Lecture 1: Introduction to Economics 270c

• Lecturer: Prof. Ted Miguel
  Email: emiguel@econ.berkeley.edu
  Office hours: Mondays 9-11am, Evans 647
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- Course assistant: Jonas Hjort (hjort@econ.berkeley.edu)
  Extra sections: Friday 3:30-5pm, Evans 639
  Extra office hours: To be arranged with Jonas
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• Student introductions
Macroeconomic growth empirics
Lecture 1: Global patterns of economic growth and development (1/20)
Lecture 2: Inequality and growth (1/27)

The political economy of development
Lecture 3: History and institutions (2/3)
Lecture 4: Corruption (2/10)
Lecture 5: Patronage politics (2/17)
Lecture 6: Democracy and development (2/24)
Lecture 7: Economic Theories of Conflict (3/3) – Guest lecture by Gerard Padro
Lecture 8: War and Economic Development (3/10)

Human resources
Lecture 9: Human capital and income growth (3/17)
Lecture 10: Increasing human capital (3/31)
Lecture 11: Labor markets and migration (4/7)
Lecture 12: Health and nutrition (4/14)
Lecture 13: The demand for health (4/21)

Other topics
Lecture 14: Environment and development (4/28)
Lecture 15: Resource allocation and firm productivity (5/5)

Additional topics for the development economics field exam
-- Ethnic and social divisions
-- The Economics of HIV/AIDS
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-- Ethnic and social divisions
-- The Economics of HIV/AIDS
• Prerequisites: Graduate microeconomics, econometrics

• Grading:
  Four referee reports – 40%
  Two problem sets – 20%
  Research proposal – 30%
  Class participation – 10%
  No final exam

• All readings are available online (see syllabus)

• Additional references on syllabus
• Prerequisites: Graduate microeconomics, econometrics

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  Four referee reports – 40%
  Two problem sets – 20%
  Research proposal – 30%
  Class participation – 10%
  No final exam

• All readings are available online (see syllabus)

• Additional references on syllabus
Lecture 1 outline

(1) This Course
(2) Development in Human terms
(3) Global patterns: Sala-i-Martin [2006]
(4) Cross-country growth empirics:
   -- Deaton [2005], Levine and Renelt [1992]
(2) Development in human terms

• Themes:
(2) Development in human terms

• Themes:
  Corruption
  Poverty traps
  Land/asset ownership inequality
  Health
  Efficiency wages
  Violent political conflict
  Urban versus rural development
  Population growth
  Social (ethnic, religious) divisions
  Others?
(3) Global Patterns: Sala-i-Martin (2006, QJE)

• Characterizes global patterns of economic growth and income inequality during 1970-2000, using a combination of national accounts data (NAS) and household survey data (HHS)
  -- NAS data for mean income, HHS for dispersion
  -- Weights by country population

• Has there been income convergence or not?
  -- This is one of the most controversial and politicized topics in development today. Have recent market liberalizations (especially in Asia and Latin America) reduced poverty?
# TABLE I

**Poverty Rates and Headcounts for Various Poverty Lines**

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<tbody>
<tr>
<td>$495 WB Poverty Line ($1/Day)</td>
<td>15.4%</td>
<td>14.0%</td>
<td>11.9%</td>
<td>8.8%</td>
<td>7.3%</td>
<td>6.2%</td>
<td>5.7%</td>
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<tr>
<td>$570 $1.5/Day</td>
<td>20.2%</td>
<td>18.5%</td>
<td>15.9%</td>
<td>12.1%</td>
<td>10.0%</td>
<td>8.0%</td>
<td>7.0%</td>
<td>-0.131</td>
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<tr>
<td>$730 $2/Day</td>
<td>29.6%</td>
<td>27.5%</td>
<td>24.2%</td>
<td>19.3%</td>
<td>16.2%</td>
<td>12.6%</td>
<td>10.6%</td>
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<tr>
<td>$1,140 $3/Day</td>
<td>46.6%</td>
<td>44.2%</td>
<td>40.3%</td>
<td>34.7%</td>
<td>30.7%</td>
<td>25.0%</td>
<td>21.1%</td>
<td>-0.254</td>
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**Poverty head counts (thousands)**

