# Levels and Dynamics of Inequality in India: Filling in the blanks

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Summary of Findings from the India Component of the UNU-WIDER "Inequality in the Giants" Project

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# Introduction

- Inequality in India is in the public eye (and political debate)
  - Chancel and Piketty: "Inequality in India 1922-2015: From British Raj to Billionaire Raj?"
    - WID.world Working Paper Series 2017/11
  - James Crabtree:  The Billionaire Raj: A Journey Through India's New Gilded Age (Oneworld)
- Main contention:
  - Alongside recent acceleration of economic growth, wealth and income inequality in India is exploding.
  - The top tail is much thicker and extends far further than was previously believed.
  - This was long undetected due to data constraints

- Although this has also been contested:
  - Surjit Bhalla: "No evidence that India has experienced an above average increase in inequality…" (Indian Express, Aug 11, 2018)

# Introduction

- This project seeks to complement these new (but also contentious) insights
  - Is inequality in India high?
  - Is the only action on inequality in the top tail?
    - Is there an inequality analogue to the impressive rates of poverty reduction in India?
  - What are the trends in inequality beyond income?
  - What is happening in rural areas and at the local level?
    - How is structural transformation shaping the distribution of income?
  - What are the patterns of income mobility shaping the trends in income inequality?

# Project Contents

- Six papers
    1. Inequality Trends and Dimensions: Himanshu and Murgai
    2. Village level inequality and structural change: Elbers and Lanjouw
    3. Spatial decomposition of inequality: Mukhopadhyay and Urzainqui
    4. Intra-generational Mobility: Dang and Lanjouw
    5. Inter-generational mobility and human capital: van der Weide and Vigh
    6. *(Housing prices and top income inequality: Rongen)*

- Draft papers trickling in.

**Himanshu and Murgai:**

**Levels and Trends in Indian Inequality: Evidence from Secondary Data (1983-2012)**

Key Findings:

* Inequality is indeed high and has been rising with recent economic growth

* But inequality was actually falling in India during growth episode in 1980s

* Important group dimensions of inequality:

      - state/region

      - education

      - scheduled caste/ schedule tribes

      - gender

      -occupation

      -economic sector/ formal-informal

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**Elbers and Lanjouw**

**Inequality under a microscope: levels and trends in an Indian village (1958-2015)**

Key Findings:

* Inequality has risen, alongside average income growth and falling poverty

* Increase income mobility

* But intergenerational mobility is falling

* Stylized village model replicates Palanpur's distributional outcomes with the introduction of exogenous technological change in agriculture followed by non-farm diversification

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**Mukhopadhyay and Urzainqui**

**Decomposing Spatial Inequality**

Approach and Key Findings:

* Combine NSS and night lights data to decompose inequality

* Gauge the importance and trends over time in *within village* inequality ( *within-block* in urban areas)

* Within-village inequality accounts for the bulk of total inequality

* Within –village inequality is rising in most states

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**Dang and Lanjouw**

**Intra-generational Mobility: Levels and Trends**

Approach and Key Findings:

* Construct synthetic panels from NSS data

* 1987, 1993, 2004, 2009, 2011 rounds

* Validate against IHDS true panel for 2004-2011

* Intra-generational mobility has risen alongside falling poverty and rising inequality

* Upward and downward mobility are associated with different group characteristics

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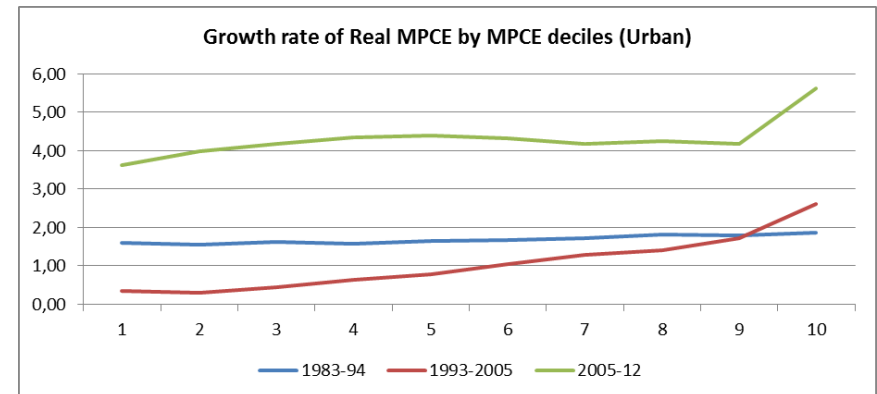**Van der Weide and Vigh**

