

# International Comparison Program



## Results from the International Comparison Program - 2005 Round

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### Presented to:

United Nations Statistical  
Commission  
February 26, 2008  
New York

### Presented by:

Dennis Trewin, Chair ICP Executive  
Board  
Fred Vogel, Global Manager  
International Comparison Program

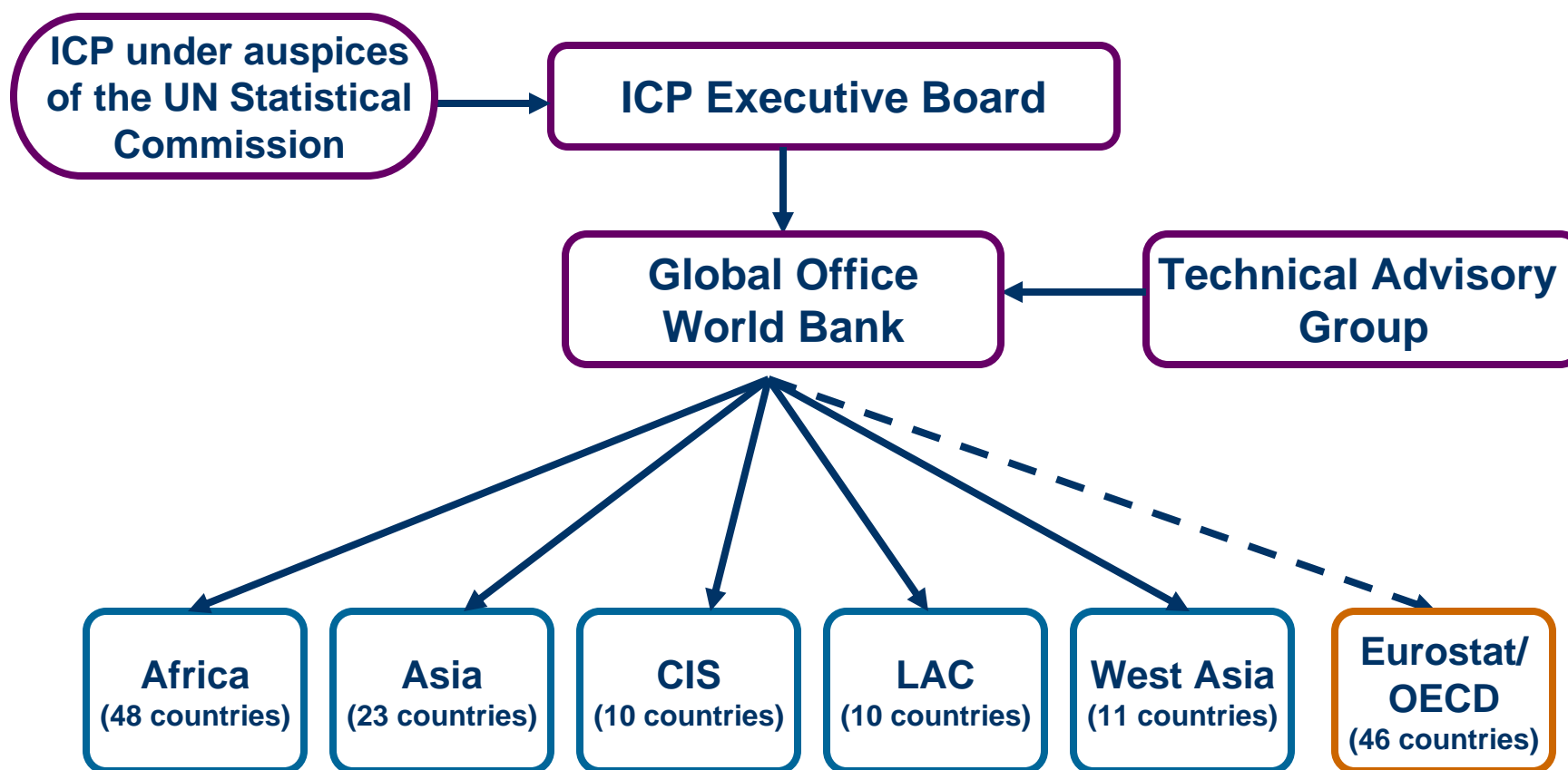


# Table of contents

- **Governance**
- **The Methodology**
- **Final Results**
- **Uses of PPPs**



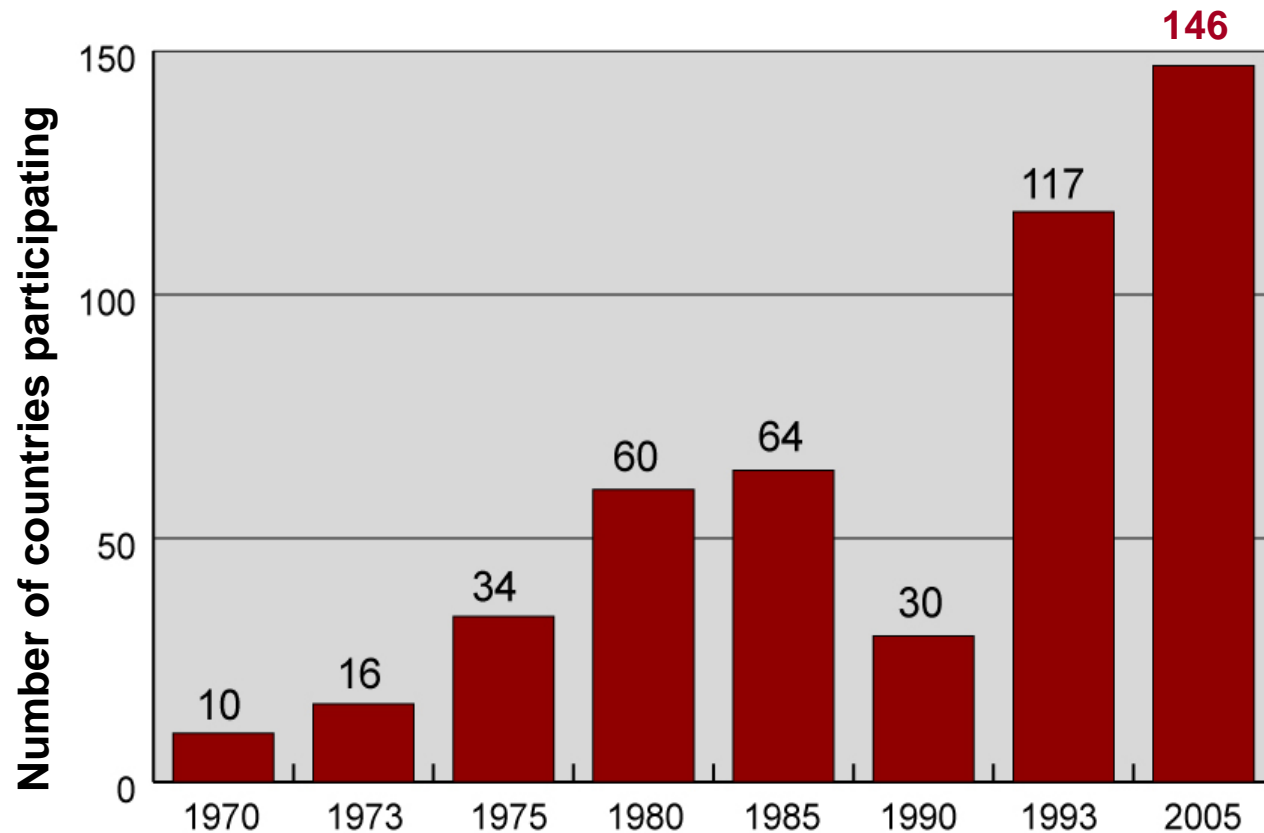
# The ICP Governance



**Note:** *Egypt and Russia participated in two regional comparisons.*



# Historical Global ICP Participation



## 2005 ICP requirements for participation

Each country must provide:

1. National annual average prices for a set of well defined goods and services; and
2. Estimates of its GDP compiled in line with the framework described in SNA93





# Economies in the ICP 2005

## East Asia and Pacific

Australia  
 Brunei Darussalam  
 Cambodia  
 China  
 Fiji  
 Hong Kong, China  
 Indonesia  
 Japan  
 Korea, Rep.  
 Lao PDR  
 Macao, China  
 Malaysia  
 Mongolia  
 New Zealand  
 Philippines  
 Singapore  
 Taiwan, China  
 Thailand  
 Vietnam  
 American Samoa  
 French Polynesia  
 Guam  
 Kiribati  
 Korea, Dem. Rep.  
 Marshall Islands  
 Micronesia, Fed. Sts.  
 Myanmar  
 New Caledonia  
 Northern Mariana Islands  
 Palau  
 Papua New Guinea  
 Samoa  
 Solomon Islands  
 Timor-Leste  
 Tonga  
 Vanuatu

## South Asia

Bangladesh  
 Bhutan  
 India  
 Maldives  
 Nepal  
 Pakistan  
 Sri Lanka  
 Afghanistan

## Sub-Saharan Africa

Angola  
 Benin  
 Botswana  
 Burkina Faso  
 Burundi  
 Cameroon  
 Cape Verde  
 Central African Republic  
 Chad  
 Comoros  
 Congo, Dem. Rep.  
 Congo, Rep.  
 Cote d'Ivoire  
 Equatorial Guinea  
 Ethiopia  
 Gabon  
 Gambia, The  
 Ghana  
 Guinea  
 Guinea-Bissau  
 Kenya  
 Lesotho  
 Liberia  
 Madagascar  
 Malawi  
 Mali  
 Mauritania  
 Mauritius  
 Mozambique  
 Namibia  
 Niger  
 Nigeria  
 Rwanda  
 Sao Tome and Principe  
 Senegal  
 Seychelles  
 Sierra Leone  
 South Africa  
 Sudan  
 Swaziland  
 Tanzania  
 Togo  
 Uganda  
 Zambia  
 Zimbabwe  
 Eritrea  
 Mayotte  
 Somalia

## Europe and Central Asia

Albania  
 Armenia  
 Austria  
 Azerbaijan  
 Belarus  
 Belgium  
 Bosnia and Herzegovina  
 Bulgaria  
 Croatia  
 Cyprus  
 Czech Republic  
 Denmark  
 Estonia  
 Finland  
 France  
 Georgia  
 Germany  
 Greece  
 Hungary  
 Iceland  
 Ireland  
 Italy  
 Kazakhstan  
 Kyrgyz Republic  
 Latvia  
 Lithuania  
 Luxembourg  
 Macedonia, FYR  
 Moldova  
 Netherlands  
 Norway  
 Poland  
 Portugal  
 Romania  
 Russian Federation  
 Serbia and Montenegro  
 Slovak Republic  
 Slovenia  
 Spain  
 Sweden  
 Switzerland  
 Tajikistan  
 Turkey  
 Turkmenistan  
 Ukraine  
 United Kingdom  
 Andorra  
 Channel Islands  
 Faeroe Islands  
 Greenland  
 Isle of Man  
 Liechtenstein  
 Monaco  
 San Marino  
 Uzbekistan

## Latin America & Carribeans

Argentina  
 Bolivia  
 Brazil  
 Chile  
 Colombia  
 Ecuador  
 Mexico  
 Paraguay  
 Peru  
 Uruguay  
 Venezuela, RB  
 Antigua and Barbuda  
 Aruba  
 Bahamas, The  
 Barbados  
 Belize  
 Cayman Islands  
 Costa Rica  
 Cuba  
 Dominica  
 Dominican Republic  
 El Salvador  
 Grenada  
 Guatemala  
 Guyana  
 Haiti  
 Honduras  
 Jamaica  
 Netherlands Antilles  
 Nicaragua  
 Panama  
 Puerto Rico  
 St. Kitts and Nevis  
 St. Lucia  
 St. Vincent & Grenadines  
 Suriname  
 Trinidad and Tobago  
 Virgin Islands (U.S.)

## North America

Canada  
 United States  
 Bermuda

## Middle East & North Africa

Bahrain  
 Djibouti  
 Egypt, Arab Rep.  
 Iraq  
 Iran, Islamic Rep.  
 Israel  
 Jordan  
 Kuwait  
 Lebanon  
 Malta  
 Morocco  
 Oman  
 Qatar  
 Saudi Arabia  
 Syrian Arab Republic  
 Tunisia  
 Yemen, Rep.  
 Algeria  
 Libya  
 United Arab Emirates  
 West Bank and Gaza

### Legend

Countries Participating in ICP  
 Countries NOT Participating in ICP

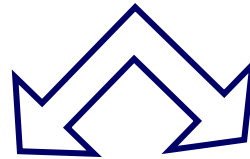
### Summary

No. Countries Participating in ICP 147  
 Total No. Countries in the World 209



# Regional Results - By Stages

**Each region worked in parallel with Economies**



## Prices

1. Prepare specification for products to be priced
2. Determine survey framework
3. Collect prices
4. Data validation
5. Compute PPPs within region