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<tbody>
<tr>
<td>Population</td>
<td></td>
<td>3,472,485</td>
<td>3,830,514</td>
<td>4,175,420</td>
<td>4,539,477</td>
<td>4,938,177</td>
<td>5,305,563</td>
<td>5,660,342</td>
<td>2,187,858</td>
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<tr>
<td>WB Poverty Line</td>
<td></td>
<td>533,861</td>
<td>536,379</td>
<td>498,032</td>
<td>399,527</td>
<td>362,902</td>
<td>327,943</td>
<td>321,518</td>
<td>-212,343</td>
</tr>
<tr>
<td>$495 WB Poverty Line ($1/Day)</td>
<td></td>
<td>699,896</td>
<td>708,825</td>
<td>665,781</td>
<td>548,533</td>
<td>495,221</td>
<td>424,626</td>
<td>398,403</td>
<td>-301,493</td>
</tr>
<tr>
<td>$570 $1.5/Day</td>
<td></td>
<td>1,028,532</td>
<td>1,052,761</td>
<td>1,008,789</td>
<td>874,115</td>
<td>798,945</td>
<td>671,069</td>
<td>600,275</td>
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<tr>
<td>$730 $2/Day</td>
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<td>1,616,772</td>
<td>1,691,184</td>
<td>1,681,712</td>
<td>1,575,415</td>
<td>1,517,778</td>
<td>1,327,635</td>
<td>1,197,080</td>
<td>-419,691</td>
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</table>

