the development of the country.

5. Gini Coefficient

There have been fluctuations in the Gini Coefficient, which indicates the income distribution injustice in the period 2002-2015.

Table 2. The first group of 20% and the fifth group of 20%

Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
First 20%	5,3	6,0	6,0	6,1	5,1	5,8	5,8	5,6	5,8	5,8	5,9	6,1	6,2	6,1
Fifth 20%	50,1	48,3	46,2	44,4	48,4	46,9	46,7	47,6	46,4	46,7	46,6	46,6	45,9	46,5

Source: Statistics Institution of Turkey (TUIK)

Note: “The first group of 20%” represents the lowest income group and “the fifth group of 20%” represents the highest income group.

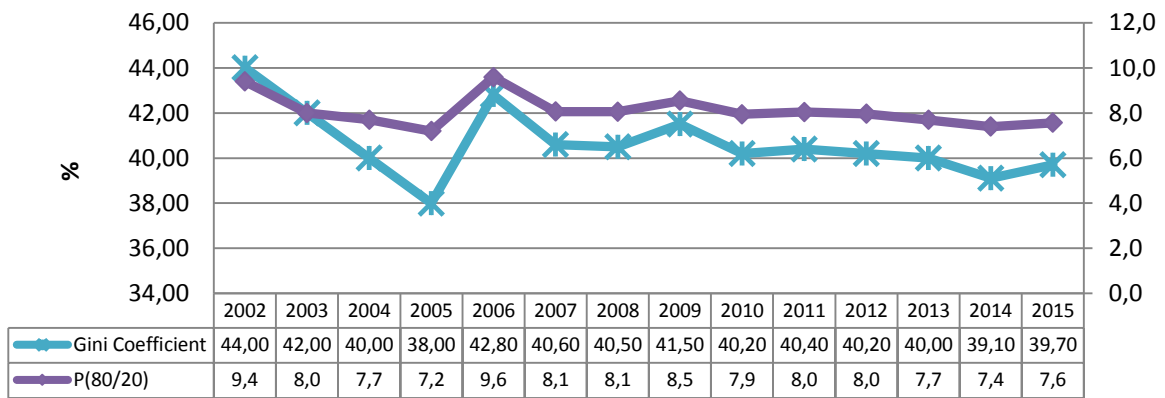


Fig. 4. Gini Coefficient and P(80/20) for Turkey (2002-2015)

Source: Statistics Institution of Turkey (TUIK)

One of the most frequent methods used in the analysis of inequality in income distribution divides the population into five equal groups from the lowest income group to the highest income group and calculates the national income of each group. The great difference between the poorest 20% and the richest 20% in their shares from the national income indicates the injustice in the income distribution.

When the data of income distribution is studied, the share of the first 20% group in the total income increased in the period of 2002-2005, while the share of the fifth 20% group had a decreasing tendency. In parallel to this, the Gini coefficient indicating the injustice in the income distribution was 0.44 in 2002 and decreased to 0.38 in 2005, ensuring fairer income sharing.

2005 is the year with the fairest income distribution according to the Gini Coefficient. However, this tendency was reversed in 2006, and the share of the first 20% group from total income decreased, while the share of the fifth 20% group from total income increased. Accordingly, the share of the poorest 20% group decreased to 5.1% and the share of the richest 20% group reached 48.4%. This caused an increase of 32% in the difference between the richest and the poorest reaching 9.5%, which means a further increase in the income distribution injustice.

Table 3. Results of the study on income distribution in Turkey (1963-2002)

	1963	1968	1973	1986	1987	1994	2002
	DPT	DPT	DPT	TUSIAD	TUIK	TUIK	TUIK
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
First 20%	4.5	3.0	3.5	3.9	5.2	4.9	5.3
Fifth 20%	57.0	60.0	56.5	55.9	49.9	54.9	50.1
Gini Coefficient	0.55	0.56	0.51	0.46	0.43	0.49	0.44
Q 5 / Q 1	12.7	20.0	16.1	14.3	9.6	11.2	9.5
Q 1 + Q 2	13.0	10.0	11.5	12.3	14.8	13.5	15.1

Source: DPT, TUSIAD, TUIK

In 2008, the poorest 20% in Turkey had a share of 5.8% of the total income, while the richest 20% had a share of 56.7. The Gini coefficient of Turkey with respect to the same year was 0.41.