## National Accounts

1. Ensure consistency with SNA 93
2. Allocate expenditures on GDP to the 155 ICP basic headings

**To produce regional results**



# Scope and Coverage of Data Collection

Category	Africa	Asia	CIS	OECD - Eurostat	Latin America	W. Asia	Ring
Food and non - alcoholic beverages	356	223	198	422	147	353	281
Alcoholic beverages and tobacco	41	19	20	72	8	21	30
Clothing and footwear	128	78	104	319	136	162	132
Housing and utilities	21	17	22	64	18	12	35
Furnishing and household equipment	95	85	91	460	77	83	124
Health	144	112	75	244	51	69	162
Transportation	55	65	47	365	33	29	96
Communication	19	19	16	81	8	12	28
Recreation and Culture	49	70	79	336	54	59	96
Education	7	7	7	5	10	11	7
Restaurants*	51	25	45	117	14	20	60
Misc. goods and services	34	56	36	136	22	31	44
<b>Total consumption</b>	<b>1000</b>	<b>776</b>	<b>740</b>	<b>2621</b>	<b>578</b>	<b>862</b>	<b>1095</b>
<b>General Government</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>
<b>Construction</b>	<b>34</b>	<b>34</b>	<b>34</b>	<b>34</b>	<b>34</b>	<b>34</b>	<b>34</b>
<b>Equipment</b>	<b>108</b>	<b>108</b>	<b>108</b>	<b>108</b>	<b>108</b>	<b>108</b>	<b>108</b>



## Who are some of the key users of ICP?

- Underlying Premise – PPPs are the appropriate currency converters, not market exchange rates, when comparing GDP and its components across countries



# Who are some of the key users of ICP?

- Global Development economists and media analysts (poverty analysis, understanding development strategies, investment analysis)
- International organisations (IMF, World Bank, EU)
- International and national donors (analyzing policy effectiveness, funds allocations)
- National Policy makers (investment policy, fiscal policy)
- Central Banks (monetary policy to the extent that CBs can influence exchange rates)
- Businesses (use of comparative price levels to assess business opportunities, setting compensation)



# Table of contents

- **Governance**

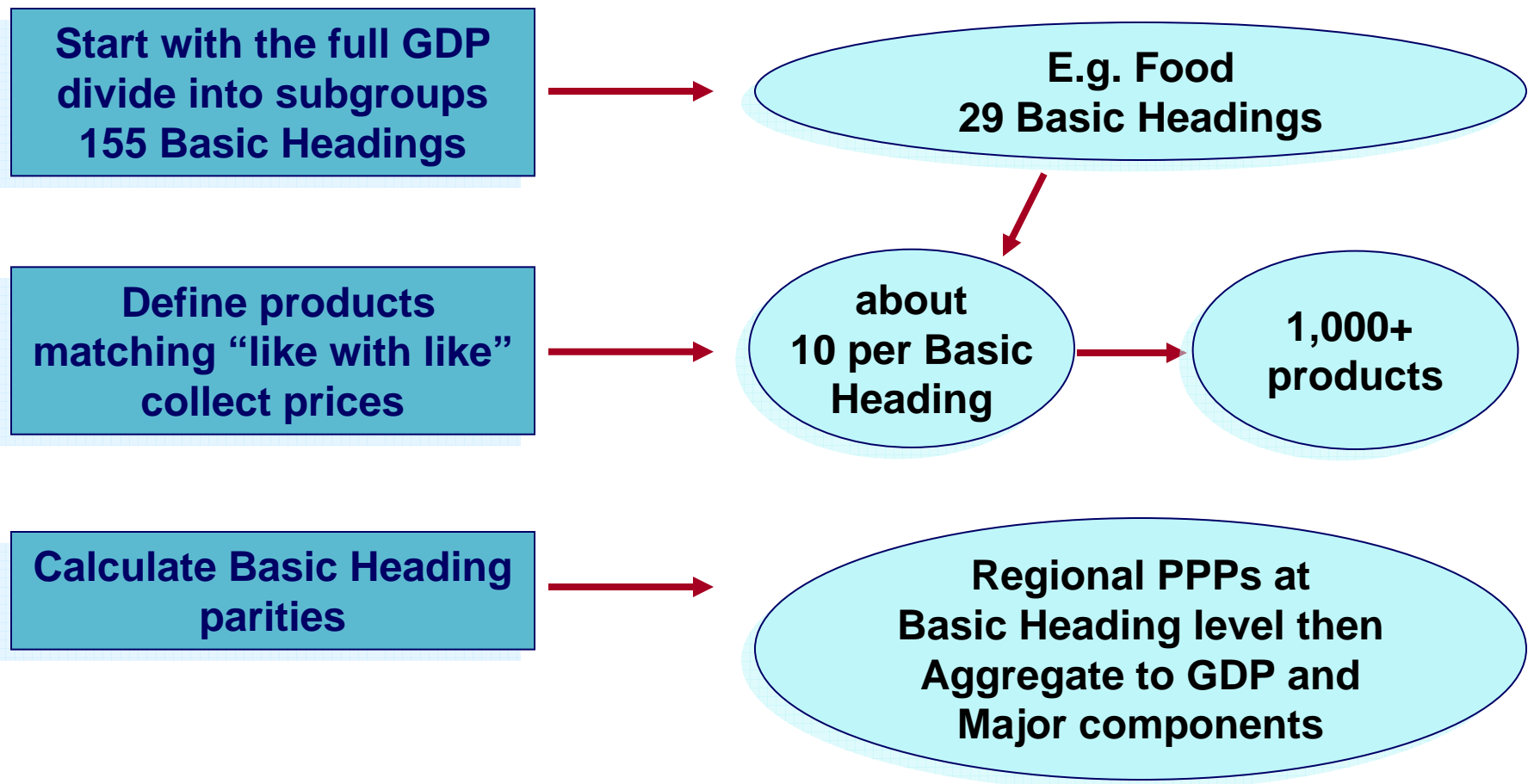
- **The Methodology**

- **Final Results**

- **Summary**



# Regional Purchasing Power Parities





# Diversity of regions required different methods

Africa

Asia

CIS

South America

Western Asia

**Eurostat-OECD**

Five regions  
(plus Eurostat-OECD)



Have different:

- Economies (size, structure)
- Statistical capacity



- Methodologies



# Methods Used to Compute Regional PPPs & Global Linking Factors

Aggregate	Africa	Asia	W. Asia	S. America	Eurostat OECD (incl. Russia)	Combining regions (excl. the CIS)	CIS (linked via Russia)
<b>Household Consumption</b>	CPD	CPD	CPD	CPD	EKS*	CPD 18 ring countries	EKS*
	No representative indications	No representative indications	No representative indications	No representative indications	With representative indications	No representative indications	With representative indications
<b>Housing</b>	Imputed to per capita volume of Consumption excluding rents	Imputed to per capita volume of Consumption excluding rents	Quantity indicators plus rental prices	Quantity indicators	Quantity indicators plus rental prices	CPD using quantity and quality indicators for 106 countries	Quantity indicators
<b>Compensation</b>	Global list	Global list	Global list	Global list	Regional list	CPD using wages for 75 ICP countries plus 5 for Eurostat	Regional list
	CPD Productivity adjustment	CPD Productivity adjustment	CPD Productivity adjustment	CPD	EKS Ring countries priced global list	No productivity adjustment	EKS
<b>Equipment</b>	Global List	Global List	Global List	Global List	Regional list	Global List	Regional list
	CPD Imputed for xx countries	CPD	CPD	CPD	EKS Ring countries priced global list	CPD For ring countries	EKS
<b>Construction</b>	Basket of Construction Components	Basket of Construction Components	Basket of Construction Components	Basket of Construction Components	Bill of Quantity	Basket of Construction components	CIS basket of components
	CPD with regional W2 weights Imputed for xx countries	CPD with regional W2 weights	CPD with regional W2 weights	CPD with regional W2 weights	Ring countries priced Basket of Construction components	CPD Ring Countries no W2 weights	
<b>NPISH</b>	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Reference PPPs for NPISH		Reference PPPs for NPISH
<b>Aggregation to GDP</b>	Ikle	EKS	EKS	EKS	EKS	EKS	EKS



