COMPARATIVE ANALYSIS OF NORTHEAST INDIA USING IHDS DATA (2004-05 AND 2011-12)

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Abstract:

In this paper we will investigate the differences in social composition between the all India sample and our sub-sample which includes the Northeastern states- Sikkim, Assam, Manipur, Mizoram, Arunachal Pradesh, Meghalaya, Tripura and Nagaland.

We will look at the socio-religious composition of the North East and India and explore the transition in poverty and asset between the two rounds of IHDS of 2004-05 and 2011-12, following which we look forward to answering questions such as whether there is a link between poverty transition and asset transition and if there is a link between debt and poverty transition. By doing so we aim to create a social profile for the people of the North East based on the data in the dataset.

The tables and graphs in the following sections are arranged as per the questions set by our professor.

Assignment A: SOCIO-RELIGIOUS DIVISIONS & POVERTY TRANSITIONS

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	356	23.27	23.27
Hindu OBC	232	15.16	38.43
Hindu SC	168	10.98	49.41
Hindu ST	502	32.81	82.22
Muslims	268	17.52	99.74
Others	4	0.26	100.00
Total	1,530	100.00	

Table 1: Socio-Religious distribution in full sub-sample

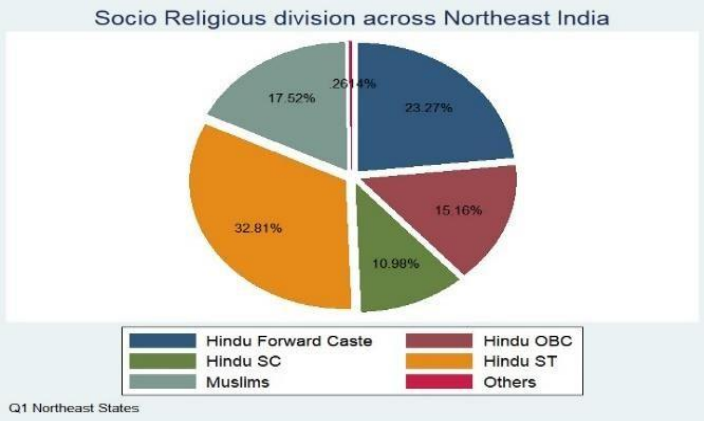


Figure 2: Socio-Religious distribution in full sub-sample

Socio-religious division across North-East: Given the data, we find that it is mainly dominated by Hindu (82%), with Hindu ST (32.81%) leading, and Muslims comprising of 17.52% with other groups at 0.26%.

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	16	6.58	6.58
Hindu OBC	14	5.76	12.35
Hindu SC	22	9.05	21.40
Hindu ST	69	28.40	49.79
Muslims	122	50.21	100.00
Total	243	100.00	

Table 2: Socio-Religious distribution in Poor Section of Sub-sample using 2004-05 data

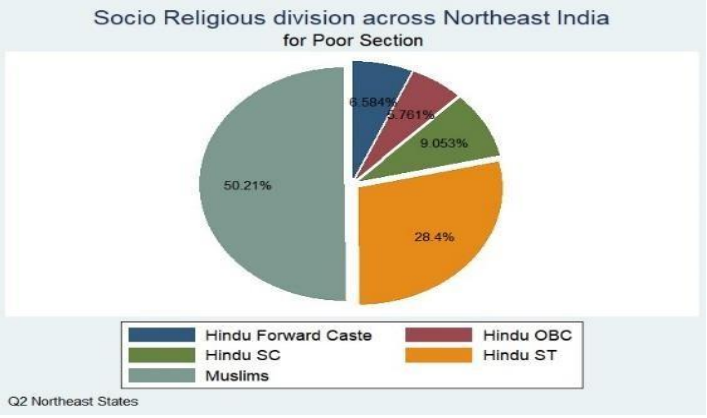


Figure 1:Socio-Religious distribution in Poor Section of Sub-sample using 2004-05 data

Socio religious for poor section (using 2005 data): We find that Muslims comprising the highest among poor in North-east India with 53.46%, whereas the corresponding figure for

poor section across India is only 14%. There is also a fall in the proportion of Hindus in the poor section of our Sub-sample.

-> URBAN = urban 1

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	176	35.56	35.56
Hindu OBC	110	22.22	57.78
Hindu SC	63	12.73	70.51
Hindu ST	99	20.00	90.51
Muslims	44	8.89	99.39
Others	3	0.61	100.00
Total	495	100.00	

Table 1: Socio-Religious distribution in full Urban sub-sample

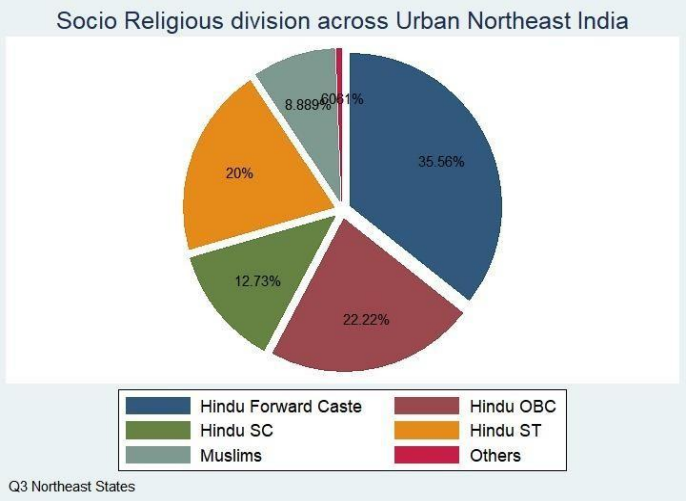


Figure 3: Socio-Religious distribution in full Urban sub-sample

Among **Urban areas**, Hindu Forward Caste comprises about 35.56%, followed by Hindu OBC at 22.22%, Hindu ST at 20% and Hindu SC 12.73%. Muslims comprising only about 8.88% of the total Urban population.

-> URBAN = rural 0

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	180	17.39	17.39
Hindu OBC	122	11.79	29.18
Hindu SC	105	10.14	39.32
Hindu ST	403	38.94	78.26
Muslims	224	21.64	99.90
Others	1	0.10	100.00
Total	1,035	100.00	

Table 2: Socio-Religious distribution in full Rural sub-sample

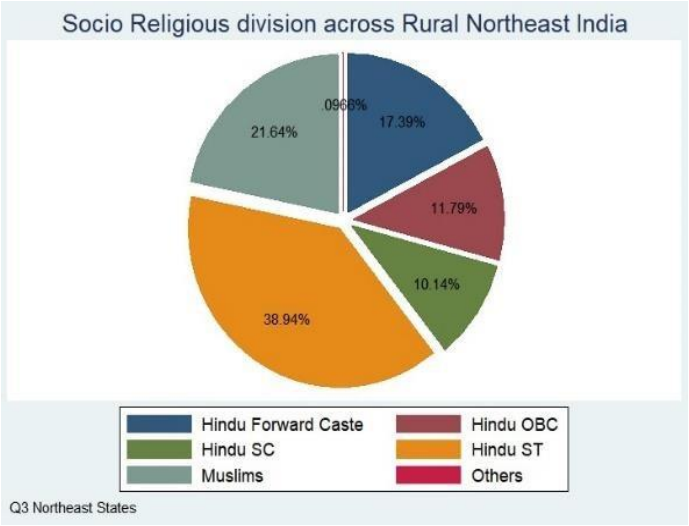


Figure 4:Socio-Religious distribution in full Rural sub-sample

Among **Rural Section**, it is dominated by Hindu ST at 38.94%, followed by Muslims at 21.64% with Hindu SC and Hindu OBC among lowest at 10.14% and 11.79% respectively

