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Demographic Trends, Economic Growth and Distribution Dynamics

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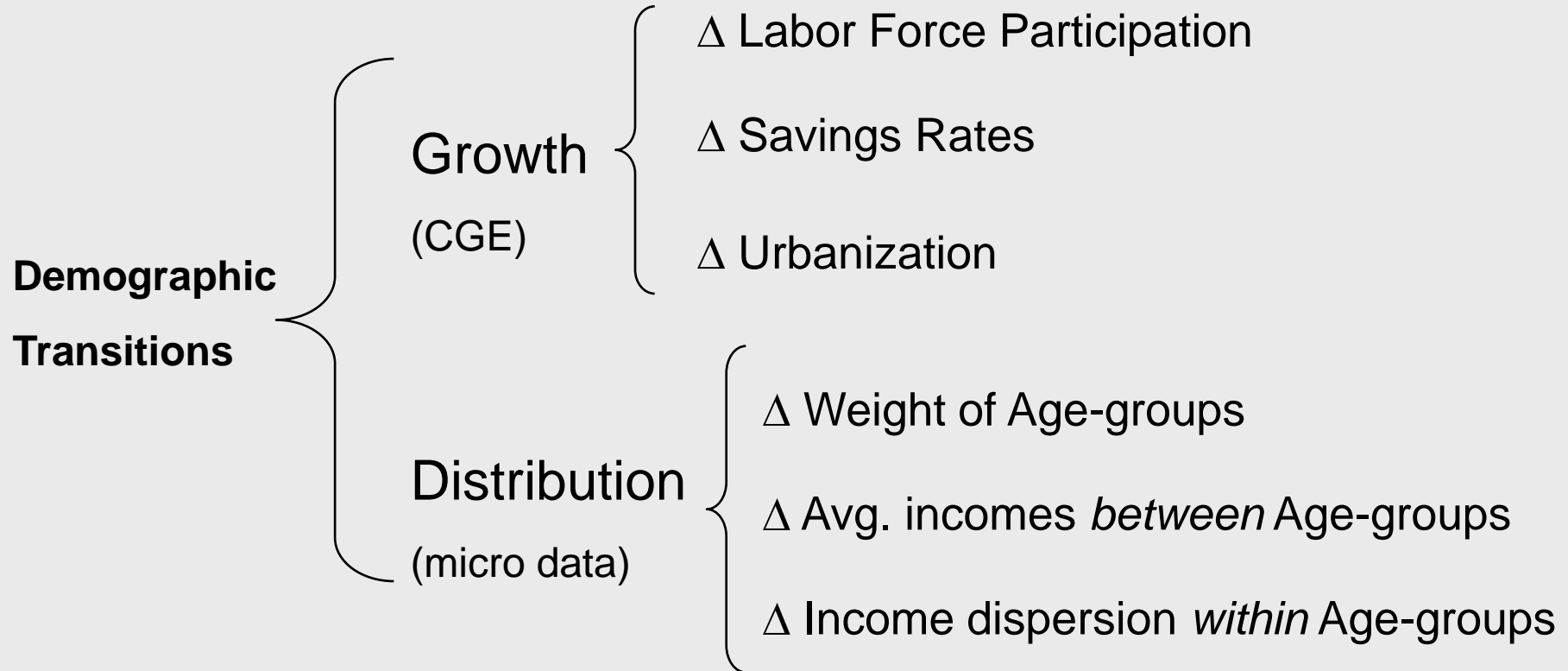
Research Topic and Hypotheses

Research topic: Economic impacts of a slower demographic transition in developing countries.

Two hypotheses: Such an exogenous slow down may:

1. change income inequality and have an impact on poverty reduction;
2. strain education systems, making Millennium Development Goals more difficult to achieve

