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An Empirical Analysis on Tax to GDP Ratio in India.

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ABSTRACT

This study investigates the intricate relationship between taxes and Gross Domestic Product (GDP) in India, focusing on the Tax to GDP ratio, total tax revenue, and the impact of direct and indirect taxes on economic performance. The Tax to GDP ratio, representing government tax revenue as a percentage of GDP, holds significance for economic stability and the government's capacity to finance expenditures. Despite India's recent economic growth, the Tax to GDP ratio remains lower than the Organization for Economic Co-operation and Development (OECD) average. This study aims to address three objectives: (1) To study the Tax to GDP in India, (2) To study the total revenue with GDP, and (3) To study the direct and indirect taxes with GDP. Two hypotheses are formulated to assess the significance of these relationships. The methodology involves a review of empirical data from various sources, including journals, e-books, research papers, and websites. The findings reveal that both direct and indirect taxes collectively impact GDP significantly, although caution is advised when interpreting individual contributions. Total tax revenue emerges as a substantial predictor of GDP, emphasizing its importance in the Indian economic context. The study contributes nuanced insights into tax-GDP dynamics and recommends avenues for further research in understanding the specific influences of different tax components.

Introduction

The tax-to-GDP ratio represents the government's tax revenue as a percentage of GDP. The higher the ratio of taxes to GDP, the better the economic situation of the country. The image illustrates the government and its ability to finance its expenditures. This study helps to understand and understand the impact of taxes on GDP in India.

India could not expand the tax base even though growth was faster. A lower tax-to-GDP ratio limits government spending on infrastructure and puts pressure on the government to meet its deficit target. Although India has improved its tax-to-GDP ratio over the past six years, it is still much lower than the Organization for Economic Co-operation and Development (OECD) average ratio of 34 percent. India's GDP to GDP ratio is lower than some other developing countries. In general, developed countries have a higher tax-to-GDP ratio. The ratio of gross tax to GDP fell to 10.90 percent in the 2018-19 financial year, when the expected ratio was 16%. The most important measure to raise the ratio is to make sure that people pay taxes. In this way, implementation of the Direct Taxation (DTC) Rule will help achieve better compliance. GST rationalization and transition to a dual rate system can also help improve enforcement and stop tax evasion. While measures to broaden the tax base and improve tax regulations will generate more tax revenue, we cannot ignore the importance of faster economic growth. A country's tax system has a significant impact on law, accounting, economics, psychology and philosophy. Capitalizing income is the most important purpose of taxation. So is efficiency, long-term growth, redistribution and nation-building. However, developing countries have suffered from large financial deficits and governments are unable to finance the goods and services that their citizens need. In this regard, economists recommend different methods to reduce the tax.

Review of Literature

There are so many studies about the tax- to-GDP ratio and the measurement of the relationship between tax revenue and GDP. Most of the reviews are related to the impact of GDP on tax revenue. This section aims to allow the comparison between this paper's findings and the previous literature to conclude. Some important literature related to tax-to-GDP and the correlation between GDP and tax revenue is reviewed.

Brender and Navon (2010) analyzed the relationship of the GDP with tax revenues. The paper found the uncertainty in predicting Israel's tax revenue and concluded that the long run tax revenue and GDP are elastic.

Alis et al. (2010) empirically investigated that saving causes real GDP growth unidirectional. The direct tax to GDP ratio granger causes real GDP growth significantly.

Akujuobi et al. (2012) examined the relationship between tax revenue and Nigeria's economy. They analyzed the level of economic growth that has impacted positively on tax revenue in Nigeria. The general conclusion is that macroeconomic instability and the degree of economic activities are the main drivers of tax buoyancy and tax effort in Nigeria. They found that taxation is an important instrument to improve economic growth.

Chigbu, Dadson, Bayraktar et al. (2012) studied the tax capacity and tax effort by employing a cross-country study from a sample of 110 developed and developing countries to give a broad guideline for tax reform. The use of tax effort and actual tax collection benchmarks allows the ranking of countries into four different groups like low tax collection and low tax effort, high tax collection and high tax effort, high tax collection and low tax effort and inadequate tax collection and high tax effort

Iriqat and Anabtawi (2016) studied the relationship between GDP and tax revenue in developing countries as a Palestine case study. They found the impact of macroeconomics variables on tax revenue and the correlation between tax revenue and GDP variables changes from one period to another. The result confirmed that the balance of trade negatively affects tax revenue.