-> URBAN = rural 0

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	11	5.07	5.07
Hindu OBC	9	4.15	9.22
Hindu SC	13	5.99	15.21
Hindu ST	68	31.34	46.54
Muslims	116	53.46	100.00
Total	217	100.00	

Table 3: Socio-Religious distribution in Rural Poor Section of Sub-sample using 2004-05 data

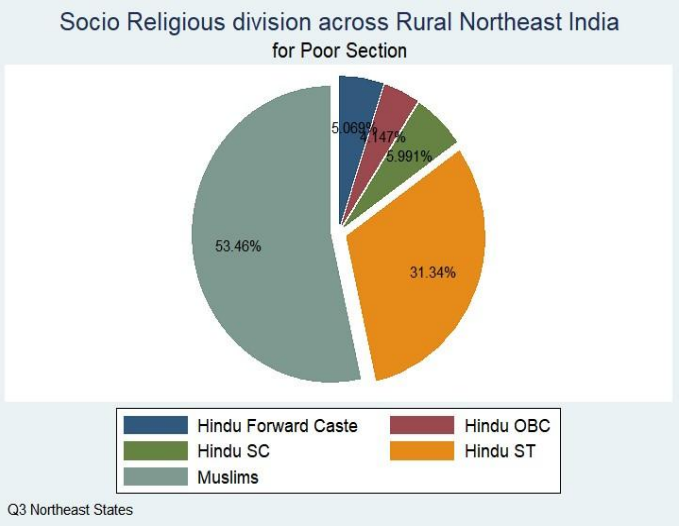


Figure 5: Socio-Religious distribution in Rural Poor Section of Sub-sample using 2004-05 data

The above pie chart for **the Poor section of Rural Northeast** shows that Muslims and Hindu ST's are dominating with 53.46% and 31.34% respectively while the other socio-religious groups are nearly equally divided.

-> URBAN = urban 1

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	5	19.23	19.23
Hindu OBC	5	19.23	38.46
Hindu SC	9	34.62	73.08
Hindu ST	1	3.85	76.92
Muslims	6	23.08	100.00
Total	26	100.00	

Table 4:Socio-Religious distribution in Urban Poor Section of Sub-sample using 2004-05 data

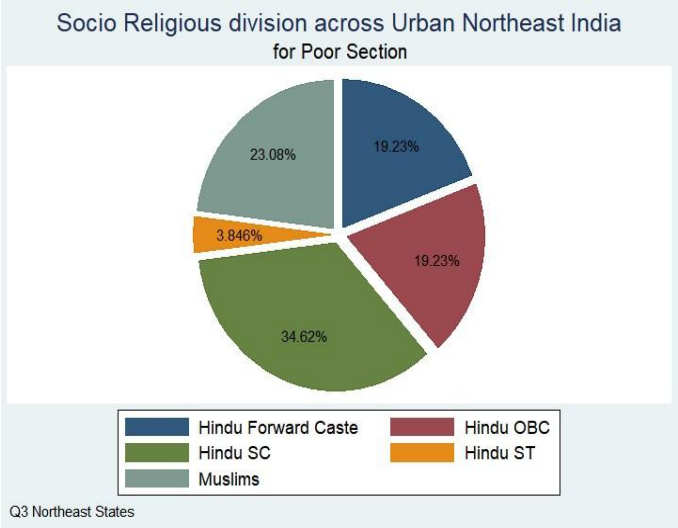


Figure 6: Socio-Religious distribution in Urban Poor Section of Sub-sample using 2004-05 data

Compared to the rural population, we find a much more diverse distribution among the social groups with Hindu SCs and Muslims having the highest share (34.62% and 23.08% respectively).

This falls in line with the intuitive reasoning that the rural poor section be dominated by a single socio-religious group, whereas in the urban counterpart, there is a more balanced socioreligious division.

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	17	7.49	7.49
Hindu OBC	16	7.05	14.54
Hindu SC	15	6.61	21.15
Hindu ST	86	37.89	59.03
Muslims	92	40.53	99.56
Others	1	0.44	100.00
Total	227	100.00	

Table 5:: Socio-Religious distribution in Poor Section of Sub-sample using 2011-12 data

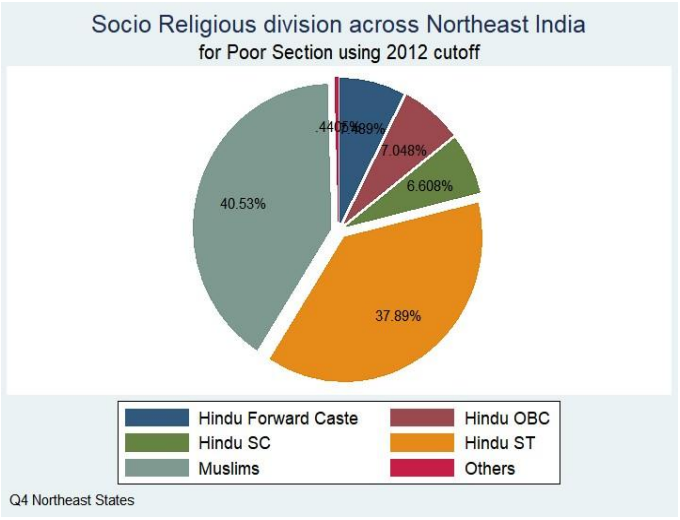


Figure 7: Socio-Religious distribution in Poor Section of Sub-sample using 2011-12 data

Socio religious for poor section (using 2012 data): First, we examine the poor section of the full sub-sample. We find that it is dominated by Muslims (40.53%) and Hindu STs (37.89%).

While Hindu SC, Hindu OBC and Hindu FC are equally divided among themselves, comparing to the 2005 Poor section shown above, we still have Muslims and Hindu STs dominating, but the share of Muslims has fallen by ~10% and there has been a corresponding rise in the share of Hindu STs.

We can conclude that the composition of poor section in 2004-05 data and 2011-12 data has been nearly the same, the only difference is in the relative share of the groups.

