

Does Diversity of Faiths and Tongues affect Economic Outcomes? An Analysis of the Effect of Religious and Linguistic Diversity on the Economic Growth of Indian States

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Undergraduate Thesis that partially fulfills requirements for
B.Sc. (Research) Economics at Shiv Nadar IOE, Delhi (NCR)

Submitted on May 10, 2024

Abstract

This paper investigates the effect of religious and linguistic diversity on the economic growth of Indian States. There is already a vast literature on this area dating back to the late 1990s. Researchers have studied the effect of ethnic, linguistic, religious or racial diversity on growth and other economic variables using cross-country samples or country-specific ones. However, there is yet to have been a study carried out in the context of India. Using a panel dataset of Indian States from 1991 to 2020, we aim to contribute to a more nuanced understanding of the relationship between diversity and growth using this study. We find that while religious diversity has no significant effect on growth, linguistic fractionalization has a positive and significant effect on growth.

1. Introduction

Standard economic models commonly assume homogeneous populations, a simplification that does not reflect the diverse nature of real-world societies. The use of representative consumers and producers in these models results in unrealistic expectations from real-world markets, which consist of fragmented populations, thus revealing blind spots in policy-making. There is well-established literature dating back to the late 1990s showing that fragmented populations (along ethnic, linguistic and religious lines) affect economic growth through various channels, including but not limited to corruption, conflict, investment and government expenditure. Interested in the reasons for the poor economic performance of African countries, Easterly and Levine (1997) found that the high ethnic fragmentation of Africa plays a significant role in low schooling, political instability, and high government deficits among others, all of which result in long run growth tragedies. These findings were confirmed later by Alesina, Devleeschauwer, Easterly, Kurlat and Wacziarg (2003), and they also went further by showing that fractionalization along ethnic and linguistic lines is more likely to play a crucial role in determining economic success compared to religious lines, both in terms of GDP growth and in terms of welfare and institutional quality (such as literacy rate and corruption).

Fractionalization, which is the probability that two randomly chosen individuals from the population belong to different groups, is one measure of diversity. However, Montalvo and Reynal-Querol (2005) build upon the work of Esteban and Ray (1994) and draw comparisons between the index of fractionalization and the index of polarization. They argue that the polarization measure is the adequate indicator to measure potential conflict and find that ethnic (religious) polarization has an adverse effect on economic development by reducing investment while increasing government consumption

and the probability of a civil conflict. This was also reaffirmed by de Soysa and Noel (2020), who utilized data on global homicide rates for over 140 countries from 1995-2013 and found that ethnic heterogeneity is associated with homicide rates in an inverted U-shape relationship. Differences in the effect of the two diversity measures on economic outcomes were also found by Rodríguez-Pose and von Berlepsch (2019), who used county-level US data from 1880, 1900 and 1910 to check the effect of population diversity on economic development. Making use of the migration waves of the late nineteenth and early twentieth century, they found that high levels of fractionalization have a strong and positive influence on economic development in the short, medium and long run. This was contrasted by the undermining of development in regions with high polarization levels. They also found these relationships to stand the test of time: counties with a more heterogeneous population composition over 130 years ago are significantly richer today, whereas counties that were strongly polarized at the time of the migration waves have endured persistent negative economic effects.

While there are several possible channels through which diversity can negatively effect growth, the most important one is corruption, as found by Papyrakis and Mo (2014). Moreover, the papers mentioned so far, while important, only cover a small portion of the vast literature on the subject. There are several others that investigate the effect of diversity on growth or other variables that are of interest to economists. For example, Chadha and Nandwani (2018) find that more fragmented districts in India have higher inequality, but the relationship between fragmentation and horizontal inequality is weak. However, there is a lack of India-specific studies on diversity and growth, except for Shaban and Cadene (2023), who find that economic growth has a substantial impact on religious, language, and overall cultural diversities of Indian States using a Granger causality framework. When you consider the diversity of the country and the fact that it consists

of more than 15% of the world's population, it leaves no doubt as to why this gap must closed. Hence, we will carry out an analysis of the effect of religious and linguistic diversity on economic growth in the context of Indian States. One underlying mechanism could be the crime rate, and Raj and Kalluru (2023) found that crime is inversely related to growth using Indian data from 1990-2019. More specifically, an increase in homicide rates by 1% causes a 0.25% decrease in growth rate. For the sake of our analysis however, we will use Total Cognizable Crimes as per the Indian Penal Code (IPC) to measure the crime rate.