Conceptual Framework and Methods

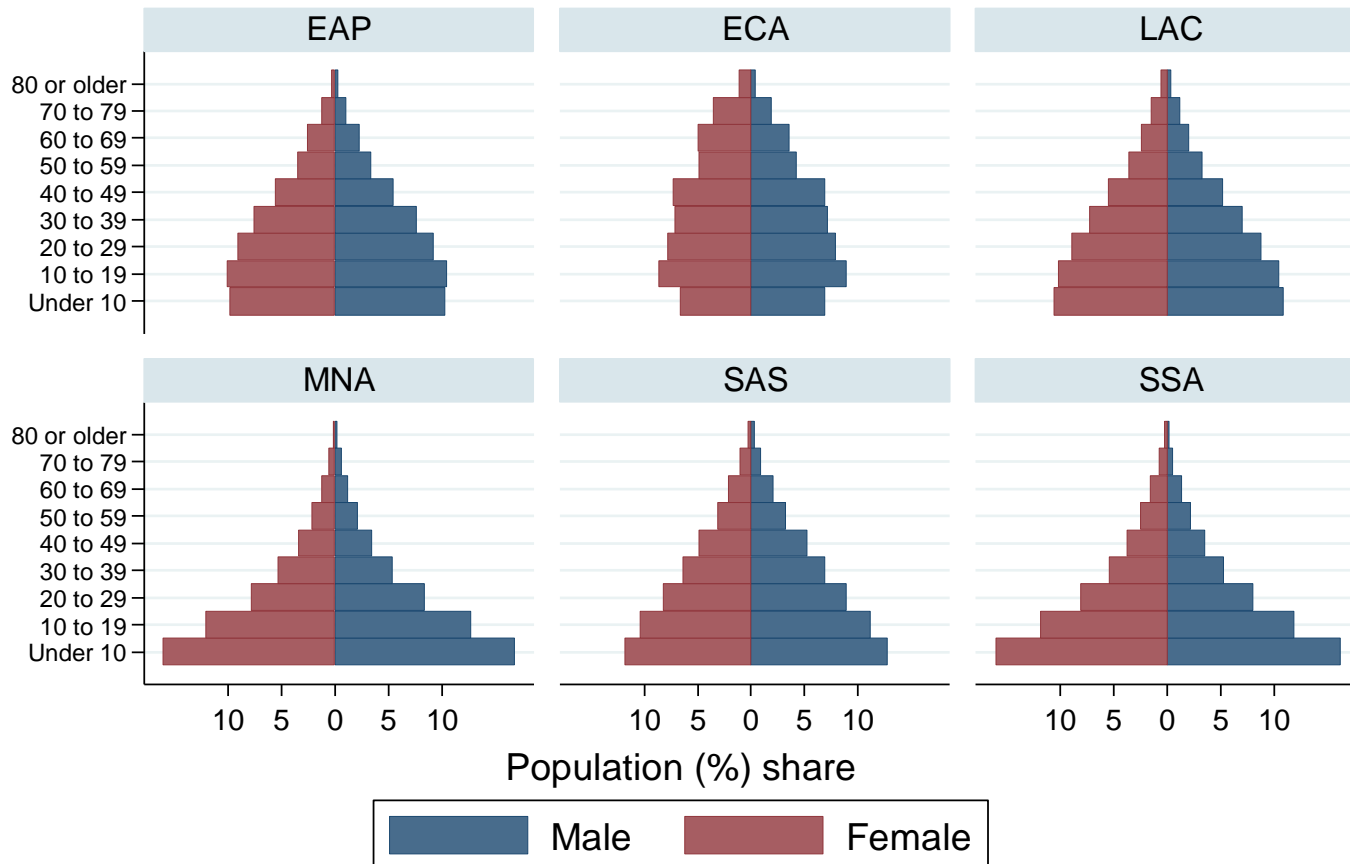


$$I_{t+1} - I_t = \Delta I = I(\Delta v, \Delta \mu, \Delta I^g)$$

Age-Sex Population Pyramids

WB Regions, year 2000

Proportion of the Population by Age and Gender, 2000

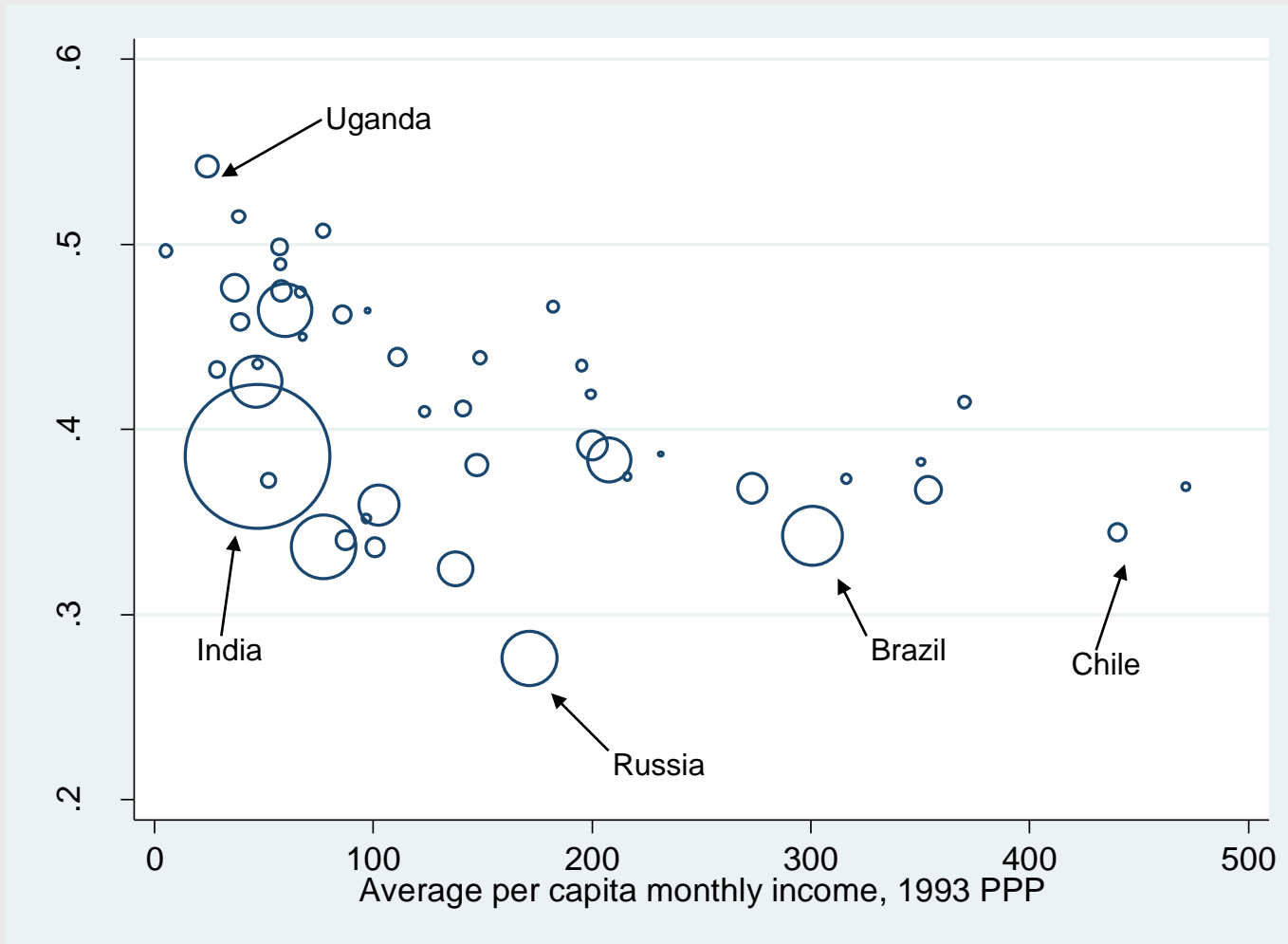


Graphs by wbregion

Regional Poverty and Inequality Rates

Region	Gini Coefficient	Poverty Headcount (\$1/day)
EAP	34.2	7.6%
ECA	29.5	0.76%
LAC	52.8	7.6%
SAS	31.4	35.1%
SSA	40.2	57.4%