-> URBAN = rural 0

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	14	6.97	6.97
Hindu OBC	10	4.98	11.94
Hindu SC	9	4.48	16.42
Hindu ST	82	40.80	57.21
Muslims	86	42.79	100.00
Total	201	100.00	

Table 6: Socio-Religious distribution in Rural Poor Section of Sub-sample using 2011-12 data

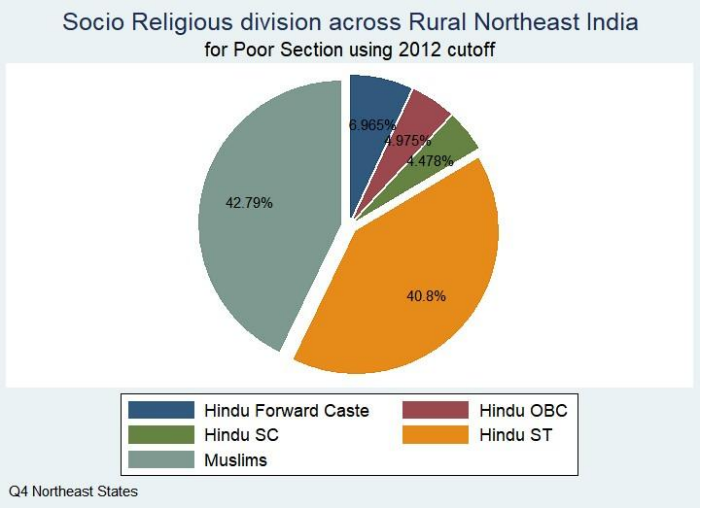


Figure 8: Socio-Religious distribution in Rural Poor Section of Subsample using 2011-12 data

We now divide the full sample population into Rural and Urban sub-sections. The **poor section of Rural Northeast** is dominated by Muslims and Hindu STs with nearly equal shares of 42.79% and 40.80% respectively.

-> URBAN = urban 1

RECODE of GROUPS6 (HQ3 1.13-15 Caste/religion 6cats)	Freq.	Percent	Cum.
Hindu Forward Caste	3	11.54	11.54
Hindu OBC	6	23.08	34.62
Hindu SC	6	23.08	57.69
Hindu ST	4	15.38	73.08
Muslims	6	23.08	96.15
Others	1	3.85	100.00
Total	26	100.00	

Table 9: Socio-Religious distribution in Urban Poor Section of Sub-sample using 2011-12 data.

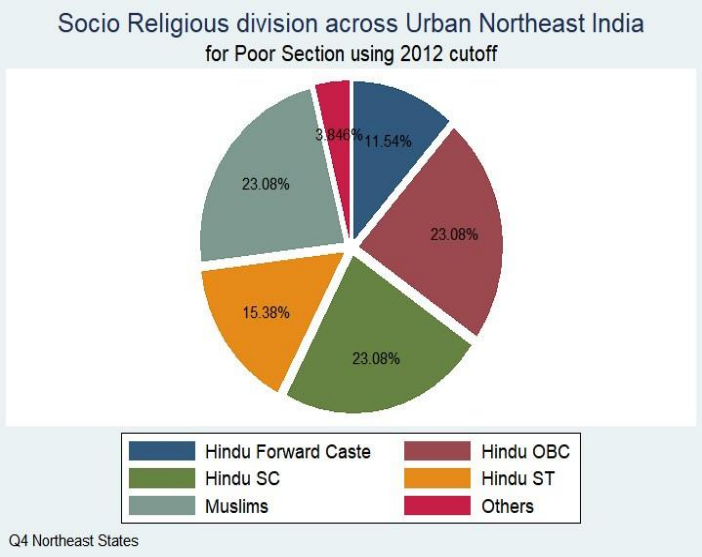


Figure 9: Socio-Religious distribution in Urban Poor Section of Sub-sample using 2011-12 data.

In the **poor section of the Urban sub-sample,** the socio-religious groups are much more equally distributed with Hindu SC, Hindu OBC and Muslims having an equal share of 23.08%.

This falls in line with our initial believe that the poor sections in the Urban areas are much more socially diversified. Comparing with 2005's data, Hindu SCs share has fallen and Hindu OBCs share has risen, whereas the share of Muslims has remained the same.

Following the obtained pie charts, We can also conclude that the Rural section is a much better representative of the poor sub-section of the full sample as opposed to its Urban counterpart and that 2012's data is much more heterogenous in terms of socio-religious groups.

COMPARISON WITH ALL INDIA NUMBERS:

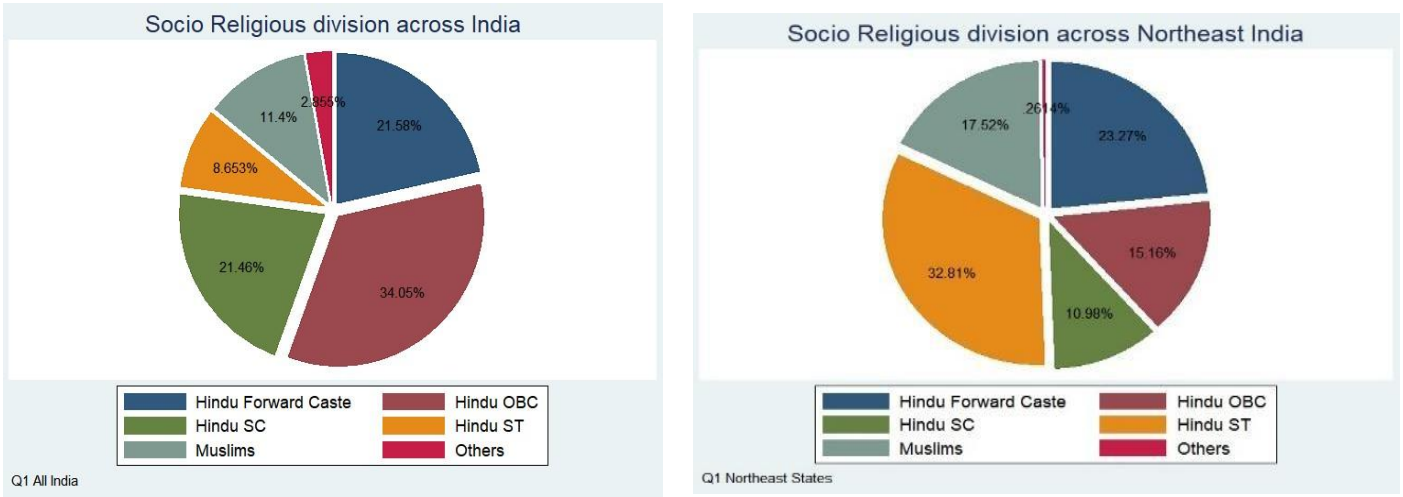


Figure 10: Comparing the distribution across socio-religious groups for whole population and sub-sample

The all-India sample shows a much-diversified composition of socio religious groups in which Hindu OBCs and Hindu SCs have the largest shares, 32.79 and 25.83 % respectively, whereas we find that the sub-sample (Northeast) is mainly dominated by Hindu (82%), with Hindu ST (32.81%) leading

Figure 11 : Comparing the distribution across socio-religious groups for Poor Section of the whole population and sub-sample (using IHDS-1 survey data)

Whereas in the north east, **the poor section of the society** is dominated of Muslims and Hindu STs, in which Muslims occupy more than 50% of the poor population. This number is strikingly different from the All-India sample where the Muslims comprise only 14.41% of the poor population.