2. Methodology

2.1 Data

The indices for fractionalization and polarization along religious and linguistic lines were constructed using the census data for the years 1991, 2001 and 2011. Per Capita Gross State Domestic Product was calculated for all states using GSDP and population data from the EPWRF website, which was also used to source most controls. The RBI Handbook of Statistics on Indian States was also consulted for other controls, and crime statistics were taken from the Annual Reports of the National Crime Records Bureau (NCRB). We have been unable to do a caste-based analysis due to lack of data.

2.2 Measuring Diversity

Consider a population of N individuals that consists of K different groups, and let the proportion of each group in the population be s_i . We then define two terms, Fractionalization and Polarization, as given below. These are also the most widely used measures of diversity in existing literature. While we

will be using a widely accepted Fractionalization measure that is based on the Herfindahl Index, we will use the Polarization Index that is available in Montalvo and Reynal-Querol (2005). This index does make certain assumptions that may not be entirely valid for our population distribution (such as assuming the absolute distance between two groups being equal), but it also allows us to make an initial rudimentary analysis. We can always introduce more complexity at a later stage. The two indices, their bounds and the conditions required to attain them are given below.

- Fractionalization is the probability that two randomly chosen individuals from the population belong to different groups

$$F = 1 - \sum_{i=1}^K (s_i)^2$$

- Polarization is an alternative measure and is used to provide an emphasis on the relative size of these different groups

$$P = 1 - \sum_{i=1}^K \left(\frac{s_i - 0.5}{0.5} \right)^2 s_i$$

As one can observe, both F and P lie between 0 and 1, and that:

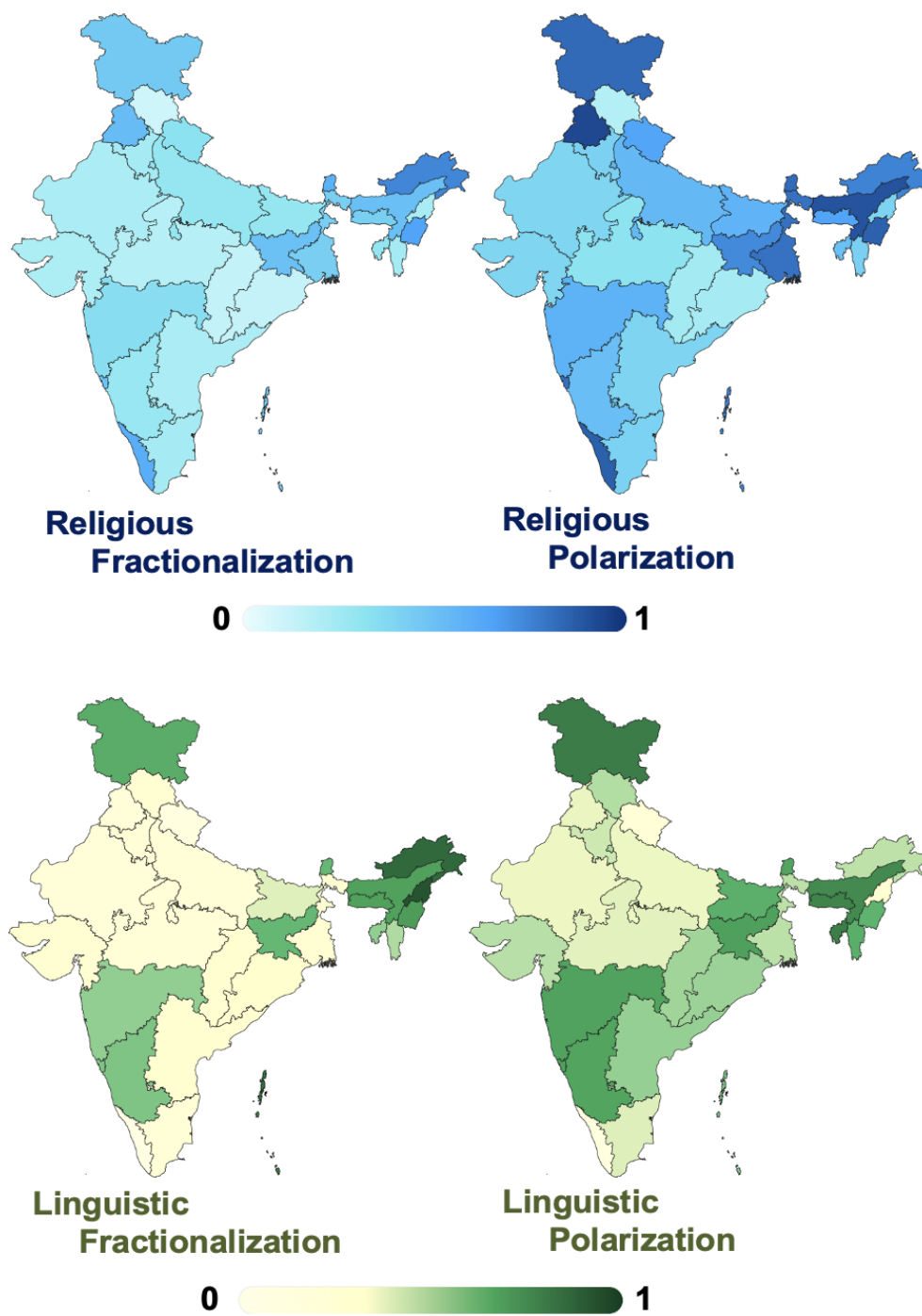
$$F \rightarrow 1 \text{ as } K \uparrow$$