Poverty Rates are the percentages of citizens with incomes below the corresponding poverty line. Poverty head counts are constructed as the total number of people with incomes lower than the corresponding poverty line. The first poverty line (called WB poverty or $1/Day) is the poverty line originally used by the World Bank and corresponds to $1.05/Day in 1985 prices. This corresponds to $405 per year in 1996 prices. The second poverty line is the one used by Bhalia [2002], which increases the WB by 15 percent to adjust for underreporting of the top of the distribution. This corresponds to $570 per year or, roughly, $1.5/Day. The third and fourth lines correspond to $2/Day and $3/Day in 1996 prices ($730 and $1,140 per year, respectively).
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<td>5,660,040</td>
<td>0.202</td>
<td>0.185</td>
<td>0.159</td>
<td>0.121</td>
<td>0.100</td>
<td>0.080</td>
<td>0.070</td>
<td>−0.132</td>
<td>−0.043</td>
<td>−0.059</td>
<td>−0.030</td>
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<td>East Asia</td>
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<td>0.327</td>
<td>0.278</td>
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<td>0.130</td>
<td>0.102</td>
<td>0.038</td>
<td>0.024</td>
<td>−0.303</td>
<td>−0.110</td>
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<td>South Asia</td>
<td>1,327,455</td>
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<td>0.297</td>
<td>0.267</td>
<td>0.178</td>
<td>0.103</td>
<td>0.057</td>
<td>0.025</td>
<td>−0.277</td>
<td>−0.036</td>
<td>−0.164</td>
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<td>0.351</td>
<td>0.360</td>
<td>0.372</td>
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<td>0.437</td>
<td>0.505</td>
<td>0.488</td>
<td>0.137</td>
<td>0.020</td>
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<td>0.051</td>
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<tr>
<td>Latin America</td>
<td>499,716</td>
<td>0.103</td>
<td>0.056</td>
<td>0.030</td>
<td>0.036</td>
<td>0.041</td>
<td>0.038</td>
<td>0.042</td>
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<td>−0.074</td>
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<td>0.005</td>
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<td>0.001</td>
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<td>MENA</td>
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<td>0.092</td>
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<td>0.007</td>
<td>0.006</td>
<td>−0.102</td>
<td>−0.071</td>
<td>−0.025</td>
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<td>548,533</td>
<td>495,221</td>
<td>424,626</td>
<td>398,403</td>
<td>−301,493</td>
<td>−34,115</td>
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<td>−96,818</td>
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<tr>
<td>East Asia</td>
<td>1,704,242</td>
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<td>334,266</td>
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<tr>
<td>South Asia</td>
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<td>234,070</td>
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<tr>
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<td>608,221</td>
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<td>109,491</td>
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<td>296,733</td>
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<td>36,361</td>
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<td>499,716</td>
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<td>Eastern Europe</td>
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<td>Year</td>
<td>Mean log deviation</td>
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<tr>
<td></td>
<td>Global</td>
<td>Across</td>
<td>% Across</td>
<td>Within</td>
<td>% Within</td>
<td>Global</td>
<td>Across</td>
<td>% Across</td>
<td>Within</td>
<td>% Within</td>
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<td>1970</td>
<td>0.861</td>
<td>0.616</td>
<td>71.5%</td>
<td>0.246</td>
<td>28.5%</td>
<td>0.812</td>
<td>0.557</td>
<td>68.6%</td>
<td>0.255</td>
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<td>2000</td>
<td>0.820</td>
<td>0.501</td>
<td>61.1%</td>
<td>0.319</td>
<td>38.9%</td>
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<td>0.499</td>
<td>63.8%</td>
<td>0.284</td>
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<td>Change</td>
<td>-0.041</td>
<td>-0.114</td>
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<td>0.073</td>
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<td>0.029</td>
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<td>HDI rank²</td>
<td>Human development index (HDI) value</td>
<td>Life expectancy at birth (years)</td>
<td>Adult literacy rate (% ages 15 and above)</td>
<td>Combined gross enrolment ratio for primary, secondary and tertiary schools (%)</td>
<td>GDP per capita (PPP US$)</td>
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<td>Developing countries</td>
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<td>54.2</td>
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<td>Arab States</td>
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<td>South Asia</td>
<td>0.628</td>
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<td>56</td>
<td>2,897</td>
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<td><strong>Sub-Saharan Africa</strong></td>
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<td>46.1</td>
<td>61.3</td>
<td>50</td>
<td>1,856</td>
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<td>OECD</td>
<td>0.892</td>
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<td>89</td>
<td>25,915</td>
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<td>High-income OECD</td>
<td>0.911</td>
<td>78.9</td>
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<td>95</td>
<td>30,181</td>
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<tr>
<td>HDI rank</td>
<td>GDP US$ billions</td>
<td>PPP US$ billions</td>
<td>GDP per capita US$</td>
<td>PPP US$</td>
<td>Annual growth rate (%)</td>
<td></td>
<td></td>
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<tr>
<td>Developing countries</td>
<td>6,981.9 T</td>
<td>21,525.4 T</td>
<td>1,414</td>
<td>4,359</td>
<td>2.3</td>
<td>2.9</td>
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<tr>
<td>Least developed countries</td>
<td>221.4 T</td>
<td>895.1 T</td>
<td>329</td>
<td>1,328</td>
<td>0.7</td>
<td>2.0</td>
<td></td>
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<tr>
<td>Arab States</td>
<td>773.4 T</td>
<td>1,683.6 T</td>
<td>2,611</td>
<td>5,685</td>
<td>0.2</td>
<td>1.0</td>
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<tr>
<td>East Asia and the Pacific</td>
<td>2,893.6 T</td>
<td>9,762.2 T</td>
<td>1,512</td>
<td>5,100</td>
<td>6.0</td>
<td>5.6</td>
<td></td>
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<tr>
<td>Latin America and the Caribbean</td>
<td>1,745.9 T</td>
<td>3,947.0 T</td>
<td>3,275</td>
<td>7,404</td>
<td>0.6</td>
<td>1.1</td>
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<tr>
<td>South Asia</td>
<td>902.2 T</td>
<td>4,235.9 T</td>
<td>617</td>
<td>2,897</td>
<td>2.6</td>
<td>3.5</td>
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<tr>
<td>Sub-Saharan Africa</td>
<td>418.5 T</td>
<td>1,227.4 T</td>
<td>633</td>
<td>1,856</td>
<td>−0.7</td>
<td>0.1</td>
<td></td>
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<tr>
<td>Central and Eastern Europe and the CIS</td>
<td>1,189.9 T</td>
<td>3,203.5 T</td>
<td>2,949</td>
<td>7,939</td>
<td>..</td>
<td>0.3</td>
<td></td>
<td></td>
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<tr>
<td>OECD</td>
<td>29,650.5 T</td>
<td>29,840.6 T</td>
<td>25,750</td>
<td>25,915</td>
<td>2.0</td>
<td>1.8</td>
<td></td>
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<tr>
<td>High-income OECD</td>
<td>28,369.5 T</td>
<td>27,601.9 T</td>
<td>31,020</td>
<td>30,181</td>
<td>2.2</td>
<td>1.9</td>
<td></td>
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</table>
Our analysis shows that, after having stagnated during the 1970s, global income inequality started a two-decade-long process of decline. This change in trend is surprising because, according to Bourguignon and Morrison [2002], world income inequality had continuously increased over the last century and a half. What caused this reversal? The answer is the growth rate of some of the largest yet poorest countries in the planet: China, India, and the rest of Asia. We could say that in 1820 the whole world was poor. Equal and poor. Slowly, the incomes of the one billion citizens (in population size of 2000) of what is today the OECD grew and diverged away from the incomes of the five billion people of the developing world. The dramatic growth rates of China, India, and the rest of the Asian countries from the 1970s meant that the incomes of three to four billion people started to converge to those of the OECD. This reduced worldwide income inequality for the first time in centuries because it more than offset the divergent incomes of 608 million Africans. The problem now is, therefore, that unless the incomes of these African citizens start growing fast, world income inequality will start rising again.
(4) Mankiw, Romer, Weil (1992, QJE)