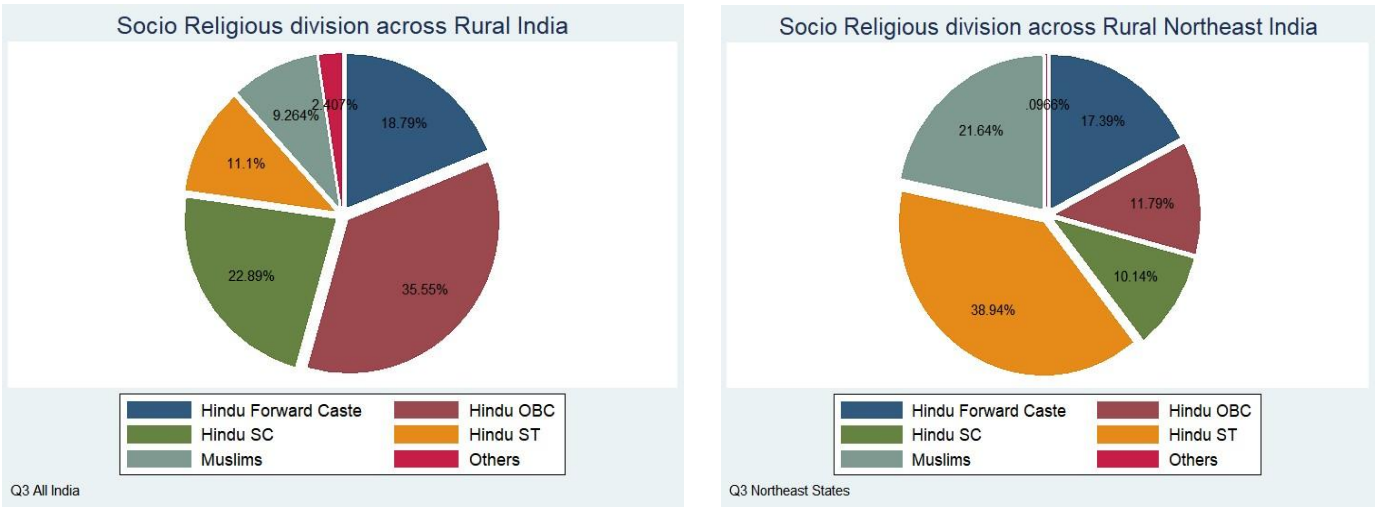
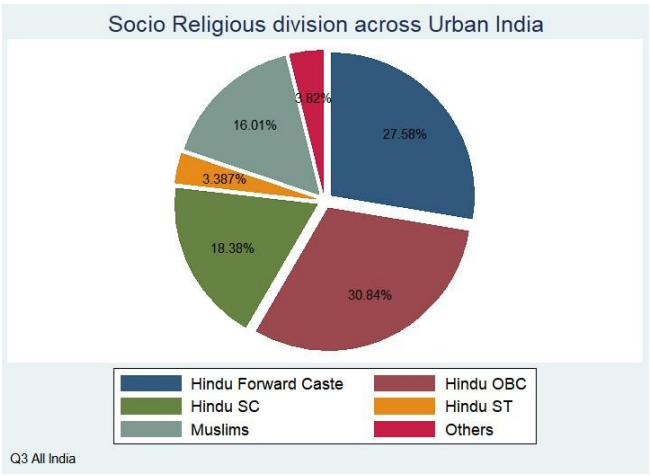


Figure 12: Comparing the distribution across socio-religious groups for the Rural population of India and Rural sub-sample

Next, we divide the sample into a rural subpopulation and an urban subpopulation for India and North East. When we **compare between rural India and rural NE**, we find that Hindu OBC and Hindu SC are two of the largest segments with 35.55% and 22.89% respectively. In the rural Indian subsample Muslims comprise only of 9.26% and Hindu STs comprise of 11.1%. this story completely reverses when we look at the rural NE population. Hindu STs and Muslims hold the highest shares with 38.94% and 21.64% respectively. Here we find that Hindu OBC and Hindu SC comprise a much lower share. Here we see some similarities between the rural population and poor population.



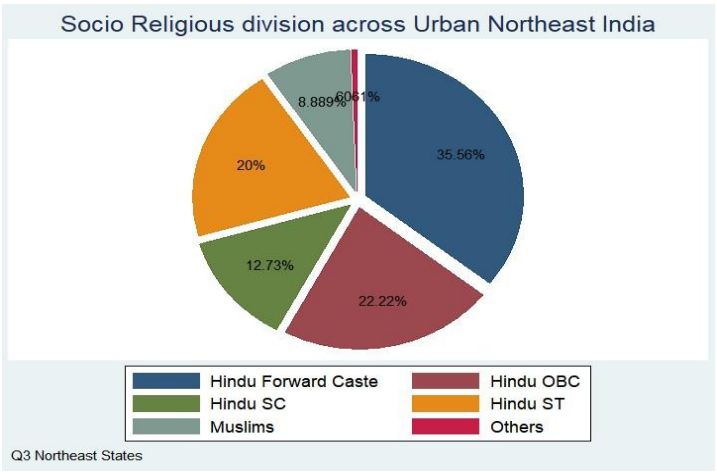
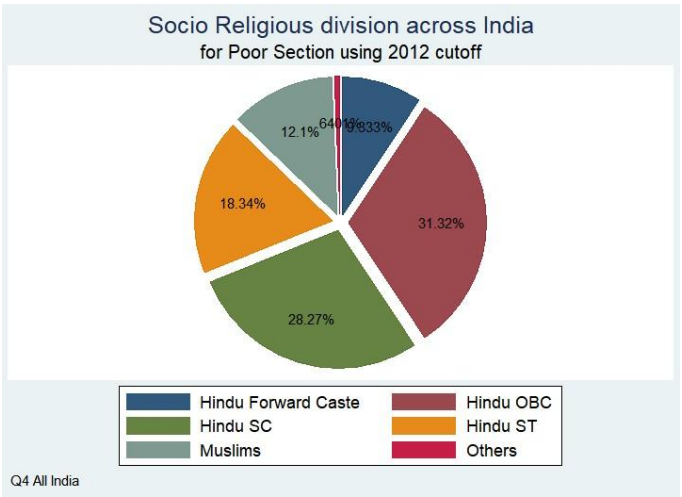


Figure 13: Comparing the distribution across socio-religious groups for the Urban population of India and Urban sub-sample

Comparing between **Urban India and Urban NE**, we find pretty similar patterns where Hindu Forward Castes and Hindu OBC have a combined share of more than 50%. This shows that the urban areas are mostly dominated by Hindu Forward Castes both in India and North East. This also reflects the better social position of Hindu Forward Castes.

The striking difference between the samples in case of Muslims and Hindu STs, the share almost tripled in Urban NE when compared to Urban India and the share of Muslims halved in Urban NE compared to Urban India.



