Angus Deaton, Princeton University

RESHAPING THE WORLD: PRICES, POVERTY, AND INEQUALITY

The shape of the world

- Who is poor and who is rich?
  - How many poor people are there in the world?
  - How difficult is it to target income poverty for the MDGs?
- How big are the differences?
  - What is the ratio of American to Indian income?
  - How do we describe the living standards of poor people to people in the rich world?
- The global distribution of income?
  - Over countries
  - Over the citizens of the world

1. PURCHASING POWER PARITY EXCHANGE RATES

Why do we need PPPs?

- For these, and other questions, we use local incomes (national or household-based)
  - not in local currencies
  - not in US $ at market exchange rates: non-traded goods
  - International PPP currency, usually dollars
- I shall not talk today about other important shapes, like health or life evaluation, but about PPPs and what they do
  - I am NOT claiming any special importance for income poverty
  - Or even that is it very important at all!

Where do PPPs come from?

- Ultimately from the International Comparison Program (ICP)
- ICP collects prices on comparable goods in many countries
  - To construct multilateral price indexes for each country relative to a base, such as the US
  - For consumption, investment, GDP, etc
  - Used to deflate nominal local currency amounts to give "real" common unit international PPP measures

ICP 1993

- Before 2008, we used price data collected in 1993, updated for inflation rates since then
- Important missing (or partially missing) countries, including India and China, both imputed based on old or incomplete data
- A regional system with each region collecting prices on its own, and calculating its own PPPs with regional numeraire
- Weak center with *ad hoc* links between regions
  - Between regional links are Achilles heel of ICP
  - Involve hard comparisons between countries with different patterns of demand and relative prices
  - Think of comparing a Bihari laborer who eats only rice with a Congolese farmer, or Japanese factory worker
- UN (1997) report concluded that the ICP 1993 had lost credibility
  - Yet these numbers are encoded in the poverty MDG
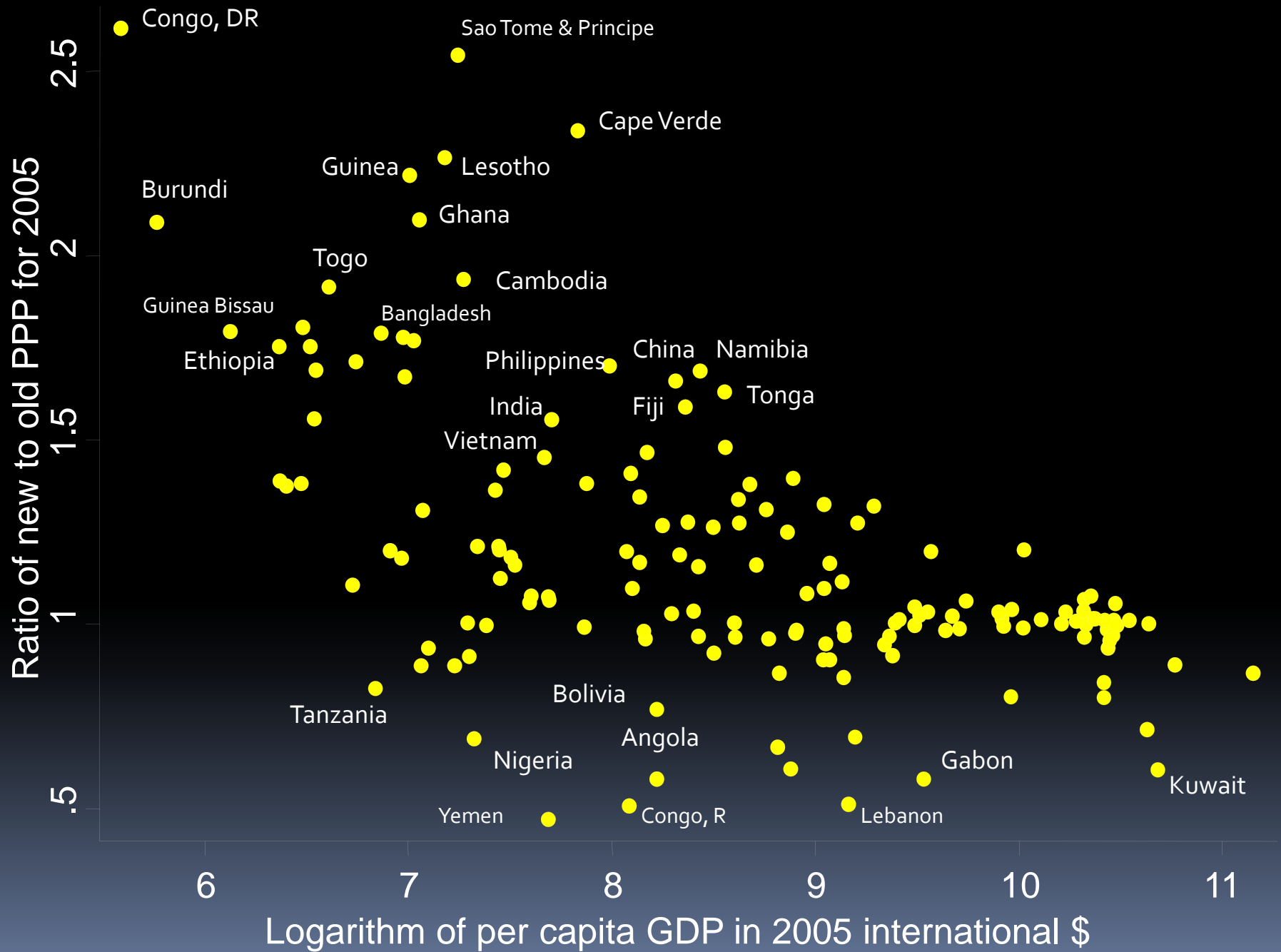
ICP 2005

