

Mobility in Latin America: are countries in the region becoming middle class societies?

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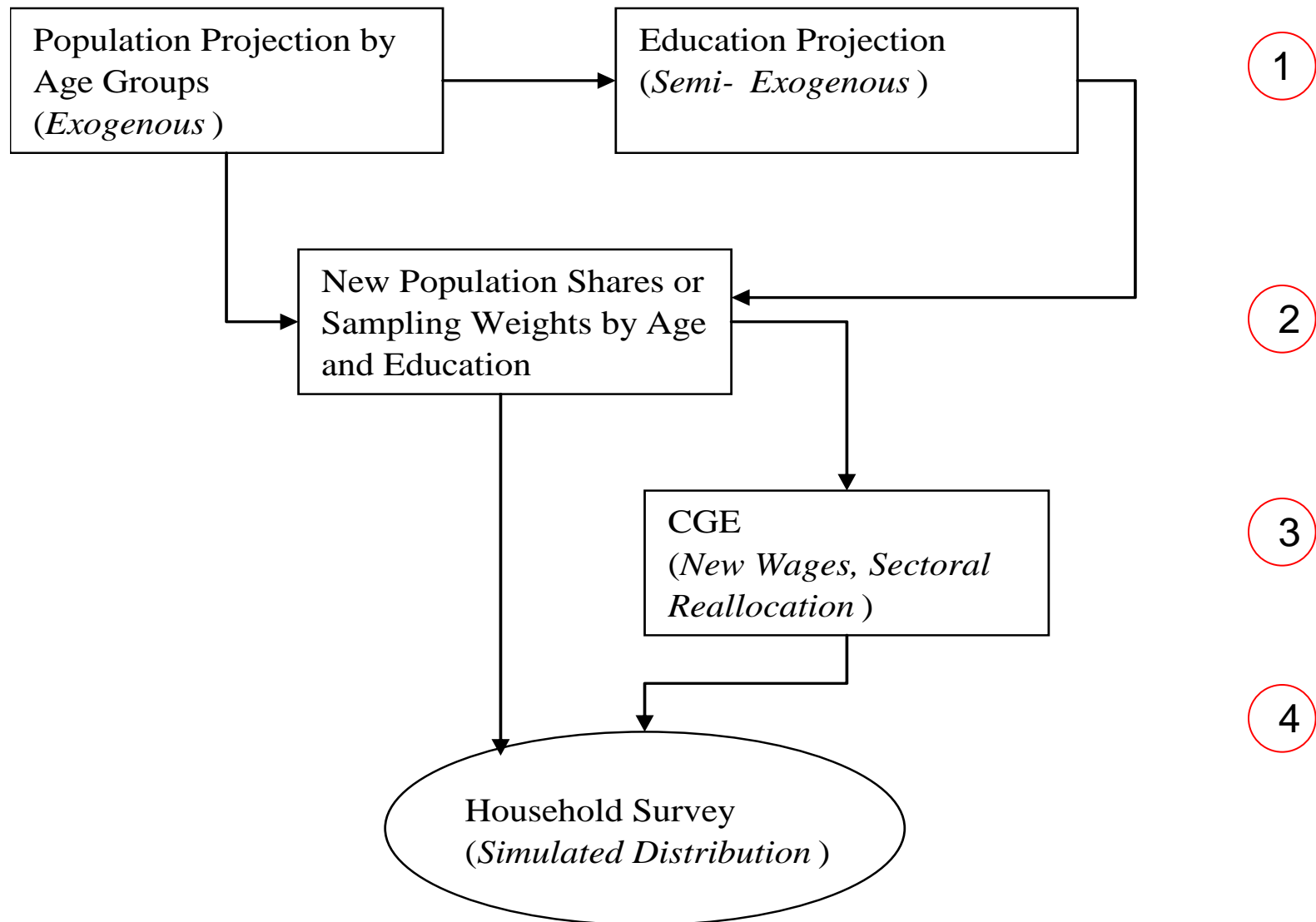
1. Motivation

- Estimate the forthcoming expansion of the middle class in LAC (mobility flagship)
- Study ex ante the potential changes in global income distribution (of individuals).
 - IMF WEO (Apr 2011): “Tensions from the Two-Speed Recovery”
- Need of modeling tool that can generate “reasonable” predictions of how global inequality might change under different scenarios
 - *Predictions* should not be seen as *forecasts*, but as scenarios given certain conditions, or *ceteris paribus* scenarios

2. Methodological Approach

- Use household surveys for 121 countries (90% of world population).
 1. Project forward changes in demographic and educational structure (from “inertia”).
 2. Project changes in occupational structure and incomes:
 - Taking account of (1) and
 - Forecasting changes in incomes and returns in each sector from estimates of productivity growth and changes in demand from a “Global CGE”.

