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Taxes, Private Credit and Income Inequality Nexus in Pakistan: A Time Series Analysis

[1]Dr. Zaheer Ahmed Babar, [2]Dr. Usman Qamar Sheikh, [3]Dr. Muzammil Hussain

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Dr. Zaheer Ahmed Babar
Ph.D. in Economics, Govt. Punjab Higher Education Department Lahore.
zab_1510@yahoo.com
Dr. Usman Qamar Sheikh
Ph.D. in Economics, Department of Economics, NCBA&E, Lahore.
economistusman@yahoo.com
Dr. Muzammil Hussain
Ph.D. in Economics, Department of Economics, University of Sargodha, Sargodha, Pakistan.
econ_muzammil@yahoo.com

ABSTRACT

Income inequality can be tackle with different Govt. policies such as spending on health, taxation education and good governance. But taxation has been a debatable subject in developing and developed economies. In developing countries poor paid a huge percentage of their income in taxes that created inequality. Direct taxes increase revenue of government as they help to tackle income inequality. The present study checked the impact of taxes, private credit on income inequality in Pakistan. The study used time series data (1973-2021) of Pakistan and used ARDL model with dependent variable is Gini Coefficient and other variables are Total Direct Tax, Total Tax Revenue, Gross Domestic Product, GDP per capita, Private Sector Credit, Labor Force Participation. The study concluded that Pakistan total direct tax revenue was found to tackle income inequality which means the Pakistani tax system has ability to tackle the level of income inequality. Pakistan tax system is a viable fiscal tool to tackle the inequality with reduces the several leakages, strengthen the administrative mechanism, reduce tax burden on poor and increase tax burden on elite class.

Jel Classification: D63, H24, H71, H89

INTRODUCTION

Income inequality can be tackled with different Government policies such as spending on health, taxation, education and good governance. But taxation has been a debatable subject in developing and developed economies. Different types of taxes have different kind of impact on economic activities. Direct taxes are perceived to be progressive since every individual pay different rates on their income while in indirect taxes situation is totally reverse. In developing countries poor paid a higher proportion of their income in taxes that created inequality. Direct taxes increase revenue of government as they help to reduce income inequality.

Income inequality has been increasing in Pakistan since 1960s. The Government of Pakistan has adopted different tax policies to reduce the income inequality but all the policies are vain. There are many factors which affected the income inequality in Pakistan but the major cause is taxation system of Pakistan. The taxation systems are not primary objective for raising revenues. Taxes should be distributing the burden on equity base and this is his primary objective. Those have greater ability should pay greater taxes and those have less ability should pay less. Pakistan already stands on those country lists which tax to GDP ratio is already low. On this situation Pakistan should raise the revenue but question how. Either it shifted the burden on middle class or elite class. In this paper trying to explore those factor which causes the income inequality.

According to Amartya Sen there are two methods of measuring income inequality one is Objective concept and the second normative concept. Objective concept deals with Gini index, Variance indices and co-efficient. While normative concept deals with Atkinson index which is used to measure social welfare of a society especially low income people for the income inequality.

There are also some other methods of measuring income inequality which is Hoover index and Theil index. Theil index measures irregularities of income inequality. If the value of Theil index is zero this shows there is zero income inequality. The value of Atkinson index lies between zeros to one. Its interpretation is related to Theil index means if value is zero then full income equality on the other hand if value is one then there is full income inequality.

Now if we talk about Hoover index it suggests that to bring the income equality in a society people who are highly paid should give some part of the income to the poor, it will decrease poverty level in a country but it also reduced income inequality. Kuznet (1999) expound that some macroeconomic variables like growth has a significant impact on income inequality or in the distribution of income. He found that in long run this relationship of growth on distribution of income will has positive impact but in short it's not necessary that growth has a positive relationship with income distribution.

RESEARCH OBJECTIVES

The objectives of the study were to:

1. Explore the relationship between tax ratio to GDP and Income Inequality in Pakistan.
2. Explore the relationship between GDP Per Capita and Income Inequality in Pakistan.
3. Investigate the impact of Direct Tax on Income Inequality in Pakistan.
4. Explore the relationship between private credit and income inequality in Pakistan.

LITERATURE REVIEW

To bring equality while distributing income levy of taxes is a very good phenomenon. It is necessary for the welfare of society. People with higher income pay taxes to government and resultantly government revenues increase. Government offers more public services program to help low income people and poor especially. But the impact of taxes is not simple. Sometime taxes have negative impact on the income distribution.