- Sought to do much better: global office housed by World Bank
- 146 countries
  - Including India and China
  - Many African countries never previously included
- Regional structure again, each region pricing its own regional list
  - Makes sense, but some regions very diverse
- A "ring" of 18 countries, at least 2 in each region
- Ring countries priced a special ring list of more than 1,100 commodities
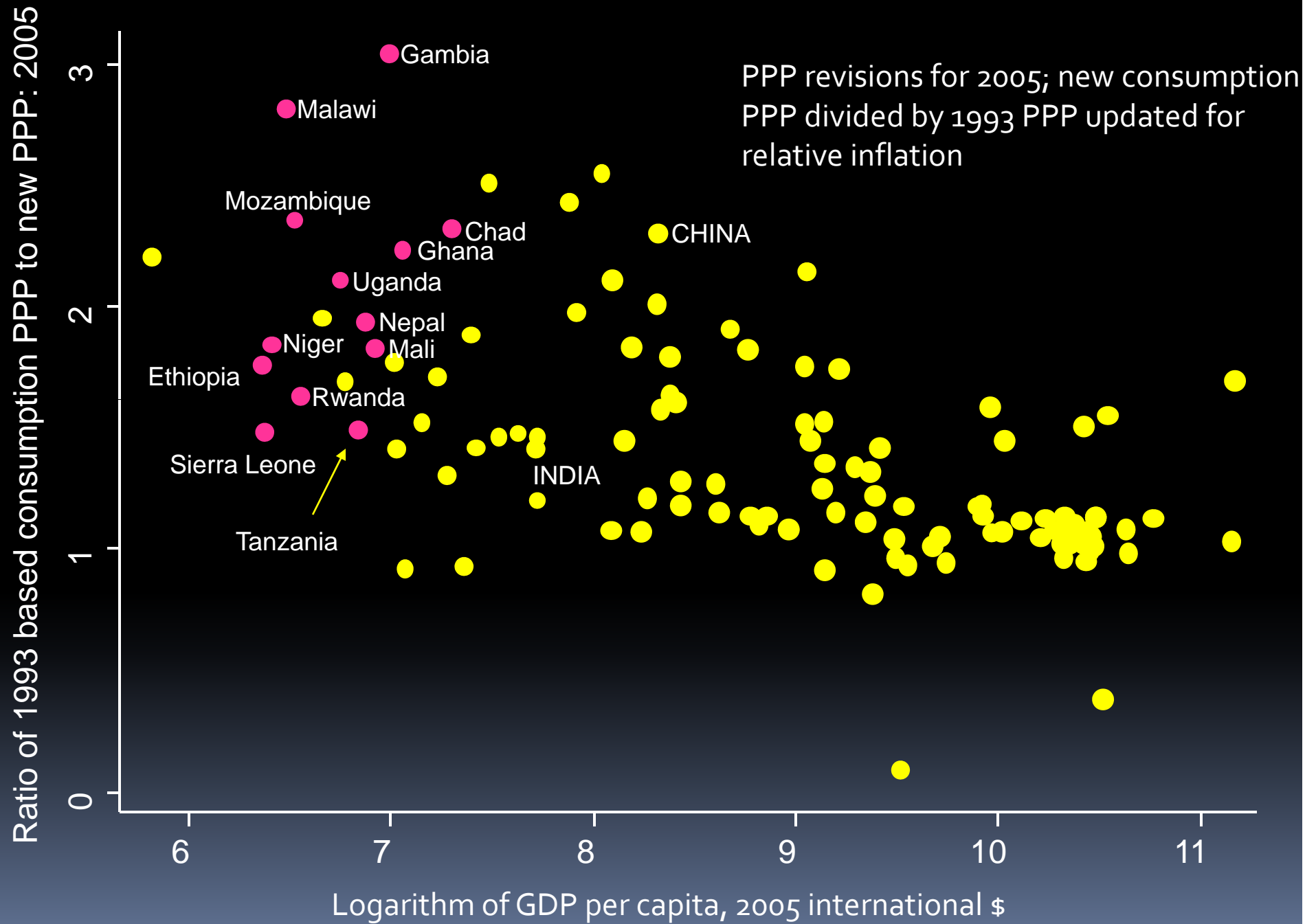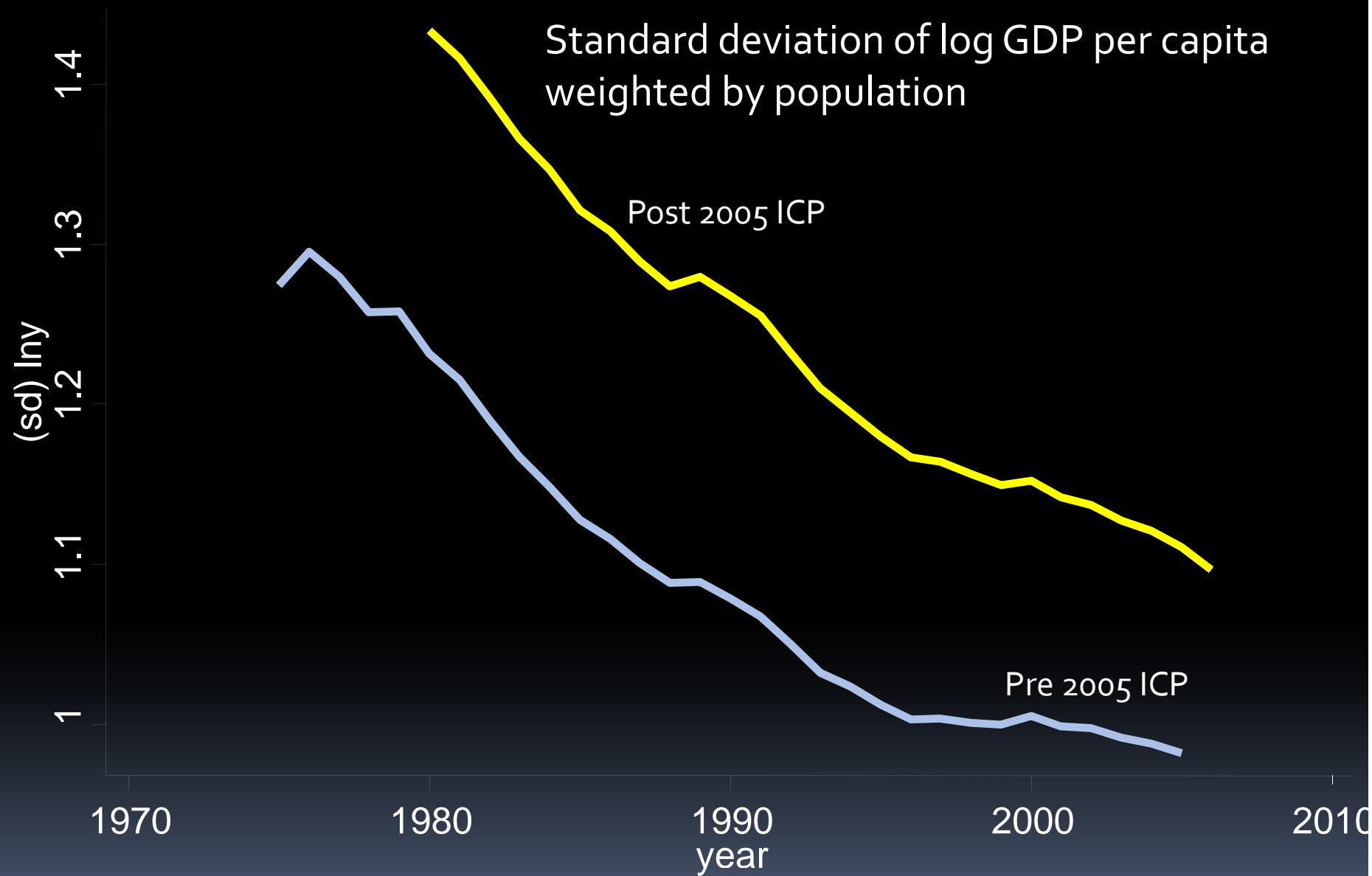 - These prices were then used to link the regions
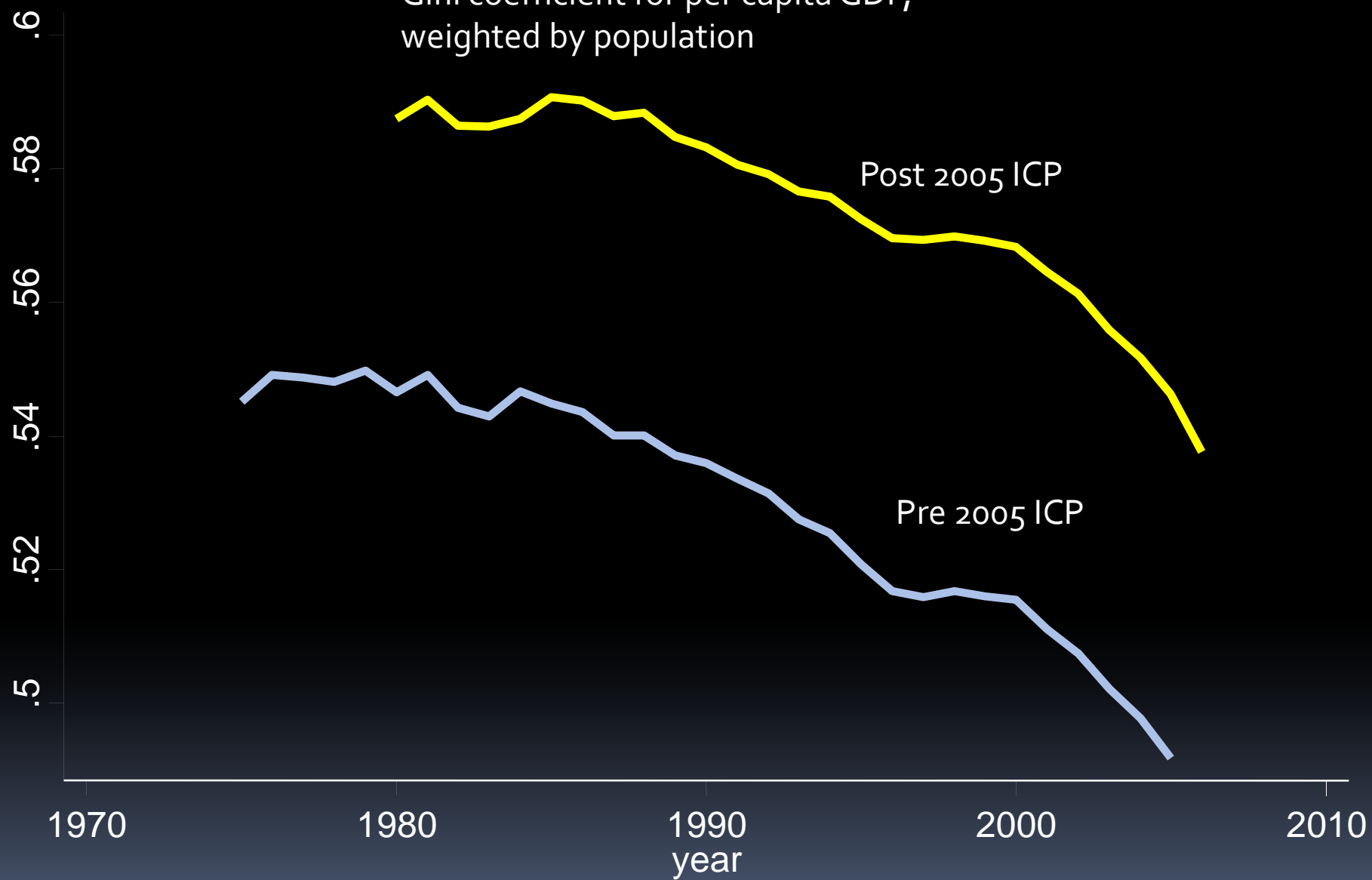
2. KEY RESULTS OF ICP 2005