Average Incomes and Dependency Rate Correlation Year 2000



Within Group Inequality (Young: <45, Old:>45)

India: Gini coefficient=32.0

Cohort	Gini	Population Share	Mean Income
Young	31.4	81.2%	45.9
Old	33.6	18.8%	53.1

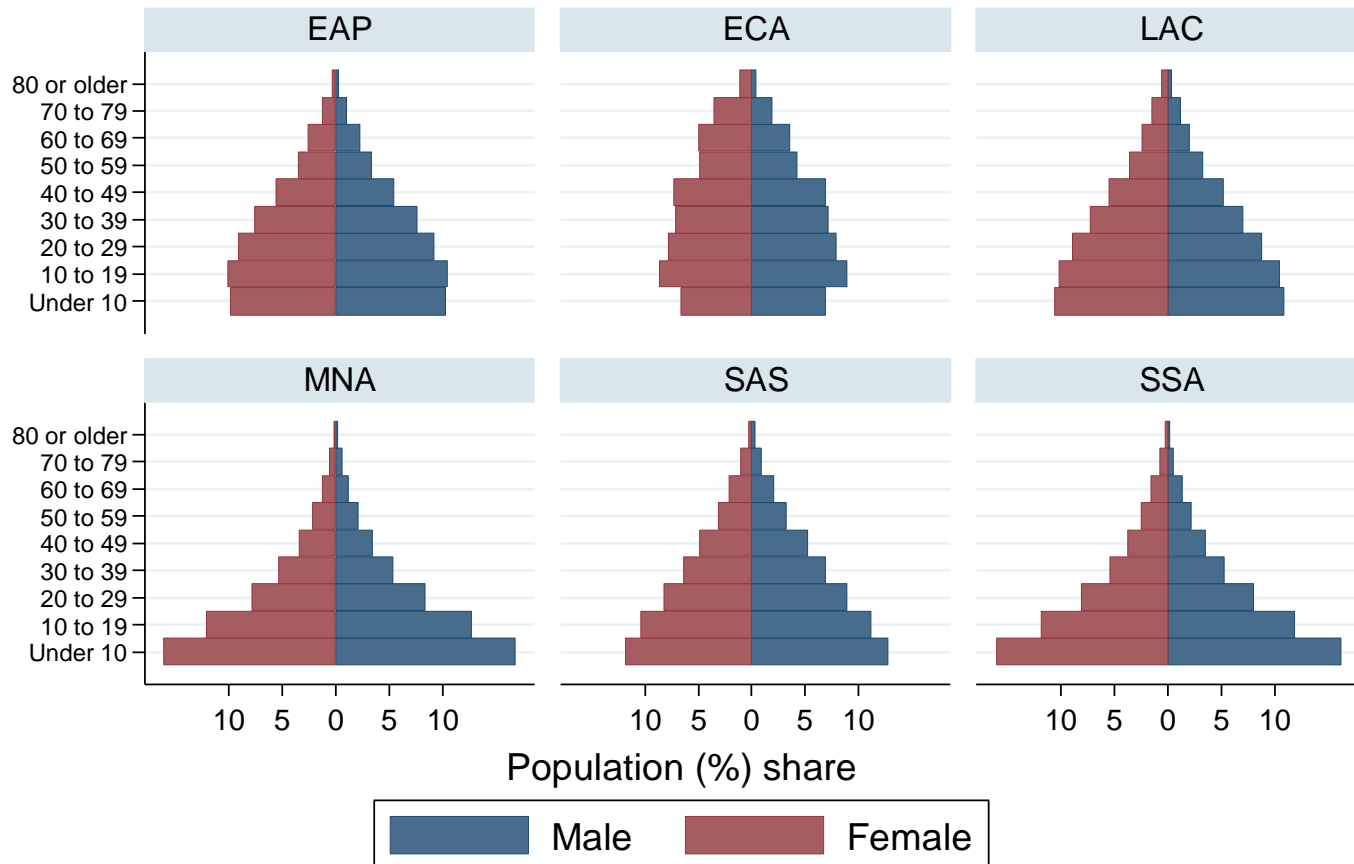
Uruguay: Gini coefficient=44.9

Cohort	Gini	Population Share	Mean Income
Young	45.8	63.3%	403.1
Old	40.8	36.7%	591.2

Age-Sex Population Pyramids

WB Regions, year 2000 (again)