Chu et al. in (2000) tried to investigate the income inequality in developing countries and its impacts on developing nations after taxation. The results show that before imposing different tax levies, income distribution in developing countries was less unequal in comparison to developed countries. Moreover developing countries are not in position to use tax and transfer policies to tackle income inequality as compare to developed countries.

Duncan & Peter (2008) tried to analyze the relationship of tax progressivity and income inequality in different countries for the period of 1981-2005. The result shows that tax progressivity has a smaller effect on true inequality. But in specific conditions as theoretical and empirical analysis shows it may increase inequality in countries which have poor law and order situation. In addition to inequality is more in countries which consist of large informal nontaxable sector so flat tax policies are recommended.

Cubero & Hollar (2010) conducted a study "Equity and Fiscal Policy: The Income Distribution Effects of Taxation and Social Spending in Central America". In this study authors tried to find the factors related to income distribution and inequalities. The data from previous studies related to tax and public expenditure have used for analysis. The study found that the distributional impact of taxation is small and social spending has large impact. Social spending improve the income of the poor households.

Burman (2012) wrote an article about tax and inequality relation. The results show that federal tax reduces the inequality but state tax does not play such effective role to reduce income inequality and reduces the income of high earnings to bring equality in society. If there is increase in taxes then expenditures will waned as a result of this it will be very difficult for economy to cover in recession.

Cappelen & Tungodden (2012) conduct a study related to tax policy and fair inequality. The researchers used liberal egalitarian approach for analysis. The results of egalitarian approach highlighted that progressive income tax system has two negative impact on fair inequality. It may increase level of unfairness in society by eliminating fair inequalities of responsibility factors and non-responsibilities factors. In addition to tax policy not only depending on unfair Gini but also un-fair Lorenz curve as well. It also combined with preeto optimality in the design of redistributive tax system.

Cornia (2012) tried to elaborate the factors which were responsible for tackling income inequality in Latin America in 2000's (2002-2010). These factors are as human capital betterment as skill enhancement, secondary education expansion and adoption of new fiscally-prudent development models. But the main focus of these models is impartial macroeconomic policies, tax infrastructure, social expenditure and labor policies. On the other side factors like terms of trade, foreign remittances, foreign direct investment played a less important role then it was expected but the countries having higher transactions of these factors have faced major effects.

Vazquez et al. (2012) examined the impact of tax policies related to public expenditures on income distribution. The unbalanced-panel data for 150 countries (Developing, developed and Transition countries) were used which covers the period from 1970 to 2009. The results show significant impact of both public expenditure and taxes on income inequality. Taxes like corporate income tax and other progressive income tax reduces income inequality but in open/globalized economy theses effects are eroded away. In addition to some other kind of taxes have negative impact on income distribution like excise taxes and consumption taxes and custom duties etc. The results show that expenditures on social sectors like education, health, and new housing scheme for poor have negative impact on income distribution.

Cooper et al. (2015) examined the role of tax policies to reduce income inequality in United States in 80's. This study focused on both state tax and federal tax. Cross sectional and time series approaches are used to check the results. Pre-tax inequality and post-tax inequality are the part of this analysis in fifty states and District of Columbia. In cross sectional analysis results indicated that tax reduces inequality in all states. In time series analysis the results show that tax reduces inequality from 1980's due to federal taxes and state taxes as well.

Nardi & Yang, F. (2015) tried to analyze the relationship of wealth inequality, family background and estate taxation. This research added two major contributions in the field of wealth inequality literature. These are bequest motives, abilities inheritance among generation and earnings process. The second is changes in estate taxes. This study used calibrated framework. The more the estate tax will be the lower the wealth concentration in the hands of rich. But this effect is very small. But large welfare cost bear by rich effect the newborn significantly.

Kaymak & Poschke (2016) found that wealth concentration in US was mainly due to change in tax and transfer policies. Joint impact of tax changes and transfer policies was limited for consumption and income distribution and such limited role was attributed by offsetting influence of taxes and redistributions nature of transfers. The study suggested to consider impacts of taxes and transfers policies to overcome the issue of wealth concentration.

DATA AND MODEL SPECIFICATION

The data (1973-2021) is collected from World Bank official website. The study used total seven variables to estimate the impact of Taxes and private credit. The dependent variable in the model is Gini Coefficient (GiniCo) and other variables are Total Direct Tax (TDT), Total Tax Revenue (TTR), GDP per capital (GDPPC), Private Sector Credit (PCREDIT), Labor Force Participation (LFP and Gross Domestic Product (GDP).

The following model is being utilized to examine the factors which affected the income inequality in Pakistan.

$$GiniCo = a_0+a_1 (TDT) + a_2(TTR/GDP) +a_3 (GDPPC) +a_4(PCREDIT/GDP) +a_5(LFP) +\mu$$

For time series analysis mostly, variables have been influenced with non-stationary issue. So first we check stationary of the data and then apply a suitable technique to find long run relationship among variables. For stationary we apply ADF and PP test to check the data either stationary at level or first difference.

