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Meeting the Real "Gini" of India: An Analysis of Indian Respondents' Perceptions of Income Inequality in India

Aman Gulati[1] and Kah Ying[#]

[1]DPS International, Saket, New Delhi, India
[#]Advisor

ABSTRACT

Based on our fraught human history of widespread revolts, it is often presumed that income inequality can disrupt the status-quo. In recent years, researchers have come to question this connection between actual inequality and adverse political results. The findings show that most people around the world are unable to gauge societal inequality through relative comparisons, and are uncertain about both the magnitude and directionality of the gap. The aim of this study was twofold: 1) to assess the disparity between Indian respondents' perceived and actual ratings of income inequality in India using a Gini Coefficient score; and 2) to identify factors that influenced these ratings. Almost 250 respondents from a wide cross-section of India participated in an online survey to give their perceived ratings of India's Gini coefficient score along with the factors that influenced their responses. Over 90.2% considered the degree of inequality in India to be far higher than the actuality, thus showing the great extent to which they consider their country to be an unequal one. The analysis identifies "Quality of Governance" as the only statistically significant predictor for improving income inequality, showing that the government is considered to be the primary bearer of responsibility for providing quality education and healthcare, which is sadly lacking. Nonetheless, the findings constitute a "call to action" for the Indian Government to implement more effective policies to tackle these issues. Future studies could delve deeper into the problem to determine the extent to which governance influences perceived income inequality in India.

Introduction

Despite the fact that the world as a whole has become more prosperous, income inequality ensures that there are still sizable groups of people all over the world who are dying of starvation and a lack of access to basic healthcare (Kopp, 2020). For many, income inequality lies at the root of this tragedy. Income inequality is defined by an extreme disparity of income distributions with a high concentration of income usually in the hands of a small percentage of a population. When income inequality occurs, there is a large gap between the wealth of one population segment compared to another (Kopp, 2020).

India is one of these countries that is simultaneously characterized by growing economic prosperity and abject poverty. Over the last decade, India's GDP has risen by 8.17% on average (Barraclough, 2020). This has led to a notable increase in the amount of wealth and the number of rich. Currently, 120 individuals make tens of thousands of billions of Indian rupees. Between 2018 and 2022, it is estimated that India would generate "70 new millionaires" a day (Oxfam International, 2020) Their budgets have increased by a factor of "10 times over a decade", with their total wealth surpassing "the entire Union budget of India for the fiscal year 2018-19, which was at INR 24422 billion" ("India Added 3 billionaires a Month in 2019; Mukesh Ambani Richest Indian", 2020).

To top it off, there is a lack of public services for the populace at large. The state of inequality is further exacerbated for the 63 million Indians who are thrust into greater "poverty" due to the costs of healthcare (Oxfam

International, 2020). In fact, according to a new study in *The Lancet*, as many as 2.4 million people died in India in 2018 due to conditions that could have been treated had healthcare been accessible (Kruk et al., 2018).
These grim realities, therefore, offers a backdrop to determine how Indians perceive the state of income inequality in their own country. Current research has indicated that the perceptions of income inequality are actually more significant in triggering discontent within a population than the actuality. It is further argued that the income disparity of poorer people affects their well-being much more than the rich on the district and even state level (Polit, 2005). Therefore, the study results could be extremely enlightening for policymakers to have a far more in-depth understanding of their constituents' level of contentment and concerns with specific issues related to income inequality. It would certainly show that it is important to look beyond just economic indices and figures in determining assessing economic inequality. Rather, people's perceptions could be a far stronger litmus test of their satisfaction with the government's performance.

Description of the Research Study

Research Aim and Research Approach

The overall aim of this research study was to examine the Indian respondents' perceptions of income inequality in India, as studies have indicated that the *perceptions* of income inequality are actually more significant in triggering discontent within a population than the actuality (Polit, 2005). Therefore, this research study sought to explore this phenomenon by using a mixed method research approach.