Proportion of the Population by Age and Gender, 2000

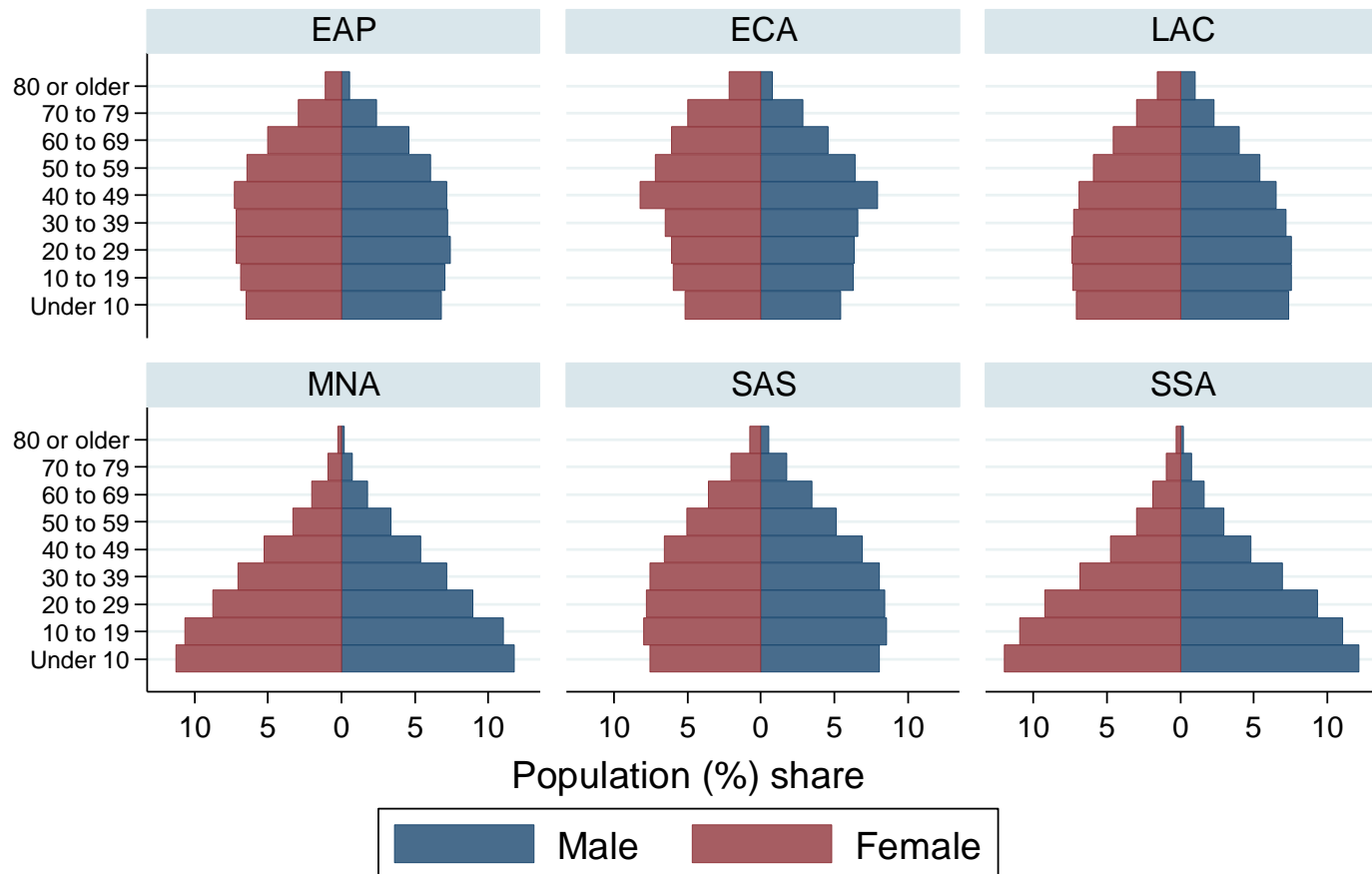


Graphs by wbregion

Age-Sex Population Pyramids

WB Regions, year 2030

Projected Proportion of the Population by Age and Gender, 2030



Using UN projections assuming medium population growth

By 2030, LAC becomes older and the working age population in SSA increases

Projected Changes in Population Structure, 2000-2030



Using UN projections assuming medium population growth

Alternative Approaches

- Macro:
 - Cross-country, Partial equilibrium
- Micro:
 - Household level, Partial equilibrium:
- Macro-Micro
 - Linkage global general equilibrium and GIDD

Macro Approach

Log of Income

Gini

Dependency Ratio

-1.38
(-0.92)

-0.57*
(-3.05)

Urban Pop. (%)

-1.69*
(-3.83)

-0.16*
(-2.84)

Agricultural Pop. (%)

0.64
(1.46)

0.15*
(2.74)

Skilled Pop. (%)

1.97*
(3.95)

0.11
(1.69)

Regional Control

YES

YES

N

46

46

R-squared

0.88

0.89

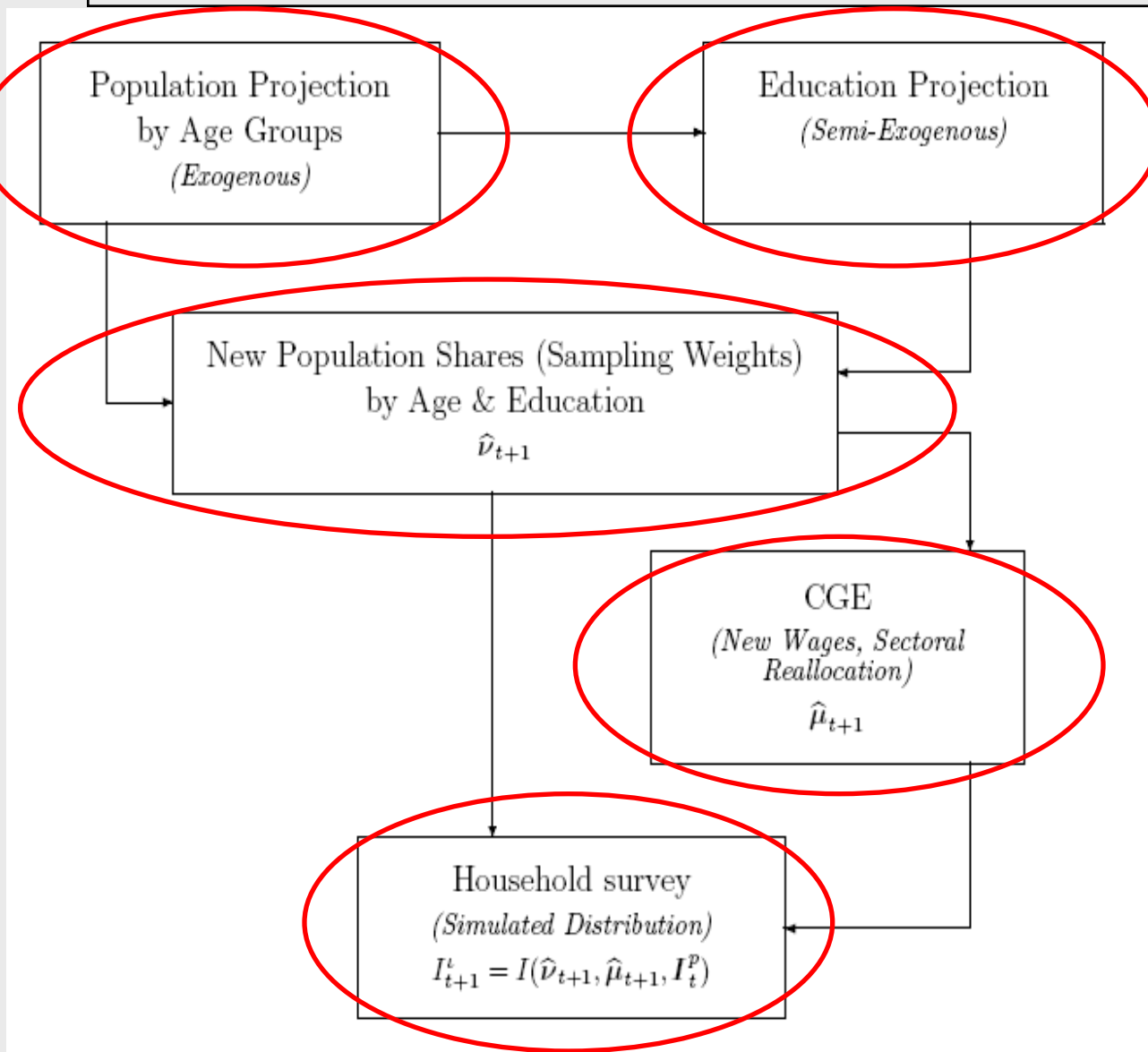
* Significant at the 99% level; t-statistic in parenthesis