EMPIRICAL RESULT DISCUSSION

TABLE 1: ADF AND PP UNIT ROOT TEST

Variables	ADF level	ADF 1st diff	PP level	PP 1st diff
GINICo	-3.296*	-	-3.264*	-
TTR/GDP	-0.911	-8.870**	-1.362	-8.8273**
TDT	-0.505	-6.478**	-0.528	-6.5242**
GDPPC	-2.087	-5.083**	-2.087	-5.0506**
PCREDIT/GDP	-1.535	-6.226**	-1.811	-6.2286**
LFP	-4.585**	-	-4.687*	-

Note: **, * indicate significant at 1% level and 5% level respectively.

In table 1 shows some variables are stationary at level and some are stationary at first difference. So, when variables are stationary at different level like 1st difference and level then the most appropriate technique to find the long run relationship is ARDL technique which is developed by Pesaran et al. (2001).

TABLE 2: BOUNDS TEST FOR CO-INTEGRATION MODEL

Table 2 shows bound test result of co-integration. Result shows that co-integrating equation exist because the F-statistic lies above upper bounds.

Variables	F-Value at I(0)	F-Value at I(1)	F- Stat at 95%	Decision
F(*GiniCo=TDT,TTR/GDP,GDPPC*,PCREDIT/GDP,*LFP*)	2.62	3.79	5.5930*	**Co-integration**

TABLE 3: LONG RUN COEFFICIENTS OF GINI

Variables	Coef	S.E.	t-Stat	Prob.
TTR/GDP	-0.176	0.086	-2.042	0.04**
TDT	-0.148	0.017	-8.844	0.000*
GDPPC	-0.001	0.004	2.413	0.021*
LFP	-0.181	0.056	-3.238	0.002*
PCREDIT/GDP	0.084	0.020	4.031	0.00*

C	44.065	3.541	12.444	0.00*

Note: * significant at 1% ** significant at 5% and *** significant at 10%.

The Long run result shown in Table 3. All the variables are significant impact on Gini coefficient. These results indicate that direct taxes have very significant impact on income inequality. In Pakistan, direct taxes have negative impact on income inequalities. It shows that if one unit increases direct taxes revenue it will decrease inequality 0.148 units. Total tax revenue has also reduced the inequality. It shows that if one unit increase in tax to GDP ratio, it will decrease the income inequality 0.176 units. Private credit has positive impact on inequality. It increases the inequality in Pakistan but labor force participation (LFP) has negative impact on inequality.

TABLE 4: SHORT RUN RESULT OF GINI

Independent	Coeff	S.E.	t-Stat	Prob.
D(TTR/GDP)	0.064	0.040	1.603	0.118
D(TTR/GDP(-1))	0.103	0.037	2.715	0.010*
D(TDT)	-0.006	0.007	-0.817	0.419
D(GDPPC)	0.004	0.002	1.930	0.062***
D(LFP)	-0.017	0.010	-1.711	0.097**
D(LFP(-1))	0.031	0.010	2.958	0.005*
D(PCREDIT/GDP)	0.036	0.011	3.078	0.004*
CointEq(-1)	-0.426	0.097	-4.358	0.000*
R-Squared	0.8523			
R-Bar-Squared	0.8046			
DW-statistic	2.069			

Note: * significant at 1% ** significant at 5% and *** significant at 10%.

ECM approach is utilized for short run results. Table 4 shows some coefficients are significant impact in the short run while some are not. The value of ECM is -0.426 which means that speed of adjustment from the last year`s disequilibrium in to present period`s equilibrium is around 42 percent. It means that if any shocks come in short run period, it will come to equilibrium in a year with 42 percent. The Durbin Watson statistic indicated the absence of autocorrelation in the model.

CONCLUSION AND POLICY RECOMMENDATIONS

In Pakistan total direct tax revenue was found to reduce income inequality which means the Pakistan tax system will be helpful to reduce the level of income inequality. These results are matched with the studies which reported in literature review. These results indicate that Pakistan tax system has enhanced the inequality but it can reduce it if direct tax ratio enhance. It was also revealed that tax burden helped to reduce the level of inequality since it shown a negative impact on income inequality in Pakistan. Pakistan taxation system is a viable fiscal tool to tackle the inequality issue with help of several measurement like strengthen the administrative mechanism, use technology, this study suggested that reduce tax burden on poor and increase tax burden on elite class with help of good governess.

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