**Intergenerational Educational Mobility**

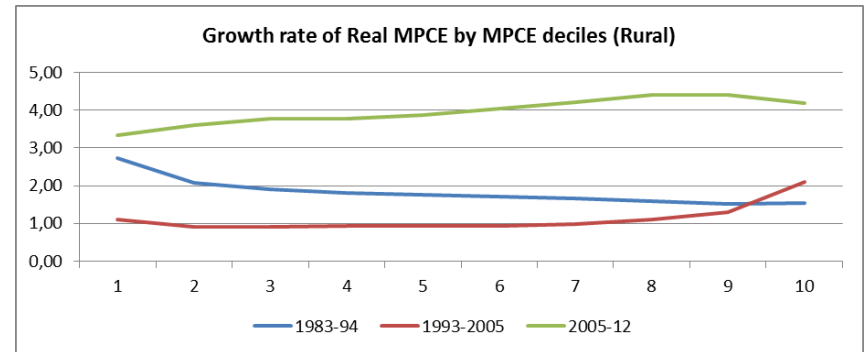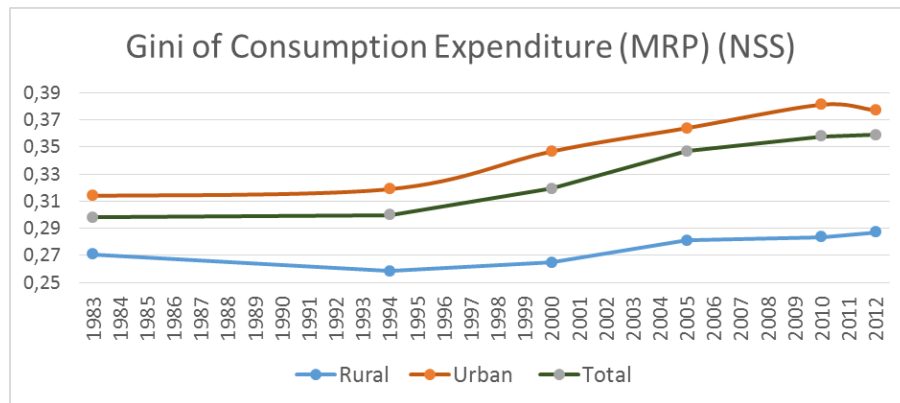Approach and Key Findings:

* Consider education of parents and children in 6 rounds of NSS data (1983, 1987, 1993, 1999, 2004, 2011)

* Work at the NSS region level

* By international standards mobility in India is low

* But intergenerational educational mobility is rising

* In regions with lower mobility, economic growth of the poor is particularly penalized, while that of the rich is less affected.

# Himanshu and Murgai

- Summarize the rapidly growing literature on inequality in India
- Document evidence from multiple data sources pointing to high, and rising inequality
- Illustrate the sectoral transformation of the Indian economy out of agriculture; point to significant growth of the unorganized sector and casual wage and non-agricultural self employment activities.

# Inequality and the incidence of growth



Gini of Consumption Expenditure (MRP) (NSS)



Growth rate of Real MPCE by MPCE deciles (Rural)



Growth rate of Real MPCE by MPCE deciles (Urban)

# Income versus Consumption inequality
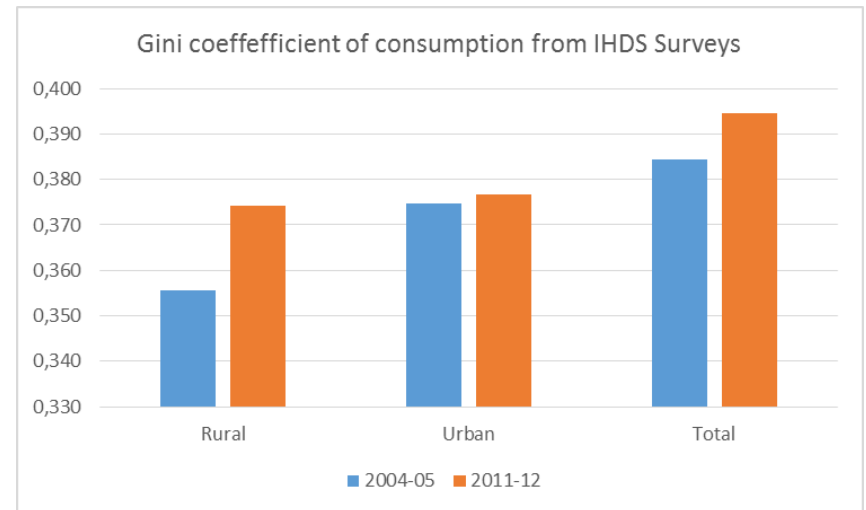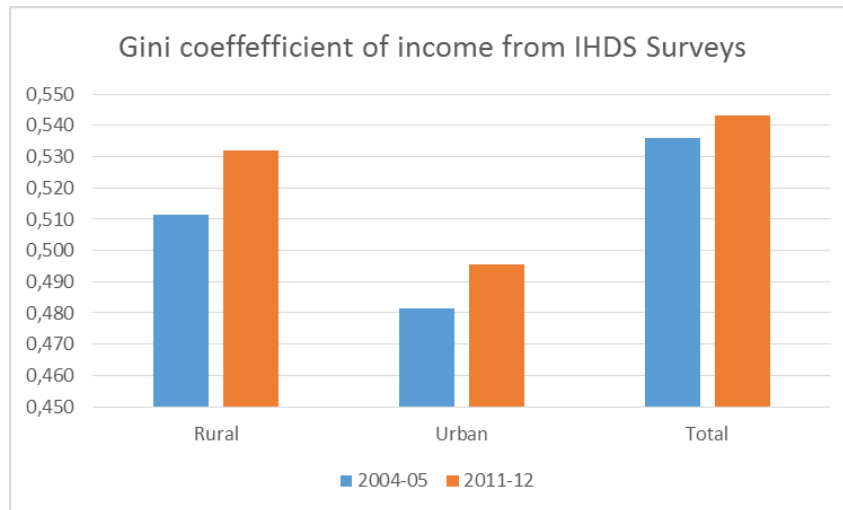
# Wealth Inequality and Top Incomes



Gini of wealth (AIDIS data)