• An early and influential exposition of economic growth empirics, using cross-country data
• They take the neo-classical growth model – with its assumption of constant technological progress $A$ (which can be interpreted broadly) – to the data, and assess the extent to which capital accumulation can explain recent economic growth patterns across countries. Technological progress is treated as a residual
(4) Mankiw, Romer, Weil (1992, QJE)

- How biased are cross-country regression estimates?
  -- Is it reasonable to assume that country A is uncorrelated with physical, human capital investment?
  -- Endogeneity is a problem: are human and physical capital investment exogenous to growth in reality?

- How reliable is the cross-country data? Deaton 2005

- How robust are the estimated cross-country relationships? Levine and Renelt 1992
(4) Deaton (2005, *REStat*)

- National accounts system (NAS) data and household survey (HHS) data have yielded very different estimates regarding global income trends. Which is correct?
  -- Sala-i-Martin 2006 combines both data sources, using them for different parameters (means, dispersion)

- This has major implications for our understanding of the impact of economic reforms in China and India

- Studying these measures also sheds light on data quality across regions
<table>
<thead>
<tr>
<th></th>
<th>No. of Surveys</th>
<th>Mean Ratio</th>
<th>Standard Error</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>277</td>
<td>0.860</td>
<td>(0.029)</td>
<td>0.306</td>
</tr>
<tr>
<td>EAP</td>
<td>42</td>
<td>0.819</td>
<td>(0.069)</td>
<td>0.224</td>
</tr>
<tr>
<td>EECA</td>
<td>59</td>
<td>0.847</td>
<td>(0.038)</td>
<td>0.230</td>
</tr>
<tr>
<td>LAC</td>
<td>26</td>
<td>0.767</td>
<td>(0.094)</td>
<td>0.329</td>
</tr>
<tr>
<td>MENA</td>
<td>20</td>
<td>0.955</td>
<td>(0.104)</td>
<td>0.300</td>
</tr>
<tr>
<td>OECD</td>
<td>33</td>
<td>0.781</td>
<td>(0.052)</td>
<td>0.097</td>
</tr>
<tr>
<td>SA</td>
<td>23</td>
<td>0.649</td>
<td>(0.063)</td>
<td>0.122</td>
</tr>
<tr>
<td>SSA</td>
<td>74</td>
<td>1.000</td>
<td>(0.061)</td>
<td>0.415</td>
</tr>
</tbody>
</table>

*Consumption to Consumption*
Figure 1.—Ratio of Survey Estimates of Mean Income or Consumption per Capita to Comparable National Accounts Estimates

