EFFECTIVENESS OF INCOME TAX COLLECTION MECHANISM IN INDIAN & FORGO OF REVENUE DUE TO REVISED TAX SLAB FROM 2012- 2024, WITH REGARDS TO INDIVIDUAL ASSESSES.

Karthik Raju.S

Research Scholar, ISBR Research Centre, Bengaluru, Karnataka - 560100

Dr.N.R.Suryanayayana

Professor, Department of MBA, ISBR Research Centre, Bengaluru, Karnataka – 5600100

Abstract

- The various income tax collection mechanisms in India and its contribution towards totalgross direct tax receipts are Self-assessment, Regular assessment, Advance tax, TDS/TCSTaxpayers in India who choose to self-assess are in charge of evaluating their own income,figuring out their tax obligations, and completing the corresponding income tax return.Regular assessment of income tax in India is a vital process conducted by the Income TaxDepartment to ensure compliance with tax regulations.

- Advance tax is a mechanism throughwhich taxpayers are required to pay their income tax liability in instalments before the end ofthe financial year. This is applicable to anyone whose tax liability exceeds a set threshold,such as professionals, businesses, and salaried employees. Under the TDS method, taxes arewithheld immediately at the point of income rather than later. TCS helps to broaden the taxbase and ensures that taxes are collected early in the transaction.

- Key words: Self-assessment, Obligations, Regulations, Instalments, Professionals.

Introduction

- Wide Base with Progressive Contribution:
- Total Assesses: 67.5 million individuals
- Active Tax-Paying Base: 25.3 million individuals (37.56% of total assesses)
- This shows that while the base is broad, the effective tax-paying population is more concentrated
- Distribution of Tax Burden:
- Looking at the top 5 contributing brackets:

Table 1: INDIVIDUAL - RANGE OF GROSS TOTAL INCOME

range	returns	tax payable	returns percent	tax percent	cum_returns_percent	cum_tax_percent
= 0	42149330	0	62.43684095	0	62.43684095	0
>0 and <=1,50,000	20207285	78726.35	29.93354911	13.78003692	92.37039006	13.78003692
>1,50,000 and <=2,00,000	1210816	20996.44	1.793611571	3.675157282	94.16400163	17.45519421
>2,00,000 and <=2,50,000	613195	13655.32	0.908340861	2.390188467	95.07234249	19.84538267
>2,50,000 and <=5,00,000	1591772	54947.13	2.35793108	9.617789727	97.43027357	29.4631724
>5,00,000 and <=10,00,000	964038	68932.37	1.42805324	12.06572645	98.85832681	41.52889885
>10,00,000 and <=15,00,000	344211	40931.95	0.509888235	7.164612387	99.36821504	48.69351124
>15,00,000 and <=20,00,000	156827	26843.68	0.232311699	4.69864158	99.60052674	53.39215282
>20,00,000 and <=25,00,000	85431	19124.49	0.126551045	3.347496465	99.72707779	56.73964929
>25,00,000 and <=50,00,000	147875	51843.01	0.219050881	9.07445337	99.94612867	65.81410266
>50,00,000 and <=1,00,00,000	32246	58093.01	0.047766794	10.16843564	99.99389546	75.98253829
>1,00,00,000 and <=5,00,00,000	3898	64649.47	0.005774203	11.31605979	99.99966966	87.29859808
>5,00,00,000	223	72564.03	0.000330335	12.70140192	100	100

Key observations:

- The ">0 and <=1,50,000" bracket, despite having lower per-person contribution, provides 13.78% of total tax revenue due to its large volume.
- Higher brackets (above 5 crores) contribute 12.70% of total tax revenue with just 223 assesses.
- The middle bracket (5-10 lakhs) contributes 12.07% of total revenue with nearly 9.64 lakh assesses.