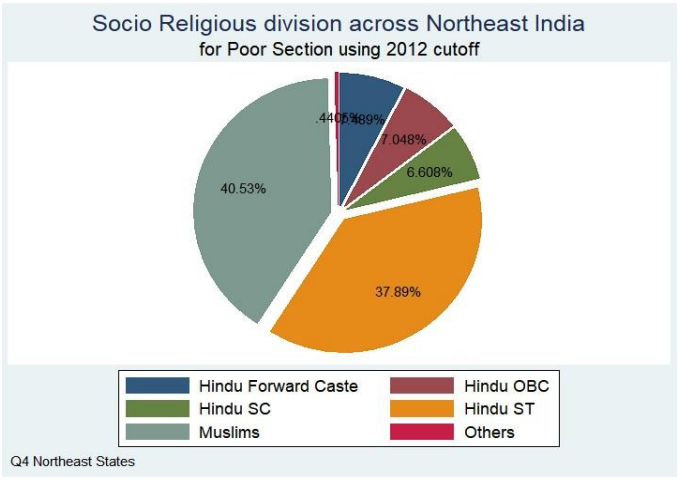
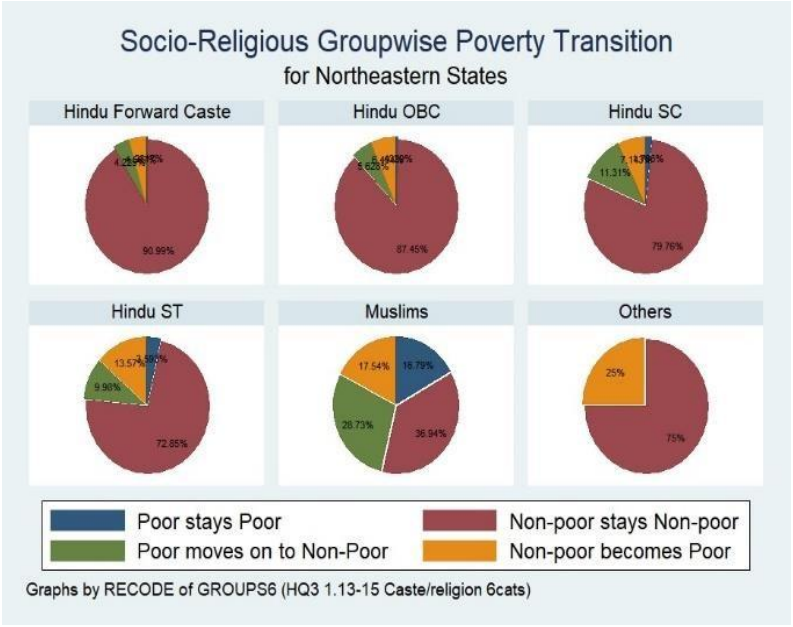


Figure 14: Comparing the distribution across socio-religious groups for Poor Section of the whole population and sub-sample (using IHDS-2 survey data)

The all-India sample shows a much-diversified composition of socio religious groups in which Hindu OBCs and Hindu SCs have the largest shares, 31.32% and 28.27% respectively. In the NE, the biggest shareholders are Muslims with 40.93% and Hindu STs with 27.89%. Muslim share in NE tripled when compared to all-India sample and Hindu STs doubled. Whereas in the north east, the poor section of the society is dominated of Muslims and Hindu STs, in which Muslims occupy more than 50% of the poor population. This number is strikingly different from the All-India sample where the Muslims comprise only 14.41% of the poor population.

POVERTY TRANSITION:

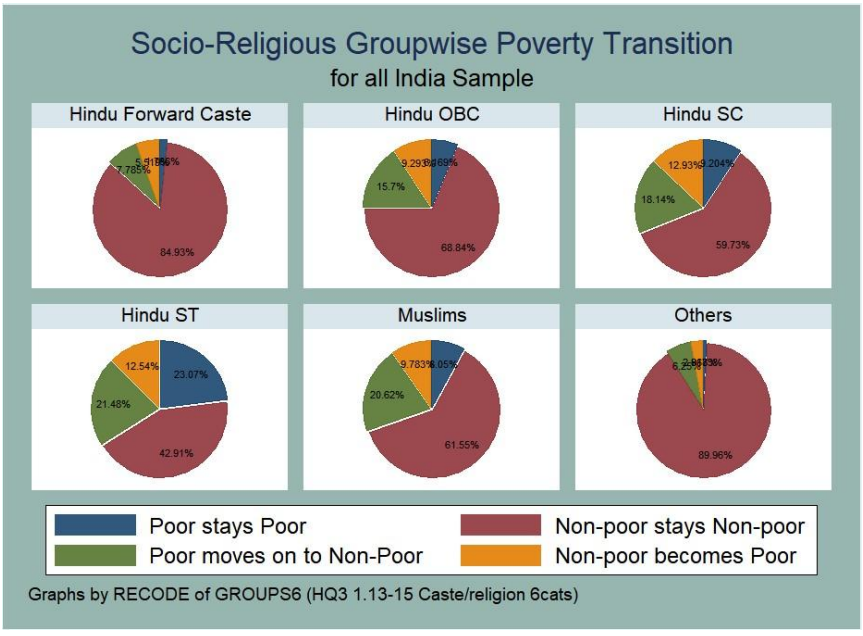


In the population data, across the six socio-religious groups, the **majority of people persisted from non-poor to non-poor between the survey rounds.** Among those who remained non-poor, **Hindus (both Forward classes and backward classes) had the highest share of Non-Poor to Non-Poor persistence.**

Hindu STs, and Muslims had the second and third highest share of NonPoor to Non-Poor persistence respectively. The second most common transition for all groups was Poor to Non-Poor.

Both Poor to Non-Poor and Non-Poor to Non-Poor persistence are considered **positive outcomes**. This pattern is generally consistent for Hindu FCs and Others, Hindu OBC, Hindu SC, and Muslims. Hindu STs showed the most variability in transition patterns.

Similar patterns were observed in the sample data. For most groups, the distribution of transitions is relatively similar between population and sample data.



A striking feature which needs to be noted is that in the population data, the social group which had the highest poverty persistence was Hindu ST however, when it comes to the sample, we see that the number of Hindu ST people was quite low. In our sample, Poor to Poor transition prevailed for the Muslim and Hindu SC groups.

Comparative Analysis Using proportion tests

Using '<u>proportion tests</u>', we examine if the difference in proportion between the all India sample and our sub-sample is statistically significant or not at 5% level of significance. The

underlying Null Hypothesis (H_0) of all the performed tests is that there is no difference in proportion. We reject this null hypothesis if the p-value is less than 0.05.

Overview: Here we test the difference in proportion between the total population of a particular socio religious group in India, and their corresponding population proportion in Northeast.

Hindu Forward Caste

```
. prtest HinduForwIND == HinduForwNE

Two-sample test of proportions                HinduForwIND: Number of obs =    40018
                                              HinduForwNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
HinduForwIND |    .215653   .0020559                      .2116234    .2196825
HinduForwNE  |   .2317708   .0107666                      .2106687     .252873
-------------+----------------------------------------------------------------
        diff |  -.0161179   .0109611                     -.0376013    .0053656
             |  under Ho:   .0107041    -1.51   0.132
------------------------------------------------------------------------------
        diff = prop(HinduForwIND) - prop(HinduForwNE)                 z =  -1.5058
    Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 0.0661         Pr(|Z| > |z|) = 0.1321          Pr(Z > z) = 0.9339
```

Here, we accept the null hypothesis and conclude that there is no significant difference in proportion at national and at sub sample levels.