Share of Top 1% in National Income
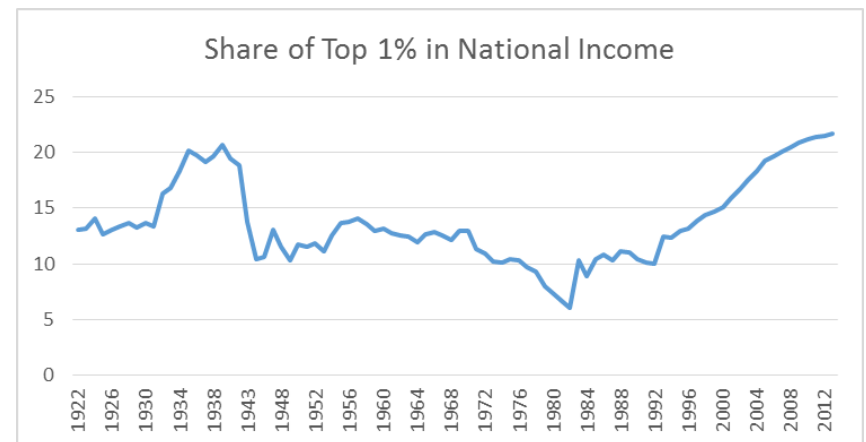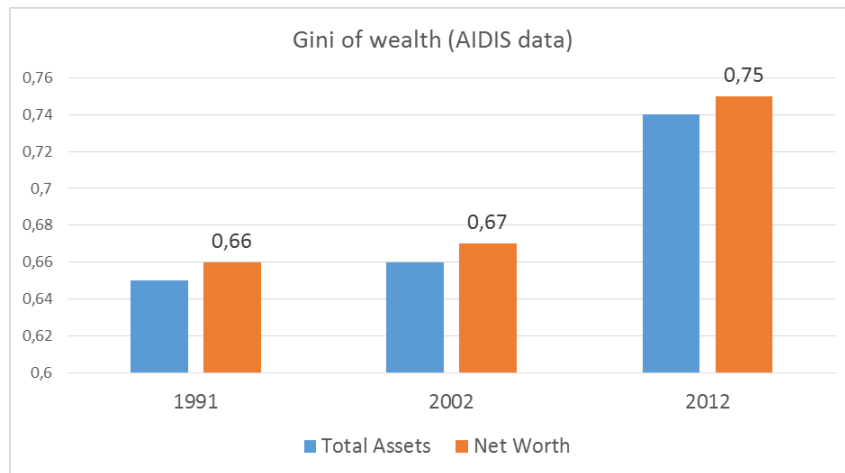
# Inequalities among Population Groups

|  | Consumption share/Pop share | | | Income share/ Pop share | |
|---|---|---|---|---|---|
|  | 1993-94 | 2004-05 | 2011-12 | 2004-05 | 2011-12 |
| **All India** | | | | | |
| **ST** | 0.76 | 0.69 | 0.69 | 0.68 | 0.67 |
| **SC** | 0.79 | 0.78 | 0.8 | 0.71 | 0.79 |
| **OBC** | -- | 0.92 | 0.93 | 0.89 | 0.92 |
| **Others** | 1.09 | 1.33 | 1.34 | 1.45 | 1.39 |
| **Rural** | | | | | |
| **ST** | 0.83 | 0.76 | 0.77 | 0.75 | 0.72 |
| **SC** | 0.85 | 0.85 | 0.88 | 0.75 | 0.83 |
| **OBC** | -- | 1 | 1 | 0.95 | 0.96 |
| **Others** | 1.07 | 1.23 | 1.21 | 1.42 | 1.38 |
| **Urban** | | | | | |
| **ST** | 0.83 | 0.81 | 0.81 | 1.02 | 1.08 |
| **SC** | 0.75 | 0.72 | 0.76 | 0.77 | 0.82 |
| **OBC** | -- | 0.83 | 0.85 | 0.84 | 0.87 |
| **Others** | 1.05 | 1.24 | 1.26 | 1.24 | 1.24 |

|  | Consumption share/pop share | | | Income share/ Pop share | |
|---|---|---|---|---|---|
|  | 1993-94 | 2004-05 | 2011-12 | 2004-05 | 2011-12 |
| **All India** | | | | | |
| **Hindu** | 0.99 | 0.99 | 1 | 0.98 | 0.99 |
| **Muslim** | 0.91 | 0.91 | 0.87 | 0.92 | 0.91 |
| **Christian** | 1.23 | 1.41 | 1.39 | 1.74 | 1.52 |
| **Others** | 1.12 | 1.28 | 1.29 | 1.22 | 1.21 |
| **Rural** | | | | | |
| **Hindu** | 0.99 | 0.98 | 0.98 | 0.96 | 0.98 |
| **Muslim** | 0.95 | 0.98 | 0.94 | 1.03 | 1 |
| **Christian** | 1.18 | 1.44 | 1.43 | 2.07 | 1.53 |
| **Others** | 0.95 | 0.98 | 1.05 | 1.19 | 1.24 |
| **Urban** | | | | | |
| **Hindu** | 1.02 | 1.03 | 1.04 | 1.03 | 1.03 |
| **Muslim** | 0.76 | 0.74 | 0.72 | 0.72 | 0.74 |
| **Christian** | 1.22 | 1.29 | 1.23 | 1.28 | 1.3 |
| **Others** | 1.15 | 1.33 | 1.18 | 1.29 | 1.33 |

