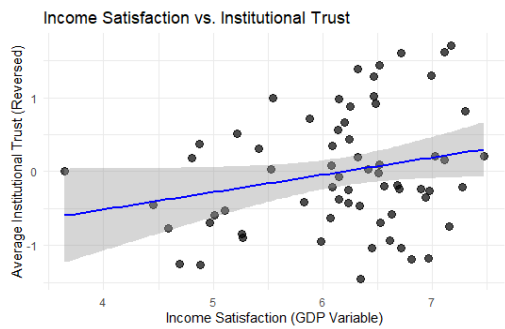


1. Introduction

Public trust in institutions is fundamental to social stability, and individual economic well-being can play a crucial role in shaping that trust. In this study, we explore whether there is a relationship between income level and institutional trust using a merged dataset that combines the World Values Survey (WVS) with GDP data, thereby offering both micro- and macro-level perspectives. Our independent variable, Q50—asking respondents to rate their satisfaction with their household's financial situation—is used as a proxy for individual income, and although it is not a GDP measure per se, it captures economic well-being in a manner analogous to how GDP reflects broader economic conditions. Our dependent variable is a composite institutional trust index derived from items Q64–Q74, which measure confidence in key institutions such as government, courts, and media. To ensure data quality, special response codes (e.g., -1, -2, -4, -5) were recorded as missing (NA). We hypothesize that higher income satisfaction is associated with higher institutional trust. Our research question is: "Is there a relationship between individual income satisfaction and institutional trust?" The objective is to quantify this relationship while controlling for demographic factors, thereby providing insights to inform both academic debate and policy decisions.

2. Data Analysis

We standardize the institutional trust items (Q64–Q74) by converting each into z-scores and then average them to form a composite institutional trust index (avg_trust). Q50, which asks respondents to rate their satisfaction with their household's financial situation on a 10-point scale, is used as a proxy for individual income (GDP variable). We begin with descriptive statistics and visualizations of income_satisfaction and avg_trust.



Graph 1: Illustration of Relationship

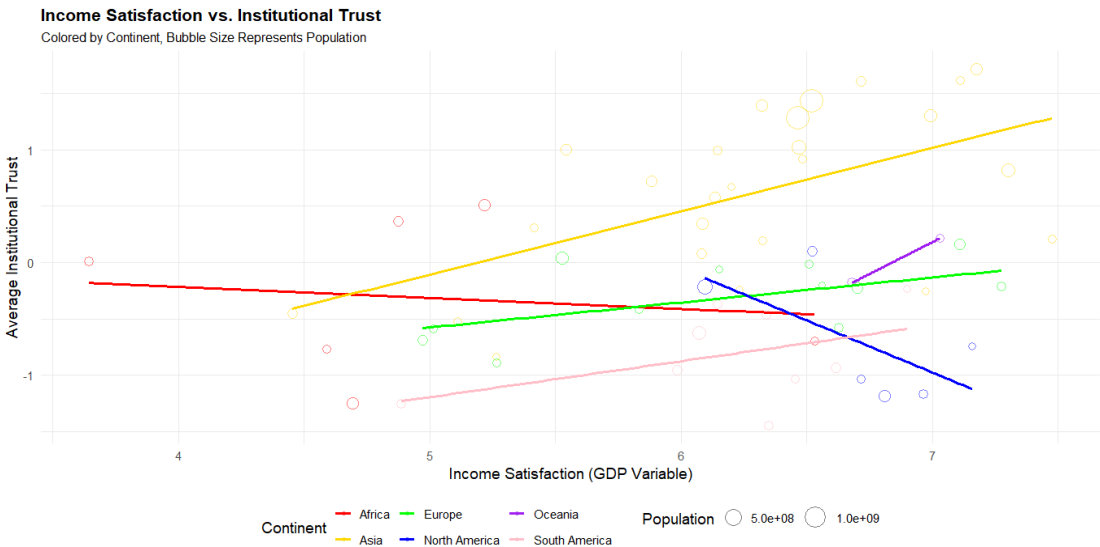
This plot demonstrates a modest positive relationship, suggesting that higher levels of income satisfaction may correspond to higher institutional trust, although the spread of points around the regression line indicates significant variation around this trend.