Micro Approach

	Coefficient	t-statistic	
HH Skills	0.911	354.9	
HH Size	-0.037	-195.3	
Head in Agricultural	-0.170	-109.2	
Urban Household	-0.204	-123.3	
Demographics			
0-5	-0.618	-118.5	
6-14	-0.481	-104.8	
15-39	-0.155	-35.8	
40-64	-0.030	-6.7	N = 1,029,330
>65	BASE	-	R2 = 0.64

Dependent Variable: Log of Per Capita Household Income;
Controlling for country fixed effects

Ex-ante Empirical Framework (GIDD)



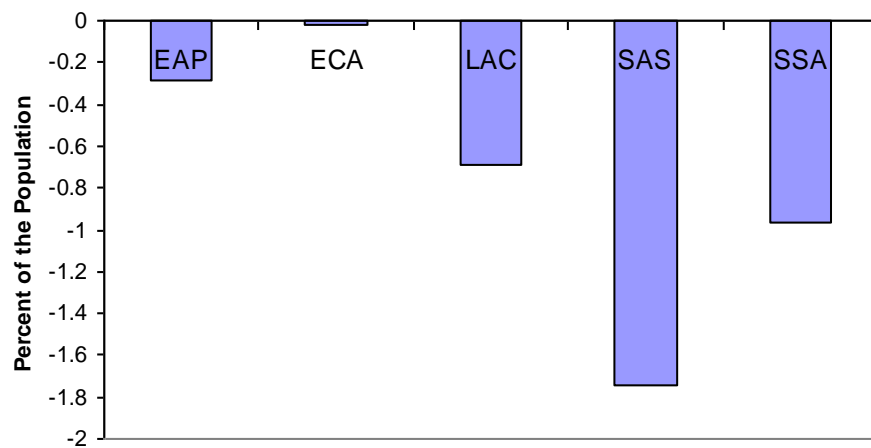
DATA

Region	Number of Ctries	Coverage Share
Total	115	91.4
SSA	22	74.2
EAP	15	96.1
ECA	26	99.8
INL	20	82.2
LAC	21	97.3
MENA	6	64.6
SAS	5	99.8