# Inequalities in human development

Figure 1 Under-five child stunting (%)
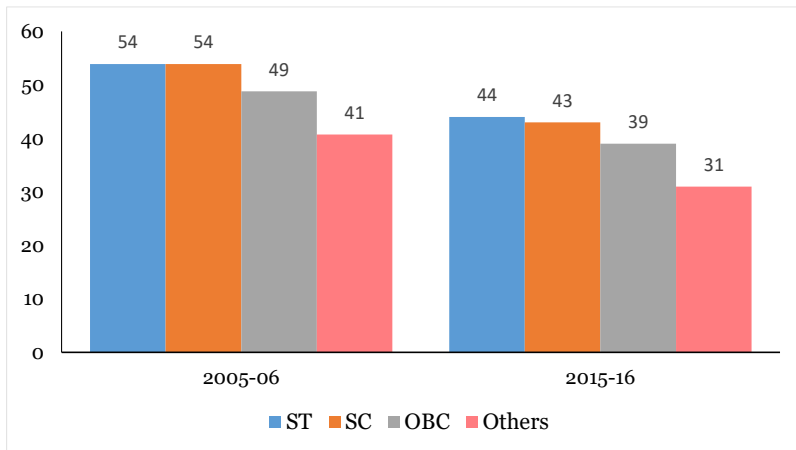
Figure 1 Average annual dropout rates (%)
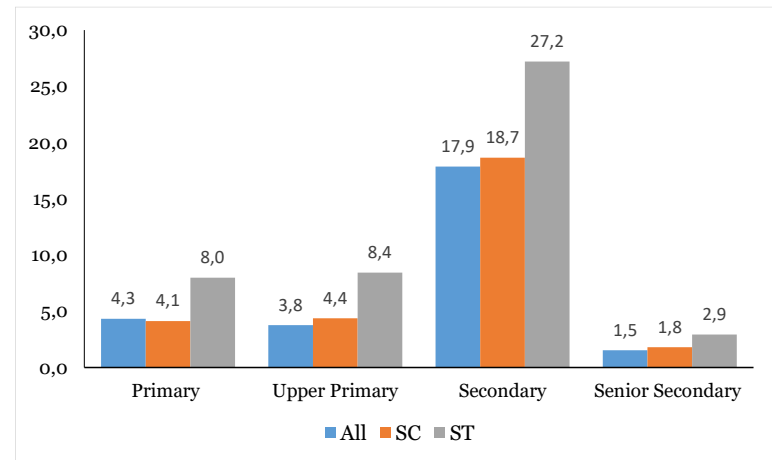
# Elbers and Lanjouw

- Examine evolution of inequality in the village of Palanpur over 7 decades (1957-2015)
  - Small village in Uttar Pradesh
    - Multi-caste structure/ small muslim community
    - Stable and moderate population growth
      - Growth from 500 to 1255 villagers 1957-2015
    - Fixed village land; thin land market
  - Economy of Palanpur profoundly shaped by:
    - "Green Revolution" technological change from 1960s onwards
    - Non-farm diversification and rural-urban commuting from 1980s onwards

# Distributional outcomes in Palanpur

- Per capita income growth:  2% per year average
  - Harvest variability "good year" "bad year"
- Declining poverty
  - Headcount:

| | 1957 | 1962 | 1974 | 1983 | 2009 |
|---|---|---|---|---|---|
| | 47% | 54% | 11% | 34% | 20% |

- Increased intra-generational mobility
- BUT, Rising inequality
  - Gini:

| | 1957 | 1962 | 1974 | 1983 | 2009 |
|---|---|---|---|---|---|
| | 0.34 | 0.35 | 0.27 | 0.31 | 0.38 |

- Himanshu et al (2018) draw attention to changing village-level institutions, norms, in face of these distributional outcomes

# Gatsby Curve in Palanpur:
# Declining Intergenerational Mobility

| | 1958-1983 | 1983-2009 | 1958-1974 (1983) | 1974(1983)-2009 |
|---|---|---|---|---|
| Number of observations(in the age group 25-35 years) | 58 | 100 | 58 | 100 |
| Gini Coefficient in terminal year | 0.336 | 0.379 | 0.235 | 0.379 |
| Intergenerational Elasticity | 0.328 | 0.396 | 0.294 | 0.441 |

