China and the World in 2030

Dominique van der Mensbrugghe
Development Prospects Group
The World Bank

Background seminar for the
Chinese Country Economic Memorandum

World Bank Resident Mission

Beijing, March 30, 2006

Contents

1. Introduction
2. Determinants of growth
3. Baseline scenario
4. Policy issues

Economic Model — main elements

- Multi-regional and multi-sectoral GE model.
- Based on GTAP release 6.0
- Recursive dynamic—2001-2030
- Constant returns to scale
- Armington trade structure
- Savings-led investment

Dynamics of growth

- Exogenous population and labor supply growth
- Capital accumulation endogenously determined
  - putty-semi putty vintage capital structure
- Productivity is calibrated in baseline scenario
  - There is a sector specific component
  - There is an economy-wide component
  - There is a component linked to ‘trade openness’
- Productivity is normally exogenous in shock simulations

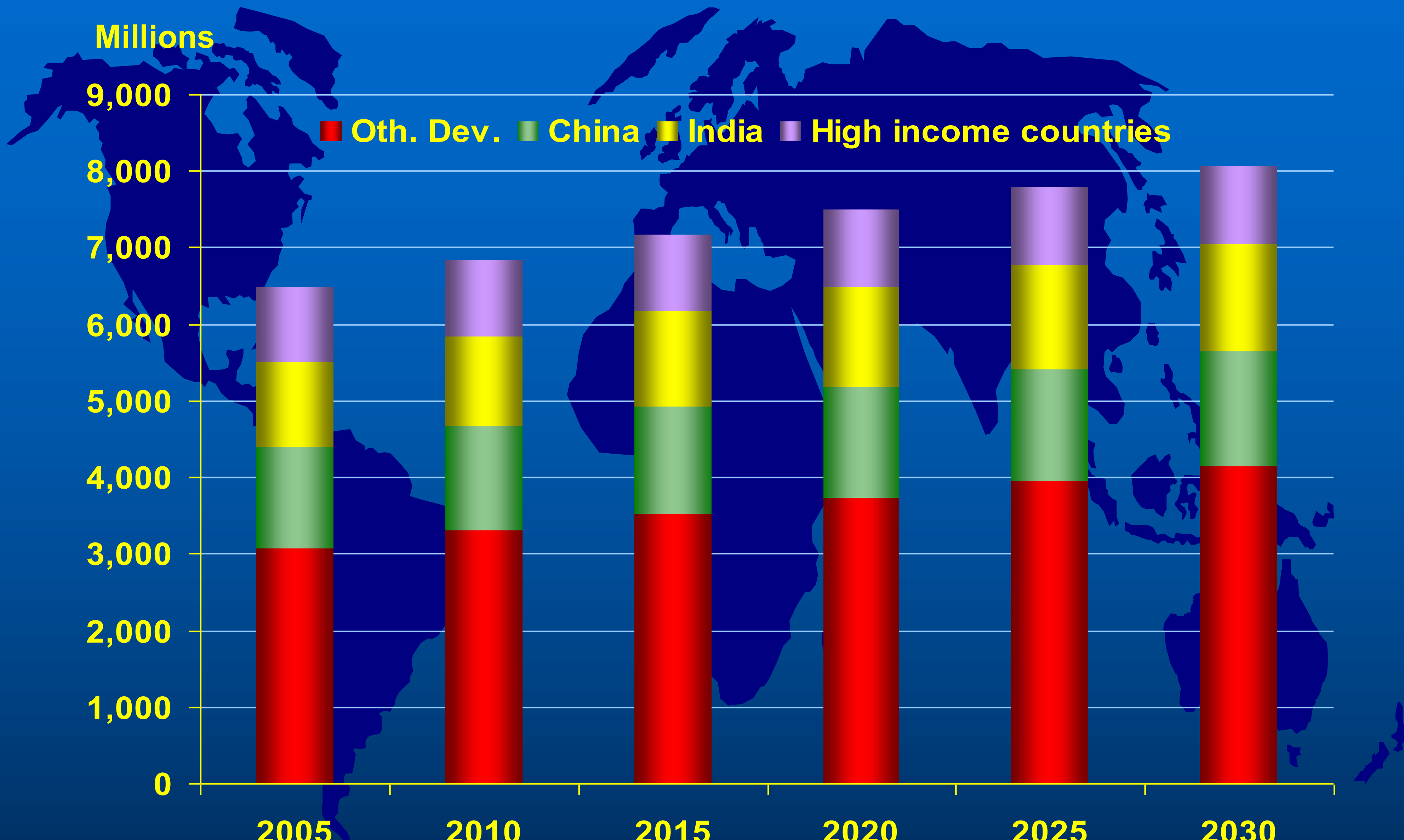
Extensions

- Demographically based savings behavior
- Investment function and global capital flows
  - with accelerator mechanism
  - and based on relative rates of return
- Labor market segmentation and rural to urban migration
- Semi-fixed wages and unemployment
- Productivity linked to trade openness

Baseline scenario

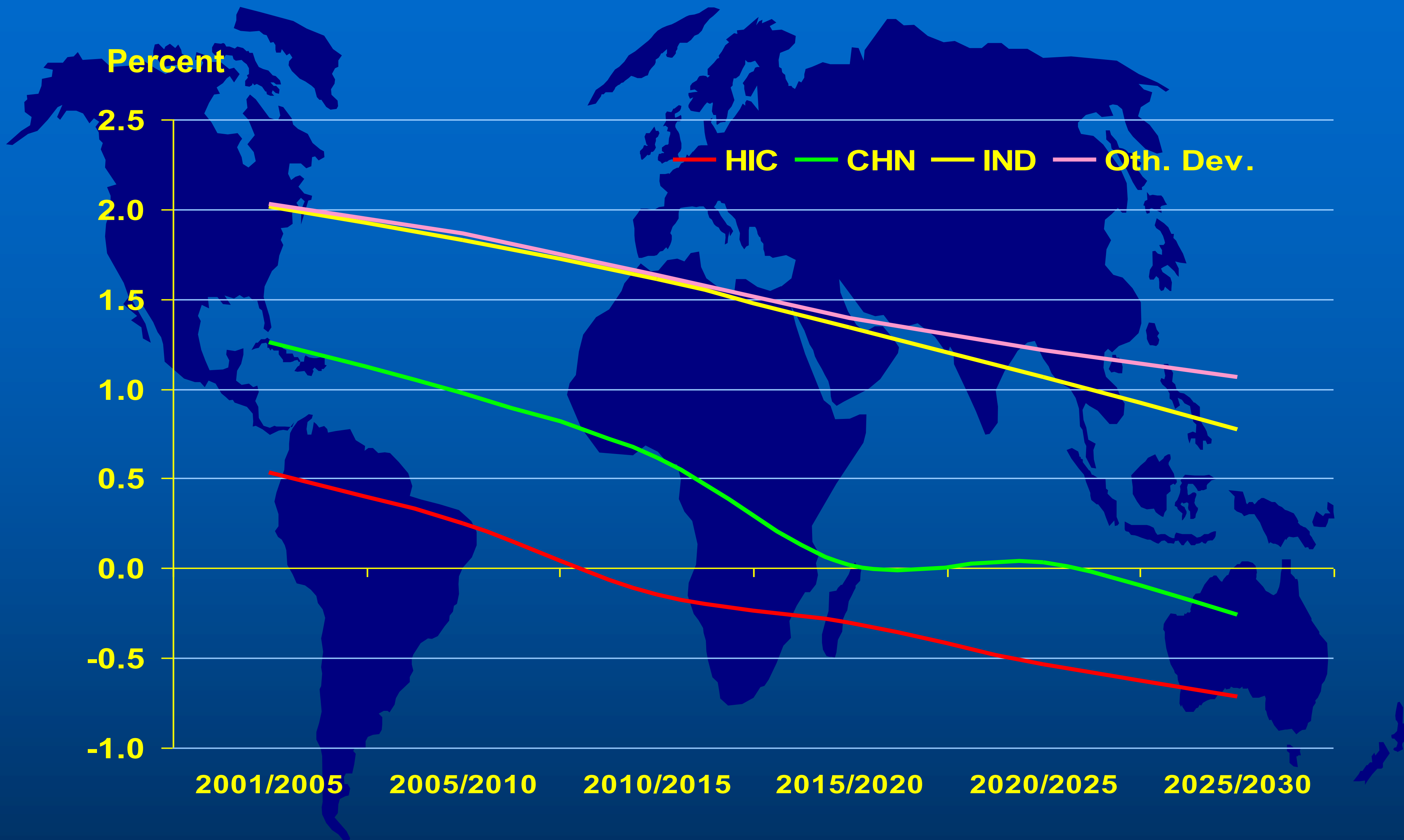
- Exogenous population and labor force growth
- Savings driven investment and K-accumulation
- Productivity assumptions
  - Agricultural productivity fixed at 2.5% p.a.
  - Manufacturing productivity 2 percentage points higher than in services
  - 40% of sectoral productivity is calibrated to export to output ratio
  - An economy-wide productivity factor is calibrated to achieve GDP target
  - Outside of agriculture, productivity is only labor-augmenting

Population



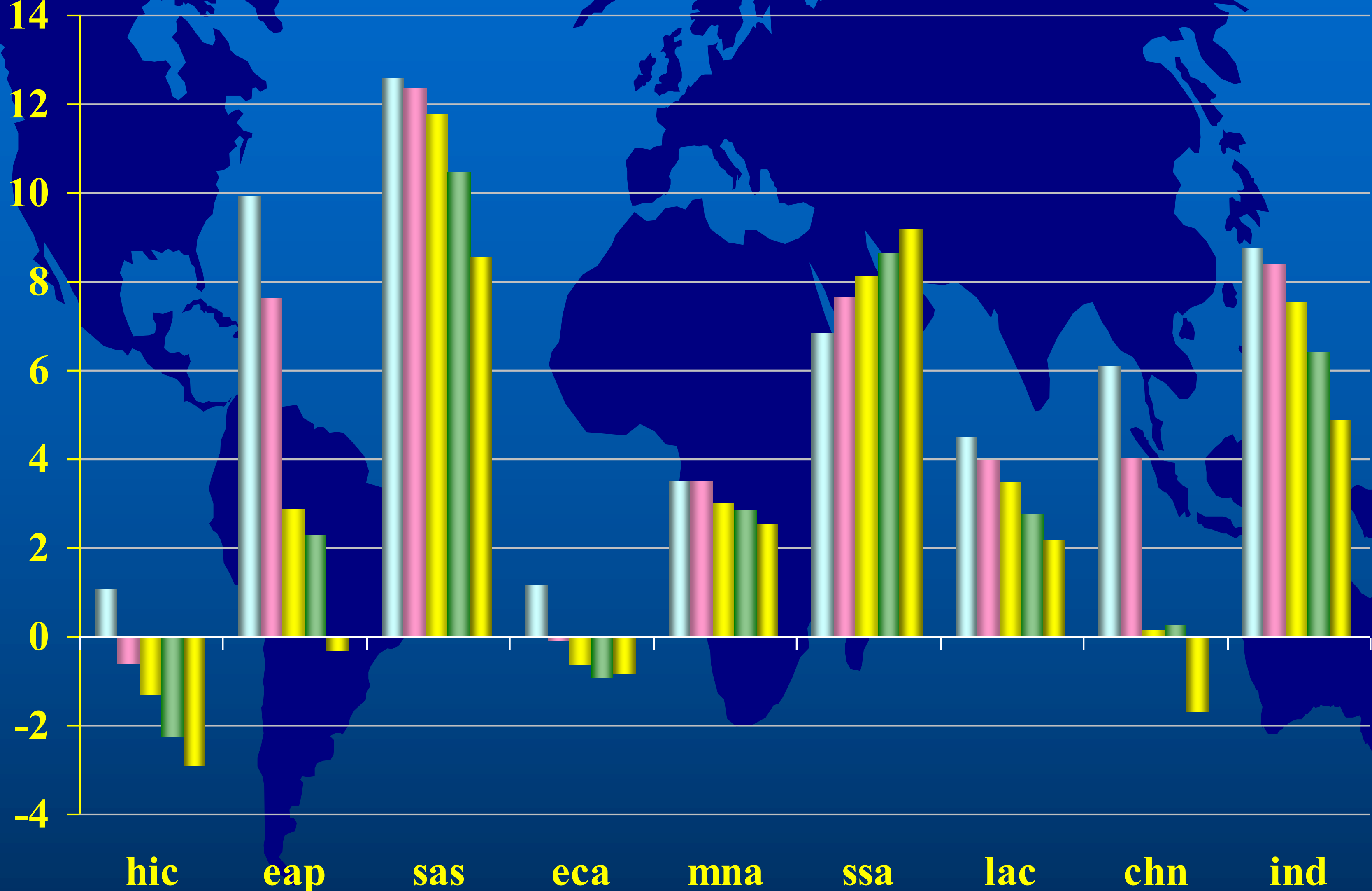
Millions
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Oth. Dev.
China
India
High income countries
2005
2010
2015
2020
2025
2030

