

# Income Mobility in the Developing World: Navigating and Interpreting the Empirical Evidence

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# Introduction

- This paper examines how incomes are distributed, and how they are changing over time.
  - long-standing questions that were of central interest already to classical economists like Smith, Ricardo and Marx.
- Past three decades have seen a great expansion of evidence on levels and trends in the overall distribution of economic welfare and poverty.
  - A great deal has been learnt about poverty and inequality at the country- and global-level.
- Less is known about movements within the distribution; about the specific trajectories of individuals or households: income mobility
- Understanding mobility is of direct policy interest:
  - Poverty dynamics: are the poor chronically poor? Or is poverty a transitory phenomenon? Who among the non-poor are vulnerable to falling back into poverty?
  - What is the middle class? How does the middle class emerge?
  - What do movements within the income distribution imply for normative assessments of inequality?

# Getting the right data

- Tracking mobility requires following individuals/households over time
- But good quality, nationally representative, panel data extending over a long time are scarce
  - Particularly so in case of developing countries.
  - Recent years have seen a welcome intensification of efforts to collect panel data
- Even when panel data are available:
  - Measurement error in variables of interest can pose problems for analysis and interpretation
  - Limitations imposed by attrition of households/individuals
- Possible remedies:
  - Detailed case studies that collect high quality longitudinal data
    - Mostly small surveys with limited coverage
  - Construction of “synthetic panels” that bypass non-availability of panel data
    - Predicated on underlying assumptions; still limited experience and validation

# This paper

- Provides an updated overview of observed patterns of income mobility in developing countries
  - Based on nationally representative panel surveys post-2000
- Supplements panel-based evidence with estimates from synthetic panels implemented in a variety of developing countries
  - Based on a method proposed by Dang et al (2014) and Dang and Lanjouw (2013)
- Drills down on mobility patterns and drivers in the context of the North Indian village of Palanpur which is uniquely “endowed” with panel data covering seven decades.
  - Suspect that at least some of the forces are of broader relevance

# Evidence from Panel Data

- Much of the empirical evidence in developing countries focuses on poverty dynamics: chronic versus transitory poverty; evidence of “poverty traps”.
- Build on surveys by Baulch and Hoddinott (2000) and Dercon and Shapiro (2007)
  - These studies assemble evidence pre-2000s, often case-study data and local surveys.
- Table 1 supplements earlier evidence with findings from 16 countries from the 2000s and from national representative data.
  - Evidence base remains very thin

# Evidence from Panel Data

- Stylized facts:
  - Widespread Churning: number of “sometimes poor” is very large
    - Could, in part, be due to measurement error
  - Mobility out of poverty is more likely the longer the gap between time periods.
    - Also if mobility is being monitored over multiple time periods
  - Nonetheless, chronic poverty remains widespread in many countries
    - Could point to existence of poverty “traps”.
  - Many of the non-poor are located just above the poverty line and thus remain vulnerable to falling back into poverty
    - Points to a possible definition of the “middle class” as the non-poor who are not vulnerable (secure).
  - Studies of income mobility (as opposed to poverty dynamics) remain relative scarce.

# Synthetic Panels

- Dang et al (2014), Dang and Lanjouw (2013) propose a method for constructing synthetic panels from cross-section surveys
  - Cross section surveys are much more common than panel surveys
  - Method involves estimating, for households in a given survey year, their income in some adjacent time period, and then analyzing the couplet of observed and predicted incomes.
  - Predicated on availability of time-invariant income predictors, as well as on assumptions regarding population stability, normality of disturbance terms, and others.
  - Dang and Lanjouw (2013) test for validity of method against true panel data
  - Overall conclusion is that method is promising but requires additional probing and validation.

# Synthetic Panel Estimates

- Empirical evidence to be regarded as tentative
- Tables 3 and 4 present evidence on poverty dynamics for 21 sub-Saharan countries, and 6 Arab countries
  - Based on nationally representative surveys, largely post-2000.
- Findings:
  - Transitory poverty is common; chronic poverty particularly high in countries with very high poverty rates
  - Widespread churning in Arab countries might help to explain why disaffection was so high during the “Arab Spring” period, even though poverty rates were not particularly high
    - Vulnerability and experience of poverty more widespread than snap-shot surveys might suggest.