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There is an eight-fold difference between the poorest and the richest. In other words, the income distribution justice in Turkey according to the recently calculated data has worsened compared to past years.

6. Breakdown of interest payments per recipient

The state can sell government debt securities to various resources within the political borders. These resources can be listed as individuals, some private organizations, banks, Central Bank resources, and some social security organizations (Ince, 2001: 81).

The banking sector is the resource from which the state benefits the most. Banks have the functions of fund raising and lending and the funds they raise as deposits are used by the state to close the public deficits.

Banks reserve the required reserve ratios determined by the Central Bank and release the remaining funds as funds. However, the banks deposit certain sections of their resources to domestic borrowing securities because of policies applied by the government, legal requirements, high interest ratios of government debt securities, and lack or insufficiency of taxation of interest revenues. This causes a decrease in the credit amounts released to invigorate the real economy, in other words, a narrowing of the loan supply and an increase in credit costs. (Isik, Karayilmazlar, Organ ve Isik, 2005: 78). This reduces the tendency of the banks, which are the biggest recipients of domestic borrowing, to turn the deposits they collected into loans (Karluk, 2005: 145).

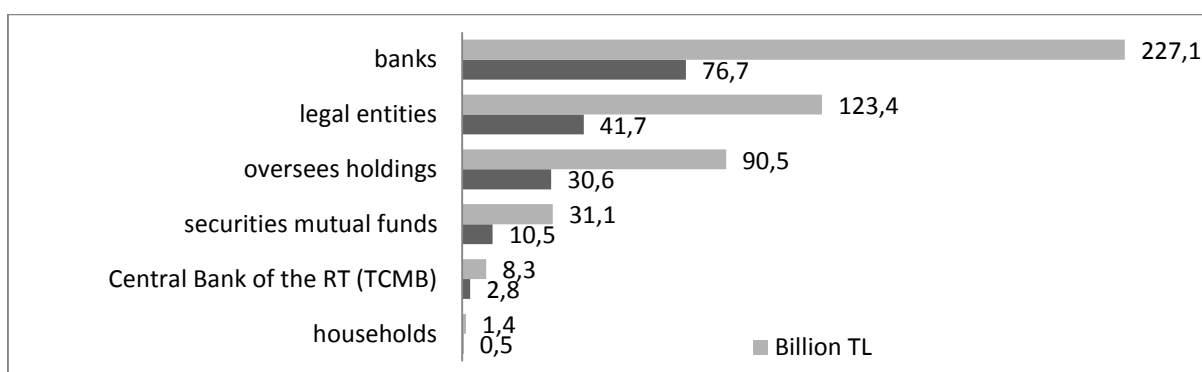


Fig. 5. Breakdown of domestic borrowing per recipients in the 2016.

Source: Republic of Turkey Undersecretariat of Treasury

In Fig. 5, banks have a major part in the breakdown of domestic borrowing per recipient, while the share of the legal entities fluctuates, with a small increase in recent periods. Savers, that are the households, remain ineffective among the recipients of domestic borrowing (Sugozu, 2010: 204).

In addition, the underground economy has increased and banks become the official executive means of the state to finance borrowing when resources are insufficient (Guvemli, 2004: 24).

7. Data – methodological analysis and findings

The study included data on the Consumer Price Index (TUFEE), the share of indirect taxes within total tax revenues (D), unemployment rates (ISS), the share of domestic borrowing interest payments within budget expenditures (IBF) and interest rates (F) taken from the internet data base of the Republic of Turkey Ministry of Finance and TUIK.

The study used a performance equation (P) to measure the economic performance of the countries, which is a function obtained by a certain weight criteria (w) used for data. This function is described as follows where (i) refers to a certain year:

$$P(i) = w_1TUFÉ + w_2D + w_3ISS + w_4IBF + w_5F \quad (i= 1,2,3,4 \dots\dots\dots 7,8) \quad (1)$$

To measure the economic performance criteria of the countries, the Topsis Method has been used, which is one of the multicriteria decision making methods. With this method, the aim is to calculate a single performance score based on four variants and to list the performance sizes accordingly.