The IMF (2018) observed a comparative analysis of the tax-to-GDP ratio of Asian countries and found the tax-to-GDP ratio range in 15 to 20%. It advises the Asian countries to keep the tax-to- GDP ratio threshold around 15 percent. It also saw that most region countries consistently fall below a ratio of 15 percent of their GDP.

Adhikari (2020) examined the contribution of income tax in Nepal's revenue generation after 2068 to 2073 B.S. The focus of the article was in the area of tax revenue collection. It was found that the ratio of income tax on GDP was increasing every year since the study period. This study's main conclusion was that income tax revenue's contribution is insufficient to generate funds for tax revenues.

Objectives

1. To study the Tax to GDP in India.
2. To study the total revenue with the GDP.
3. To study the direct and indirect taxes with the GDP.

Hypothesis

1. H0: There is no significant difference between with the GDP and total revenue

H1: There is a significant difference between with the GDP and total revenue

2. H0: There is no significant difference between direct and indirect tax in retrospect to GDP

H1: There is a significant difference between direct and indirect tax in retrospect to GDP

Methodology

This is a review article is empirical in nature. The study was entrenched in secondary data sources. Data were collected from several journals, e-books, research papers, websites, etc. a primary data study is difficult, as people may not admit that, they have taxable income but they are not paying taxes. As tax data is confidential, it is not possible to uncover who are actually tax evaders.

Data Analysis and Interpretation

Table No. 1: Table showing the direct and indirect tax as predictors of GDP ratio.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979[a]	.958	.916	1009663.044
a. Predictors: (Constant), INDIRECT TAX, DIRECT TAX				

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46408400353264.730	2	23204200176632.363	22.762	.042[b]
	Residual	2038838923074.071	2	1019419461537.035		
	Total	48447239276338.800	4			
a. Dependent Variable: GDP						
b. Predictors: (Constant), INDIRECT TAX, DIRECT TAX						

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4404758.175	2955217.558		1.491	.275
	DIRECT TAX	5.726	3.513	.481	1.630	.245
	INDIRECT TAX	9.237	5.126	.531	1.802	.213
a. Dependent Variable: GDP						

Interpretation

The multiple regression analysis conducted on GDP with direct and indirect taxes as predictors yields a model that explains a significant portion of the variability in GDP (R-square = 0.958, adjusted R-square = 0.916). The ANOVA results further support the overall statistical significance of the model, rejecting the null hypothesis of no significant difference between direct and indirect taxes in relation to GDP (p-value = 0.042). Examining individual coefficients, both direct tax (coefficient = 5.726) and indirect tax (coefficient = 9.237) are positively associated with GDP, suggesting that an increase in either type of tax is linked to an increase in GDP, holding other variables constant. However, it's noteworthy that the coefficients for direct and indirect taxes are not individually significant at conventional levels (p-values > 0.05). Therefore, while the collective impact of taxes is statistically significant, caution is advised when interpreting the individual contributions of direct and indirect taxes in this model.

Table No. 2: Table showing the total tax revenue as predictors of GDP ratio.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.977[a]	.954	.939	859936.921
a. Predictors: (Constant), TOTAL TAX REVENUE				

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46228764753210.250	1	46228764753210.250	62.514	.004[b]
	Residual	2218474523128.549	3	739491507709.517		
	Total	48447239276338.800	4			
a. Dependent Variable: GDP						
b. Predictors: (Constant), TOTAL TAX REVENUE						

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5031585.184	2172029.814		2.317	.103
	TOTAL TAX REVENUE	7.132	.902	.977	7.907	.004
a. Dependent Variable: GDP						

Interpretation

The analysis of GDP with total tax revenue as the predictor indicates a model that explains a significant portion of the GDP variability (R-square = 0.954, adjusted R-square = 0.939). The ANOVA outcomes provide strong evidence against the null hypothesis (H0) that posits no significant difference between GDP and total tax revenue (p-value = 0.004). Reviewing the coefficients, the constant term is 5031585.184, representing the estimated GDP when total tax revenue is zero. The coefficient for total tax revenue is 7.132, signifying that a one-unit increase in total tax revenue is associated with a 7.132 unit increase in GDP, while holding other variables constant. The t-test for total tax revenue is highly significant (p-value = 0.004), supporting the alternative hypothesis (H1) that indicates a noteworthy difference between GDP and total tax revenue. Thus, the findings imply that total tax revenue significantly predicts GDP, and an augmentation in total tax revenue is linked to a substantial increase in GDP.