# Linking Regions for Global Comparison

- **The previous steps done independently by each of 6 regions**
- **Need to link regions so all are compared to the same base**
  - **Selected economies from each region collected prices using a product list reflecting the world as a whole**
  - **Between region PPPs computed same as between countries within regions.**





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# Ring to Link Regions

- Ring was a new concept—developed and implemented at nearly the same time.
- Linking methodology—see ICP Handbook [www.worldbank.org/data/icp](http://www.worldbank.org/data/icp)
- Source of questions from the countries about how regional PPPs relate to global PPPs.
- Annex added to final ICP report
- Example follows



# Linking Factors – Numerical Example

**1.**

RING PRICES - BH	Region I				Region II			Region III
Product	A	B	C	D	E	F	G	H
1	2	100		25	20	600		etc.
2	5		12			900	450	
3	6	270	15			1,000	400	
4		320	70		180	5,000		
5	8	280		120	120	2,000	500	
6		210	60		100		350	
7			50	140				
8		120	12	100	80	800		
9	2			10	25	1,500	150	
10					40		260	

**2.**

PPPs (Within-region)	1	30	5	13	1	30	6
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**3.**

DEFLATED PRICES	Region I				Region II			Region III
Product	A	B	C	D	E	F	G	H
1	2	3		2	20	20		etc.
2	5		2			30	75	
3	6	9	3			33	67	
4		11	14		180	167		
5	8	9		9	120	67	83	
6		7	12		100		58	
7			10	11				
8		4	2	8	80	27		
9	2			1	25	50	25	
10					40		43	

**4.**

Regional coefficients (PPPs)			
Method	I	II	III
CPD	1	10.56	etc.

**5.**      **6.**

Country	Region	PPPs (Within-region)	LINKING FACTORS	GLOBAL PPP
A	I	1	1	1
B	I	30	1	30
C	I	5	1	5
D	I	13	1	13
E	II	1	10.56	10.56
F	II	30	10.56	316.80
G	II	6	10.56	63.36
H	III	etc.	etc.	etc.

Base Country for Region I  
For the ICP: US

Base Region  
For the ICP: OECD



# How regional results differ from Global Report

- **The Ring linking provides a regional scalar for every basic heading and level of aggregation**
- **Within region country PPP times between region PPP = global PPP**
- **Within region country PLI times between region PLI = global PLI**



# Regional Price Level Indices and linking

## Regional Price Level Indices (US = 1) for each level of aggregation

PRICE LEVEL INDEX, US=1	Africa	Asia/ Pacific	CIS	OECD- Eurostat	South America	West Asia
GDP	46	41	43	99	52	51
Actual Individual Consumption	46	39	36	98	52	49
Food and non-alcoholic beverages	83	60	55	111	69	62
Alcoholic beverages, tobacco and narcotics	64	65	37	93	37	49
Clothing and footwear	65	56	91	111	82	60
Housing, water, electricity, gas and other fuels	30	39	17	92	48	60
Furnishings, household equipment and maintenance	57	62	67	107	72	54
Health	22	9	15	76	27	19
Transport	89	70	72	123	89	55
Communication	92	35	61	98	58	93
Recreation and culture	77	48	51	107	79	76
Education	15	11	8	67	28	21
Restaurants and hotels	78	73	66	124	71	118
Miscellaneous goods and services	48	46	45	102	54	44



# Table of contents

- **The Program**
- **The Methodology**
- **Final Results**
- **Uses of PPPs**



# A snapshot of the world in 2005

## Purchasing Power Parities

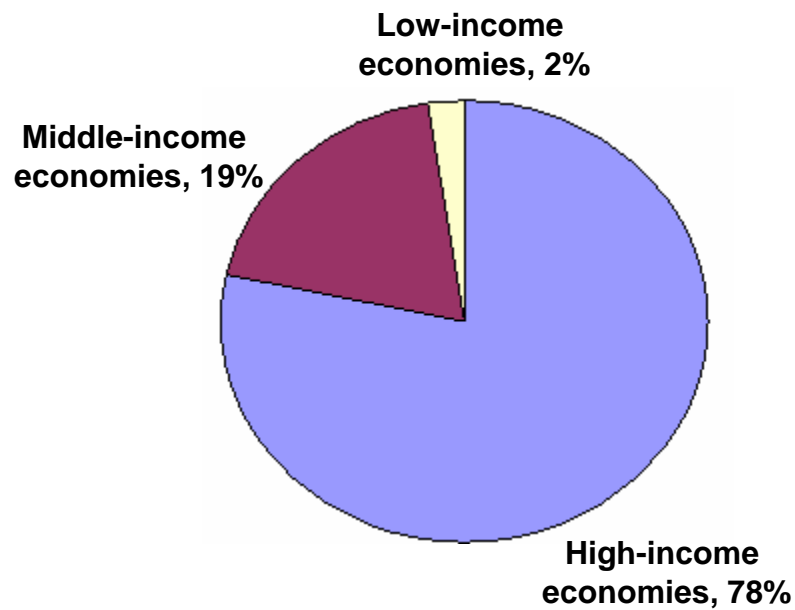
- ✓ **Size of the world**
- ✓ **Economic well being**
- ✓ **Relative living costs**