First, with the quantitative approach, the accuracy of the Indian respondents' perceptions of income inequality in India was determined by comparing their ratings of the Gini coefficient of India with the actual figure. In order to offer a standardized benchmark for respondents to rate their perceptions of income inequality of India, they were introduced to the concept of the Gini coefficient — a statistical tool used to measure economic inequality in a country (Practical modified Gini index, 2020). The coefficient ranges from 0% to 100%: 0% = perfect equality (every resident has the same income) and 100% = perfect inequality (one resident has all the income, while everyone else has nothing). Thus, a country in which every resident has the same income would have an income Gini coefficient of 0. A country in which one resident earned all the income, while everyone else earned nothing, would have an income Gini coefficient of 100 (refer to Appendix A for further information regarding the Gini Coefficient).

The respondents were presented with the Gini coefficients of a sampling of countries as a form of comparison. Please note that the data on Gini coefficients of the different nations came from the World Bank estimates (World Bank, 2020) As such, they were given information on how to use the Gini coefficient to situate India on the income equality index from their perspectives. The first set of hypotheses is as follows:

Null Hypothesis: There is no mean difference between the perceived Gini coefficient and the actual Gini coefficient of India.

Alternative Hypothesis: There is a mean difference between the perceived Gini coefficient and the actual Gini coefficient of India.

In addition, a regression analysis was run to identify the predictors that influence their perceived Gini coefficient, i.e., their perceived level of income inequality in India. The selected factors that were investigated include:

Demographic variables:
Age
Years of education

Income level (per annum)

Non-demographic variables:
Ratings of the effectiveness of governance in India
Ratings of their overall quality of life in India
Ratings of their overall quality of education in India
Ratings of their overall quality of healthcare in India

The second set of hypotheses is as follows:

Null Hypothesis: The factors (described above) have no effect on Indian respondents' perceptions of income inequality of India.
Alternative Hypothesis: The factors (described above) have an effect on Indian respondents' perceptions of income inequality of India.

The qualitative approach involving the analysis of the respondents' responses to open-ended questions provides further information that yielded further interpretations of the quantitative data.

Data Collection

An online survey comprising the following questions was formulated. First, the respondents were asked to rate India's Gini coefficient from 0 to 100%. Second, demographic information, specifically age and yearly income were also covered. Finally, the respondents were also asked to rate their perceptions of statements regarding the various spheres of life that are relevant to income inequality in India, on a scale of 1-5, "1" being "Strongly Disagree" and "5" being "Strongly Agree":

The overall quality of life for all is excellent in India.
The Indian government is ensuring a just and equal society.
The quality of education in India is excellent for all.
The quality of healthcare in India is excellent for all.

An open-ended question was also inserted to allow the respondents to elaborate on their ratings of income inequality in India or any other areas addressed in the survey form.
The online questionnaire was disseminated via diverse WhatsApp groups, direct emails, and social media platforms such as Instagram. I tapped into my personal work of family and friends who in turn spread the questionnaires to others. Thus, the combination of convenience and snowball sampling enabled me to gather 234 responses over three days.

Data Analysis

Descriptive statistics was presented to determine the accuracy of the respondents' assessments of the income inequality of India by comparing the perceived Gini coefficients with the actual Gini coefficient of India's income inequality. Subsequently, a two-sample t-test was run to determine whether the mean difference between the perceived and the actual Gini coefficient of India is statistically significant.

In addition, a regression analysis was run to identify which of the factors exerted an impact on the respondents' perceptions of income inequality and their relative influence. Finally, the analysis of the detailed responses of the

respondents was conducted to put together a comprehensive picture of the Indian respondents' perceptions of income inequality in India.

Results

Introduction

All the results from the statistical analyses, as outlined in the "Description of Research Study" section, are presented and examined in detail. The gap between the respondents' perceptions of income inequality in India and the actual figure, along with the factors that influence their perceptions of income inequality, are presented and discussed.

Results and Discussion

In order to ascertain the accuracy of the respondents in their perceptions of the level of income inequality in India, a comparison was made between the perceived and the actual ratings of the level of income inequality in India. As shown in Table 1, the perceived mean rating of income inequality in India (M = 59.31, SD = 20.10) is higher than the actual figure (M = 35.20, SD <.01) by as much as 24.11.