Headline result

- Per capita GDP of both India and China both much reduced using the new data
- Using 2005 international dollars
- China in 2005 from $6,757 to $4,088
- India in 2005 from $3,452 to $2,222
- Note that the US is numeraire
  - So we could just as well say that the US got richer
  - Essentially, India and China moved further away from the US and other rich countries
  - Their PPPs relative to the US increased, so "real" amounts fell

- Not only India and China

Scatter plot: Logarithm of per capita GDP in 2005 international $ (x-axis) versus Ratio of new to old PPP for 2005 (y-axis). Labeled points include: Congo, DR; Sao Tome & Principe; Cape Verde; Guinea; Lesotho; Burundi; Ghana; Togo; Cambodia; Guinea Bissau; Bangladesh; Ethiopia; Philippines; China; Namibia; India; Fiji; Tonga; Vietnam; Tanzania; Bolivia; Angola; Nigeria; Gabon; Kuwait; Yemen; Congo, R; Lebanon.

Y-axis: Ratio of 1993 based consumption PPP to new PPP: 2005

X-axis: Logarithm of GDP per capita, 2005 international $

PPP revisions for 2005; new consumption PPP divided by 1993 PPP updated for relative inflation

Data point labels: Gambia, Malawi, Mozambique, Chad, Ghana, CHINA, Uganda, Nepal, Niger, Mali, Ethiopia, Rwanda, Sierra Leone, Tanzania, INDIA

Standard deviation of log GDP per capita weighted by population

Gini coefficient for per capita GDP, weighted by population

Post 2005 ICP

Pre 2005 ICP

Gini coefficient for per capita GDP, weighted by population

WDI 2008, 2005 prices

PWT 6.2, 1993 prices

WDI 2007, 1993 prices

PWT 5.6, 1985 prices

year

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Dollar a day poverty?

- Poor world is now poorer relative to the rich world
- Rich world is now richer relative to the poor world
- Many more people than before live beneath the new international dollar a day than lived below the old international dollar a day
  - Because PPPs convert $1 into higher amounts in local currencies in poor countries, and more people below
  - This would approximately double the world poverty count
  - From about 900 million to about 1.8 billion in 2005
- However the World Bank global poverty line is defined from poor country poverty lines
  - Average of poor country lines in international dollars
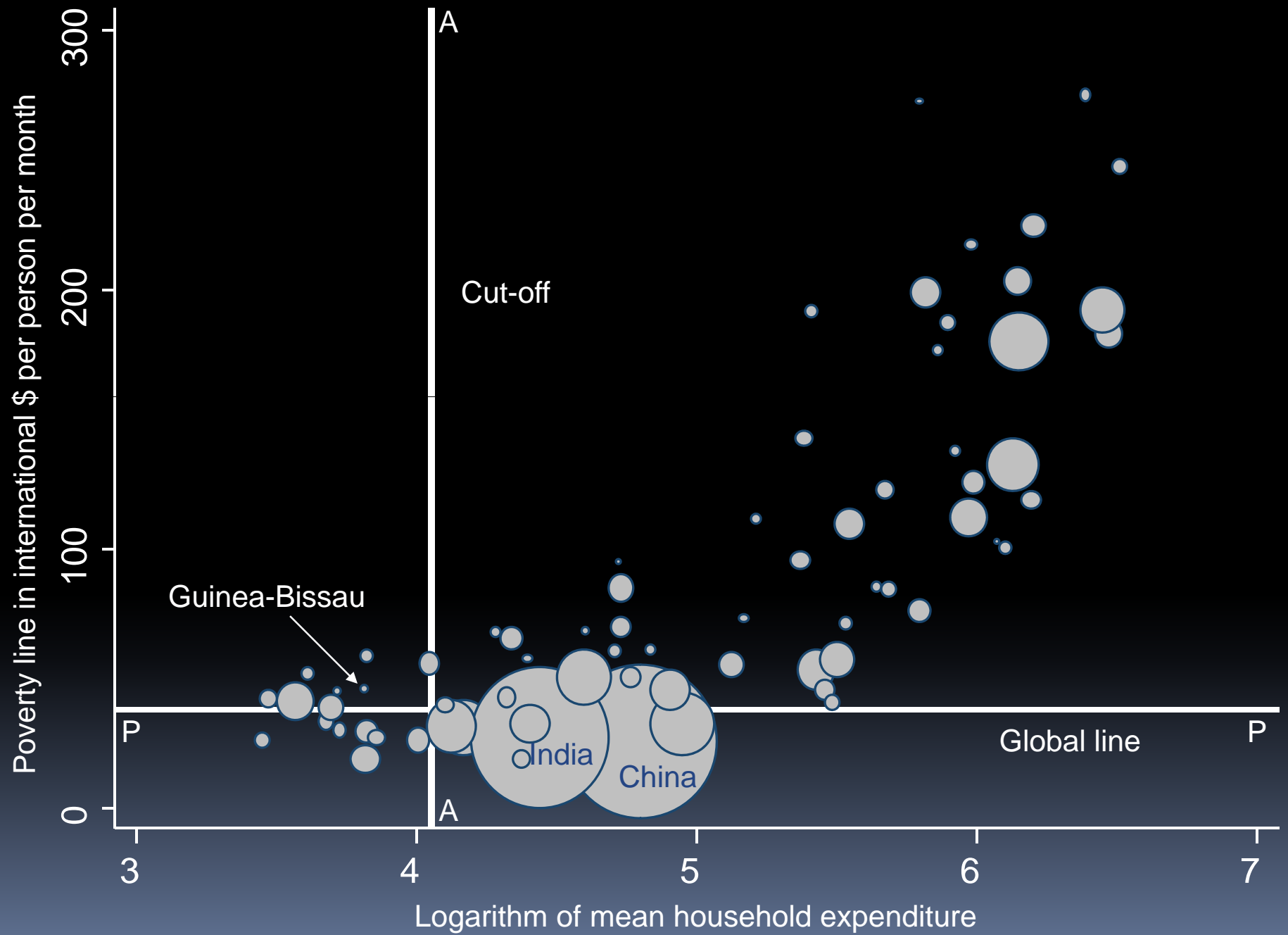
Poverty lines in India

- In 2005, Indian poverty lines were 538.6 (urban) and 356.3 (rural) rupees per person per month
  - Average is 403.7 per month = 13.3 rupees pp per day
  - Old PPP for 2005 was 11.08 rupees per $
  - So $1.20 pp per day in 2005 international $
  - US inflation 1993 to 2005 was 1.35
  - So $0.89 pp per day in 1993 international $
  - Less than $1.08: India has a low poverty line
- ICP 2005 increased measured Indian consumption PPP, to 15.6
  - Indian poverty line is $0.85 in 2005 $ (sharp fall from $1.20)
  - Only $0.63 pp per day in 1993 international $
- New value, $0.85 in 2005 $ is *lower* than old value, $0.89 in 1993 $
  - *In spite of* 35 percent US inflation from 1993 to 2005
  - Indian PPP increased by 41 percent