Hindu OBC

Here, we reject the null hypothesis and conclude that there is significant difference in the proportion at national and at sub sample levels.

```
. prtest HinduOBCIND == HinduOBCNE

Two-sample test of proportions                HinduOBCIND: Number of obs =    40018
                                              HinduOBCNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
HinduOBCIND |   .3403219   .0023686                      .3356796    .3449641
HinduOBCNE  |   .1510417   .0091368                      .1331338    .1689495
-------------+----------------------------------------------------------------
        diff |   .1892802   .0094388                      .1707804     .20778
             |  under Ho:   .0122567    15.44   0.000
------------------------------------------------------------------------------
        diff = prop(HinduOBCIND) - prop(HinduOBCNE)                   z =  15.4430
    Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 1.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 0.0000
```

Hindu SC

```
. prtest HinduSCIND == HinduSCNE

Two-sample test of proportions                 HinduSCIND: Number of obs =    40018
                                               HinduSCNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  HinduSCIND |    .2144785   .0020518                      .210457       .2185
   HinduSCNE |     .109375   .0079636                     .0937666     .1249834
-------------+----------------------------------------------------------------
        diff |    .1051035   .0082237                     .0889853     .1212217
             |  under Ho:    .0106012     9.91   0.000
------------------------------------------------------------------------------
       diff = prop(HinduSCIND) - prop(HinduSCNE)                 z =   9.9143
   Ho: diff = 0

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
Pr(Z < z) = 1.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 0.0000
```

Here, we reject the null hypothesis and conclude that there is significant difference in the proportion at national and at sub sample levels.

Hindu ST

```
. prtest HinduSTIND == HinduSTNE

Two-sample test of proportions                 HinduSTIND: Number of obs =    40018
                                               HinduSTNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  HinduSTIND |    .0864861   .0014051                     .0837322       .08924
   HinduSTNE |    .3268229   .0119681                     .3033659       .35028
-------------+----------------------------------------------------------------
        diff |   -.2403368   .0120503                     -.263955    -.2167187
             |  under Ho:     .007637   -31.47   0.000
------------------------------------------------------------------------------
       diff = prop(HinduSTIND) - prop(HinduSTNE)                 z = -31.4700
   Ho: diff = 0

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
Pr(Z < z) = 0.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 1.0000
```

Here, we reject the null hypothesis and conclude that there is significant difference in the proportion at national and at sub sample levels.

Muslims

```
. prtest MUSLIMSIND == MUSLIMSNE

Two-sample test of proportions                 MUSLIMSIND: Number of obs =    40018
                                               MUSLIMSNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  MUSLIMSIND |    .1139737   .0015885                      .1108602    .1170872
   MUSLIMSNE |    .1744792   .0096837                      .1554995    .1934588
-------------+----------------------------------------------------------------
        diff |   -.0605055   .0098131                     -.0797388   -.0412721
             |   under Ho:   .0083326    -7.26   0.000
------------------------------------------------------------------------------
        diff = prop(MUSLIMSIND) - prop(MUSLIMSNE)                     z =  -7.2613
    Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 0.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 1.0000
```

Here, we reject the null hypothesis and conclude that there is significant difference in the proportion at national and at sub sample levels.

Others

```
. prtest OTHERSIND == OTHERSNE

Two-sample test of proportions                 OTHERSIND: Number of obs =    40018
                                               OTHERSNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   OTHERSIND |    .0285372   .0008323                      .0269058    .0301685
    OTHERSNE |    .0026042   .0013004                      .0000555    .0051529
-------------+----------------------------------------------------------------
        diff |     .025933   .0015439                      .0229069    .0289591
             |   under Ho:   .0042579     6.09   0.000
------------------------------------------------------------------------------
        diff = prop(OTHERSIND) - prop(OTHERSNE)                       z =   6.0905
    Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 1.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 0.0000
```

Here, we reject the null hypothesis and conclude that there is significant difference in the proportion at national and at sub sample levels.

Rural/Urban Sub-sample wise division

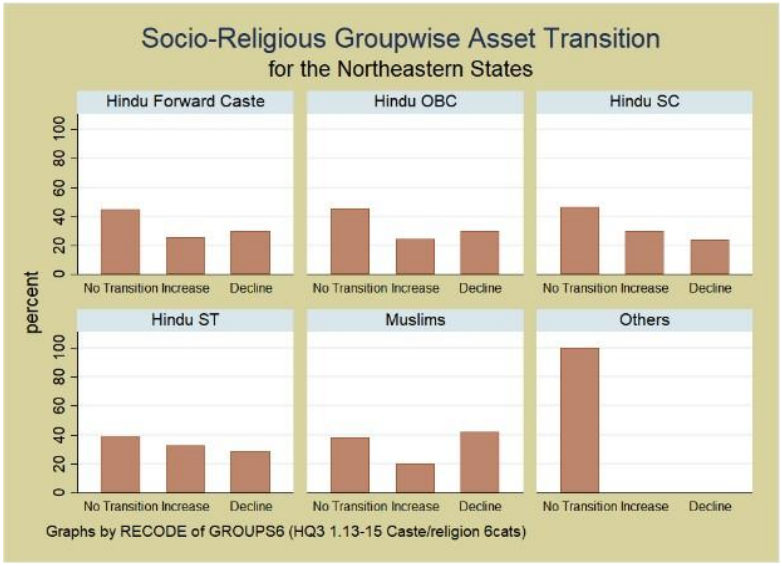
For every other social group, we reject the null hypothesis at 5% level of significance and conclude that the difference in proportion is not statistically significant. Only for **Hindu Forward Castes in Rural areas**, the null hypothesis is accepted, showing a statistically significant difference in proportion.

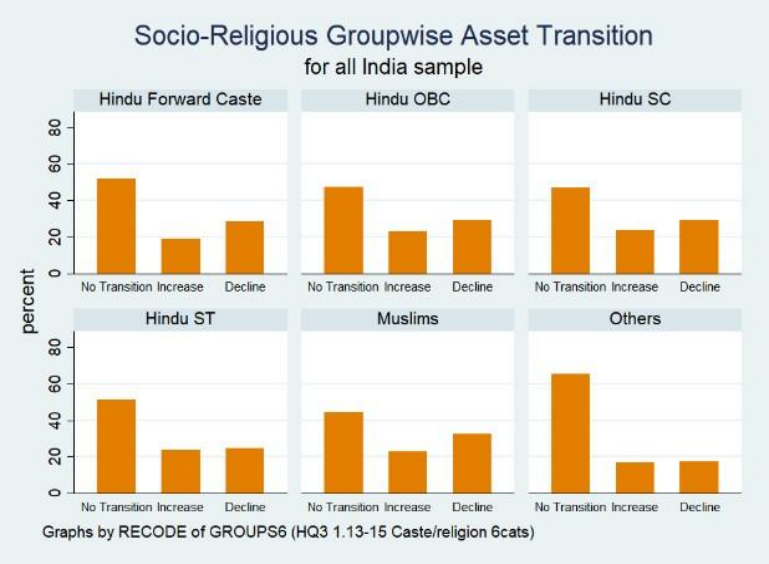
```
-> URBAN = rural 0

Two-sample test of proportions                HinduForwIND: Number of obs =    27308
                                              HinduForwNE: Number of obs =     1038
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
HinduForwIND |   .1878204   .0023635                      .1831881    .1924528
 HinduForwNE |   .1734104   .0117512                      .1503784    .1964424
-------------+----------------------------------------------------------------
        diff |      .01441   .0119866                     -.0090832    .0379033
             |  under Ho:    .0123376     1.17   0.243
------------------------------------------------------------------------------
       diff = prop(HinduForwIND) - prop(HinduForwNE)                 z =   1.1680
   Ho: diff = 0

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
Pr(Z < z) = 0.8786         Pr(|Z| > |z|) = 0.2428          Pr(Z > z) = 0.1214
```

```
-> URBAN = urban 1

Two-sample test of proportions                HinduForwIND: Number of obs =    12710
                                              HinduForwNE: Number of obs =      498
------------------------------------------------------------------------------
    Variable |       Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
HinduForwIND |   .2754524   .0039626                      .2676858     .283219
 HinduForwNE |   .3534137    .021421                      .3114292    .3953981
-------------+----------------------------------------------------------------
        diff |  -.0779613   .0217845                     -.120658    -.0352645
             |  under Ho:    .0204743    -3.81   0.000
------------------------------------------------------------------------------
       diff = prop(HinduForwIND) - prop(HinduForwNE)                 z =  -3.8078
   Ho: diff = 0

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 0.0001         Pr(|Z| > |z|) = 0.0001          Pr(Z > z) = 0.9999
```