The GIDD method: A “Global CGE-Microsimulation System”



Step 1: Demographic and Education Projections

Age

The changes in demographic structure are taken from WB or UN population projections

Education

Overall education attainments are assumed to be related with aging via a “pipeline” effect (Lutz and Goujon, 2001)

2005

	Skilled	Unskilled
Young	60	40
Old	30	70

2030

	Skilled	Unskilled
Young	60	40
Old	60	40

Step 2: Reweighting individual observations in the surveys

- Organize sampling weights into a matrix of individuals by partition cells:

$$W = [w_{mn}]$$

Matrix of “n” individual sampling weights over “m” characteristics

$$P_m = \sum_{n=1}^N w_{m,n} = W \mathbf{i}_n$$

Population in Subgroup “m”

- The demographic and educational projections generate the target (or expected) population in each sub-group m :

$$\hat{P}_m = \sum_{n=1}^N a_{m,n} w_{m,n} = (\mathbf{A} \circ \mathbf{W}) \mathbf{i}_n \quad \forall m = 1, \dots, M$$

- System is under-identified ($m \times n - 1$ var, m constraints). Can be solved in various ways, including

$$\bar{a}_m = \hat{P}_m \left(\sum_{n=1}^N w_{m,n} \right)^{-1} \quad \forall m = 1, \dots, M$$

Step 3: General Equilibrium Effects

- There are other changes in the economy, in addition to the age/education structure.
- These are simulated through a (computable) general equilibrium model, which incorporates the population changes from Steps 1 and 2.
 - The World Bank's global LINKAGE model
 - Production function is nested CES with five factors: Unskilled and skilled labor, capital, land, natural resources.
 - Demand structure modeled through an ELES, with cross-price and income elasticities.
 - Sector-specific productivity growth trends “calibrated to be consistent with historical evidence”

Step 4: Microsimulations

- Microsimulation → map aggregate results into household level specific results; two approaches:
 1. Fixed parametric distribution microsimulation (a la Adelman and Robinson, 1978)
 2. Endogenously generated distribution on the basis of a sample of households
- GIDD uses 2; aggregate changes are matched by generating counterfactual distributions in the surveys by:
 - Using probits to identify the most likely individuals to move sectors
 - Using sector-specific earnings equations to predict their earnings
 - Scaling resulting sector and skill gaps so that the changes in average gaps in the survey match the changes in average gaps in the CGE.
 - Making a final adjustment on overall levels of real aggregate per capita income