# Palanpur-A Longitudinal Case Study

- A small village in Moradabad District, Uttar Pradesh
  - Small holder agriculture (wheat, paddy, sugarcane....)
  - Diverse caste structure.
- Has been surveyed seven times, once in each decade since Independence.
- Choice of village in 1974/5: Criteria
  - Had been studied previously
  - Ability to live independently of a caste or household.
  - Proximity to Delhi (not too close, not too far).
  - Wheat and tenancy strongly present.
  - Nothing 'particularly unusual' about the village.
- 1957-58, 1974-75, 1993 and 2008-09 were normal or good agricultural years whereas 1962-63, 1983 and 2015 were monsoon deficient.

# Palanpur village in Moradabad, UP



# Broad economic indicators of change in Palanpur

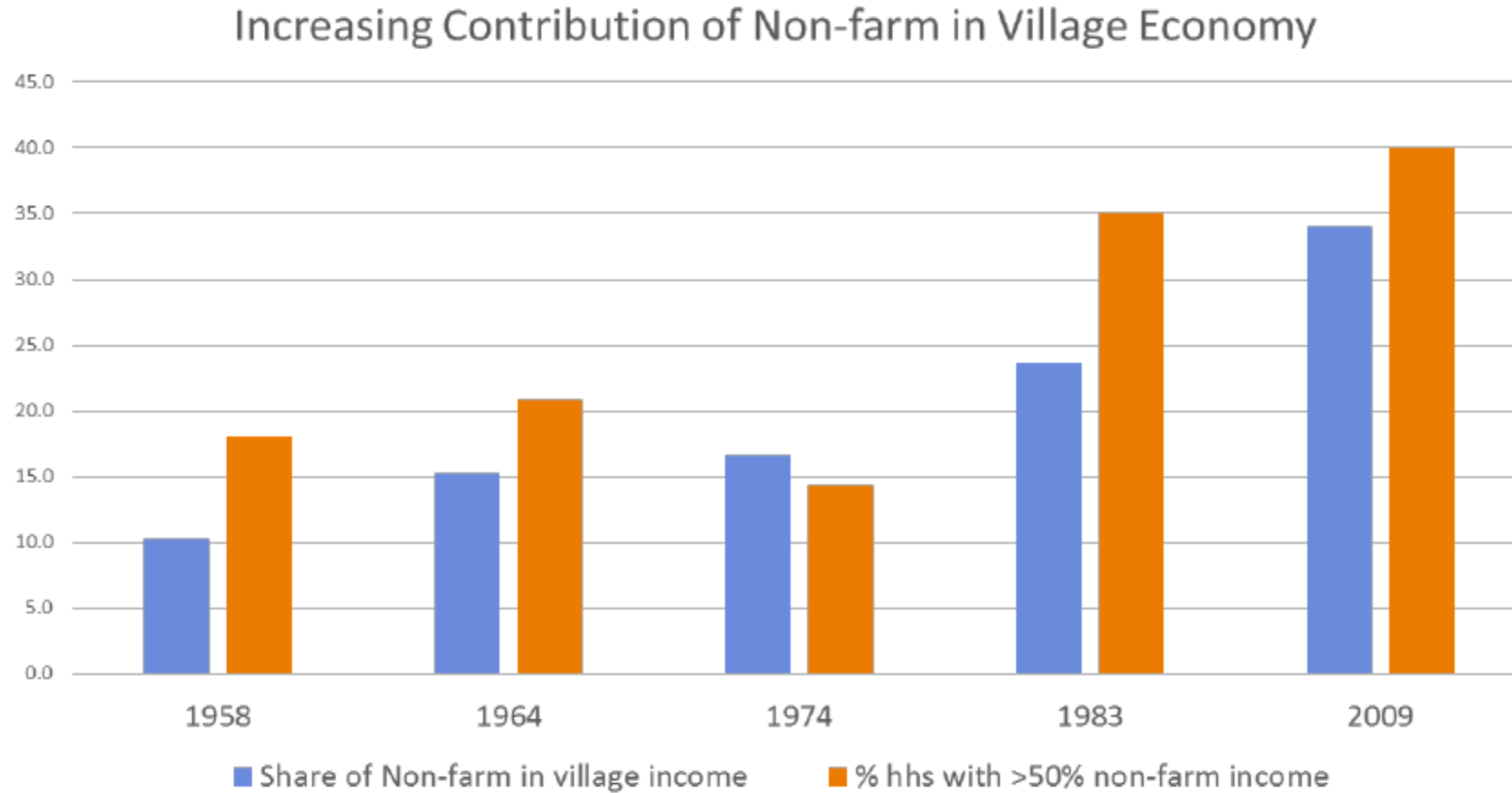
Year	1957-8	1962-3	1974-5	1983-4	1993	2008-9
Population	529	585	750	977	1133	1255
Number of households	100	106	112	143	193	233
Average Household Size	5.3	5.5	6.7	6.8	5.9	5.4
Real per capita income (at 1960-1 prices)	189.63	211	265.11	237.69	NA	411.88
Per capita land owned(bigha)	5.2	4.64	3.33	2.65	2.1	1.59
Gini coefficient: Land owned per capita	0.47	0.44	0.42	0.48	0.45	0.45
Gini coefficient: Land operated per capita	0.44	0.38	0.32	0.43	0.43	0.4