Table 1
Descriptive Statistics of Perceived and Actual Ratings of Income Inequality in India

Predicted		Actual	
Mean	59.3055794	Mean	35.2
Standard Error	1.31659361	Standard Error	8.3969E-15
Median	60	Median	35.2
Mode	50	Mode	35.2
Standard Deviation	20.0969292	Standard Deviation	1.2817E-13

To determine whether the differences are statistically significant, a two-samples t-test was run. Table 2 shows that the difference between the mean perceived income inequality and the mean actual income inequality is statistically significant, $t(464) = 18.31$ (higher than t critical value of 1.97, two-tailed), $p<.01$.
In fact, as many as 90.2% of the respondents (211 out of 233 respondents) gave a higher mean perceived Gini coefficient score than the actual Gini coefficient score. This suggests that a vast majority of the respondents were highly discontented with the level of inequality in India based on their perceptions of their environment and their awareness of the situation. One respondent offered a comprehensive picture of his perception of the state of income inequality in India: "Poverty is deeply engraved in the society", which is manifested in lack of "access to bank accounts" and "lack of good and quality education [for] the masses". Another respondent also highlighted "how stark" the situation is in India — one is at the "privileged end of the spectrum" and others are experiencing a dire lack of basic necessities.

This finding is supported by multiple articles highlighting the severe state of disparity in India today. For example, one article stated pointedly, "Despite an increase in the country's wealth, income inequality has worsened." (UNU EDU, 2018).

Table 2
T-Test: Two-Sample Assuming Unequal Variances

	Predicted	Actual
Mean	59.3055794	35.2
Variance	403.886564	1.6428E-26
Observations	233	233
Hypothesized Mean Difference	0	
df	232	
t Stat	18.3090509	
P(T<=t) one-tail	3.1041E-47	
t Critical one-tail	1.65144806	
P(T<=t) two-tail	6.2083E-47	
t Critical two-tail	1.97024194	

Next, a full regression analysis was run to identify which of the following factors influenced the respondents' perceived level of income inequality in India. Due to the directionality of the predictors (the higher the rating, the higher the quality — a positive outcome) to the Gini coefficient (the higher the rating, the higher the income inequality — a negative outcome), an adapted Gini coefficient was used as the dependent variable for the regression analysis. When a full regression analysis with all the variables was run, no predictors were shown to be statistically significant in predicting the perceive income inequality of India (see Table 3).

Table 3
Full Regression Analysis of Predictors of Perceived Income Inequality of India

Regression Statistics	
Multiple R	0.19153456
R Square	0.03668549
Adjusted R Square	0.0067157
Standard Error	20.029333
Observations	233

ANOVA

	df	SS	MS	F	Significance F
Regression	7	3437.49209	491.070298	1.22408251	0.29038997
Residual	225	90264.1907	401.174181		
Total	232	93701.6827			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	50.2131411	4.88996685	10.2686056	1.5538E-20	40.5771515	59.8491308
Age	-0.1146861	0.07461564	-1.5370251	0.12569221	-0.261721	0.03234874
Education (Years)	0.0028263	0.00736892	0.38354338	0.70167907	-0.0116946	0.01734722
Income (Annual)	-8.982E-08	1.125E-07	-0.7983723	0.42549633	-3.115E-07	1.3187E-07
QOL	-0.8188099	1.94881264	-0.4201583	0.67477075	-4.6590687	3.02144898
Governance	-2.7301507	1.61700444	-1.6884003	0.09271987	-5.9165605	0.45625903
Education	0.48116393	1.88701544	0.25498675	0.79896625	-3.2373196	4.19964748
Healthcare	0.97761057	1.74766136	0.55938215	0.57645733	-2.4662669	4.42148807

A limited regression analysis that eliminated the demographic variables from the sample was then run. With this regression analysis, quality of governance was found to be statistically significant among all the non-demographic predictors, $t(228) = 1.973$ (higher than the critical value of 1.971), $p < .05$ (see Table 4). At this point, the overall effect of the predictors on the perceived income inequality is still statistically insignificant, $F(7,225) = 1.22$, $p = .29$.