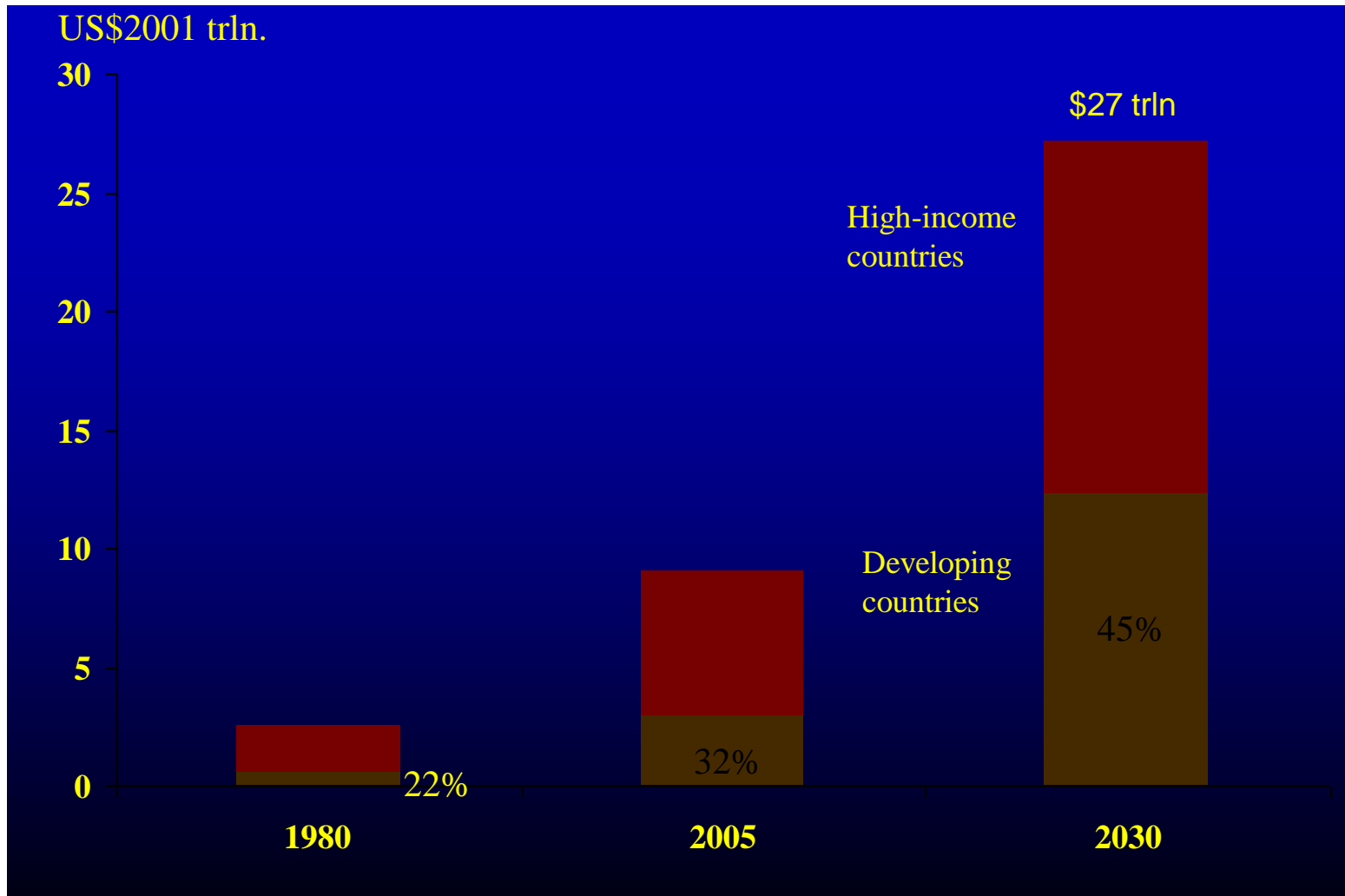
3. Global Income Distribution in 2030

- Macro CGE results
- Microsimulation results
 - Global, Regional, Within countries

Macro CGE results

Developing countries share of trade will rise as global integration intensifies...

Exports from developing and developed countries, 2005-2030

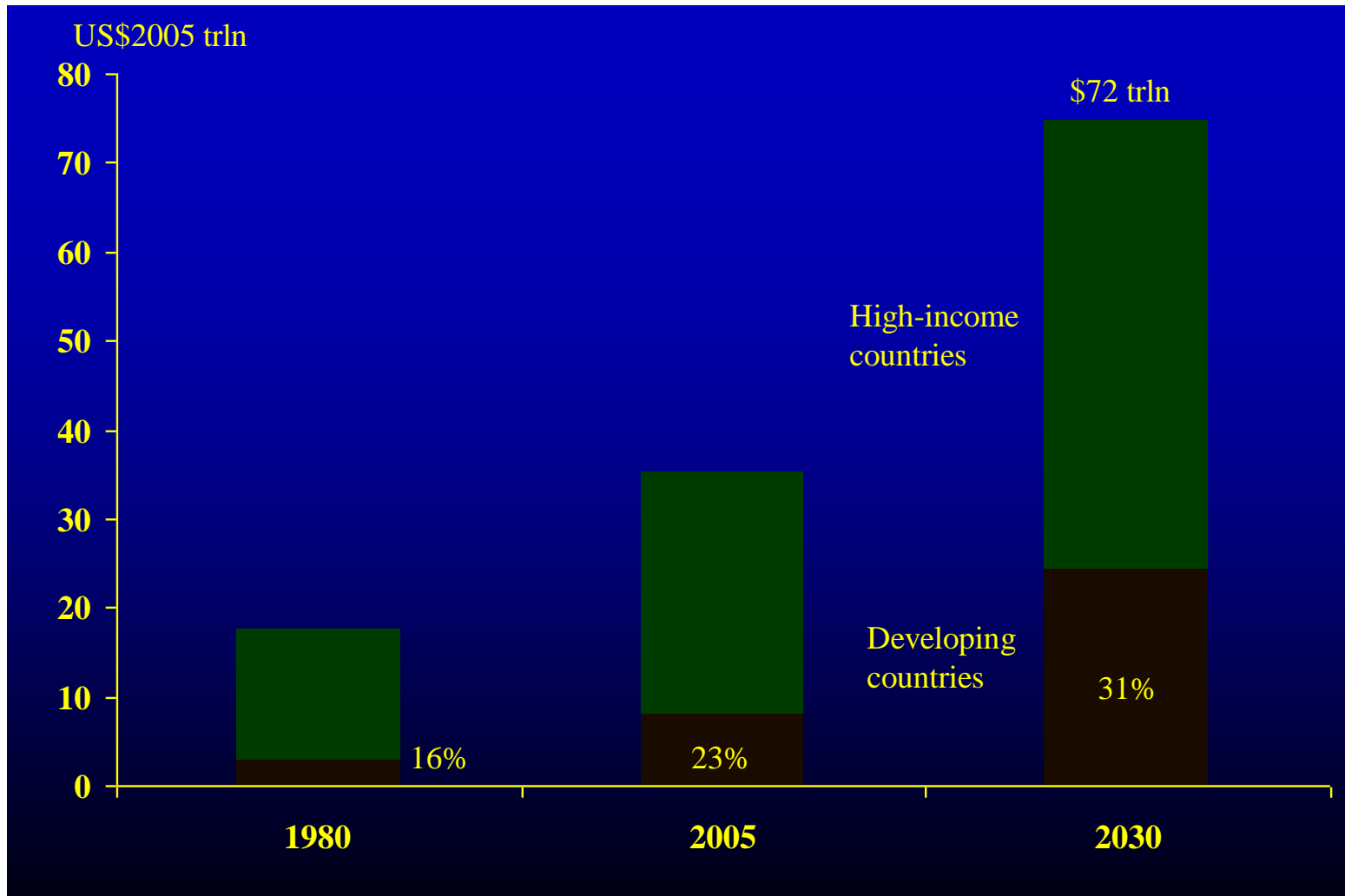


Source: World Bank simulations with Linkage model.