- The population and per capita incomes more than doubled since 1957-8.
- An increasing nuclearization of joint family households
- Significant decline in per capita land ownership.

# Agricultural output and agricultural wage growth

	<b>1957-58</b>	<b>1961-63</b>	<b>1974-75</b>	<b>1983-84</b>	<b>2008-09</b>
Wheat yield (tonnes/hect.)	0.65	0.65	1.81	1.60	4.25
Price Index (CPIAL)	1.07	0.98	3.78	5.28	30.95
Daily product wages (kg. wheat/day)	2.5	2.25	3.1	5	9
<b>Annual Growth rate</b>		<b>57-62</b>	<b>62-74</b>	<b>74-83</b>	<b>83-08</b>
Wheat yield		0.00	8.9	-1.4	4.0
Prices (CPIAL)		-1.74	11.91	3.78	7.33
Product wages		-2.09	2.71	5.46	2.38

## Non-farm has emerged as new driver of change in the village.



# Real Per capita incomes have risen but uneven gains across castes

Caste Group	Year				
	1957/8	1962/3	1974/5	1983/4	2008/9
Thakur	6593	7419	10,879	9593	15,359
Murao	8014	7689	10,093	10,781	14,778
Dhimar	3461	3004	7667	7702	11,558
Gadaria	6047	7375	8257	8250	15,039
Dhobi	8031	26,575	5755	7861	7124
Teli	3679	3913	7704	7277	19,752
Passi	6407	5749	9417	7584	11,172
Jatab	4014	4015	6586	3962	8163
Others	3139	3832	6801	6524	7188
Total	5774	6010	8954	8309	13,628

# Poverty has declined but inequality has increased

Year	Poverty HCR		Mean Income/Consumption (annual; per capita, in rupees)		Gini Coefficient
	Income	Consumption	Income	Consumption	Income
1957/8	85.1	80.4	5774	7357	0.336
1962/3	83.6	74	6010	8079	0.353
1974/5	56.7		8954		0.272
1983/4	58.3		8309		0.310
2008/9	38.3	38.3	13,628	12,788	0379

## 'Classic' inequality decomposition by caste

<b>Year</b>	<b>Theil L Measure GE (0)</b>	<b>Within-Caste Component (%)</b>	<b>Between-Caste Component (%)</b>
1957/8	0.1896	72	28
1962/3	0.2125	72	28
1974/5	0.1468	87	13
1983/4	0.1861	78	22
2008/9	0.2601	87	13



