The rural-urban divide in India

V. Hnatkovska and A. Lahiri

University of British Columbia

3rd IGC-ISI India Development Policy Conference
July 2012

Introduction

Key questions:

- Do large macroeconomic changes accentuate or dampen inequalities?
- Who gains and who loses?
- What are the key channels through which distributional changes occur?

Introduction

Indian experience provides a perfect environment:

- dramatic changes over the past 20 years
- GDP growth averaged 6-8 percent since the mid 80s
  - 1947 to mid-80s growth averaged 3 percent
- sectoral transformation from agriculture to services and high-skill sectors

Key question

How has the rural sector in India responded to the macroeconomic transformation?

We analyze how rural households fared relative to urban households during 1983-2010 by conducting comparisons of:

- education
- occupational choices
- wages
- consumption

Related work

1. Effects of structural transformations
   - Harris and Todaro (1970)
   - Lewis (1954)
2. Poverty and inequality in India
   - Banerjee and Piketty (2001)
   - Bhalla (2003)
   - Deaton and Dreze (2002)
   - Sen and Himanshu (2005)

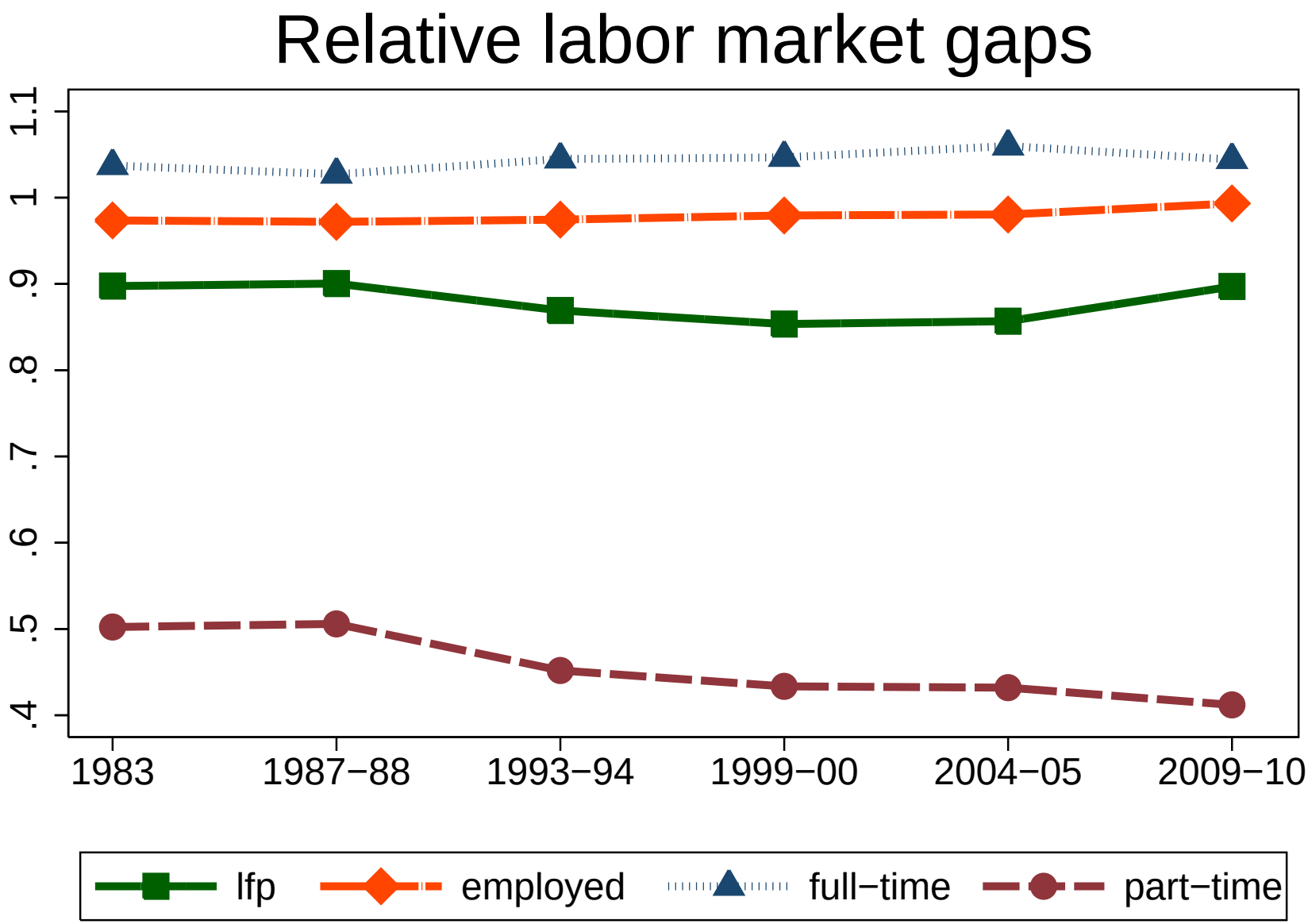
Data

- National Sample Survey (NSS) of India
- 6 rounds: R38 (1983), R43 (1987-88), R50 (1993-94), R55 (1998-99), R61 (2004-05), R66 (2009-10)
- Include individuals in all male-led households who are
  - male
  - 16 to 65 y.o.
  - not enrolled in any education institutions
  - working full-time
  - have occupation and education information
- Sample size: 140,000 to 180,000 individuals per survey round

Summary statistics

	(a) Individuals			(b) Households		
Urban	age	male	married	proportion	SC/ST	hh size
1983	35.03	0.87	0.78	0.26	0.16	5.01
	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
1987-88	35.45	0.87	0.79	0.24	0.15	4.89
	(0.06)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
1993-94	35.83	0.87	0.79	0.26	0.16	4.64
	(0.06)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
1999-00	36.06	0.86	0.79	0.28	0.18	4.65
	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
2004-05	36.18	0.86	0.77	0.27	0.18	4.47
	(0.08)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
2009-10	36.96	0.86	0.79	0.29	0.17	4.27
	(0.09)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)
Rural						
1983	35.20	0.77	0.81	0.74	0.30	5.42
	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
1987-88	35.36	0.77	0.82	0.76	0.31	5.30
	(0.04)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
1993-94	35.78	0.77	0.81	0.74	0.32	5.08
	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
1999-00	36.01	0.73	0.82	0.72	0.34	5.17
	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
2004-05	36.56	0.76	0.82	0.73	0.33	5.05
	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
2009-10	37.66	0.77	0.83	0.71	0.34	4.77
	(0.08)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)

Labor market trends



Education classifications

Education categories:

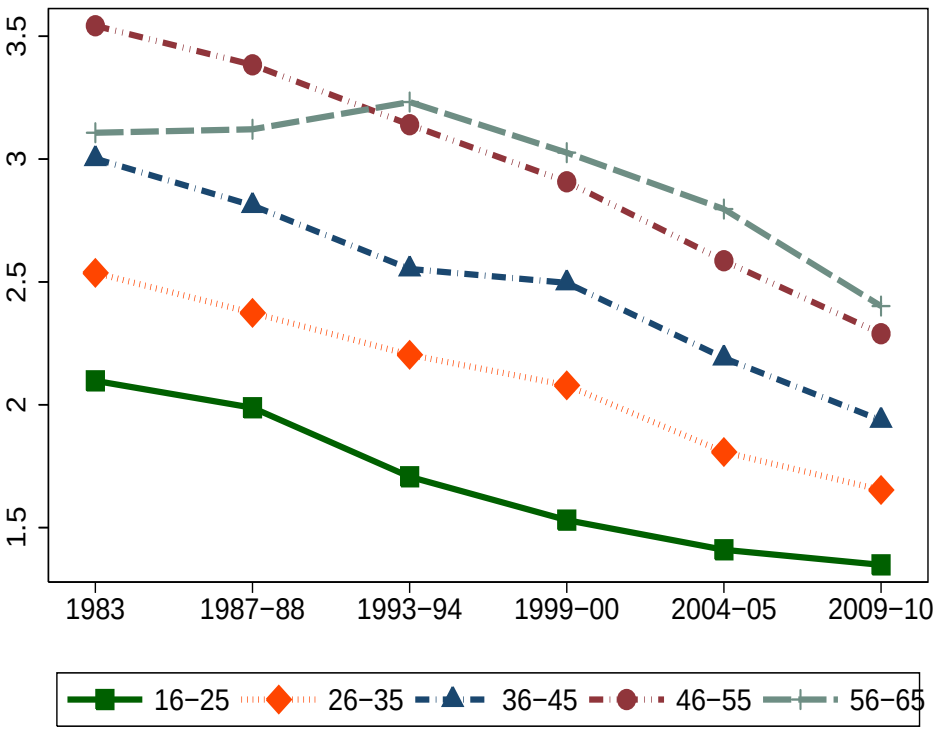
- 1 - not-literate
- 2 - literate, below primary
- 3 - primary
- 4 - middle
- 5 - secondary and above (i.e. higher secondary, diploma or certificate course, graduate and above, postgraduate and above)

Education years and gaps

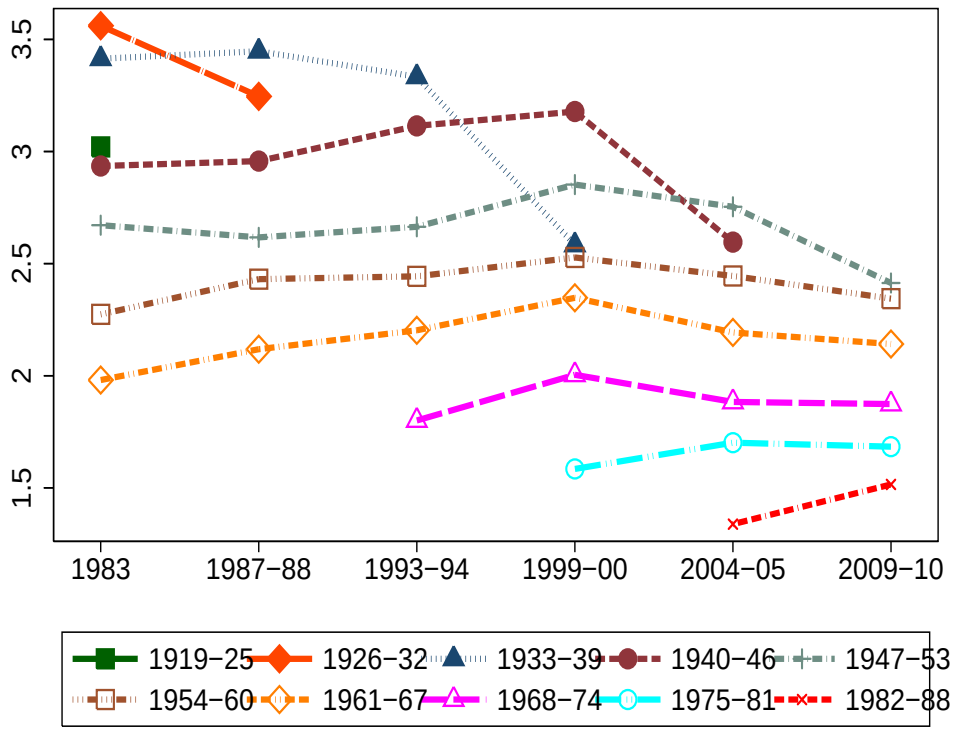
	Average years of education			Relative education gap
	Overall	**Urban**	**Rural**	**Urban/Rural**
1983	3.02	5.83	2.20	2.64***
	(0.01)	(0.03)	(0.01)	(0.02)
1987-88	3.21	6.12	2.43	2.51***
	(0.01)	(0.03)	(0.01)	(0.02)
1993-94	3.86	6.85	2.98	2.30***
	(0.01)	(0.03)	(0.02)	(0.02)
1999-2000	4.36	7.40	3.43	2.16***
	(0.02)	(0.04)	(0.02)	(0.02)
2004-05	4.87	7.66	3.96	1.93***
	(0.02)	(0.04)	(0.02)	(0.01)
2009-10	5.70	8.42	4.72	1.78***
	(0.03)	(0.04)	(0.03)	(0.01)