7.1. Topsis Method

The Topsis Method was developed as a multicriteria decision making technique by Hwang and Yoon (Shyjith et al. 2008: 376). The method is based on choosing the alternative which is the closest to the positive ideal solution and farthest to the negative ideal solution. The steps of the Topsis method are as follows (Yaralioglu, 2017).

I- Creating a decision matrix $B = [b_{ij}]_{m \times n}$ matrix (B).

In the decision matrix given as, m refers to the number of decision points, n refers to the number of evaluation factors.

The matrix A refers to the real value of the alternative i according to the criterion j.

II- Creating a standard decision matrix (R).

A standard decision matrix is calculated based on matrix B and using the following formula.

$$R_{ij} = \frac{b_{ij}}{\sqrt{\sum_{k=1}^m b_{kj}^2}} \quad (2)$$

III – Creating a weighted standard decision matrix (V).

Weight grades of the evaluation factor are determined (w). Matrix V is created with these values.

IV = $w_i \cdot R_{ij}$ matrix is created.

V- Based on the weighted decision making matrix, ideal B+ and negative ideal B- solutions are created. A positive ideal solution consists of the best performance value of the weighted standard decision matrix while the negative ideal solution consists of the worst values. J+ maximization and J- minimization values are obtained by using these best and worst values.

$$B^+ = \{(\max v_{ij} | j \in J) \} \quad (3)$$

$$B^- = \{(\min v_{ij} | j \in J) \} \quad (4)$$

V – The distance from the alternative ideal solution J is calculated by using the following formula with the order of ideal separation S+, distance from negative ideal solution negative ideal separation S-.

$$S^+ = \sqrt{\sum_{j=1}^n (v_{ij} - v^+_j)^2} \tag{5}$$

and

$$S^- = \sqrt{\sum_{j=1}^n (v_{ij} - v^-_j)^2} \tag{6}$$

VI- Based on the positive and negative ideal separation, relative distance to the ideal solution

$$C = \frac{S^-}{S^+ + S^-}$$

is calculated by using the formula. The value C is in these gaps including 0 and 1. Near 1 C value indicates positive ideal solution and near 0 C value indicates negative ideal solution. So the value near to 1 refers to a better performance.

7.2. Findings

The economic performance of Turkey for the years 2002-2015 is shown with the following equation.

$$P(i) = w1TUF E + w2D + w3ISS + w4IBF + w5F \text{ (i= 1,2,3,4 7,8)} \tag{7}$$

Accordingly, the performance variables of the equation are defined with the Consumer Price Index (TUF E), the share of indirect taxes within total tax revenues (D), unemployment rates (ISS), the share of the domestic borrowing interest payments within budget expenditures (IBF) and interest rates (F). The decision matrix and standard decision matrix of this data are created with the values of the data. Accordingly, the decision matrix is described with the following table.

Table 4. Economic performance values over the years (%)

Years	Consumer Price Index	Indirect Taxes/Total Tax Revenues	Unemployment Rate	DBIP/Budget Expenditures	Interest Rate
2002	29,75	66,36	10,30	36,34	54,22
2003	18,36	67,05	10,50	37,32	42,46
2004	9,32	69,17	10,30	32,91	24,38
2005	7,72	73,48	9,50	24,59	18,47
2006	9,65	73,01	9,00	21,70	16,39
2007	8,39	72,46	9,20	20,36	18,00
2008	10,06	71,09	10,00	19,61	17,84
2009	6,53	70,68	13,10	17,50	14,38
2010	6,40	68,38	11,10	14,23	9,27
2011	10,45	67,66	9,10	11,15	9,22
2012	6,16	66,81	8,40	11,27	10,05
2013	7,40	69,21	9,00	9,57	8,07
2014	8,17	67,54	9,90	8,75	9,86
2015	8,81	68,46	10,30	7,86	9,86

Based on this decision matrix, a standard decision matrix is created. In this matrix, the w value is taken as 1 referring to the weight level. Taking the weight level as 1 assumes that the values other than the four dates used in these years are fixed. Based on this assumption, a weighted standard decision matrix is created by using the w=1 weighted value (Table 5).