$$P = 1 \iff K = 2 \text{ and } s_1 = s_2 = 0.5$$

$$K = 1 \iff F = 0 \text{ and } P = 0$$

We used the census data for calculating the values of the indices. For religious diversity, the different groups are Hindus, Muslims, Christians, Sikhs, Buddhists, Jains, Others and Not Stated. For linguistic diversity, mother tongues were used to group individuals, and there are 124 of them in the 2011 census, with several having a significant number of distinct dialects.

2.2.1 Religious and Linguistic Diversity of India in 2011



2.3 Estimating Equation

We are interested in β in the equation given below,

$$Y_{st} = \alpha + \beta D_{st} + \gamma X_{st} + \delta_s + \theta_t + \delta_s * t + \epsilon_{st}$$

where Y_{st} is the five-year average change in Per Capita Gross State Domestic Product, D_{st} is the value of the Fractionalization or Polarisation index, X_{st} is a vector of various controls, δ_s and θ_t are used to control for State and Time Fixed Effects respectively, $\delta_s * t$ is included to account for State-Specific Linear Trends and ϵ_{st} is the error term. We use a similar equation to find the effect of diversity on crime rate, using data from the NCRB's Annual Reports.

3. Results

All yearly variables have been averaged over five-year periods, while ten-year and five-year variables have been taken as such. The baseline results given below are for the unbalanced panel, consisting of all states from 1991-2020. Various robustness checks have been carried out, and we have included two key ones in this section. The first one is where we merged states that split during our time period, which are (Uttar Pradesh, Uttarakhand), (Madhya Pradesh, Chhattisgarh) and (Bihar, Jharkhand). The other robustness check shown is when all these states have been dropped from the sample. As the creation of Telangana happened post-2011, all data for the state was merely merged with that of Andhra Pradesh and hence, is included across all these results. While various controls were used, there was barely any significance obtained except in the baseline case whenever more than two of them were included. As the sets of languages were not constant across the three census collections, robustness checks were carried out for these as well, and the results (which are available on request) did not change as the speakers of some of these languages make up less than 1% of the population.

3.1 Baseline Regression - Unbalanced Panel

Table 1a : Effect of Religious Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|----------------------|--------------------|--------------------|---------------------|
| Fractionalization | -0.2370 (0.193) | -0.0752 (0.272) | 0.1677 (0.924) | | | |
| Literacy Rate | -0.0021 (0.002) | -0.0024 (0.002) | -0.0008 (0.002) | -0.0023 (0.002) | -0.0024 (0.002) | -0.0005 (0.002) |
| Unemployment Rate | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004** (0.000) | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004** (0.000) |
| Proportion of Urban Population | | -0.1073 (0.177) | 0.0230 (0.072) | | -0.1089 (0.188) | 0.0331 (0.083) |
| Aggregate Expenditure | | -0.0000 (0.000) | 0.0000 (0.000) | | -0.0000 (0.000) | 0.0000 (0.000) |
| Life Expectancy | | | 0.0003 (0.005) | | | -0.0003 (0.005) |
| Number of Factories | | | -0.0000** (0.000) | | | -0.0000* (0.000) |
| Polarization | | | | -0.1604 (0.129) | -0.0482 (0.366) | -0.2782 (0.537) |
| Observations | 151 | 139 | 86 | 151 | 139 | 86 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