Labor supply growth



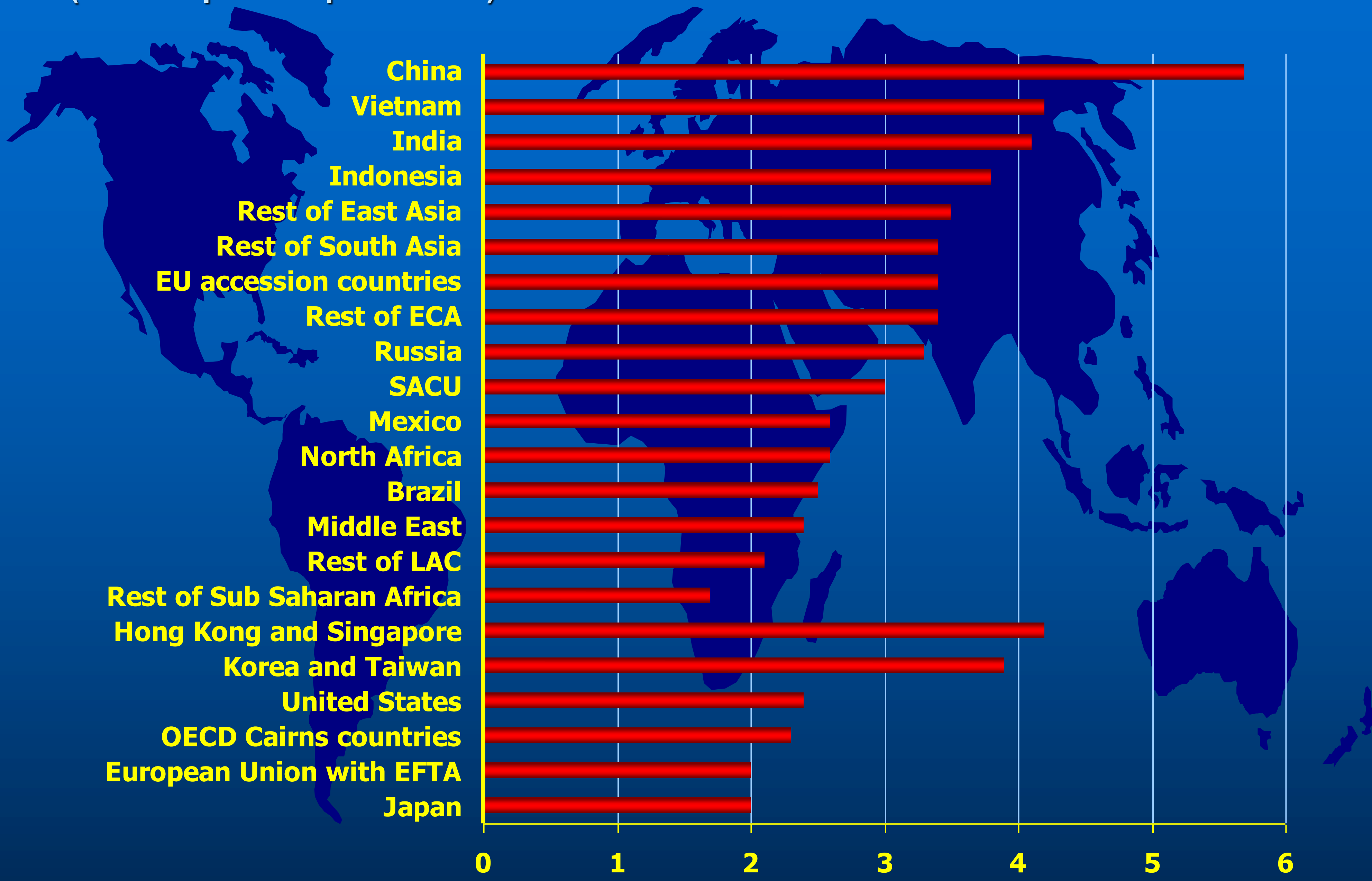
Employment creation

Average annual increase in labor force between 2005 and 2030 in five year increments, millions

