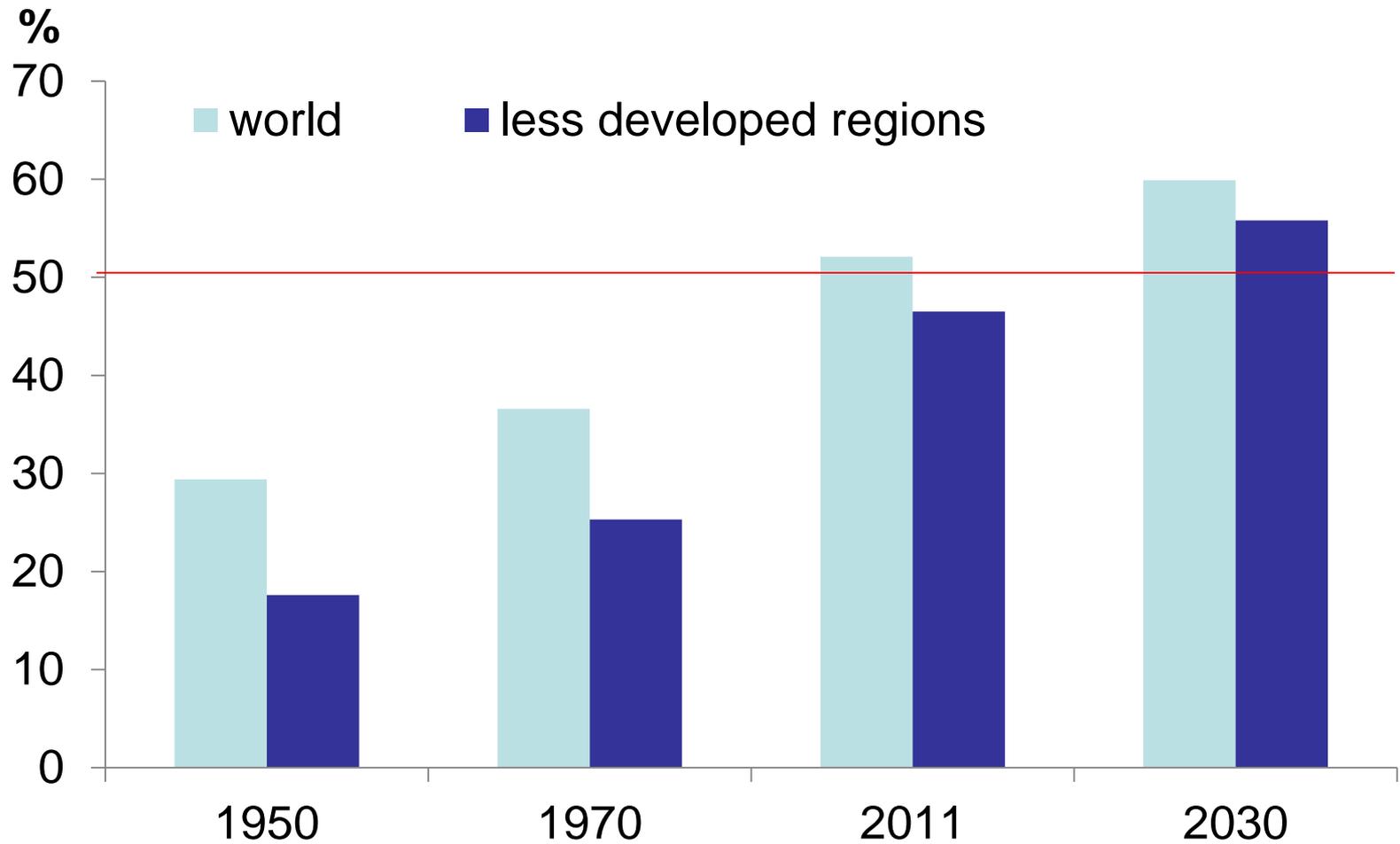


# Poverty reduction during the rural-urban transformation – Do not forget the middle

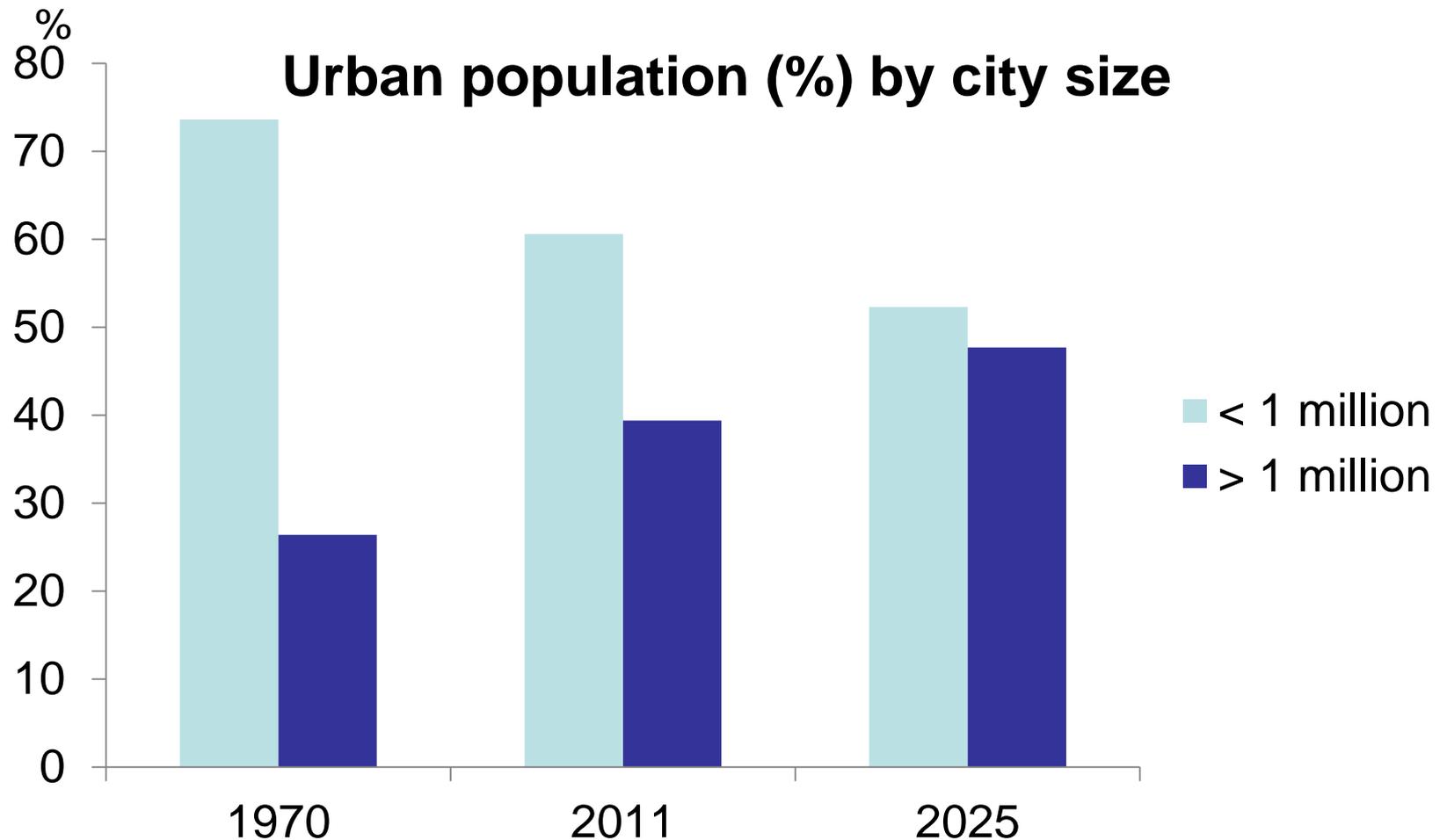
Luc Christiaensen (World Bank), Joachim De Weerd (EDI) and Yasuyuki Todo (University of Tokyo)

Presentation at “Inclusive Growth in Africa” Conference UNU-WIDER,  
Helsinki 20-21 September, 2013