Table 2a : Effect of Linguistic Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|----------------------|--------------------|--------------------|----------------------|
| Fractionalization | 0.0455 (0.189) | 0.1185 (0.189) | 0.3109* (0.173) | | | |
| Literacy Rate | -0.0021 (0.002) | -0.0021 (0.002) | 0.0007 (0.002) | -0.0022 (0.002) | -0.0024 (0.002) | 0.0003 (0.002) |
| Unemployment Rate | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004*** (0.000) | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004** (0.000) |
| Proportion of Urban Population | | -0.1162 (0.177) | 0.0321 (0.075) | | -0.1081 (0.182) | 0.0432 (0.088) |
| Aggregate Expenditure | | -0.0000 (0.000) | 0.0000 (0.000) | | -0.0000 (0.000) | 0.0000 (0.000) |
| Life Expectancy | | | 0.0019 (0.004) | | | 0.0004 (0.004) |
| Number of Factories | | | -0.0000* (0.000) | | | -0.0000** (0.000) |
| Polarization | | | | -0.0307 (0.127) | 0.0203 (0.108) | 0.1292 (0.112) |
| Observations | 151 | 139 | 86 | 151 | 139 | 86 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

3.1.1 Mechanism - Unbalanced Panel

Table 3a : Effect of Religious Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|-------------------------|------------------------|--------------------------|-------------------------|-------------------------|--------------------------|
| Fractionalization | 421.8569** (201.609) | -460.3914 (470.550) | -3163.8614 (3127.147) | | | |
| Literacy Rate | 1.0548 (2.054) | 2.4981 (2.481) | 7.9483 (5.571) | 1.3020 (2.025) | 3.4236 (2.912) | 7.0852 (5.318) |
| Unemployment Rate | -0.1995 (0.211) | -0.2693 (0.215) | 0.4166 (0.398) | -0.2249 (0.213) | -0.1154 (0.225) | 0.3981 (0.388) |
| Proportion of Urban Population | | 377.9884 (233.022) | 349.0782 (325.496) | | 409.1379* (228.268) | 281.0273 (331.778) |
| Aggregate Expenditure | | 0.0089 (0.007) | 0.0095 (0.009) | | 0.0072 (0.008) | 0.0094 (0.010) |
| Life Expectancy | | | 32.0308* (17.251) | | | 32.1182* (17.430) |
| Number of Factories | | | -0.0053 (0.003) | | | -0.0054 (0.004) |
| Polarization | | | | 278.2824** (111.014) | -1003.9813 (663.302) | -1191.0458 (2183.784) |
| Observations | 149 | 137 | 85 | 149 | 137 | 85 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

Table 4a : Effect of Linguistic Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|-------------------------|------------------------|-----------------------|-------------------------|------------------------|-----------------------|
| Fractionalization | -447.3353* (256.121) | -440.4178 (276.230) | -91.3156 (386.299) | | | |
| Literacy Rate | 0.1651 (2.337) | 0.6740 (2.603) | 5.9720 (5.036) | 0.1295 (2.368) | 0.9437 (2.517) | 6.4000 (5.629) |
| Unemployment Rate | -0.1950 (0.208) | -0.2830 (0.213) | 0.4392 (0.429) | -0.1622 (0.204) | -0.2516 (0.212) | 0.4560 (0.443) |
| Proportion of Urban Population | | 368.2477 (234.823) | 256.8628 (345.321) | | 300.2736 (235.816) | 258.6699 (337.420) |
| Aggregate Expenditure | | 0.0080 (0.007) | 0.0096 (0.009) | | 0.0081 (0.007) | 0.0097 (0.009) |
| Life Expectancy | | | 33.5063* (18.860) | | | 34.0183* (18.758) |
| Number of Factories | | | -0.0066* (0.003) | | | -0.0065* (0.003) |
| Polarization | | | | -319.7198* (185.725) | -292.8899 (187.462) | 4.6407 (303.584) |
| Observations | 149 | 137 | 85 | 149 | 137 | 85 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