Macro CGE results

... and the share of developing countries in global output will rise

GDP of high-income and developing countries (market exchange rates)

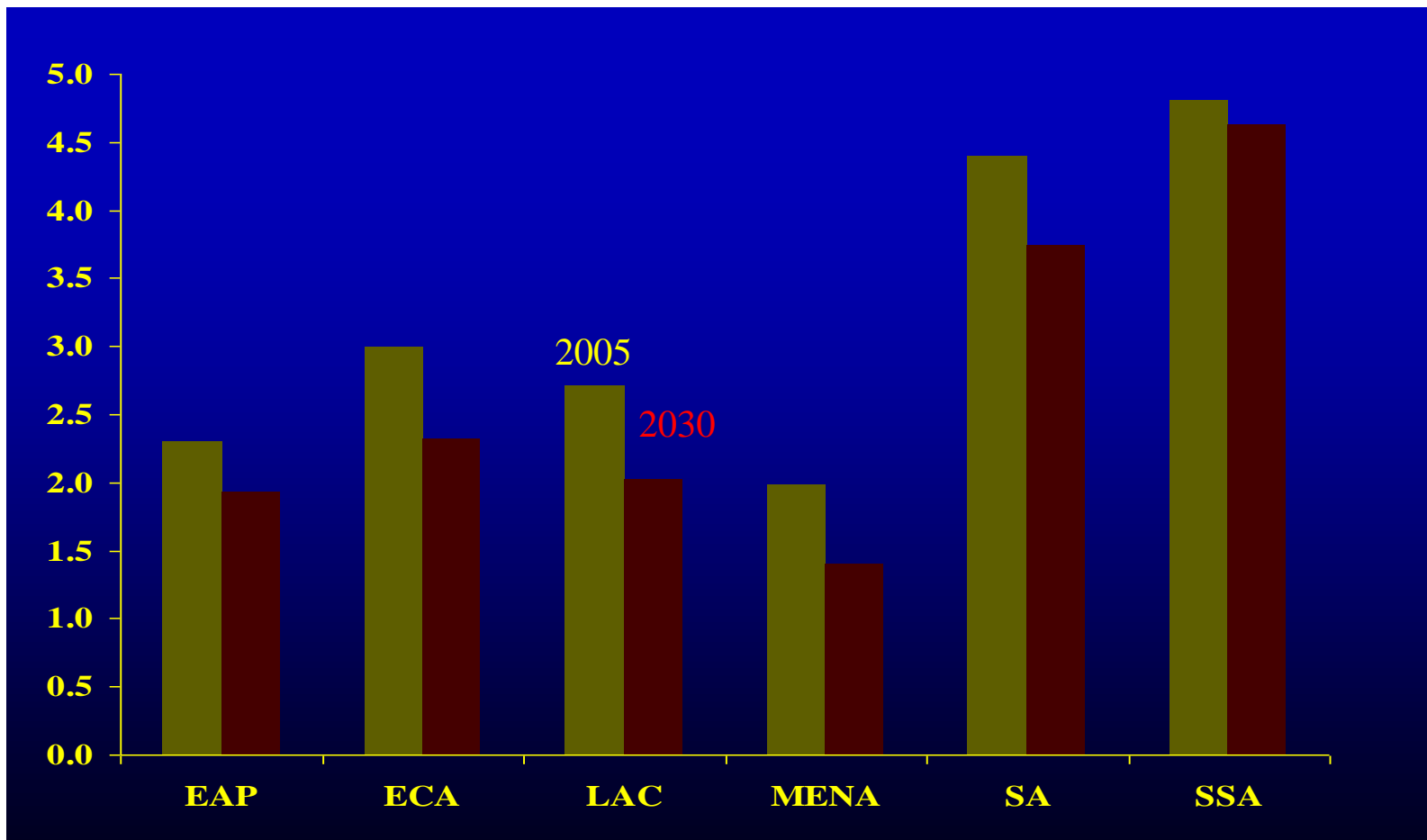


Source: World Bank simulations with Linkage model.