# Is Palanpur "typical"? Counterfactuals with a simulation model

- Study the impact of drivers of inequality
  - Technological change and occupational diversification
  - Inspired by Lewis, Kuznets
- "Palanpur-like"village
  - Focus on 3 castes (Jatabs, Muraos, Thakurs)
  - Classify households as "agicultural" or "non-agricultural"
    - Based on largest income share
  - Postulate similar population growth
  - Calibrate model on Palanpur data

```
  inherits caste and          newborn
       parent
                                  │
                                  ▼
                             increase age  ◄──────┐
                                  │               │
                                  ▼               │
                              check               │
          No ─────────────── age = 14             │
                                  │
                                 Yes

  inherits parent
  occupation and  ──────────►
       income
                             increase age  ◄──────────────────┐
                                  │                            │
                                  ▼                            │
                              check                            │
           STOP ◄─── Yes ──── age = 70                         │
                                  │                            │
                                 No                            │
                                  │                            │
    depends on                    ▼                            │
    caste and    ──────────►    draw                           │
  past occupation              occupation                      │
                                  │                            │
                                  ▼                            │
    depends on                                                 │
    occupation   ──────────►    draw                           │
       and                      income                         │
      caste                       │                            │
                                  ▼                            │
                              age < 51  ─── No ────────────────┤
                                  │                            │
                                 Yes                           │
                                  ▼                            │
              create            spawn                          │
             newborn  ◄── Yes ── child?                        │
                                  │                            │
                                 No                            │