# New view of world economy

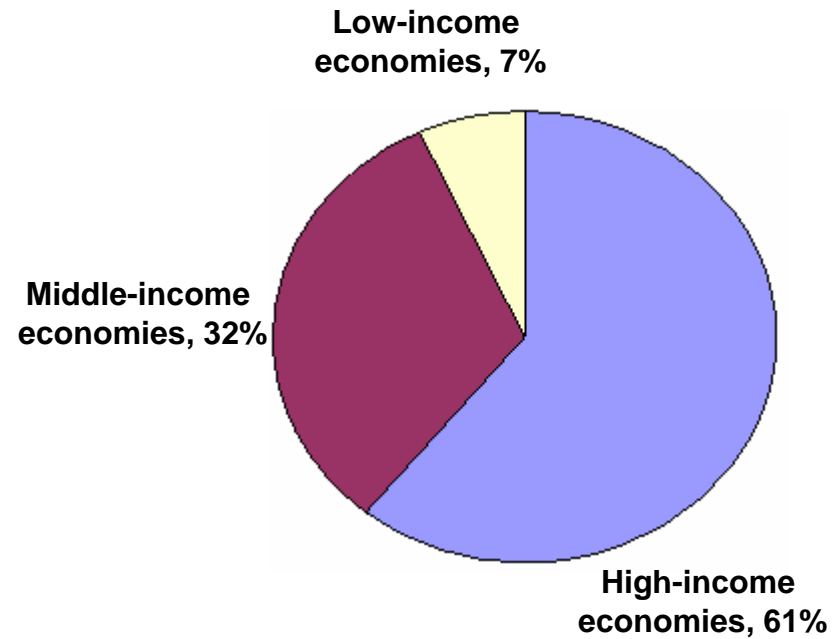
## World Share of GDP

Based on Market Exchange Rates



## World Share GDP

Based on PPP





# The size of the world economy

<b>GDP 2005 (\$ billions)</b>	<b>ICP 2005 GDP @PPP</b>	<b>Previous GDP @PPP</b>	<b>GDP @ Market exchange rates</b>
World---146 countries	54,975	59,712	44,306
High income: OECD	31,422	31,726	33,342
Africa*	964	1,264	486
Asia and Pacific*	10,971	16,367	4,221
CIS	2,269	2,171	970
South America*	2,698	2,911	1,411
West Asia	1,158	932	588

\* Excludes exporting countries.

Note: Regional totals do not include all ICP participants.

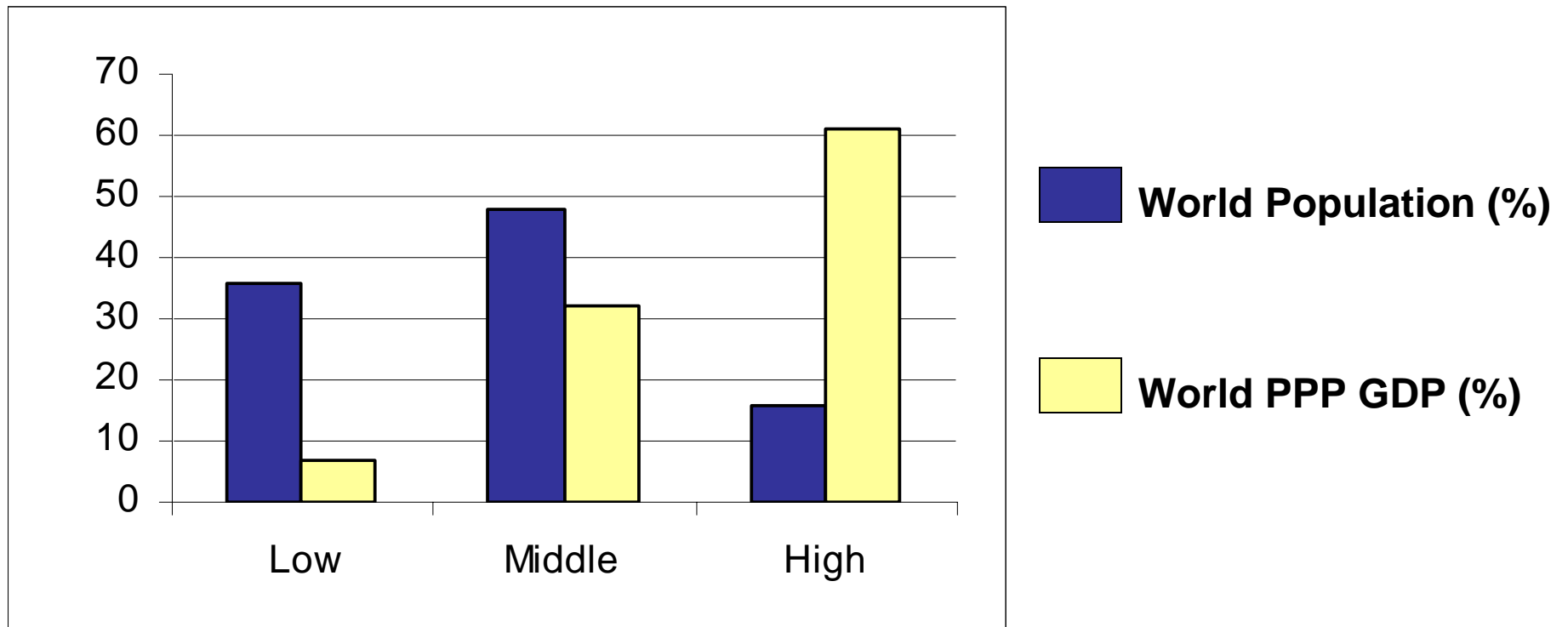


# Reasons new PPPs differ from previous data in the WDI

- **More countries included in the 2005 ICP Round**
  - China first time — India first time since 1985
  - More African countries.
- **New methodology for housing, government, linking regions**
- **Data quality improved due to better statistical capacity of countries.**
- **Products priced differed from 1993 to 2005 ICP Rounds.**
- **System of National Account (SNA) changed from SNA 68 to SNA 93 in many countries.**
- **Previously extrapolated data were at GDP level, while new PPPs are computed at individual product/basic heading level.**