Macro CGE results

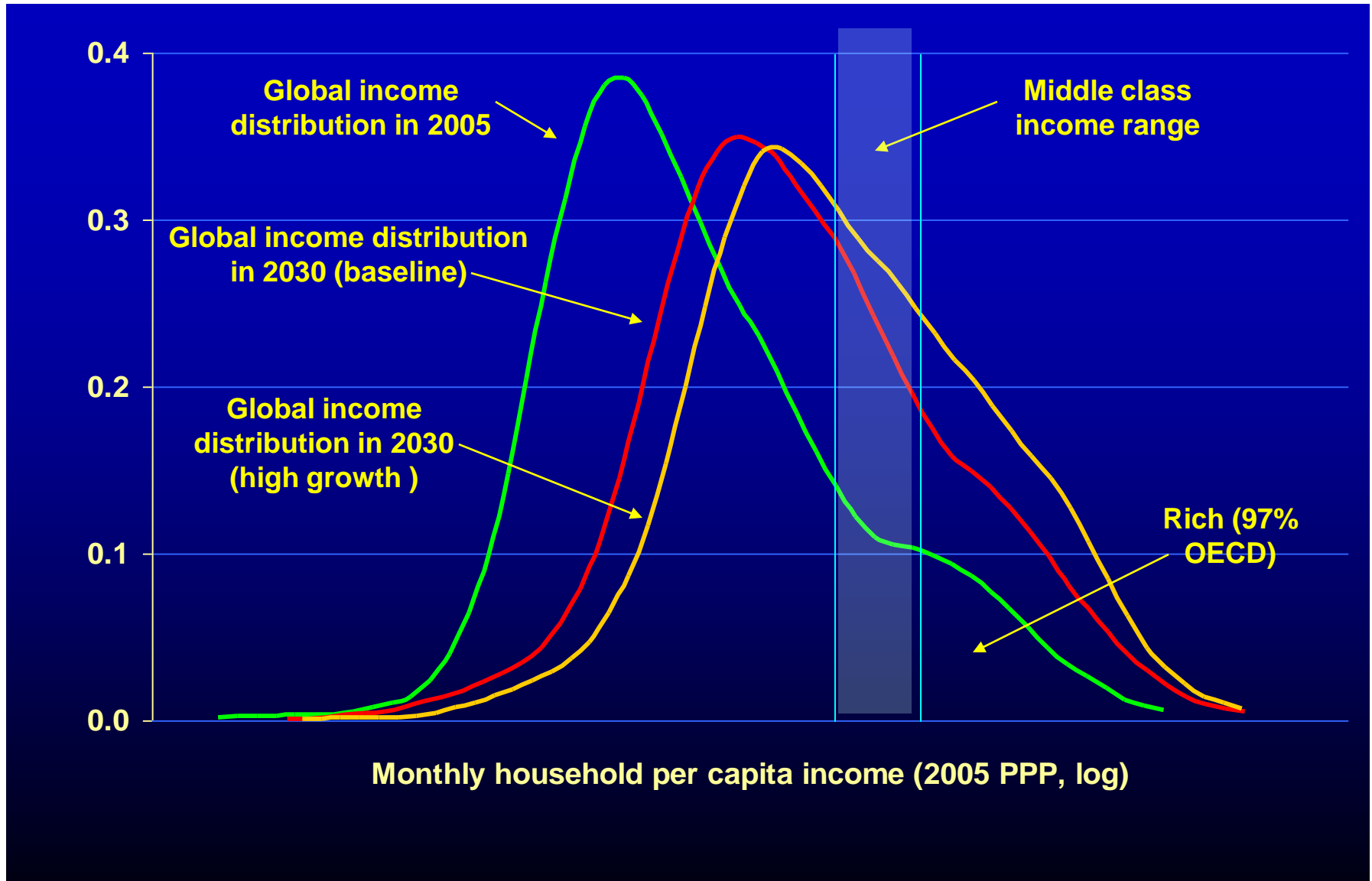
A large entry of skilled workers in labor markets will reduce the skill premium

Ratio of skilled wages relative to unskilled wages



Microsimulation results

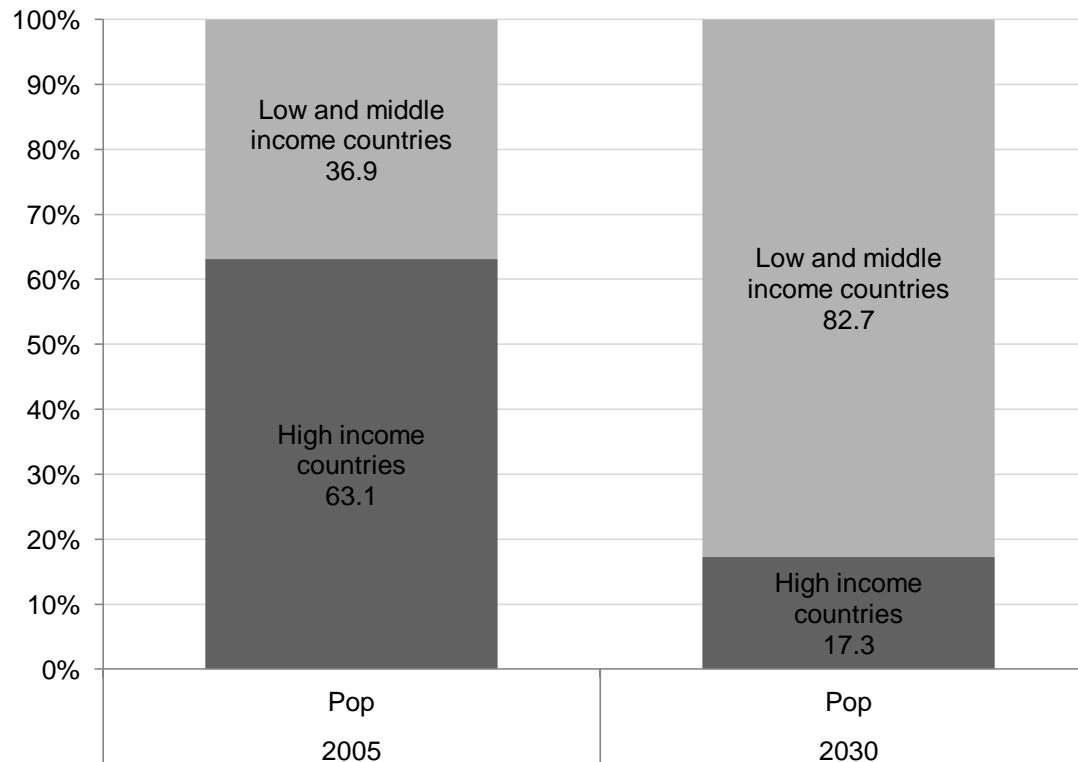
Emergence of a global middle class



Microsimulation results

Global middle class will grow from 0.8 billion in 2005 to 2.3 billion individuals in 2030