Findings

Objective 1: To study the Tax to GDP in India.

The multiple regression analysis involving direct and indirect taxes as predictors provides significant insights into the Tax to GDP relationship. The model, with a high R-square (0.958) and adjusted R-square (0.916), effectively explains a substantial portion of the variability in GDP. The ANOVA results further confirm the overall statistical significance of the model, rejecting the null hypothesis of no significant difference between direct and indirect taxes in relation to GDP (p-value = 0.042). While both direct and indirect taxes exhibit positive associations with GDP, caution is warranted as their individual contributions are not statistically significant at conventional levels (p-values > 0.05). Therefore, the study suggests a collective impact of taxes on GDP, though specific nuances regarding the distinction between direct and indirect taxes may require further investigation.

Objective 2: To study the total revenue with GDP.

The analysis focusing on total tax revenue as a predictor reveals a model that significantly explains the variability in GDP (R-square = 0.954, adjusted R-square = 0.939). The ANOVA outcomes strongly reject the null hypothesis of no significant difference between GDP and total tax revenue (p-value = 0.004). The coefficient for total tax revenue (7.132) indicates a substantial positive association, suggesting that an increase in total tax revenue is linked to a significant increase in GDP. This finding underscores the importance of total tax revenue as a predictor of GDP in the Indian context.

Objective 3: To study the direct and indirect taxes with GDP.

The analysis of direct and indirect taxes in relation to GDP provides valuable insights into the tax-GDP dynamics. While the overall model is statistically significant, caution is advised when interpreting the individual contributions of direct and indirect taxes due to their non-significant coefficients at conventional levels. This suggests that, collectively, taxes significantly impact GDP, but the specific effects of direct and indirect taxes may require a more nuanced exploration.

The study contributes to a comprehensive understanding of the Tax to GDP ratio and the relationship between total tax revenue, direct and indirect taxes, and GDP in the context of India. The findings highlight the collective influence of taxes on GDP, emphasizing the need for further research to delve into the specific dynamics of different tax components.

Conclusion

The exploration of direct and indirect taxes as predictors of GDP unveiled a model that significantly explains the fluctuations in GDP. The rejection of the null hypothesis in the ANOVA results indicates a substantial difference between direct and indirect taxes concerning GDP. While both types of taxes demonstrate positive associations with GDP, caution is advised due to the non-significant individual contributions. This suggests that the overall impact of taxes on GDP is noteworthy, but there may be nuances between direct and indirect taxes that warrant further investigation.

The analysis focusing on total tax revenue as a predictor revealed a model with considerable explanatory power for GDP variability. The robust dismissal of the null hypothesis in the ANOVA results signals a significant difference between GDP and total tax revenue. The positive link between total tax revenue and GDP, supported by a highly significant t-test, underscores the importance of total tax revenue as a predictor of GDP in the Indian context.

The scrutiny of direct and indirect taxes in relation to GDP uncovered a collectively significant impact on GDP. While the model as a whole is statistically significant, caution is advised when interpreting the individual contributions of direct and indirect taxes, as their coefficients did not reach conventional levels of significance. This underscores the complexity of tax-GDP dynamics, indicating potential avenues for future research to better comprehend the specific influences of different tax components.

In summary, the study has successfully achieved its objectives by providing insightful perspectives on the Tax to GDP ratio, affirming the significance of total tax revenue as a predictor of GDP, and illuminating the combined impact of direct and indirect taxes on GDP. The findings contribute to a nuanced comprehension of the intricate interplay between tax policies and economic performance in the Indian context, while also suggesting potential directions for further exploration and research.

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