Education gaps by age and birth

(a) by age groups

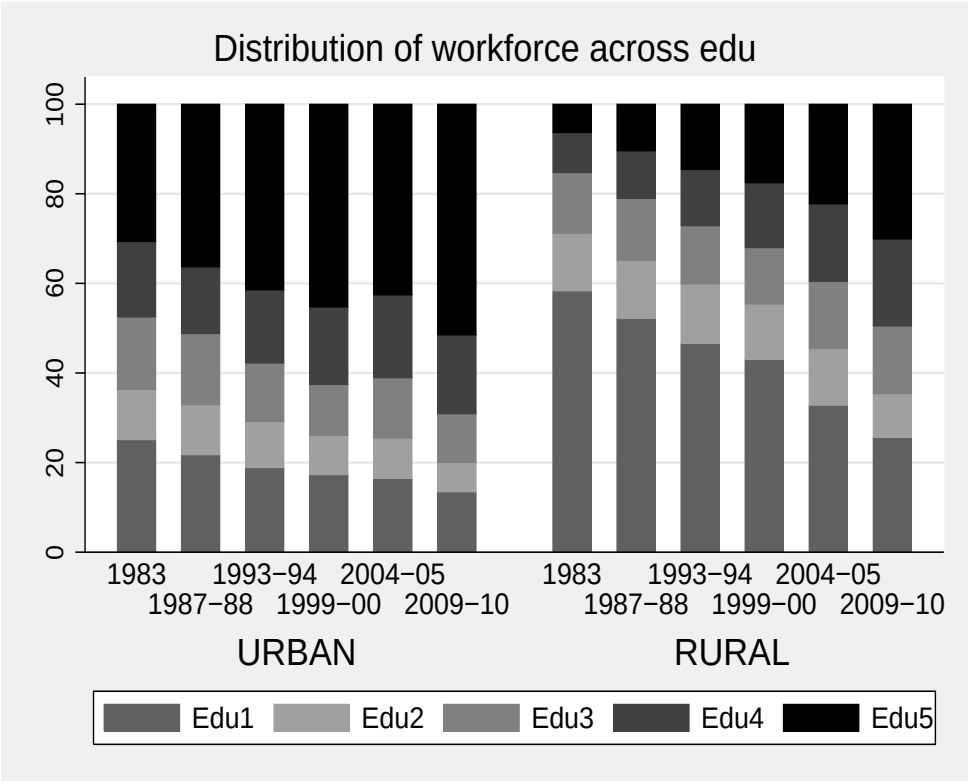


(b) by birth cohorts

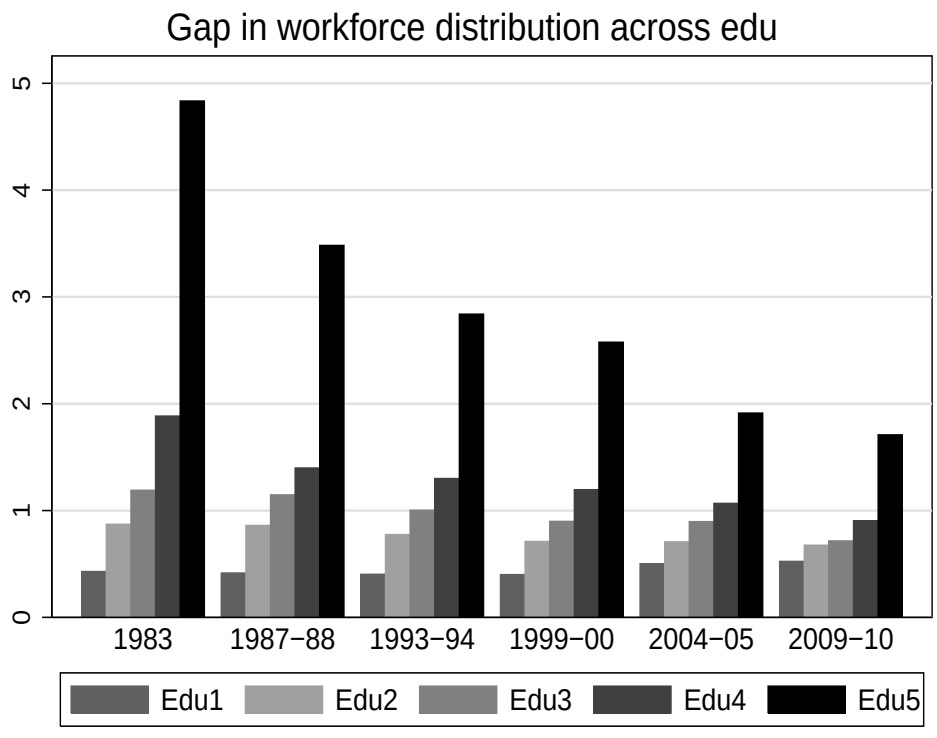


Education distribution

(a)



(b)



Education distribution: Significance

	Marginal effects of rural dummy in education oprobit regressions					
	1983	1987-88	1993-94	1999-2000	2004-05	2009-10
Edu 1	0.352***	0.340***	0.317***	0.303***	0.263***	0.229***
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Edu 2	0.003***	0.010***	0.021***	0.028***	0.037***	0.044***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Edu 3	-0.047***	-0.038***	-0.016***	-0.001*	0.012***	0.031***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)
Edu 4	-0.092***	-0.078***	-0.065***	-0.054***	-0.044***	-0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu 5	-0.216***	-0.234***	-0.257***	-0.276***	-0.268***	-0.284***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)
N	164979	182384	163132	173309	176968	136826

Education convergence: Summary

- strong trend toward education convergence between the urban and rural workforce
- convergence is highly significant
- convergence applies to
  - years of education
  - relative gaps in education categories
  - absolute gaps in most education categories

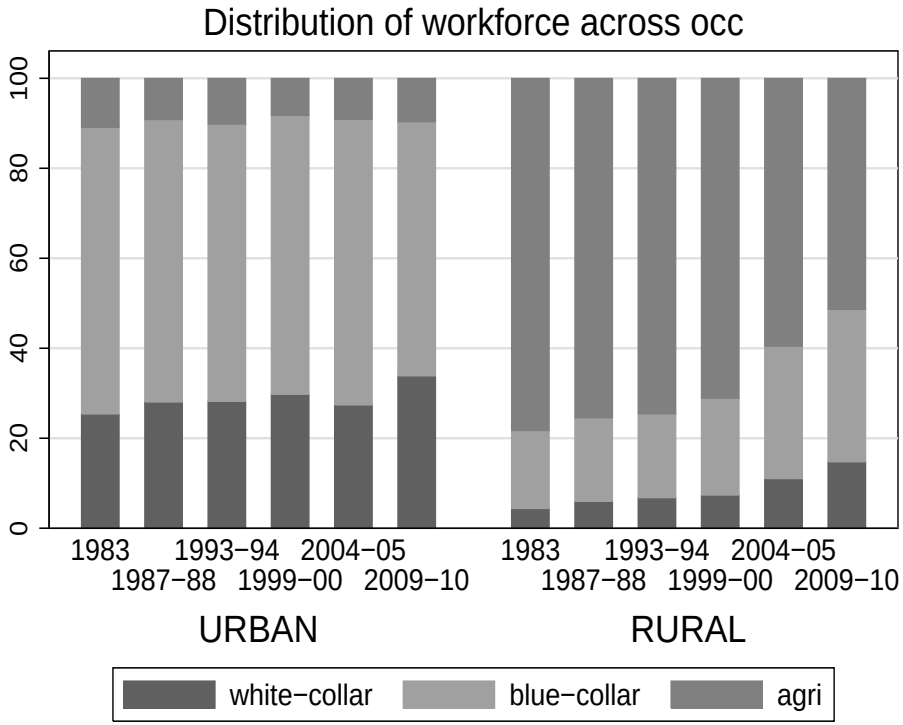
Occupation classifications

Occupation categories (3-digit):

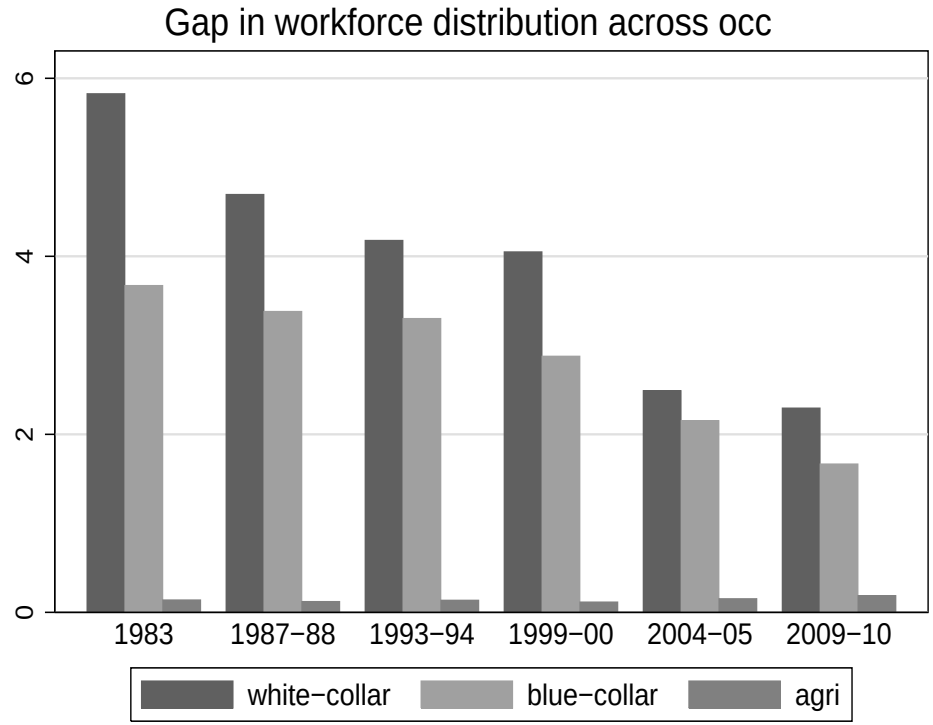
- Occupation 1: 'White collar'
  - professional, technical and related workers
  - administrative, executive and managerial workers
  - clerical and related workers
- Occupation 2: 'Blue collar'
  - sales workers
  - service workers
  - production and related workers, transport equipment operators and laborers
- Occupation 3: Agriculture
  - farmers, fishermen, hunters, loggers and related workers