# The world is urbanizing rapidly



# The urban world is concentrating rapidly



Source: UN World Urbanization Prospects, 2012

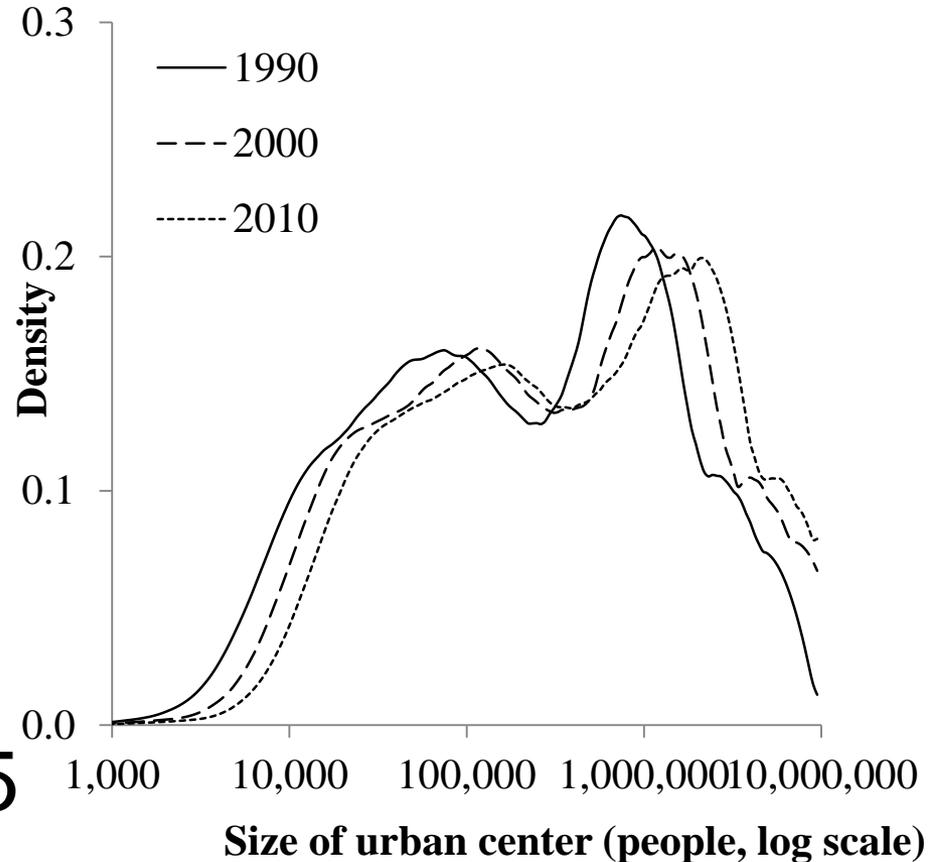
# Also in Africa

## Concentrated (2010)

- 2/5 of Africa's urban population in big cities (> 1 million)
- 2/5 in small towns (<250,000)

## ...and concentrating

- Big cities growing at 6.5% → metropolitization
- Small towns at 2.4%



# Does it matter?

- Henderson (2003), Journal of Economic Growth:
  - no optimal degree of urbanization, but optimal degree of urban concentration (for growth)
  - what @ poverty and shared prosperity
- Question poses itself ...
  - India, China bracing for mega city development
  - Vietnam – secondary towns?
  - Africa – urban concentration already high
- ... and choices will be locked in

# How could it differ?

- Agglomeration economies in the urban area
    - Larger for cities → faster growth/employment?
    - caveats (industrial activity, politics, congestion)
  - Rural non-farm employment → secondary towns (ST)?
    - H-T: cities: higher wages, but higher unemployment (queuing, skill match, lower search costs)
    - Size effect: job areas easier to reach for the poor (lower migration costs, land tenure, circular migration, maintain social/economic ties)  
→ but lower agglomeration economies?
  - Urbanization externalities in the hinterlands
    - Consumption linkages, urban-rural remittances, upward pressures on ag wages, rnf generation
    - Stronger for mega cities, but smaller coverage?
- Ultimately an empirical matter

# Methodology

Population divided in 3 groups

1 = rural agriculture (A)

2 = RNF & ST (middle) (N)

3 = city (U)

		Agriculture	Non-agric
Rural	Rural	1	2
Urban	Secondary town/ peri-urban		
	Metropolitan (>1million)		3

Data:

Case study Kagera, Tanzania

Cross-country experience

Estimated relationships

$$\frac{dP_j}{P_j} = \beta_U \frac{dS_{jU}}{S_{jU}} + \beta_N \frac{dS_{jN}}{S_{jN}} + \gamma \frac{dy_j}{y_j} + v_j + v_t + e_{jt}$$