Assignment B: ASSET TRANSITONS

Asset transition refers to the movement between the different classes of assets given in the IHDS dataset. In the IHDS dataset there are 5 classes of assets, 1 being the lowest and 5 being the highest. When there is a movement from a lower class to higher class we denote it by increase and when there is a movement to lower asssest classes we denote it by decline.





When comparing with the national data, North east India shows quite a smiliar pattern. Both in national and regional level we find that more than 20% of the population underwent a favourable asset transition.

Using Proportion test we find that the proportion of increase in asset (favorable transition) in North East is greater than that we find in All India sample, whereas the decrease in assets (unfavorable transition) is quite similar and on there is not a statistically significant difference in proportion at 5% level of significance. This shows that north east is in a much better position when it comes to asset transition compared to India as whole.

```
. prtest incassetINDIA==incassetNE

Two-sample test of proportions          incassetINDI: Number of obs =    40018
                                         incassetNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |      Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
incassetINDI |   .2230746   .0020811                      .2189958    .2271534
 incassetNE |   .2701823   .0113303                      .2479754    .2923892
-------------+----------------------------------------------------------------
        diff |  -.0471077   .0115198                     -.0696861   -.0245293
             |  under Ho:   .0108542    -4.34   0.000
------------------------------------------------------------------------------
    diff = prop(incassetINDI) - prop(incassetNE)                  z =  -4.3400
Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 0.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 1.0000
```

```
. prtest notassetINDIA==notassetNE

Two-sample test of proportions          notassetINDI: Number of obs =    40018
                                         notassetNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |      Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
notassetINDI |    .48898   .0024988                      .4840823    .4938776
 notassetNE |   .4205729   .0125958                      .3958857    .4452602
-------------+----------------------------------------------------------------
        diff |    .068407   .0128412                      .0432387    .0935754
             |  under Ho:   .0129955     5.26   0.000
------------------------------------------------------------------------------
    diff = prop(notassetINDI) - prop(notassetNE)                  z =   5.2639
Ho: diff = 0

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(Z < z) = 1.0000         Pr(|Z| > |z|) = 0.0000          Pr(Z > z) = 0.0000
```

Table 8: Proportion test that shows statistically significant difference between asset transition in India compared to Northeast

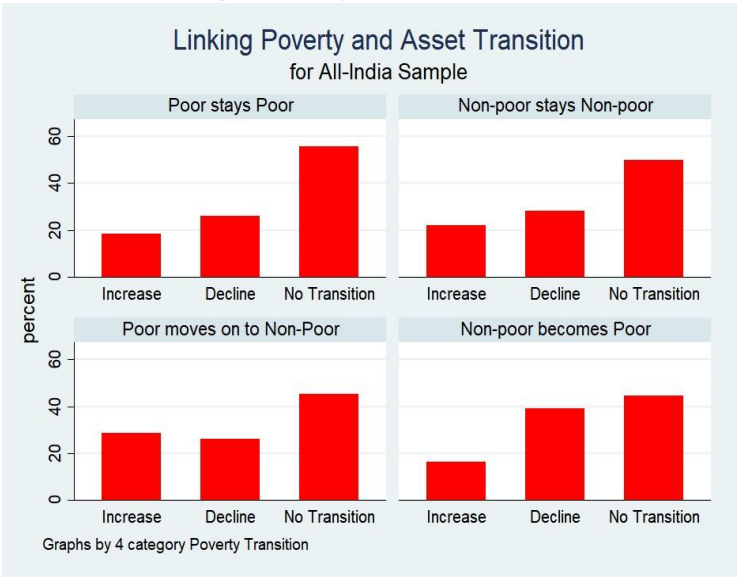
```
. prtest decassetINDIA==decassetNE

Two-sample test of proportions          decassetINDI: Number of obs =    40018
                                          decassetNE: Number of obs =     1536
------------------------------------------------------------------------------
    Variable |      Mean   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
decassetINDI |   .2873957   .0022622                      .2829618    .2918296
  decassetNE |   .3066406   .0117652                      .2835813    .3296999
-------------+----------------------------------------------------------------
        diff |   -.019245   .0119807                     -.0427267    .0042368
             |  under Ho:   .0117752    -1.63   0.102
------------------------------------------------------------------------------
       diff = prop(decassetINDI) - prop(decassetNE)                  z =  -1.6344
   Ho: diff = 0

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
Pr(Z < z) = 0.0511         Pr(|Z| > |z|) = 0.1022          Pr(Z > z) = 0.9489
```

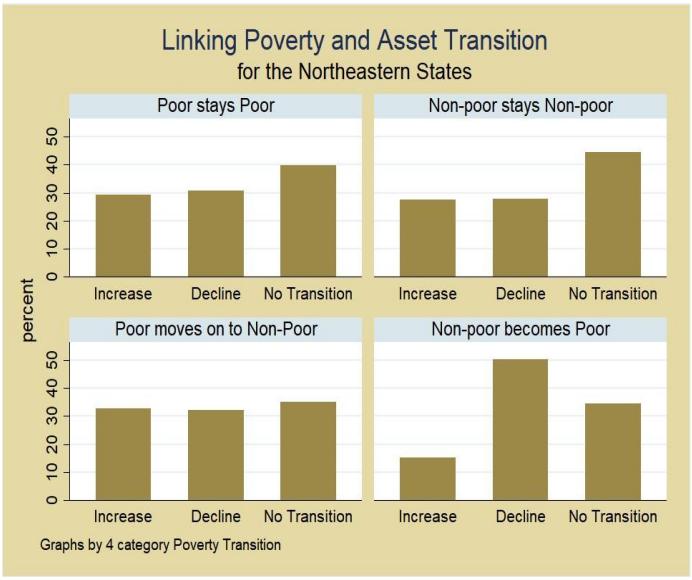
Table 9: Proportion test that shows no statistically significant difference in "Decrease in Assets" proportion in India compared to Northeast

In all cases, the persistence of assets is more frequent than transition. All the six groups show similar trends with the proportion of people undergoing no asset transition being the highest and followed by the proportion of people facing a decline and upheaval of assets at the national level.

Inference: In North East sample, Hindu Forward Caste, Hindu OBC and Muslims went through a net deficit in asset transition (when the percentage of population that underwent decrease in asset is greater than the percentage of population that underwent increase in asset), this is strikingly poor in case of Muslims where the net deficit is around 22%. In case of Hindu SC and Hindu ST enjoyed a net benefit (percentage of population with increase in assets is higher than the population suffering from decrease in assets).