Occupation distribution: Overall

(a)

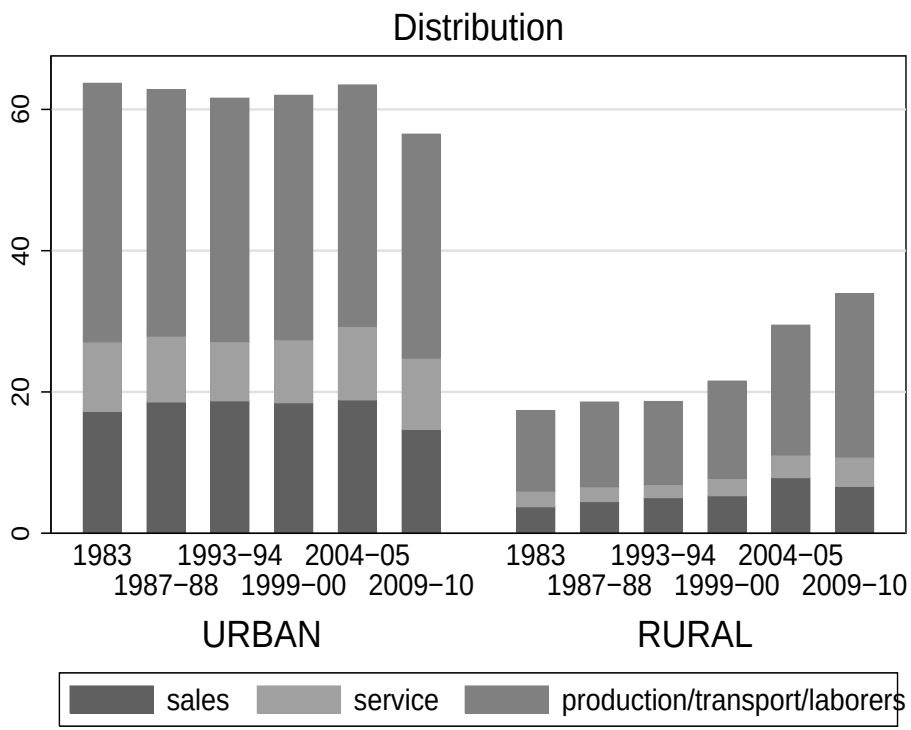


(b)

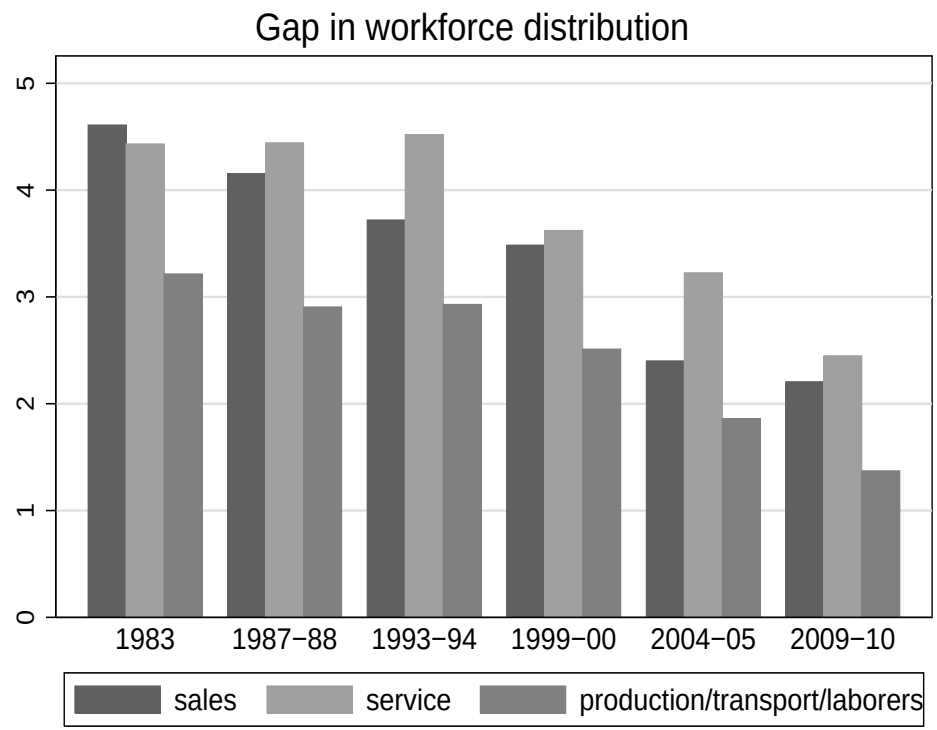


Occupation distribution: Blue-collar jobs

(a)

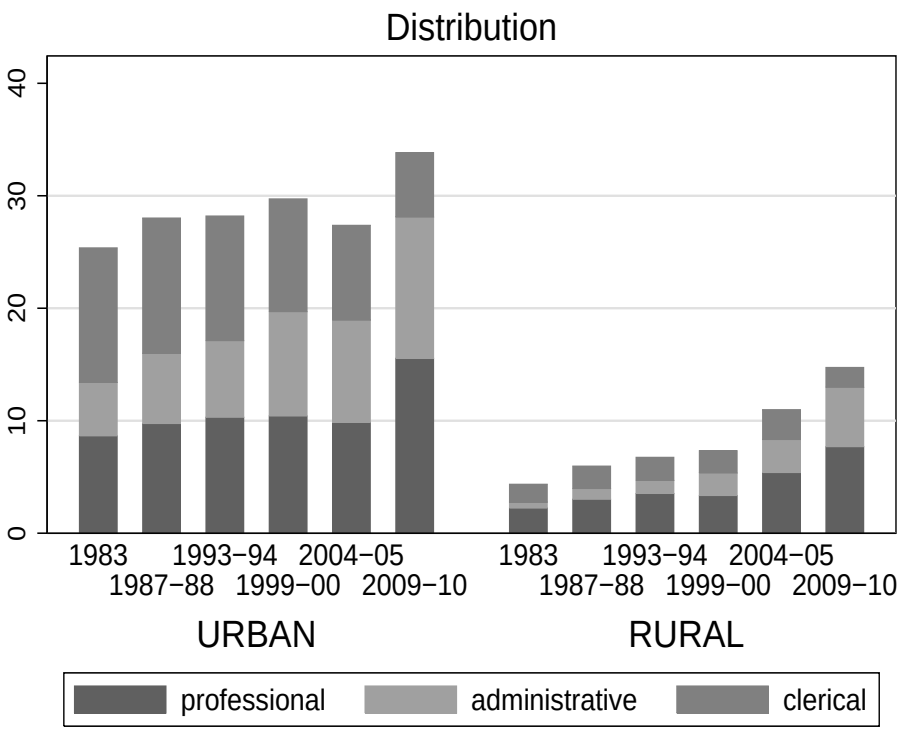


(b)

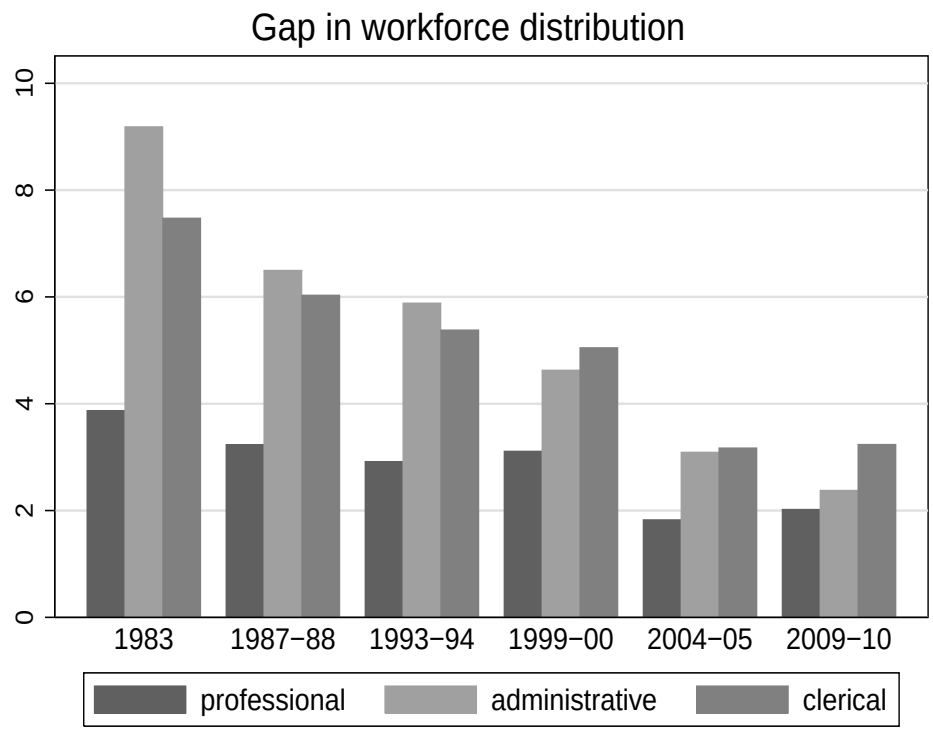


Occupation distribution: White-collar jobs

(a)



(b)



Occupation distribution: Significance

Marginal effects of rural dummy in occupation mprobit regressions						
	1983	1987-88	1993-94	1999-2000	2004-05	2009-10
white-collar	-0.196***	-0.206***	-0.208***	-0.222***	-0.218***	-0.267***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)
blue-collar	-0.479***	-0.453***	-0.453***	-0.434***	-0.400***	-0.318***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
agri	0.675***	0.659***	0.661***	0.655***	0.619***	0.585***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
N	164979	182384	163132	173309	176968	133926