Poverty from the poor world

- In the Indian example, of course, there is no change in domestic Indian poverty
- But the $ value of the Indian line falls sharply
- For global $-a-day poverty, the global line is an average of poor country poverty lines expressed in international dollars
- Most of the PPPs have increased, so global line has fallen in 2005 dollars
  - By an amount similar to the fall in India
- Little change, or some decrease, in global poverty
- Essentially ICP did not change the global poverty counts, just as in the Indian case
  - But it sharply reduced the global poverty line in international dollars

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World Bank poverty

- The WB, who is the official scorer for the MDG, increased estimate of global poverty by about 500 million
  - Because they increased the global poverty line by changing the countries in the average
    - Dropping India (low line) in favor of countries with higher lines
    - See Graph
  - Using the original countries to compute the average, global poverty falls a little, but not much change
- Whether we should maintain a rich world standard or a poor world standard is a matter of debate
  - Rich world standard seems more like what people perceive when they think of what a $ a day means
  - Rich world citizens are the audience for such numbers

Poverty line in international $ per person per month

Logarithm of mean household expenditure

A

Cut-off

Guinea-Bissau

P

India

China

A

Global line

P

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Does the level matter?

- Given that downward trend is much the same
- There are nearly 200 million Indians living between $1.00 and $1.25 a day
  - Many fewer Africans
- Raising the line makes global poverty relatively more Indian, and relatively less African
  - Numbers shape consciousness of global poverty
- India will now no longer meet Millennium Development Goal for poverty reduction
  - Rate of reduction is the same, but base is higher

WHY THE CHANGES? ARE THEY CREDIBLE?

Primer on the 2005 ICP

- ICP 2005 collected price data on about 1,000 goods & services in each of 146 countries
- Consumption has 110 basic headings,
  - Basic headings are identical in all countries & regions
  - Basic headings are matched to expenditure data from national accounts
- Within basic headings, lists differ by region, and there are no expenditure data to tell us which are more important
  - Mud crabs and squid in Asia, Nile perch, kapenta, and bonga in Africa

More primer

- Two stage regional procedure:
  - 1. PPPs for countries within a region with no comparisons across regions, or across countries in different regions:
  - 2. Gluing the regions together using a set of 18 strategically chosen countries (the "ring") who price a ring list of 1,100 items

Combining the regions

- Five regions: OECD-Eurostat-CIS, Asia/Pacific, Africa, South America, Western Asia
- Across regions, 18 ring countries (Brazil, Chile, Cameroon, Egypt, Estonia, UK, Hong Kong, Jordan, Japan, Kenya, Sri Lanka, Malaysia, Oman, Philippines, Senegal, Slovenia, South Africa, Zambia)
  - Each prices goods & services from the ring list
  - This is where it gets tough: pricing identical goods in Cameroon and Japan, Senegal and UK

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Continent wide price indexes

- The ICP accepts a political constraint that the within region PPPs should not change when the global office glues the world together
  - For Eurostat, this is legally mandated
- So ICP 2005 collapsed all the ring prices into four price indexes, with OECD region as base, one for each of the four other regions
  - These price indexes give us price indexes for Asia/Pacific, Africa, Western Asia, and South America relative to OECD

Some concerns

- Changes or errors in the five super-PPPs from the ring move whole continents, e.g. Africa or Asia relative to the OECD
    - "Tectonic" super price indexes
    - Potentially important for inequality
    - Or for India and China relative to the US
    - Recall the increase in PPPs for Africa and Asia relative to the US
    - This all comes from the ring

Concerns in more detail

- Why did the ICP increase inequality between nations?
- One focus is the more precise matching of quality
  - Possibly gone too far
  - Brooks Brothers shirt example would overstate price in Senegal, just as "shirt" understated it
  - Concern about goods that are only available in expensive specialist shops
- A central problem for ICP:
  - Goods need to be comparable
  - Goods should be locally common and representative
  - These two are not compatible in general!

Europe meets Africa

- Ring list goods that were *successfully* priced in Cameroon included
  - Frozen shrimp (Fish basic heading: 90-120 shrimp per kilo, pre-packed, peeled)
  - Bordeaux red wine (Wine basic heading: Bordeaux *supérieure*, with state certification of origin and quality, alcohol content 11-13%, vintage 2003 or 2004, with region and wine farmer listed)
  - Frontloading washing machine (Major household appliances whether electric or not basic heading: capacity 6 kg, energy efficiency class A, Electronic program selection, free selectable temperature, spin speed up to 1200 rpm, medium cluster well-known brand such as Whirlpool,)
  - Peugeot/ Model: 407 Berline/ Edition: Petrol 2.0 liter 16v 140 CV/ Type: Saloon/ sedan/ Engine: 1997 cc; kW/ bhp: 103/ 138/ Doors: 4/ Gears: Manual/ 5/ Standard equipment of basic edition:/ ABS: Yes/ Air condition: Yes/ Automatic climate control: Y.

Is quality the problem?

- Some evidence of quality-matching problem
  - Other cereals: has Kellogg's cornflakes and Frosted flakes as items in BH
  - No weighting within basic head
  - This item consistently appears as too expensive
- Yet no quality matching for many services, including medical services
- But air travel, cars, and telephone calls in Kenya are genuinely *very* expensive
  - Prices are OK
  - The problem is the weights!
  - Little local consumption
  - When we compare with UK, the weight is 50% local and 50% UK
  - This is how superlative price indexes work

It's the theory, stupid!

- Confess that we don't really know what we are doing
- In the strict version, price indexes and superlative indexes require identical tastes
    - If true, these weighting problems would not exist
    - But implausible at this level of disaggregation
    - Without identical tastes index is a COLI for a country with "intermediate" income and tastes
    - Not very helpful
- No good theory of quality that is operational here
    - Except in simple cases
    - Perhaps we just can't make useful price comparisons between Africa and Europe?
    - We need to know what goods and services are *for*

CONCLUSIONS

Comparing countries

- We do not know how to make cost-of-living or income comparisons between very different countries
  - Increases in global inequality from one ICP to the next are little understood
  - We need some radical rethinking of theory
  - Within groups of "similar" countries, much better
  - So the MDG poverty figure may not be too bad
- For US versus Tajikistan, Laspeyres index is 9.6 times the Paasche index
  - Ratio of US to Tajik GDP is 9.6 times larger in US prices than in Tajik prices
  - For China and India, numbers are "only" 1.66 and 1.61
  - Splitting the difference hardly "solves" the problem
  - No solution when consumption patterns don't overlap!