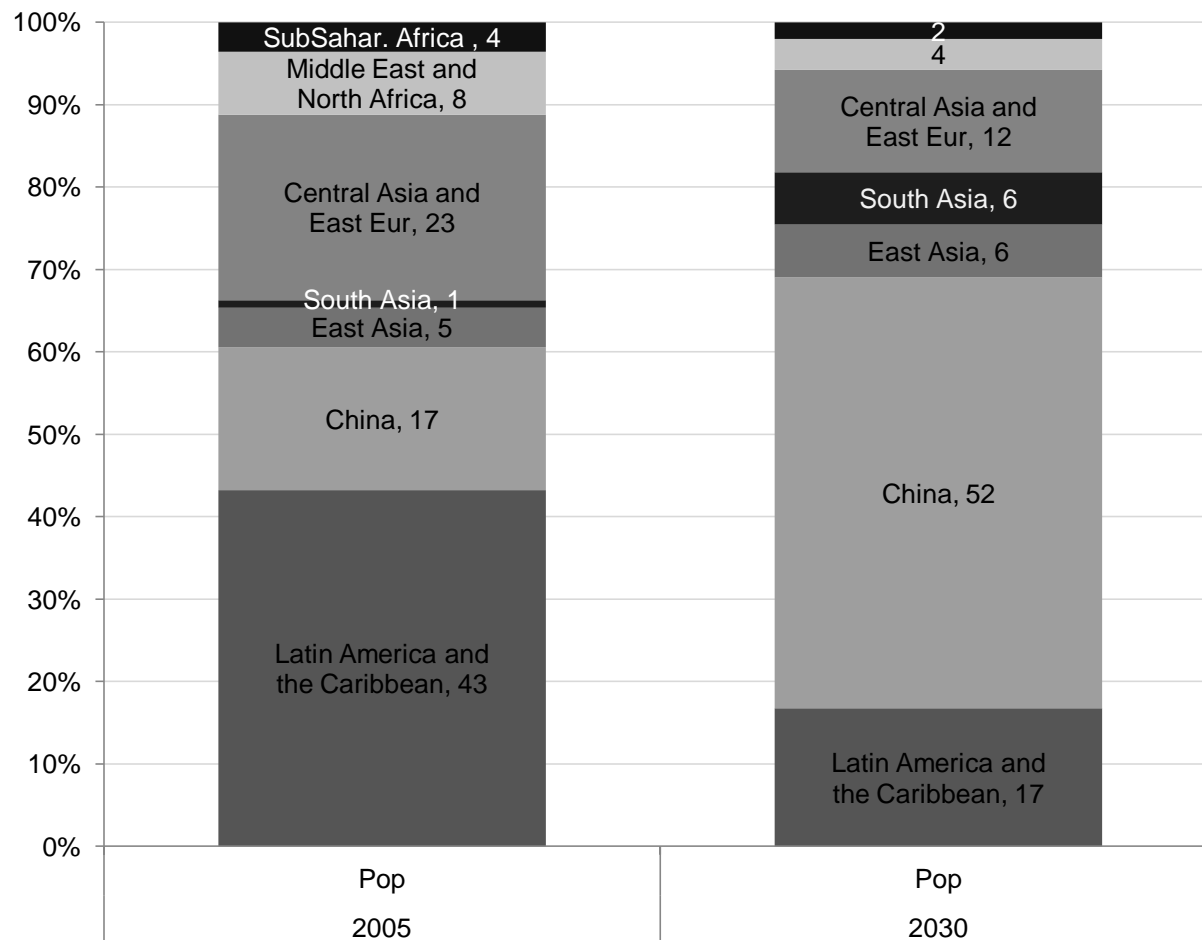
- Global middle class grows from 14% to 30% of world population.
- For the developing countries group, the increase is from 0.3 to 1.8 billion
- The composition of the middle class changes dramatically



Microsimulation results

The composition of the middle class changes dramatically

- In 2030 there will be one Chinese middle classer for each citizen of the other developing countries combined.
- The LAC group follows an opposite trend (from about 1-to-1, to 1-to-5)