Occupation convergence: Summary

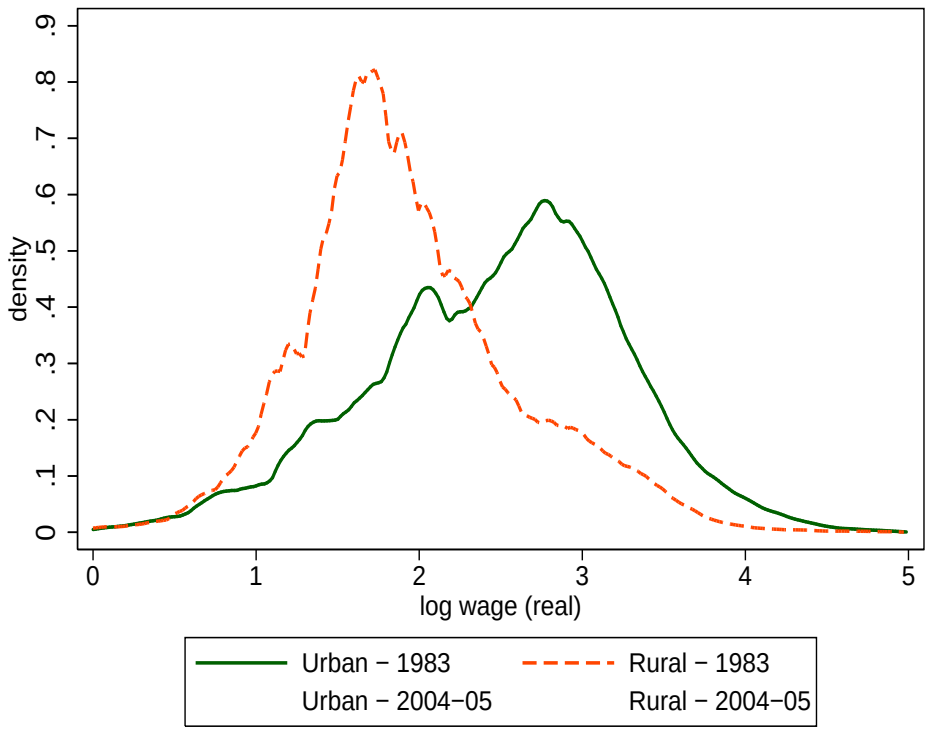
- strong trend toward convergence in occupations between the urban and rural workforce
- convergence is particularly pronounced in blue-collar jobs, which have expanded rapidly in rural areas
  - production/transport/laborers jobs have expanded the most in rural areas
  - these jobs and sales jobs have witnessed the sharpest convergence among all blue-collar occupations
  - this convergence applies to both absolute and relative rural-urban gaps in workforce distribution
- among white-collar jobs the relative convergence was the sharpest in administrative occupations
  - absolute gaps in white-collar jobs widened

Wages

- average real daily wage
- use state-level poverty lines that differ for rural and urban sectors
- accounts for cross-state price differences
- expressed in 1983 rural Maharashtra prices
- split sample into two sub-periods to control for potential effects of The Mahatma Gandhi National Rural Employment Guarantee Act (NREGA)
  - pre-reform period: 1983 to 2004-05
  - post-reform period: 2004-05 to 2009-10