## Inequality decomposition (Jatabs versus rest of the village)

	Inequality Decomposition		
	Overall Inequality Theil L Measure	ELMO Partitioning Index (%)	Inequality Contribution from 'Classic' Decomposition (%)
Year			
1957/8	0.190	11	5
1962/3	0.213	10	5
1974/5	0.147	11	4
1983/4	0.186	36	16
2008/9	0.260	20	9

# Understanding wellbeing: Observed means

- In Palanpur, income is one indicator of wellbeing
- Lanjouw and Stern (1998) introduce notion of “observed means”.
  - Households are ranked by “apparent prosperity” - living standards are assessed on the basis of a spectrum of dimensions and criteria.
    - Wealth, health, education, etc.
  - Judgements derive from close knowledge and familiarity with villagers’ circumstances.
  - Rankings based on independent assessments across multiple investigators and then reconciled.
- Modest correlation between different measures but they measure different things. Incomes have strong transitory component.

# Cross-tabulation of households by 'observed means' (investigator rankings) between 1983/4 and 2008/10

Observed Means Household Rankings in 2008–10								
		Very poor	Poor	Secure	Prosperous	Rich	Matched households	Households in 1983/4
Observed means household ranking in 1983/4	Very poor	0.13	0.42	0.39	0.06	0.00	31	20
	Poor	0.17	0.13	0.57	0.03	0.10	30	19
	Secure	0.10	0.31	0.27	0.19	0.13	52	24
	Prosperous	0.05	0.19	0.40	0.26	0.10	42	22
	Rich	0.02	0.11	0.34	0.25	0.28	61	22
Households in 2008–10		17	48	81	39	31	216	107

## Observed Means Classification of Palanpur Households by Caste in 1983/4

	Very Poor	Poor	Secure	Prosperous	Rich	% (No. of hhs)
Thakur	0.0	0.267	0.233	0.267	0.233	1.00 (30)
Murao	0.0	0	0.222	0.370	0.407	1.00 (27)
Jatab	0.737	0.158	0.105	0.0	0.0	1.00 (19)
% of households	22%	19%	20%	19%	20%	(143) 100%

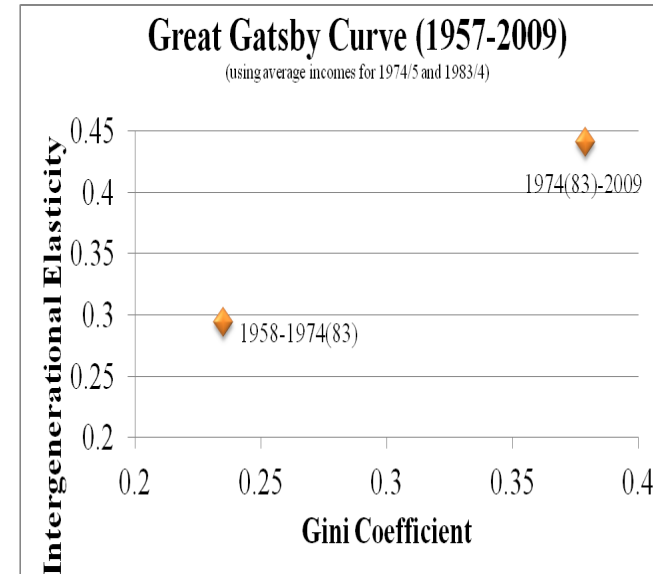
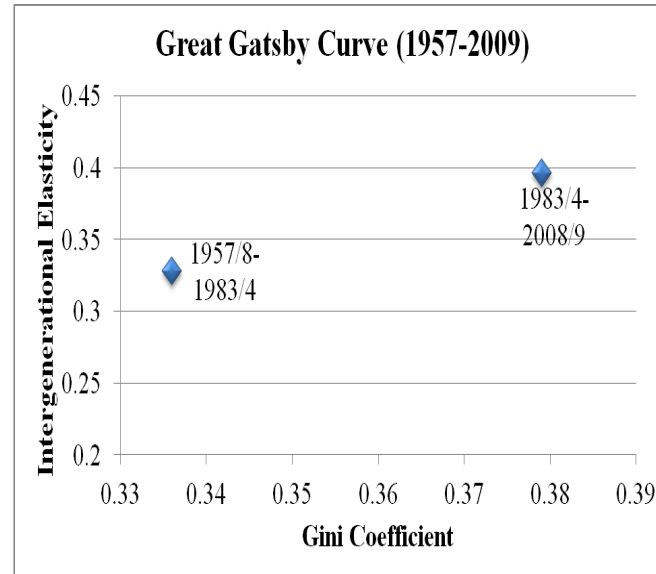
## Observed Means Classification of Palanpur Households by Caste in 2008/9