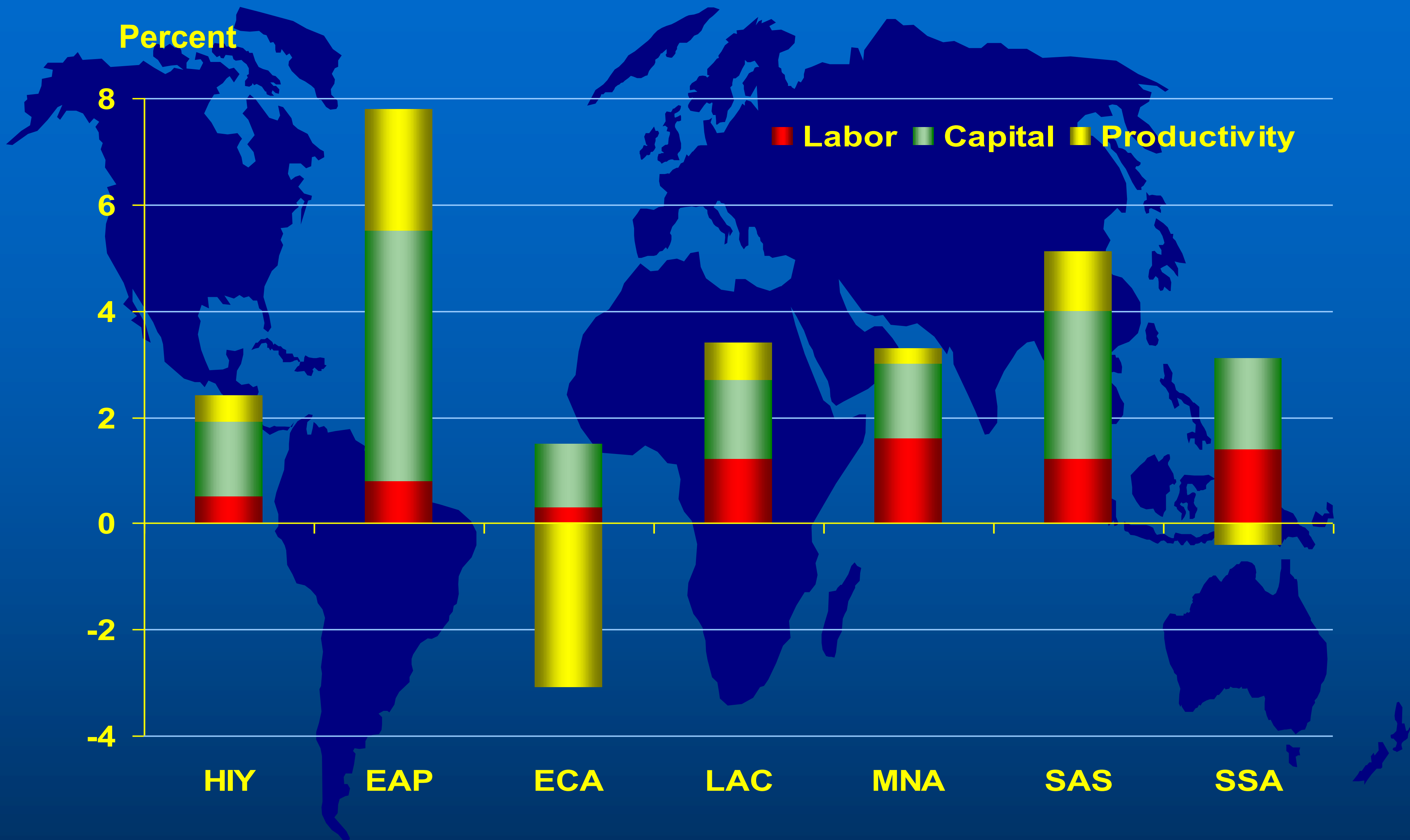


Long-term per capita growth rates

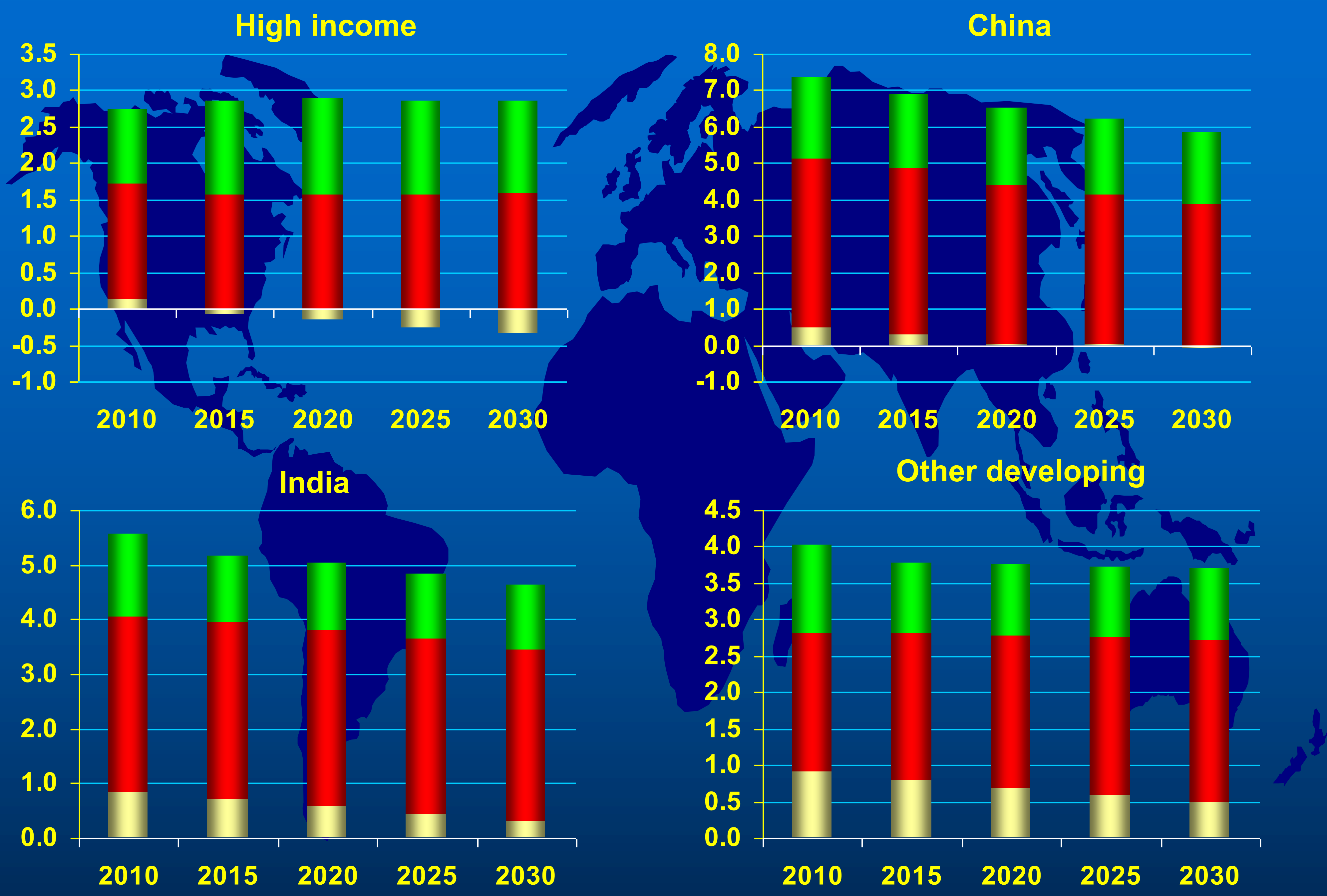
(2005/30 percent per annum)