                                  └────────────────────────────┘
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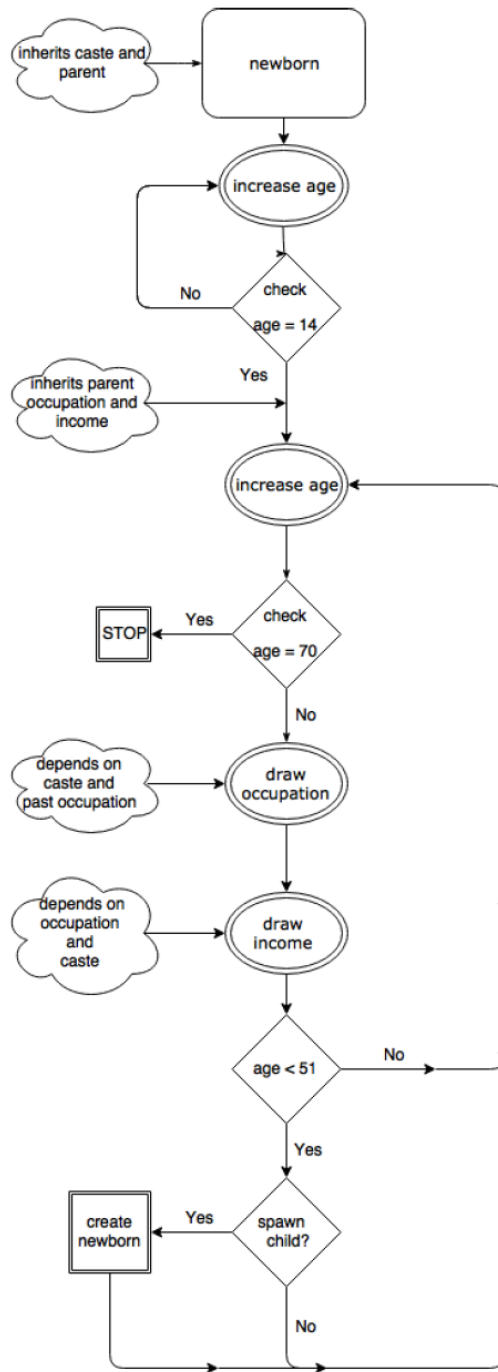
# Dynamics

- Income model $$\log y_{t+1} = \alpha + \beta \log y_t + \sigma \varepsilon_{t+1}$$

- Occupation dynamics
  - Individual occupations determined by Markov transition process; transitions between occupations governed by caste- and occupation-specific probabilities

- After calibration:

| year | data | model |
|------|------|-------|
| 1958 | 0.33 | 0.33 |
| 1963 | 0.34 | 0.34 |
| 1974 | 0.29 | 0.30 |
| 1983 | 0.31 | 0.31 |
| 2009 | 0.38 | 0.38 |

# Exploring Counterfactuals

1. Distributional outcomes with no technological change
2. Distributional outcomes with no occupational diversification

- Switching these largely exogenous forces "on/off" we can broadly generate the pattern of distributional outcomes observed in "Palanpur-like" villages
- THUS Is rising village-inequality a more general phenomenon?

# Mukhopadhyay and Urzainqui

- Palanpur study points to the possibility that inequality *within* villages is high and possibly rising

- Note: Inequality trends at the aggregate (state or national) level may mask what is happening at the village (or urban block) level.
  - Which inequality actually matters?

- This paper seeks to assess the significance of village level inequality in the country as a whole

# Shedding light on local inequality

- Available data cannot yield village-level inequality estimates
- Paper combines NSS survey data with data on night-lights intensity as well as GIS data
  - Impute average per capita consumption to all of India's villages (and urban blocks) based on a district-level prediction model calibrated with NSS consumption data, night-lights data and district level variables.
  - Calculate between-village inequality (Theil measure)
  - Derive the share of village-level inequality in total inequality by between between-village inequality from total inequality
    - At the national and state level

# Village level inequality accounts for most inequality and this share is rising

| All India | 2001 | 2011 |
|---|---|---|
| Within State | 0.175 | 0.143 |
| Between States | 0.013 | 0.017 |
| | | |
| Within District | 0.149 | 0.156 |
| Between Districts | 0.039 | 0.05 |
| | | |
| **Theil (All India)** | **0.188** | **0.21** |
| | | |
| **Rural** | | |
| Within State | 0.13 | 0.126 |
| Between States | 0.01 | 0.017 |
| | | |
| Within District | 0.11 | 0.11 |
| Between Districts | 0.03 | 0.034 |
| | | |
| **Theil (Rural India)** | **0.14** | **0.143** |
| | | |
| **Urban** | | |
| Within State | 0.227 | 0.25 |