Table 5. Weighted standard decision matrix

Years	Consumer Price Index	Indirect Taxes/Total Tax Revenues	Unemployment Rate	DBIP/Budget Expenditures	Interest Rate
2002	0,654961	0,255469	0,274145	0,445292	0,633411
2003	0,404205	0,25814	0,279468	0,457294	0,496028
2004	0,205185	0,266305	0,274145	0,403211	0,284813
2005	0,16996	0,282898	0,252852	0,301302	0,215771
2006	0,21245	0,281089	0,239544	0,26591	0,191472
2007	0,18471	0,27895	0,244867	0,249404	0,21028
2008	0,221476	0,273701	0,26616	0,240238	0,208411
2009	0,143761	0,272101	0,348669	0,214361	0,16799
2010	0,140899	0,26326	0,295437	0,174401	0,108294
2011	0,230062	0,260497	0,242206	0,136554	0,10771
2012	0,135616	0,257203	0,223574	0,138133	0,117406
2013	0,162915	0,26643	0,239544	0,117267	0,094276
2014	0,179867	0,260022	0,263498	0,107185	0,115187
2015	0,193957	0,263552	0,274145	0,096312	0,115187

Based on the factor values (columns), the highest value that has the best performance and the lowest value that has the worst performance are chosen. While making this selection, it is checked whether the high and low values in the economic performances are good or bad. With the maximum and minimum values, the matrix S is created indicating the distance from the positive and negative ideal solution.

Table 6. Matrix indicating the distance from the ideal solution

Years	S+	S-	Conclusion(C)	No
2002	0,827484	0,225333	21,40	14
2003	0,605792	0,486894	44,56	13
2004	0,371491	0,75252	66,95	12
2005	0,244072	0,83169	77,31	11
2006	0,212192	0,81873	79,42	10
2007	0,200771	0,834577	80,61	8
2008	0,207989	0,805849	79,48	9
2009	0,188046	0,892553	82,60	7
2010	0,107459	0,940232	89,74	5
2011	0,10532	0,891543	89,43	6
2012	0,047823	0,957684	95,24	2
2013	0,039491	0,955031	96,03	1
2014	0,064252	0,9322	93,55	3
2015	0,080397	0,925072	92,00	4

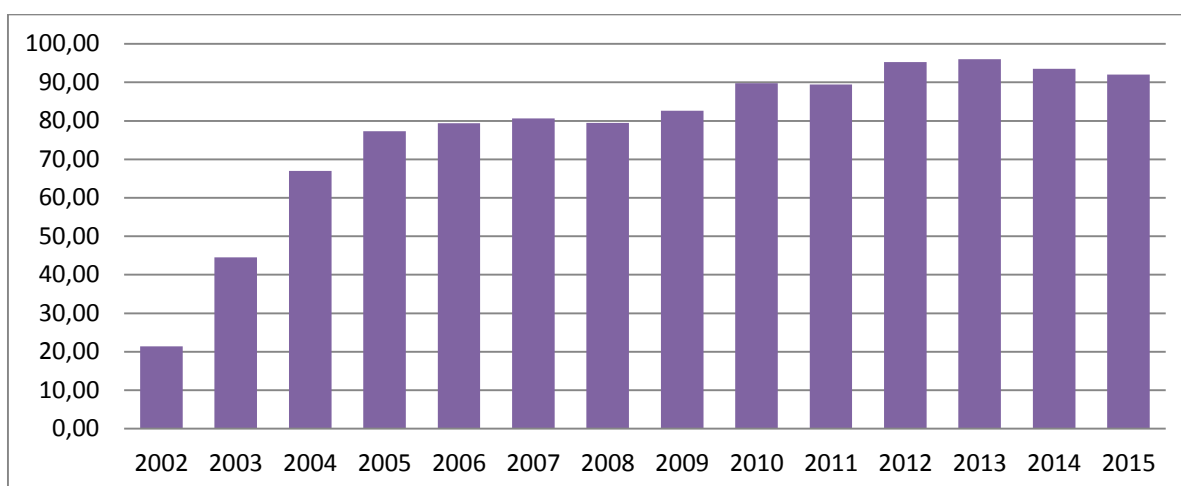


Fig. 6. Economic performance of the period 2002 - 2015 (%).