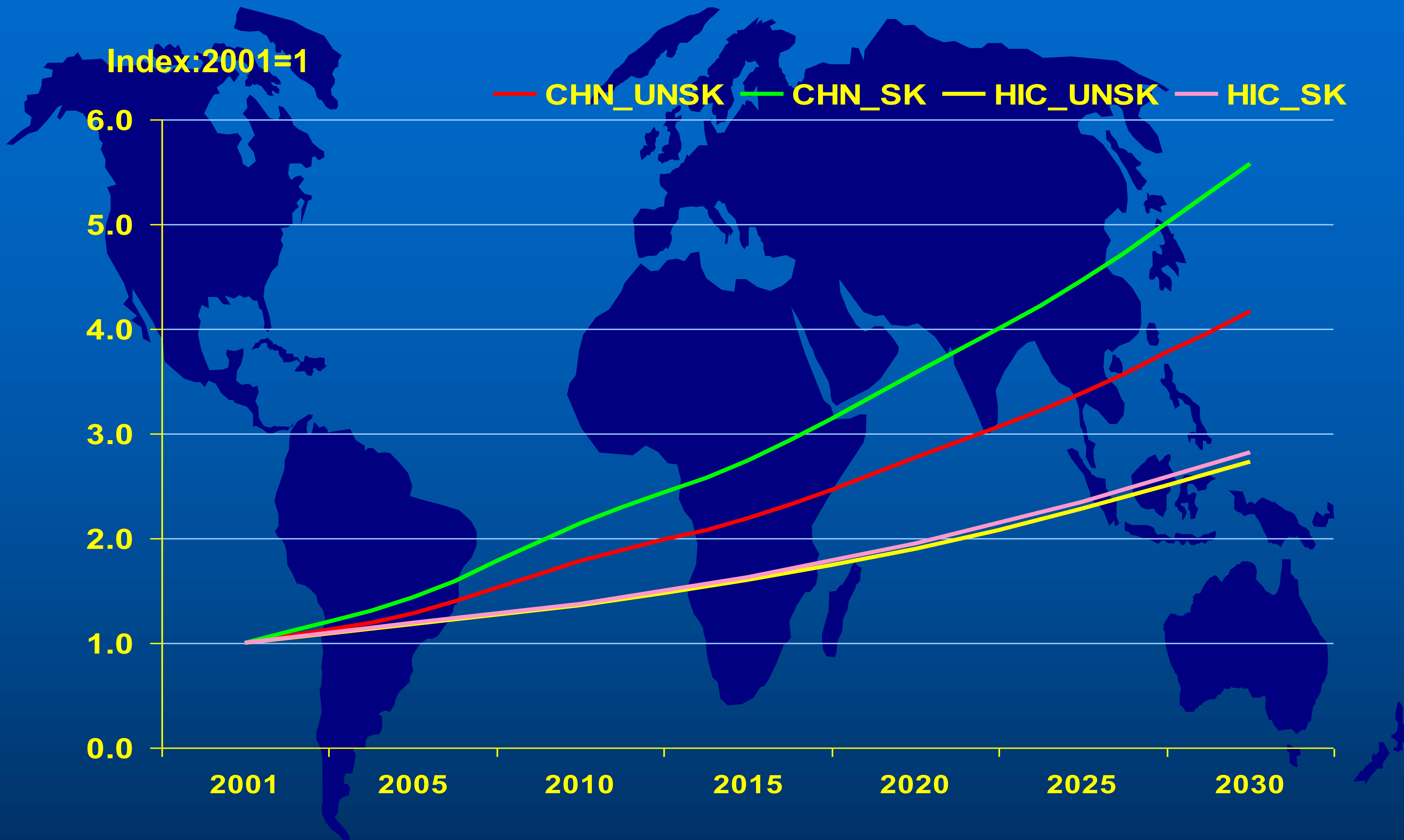
Growth decomposition—1990s



Growth decomposition—2005/30

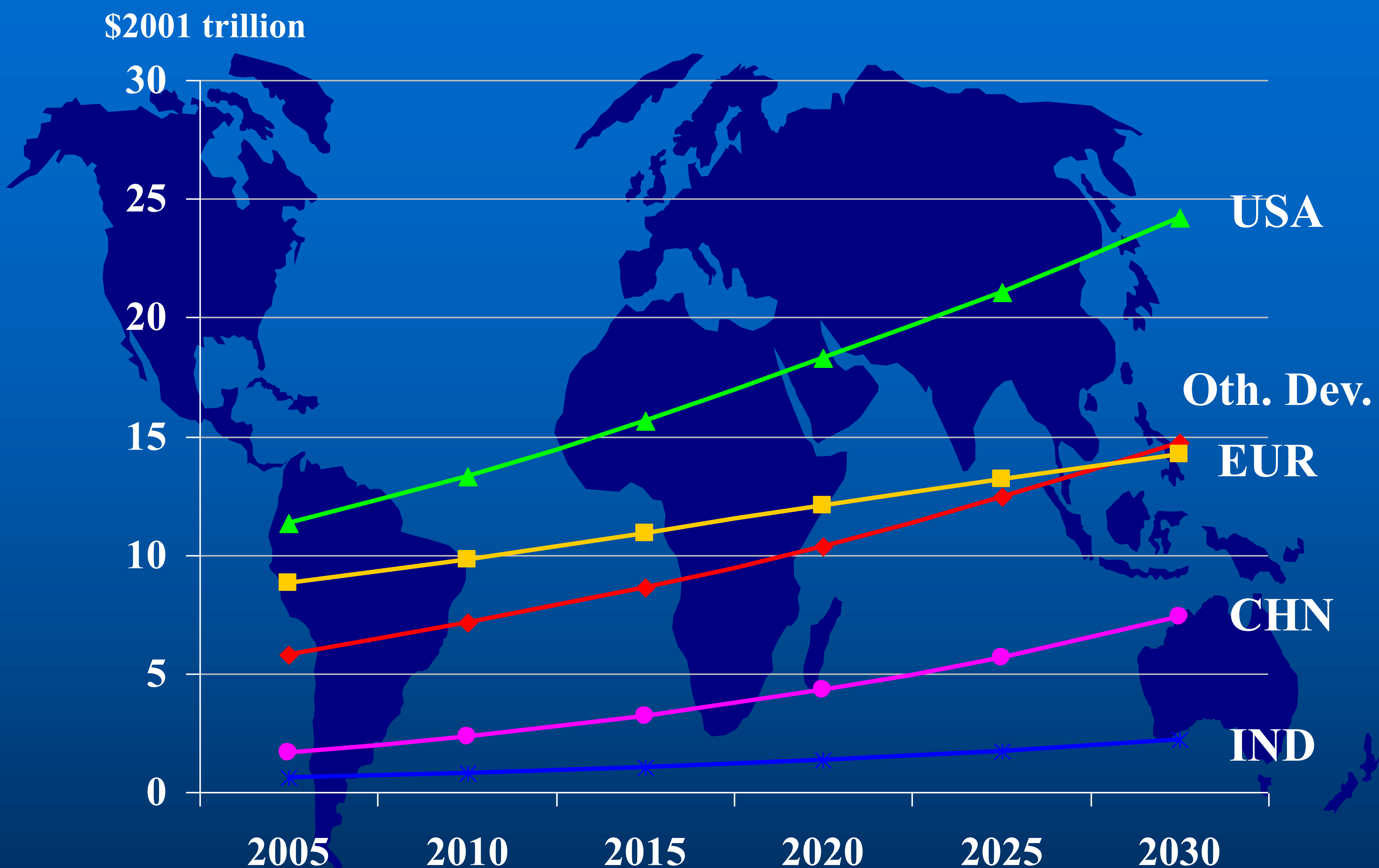


Nominal wages

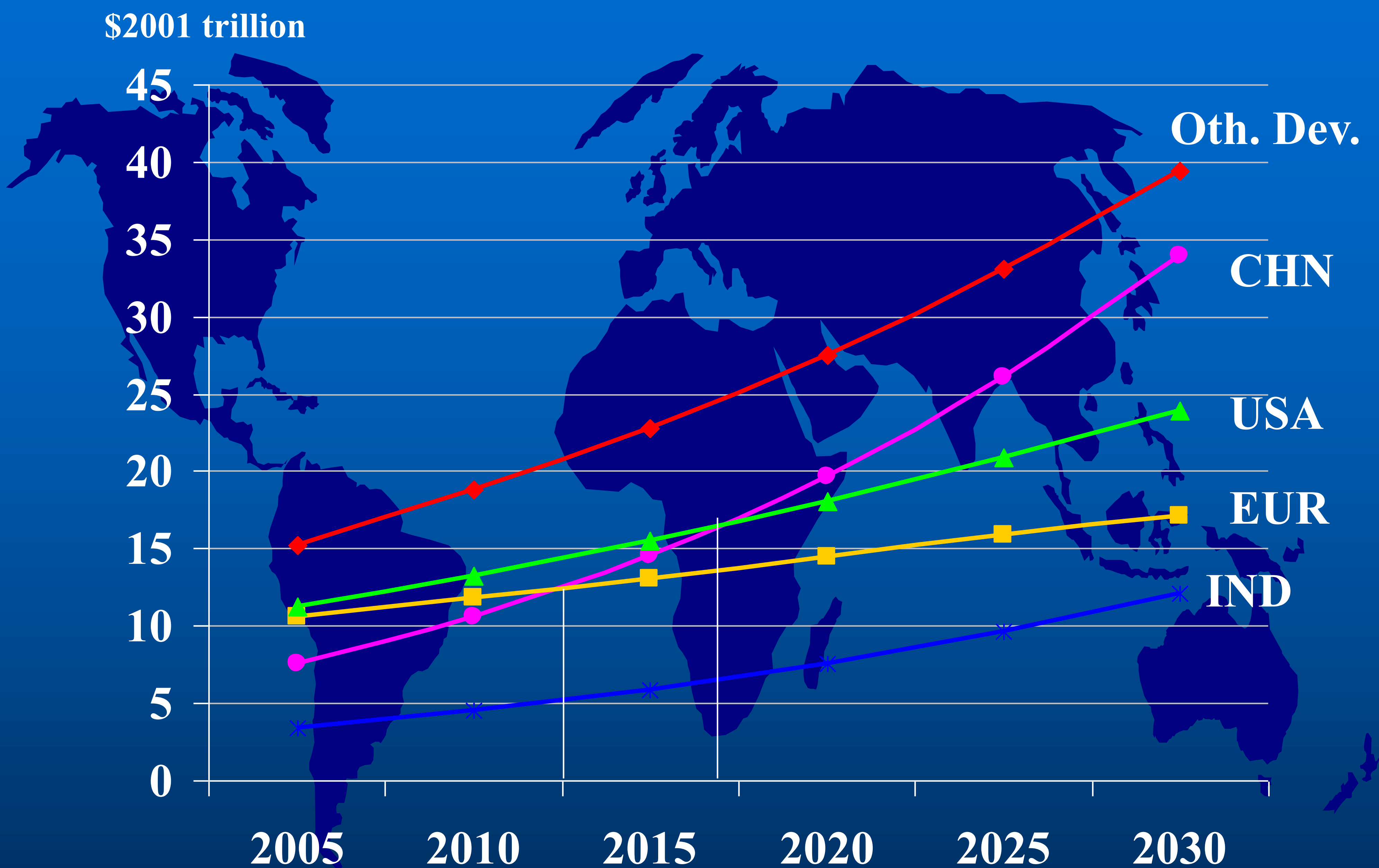


Note: Model numeraire is the unit price of OECD manufactured exports.