| Between States | 0.006 | 0.014 |
| | | |
| Within District | 0.193 | 0.21 |
| Between Districts | 0.041 | 0.06 |
| | | |
| **Theil (Urban India)** | **0.234** | **0.26** |

* Based on the NSS. Numbers may not add because of rounding off

| | 2004 | 2011 |
|---|---|---|
| Rural India (NSS) | 0.140 | 0.143 |
| Rural Inequality based on Village Level Imputation (Between) | 0.035 | 0.037 |
| Residual: Within Village | 0.105 | 0.106 |

| | 2004 | 2011 |
|---|---|---|
| Urban India (NSS) | 0.234 | 0.260 |
| Urban Inequality based on Urban Blocks (Between) | 0.029 | 0.032 |
| Residual: Within Urban Block | 0.205 | 0.228 |

# Selected states

| | 2004 | | | 2011 | | |
|---|---|---|---|---|---|---|
| | Total | Between | Within | Total | Between | Within |
| Rajasthan | 0.125 | 0.036 | 0.088 | 0.133 | 0.028 | 0.105* |
| UP | 0.158 | 0.035 | 0.123 | 0.194 | 0.033 | 0.160* |
| Bihar | 0.082 | 0.039 | 0.043 | 0.082 | 0.023 | 0.059* |
| Jharkand | 0.144 | 0.077 | 0.067 | 0.143 | 0.059 | 0.084* |
| Orissa | 0.155 | 0.069 | 0.086 | 0.145 | 0.046 | 0.099* |
| Chhattisgarh | 0.193 | 0.040 | 0.153 | 0.175 | 0.037 | 0.138 |
| Madhya P. | 0.173 | 0.042 | 0.131 | 0.190 | 0.036 | 0.154* |
| Maharashtra | 0.225 | 0.050 | 0.175 | 0.251 | 0.050 | 0.201* |
| Andhra P. | 0.183 | 0.021 | 0.162 | 0.147 | 0.018 | 0.129 |
| Karnataka | 0.194 | 0.035 | 0.159 | 0.264 | 0.022 | 0.242* |
| Kerala | 0.258 | 0.012 | 0.246 | 0.310 | 0.009 | 0.301* |
| Tamil Nadu | 0.216 | 0.024 | 0.193 | 0.190 | 0.018 | 0.171 |

# Dang and Lanjouw

- Investigate intra-generational mobility trends
- Mobility analysis ideally based on panel data
  - Only one panel dataset in India (IHDS 2004-2011)
- Dang and Lanjouw develop *synthetic panels* from NSS cross section data (43$^{rd}$, 50$^{th}$, 61$^{st}$, 66$^{th}$ and 69$^{th}$ rounds)
- Validate results against IHDS panel for the 2004-2011 interval

# Transitions across three categories: 1993-2004

Diagonal=59.7%

| Table 2: Welfare Transition Dynamics Based on Synthetic Panel Data, India 1993/94- 2004/05 (percentage) | | | | | |
|---|---|---|---|---|---|
| **Panel A: Vulnerability line corresponding to V-index= 0.2** | | **2004** | | | |
| | | **Poor** | **Vulnerable** | **Middle class** | **Total** |
| **1993** | **Poor** | 29.4 | 13.7 | 1.8 | 44.9 |
| | | (0.1) | (0.0) | (0.0) | (0.1) |
| | **Vulnerable** | 9.9 | 18.8 | 8.3 | 37.0 |
| | | (0.0) | (0.0) | (0.0) | (0.0) |
| | **Middle class** | 0.9 | 5.7 | 11.5 | 18.1 |
| | | (0.0) | (0.0) | (0.1) | (0.1) |
| | **Total** | 40.2 | 38.2 | 21.6 | 100 |
| | | (0.1) | (0.0) | (0.1) | |
| **Panel B: Vulnerability line equals twice poverty line** | | **2004** | | | |