Linking Poverty Transition with Asset Transition





Both in the All India and North East sample we find an association between asset transition and poverty transition using the Chi-square test of association between two categorical variables. As the p-value is less than 0.05 we reject the null hypothesis at 5% level of significance.

- So can we claim that asset transition is a good indicator of poverty transition?

The answer is both no and yes.

Looking at the association between asset transition and poverty transition across socio religious groups. We find that for all the group except Hindu ST, the null hypothesis is accepted at 5% level of significance. Only for Hindu ST we can conclude that there is an association between asset transition and Poverty Transition.

-> rcaste = Hindu ST

Key
frequency *column percentage*

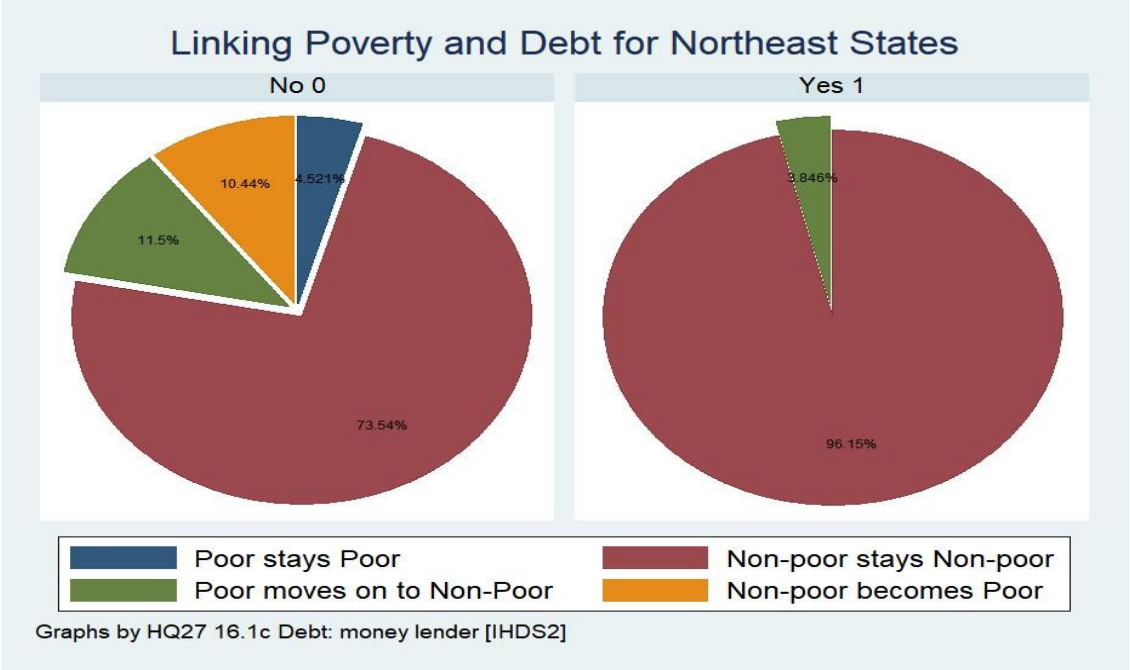
3 category Asset Transition	4 category Poverty Transition Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	10 55.56	123 33.70	20 40.00	10 14.93	163 32.60
Decline in Assets	3 16.67	88 24.11	17 34.00	35 52.24	143 28.60
No Asset Transition	5 27.78	154 42.19	13 26.00	22 32.84	194 38.80
Total	18 100.00	365 100.00	50 100.00	67 100.00	500 100.00

Pearson chi2(6) = 31.7464 Pr = 0.000

Assignment C: DISTRIBUTION OF MONEY LENDING AND DEBT CHANGE

For the subsample, the DB1C (debt to money lender) variable which tells us whether the debt was taken from a moneylender or not.

The POOR2 variable (poverty data according to 2012) which tells us whether the individual was below poverty during the 2nd round of the IHDS.



People who did not have any debt to moneylender showed much more movement between the poverty classes compared to the people who did take debt from moneylenders.

This goes on to show that debt from moneylender did not significantly affect poverty transition or persistence in the subsample.

Test of Association between Poverty and Debt across Socio-Religious Groups

We're using a Chi-square test for association of 2 categorical variables with the null hypothesis defined as no significant association. (Ho: No association)

-> rcaste = Hindu Forward Caste

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	0 0.00	79 24.46	8 53.33	2 12.50	89 25.07
Decline in Assets	1 100.00	95 29.41	3 20.00	8 50.00	107 30.14
No Asset Transition	0 0.00	149 46.13	4 26.67	6 37.50	159 44.79
Total	1 100.00	323 100.00	15 100.00	16 100.00	355 100.00

Pearson chi2(6) = 12.2355 Pr = 0.057

-> rcaste = Hindu OBC

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	1 100.00	46 22.77	6 46.15	3 20.00	56 24.24
Decline in Assets	0 0.00	61 30.20	1 7.69	7 46.67	69 29.87
No Asset Transition	0 0.00	95 47.03	6 46.15	5 33.33	106 45.89
Total	1 100.00	202 100.00	13 100.00	15 100.00	231 100.00

Pearson chi2(6) = 10.1285 Pr = 0.119

-> rcaste = Hindu SC

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	1 33.33	39 29.10	6 31.58	4 33.33	50 29.76
Decline in Assets	0 0.00	34 25.37	3 15.79	3 25.00	40 23.81
No Asset Transition	2 66.67	61 45.52	10 52.63	5 41.67	78 46.43
Total	3 100.00	134 100.00	19 100.00	12 100.00	168 100.00

Pearson chi2(6) = 1.9816 Pr = 0.921

-> rcaste = Hindu ST

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	10 55.56	123 33.70	20 40.00	10 14.93	163 32.60
Decline in Assets	3 16.67	88 24.11	17 34.00	35 52.24	143 28.60
No Asset Transition	5 27.78	154 42.19	13 26.00	22 32.84	194 38.80
Total	18 100.00	365 100.00	50 100.00	67 100.00	500 100.00

Pearson chi2(6) = 31.7464 Pr = 0.000

-> rcaste = Muslims

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Poor stay	Non-poor	Poor move	Non-poor	Total
Increase in Assets	8 17.78	23 23.23	17 22.08	5 10.87	53 19.85
Decline in Assets	17 37.78	37 37.37	32 41.56	26 56.52	112 41.95
No Asset Transition	20 44.44	39 39.39	28 36.36	15 32.61	102 38.20
Total	45 100.00	99 100.00	77 100.00	46 100.00	267 100.00

Pearson chi2(6) = 6.6823 Pr = 0.351

-> rcaste = Others

Key
frequency
column percentage

3 category Asset Transition	4 category Poverty Transition: Non-poor	Non-poor	Total
No Asset Transition	3 100.00	1 100.00	4 100.00
Total	3 100.00	1 100.00	4 100.00

Figure 15: Chi-square tests for the association between Debt and Poverty Transition across Socio-religious groups

We find no statistically significant association between poverty transition and debt to money lender across all socio-religious groups, using chi-square test.