3.2 Robustness Check - Merged Panel

Table 1b : Effect of Religious Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|
| Fractionalization | -0.2579 (0.191) | -0.1423 (0.277) | -0.6137 (0.823) | | | |
| Literacy Rate | -0.0017 (0.002) | -0.0018 (0.002) | -0.0003 (0.002) | -0.0018 (0.002) | -0.0019 (0.002) | -0.0002 (0.002) |
| Unemployment Rate | -0.0000 (0.000) | -0.0000 (0.000) | 0.0003** (0.000) | -0.0000 (0.000) | -0.0000 (0.000) | 0.0003** (0.000) |
| Proportion of Urban Population | | -0.1818 (0.186) | -0.0365 (0.067) | | -0.1908 (0.196) | -0.0445 (0.064) |
| Aggregate Expenditure | | -0.0000 (0.000) | 0.0000 (0.000) | | -0.0000 (0.000) | 0.0000 (0.000) |
| Life Expectancy | | | 0.0004 (0.001) | | | 0.0004 (0.001) |
| Number of Factories | | | -0.0000* (0.000) | | | -0.0000 (0.000) |
| Polarization | | | | -0.1560 (0.125) | 0.0004 (0.382) | -0.5004 (0.565) |
| Observations | 142 | 130 | 83 | 142 | 130 | 83 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

Table 2b : Effect of Linguistic Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|----------------------|--------------------|--------------------|----------------------|
| Fractionalization | -0.0935 (0.184) | -0.0426 (0.173) | 0.1993 (0.168) | | | |
| Literacy Rate | -0.0017 (0.002) | -0.0020 (0.002) | 0.0012 (0.002) | -0.0016 (0.002) | -0.0019 (0.002) | 0.0011 (0.002) |
| Unemployment Rate | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004*** (0.000) | -0.0000 (0.000) | -0.0000 (0.000) | 0.0004*** (0.000) |
| Proportion of Urban Population | | -0.1899 (0.184) | -0.0228 (0.065) | | -0.1921 (0.192) | -0.0128 (0.067) |
| Aggregate Expenditure | | -0.0000 (0.000) | 0.0000 (0.000) | | -0.0000 (0.000) | 0.0000 (0.000) |
| Life Expectancy | | | 0.0008 (0.001) | | | 0.0009 (0.001) |
| Number of Factories | | | -0.0000 (0.000) | | | -0.0000 (0.000) |
| Polarization | | | | -0.0427 (0.123) | -0.0068 (0.105) | 0.1337 (0.114) |
| Observations | 142 | 130 | 83 | 142 | 130 | 83 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

3.2.1 Mechanism - Merged Panel

Table 3b : Effect of Religious Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|-------------------------|------------------------|--------------------------|-------------------------|------------------------|--------------------------|
| Fractionalization | 446.0175** (196.203) | -365.0791 (422.042) | -2050.0960 (3645.657) | | | |
| Literacy Rate | 1.0425 (2.119) | 2.2657 (2.412) | 4.1770 (4.422) | 1.2238 (2.097) | 2.8462 (2.647) | 4.7385 (4.469) |
| Unemployment Rate | -0.2010 (0.213) | -0.2758 (0.219) | 0.1273 (0.404) | -0.2268 (0.215) | -0.1174 (0.226) | 0.1454 (0.410) |
| Proportion of Urban Population | | 373.5544 (231.954) | 323.1593 (345.899) | | 413.6931* (224.263) | 301.6533 (339.995) |
| Aggregate Expenditure | | 0.0084 (0.006) | 0.0074 (0.006) | | 0.0079 (0.006) | 0.0068 (0.006) |
| Life Expectancy | | | -1.2096 (2.464) | | | -1.1179 (2.419) |
| Number of Factories | | | -0.0039 (0.003) | | | -0.0037 (0.003) |
| Polarization | | | | 283.7715** (109.544) | -960.2265 (623.448) | -1273.3885 (2520.248) |
| Observations | 143 | 131 | 83 | 143 | 131 | 83 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