| | | **Poor** | **Vulnerable** | **Middle class** | **Total** |
| **1993** | **Poor** | 29.4 | 14.8 | 0.7 | 44.9 |
| | | (0.1) | (0.0) | (0.0) | (0.1) |
| | **Vulnerable** | 10.5 | 26.7 | 6.6 | 43.8 |
| | | (0.0) | (0.0) | (0.0) | (0.0) |
| | **Middle class** | 0.3 | 4.3 | 6.7 | 11.3 |
| | | (0.0) | (0.0) | (0.1) | (0.1) |
| | **Total** | 40.2 | 45.8 | 14.0 | 100 |
| | | (0.1) | (0.0) | (0.1) | |

# Transitions across three categories: 2004-2011

Diagonal=48.1%

| Table 7: Welfare Transition Dynamics Based on Synthetic Panel Data, India 2004/05- 2011/12 (percentage) | | | | | |
|---|---|---|---|---|---|
| **Panel A: Vulnerability line corresponding to V-index= 0.2** | | **2011** | | | |
| | | Poor | Vulnerable | Middle class | Total |
| **2004** | Poor | 15.3 | 15.9 | 5.7 | 37.0 |
| | | (0.0) | (0.0) | (0.0) | (0.1) |
| | Vulnerable | 8.2 | 18.2 | 13.8 | 40.3 |
| | | (0.0) | (0.0) | (0.0) | (0.0) |
| | Middle class | 1.5 | 6.7 | 14.6 | 22.8 |
| | | (0.0) | (0.0) | (0.1) | (0.1) |
| | Total | 25.0 | 40.8 | 34.1 | 100 |
| | | (0.1) | (0.0) | (0.1) | |
| **Panel B: Vulnerability line equals twice poverty line** | | **2011** | | | |
| | | Poor | Vulnerable | Middle class | Total |
| **2004** | Poor | 15.3 | 18.4 | 3.2 | 37.0 |
| | | (0.0) | (0.0) | (0.0) | (0.1) |
| | Vulnerable | 9.0 | 26.6 | 12.1 | 47.7 |
| | | (0.0) | (0.0) | (0.0) | (0.0) |
| | Middle class | 0.7 | 5.5 | 9.1 | 15.3 |
| | | (0.0) | (0.0) | (0.1) | (0.1) |
| | Total | 25.0 | 50.5 | 24.5 | 100 |
| | | (0.1) | (0.0) | (0.1) | |

# Correlates of mobility

## Upward
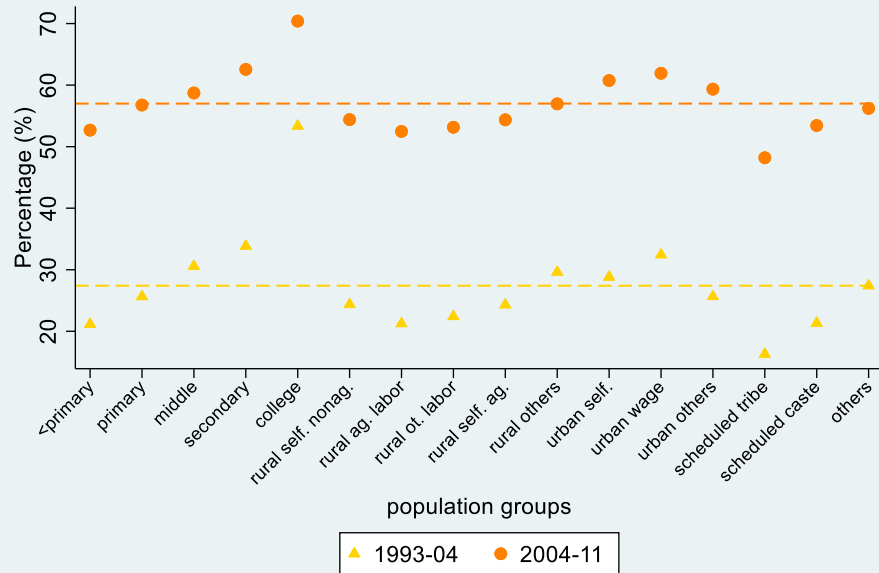


## Downward
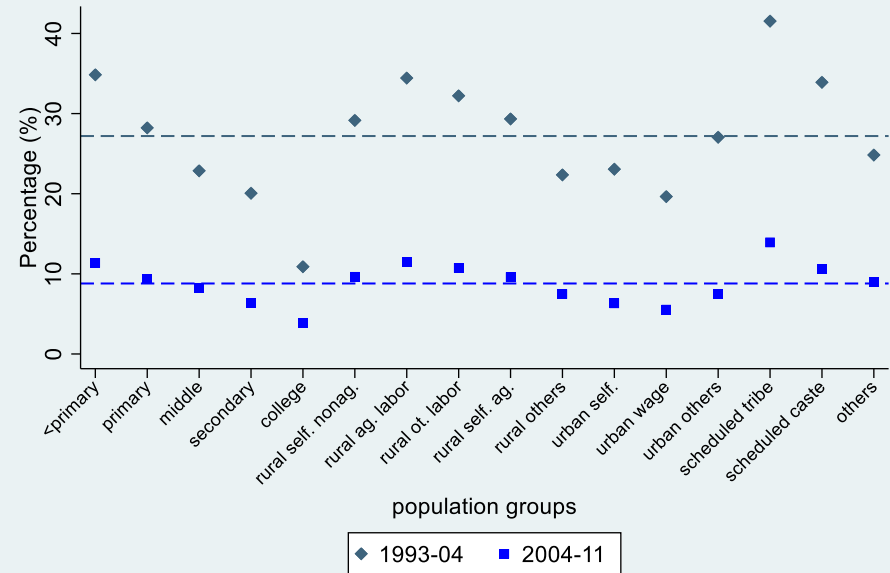
# Van der Weide and Vigh

- Investigate intergenerational mobility trends
  - Build on recent cross-country study by Narayan and v.d. Weide (2018) *Fair Progress* (World Bank)
- Consider *educational* mobility rather than income mobility
- Look at households where sons and fathers are *co-resident*
- 6 rounds of NSS data: 1983-2011
- Calculate intergenerational regression and correlation coefficients

# IGM is low but rising
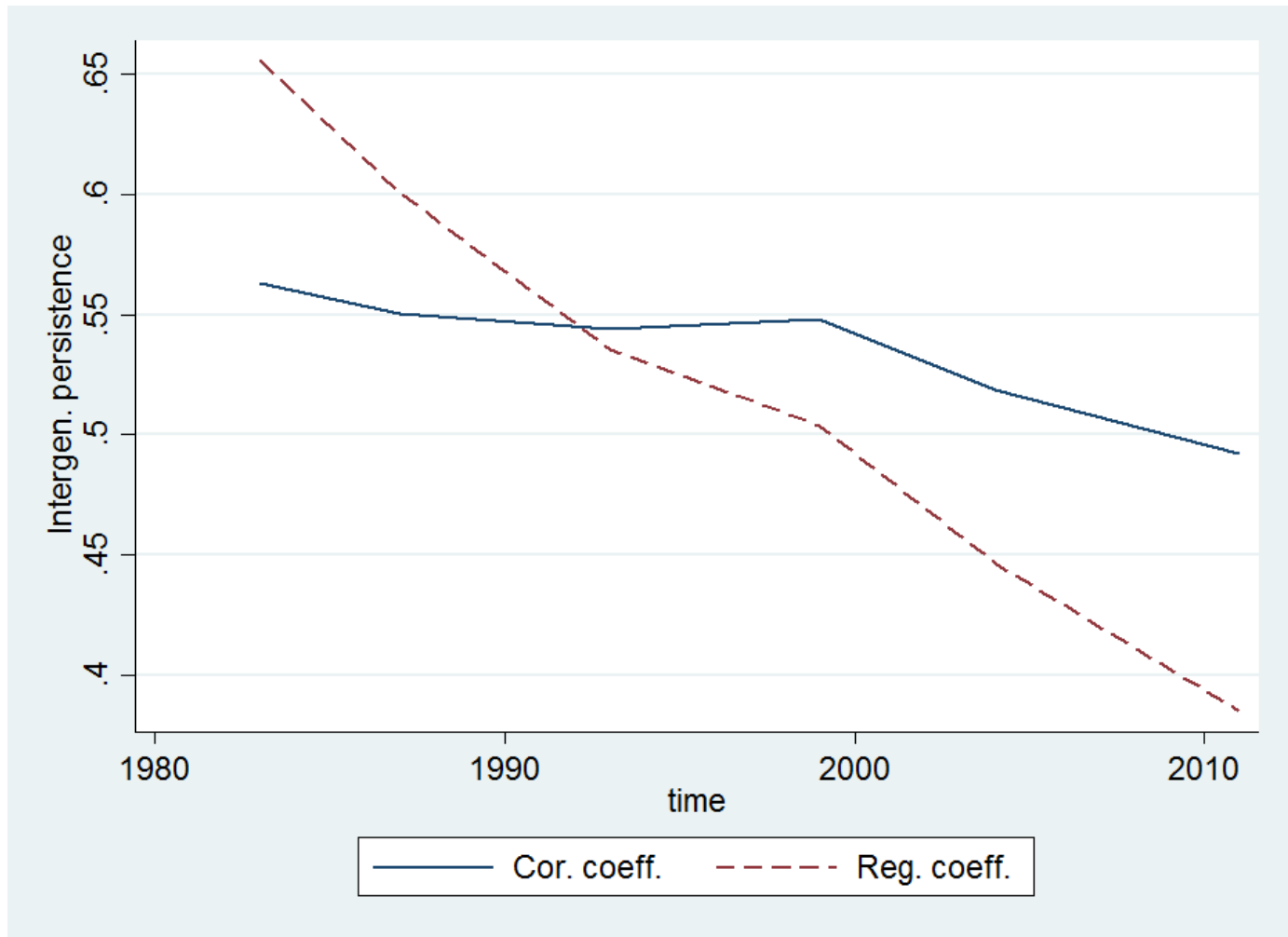
# Is education IGM linked to income inequality?
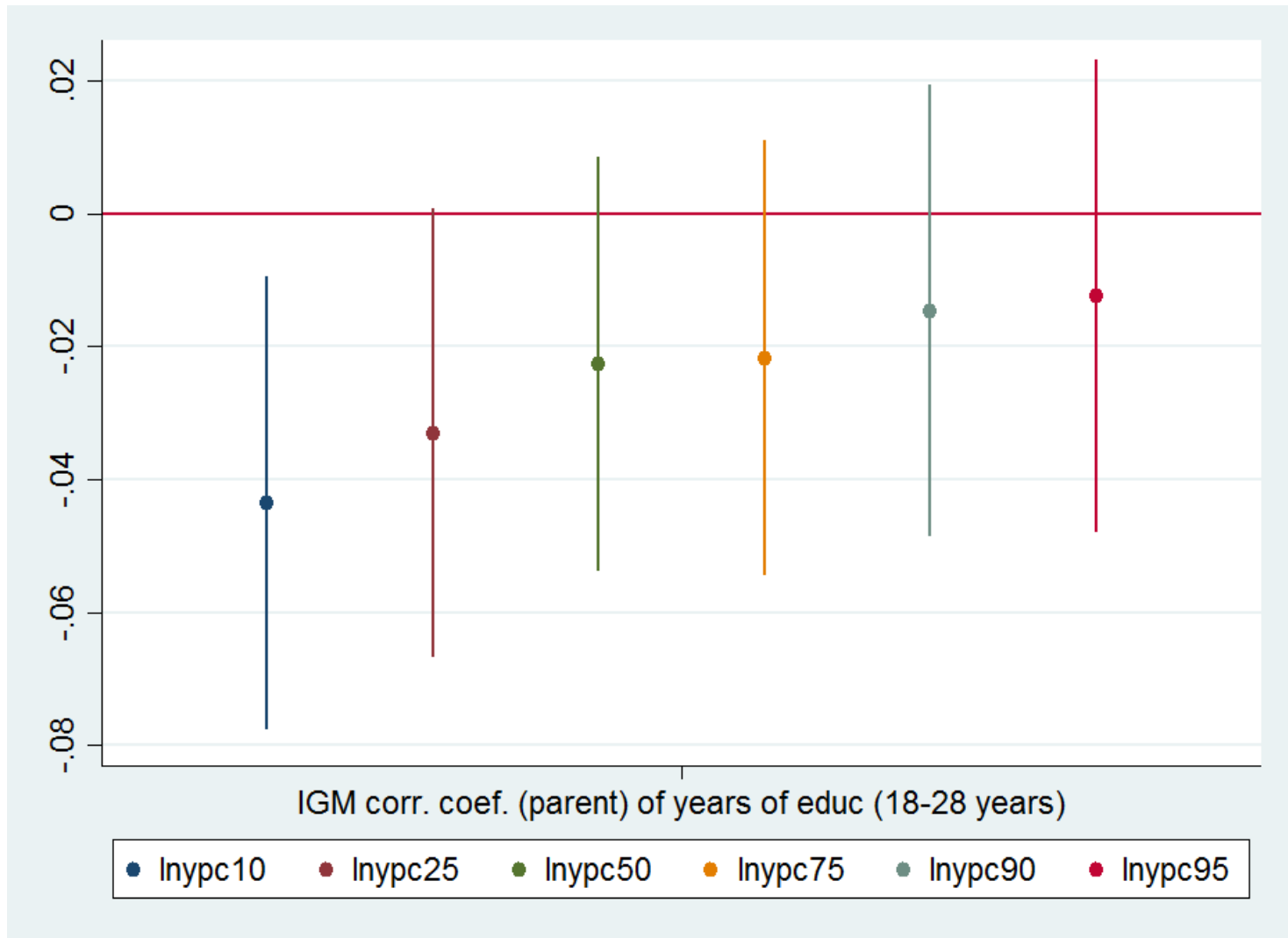
# Correlates of educational IGM

- Public expenditure too is positively associated with mobility

- Political competition at state level (% second largest - % largest party): positively associated with mobility

- % of parents without an education: positively associated with mobility (if large majority of parents are uneducated, parental education will not be an important predictor of individual education; for this reason, it is important that we control for this, which we do)