Table 4
Regression Analysis of Non-Demographic Predictors of Perceived Income Inequality of India

Regression Statistics	
Multiple R	0.1502534
R Square	0.02257609
Adjusted R Square	0.0054283
Standard Error	20.0423089
Observations	233

ANOVA

	df	SS	MS	F	Significance F
Regression	4	2115.41719	528.854298	1.31655963	0.26458939
Residual	228	91586.2656	401.694147		
Total	232	93701.6827			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	45.709068	4.12053972	11.0929808	3.7898E-23	37.5898609	53.828275
QOL	-0.3825547	1.93498743	-0.197704	0.84345283	-4.1952988	3.43018941
Governance	-3.1326406	1.58791078	-1.9728065	0.04972586	-6.2614969	-0.0037844
Education	0.12239198	1.86950513	0.06546758	0.94785908	-3.5613243	3.80610825
Healthcare	1.27402687	1.73039253	0.73626466	0.46232648	-2.1355787	4.68363245

When the regression analysis was run again without the statistically insignificant variables, the result confirmed the statistical significance quality of governance as a predictor of the perceived rating of income inequality, $b = -2.87$, Based on this regression analysis, quality of governance accounted for just 2% of the perceiving rating of income inequality of India, $R^2 = .02$, $F(1, 231) = 4.53$, $p = .03$ (see Table 5).

Table 5
Regression Analysis of Quality of Governance and Perceived Income Inequality of India

Regression Statistics	
Multiple R	0.13873592
R Square	0.01924766
Adjusted R Square	0.01500198
Standard Error	19.9456127
Observations	233

ANOVA

	df	SS	MS	F	Significance F

Regression	1	1803.53778	1803.53778	4.53346723	0.03429645
Residual	231	91898.145	397.827467		
Total	232	93701.6827			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%
Intercept	47.1399586	3.29719164	14.297003	1.2214E-33	40.6435459
Governance	-2.8660503	1.34607285	-2.129194	0.03429645	-5.5181997

Based on this result, we can derive the following predictive equation for determining the perceived income inequality of India among Indian respondents:

Adapted perceived income inequality = 45.71 - 2.87 *(rating of quality of governance)
Using this equation, one can determine the perceived inequality by using the rating of the quality of governance in India. For instance, if someone were to rate the quality of governance at the lowest rating of 1, the perceived Gini coefficient would be calculated as follows:

Adapted perceived income inequality = 45.71 - 2.87 *(1) = 42.84
Perceived income inequality = 100 – Adapted perceived income inequality = 57.16

By examining the qualitative data, one can understand why the only statistically significant variable in the analysis is the "quality of the government's governance". In fact, a respondent articulated what many of the respondents wrote, albeit not so eloquently, by attributing the state of income inequality in India to an accumulated legacy of "the lack of attention paid by the previous governments to the welfare of the poor sections of the society." Although "governments claim to reduce poverty and inequality", the "middle class [and the poor] have burgeoned over the years". As far as the respondents were considered, governments have made "a weak effort" to narrow the gap of "education and income disparities". The extent to which the respondents pin the income inequality on the governments is also captured in their expectation that this problem "can only be bridged by [the government's] impactful policy decisions". Specifically, (the government) must "do a lot more on education, healthcare, employment, food security, housing and insurance to uplift the lives of the impoverished."

Nonetheless, the identification of the quality of the governance as a statistically significant variable needs to be qualified by the reality that the R squared figure is just 0.02. This means that this factor only accounts for 2 per cent of the variance in the perceived income inequality. By looking at the qualitative data, one can see some respondents were simultaneously blaming and praising the government, stating that they were "glad that the current government's initiatives are working" and that the government is making "ideal efforts" to "improve the quality of education and healthcare for lower income population groups".