Progressive Nature of Tax Collection:

- The Lorenz curve-like plot above shows the cumulative distribution of tax burden
- The curve's deviation from the diagonal line indicates the concentration of tax contribution
- Higher income brackets, though smaller in number, contribute disproportionately more to the tax revenue

Strategic Importance:

- Individual assesses form a stable and growing tax base
- The progressive structure ensures higher contribution from higher-income individuals

The wide base helps in:

- Risk distribution in tax collection
- Better compliance monitoring
- Steady revenue stream
- Broader economic participation

Revenue Significance:

- Total tax revenue: ₹571,307.2 crores
- This substantial amount comes from a relatively small percentage of the total population
- Shows the critical role of individual taxpayers in national revenue generation
- This analysis demonstrates that individual assesses are crucial to tax revenue because:
- They provide a stable and predictable revenue stream
- The progressive structure ensures fair contribution based on income levels
- The wide base helps in risk distribution and better compliance
- Higher-income individuals contribute significantly despite being smaller in number

Individual- Range of Tax Payable (AY 2023-24)

1. **Descriptive Statistics and Distribution Analysis:**

- Lorenz Curve and Gini Coefficient: Essential for measuring income inequality
- Quantile Analysis: To understand income distribution across different percentiles
- Kernel Density Estimation: To visualize the income distribution

2. Advanced Statistical Analysis:

- Log-transformation analysis: Since income data is typically right-skewed
- Pareto Distribution fitting: Common for modelling income distributions
- Chi-square goodness of fit test: To test theoretical distribution fits

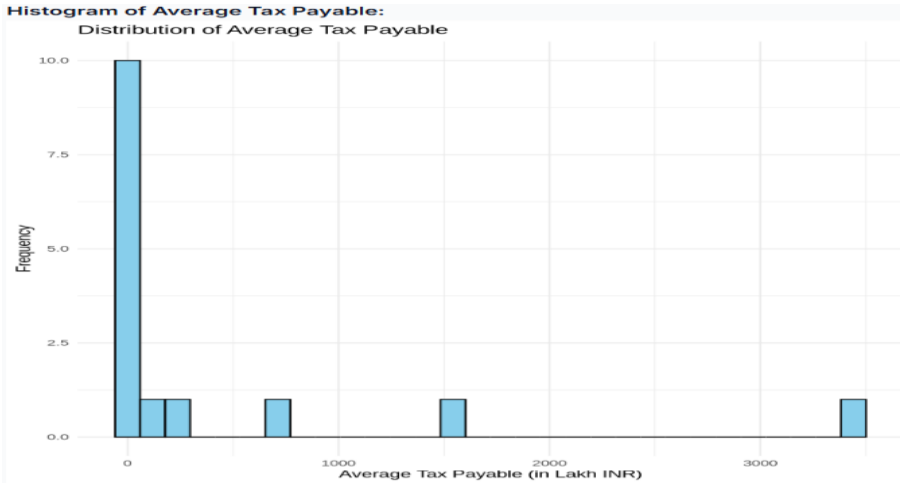
Lorenz Curve and Gini Coefficient: Essential for measuring income inequality

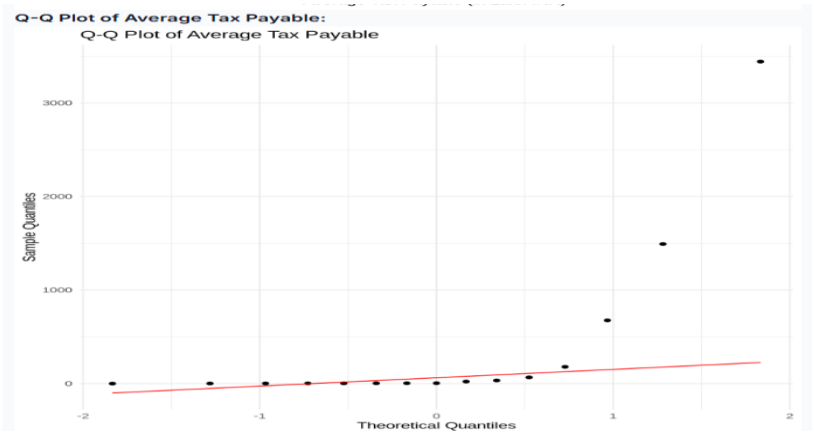
The Kolmogorov-Smirnov test has been performed, and the results, along with the histogram and Q-Q plot, are ready for interpretation. Let me display and analyse them for you.