When the performance table and fig. 6. above are examined, the first three years with the fairest income distribution considering five data are 2013, 2012 and 2014. On the other hand, 2002, 2003 and 2004 are the years with the worst performance of income distribution. 2002, the worst year in terms of performance, is underlined with the inflation ratio, share of indirect taxes within the total tax revenues, and a high share of the outstanding domestic debt and domestic borrowing interest payments within the budget expenditure and interest rates.

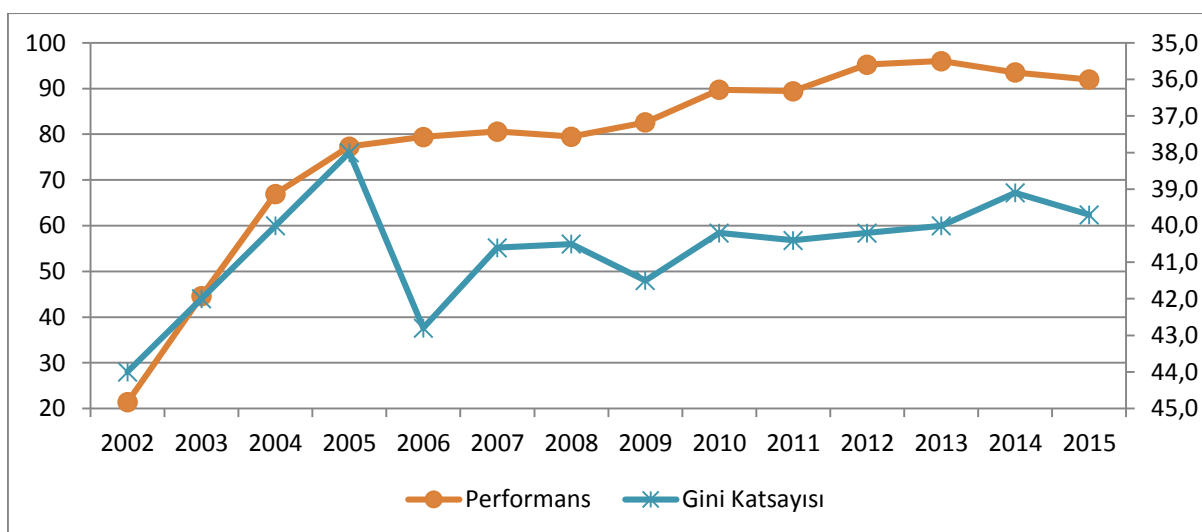


Fig. 7. Comparison of the economic performance and the Gini Coefficient results in the period 2002-2015

When the graph and the correlation coefficient of 68% are both examined, it is seen that the results of the performance and the Gini coefficient demonstrate a parallel development at a high rate. Despite the improvement in the performance values, the Gini coefficient is likely to be the result of a sudden increase in 2006 due to a change in research methodology. While in 2005 and earlier years

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calculations were made according to Household Budget Survey, Income and Living Conditions Survey has started to be done since 2006. When the correlation coefficient is recalculated accordingly, the relationship between the performance results and the Gini coefficient results becomes even clearer. The correlation coefficient is calculated as 98.7% prior to 2006 while it has been calculated as 71.6% since 2006. Consequently, the new results indicate that the relationship between the performance results and the Gini Coefficient is much stronger in Turkey in the period of 2002-2015.

8. Conclusion

The reduction in the investments and in national income caused by the high interest rates is the most important negative result in terms of economic growth and income per person. Allocating an important part of the budget expenditure to interest spending will give the same results.

High interest payment causes an imbalance creating an income transfer from people to capital owners. The high ratio of the indirect taxes to total taxes deepens this imbalance. Other important reasons of unfair income distribution are high interest, inflation and unemployment ratios.

The period of 2002-2015 has been a year of fluctuation of income distribution in Turkey. When we look at the performance values in this period, it is possible to conclude as follows. Income distribution has been fairer in periods when the share of domestic borrowing interest payments in the budget expenditures started to decrease, when the unemployment rate was less, the share of the indirect taxes within total taxes started to decrease, and when the consumer price index (inflation rate) and interest rates started to decrease.

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