Graph 2: Heterogeneity

Given, heterogeneity among countries, it's critical to analyze how the relationship between income satisfaction and institutional trust may differ across population groups and continents.

I decided to use two measures of heterogeneity:

- **Population size** to capture country-level differences (such as between small and large countries).
- **Continent** to show differences by region and culture.



The interaction graph clearly shows heterogeneity in relationships across continents. For instance, African and Asian countries (with larger bubbles indicating larger populations) appear distinct, indicating that the relationship between income satisfaction and institutional trust varies significantly by continent.

3. Regression Analysis and Interpretation

To investigate the relationship more rigorously, four regression models were considered:

3.1. Simple Linear Model (Model_inst): $avg_trust = \beta_0 + \beta_1 income_satisfaction + \epsilon$

The most straightforward approach, using income satisfaction alone, reveals a positive but weak relationship, as suggested by the coefficient for income satisfaction (approximately 0.234).

3.2. New Model (Model_update):

$avg_trust = \beta_0 + \beta_1 income_satisfaction + \beta_2 Continent + \beta_3 Population + \epsilon$

Here, I introduced the control for continents and population size to account for differences across geographic and demographic characteristics.

term	estimate	std.error	statistic	p.value
(Intercept)	-1.821726e+00	5.495023e-01	-3.315229	0.001673746
income_satisfaction	3.006055e-01	1.025108e-01	2.932427	0.004990873
ContinentAsia	4.533231e-01	2.808982e-01	1.613634	0.112616155
ContinentEurope	-3.530773e-01	2.949552e-01	-1.197054	0.236714324
ContinentNorth America	-9.624814e-01	3.590372e-01	-2.680729	0.009818650
ContinentOceania	-2.324789e-01	4.802370e-01	-0.484092	0.630353171
ContinentSouth America	-8.855503e-01	3.107713e-01	-2.849524	0.006260889
Population	6.755536e-10	2.803485e-10	2.409692	0.019540478

Table 1: Regression Analysis

The significant positive coefficient (3.006) for income satisfaction indicates a clear positive association with institutional trust (p-value = 0.0049). The significance of population (p-value = 0.0195) also suggests heterogeneity by country size.

3.3. Interaction Model (Model_interaction): $avg_trust = \beta_0 + \beta_1 income_satisfaction * Continent + \epsilon$

Includes interaction to test whether the relationship differs by continent. It shows considerable variation across regions, emphasizing heterogeneity.

3.4. Extended Causal Model (Model_causal): $avg_trust = \beta_0 + \beta_1 income_satisfaction + \beta_3 X + \epsilon$

This model includes multiple predictors (population, continent, family importance, etc.) to approximate a causal link. This approach helps control for confounding variables that might influence both income satisfaction and institutional trust.

4. Causality Consideration

While the positive association between income satisfaction and institutional trust is clear, establishing causality requires caution. A causal relationship might exist, but the directionality is ambiguous:

- Possible direct causality:** People who are satisfied financially may feel more secure and thus trust institutions more.
- Reverse causality or feedback:** Alternatively, high institutional trust could create better economic conditions leading to greater income satisfaction.

Given observational data limitations, the observed positive relationship does not definitively imply causation but strongly suggests the presence of an influential relationship worth further investigation through longitudinal studies or controlled experiments.

5. Conclusion

The analysis indicates a positive relationship between individual income satisfaction and institutional trust across countries, supported by regression results showing statistically significant coefficients. Visualizations further illustrated continent-level heterogeneity and population-based differences, revealing substantial variation in this relationship by geographic context. Although causality cannot be conclusively confirmed from this cross-sectional data, the consistent positive relationship—particularly robust when controlling for demographic variables—suggests income satisfaction is indeed closely associated with higher levels of institutional trust globally. Further research is warranted, preferably with experimental or panel data, to explore causal mechanisms underlying this important socio-economic relationship.