Wage densities and gaps: Pre-NREGA period

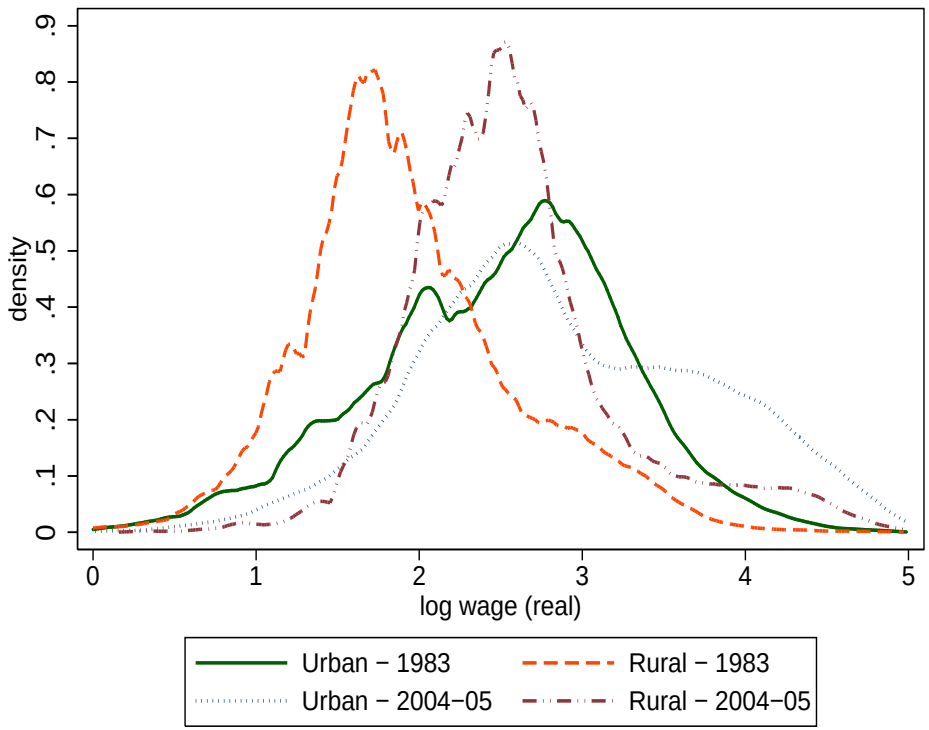
(a) densities



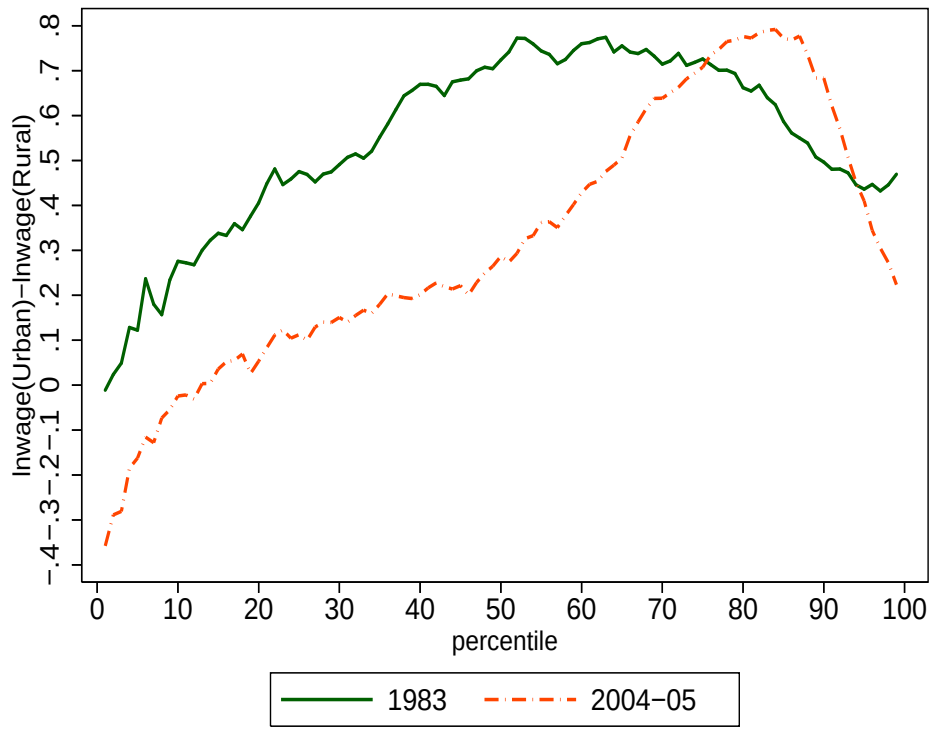
(b) gaps

Wage densities and gaps: Pre-NREGA period

(a) densities

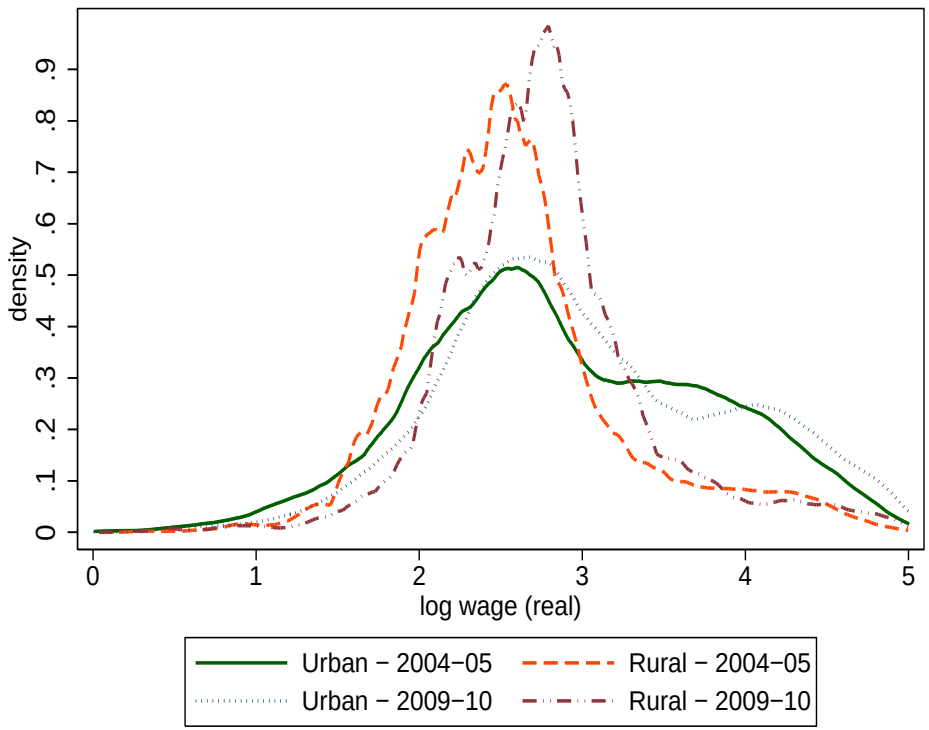


(b) gaps



Wage densities and gaps: Post-NREGA period

(a) densities



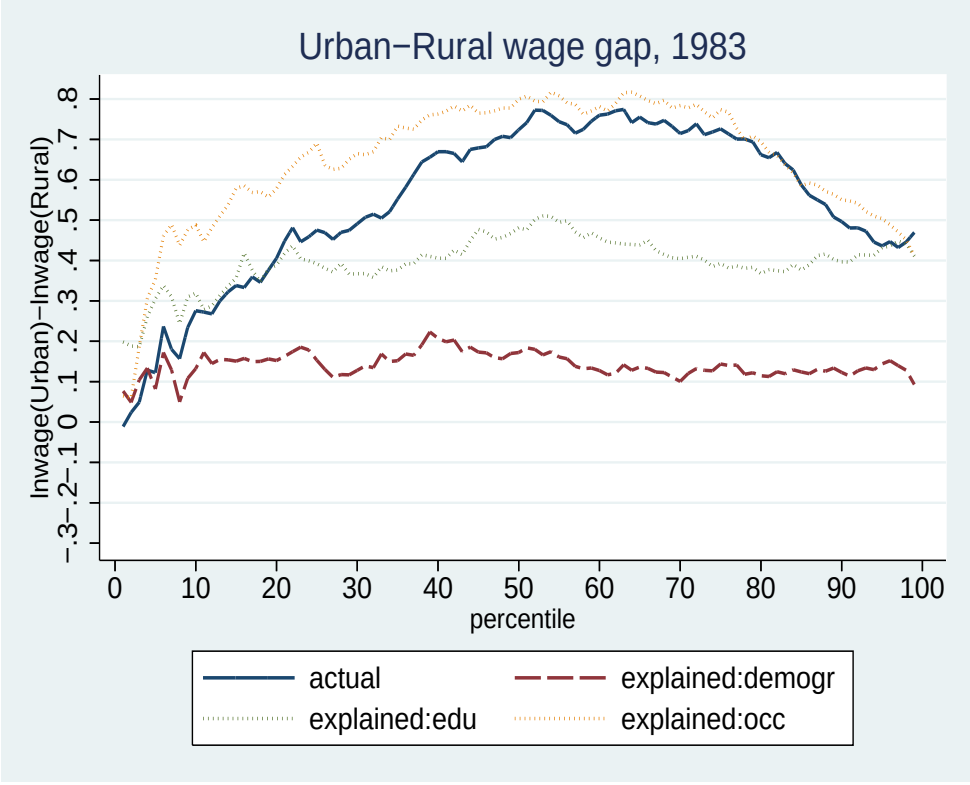
(b) gaps

Wage convergence: Significance

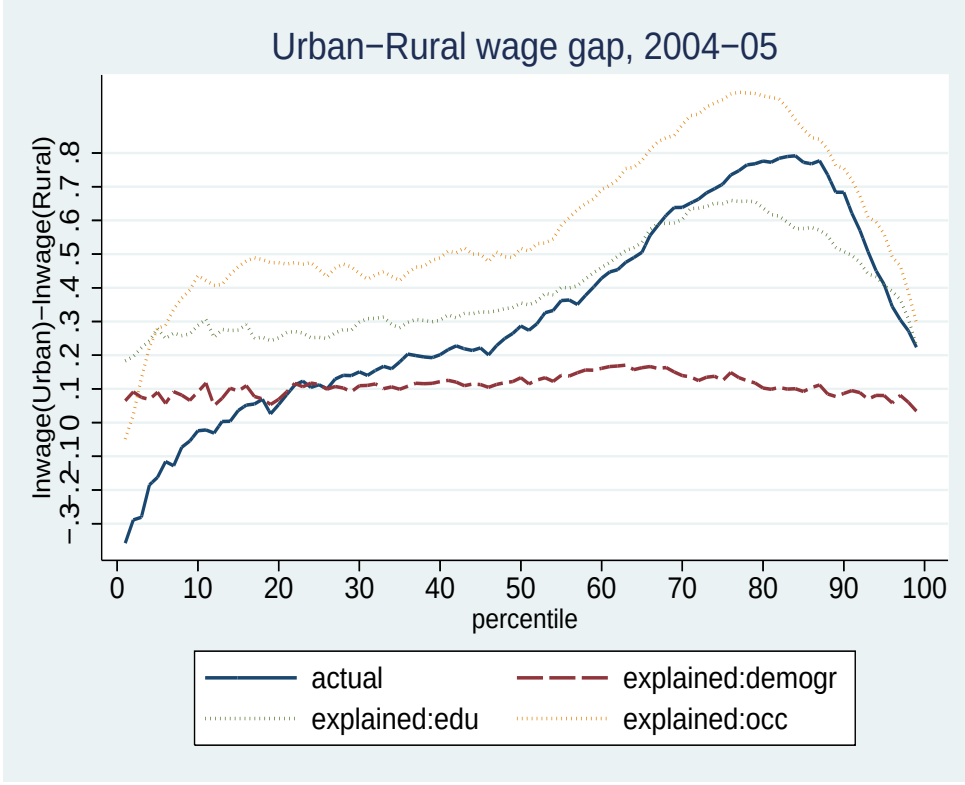
	Rural dummy coefficient in wage RIF and OLS regressions				
	1983	1993-94	1999-2000	2004-05	2009-10
10th quantile	-0.208***	-0.031***	-0.013	0.017	0.087***
	(0.010)	(0.009)	(0.008)	(0.012)	(0.014)
50th quantile	-0.586***	-0.405***	-0.371***	-0.235***	-0.126***
	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)
90th quantile	-0.504***	-0.548***	-0.700***	-0.725***	-1.135***
	(0.014)	(0.017)	(0.024)	(0.028)	(0.038)
mean	-0.509***	-0.394***	-0.414***	-0.303***	-0.270***
	(0.008)	(0.009)	(0.010)	(0.010)	(0.011)
N	63981	63366	67322	64359	57440

Wage gaps decompositions: pre-NREGA

(a) DFL decomposition, 1983

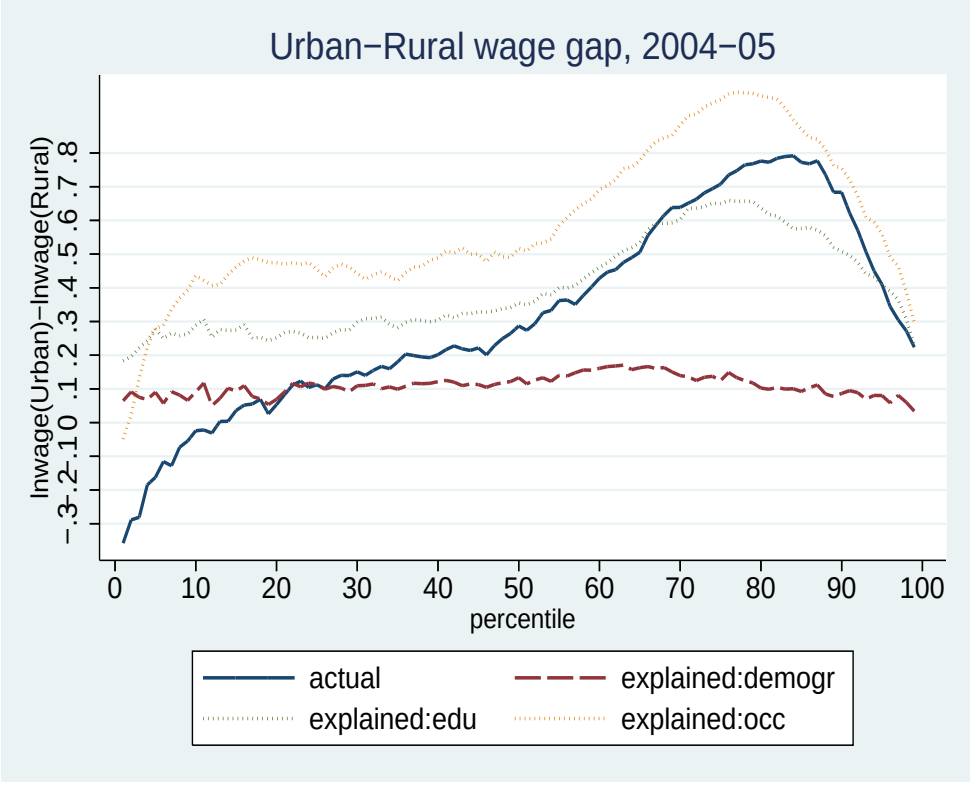


(b) DFL decomposition, 2004-05

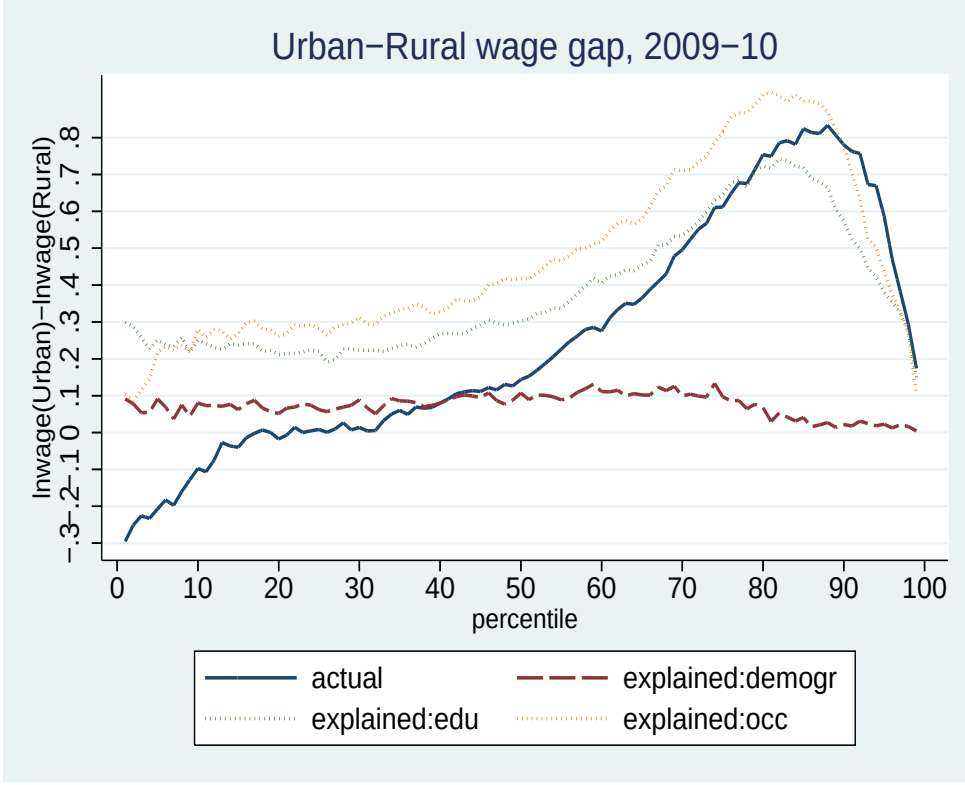


Wage gaps decompositions: post-NREGA

(a) DFL decomposition, 2004-05



(b) DFL decomposition, 2009-10



Wage gaps decompositions: 1983 to 2010

Change in wages 1983 to 2009-10				explained
	(i) measured gap	(ii) explained	(iii) unexplained	(iv) education
10th quantile	-0.371***	-0.096***	-0.275***	-0.059***
	(0.036)	(0.016)	(0.040)	(0.013)
50th quantile	-0.568***	-0.202***	-0.366***	-0.166***
	(0.022)	(0.014)	(0.019)	(0.012)
90th quantile	0.332***	0.229***	0.103***	0.284***
	(0.041)	(0.046)	(0.045)	(0.044)
mean	-0.263***	-0.115***	-0.148***	-0.078***
	(0.019)	(0.014)	(0.017)	(0.012)