Table 4b : Effect of Linguistic Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|------------------------|------------------------|-----------------------|-------------------------|------------------------|-----------------------|
| Fractionalization | -456.5119 (280.689) | -417.5254 (305.091) | -92.8477 (460.030) | | | |
| Literacy Rate | -0.2142 (2.442) | 0.7769 (2.793) | 5.1768 (6.429) | -0.0052 (2.342) | 1.1832 (2.515) | 5.4092 (6.215) |
| Unemployment Rate | -0.1960 (0.207) | -0.2894 (0.214) | 0.1997 (0.467) | -0.1628 (0.204) | -0.2572 (0.215) | 0.2109 (0.463) |
| Proportion of Urban Population | | 359.2419 (233.099) | 310.4650 (341.824) | | 293.7669 (234.973) | 310.9837 (341.297) |
| Aggregate Expenditure | | 0.0074 (0.006) | 0.0058 (0.007) | | 0.0074 (0.006) | 0.0058 (0.007) |
| Life Expectancy | | | -0.5043 (1.579) | | | -0.4874 (1.566) |
| Number of Factories | | | -0.0043 (0.003) | | | -0.0042 (0.003) |
| Polarization | | | | -322.0716* (186.689) | -301.1494 (189.843) | -35.0554 (290.632) |
| Observations | 143 | 131 | 83 | 143 | 131 | 83 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

3.3 Robustness Check - Dropped Panel

Table 1c : Effect of Religious Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Fractionalization | -0.2556 (0.185) | -0.1077 (0.249) | -0.8256 (0.539) | | | |
| Literacy Rate | -0.0018 (0.002) | -0.0019 (0.002) | -0.0008 (0.001) | -0.0020 (0.002) | -0.0021 (0.002) | -0.0007 (0.001) |
| Unemployment Rate | -0.0001 (0.000) | -0.0001 (0.000) | 0.0002 (0.000) | -0.0001 (0.000) | -0.0001 (0.000) | 0.0001 (0.000) |
| Proportion of Urban Population | | -0.1550 (0.179) | -0.0327 (0.056) | | -0.1676 (0.189) | -0.0424 (0.053) |
| Aggregate Expenditure | | -0.0000 (0.000) | -0.0000 (0.000) | | -0.0000 (0.000) | -0.0000 (0.000) |
| Life Expectancy | | | 0.0016 (0.004) | | | 0.0007 (0.004) |
| Number of Factories | | | -0.0000 (0.000) | | | -0.0000 (0.000) |
| Polarization | | | | -0.1541 (0.121) | 0.1039 (0.377) | -0.6375 (0.432) |
| Observations | 127 | 115 | 68 | 127 | 115 | 68 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

Table 2c : Effect of Linguistic Diversity on Economic Growth with State and Time Fixed Effects and Linear Trends

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Fractionalization | -0.0797 (0.184) | -0.0265 (0.171) | 0.1889 (0.145) | | | |
| Literacy Rate | -0.0019 (0.002) | -0.0021 (0.002) | 0.0007 (0.001) | -0.0018 (0.002) | -0.0019 (0.002) | 0.0006 (0.001) |
| Unemployment Rate | -0.0001 (0.000) | -0.0001 (0.000) | 0.0002* (0.000) | -0.0001 (0.000) | -0.0001 (0.000) | 0.0002* (0.000) |
| Proportion of Urban Population | | -0.1617 (0.177) | -0.0218 (0.049) | | -0.1528 (0.186) | -0.0111 (0.054) |
| Aggregate Expenditure | | -0.0000 (0.000) | -0.0000 (0.000) | | -0.0000 (0.000) | -0.0000 (0.000) |
| Life Expectancy | | | 0.0023 (0.004) | | | 0.0019 (0.004) |
| Number of Factories | | | -0.0000 (0.000) | | | -0.0000 (0.000) |
| Polarization | | | | -0.0219 (0.130) | 0.0326 (0.104) | 0.1341 (0.108) |
| Observations | 127 | 115 | 68 | 127 | 115 | 68 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation

*p<0.10 **p<0.05 *** p<0.01

3.3.1 Mechanism - Dropped Panel

| Table 3c : Effect of Religious Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends | | | | | | |
|---|-------------------------|------------------------|--------------------------|-------------------------|-------------------------|--------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Fractionalization | 438.0789** (199.449) | -407.8806 (477.023) | -4574.7146 (4785.756) | | | |
| Literacy Rate | 0.9249 (2.511) | 1.9317 (2.963) | 3.9518 (4.959) | 1.2642 (2.497) | 2.7205 (3.320) | 5.2648 (5.420) |
| Unemployment Rate | -0.2104 (0.224) | -0.2767 (0.237) | 0.3881 (0.437) | -0.2389 (0.226) | -0.0766 (0.252) | 0.4134 (0.460) |
| Proportion of Urban Population | | 407.1940* (237.039) | 400.2098 (321.007) | | 456.7843* (233.203) | 345.6035 (308.632) |
| Aggregate Expenditure | | 0.0090 (0.009) | 0.0108 (0.013) | | 0.0066 (0.010) | 0.0093 (0.013) |
| Life Expectancy | | | 33.9669* (18.768) | | | 31.0406 (18.288) |
| Number of Factories | | | -0.0059 (0.004) | | | -0.0056 (0.004) |
| Polarization | | | | 280.0170** (112.012) | -1184.2195 (773.593) | -2161.6959 (3223.554) |
| Observations | 128 | 116 | 68 | 128 | 116 | 68 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation
 *p<0.10 **p<0.05 *** p<0.01

| Table 4c : Effect of Linguistic Diversity on Crime Rate with State and Time Fixed Effects and Linear Trends | | | | | | |
|--|------------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Fractionalization | -445.9857 (304.633) | -397.6128 (333.552) | 204.1904 (602.534) | | | |
| Literacy Rate | -0.1454 (2.819) | 0.3931 (3.213) | 7.3473 (8.331) | -0.0410 (2.746) | 0.7295 (2.943) | 6.5871 (7.837) |
| Unemployment Rate | -0.2094 (0.218) | -0.2936 (0.232) | 0.5885 (0.576) | -0.1722 (0.216) | -0.2559 (0.233) | 0.5459 (0.551) |
| Proportion of Urban Population | | 377.4643 (234.849) | 366.8012 (300.958) | | 300.7678 (245.756) | 357.5720 (307.545) |
| Aggregate Expenditure | | 0.0084 (0.009) | 0.0097 (0.012) | | 0.0088 (0.009) | 0.0097 (0.012) |
| Life Expectancy | | | 34.4659 (20.492) | | | 33.7494 (20.290) |
| Number of Factories | | | -0.0066 (0.004) | | | -0.0068* (0.004) |
| Polarization | | | | -328.2620 (208.214) | -322.3278 (220.739) | 56.7007 (381.292) |
| Observations | 128 | 116 | 68 | 128 | 116 | 68 |

Notes: Robust standard errors are reported in parentheses and each column represents a separate equation
 *p<0.10 **p<0.05 *** p<0.01

4. Discussion

While the issue of simultaneity has not been resolved, our results show that Linguistic Fractionalization has a significant (although just about) and positive effect on the Economic Growth of Indian States, while Religious Diversity has no significant effect. However, it is very much possible that these results are driven by individuals migrating to states which are experiencing higher growth rates in search of better economic opportunities. We can deal with this simultaneity using an IV, but it has been difficult to find one that has a strong first stage while satisfying the exclusion restriction in this context. Moreover, we also observe that crime rate is not the mechanism. However, we used Total Cognizable Crimes to measure crime rate, in contrast to other papers where homicide rates were used. One could also check for other mechanisms (such as corruption and public good provisioning) that are present in the literature, but data availability is a concern. The next immediate steps include carrying out the same analysis at the district level, by taking suitable proxies for economic growth, and maybe looking at specific types of crime such as homicides when calculating the crime rate.

5. Conclusion

We find that Linguistic Fractionalization has a positive effect on the Economic Growth of Indian States, while Religious Diversity has no significant effect. However, given the very evident endogeneity and the small sample size, these findings may be taken with a pinch of salt at this stage. Hence, it becomes necessary to do a more granular analysis using district-level data. That being said, it is also very feasible that it is not diversity driving growth, but growth driving diversity, as individuals migrate in search of better economic opportunities.

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