

Development 730 – Mid-Term Paper

Is there a relationship between income inequality and economic development?

- Is the correlation positive or negative? Is there a U-shaped relationship?
- Or is there no relationship at all?

Discuss some of the theoretical and empirical arguments in favor of each position. Which arguments do you find most convincing? Which do you find least convincing? Why?

Write an essay that answers the questions above. Your essay should discuss at least three of the articles from the course syllabus. Your essay should also discuss at least five articles which are not on the course syllabus and/or contain an empirical analysis.

To get you started, I have suggested a few articles and I am providing you with a spreadsheet which contains observations on income inequality, average income and the growth rate of average income. **Feel free to cite sources that are not on the suggested reading list, feel free to use a different dataset and feel free to add other data to the spreadsheet I gave you.**

the dataset

The spreadsheet contains observations on income inequality, average income and the growth rate of average income for 177 countries in the year 2004 and for all 50 US states and the District of Columbia in the years 1992 to 2004. (The country data comes from the UNDP's *2006 Human Development Report*. The US state data comes from the Census Bureau's *March Current Population Survey*).

Aside from the data itself, the spreadsheet contains a few graphs of the relationship between inequality and economic development. Notice that, in the UNDP data, relatively more equal countries (i.e. those with lower Gini coefficients) tend to have higher growth rates and higher GDP per capita. The opposite is true in the US state data. More equal states (those with lower coefficients of variation) tend to have lower growth rates and lower average log income per capita.

technical notes on UNDP data

The UNDP's annual growth rate of per capita GDP is an average of growth rates from 1975 to 2004. Specifically, they regressed constant price GDP per capita in local currency units on a time trend and reported the coefficient as the annual growth rate.

The UNDP collected its GDP data from the *World Bank's Development Indicators 2006*. The per capita GDP figures are adjusted for purchasing power parity and are expressed in US dollars. The midyear population is used in the denominator. The UNDP also included the following notes with their per capita GDP figures:

1. In theory, for the United States the value of GDP in PPP (purchasing power parity) US dollars should be the same as that in US dollars, but practical issues arising in the calculation of the PPP US dollar GDP prevent this.
2. Estimates are based on regression.
3. Data refer to 2003.
4. Data refer to 2002.
5. Estimate based on a bilateral comparison between China and United States (Ruoan, et al. 1995).
6. Data refer to 2001.

technical notes on US state data

The US state data contains series on the mean and variance of both the natural log of gross income and the natural log of net income. I computed these series from the Census Bureau's March CPS files (available through DataFerrett – dataferrett.census.gov).

In an attempt to prevent unemployment and part-time employment from introducing bias into the calculated means and variances, I excluded observations on individuals who worked less than 1400 hours in the previous year (1400 hours is 35 hours per week times 40 weeks). As a double-check, I only included observations on individuals who had positive adjusted gross income and paid positive federal income taxes.

I considered an individual's adjusted gross income to be his/her gross income. I then computed an individual's net income by adding the individual's earned income tax credit and subtracting the individual's state and federal income tax payments from his/her adjusted gross income.

In order to preserve the confidentiality of respondents to their survey, the Census Bureau reports any income that equals or exceeds \$100,000 as \$99,999. Since the income distribution is truncated, the observed means and variances are lower than the true means and variances. I recovered estimates of the true means and variances by using Johnson and Kotz' (1970) theorem on the moments of a truncated normal distribution (as discussed in Greene, 2000, p. 899).

While computing the means and variances, I adjusted for inflation by dividing each observation by the BEA's personal consumption deflator (“Implicit Price Deflators...”).

works and sources cited

Greene, William H. (2000). *Econometric Analysis*. 4th ed. Prentice-Hall.

Johnson N. and S. Kotz (1970). *Distributions in Statistics, Continuous Univariate Distributions–2*. New York: John Wiley and Sons.

Ruoen, Ren and Chen Kai (1995). “China's GDP in U.S. Dollars Based on Purchasing Power Parity.” Policy Research Working Paper 1415. World Bank, Washington, D.C.

“Implicit Price Deflators for Gross Domestic Product.” Table 1.1.9. Bureau of Economic Analysis. <http://www.bea.gov>

United Nations Development Programme. *The 2006 Human Development Report: Beyond scarcity: power, poverty and the global water crisis*. <http://hdr.undp.org/hdr2006>

United States Census Bureau. *March Current Population Survey*. <http://www.census.gov>

World Bank (2006). *World Development Indicators 2006*. CD-ROM. Washington, D.C. (aggregates calculated for the Human Development Report Office by the World Bank).

suggested readings

- Adelman, Irma and Sherman Robinson. "Income distribution and development." Chapter 19 of the *Handbook of Development Economics*. vol. 2, 1989, p. 949-1003.
- Ahluwalia, Montek S. "Income distribution and development: Some stylized facts." *American Economic Review*. May 1976, vol. 66, no. 2, p. 128-135.
- Alesina, Alberto and Dani Rodrik. "Distributive Politics and Economic Growth." *Quarterly Journal of Economics*, May 1994, vol. 109, issue 2, pp. 465-90.
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- Galor, Oded and Joseph Zeira. "Income Distribution and Macroeconomics." *Review of Economics Studies*. Jan. 1993, vol. 60, no. 1, p. 35-52.
- Hirschman, A.O. and M. Rothschild. "The changing tolerance for income inequality in the course of economic development." *Quarterly Journal of Economics*. Nov. 1973, vol. 87, no. 4, p. 544-566.
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- Newhouse, Joseph P. "A Simple Hypothesis of Income Distribution." *Journal of Human Resources*. Winter 1971, vol. 6, no. 1, p. 51-74.
- Perotti, Roberto. "Political Equilibrium, Income Distribution and Growth." *Review of Economic Studies*. Oct. 1993, vol. 60, no. 4, p. 755-76.
- Persson, Torsten and Guido Tabellini. "Is Inequality Harmful for Growth?" *American Economic Review*, June 1994, vol. 84, issue 3, pp. 600-621.
- Stiglitz, Joseph E. "Distribution of Income and Wealth among Individuals." *Econometrica*, July 1969, vol. 37, issue 3, pp. 382-97.
- Tinbergen, Jan. "A Positive and a Normative Theory of Income Distribution." *Review of Income and Wealth*. Sept. 1970, vol. 16, issue 3, p. 221-234.

Addendum: Technical Note on Years of Schooling

This addendum describes the construction of the “Human Capital” variables in the dataset.

To calculate each Census Bureau respondent's level of human capital, I started by assuming that years of education is a good proxy for human capital. The Census Bureau's A_HGA variable doesn't tell us how many years each respondent attended formal schooling. Instead the Census Bureau provides a code for the highest degree attained.

We can convert that code into a rough approximation of the number of years a respondent attended school. Starting with the assumption that completion of 1st grade is one year of formal schooling, I developed the following conversions:

number of years	A_HGA	description
0 years	31	less than 1st grade
4 years	32	1st, 2nd, 3rd or 4th grade
6 years	33	5th or 6th grade
8 years	34	7th or 8th grade
9 years	35	9th grade
10 years	36	10th grade
11 years	37	11th grade
11½ years	38	12th grade, but no diploma
12 years	39	high school graduate/high school diploma
13 years	40	some college, but no degree
14 years	41	Associate's degree – occupation/vocation
14 years	42	Associate's degree – academic program
16 years	43	Bachelor's degree (BA, AB, BS)
18 years	44	Master's degree (MA, MS, MENG, MED, MSW, MBA)
20 years	45	Professional school degree (MD, DDS, DVM, LD)
20 years	46	Doctorate degree (PHD, EDD)