Wages: Summary

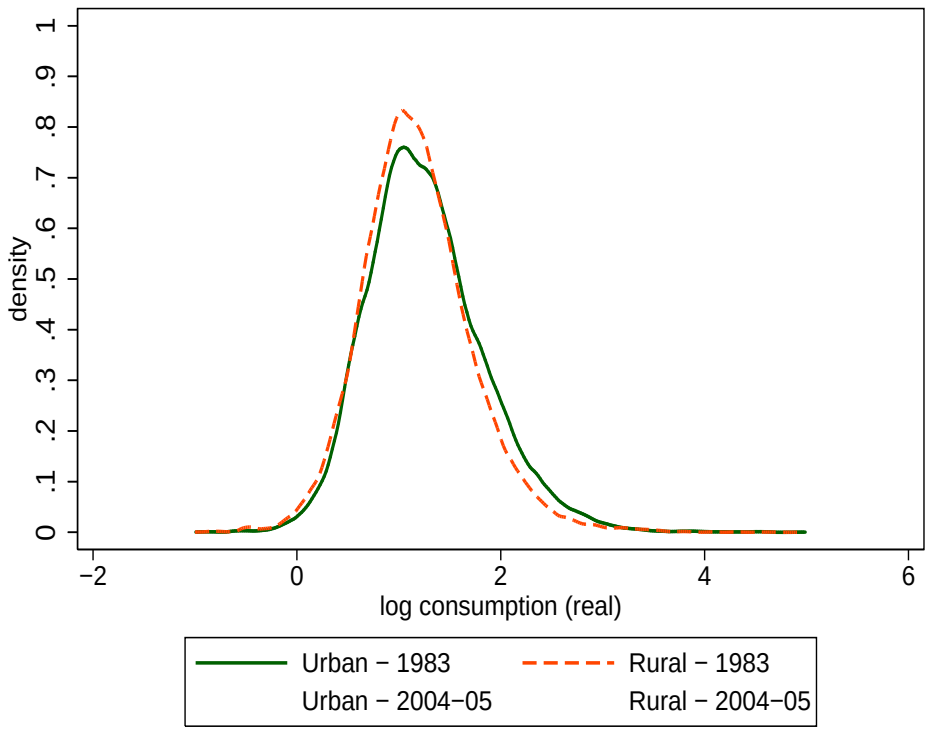
- Sharp convergence in mean and median wages between urban and rural areas
  - unconditional median wage premium declined from 101 percent in 1983 to 11 percent in 2010
- Important distributional changes:
  - rural poor (10th percentile) have gained relative to urban poor
  - rural rich (90th percentile) failed to keep up with urban rich
- Explained component of the gap declined substantially over time:
  - In 1983 almost all wage gap was accounted for by characteristics
  - In 2010 most of the gap is due to changes in the wage structure
- About a 1/2 of the change in the wage gap between 1983 and 2010 is due to changes in individual attributes, in particular education

Consumption

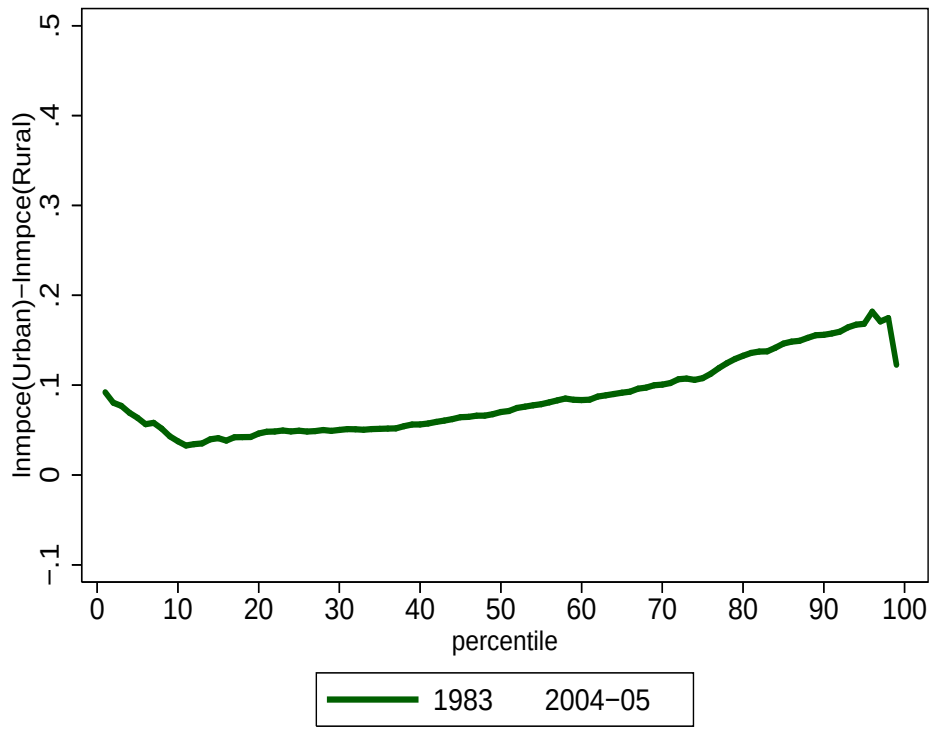
- average real daily consumption expenditures
- same data treatment as for wages
- split sample into two sub-periods to control for potential effects of NREGA
  - pre-reform period: 1983 to 2004-05
  - post-reform period: 2004-05 to 2009-10