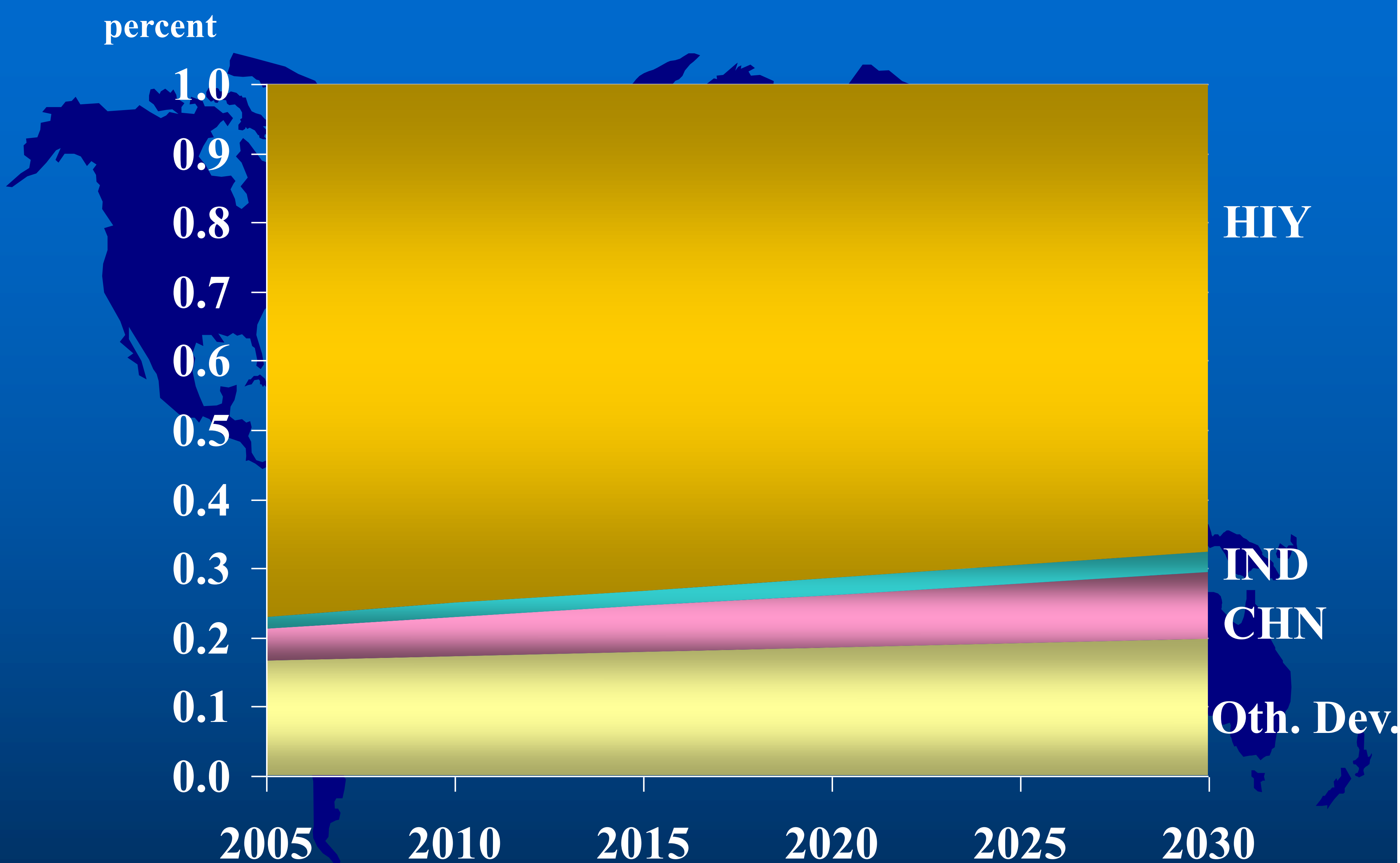
GDP at market exchange rates



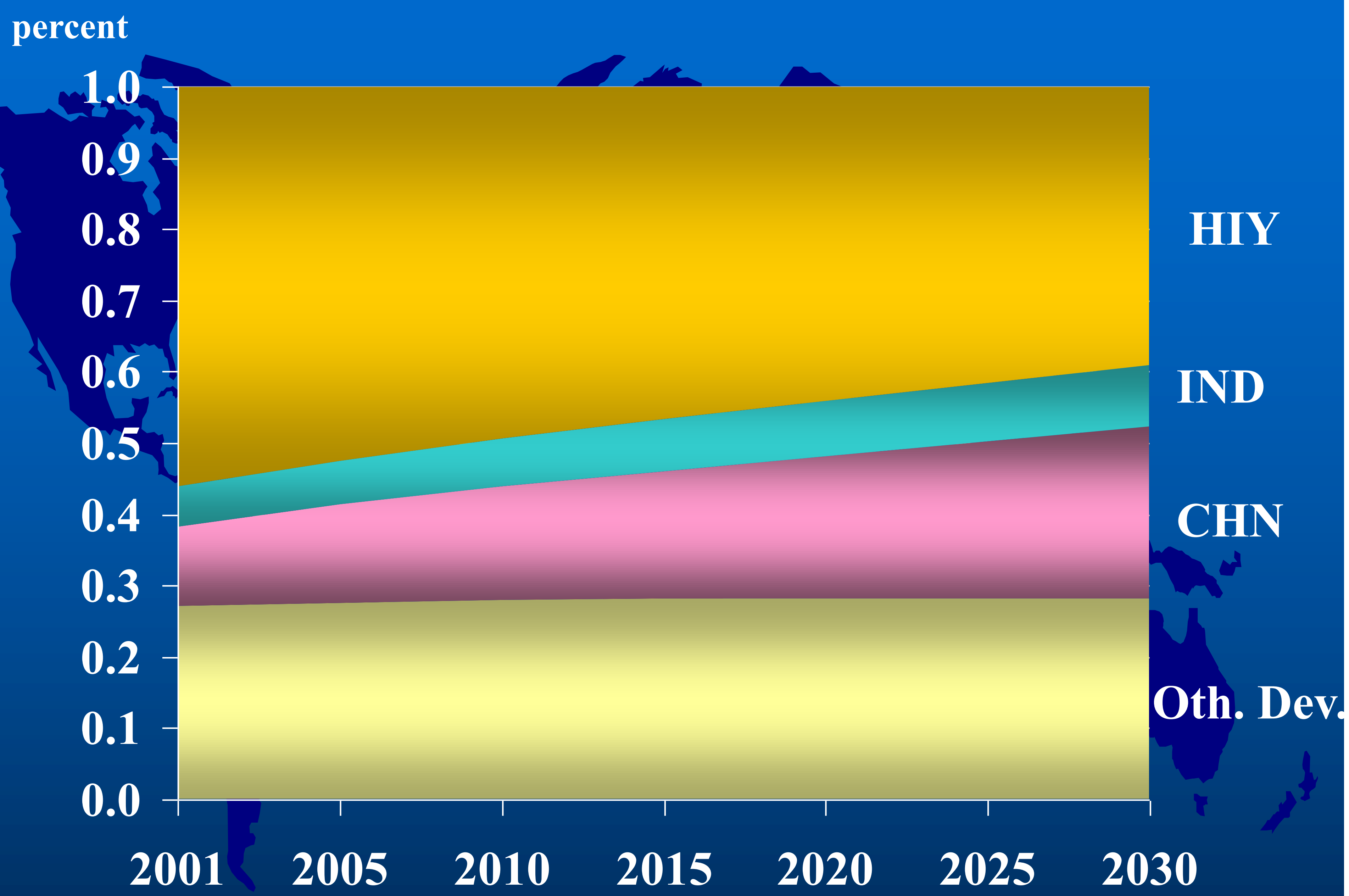
GDP at PPP exchange rates



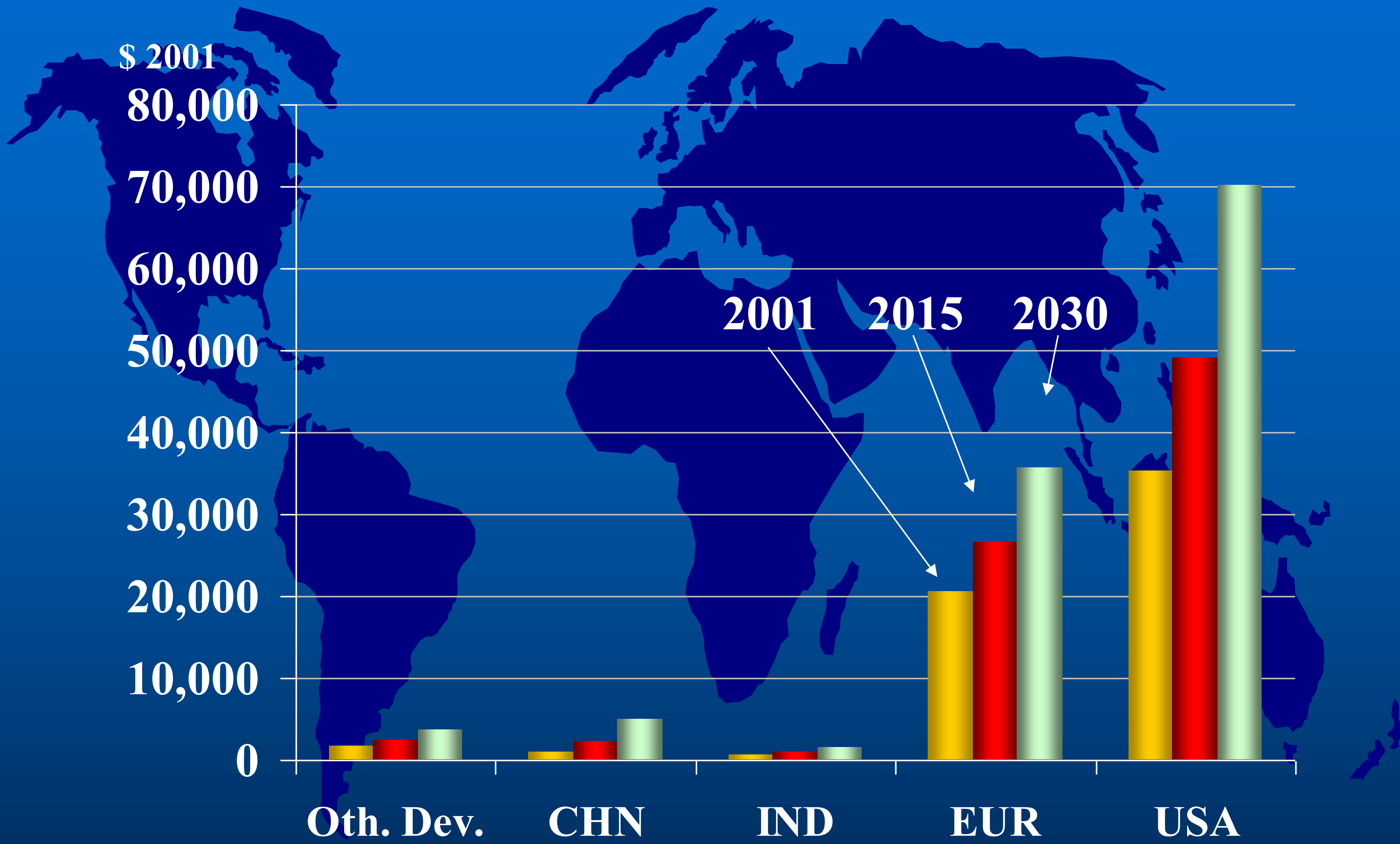
GDP shares at market exchange rates



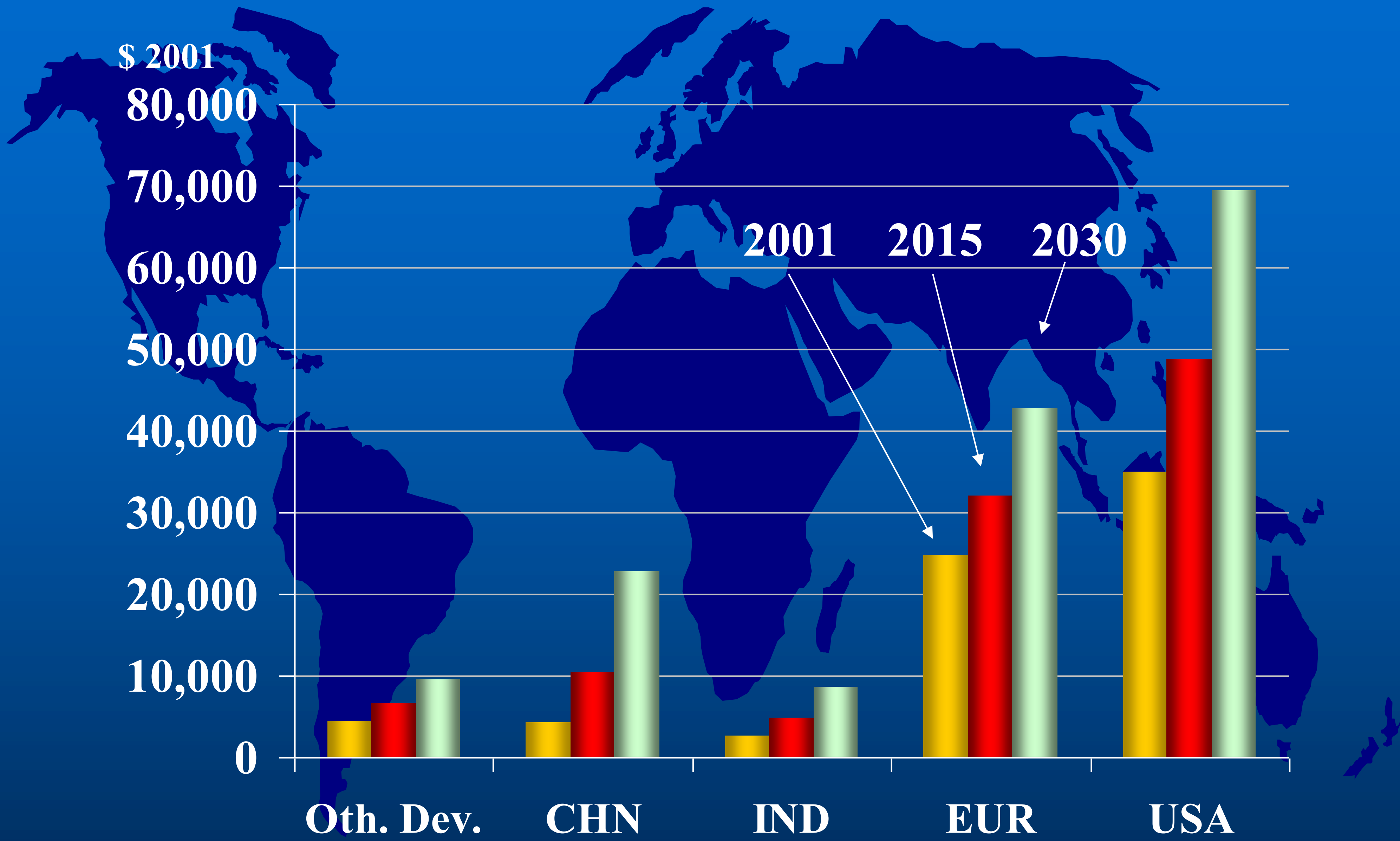