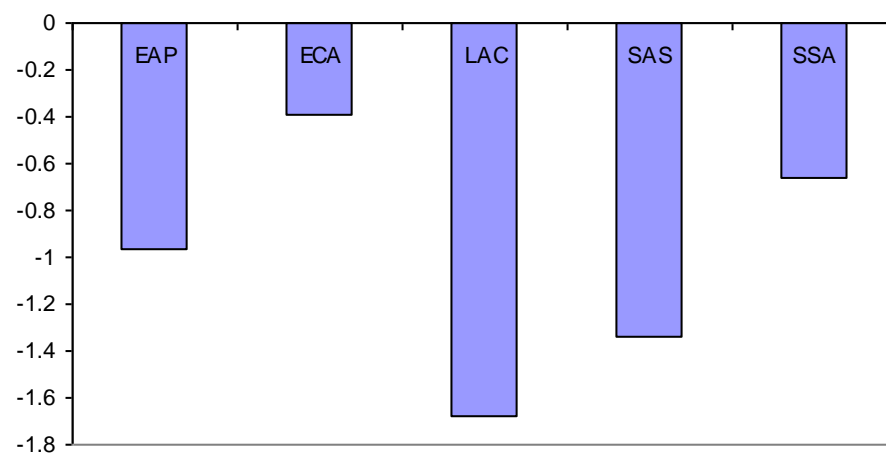
Figure 1: Empirical Framework

Results: Macro-Micro GIDD demographics 3

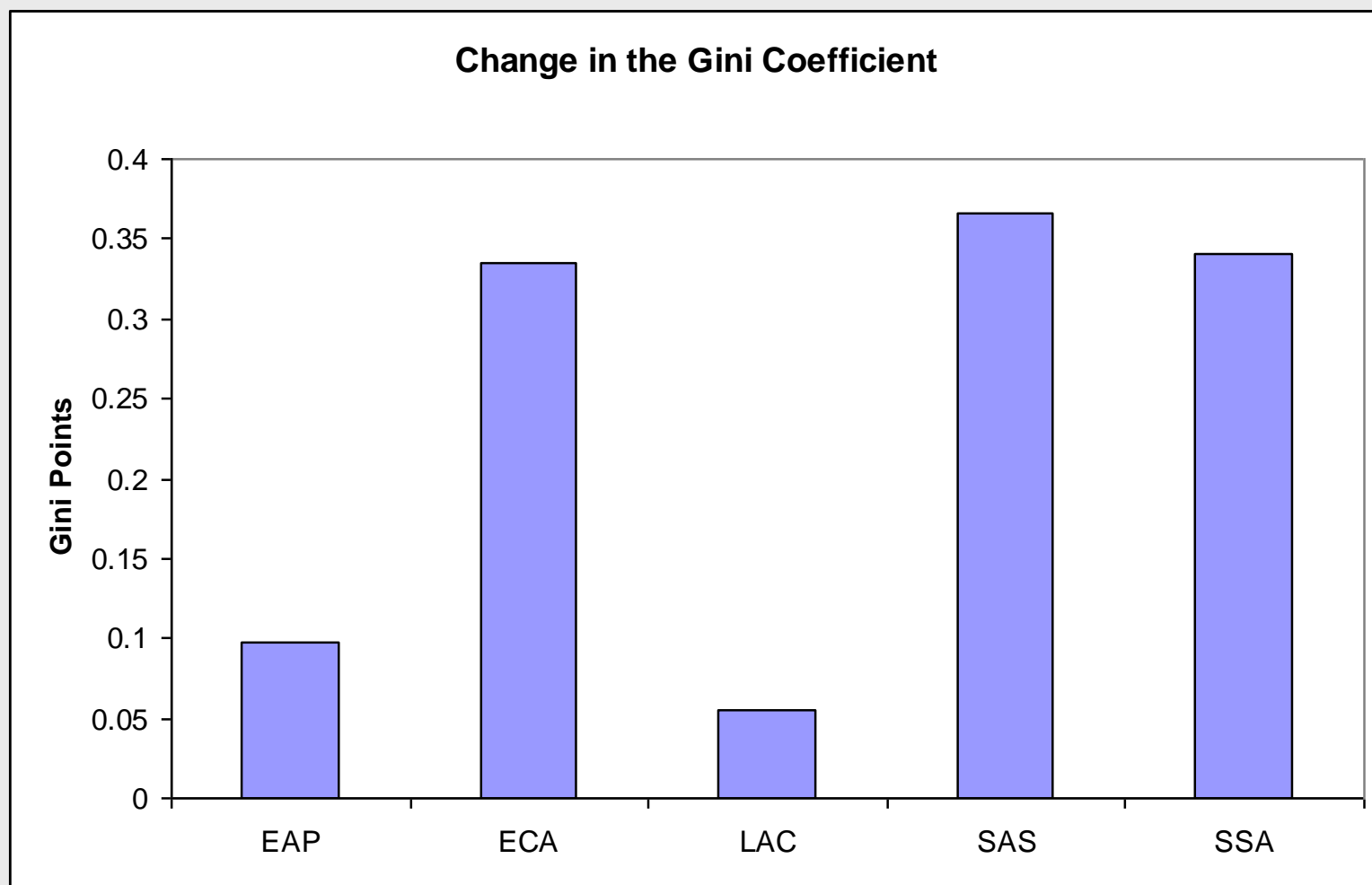
Change in Poverty Headcount
(\$1 a day poverty line)



Change in Poverty Headcount
(\$2 a day poverty line)



Results: Macro-Micro GIDD demographics 2



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Cohort	Gini	Population Share	Mean Income
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Cohort	Gini	Population Share	Mean Income
Young	45.8	63.3%	403.1
Old	40.8	36.7%	591.2

Results: Macro-Micro GIDD demographics 1 (old:>45)

	India	Uruguay
Old Population % (2000)	18.8%	36.7%
Old Population % (2030)	29.9%	40.6%
Gini Coefficient (2000)	32.0	44.9
Gini Coefficient (2030)	32.5	44.6

Ex-ante Empirical Framework (GIDD)