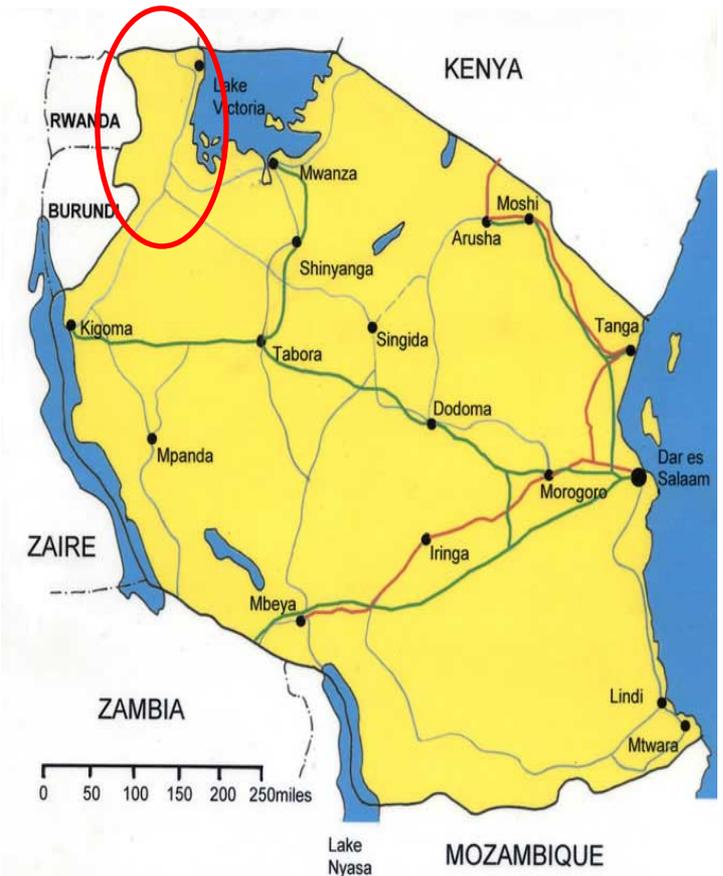
P=decomposable  
poverty measure

Si = share of population  
in i=A,N,U

Y=GDP per capita

# Micro-evidence from Kagera

- 80% population active in agriculture
- Similar development as in rest of country
- Tracking individuals:  
1991/4: 915 rural hhs  
2010: 3,313 ind/hhs
- 3 groups: agric, < 500k, cities (Mwanza, DSM, Kampala), middle



**TANZANIA**

Tools for Self Reliance Partner

SIDO- Small Industries Development Organisation

# Agricultural share in the sample decreased from 82 to 48%

Sectoral shift from 1991/94 to 2010	N	Cons/ae 1991/94
Farm -> farm	1,369	394,393
Farm -> middle	1,106	408,169
Farm -> city	219	451,575
Middle -> farm	210	584,131
Middle -> middle	306	601,901
Middle -> city	91	610,934
Total	3301	440,677

# City migrants saw their incomes grow fastest, ...

Sectoral shift from 1991/94 to 2010	Average cons growth (%)
Farm -> farm	61
Farm -> middle	134
Farm -> city	233
Middle -> farm	48
Middle -> middle	99
Middle -> city	234
Total	1.04

# City migrants saw their incomes grow fastest, but middle contributed most

Sectoral shift from 1991/94 to 2010	N	Average cons growth (%)	Share in total cons growth of sample
Farm -> farm	1,369	61	0.18
Farm -> middle	1,106	134	0.42
Farm -> city	219	233	0.17
Middle -> farm	210	48	0.04
Middle -> middle	306	99	0.11
Middle -> city	91	234	0.08
Total	3301	1.04	1

# Poverty eliminated among city migrants, but middle contributed most to poverty reduction, followed by farm growth

Sectoral shift from 1991/94 to 2010	N	Poverty headcount 1991/94 (%)	Poverty headcount 2010	Net flow out of poverty	Share of jobless panel respondents
Farm -> farm	1,369	0.67	0.44	304	0.03
Farm -> middle	1,106	0.64	0.25	434	0.05
Farm -> city	219	0.53	0.02	113	0.16
Middle -> farm	210	0.36	0.25	22	0.04
Middle -> middle	306	0.29	0.13	48	0.08
Middle -> city	91	0.32	0.05	24	0.16
Total	3301	0.58	0.3	945	0.05

# Summary

- Almost one in two individuals/households moving out of poverty did so by moving out of agriculture into the middle
- Only one out of seven did so by moving to the city, though their consumption rose fastest
- Size effect key, some signs of H-T effect
- Abstraction from interaction effects of groups on each other

# Multivariate analysis: the data

- Poverty data – Povcal (\$1-day, \$2-day)
- Population data
  - $s_U$  = share of people (%) living in cities > 1 million (UN World Urbanization Prospects),
  - $S_A$  = share of people employed (%) in agriculture (FAO)
  - $S_N$  = share of people (%) in intermediate space employed in nonagriculture =  $1 - s_U - S_A$
- GDP Growth/capita – WDI