Consumption to consumption ratio

Income to consumption ratio

Income to GDP ratio

Log of real GDP PC 1995 PPP
There are two points to take away from these figures. First, the top left panels in both figures show a negative relationship between the ratio of survey to national accounts consumption on the one hand, and the GDP per capita on the other. This relationship is steepest among the poorest countries, is flatter in middle income countries, but resumes its downward slope among the rich countries. The continuous lines in the two top left graphs are locally weighted non-parametric regressions of the relationship using a bandwidth of 1.5 (units of real log GDP in PPP). Second, there is no similar relationship among the income surveys, either for the ratio of survey income to national accounts consumption, or for the ratio of survey income to GDP. At least some of the pattern in figure 1 must come from the fact that consumption is typically much easier to measure in surveys than income in poor countries, where many people are self-employed in agriculture, whereas the opposite is true in rich countries, where most people are wage earners and are more reluctant to cooperate with time-consuming consumption surveys.
TABLE 3.—POPULATION-WEIGHTED GROWTH RATES, 1990–2000: REAL
CONSUMPTION OR REAL INCOME, VARIOUS MEASURES, NON-OECD COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Surveys with Consumption Preference</th>
<th>Surveys with Income Preference</th>
<th>PWT6.1, Matching Surveys by Year and Country</th>
<th>PWT6.1, all Survey Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression of log on time</td>
<td>1.9</td>
<td>4.0</td>
<td>3.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Average rate of growth</td>
<td>2.3</td>
<td>5.0</td>
<td>4.5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Notes: Columns 1 and 2 show the growth rates of population-weighted survey means. In column 1, whenever there is both an income and a consumption mean for a country year pair, consumption is used. In column 2, whenever there are two surveys, preference is given to income. In both cases, survey means are converted to a constant-price PPP basis by dividing by the product of the U.S. CPI and the consumption PPP exchange rate from the Penn World Tables, Version 6.1 (PWT6.1). For each year from 1990 to 2000, a population-weighted average of the survey means is calculated: note that these averages involve different countries in different years (see table 1). The growth rates are then calculated in two ways, by regression of the logarithm on a time trend (first row) and by calculating the average change in the logarithm over the period. These can be quite different when the series is noisy, as is the case here, because countries come in and out of the average. Columns 3 and 4 show comparable population-weighted growth rates for real PPP (chain-weighted) consumption from PWT6.1. In column 3, consumption from PWT6.1 is used only for country year pairs for which a survey mean exists; this column therefore shares the variability in columns 2 and 3 that comes from the varying selection of countries. Column 4 shows the population-weighted growth rates for consumption from PWT6.1 using all countries for which there ever exists a survey.
Figure 3.—Logarithms of Population-Weighted Averages of Consumption or Income

- Consumption, PWT, all survey countries
- Consumption, PWT, matched to surveys
- Survey means, income where possible
- Survey means, consumption where possible

Log consumption or income

Figure 4.—Ratios of survey means to national accounts means of consumption and/or income per head, India and China

**INDIA**

Ratio of survey consumption to NAS consumption

**CHINA**

Ratio of survey income to NAS consumption

- Old series
- New series

Graphs showing trends from 1980 to 2000.
Figure 5.—Ratios of Survey Means to National Accounts Means of Consumption and/or Income per Head: United States and United Kingdom.

USA
- CPS income
- CEX consumption
- CEX income

UK
- FES consumption
- EFS consumption
Deaton (2005, *REStat*)

- Weaknesses of household survey (HHS) data:
  1) Survey non-response / non-compliance / coverage
  2) Surveys often (but not always) fail to include the rental value of owner-occupied housing
  3) Recall periods (i.e., 1 week vs. 1 month) have a major impact on reported consumption levels
  4) The disaggregation of survey items has an impact
  5) The identity of the survey respondent matters
  6) NGO / non-profit related consumption activities are typically missed in HH surveys but captured (at least in theory) in NSA measures
Deaton (2005, *REStat*)

• Weaknesses of national accounts system (NAS) data:
  1) Illegal / regulated activities (e.g., smuggling) may be systematically missed in the national accounts data
  2) The construction of NAS data often uses outdated and poorly measured official statistics, input-output tables, and estimated crop yields
  3) Household / informal sector production is missed in national accounts
Deaton (2005, *REStat*)

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  1) Illegal / regulated activities (e.g., smuggling) may be systematically missed in the national accounts data
  2) The construction of NAS data often uses outdated and poorly measured official statistics, input-output tables, and estimated crop yields
  3) Household / informal sector production is missed in national accounts

Do NAS / HHS provide upper / lower bounds on growth? Does Sala-i-Martin overstate global poverty reduction?
(4) Levine and Renelt (1992, *AER*)

• Levine and Renelt examine a regression of the form:
  \[ Y = a + B_I l + B_M M + B_Z Z + u \]

  where \( Y \) is per capita income growth, \( l \) is the vector of standard variables (as in MRW 1992), \( M \) the variable being tested for robustness, and \( Z \) are other controls

• How robust to the addition of other controls is \( B_M \)?
• The bottom line: nearly all variables (in terms of fiscal, monetary, and trade policy, and political variables) are fragile to the addition of other controls, except for some investment and initial income measures
Whiteboard #1
Whiteboard #2
Whiteboard #3
Whiteboard #4
Whiteboard #5