	Very Poor	Poor	Secure	Prosperous	Rich	% (No. of hhs)
Thakur	0.052	0.121	0.345	0.259	0.224	1.00 (56)
Murao	0.036	0.200	0.400	0.182	0.182	1.00 (58)
Jatab	0.077	0.436	0.410	0.077	0.0	1.00 (38)
% of households	8%	23%	37%	19%	13%	(230) 100%

# Intergenerational elasticity in earnings and inequality 1958–2009

	1958–84 (1)	1984–2009 (2)	1958–74 (1984) (3)	1974(1983)– 2009 (4)
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

## Palanpur: Declining intergenerational mobility



Intergenerational elasticity coefficients are obtained by regressing log income of sons on log income of fathers: higher coefficient, less mobility. Results stronger with some smoothing (right panel).

Coefficients are similar to earnings elasticity reported by Atkinson, Maynard and Trinder (1983) for 1950-1978 in York. Atkinson et al (1983) also report similar coefficients for height.

# Transition matrix of fathers' and sons' occupation categories, 1983/4 and 2008/9

		<b>Sons (2008/9)</b>					
		Student	Cultivation	Agricultural labour	Casual labour	Regular employment	Self-employment
<b>Fathers (1983/4)</b>	<b>Occupation</b>						
	Not Working	0.08	0.38	0	0.08	0.23	0.23
	Cultivation	0.21	0.40	0.05	0.16	0.10	0.10
	Agricultural Labour	0	0	0	0	0	0
	Casual labour	0.15	0.08	0.15	0.54	0.08	0
	Regular employment	0.39	0.19	0	0.17	0.17	0.08
	Self-employment	0.25	0.25	0	0.25	0.06	0.19
		<b>Sons (1983/4)</b>					
		Student	Cultivation	Agricultural labour	Casual labour	Regular employment	Self-employment
<b>Fathers (1957/8)</b>	<b>Occupation</b>						
	Not working	0	0.33	0	0.17	0.17	0.33
	Cultivation	0.05	0.58	0	0.06	0.31	0
	Agricultural labour	0	0	0	0	1.00	0
	Casual labour	0.20	0	0	0.40	0.20	0.20
	Regular employment	0.18	0.09	0.18	0.18	0.36	0
	Self-employment	0	0	0.33	0	0.67	0



## DISCUSSION:

### Poverty, inequality and mobility in Palanpur, 1957/8-2008/9

- Growth in average incomes has contributed to notable poverty decline.
- Evidence of falling income inequality in first period, then rising.
  - Attributable to expansion of irrigation then expansion of non-farm incomes.
- Substantial income mobility.
  - Catching up of disadvantaged castes in recent decades.
  - Scrutiny of inter-generational mobility nuances this positive message.
- Within caste variation in mobility and inequality still a dominant feature but recent decades have seen decline in between caste inequality.
- Two way relationship between inequality and mobility.
- These are also consistent with secondary evidence from India

# Economic Mobility in Palanpur

- Intergenerational elasticity is presumably influenced by inheritance. More so in case of land in case of an agrarian economy like Palanpur.
- Emergence of non-farm should however break this persistence with opportunity to break the rigidities
- However, access to these non-farm jobs has varied across caste and income strata
- Jatabs restricted to manual casual jobs; regular, well-paying, non-farm jobs concentrated amongst Thakurs
- Access to networks and ability to finance “entrance fees” or bribes matters for obtaining non-farm jobs
- Emergence of caste solidarities in new form