Lowering ambitions

- Partial orderings, rather than attempting to get precise real income numbers for widely different countries, Amartya Sen (1973, 1976)
- Richard Stone (1949)
  - "Why do we need to compare the U.S. with, say, India or China? Everybody knows that one country is very rich and another country very poor, does it matter whether the factor is thirty or fifty or what?"
  - Without an international order, little of policy consequence hinges on these numbers
  - Perhaps knowing the ratio up to a factor of 1.6 is pretty good
- Note that these problems do not exist for measures such as infant mortality rates

Why do we need PPPs anyway?

- No domestic relevance within countries
- Not used by World Bank for concessional aid
- Some use by IMF in voting formulas
- Global poverty counts and inequality measures
  - Do these *really* have policy relevance?
  - Used by activists and IFIs to argue for more money for aid
- We need domestic price indexes because there is a domestic government
  - There is no international government
  - "Cosmopolitan" philosophers argue that the WB or other IFIs should somehow assume that role
  - Philosophy behind the MDGs
  - Others (Rawls, Nagel, etc.) argue that this is philosophically wrong
  - Good practical arguments against international community doing development from the outside

HOW ABOUT WE GET RID OF THE EXPERTS AND JUST ASK PEOPLE HOW THEIR LIVES ARE GOING?

Gallup's World Poll

- Gallup World Poll, starting in 2006, has run annual surveys in 154 countries
  - Random national surveys
  - 1,000 or more observations in each
  - 129 countries in 2006, 100 in 2007, 124 in 2008, 118 in 2009, not yet complete for 2010
  - Identical surveys in all countries
- Several directly relevant questions
  - The ladder: 11 points from worst possible life to best possible life
  - Was there any time in the last 12 months when you did not have enough money for food? Y/N
  - Feelings about household income (living comfortably, getting by, finding it difficult, finding it very difficult)
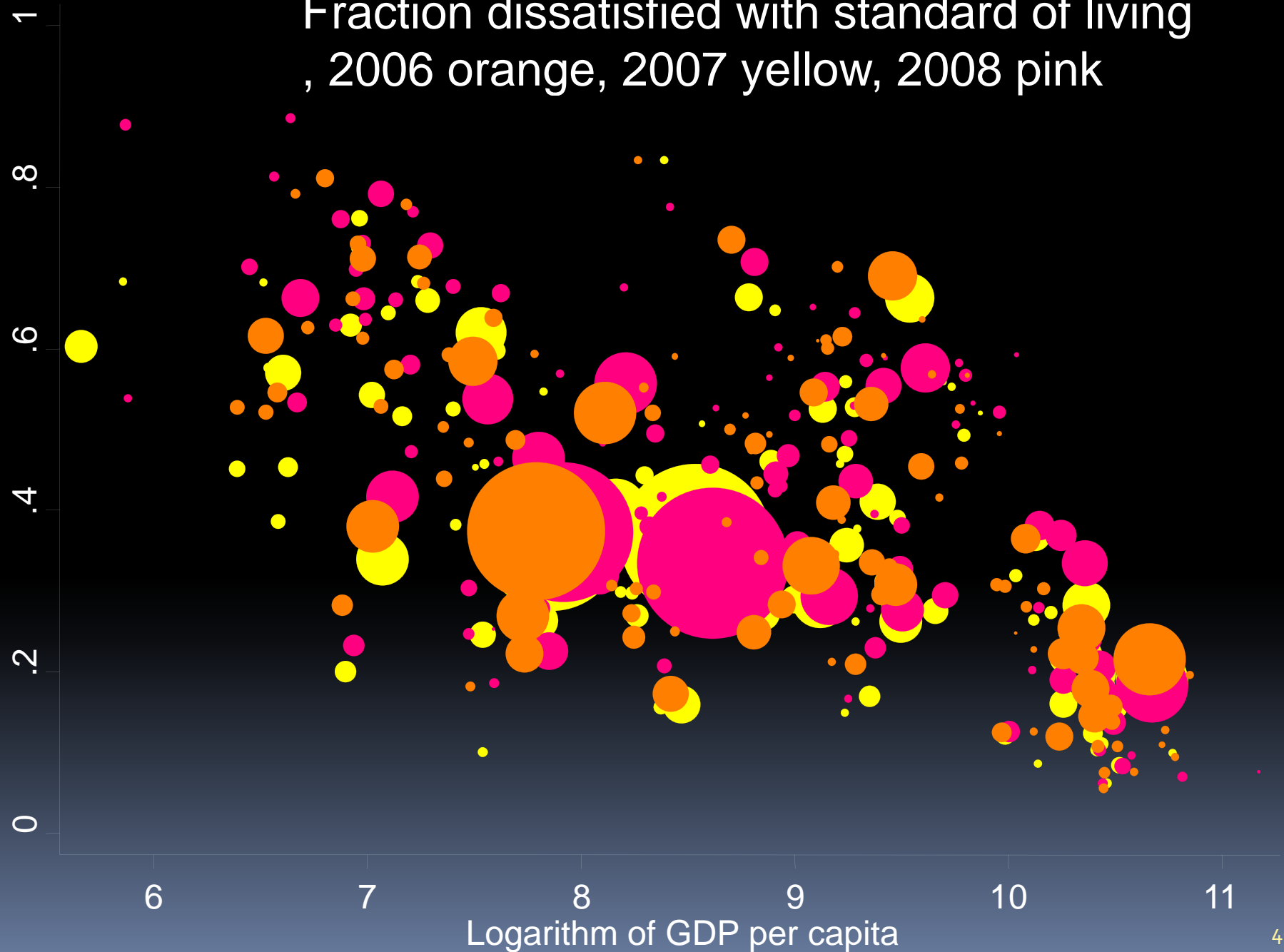 - Are you satisfied with your standard of living? Y/N