Consumption densities and gaps: Pre-NREGA period

(a) densities

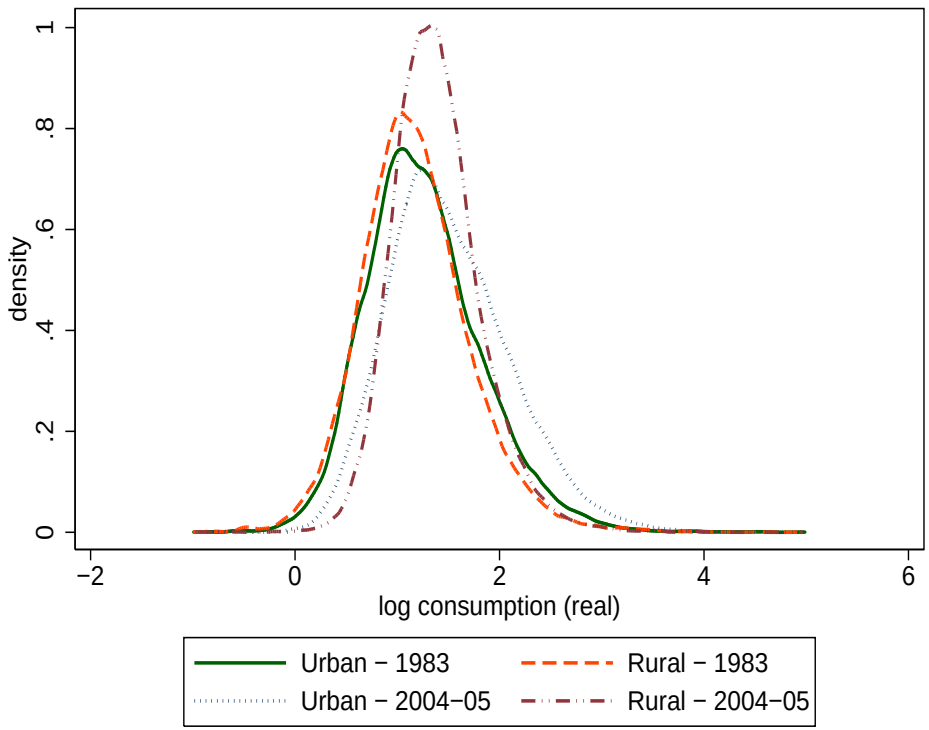


(b) gaps

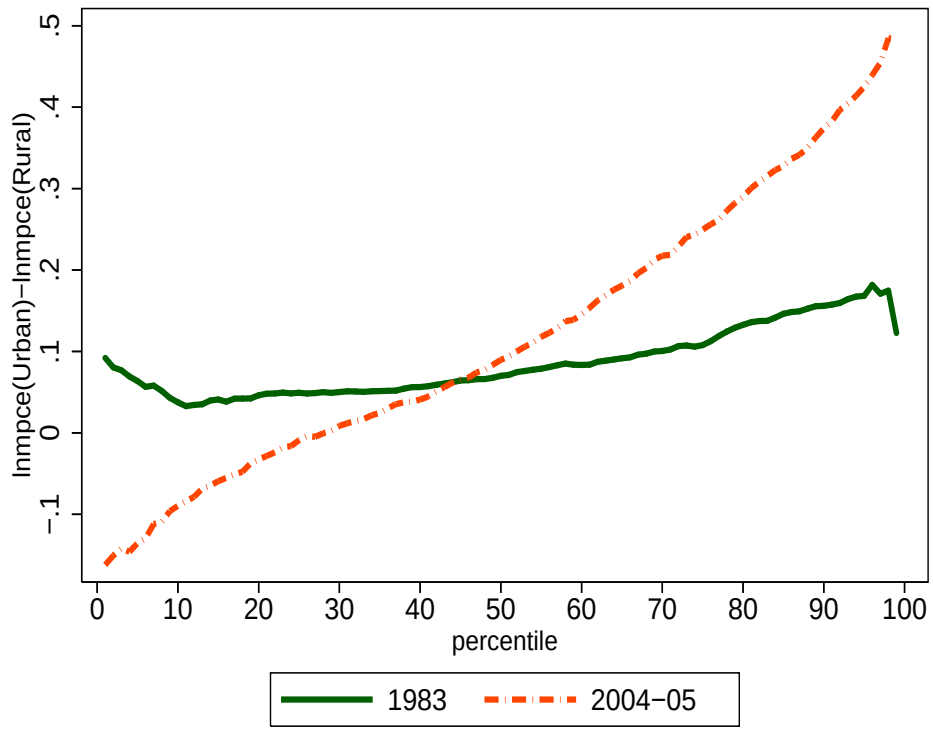


Consumption densities and gaps: Pre-NREGA period

(a) densities

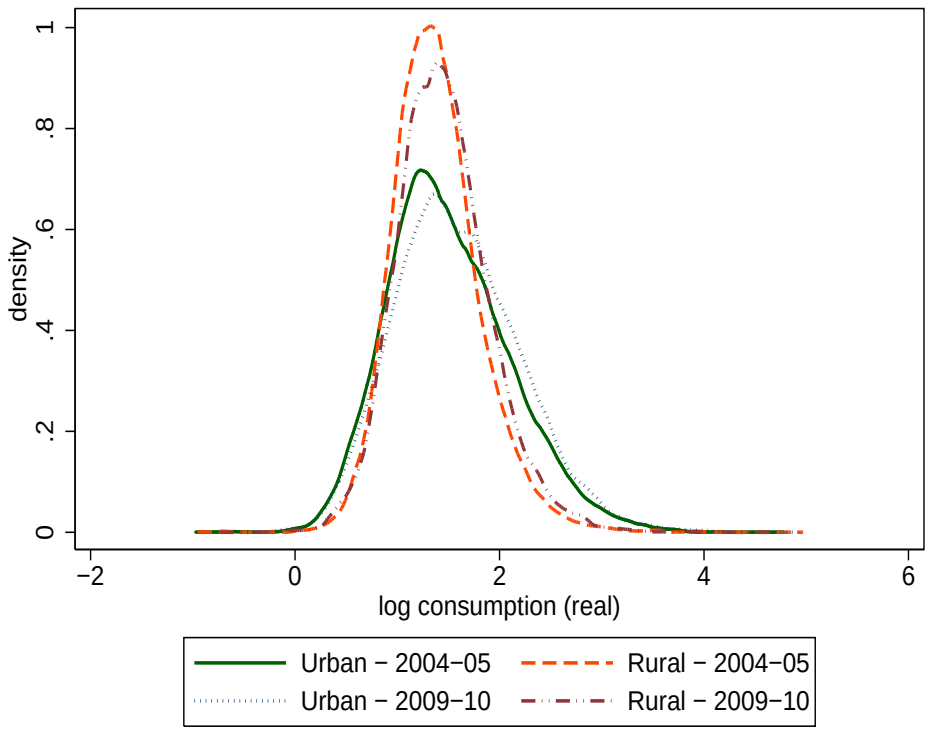


(b) gaps

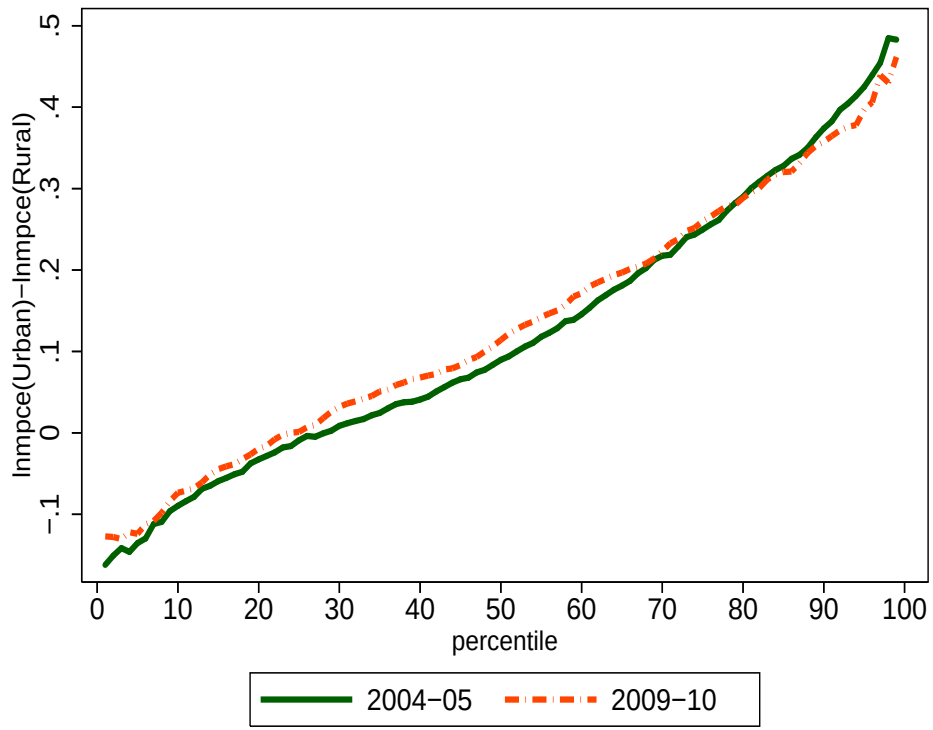


Consumption densities and gaps: Post-NREGA period

(a) densities



(b) gaps

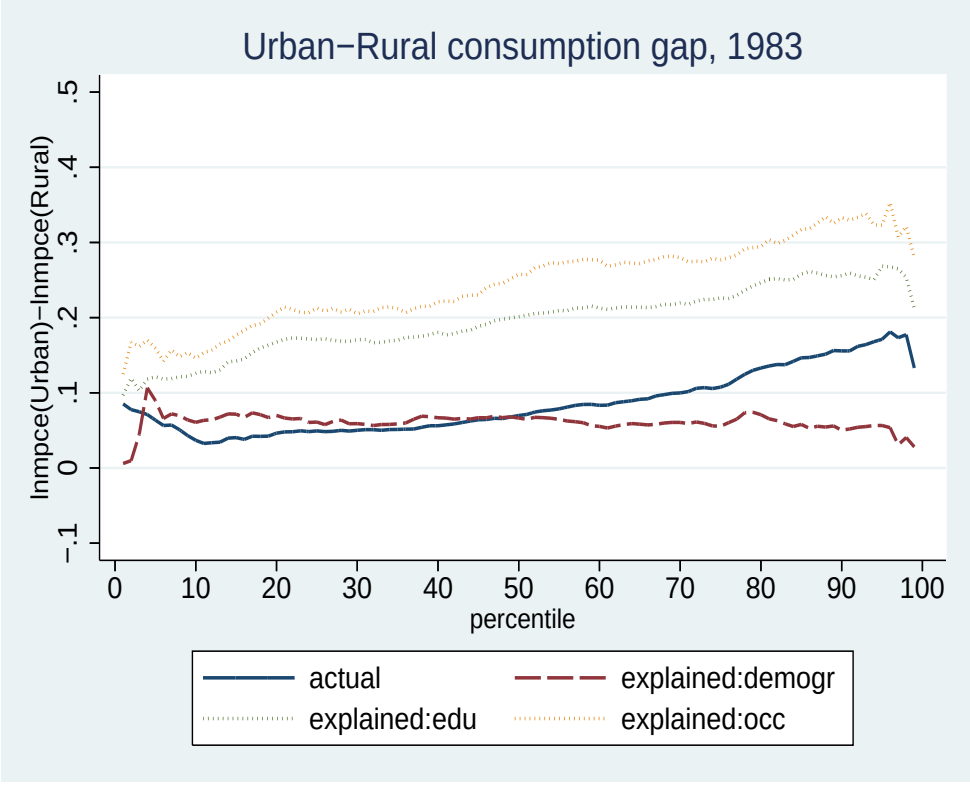


Consumption convergence: Significance

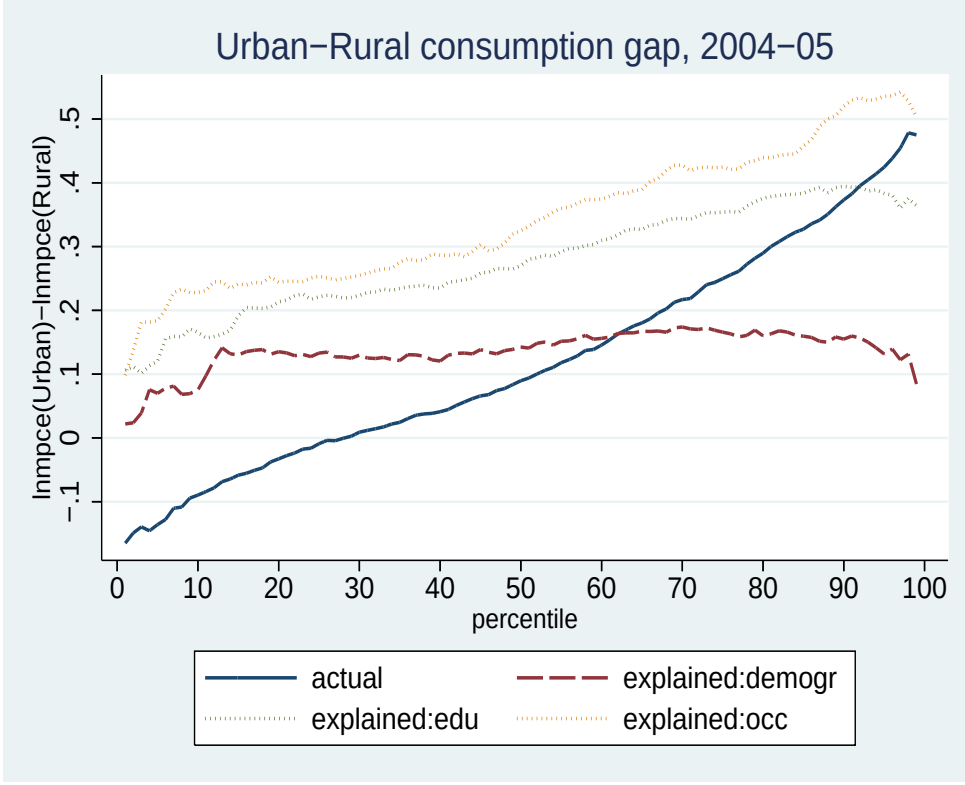
Rural dummy coefficient in consumption RIF and OLS regressions						
	1983	1987-88	1993-94	1999-00	2004-05	2009-10
10th quantile	-0.039***	0.049***	0.009	0.020**	0.080***	0.070***
	(0.008)	(0.008)	(0.007)	(0.008)	(0.009)	(0.011)
50th quantile	-0.066***	-0.039***	-0.088***	-0.096***	-0.072***	-0.091***
	(0.007)	(0.006)	(0.005)	(0.006)	(0.007)	(0.009)
90th quantile	-0.164***	-0.179***	-0.290***	-0.355***	-0.413***	-0.411***
	(0.011)	(0.010)	(0.011)	(0.012)	(0.015)	(0.018)
mean	-0.085***	-0.054***	-0.115***	-0.134***	-0.119***	-0.131***
	(0.006)	(0.005)	(0.005)	(0.006)	(0.007)	(0.008)
N	87335	93701	87098	88620	90838	75123