# People and their spending



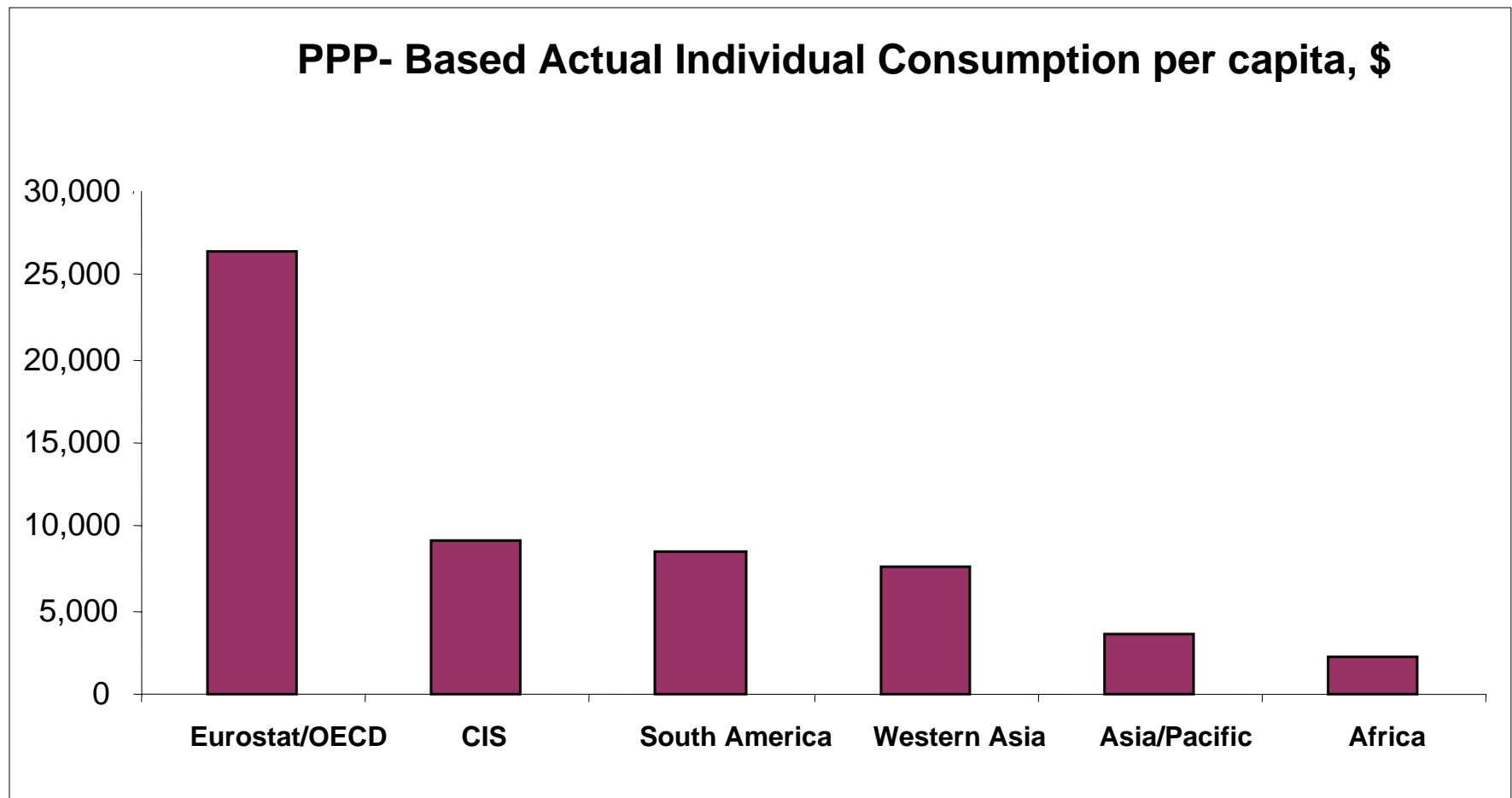


# The largest dozen

- Twelve economies account for two-thirds of world expenditures.
- The five largest are US, China, Japan, Germany, and India.
- Seven are high income economies: US, Japan, Germany, the UK, France, Italy, and Spain.
- And five are low- or middle-income economies: China, India, Russia, Brazil, and Mexico.



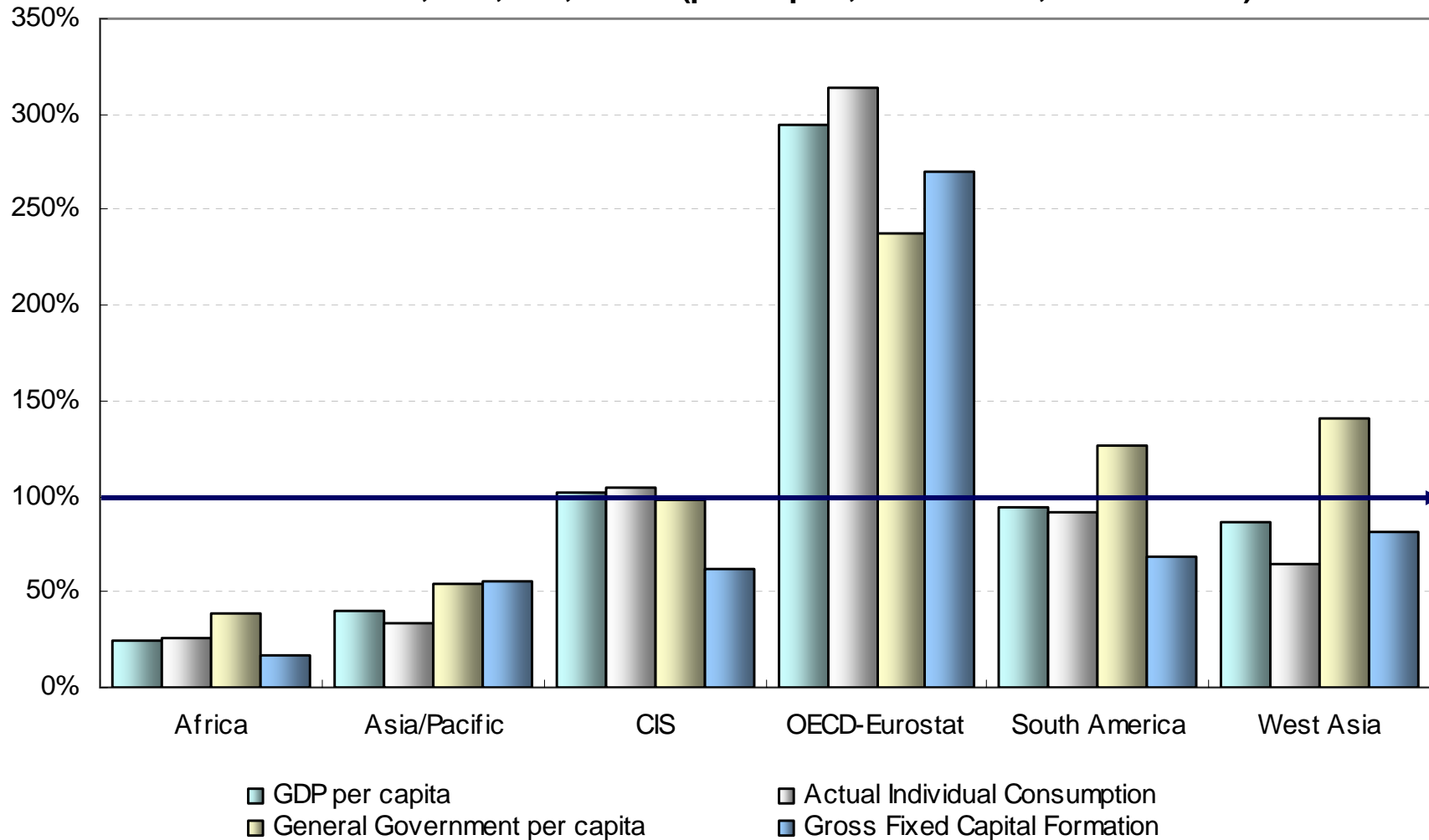
# Economic well being – PPP consumption per capita