Average ladder score 2006 orange, 2007 yellow, 2008 pink

Logarithm of GDP per capita
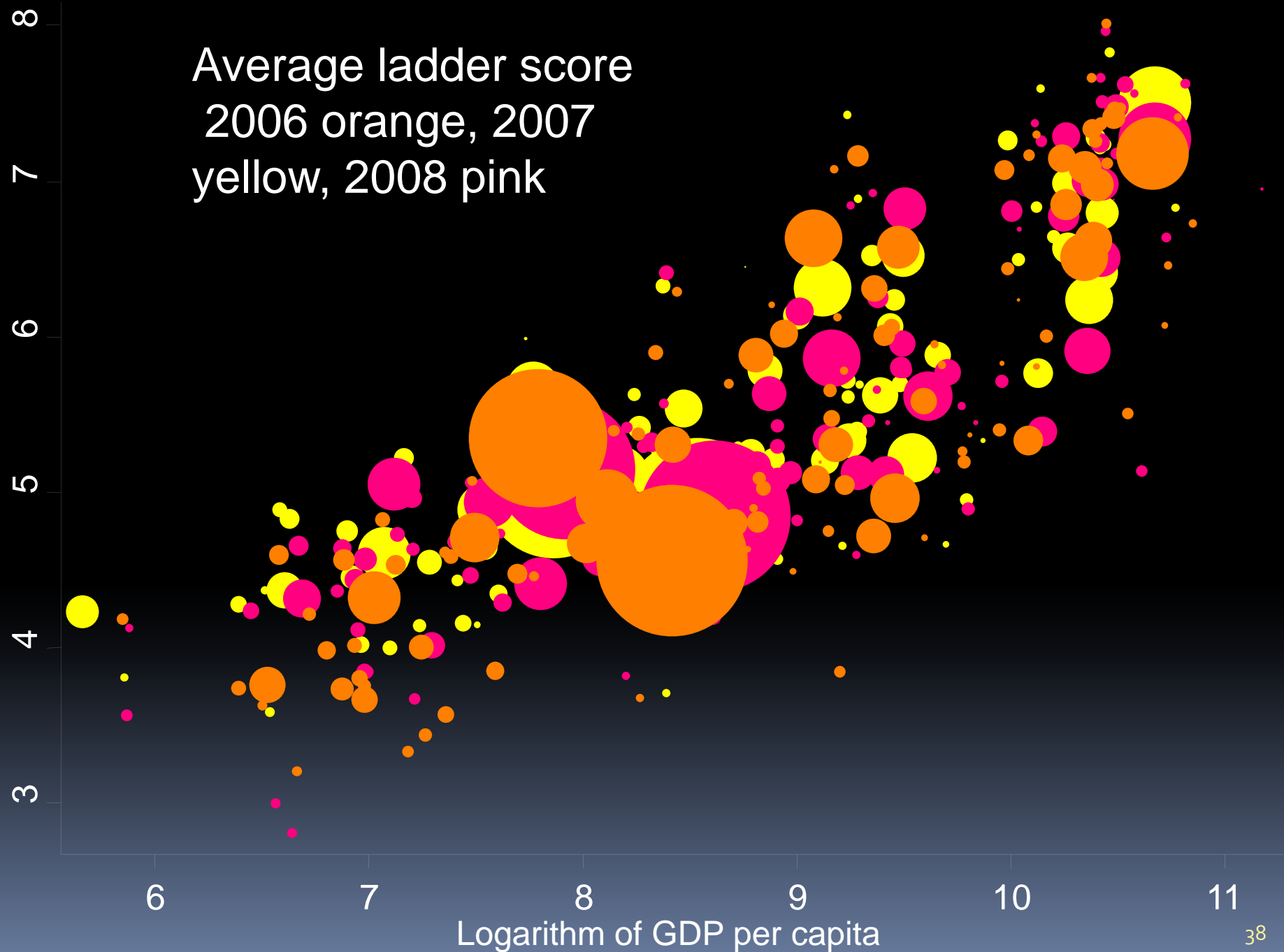
Fraction without money for food, 2006 orange, 2007 yellow, 2008 pink

Logarithm of GDP per capita
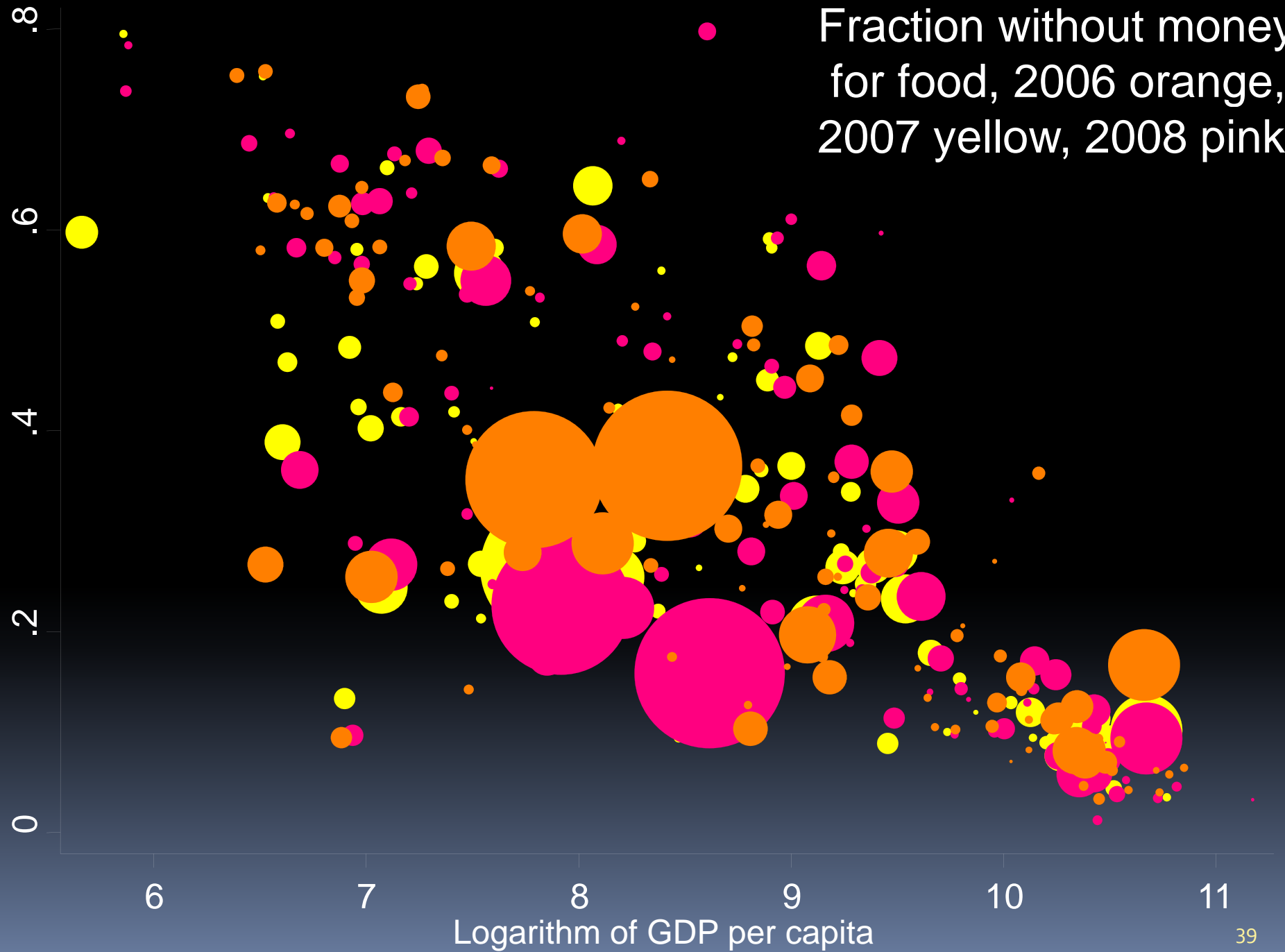
Fraction dissatisfied with standard of living, 2006 orange, 2007 yellow, 2008 pink