Consumption gaps decompositions: pre-NREGA

(a) DFL decomposition, 1983

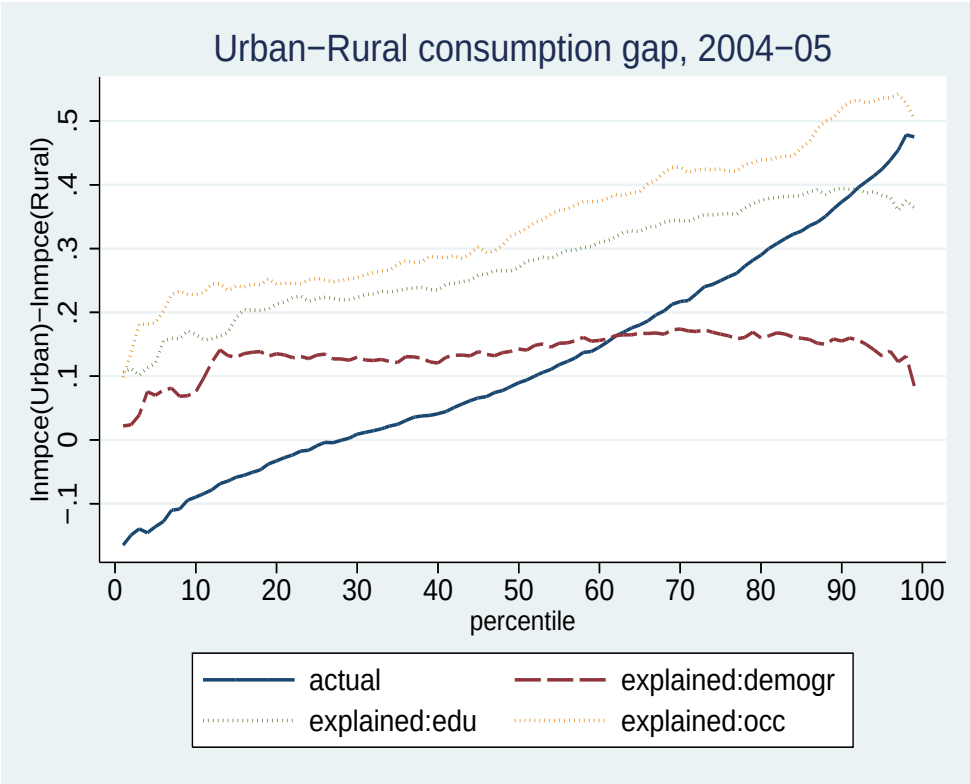


(b) DFL decomposition, 2004-05

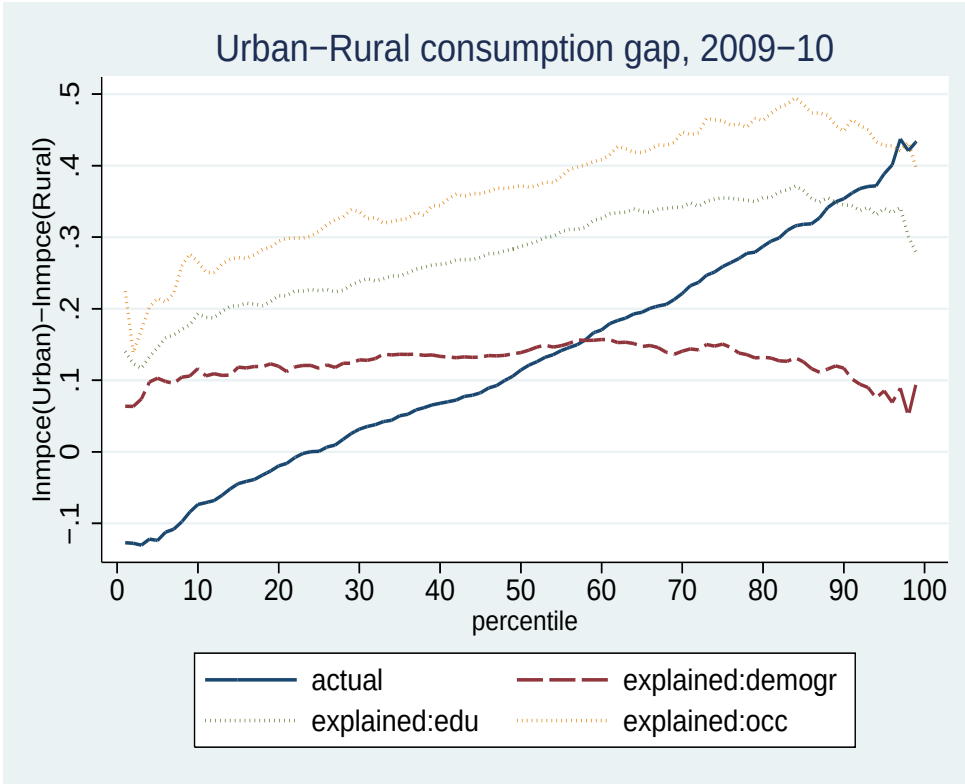


Consumption gaps decompositions: post-NREGA

(a) DFL decomposition, 2004-05



(b) DFL decomposition, 2009-10



Consumption gaps decompositions: 1983 to 2010

Change in consumption 1983 to 2009-10				explained
	(i) measured gap	(ii) explained	(iii) unexplained	(iv) education
10th quantile	-0.111***	0.001	-0.112***	-0.031***
	(0.019)	(0.010)	(0.018)	(0.007)
50th quantile	0.044***	0.015*	0.028**	-0.034***
	(0.017)	(0.010)	(0.014)	(0.007)
90th quantile	0.194***	0.043***	0.151***	-0.030**
	(0.022)	(0.016)	(0.023)	(0.014)
mean	0.043***	0.017**	0.027***	-0.033***
	(0.015)	(0.009)	(0.012)	(0.007)

Consumption: Summary

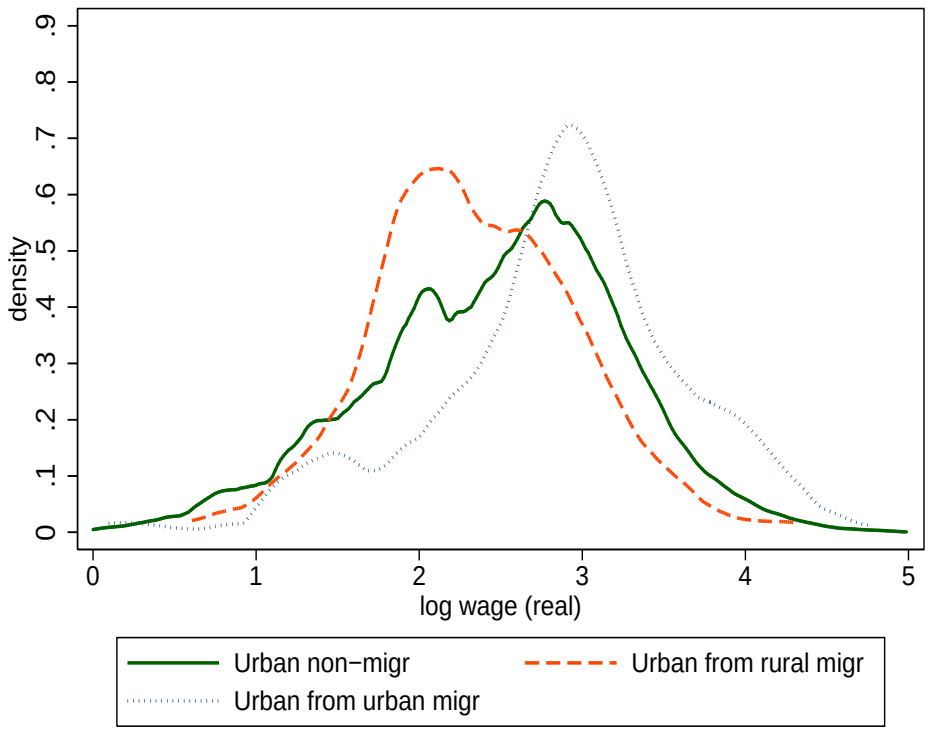
- Muted convergence between urban and rural areas
  - consumption gaps declined for percentiles below the median
  - ... but increased for percentiles above the median
- Important distributional changes:
  - rural poor (up to 30th percentile) have consumed more relative to urban poor in 2009-10
- Explained component of the gap remained small across all rounds

Migration patterns

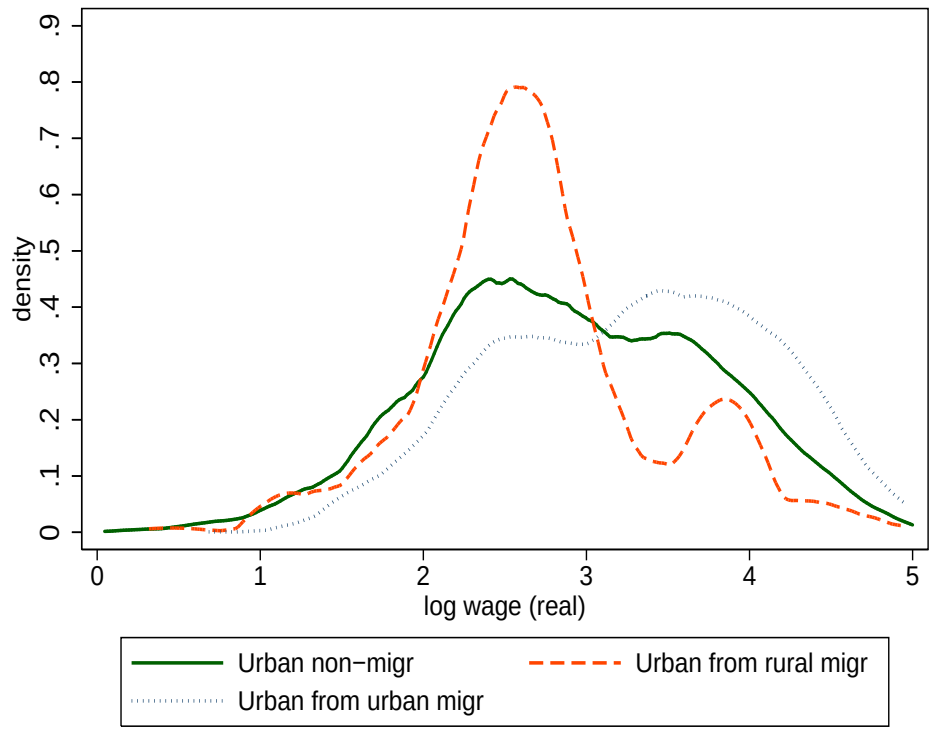
	migrants	rural to urban	for job
	total	urban	rural to urban
1983	0.0122	0.0097	0.7980
	(0.0003)	(0.0004)	(0.0178)
1999-00	0.0137	0.0100	0.7194
	(0.0003)	(0.0004)	(0.0182)
2007-08	0.0138	0.0118	0.8488
	(0.0003)	(0.0005)	(0.0142)

Wages of migrants

(a) 1983



(b) 1999-00



NREGA effects on wages

	mean	median	10th percentile	90th percentile
round	0.000	-0.014***	-0.009***	0.010***
	(0.002)	(0.003)	(0.002)	(0.003)
2009-10 dummy	0.139	0.008	-0.182	0.784*
	(0.333)	(0.392)	(0.310)	(0.409)
rural share	0.540	-0.486	0.149	1.956*
	(0.941)	(1.110)	(0.877)	(1.159)
rural share x	-0.164	-0.115	0.229	-0.870
2009-10 dummy	(0.446)	(0.526)	(0.415)	(0.548)
N	80	80	80	80

NREGA effects on consumption

	mean	median	10th percentile	90th percentile
round	0.007	0.002	-0.004***	0.008***
	(0.005)	(0.001)	(0.001)	(0.001)
2009-10 dummy	0.387	0.025	0.020	0.157
	(0.649)	(0.160)	(0.176)	(0.201)
rural share	0.405	-0.140	-0.833*	0.576
	(1.661)	(0.409)	(0.451)	(0.515)
rural share x	-0.619	-0.093	-0.095	-0.311
2009-10 dummy	(0.872)	(0.215)	(0.237)	(0.270)
N	96	96	96	96

Conclusion

Large structural changes in India during 1983-2010 were associated with:

- Education levels and wages converging between urban and rural sectors
- Convergence in occupation distribution between the two sectors

Trends were the sharpest:

- in almost all education categories
- in blue-collar jobs
- at the bottom of wage distribution
- at the bottom of consumption distribution

Explanations:

- Individual/household characteristics explain some of the convergence
- The effects of NREGA policy are mostly insignificant
- Rural to Urban migration contributed to the convergence