# GDP and its main components by regions

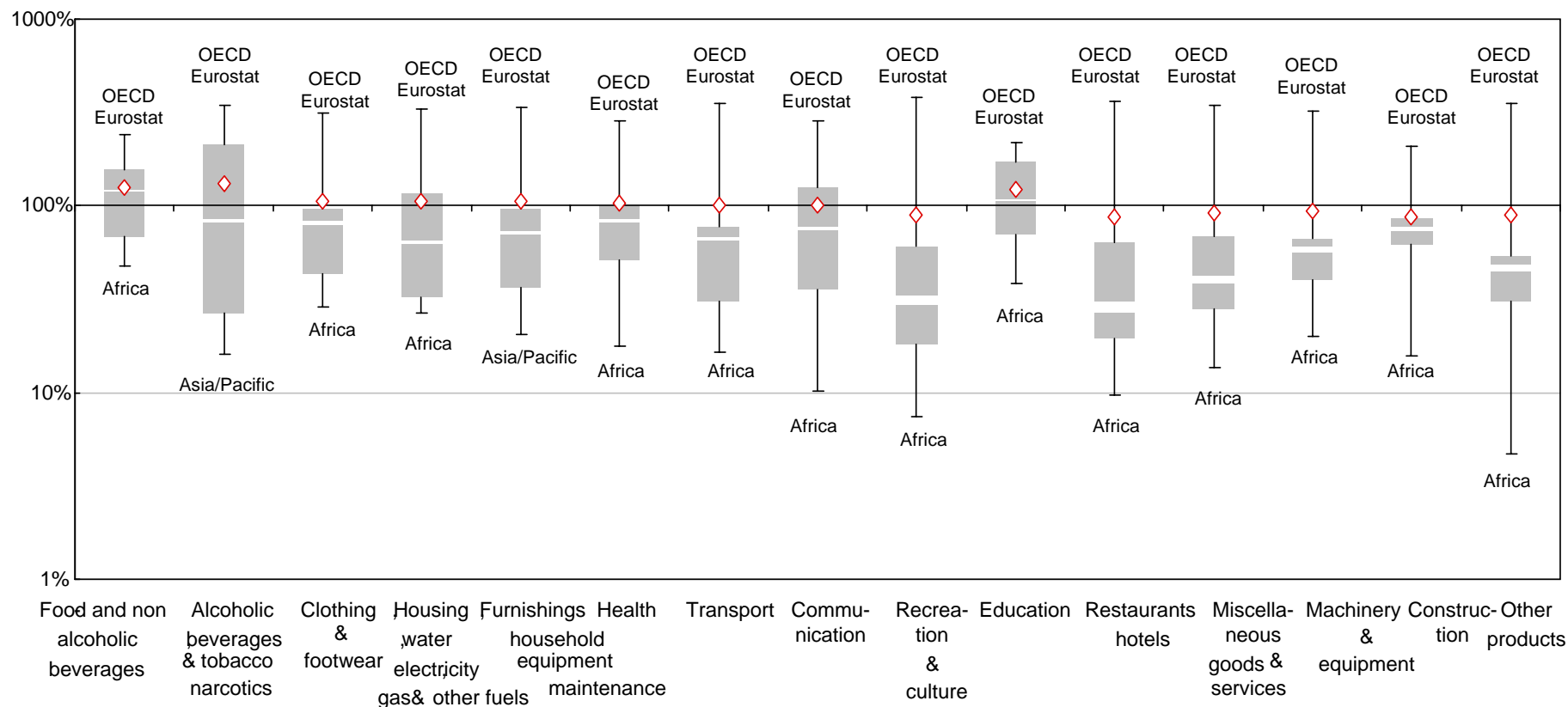
GDP, AIC, GG, GFCF (per capita, PPP-based, world=100%)





# Index of Real Expenditures per capita, World = 100%

Index of Real Expenditures per capita, World = 100%



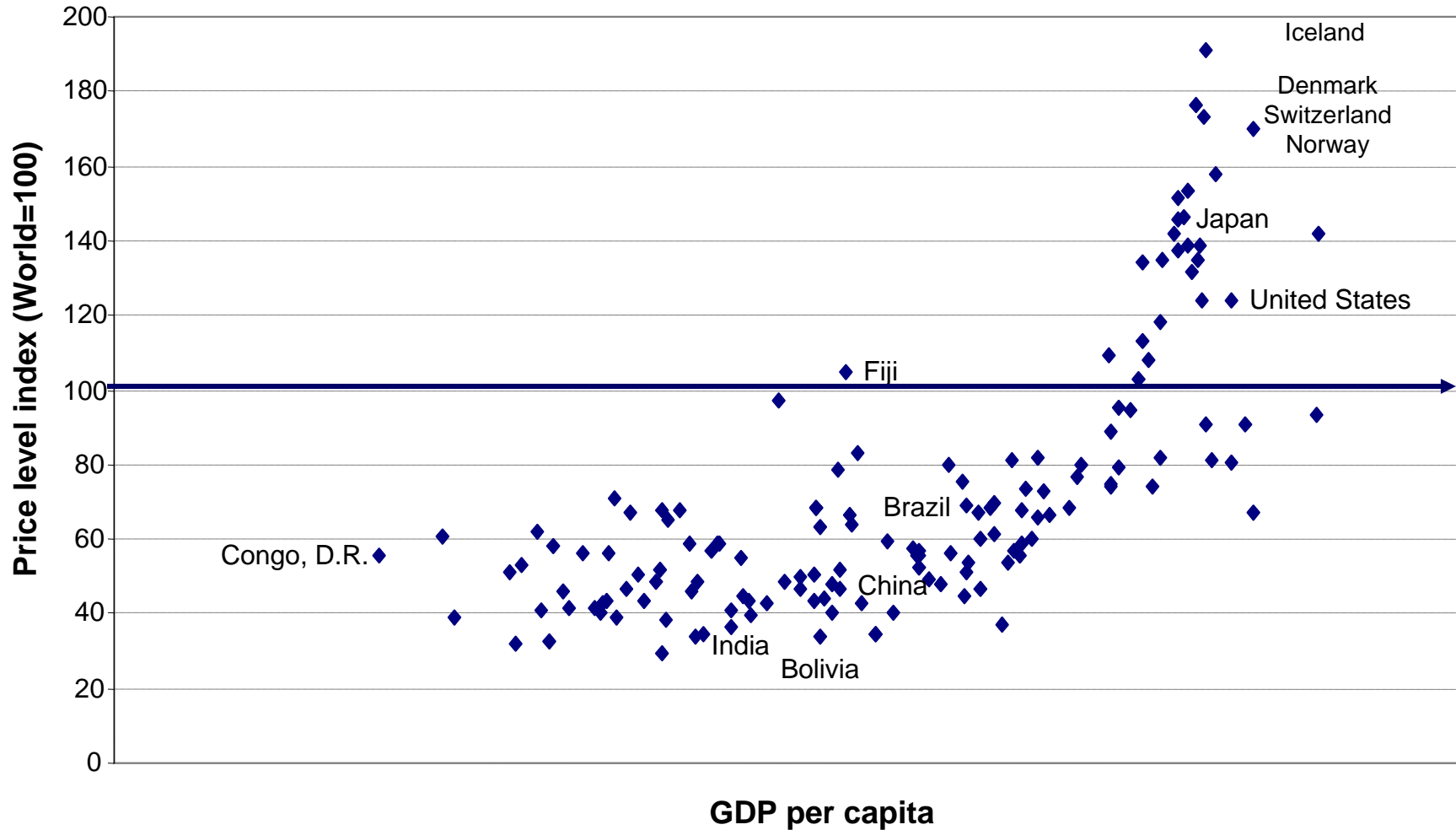


# Comparing price levels

- **Price level indexes are the ratio of an economy's PPP to its exchange rate with another economy**
- **Measure cost of living or cost of doing business**
- **Or simply the most expensive or cheapest places to travel**