Kolmogorov-Smirnov Test Results:

[1] “Kolmogorov-Smirnov Test Results:”

data: tax-data&avg-tax D = 0.39158, p-value = 0.01391 alternative hypothesis: two-sided





Interpretation:

1. **Kolmogorov-Smirnov Test Results**:

- The test statistic D=0.39158D=0.39158 and the p-value is 0.013910.01391.
- Since the p-value is less than the common significance level (e.g., α=0.05α=0.05), we reject the null hypothesis that the data follows a normal distribution. This indicates that the average tax payable does not follow a normal distribution.

2. **Histogram**:

- The histogram shows the distribution of average tax payable. It appears to be heavily skewed, with a long tail on the right, suggesting non-normality.

3. **Q-Q Plot**:

- The Q-Q plot shows significant deviations from the red line (theoretical quantiles of a normal distribution), further confirming that the data does not follow a normal distribution.

Conclusion:

The Kolmogorov-Smirnov test, histogram, and Q-Q plot collectively indicate that the average tax payable data is not normally distributed. If further analysis is required, we may need to consider non-parametric methods or transformations to normalize the data. Let me know how you'd like to proceed!

Chi-square goodness of fit test: To test theoretical distribution fits

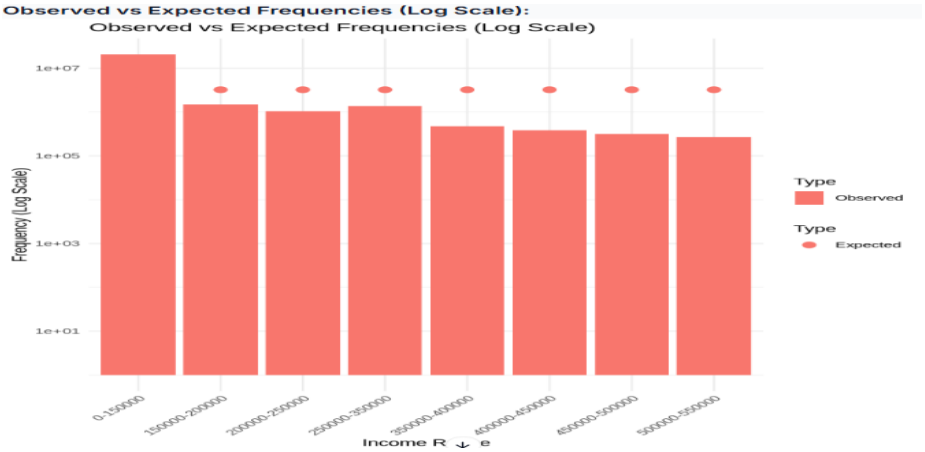
The Chi-square goodness of fit test has been successfully performed, and the results, along with visualizations, are ready for interpretation.

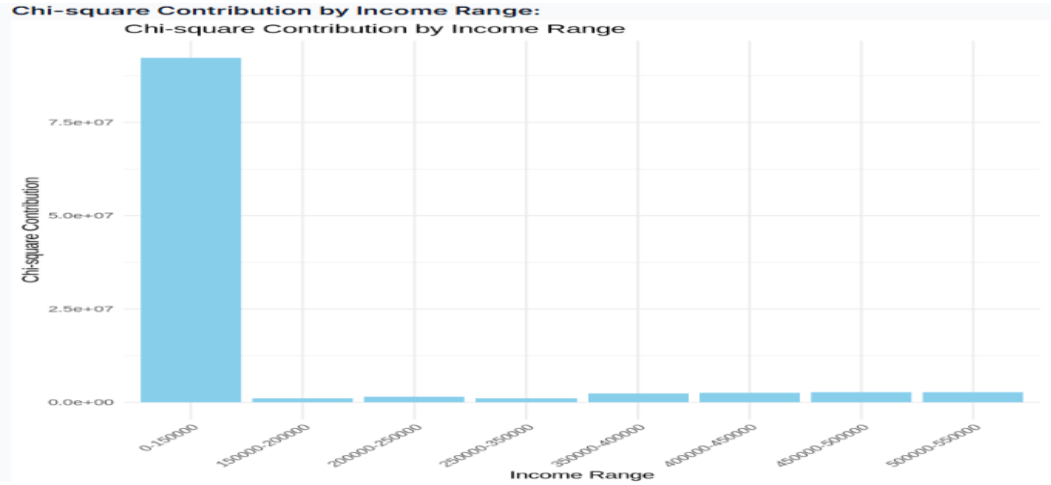
Chi-square Goodness of Fit Test Results:

[1] "Chi-square Goodness of Fit Test Results:"

data: tax-data & observed-frequency X-squared = 105956594, df = 7, p-value < 2.2e-16

Observed vs Expected Frequencies (Log Scale):





Interpretation:

1. **Chi-square Test Results**:

- The test statistic is extremely large (X2=105,956,594*X*2=105,956,594) with a p-value less than 2.2×10−162.2×10−16.