Logarithm of GDP per capita

Fraction reporting difficult or very difficult to get by on their income, 2007yellow, 2008 pink

Logarithm of GDP per capita

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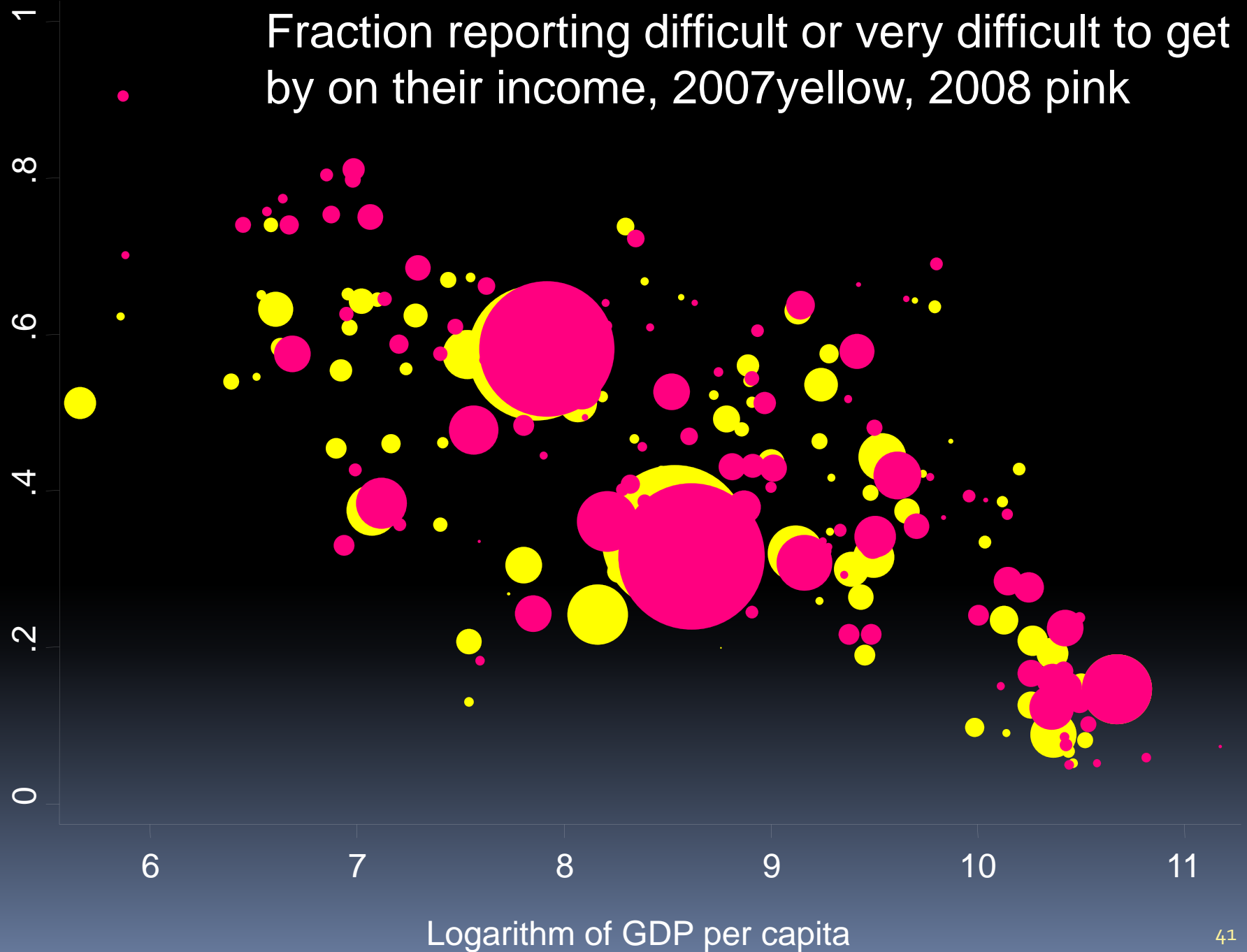
Self-reports

- Good correlations with GDP in the cross-section
- Very weak correlations in changes over time
  - Income data not great either
  - Not clear what we want or expect, not same as income
  - Too few years
- Series are what we want, at least to some extent
  - Not clear why lower validity than standard numbers
  - Estimates do not suffer from complete adaptation
  - Lots of work confirming this for the ladder
  - Distinct from affect questions, like "are you happy?"
- Permit annual tracking, and have much better country coverage, especially in Africa
  - Uniform surveys across countries

Quote of the day

- "Science proves that poverty sucks"
  - Headline (Gawker.com, September 7) about Kahneman and Deaton, *PNAS*, 2010.