GDP shares at PPP exchange rates



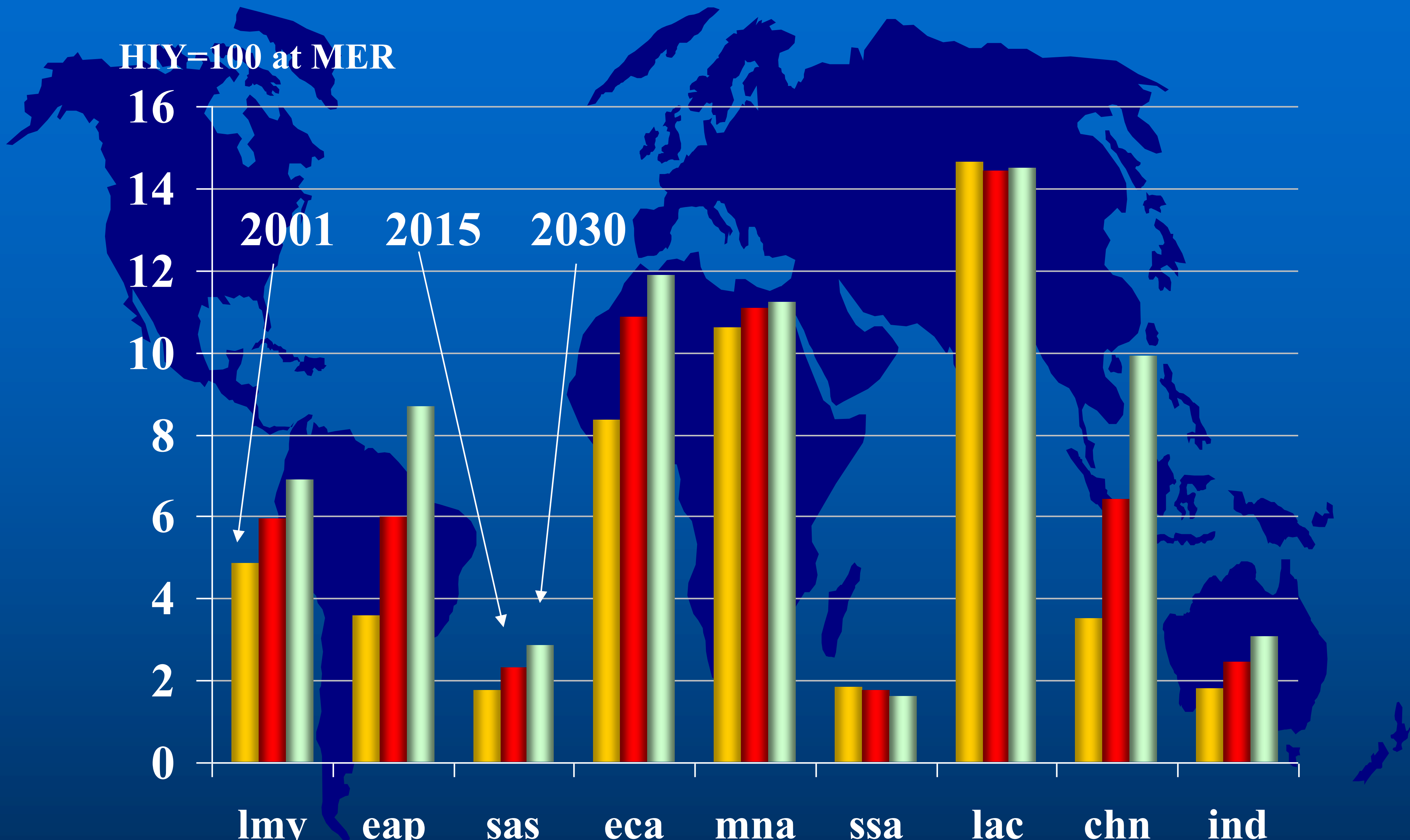
Per capita income at MER



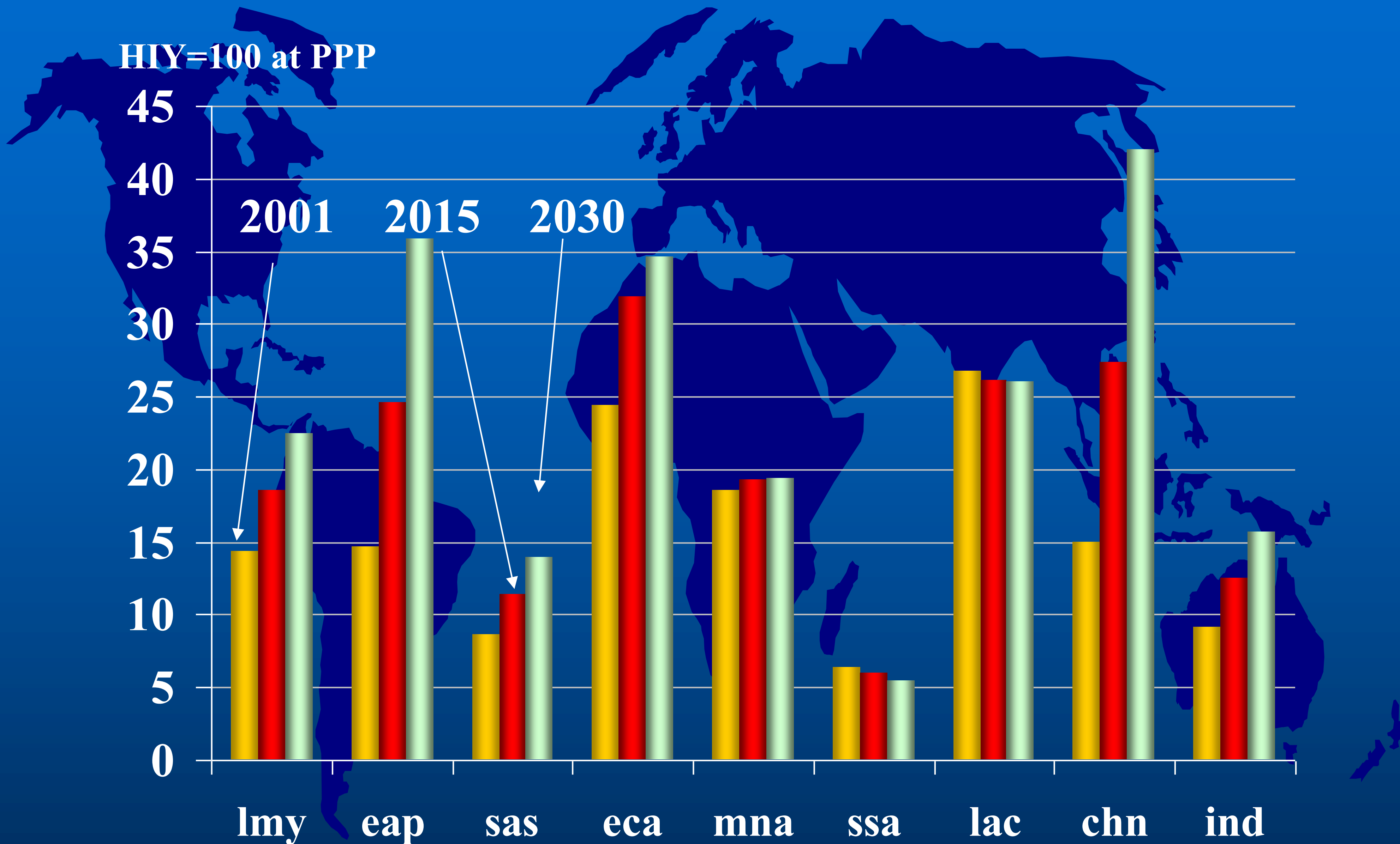
Per capita income at PPP



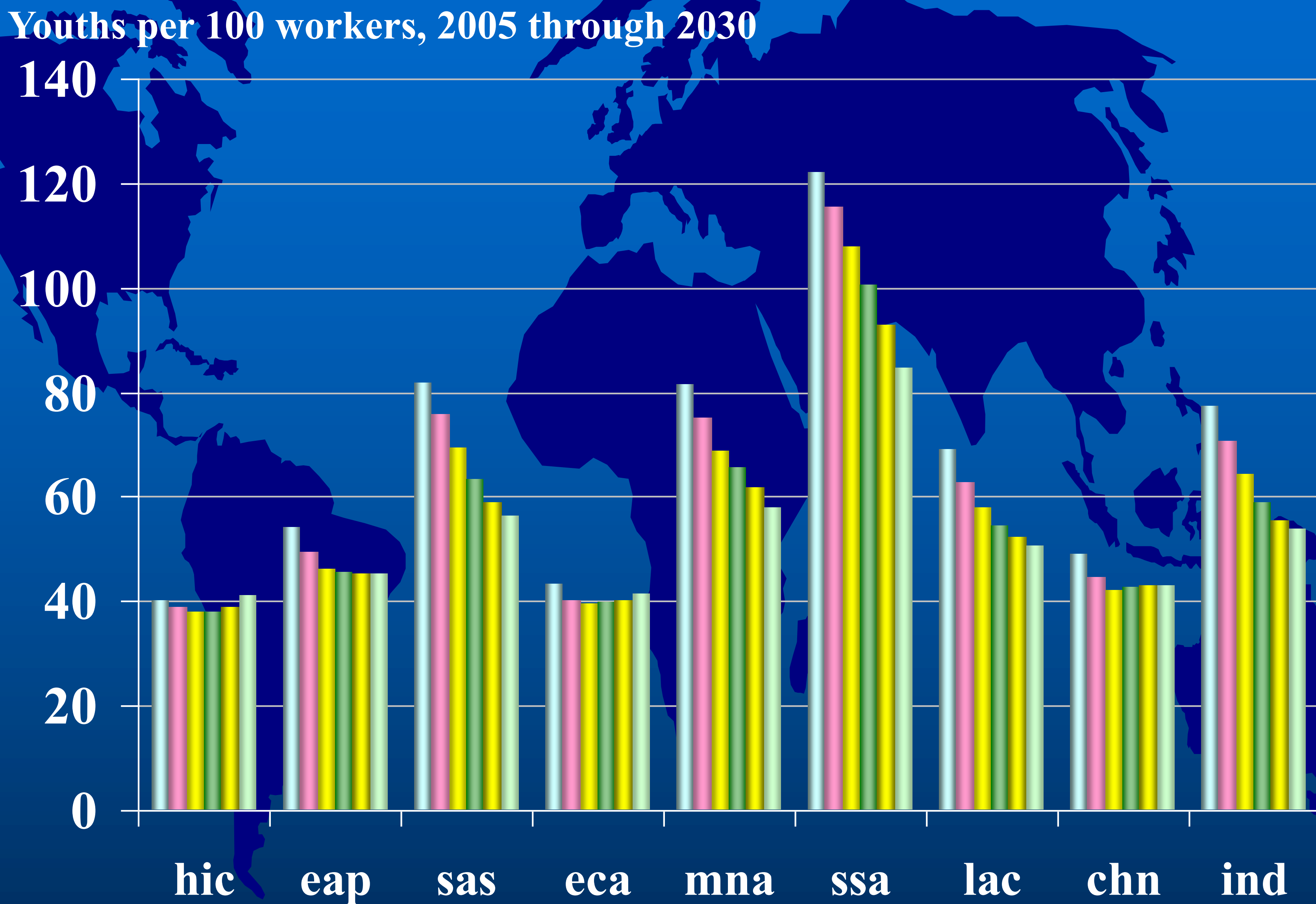
Income relative to high-income countries