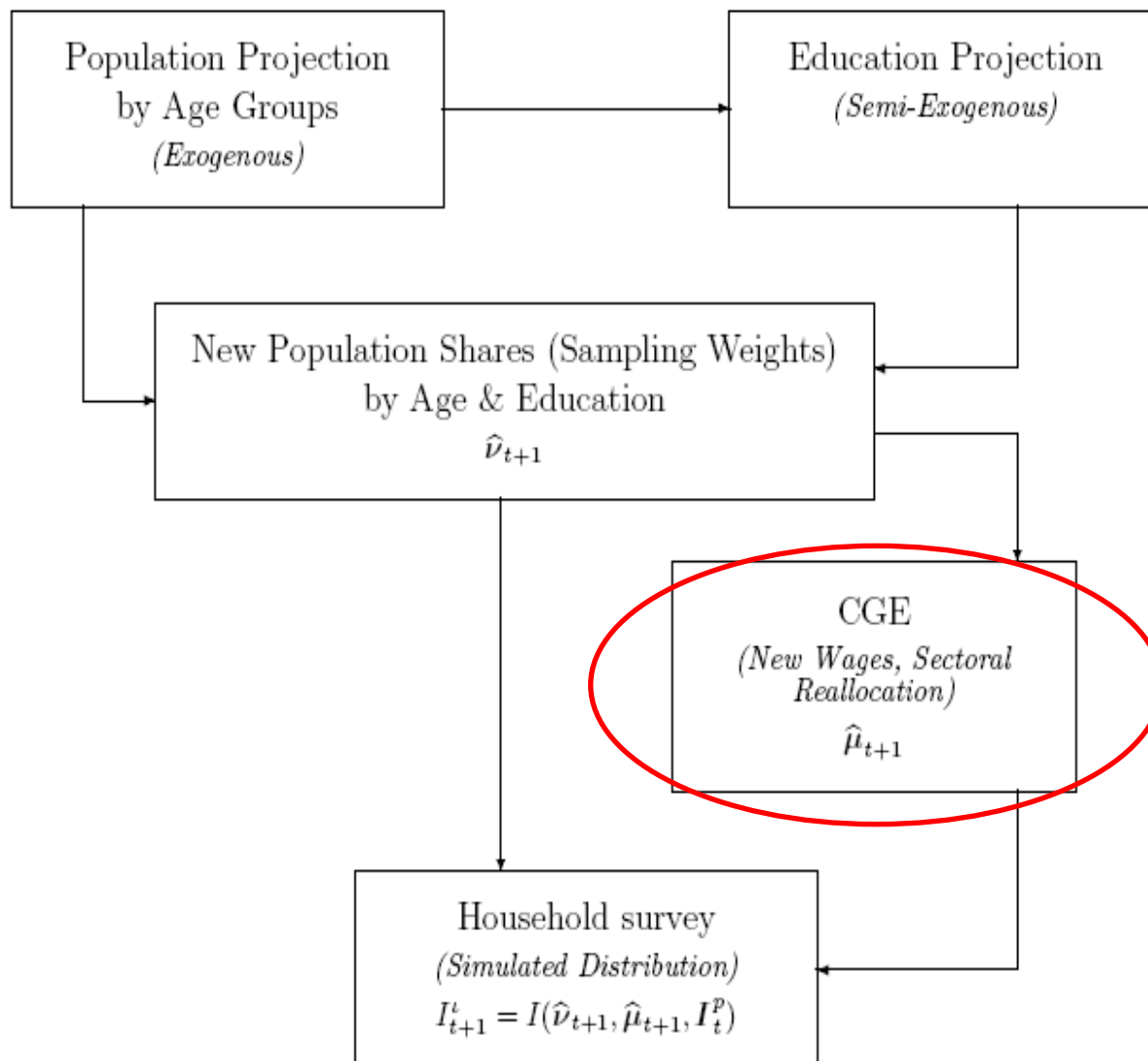
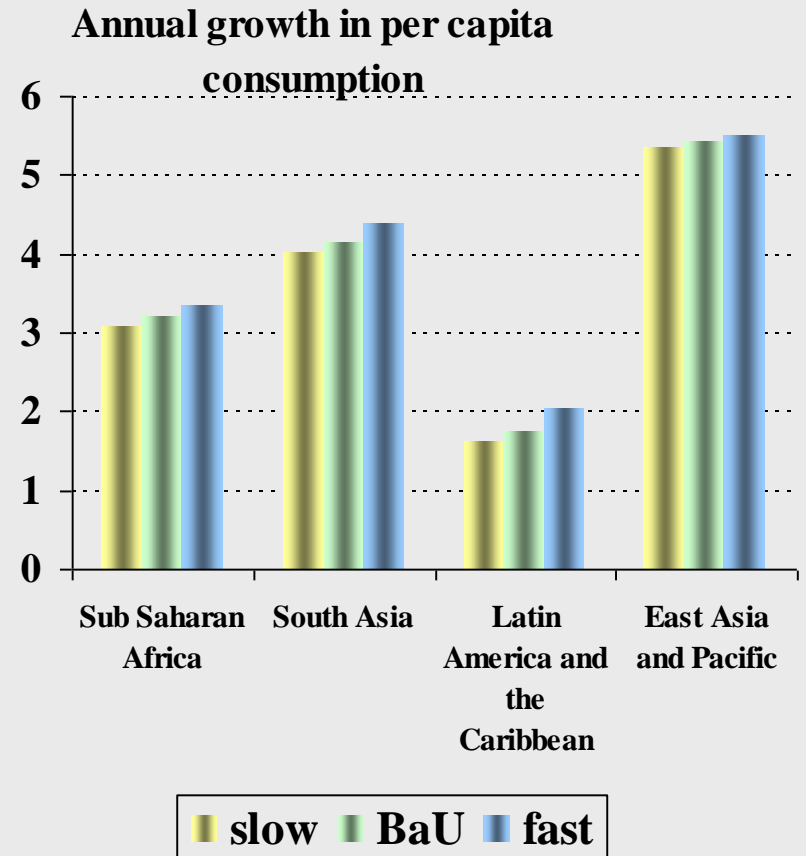
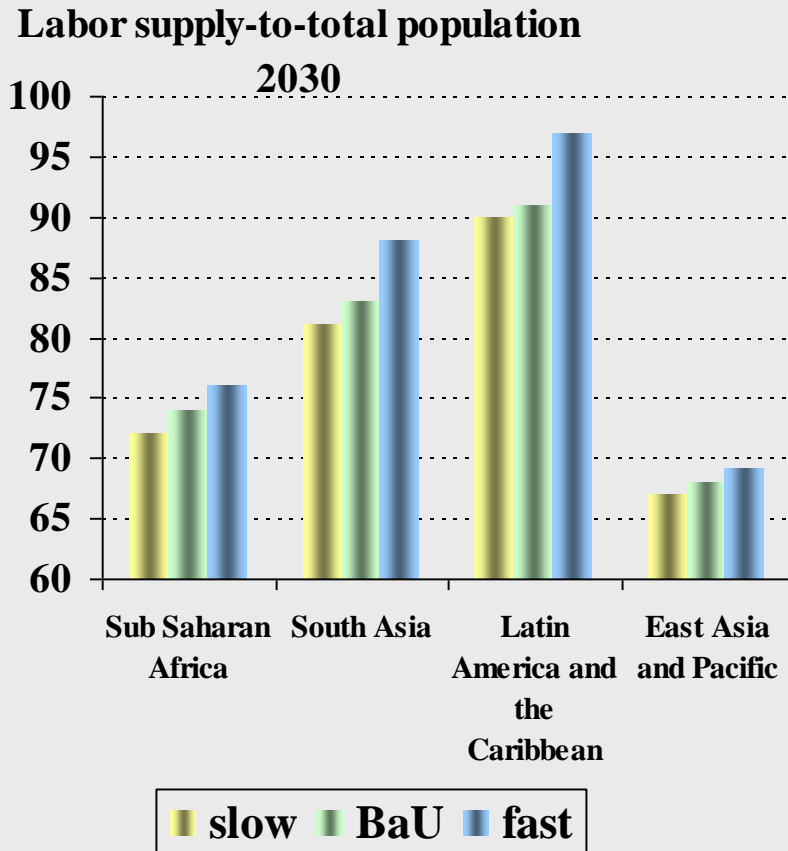
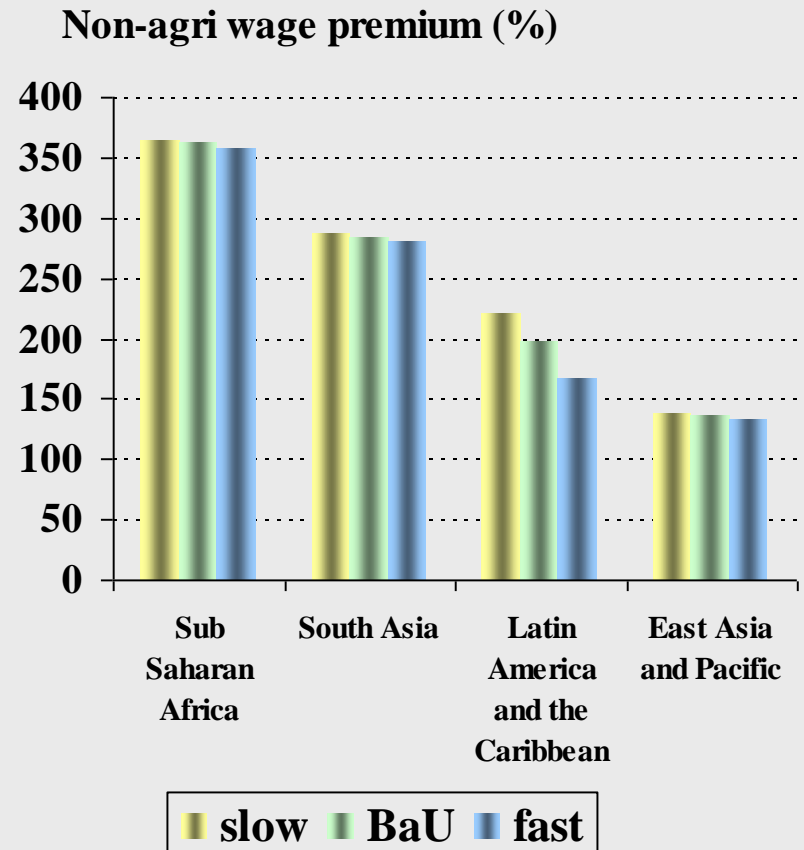
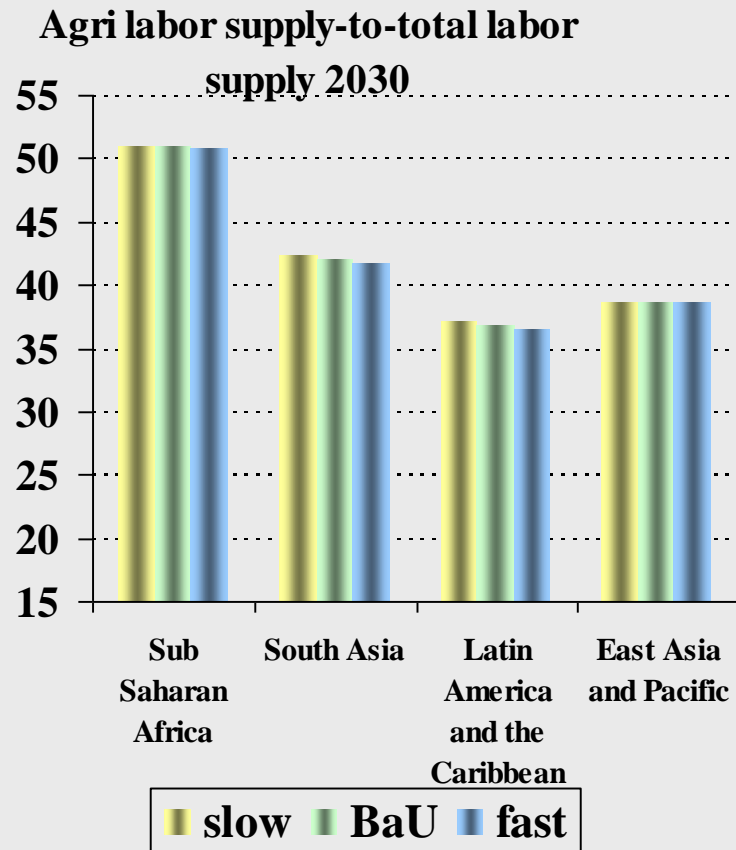


Figure 1: Empirical Framework

Faster demographic transition accelerates per capita growth



Faster demographic transition reduces non-agriculture wage premium



Methodological Challenges

- Standardizing household surveys: income, educational achievements, etc.
- Reconciling macro and micro datasets
 - Household survey versus national accounts
- Inconsistencies between macro and micro models
 - re-weighting's 'side effects'
 - simultaneity (path dependency)
- Validation: Back-casting exercise