Furthermore, although the variables regarding the provision of education and healthcare was not statistically significant, it is important to point out that over 130 respondents mentioned the responsibility of government with regards to these services. They stated that "all people do not have the same access to healthcare", and that it "fails to reach the masses". Furthermore, they accept that "many Government hospitals" do provide such services, but the "situation is dire". It would seem that for the Indians, the government's quality of governance is highly correlated with the standard of education and healthcare. This would just suggest that there may have been a high degree of multicollinearity between these variables.

Two correlational analyses were thus run to determine the level of correlations between the perception of the quality of governance and the quality of education and healthcare, separately. In addition, accompanying regression analyses were also done to determine the statistical significance of these correlational analyses outcomes. The perceptions of the quality of governance were found to be moderately positively correlated with the perceptions of quality of education [$r(231) = .35$, $p<.01$] and healthcare [$r(231) = .31$, $p<.01$] (see Tables 6–9). Given that the correlations are

just moderately correlated, their interactions with the quality of government on the perceived income cannot be considered to have influenced the result.

Table 6
Correlational Analyses of Quality of Governance with Quality of Education

	Governance	Education
Governance	1	
Education	0.3472783	1

Table 7
Regression Analysis to Determine Statistical Significance for Correlation between Governance and Education

Regression Statistics	
Multiple R	0.3472783
R Square	0.1206022
Adjusted R Square	0.1167953
Standard Error	0.8546566
Observations	233

ANOVA

	df	SS	MS	F	Significance F
Regression	1	23.14009799	23.14	31.6798	5.24476E-08
Residual	231	168.7311466	0.7304		
Total	232	191.8712446			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.3857852	0.141282524	9.8086	3.3E-19	1.107418142	1.66415229
Governance	0.3246413	0.057678349	5.6285	5.2E-08	0.210998426	0.43828419

Table 8
Correlational Analyses of Quality of Governance with Quality of Healthcare

	Healthcare	Governance
Healthcare	1	
Governance	0.31353772	1

Table 9
Regression Analysis to Determine Statistical Significance for Correlation between Governance and Healthcare

Regression Statistics	
Multiple R	0.3135377
R Square	0.0983059
Adjusted R Square	0.0944025
Standard Error	0.924501
Observations	233

ANOVA

	df	SS	MS	F	Significance F
Regression	1	21.52519528	21.525	25.1844	1.04E-06

Residual	231	197.4361781	0.8547			
Total	232	218.9613734				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.2829665	0.152828442	8.3948	4.7E-15	0.981850656	1.58408234
Governance	0.3131084	0.06239195	5.0184	1E-06	0.190178382	0.43603844

Conclusion

The research study revealed that over 90.2% of the respondents gave a higher Gini coefficient score to India than the actuality. This essentially means that they perceive India to be far more unequal society than the reality based on objective estimates. The huge gap between the perceived mean Gini Coefficient Score and the actuality (35.2%) shows that it is important for policymakers to pay attention to the Indian populace's perceptions of their environment around them. These perceptions would fluctuate in accordance with their socioeconomic status and the context in which they live and lead them to experience significant discontent about the state of equality in India. Furthermore, this research study also suggests that typical objective assessments derived from indices like the Gini Coefficient are inadequate in capturing the significance of income inequality for policy making.

More specifically, the research study identified the "Quality of Governance" as a statistically significant predictor of the respondents' perceived Gini Coefficient score. Essentially, the Null Hypothesis is Partially Rejected. While the other variables, specifically "Quality of Education", "Quality of Healthcare" and "Overall Quality of life", are not statistically significant, the analysis of the qualitative data indicates that the respondents considered the government to be ultimately responsible for all these areas. Essentially, the chief factor that needs to be addressed is the quality of the governance.

At the same time, it is important to point out that the "Quality of Governance" only accounts for 2% of the respondents' ratings of perceived Gini Coefficient score. In fact, the evaluation of the data also shows the respondents' ambivalence towards the quality of the governance. There were comments in which the government was simultaneously critiqued and praised for measures taken.

Nonetheless, the findings still indicate that the Indian government needs to do far more to address the inequality in the country by improving the quality of education and healthcare for the masses. Future research could perhaps hone in on how the perceptions of specific government policies have influenced perceived inequality in the country, thus generating constructive and targeted input for policymakers.

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