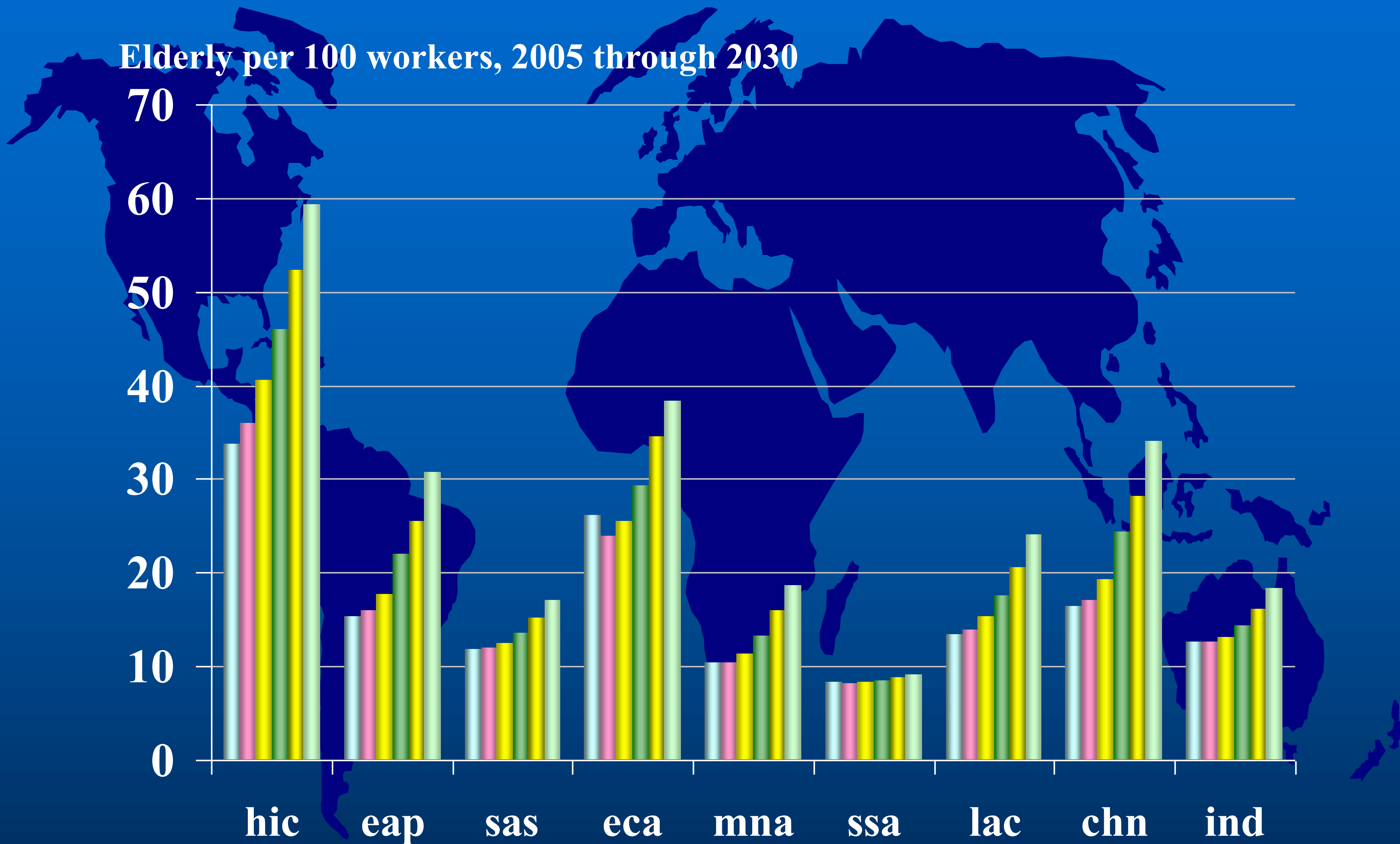
Income relative to industrial countries



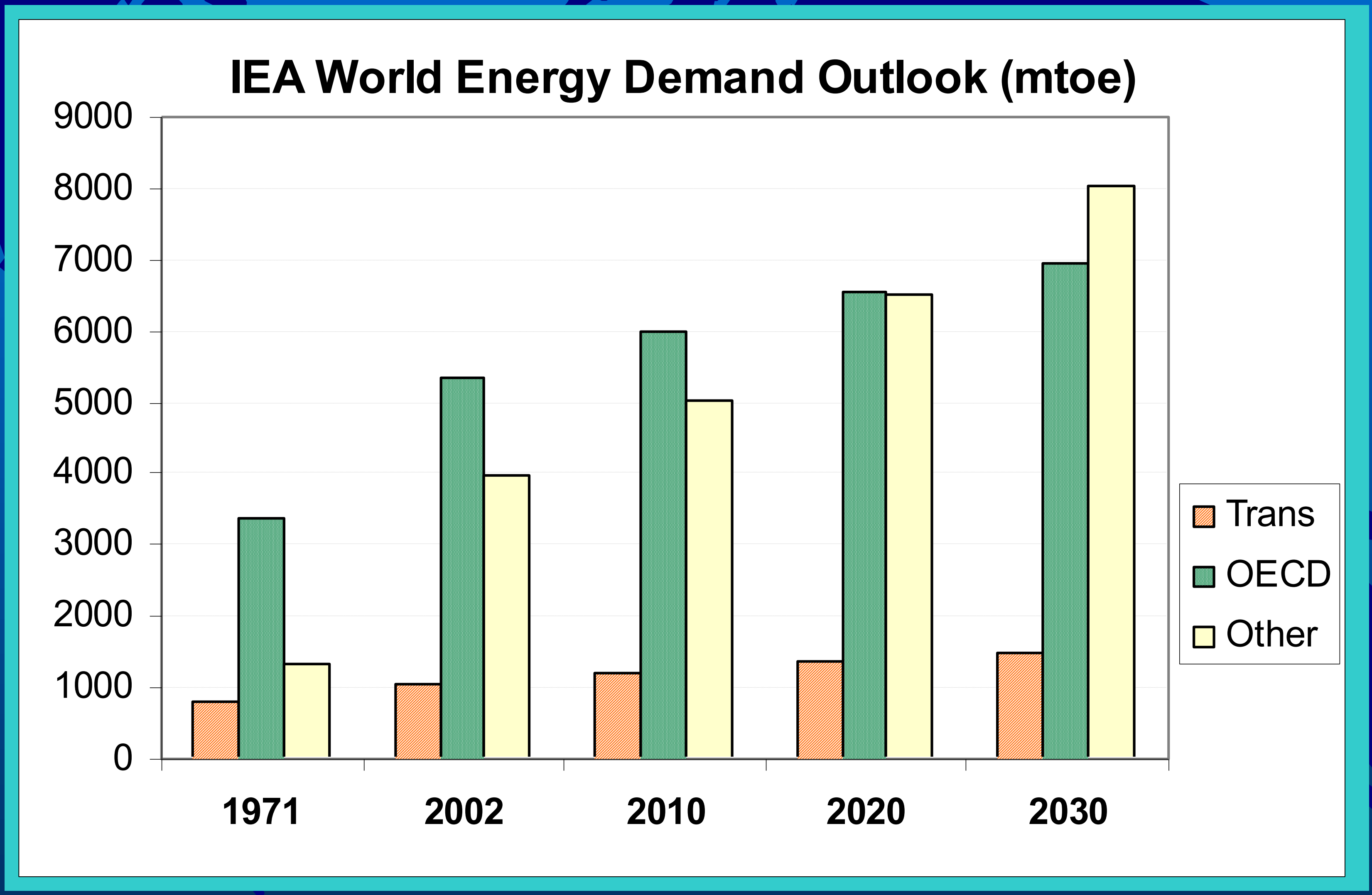
Youth dependency ratio



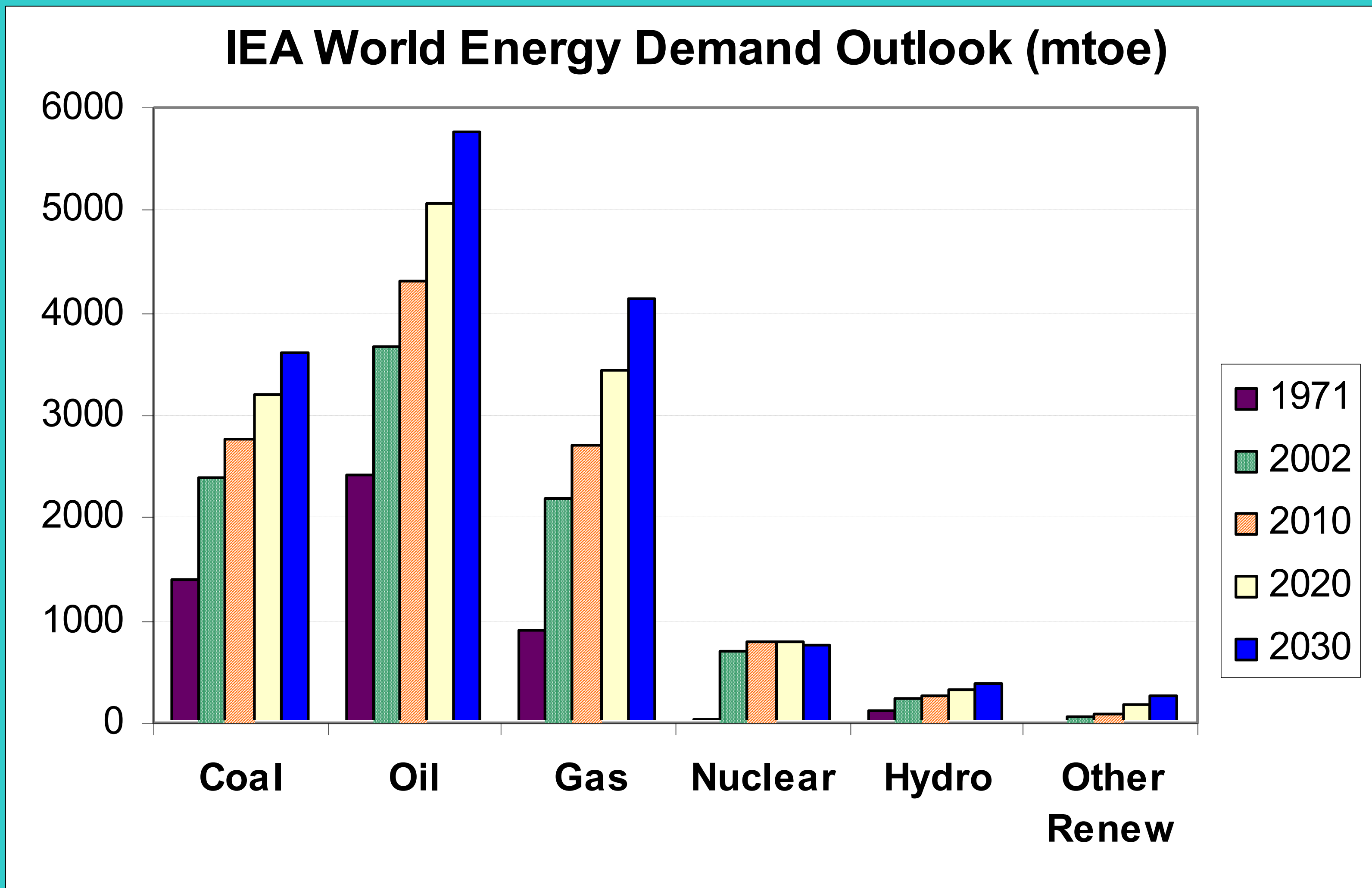
Elderly dependency ratio



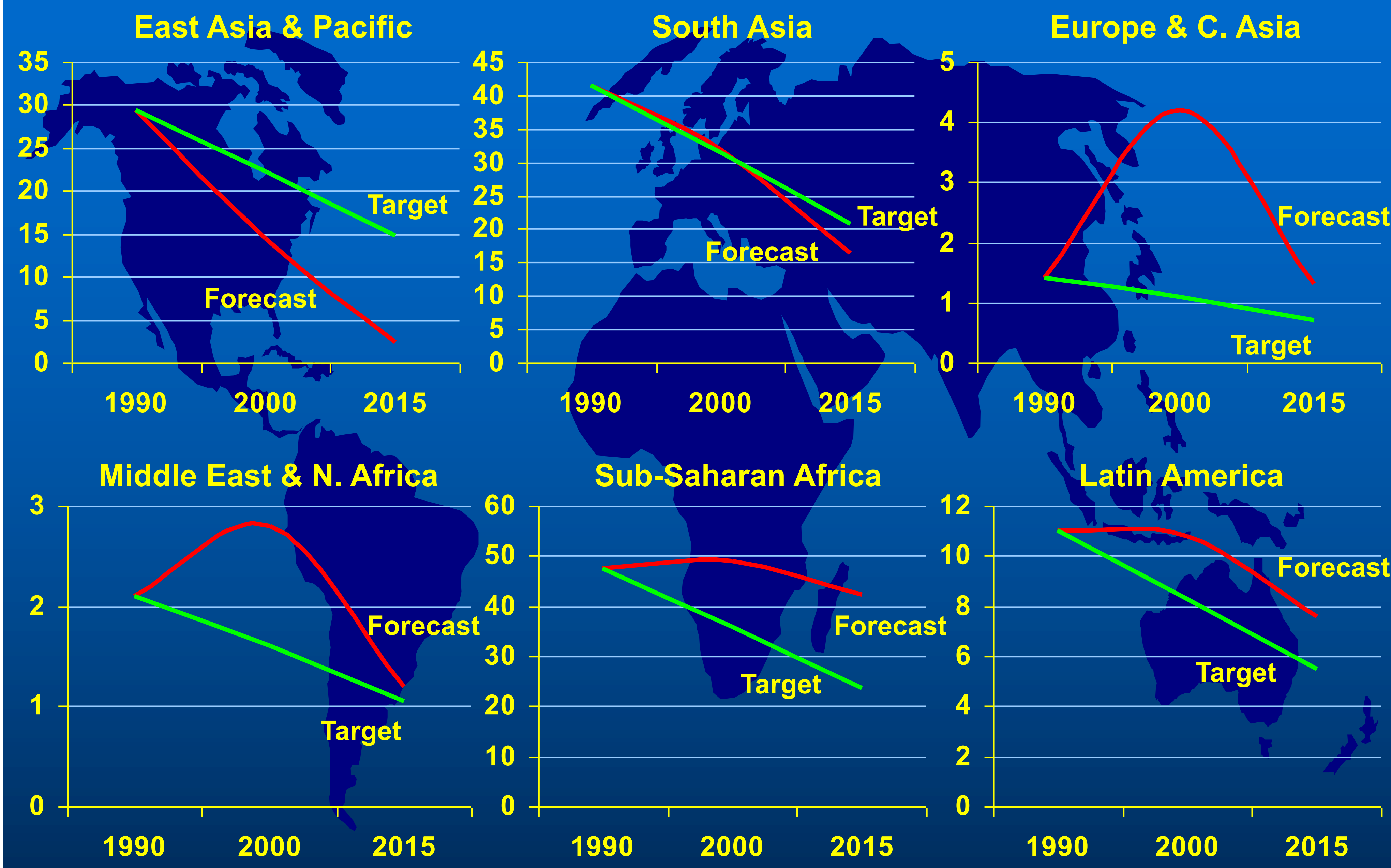
Incremental energy demand sourced in developing countries…