# Country coverage (1980-2004)

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	Number of countries	Number of survey periods	Percent of survey periods
Sub-Saharan Africa	14	34	16.5
South Asia	3	17	8.3
East Asia and Pacific	6	34	16.5
East Europe and Central Asia	10	31	15.1
Latin America and the Caribbean	13	81	39.3
Middle East and North Africa	5	9	4.4
Total	51	206	100.0

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# The sample

Variable	Mean	S. D.	Min.	Max.
Poverty headcount ratio at \$1 a day (%)	17.13	20.07	0.09	90.26
Poverty headcount ratio at \$2 a day (%)	39.88	27.45	1.16	98.07
Gini coefficient	44.15	9.64	27.16	63.42
Share of rural nonfarm employment (%)	41.86	17.70	6.85	79.02
Share of metropolitan population (%)	19.54	9.93	3.88	37.11
Share of agriculture employment (%)	38.60	21.38	6.60	84.00
Annual percentage change of				
Poverty headcount ratio at \$1 a day	-5.48	29.60	-86.52	82.17
Poverty headcount ratio at \$2 a day	-2.30	12.10	-61.35	38.95
GDP per capita	2.20	3.50	-9.65	13.52
Annual percentage-point change in				
Share of rural nonfarm employment	0.45	0.47	-1.35	2.04
Share of metropolitan population	0.13	0.13	-0.17	0.62
Share of agriculture employment	-0.58	0.45	-2.20	1.10

# Empirical results

$$\frac{dP_j}{P_j} = \beta_U \frac{dS_{jU}}{S_{jU}} + \beta_N \frac{dS_{jN}}{S_{jN}} + \gamma \frac{dy_j}{y_j} + v_j + v_t + e_{jt}$$

# I. Move to the middle larger effect on poverty reduction, controlling for growth

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Change rate of the poverty headcount ratio		
(Poverty line)	\$1	\$2
Change rate of the share of people in the middle	-9.7***	-3.5***
Change rate of the metropolitan share of the population	-5.4	-2.9
GDP growth per capita	-2.3**	-1.4***

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*GDP growth, flood, country fixed effects and time dummies as controls*

# Metropolitization less poverty reducing

	Change rate pov gap		Quadratic specification		Metropolis (750k)	
	(Poverty line)	\$1	\$2	\$1	\$2	\$2
Change rate of the share of people in the middle		<b>-13.67***</b>	<b>-5.827***</b>			
Change rate squared						
Change rate of the metropolitan share of the population		<b>-9.008</b>	<b>-4.484</b>			
Change rate squared						
Per capita GDP Growth rate		<b>-2.346</b>	<b>-1.616**</b>			

*Flood, country fixed effects and time dummies as controls*

# Metropolitization less poverty reducing

	Change rate pov gap		Quadratic specification		Metropolis (750k)	
(Poverty line)	\$1	\$2	\$1	\$2	\$1	\$2
Change rate of the share of people in the middle	<b>-13.67***</b>	<b>-5.827***</b>	<b>-13.08***</b>	<b>-4.816***</b>		
Change rate squared			<b>1.896***</b>	<b>0.867***</b>		
Change rate of the metropolitan share of the population	-9.008	-4.484	<b>-2.134</b>	<b>-2.874</b>		
Change rate squared			<b>-2.101</b>	<b>-0.396</b>		
Per capita GDP Growth rate	-2.346	<b>-1.616**</b>	<b>-2.516**</b>	<b>-1.560***</b>		

*Flood, country fixed effects and time dummies as controls*

# Metropolitization less poverty reducing

	Change rate pov gap		Quadratic specification		Metropolis (750k)	
(Poverty line)	\$1	\$2	\$1	\$2	\$1	\$2
Change rate of the share of people in the middle	<b>-13.67***</b>	<b>-5.827***</b>	<b>-13.08***</b>	<b>-4.816***</b>	<b>-9.370***</b>	<b>-3.188***</b>
Change rate squared			<b>1.896***</b>	<b>0.867***</b>		
Change rate of the metropolitan share of the population	-9.008	-4.484	-2.134	-2.874	<b>-6.124***</b>	<b>-2.070**</b>
Change rate squared			-2.101	-0.396		
Per capita GDP Growth rate	-2.346	<b>-1.616**</b>	<b>-2.516**</b>	<b>-1.560***</b>	<b>-2.238**</b>	<b>-1.411***</b>