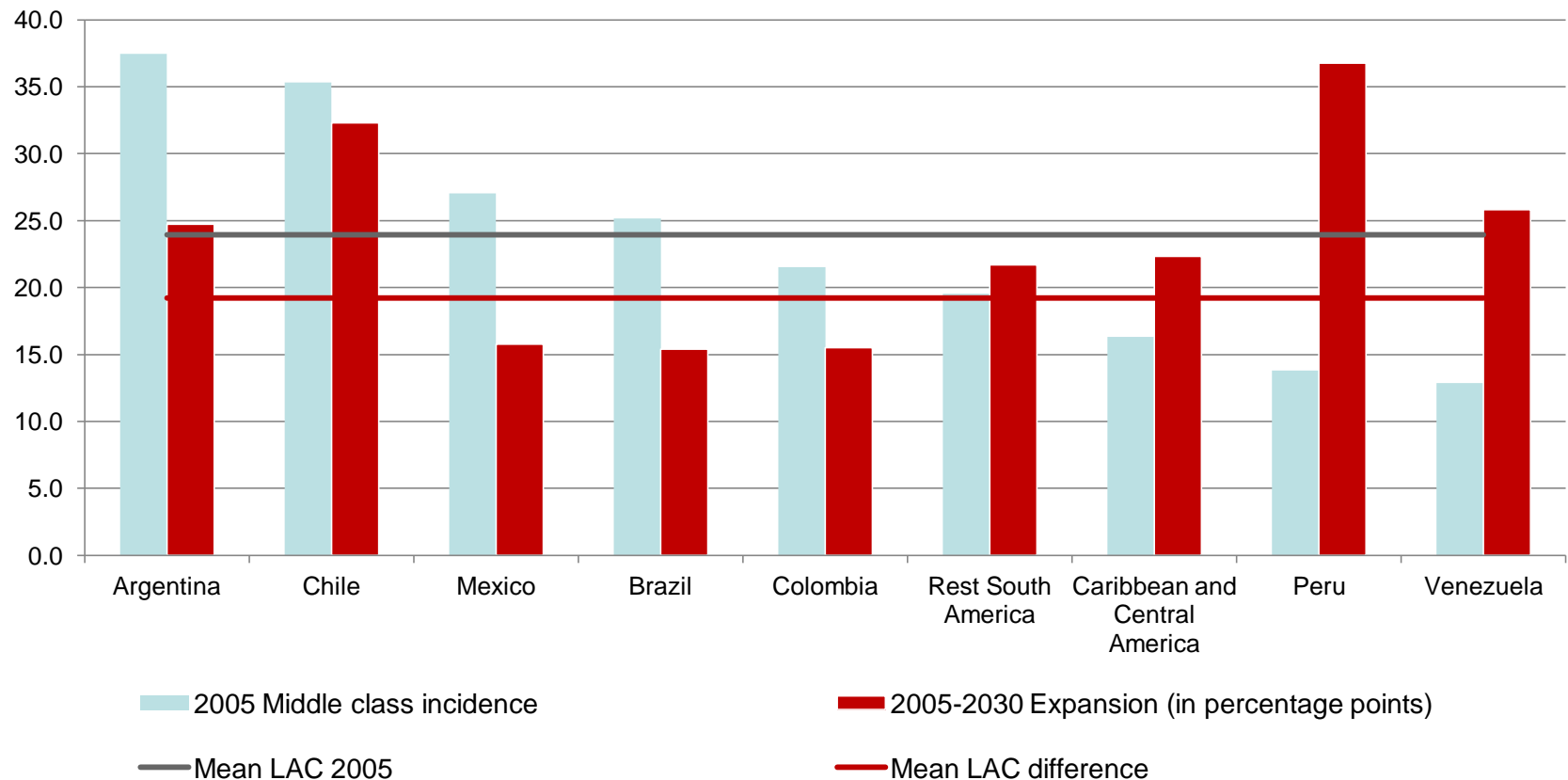


Microsimulation results

Within LAC the growth of the middle class is not uniform

- Different starting points and different expansion rates

Middle Class as a percentage of population in 2005 and its expansion (in percentage points) over the 2005-2030 period, by country



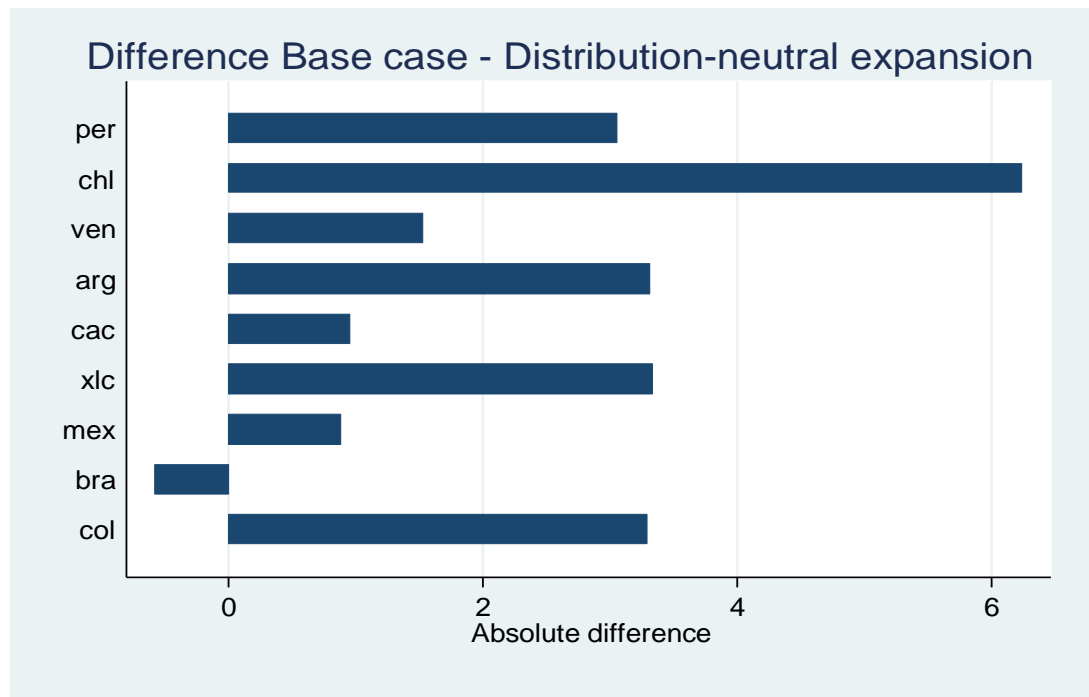
LAC countries are becoming middle class societies