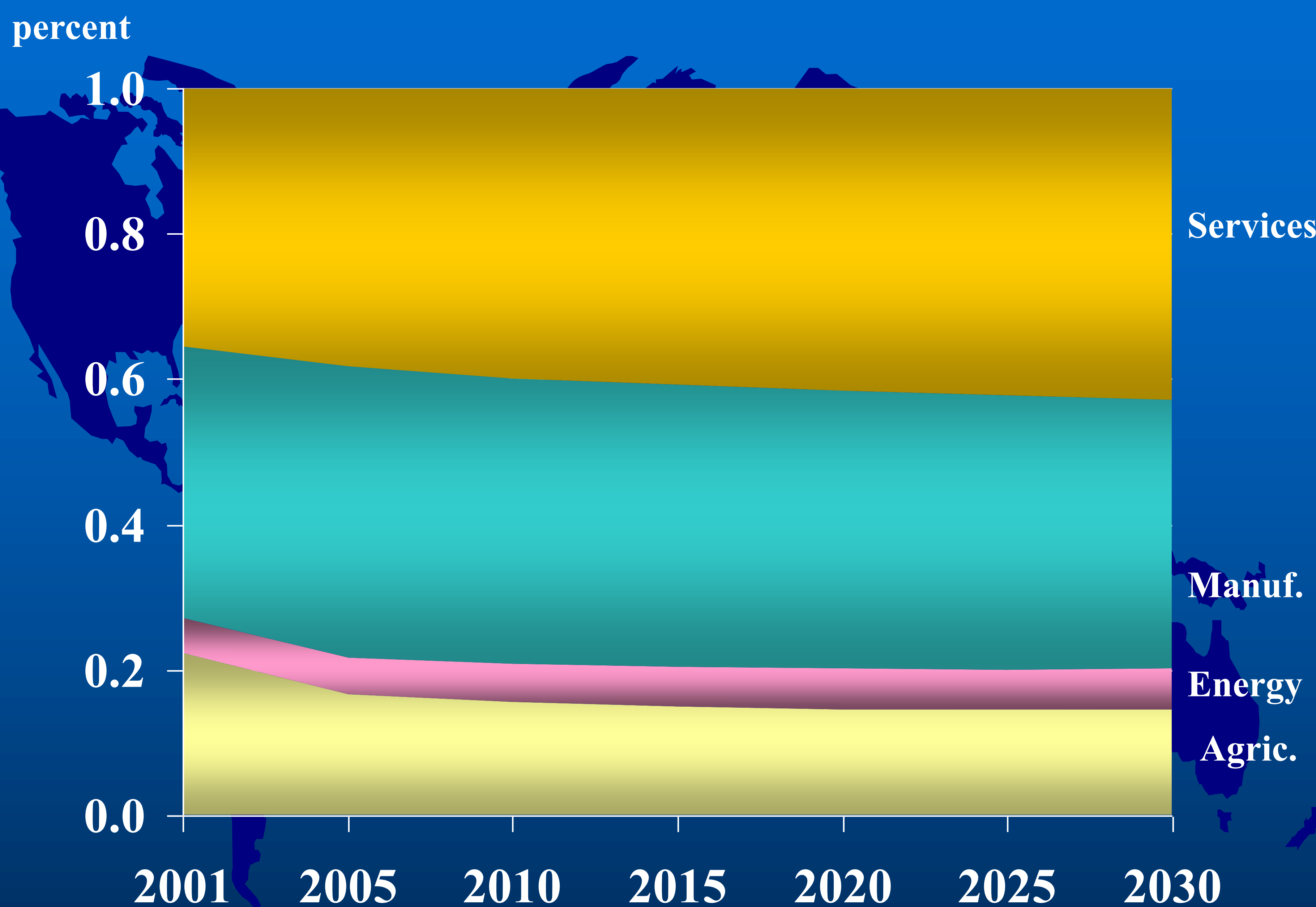
Only modest penetration of non-fossil fuels…



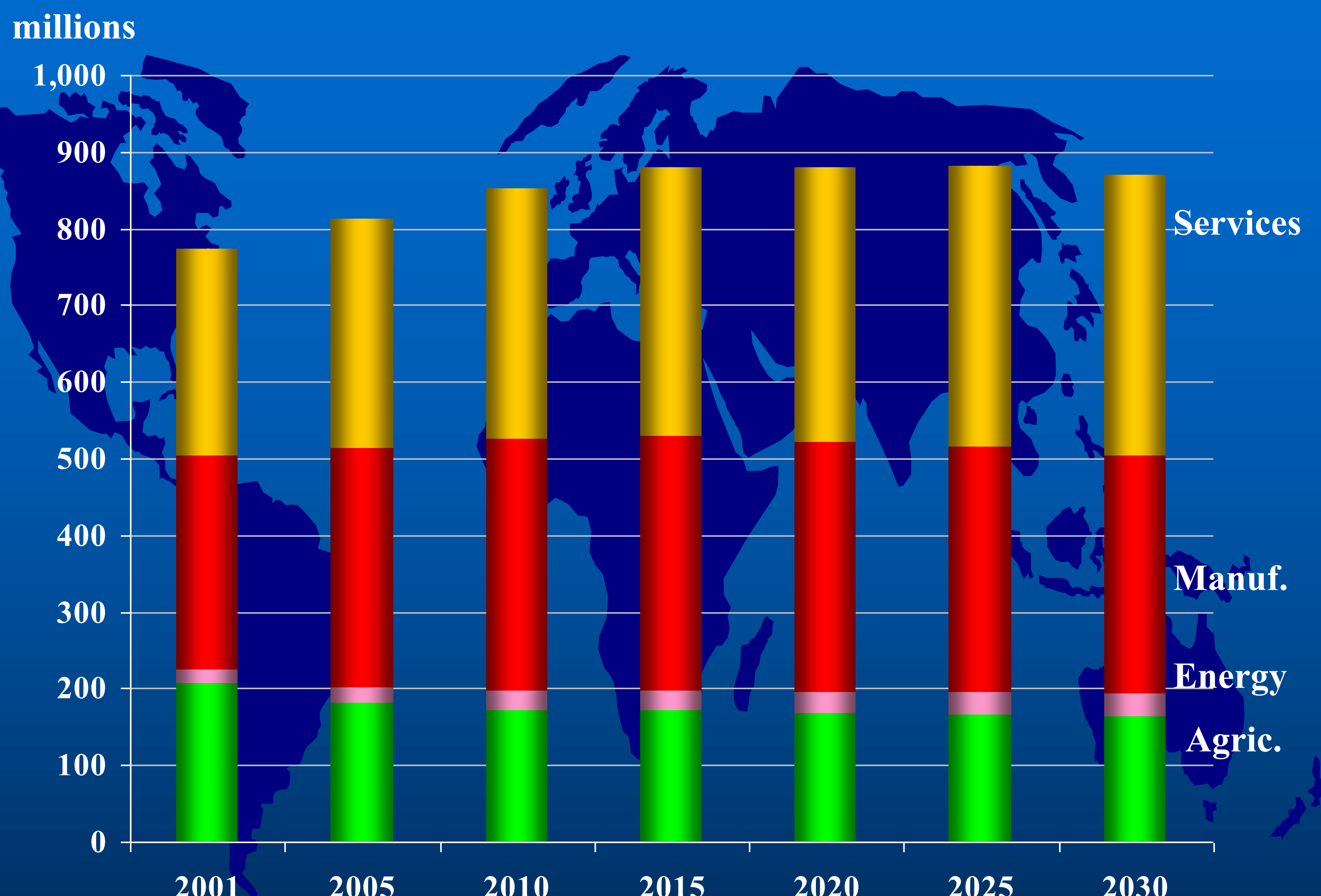
Baseline poverty scenario



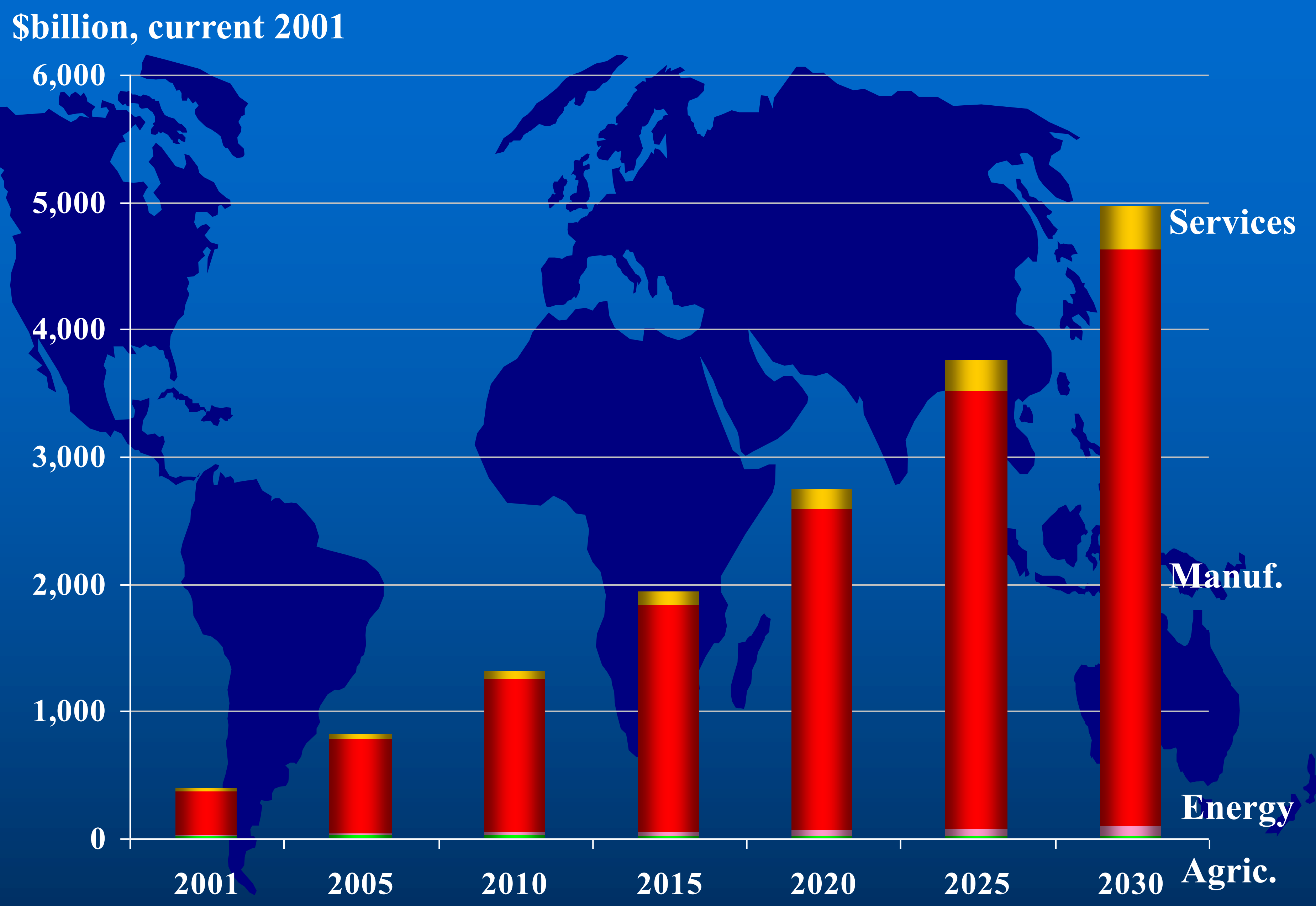
Value added shares for China



Employment for China



Chinese exports



Chinese imports