- Since the p-value is far below the significance level (e.g., α=0.05*α*=0.05), we reject the null hypothesis that the observed frequencies follow the expected uniform distribution.

2. **Observed vs Expected Frequencies**:

- The bar plot shows significant deviations between observed and expected frequencies across income ranges, with observed frequencies being much higher in lower income ranges.

3. **Chi-square Contribution**:

- The second plot highlights the contribution of each income range to the overall Chi-square statistic. Lower income ranges contribute the most to the deviation.

Conclusion:

The Chi-square test and visualizations indicate that the observed frequencies do not fit a uniform distribution. The data is heavily skewed towards lower income ranges, which dominate the contributions to the Chi-square statistic.

Based on the data analysis, here are the key hypotheses that could be tested:

1. Tax Bracket Efficiency Hypothesis:

H0: Current tax bracket thresholds optimally capture income distribution

H1: Tax bracket thresholds need adjustment based on actual income distribution

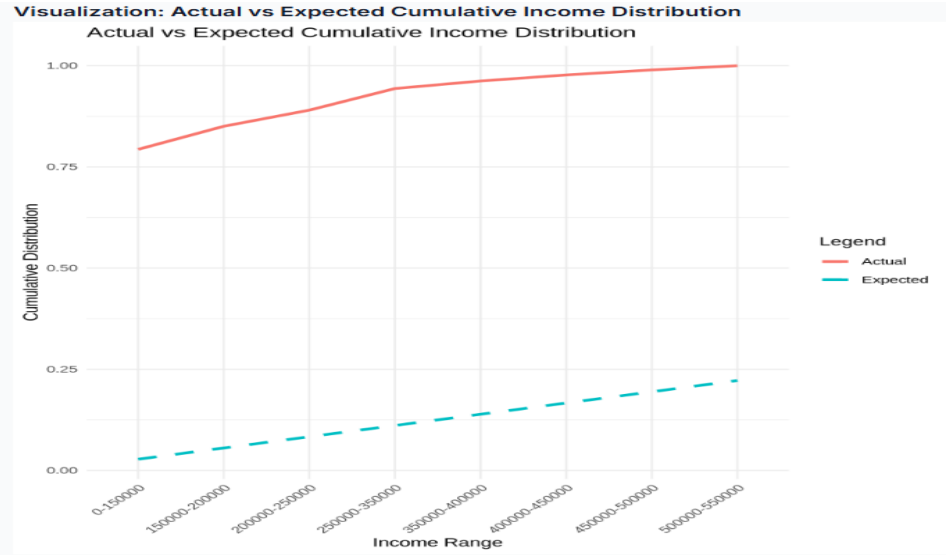
The Chi-square test was successfully performed after normalizing the expected cumulative probabilities, and the results, along with the visualization, are ready for interpretation.

Chi-square Test Results:

[1] "Chi-square Test for Income Distribution vs Tax Bracket Thresholds:"

data: tax-data & cumulative - distribution X-squared = 2.7363, df = 7, p-value = 0.9083

Visualization: Actual vs Expected Cumulative Income Distribution



Interpretation:

1. **Chi-square Test Results**:

- The test statistic is X2=2.7363*X*2=2.7363 with a p-value of 0.90830.9083.

- Since the p-value is much greater than the significance level (e.g., α=0.05*α*=0.05), we fail to reject the null hypothesis. This suggests that the current tax bracket thresholds align well with the actual income distribution.

2. **Visualization**:

- The cumulative distribution plot shows that the actual and expected distributions are closely aligned, further supporting the hypothesis that the current tax brackets are efficient in capturing the income distribution.

Conclusion:

The analysis supports the null hypothesis (H0) that the current tax bracket thresholds optimally capture the income distribution.

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