*Flood, country fixed effects and time dummies as controls*

# That metropolitization is less poverty reducing is robust to other factors affecting urban primacy

	Include (lagged) pop growth and (lagged) change in democracy		+(lagged) change road density, years of schooling, drought		Initial poverty
(Poverty line)	\$1	\$2	\$1	\$2	\$1
Change rate of the share of people in the middle	-9.919***	-3.525***	-21.23***	-6.884***	-8.906***
Change rate of the metropolitan share of the population	-0.460	-2.345	-7.850	-4.502	-5.327
Per capita GDP Growth rate	-2.014*	-1.533***	2.498	0.103	-2.099**
#obs	199	199	77	77	206

*Flood, country fixed effects and time dummies as controls*

# Results robust against

## **Alternative measures**

- Poverty gap – depth of shortfall
- Alternative metropolis (>750K in 2007)

## **Functional relationship**

- Non-linear relationship

## **Metropolitization as conduit of**

- Poverty
- Connectedness, democracy, population growth

# I. Move to the middle larger effect on poverty reduction, controlling for growth

Change rate of the poverty headcount ratio (Poverty line)	Controls for pop growth & democracy			
	\$1	\$2	\$1	\$2
Change rate of the share of people in the middle	-9.7***	-3.5***	-9.9***	-3.5***
Change rate of the metropolitan share of the population	-5.4	-2.9	-0.46	-2.3
GDP growth per capita	-2.3**	-1.4***	-2.0*	-1.5***

*GDP growth, flood, country fixed effects and time dummies as controls*

## II. Size effect or H-T

$$\frac{dP_j}{P_j} = \beta_U \frac{S_{jU}}{S_{jU} + S_{jN}} \frac{dS_{jU}}{S_{jU}} + \beta_N \frac{S_{jN}}{S_{jU} + S_{jN}} \frac{dS_{jN}}{S_{jN}} + \gamma \frac{dy_j}{y_j} + v_j + v_t + e_{jt}$$

If  $\beta_U = \beta_N \rightarrow$  the effect is largely driven by the size effect;

if  $\beta_U \neq \beta_N \rightarrow$  H-T effects are possible

# Size effects likely important

Change rate of the population headcount (%)	Poverty head count	Poverty gap	Dynamic	City of 750 k (cut-off) share weighted	City of 750 k (cut-off) Not share weighted
(Poverty line)	\$1	\$1	\$1	\$1	\$1
change rate in share of middle (share weighted)	-12.91**	-17.47**	-11.80**	-12.62**	-9.370***
change rate in share of urban (share weighted)	-11.75	-12.86	-12.13	-15.00**	-6.124***
growth in GDP per capita	-2.206**	-2.073	-1.951*	-2.175**	-2.238**

*Flood, country fixed effects and time dummies as controls*

### III. Accounting for differential effects on growth, migration to middle more poverty reducing

Change rate of the population headcount (%)	Poverty head count		Poverty head count	
	\$1	\$2	\$1	\$1
(Poverty line)				
change rate in share of middle (share weighted)	-12.91**	-4.42***	-14.30***	-5.28***
change rate in share of urban (share weighted)	-11.75	-6.3	-5.05	-2.13
GDP growth rate	-2.206**	-1.37***		

*Flood, country fixed effects and time dummies as controls*

# Inequality associated with agglomeration in mega-cities

Gini coefficient	First Difference	OLS	OLS
Share of people in the middle	0.210	-0.246**	-0.080*
Metropolitan share of the population	0.536	0.513**	0.245**
GDP per capita	1.289	3.151**	2.175**
GDP per capita squared	-0.068	-0.218**	-0.151**
Observations	230	232	232
R-squared	0.152	0.596	0.790
Year dummies	Yes	Yes	Yes
Regional dummies	No	No	Yes

# Metropolitan agglomeration associated with faster growth

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GDP Growth /capita (2SLS)

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Change rate of share people in the middle (instrumented by own lags)	0.630*
Change rate of the metropolitan share of the population (instrumented by own lags)	1.072**
Initial GDP per capita (instrumented by own lags)	-0.373
Year dummies	Yes
Country dummies	Yes
Observations	209

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# Concluding remarks

- Nature of urbanization affects pace of poverty reduction
- Migration out of agriculture into the middle is associated with faster poverty reduction than agglomeration in mega-cities.
  - Metropolitization associated with faster growth & higher inequality
  - RNFE and secondary town development yield possibly slower growth, but less inequality and more poverty reduction
  - Size effect seems especially important, i.e. the ability of the poor to connect to opportunities nearby
- Findings bear on appropriate balance of public investment across & policy orientation to the rural-urban space

Thank you!

# References

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