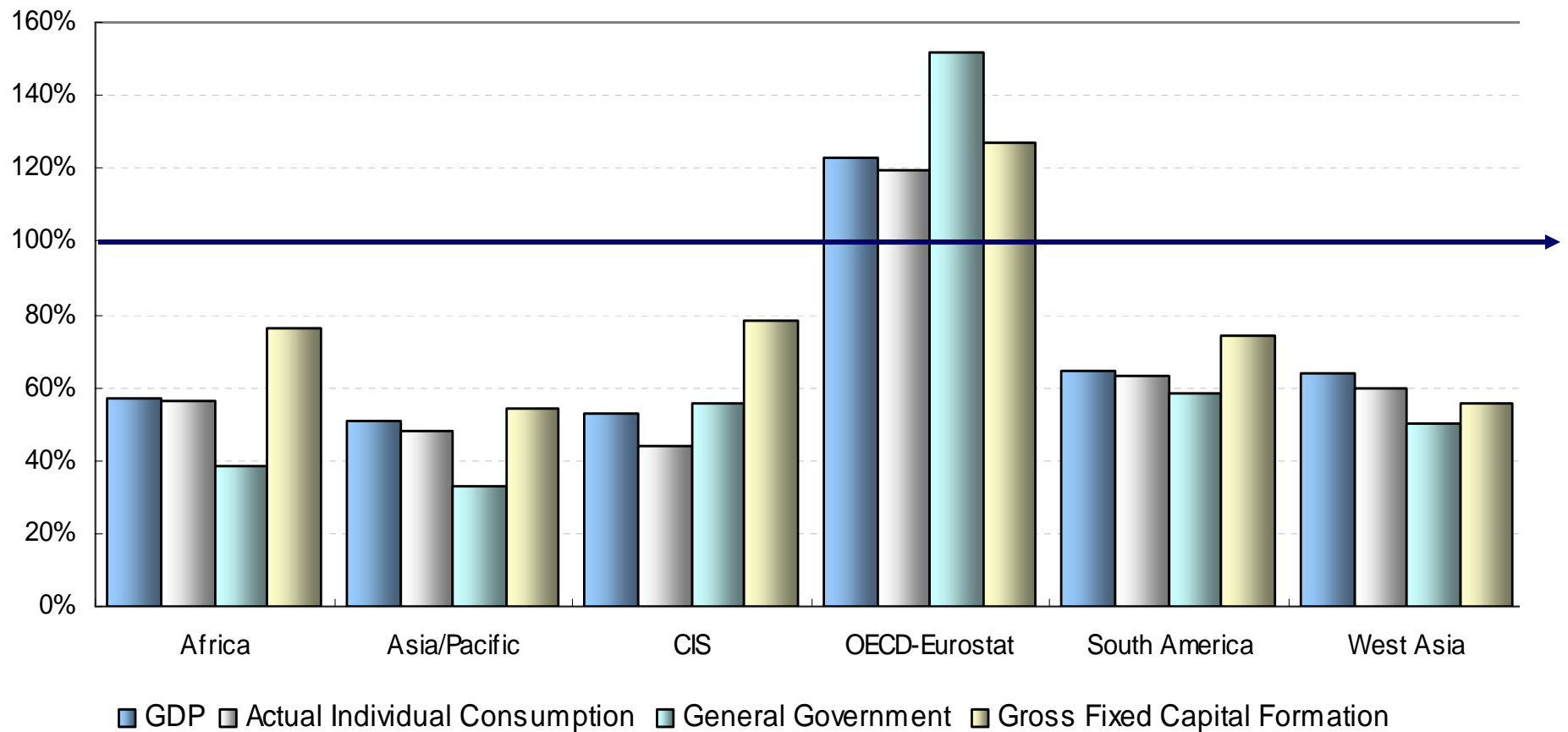
# Prices higher in rich countries





# Price level index, GDP components by regions

Price Level Index, World=100%





# PPPs for countries not included in the ICP 2005 Round

- 146 countries participated in the 2005 ICP Round, but there is also strong demand for PPPs for other countries:
  - The WDI contains PPPs and PPP GNI and GDP for 180+ economies
  - PPPs for non-benchmark countries imputed using the relationship of Atlas to PPP expenditure per capita



# Publication Schedule

- **December 17, 2007**
  - **Preliminary results for GDP, Consumption, Government, and Investment**
  
- **February 25, 2008—web based report**
  - Final data Tables for 17 categories of the GDP
  
- **March, 2008:**
  - The ICP final report in printed form and results in data base format downloadable into excel files
    - Summary of major findings
    - Technical notes describing methodology
    - Annexes with history of the ICP, governance, additional technical material about combining regions, glossary, and references



# Table of contents

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# Examples How PPPs Are Used

- **System of National Accounts calls for real comparisons between countries to be done using PPPs**
- **World Bank uses PPPs to establish international poverty lines—1 \$ per day poverty line**
- **IMF measures size of economy and aggregate growth rates in PPP terms**
- **EU allocates Structural Funds to member states**



## Other Applications of PPPs—national level

- **PPPs differ from sector to sector allowing price levels for components of GDP to be compared across countries**
- **Use comparative ratios of consumption goods vs investment to GDP and relationship with economic growth**
- **Evaluate living standards using PPP per capita expenditures for food, clothing, housing, etc.-**
- **Identify areas of competitive advantage**



## **Compare PPP GDP with volume measures –other economic variables**

- **Carbon emissions per unit of GDP**
- **Energy use per unit of GDP**
- **GDP per number of workers**
- **GDP per hour worked**
- **PPP measures of financial Aid**
- **PPP measures of remittances**
- **Per capita comparisons for health, education**



## Frequent request

- **Time series of new PPPs extrapolated backwards and forward**



# Conclusions

- **Most intensive effort ever to measure PPPs across countries:**
  - **New methodology;**
  - **Improved data collection and processing;**
  - **Intensive data validation;**
  - **Inclusion of the PRC and India plus better coverage of Africa has given widest coverage ever.**
  - **However, more to improve**
  
- **New Governance arrangement leading to full partnership across international, regional and national organizations.**



# Sustainability

- **ICP Handbook and Operational Manuals**
- **Software and supporting documentation**
- **Numerous research papers**
- **Bulletin**



# Fundamental Principles of the ICP

- **Comparability of results between countries**
- **Common understanding of data sharing and confidentiality**
- **No other international statistical program requires as much cooperation between international, regional and countries**

**More information on the International  
Comparison Program can be found on the  
ICP website:**

**[www.worldbank.org/data/ICP](http://www.worldbank.org/data/ICP)**