- The members of 2005 middle class in LAC earn incomes well above the averages of their own countries of residence
- In 2005 looking at the LAC as a whole, 80% of the middle class members occupies the top two deciles of the income distribution.
- The situation will change quite dramatically by 2030.
- A full 40% of the LAC middle class will be earnings incomes in the seventh decile or lower at the regional level.

Within country changes of inequality and the expansion of the middle class

Equalizing shifts in distribution boost growth of the middle class in most countries; especially Chile, Colombia and Argentina;

Figure shows differences of expansion in the middle class obtained by comparing a standard microsimulation with a distributionally neutral counterfactual



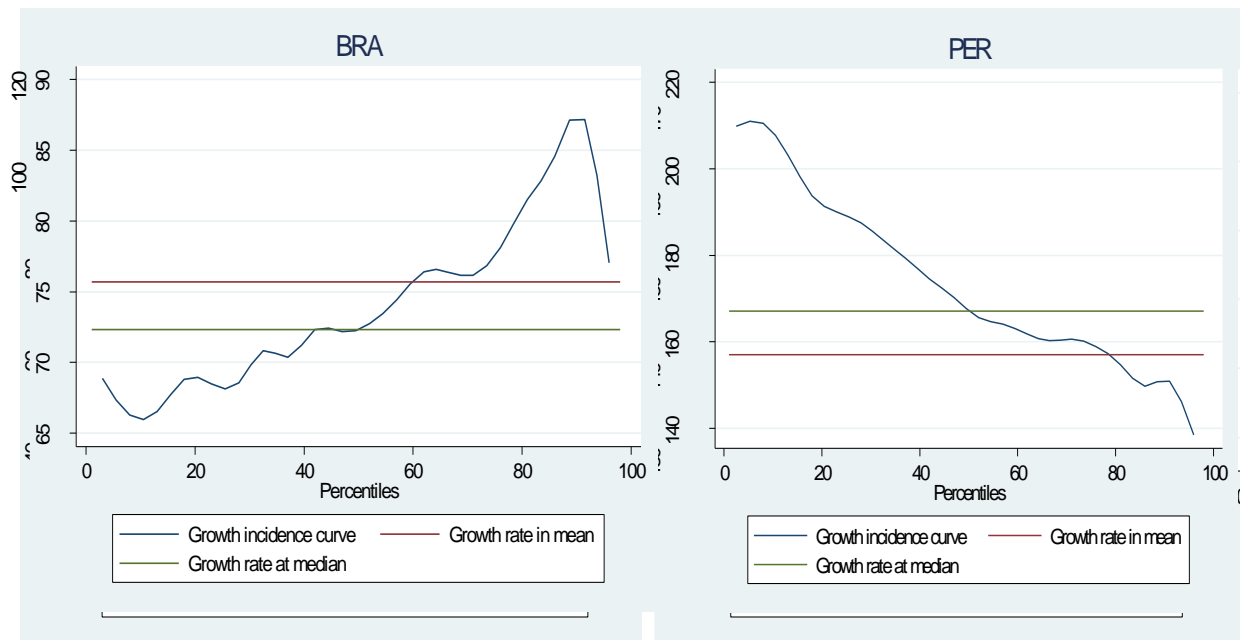
Changes of within country inequality are due to a combination of factors

A statistical decomposition using Growth Incidence Curves

Demographic shifts are almost always un-equalizing for LAC countries;

Decreases in the Urban Rural premia are equalizing;

Finally, reducing the skill gap also helps reducing inequality;



This is a statistical decomposition, in reality changes are simultaneous

Conclusions

- Between 2005 and 2030, there will be quite a lot of upwards mobility towards the middle class.
- In LAC the middle class group will follow the 2 – 1/2 rule:
 - It will double its size;
 - It will count for half of the total population
- Standards of living previously reserved to the 20% richest households will become affordable to families earning the median income by 2030.
- Demographic and economic changes display substantial variations across countries and sub-regions in LAC. The middle class will expand the most in Peru and Chile and the least in Brazil and Colombia
- Strong mobility towards the middle class may have far-reaching consequences. To mention only one, a significant larger global middle class composed of developing-country nationals will probably exert a stronger influence on international and domestic policy making

Conclusions

A list of really difficult things to do in economics:

- ☑ Measure global inequality
 - ☑ Account for general equilibrium effects of policy changes
 - ☑ Construct credible future scenarios
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- This GIDD approach has it all! Very easy to criticize, but:
 - If we want to address the questions addressed here, no clearly superior alternative to the GIDD is currently available;
 - GIDD, like any other economic model, is helpful to structure the discussion. We are ready to abandon any of its assumptions and working on testing the robustness of its results.

GIDD web page: www.worldbank.org/prospects/GIDD