

Is Life Getting Better?

A beginners guide to measuring the progress of societies:

Economic indicators
Inequality

Is Life Getting Better?

This is the ninth in a set of pamphlets about measuring well-being and progress of societies.

There are a large number of issues relating to measuring inequality, such as data availability, measurement issues, whether income or consumption is used to measure inequality, absolute versus relative inequality and more.

For example, countries don't always have data for every year. Also, many countries do not collect data on income, but use consumption instead. There also are no universally agreed on definitions of income, and many different ways to calculate inequality.

Many of these issues are not yet resolved, and may not be solved for many years to come.

This pamphlet is a brief introduction to some of the major issues relating to measuring inequality.

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Is Life Getting Better?

Availability of data:

Most data on income inequality come from surveys. However countries don't necessarily do surveys every year, and sometimes not for many years, as can be seen on the following page. So one difficulty with studying inequality is that it is hard to show “current” inequality.

For example, the most recent UN World Income Inequality Database (WIID) only has 43 countries with data for 2006. Similarly, the most recent World Factbook only has 26 countries with data for the most recent two years. Thus any data set showing “current” inequality is limited.

Expanding the time frame adds more countries. For example, including survey data from 2005 and 2004 increases the number of countries in the WIID with “current” data to 82.

However, the lack of data for regular and consistent time periods also makes it difficult to study inequality over time.

Is Life Getting Better?

This table, showing some countries with high inequality, is from the US CIA World Factbook.¹

Country	Gini index for family income	Date of information
Namibia	70.7	2003
South Africa	65.0	2005
Lesotho	63.2	1995
Botswana	63.0	1993
Sierra Leone	62.9	1989
Central Africa Republic	61.3	1993
Bolivia	59.2	2006
Haiti	59.2	2001
Colombia	58.5	2008

As can be seen, some of the countries have recent inequality data, but a number of others only have data ten years or more years old. Thus, using these data, there would be some difficulties in showing “current” inequality throughout the world.

1. The World Factbook. Country Comparisons: Distribution of Family Income – Gini Index. US CIA.
<https://www.cia.gov/library/publications/the-world-factbook/index.html>

Is Life Getting Better?

Use of income or consumption to measure inequality:

Most industrialized and Latin American countries collect income data in their surveys. However, getting accurate income data is often difficult in developing countries, so surveys in Africa and Asia collect consumption data.²

Generally, income and consumption can both be used to show distribution throughout the population, and so are both indicators of inequality.

However, consumption tends to be more stable over time than is income.³ Also, consumption is seen by some as better representing the standard of living.⁴

On the other hand, income may be a better indicator of the capability of people to participate in mainstream society.⁵

2. WIID User guide. United Nations University. Retrieved 5/8/2010 from <http://62.237.131.23/wiid/wiid-documentation1.php>

3. Dirk Krueger and Fabrizio Perri, Does Income Inequality Lead to Consumption Inequality? Evidence and Theory. <http://www.econ.upenn.edu/~dkrueger/research.php>

4. INDICATORS for Monitoring the Millennium Development Goals: Definitions, Rationale, Concepts and Sources. United Nations Development Group. Led by United Nations Population Fund, Department of Economic and Social Affairs—Statistics Division <http://unstats.un.org/unsd/mdg/Host.aspx?Content=Indicators/Handbook.htm>

5. Michael Forster and Marco Mira D'Ercole. The OECD Approach to Measuring Income Distribution and Poverty: Strengths, Limits and Statistical Issues. OECD. Center for International Policy Exchanges, University of Maryland, School of Public Policy. Conference: Measuring Poverty, Income Inequality, and Social

Is Life Getting Better?

Measurement issues for income and consumption:

One problem with consumption has to do with how certain things are counted in consumption estimates. For example, the monetary values of rented apartments and home ownership have to be made comparable, so researchers try to calculate a “rent” equivalent for those who own their own homes. In addition, purchase of 'durables' like cars or refrigerators do not take place at regular time intervals so these purchases change “consumption” from year to year. It is not always clear on whether or how to include those items.⁶

One issue about income is that different countries don't always measure income the same way. For example, some countries use income before taxes while others use income after taxes. Other similar tax or deduction issues further contribute to the lack of comparability.⁷

Exclusion, Lessons from Europe, March 16-17, 2009. <http://umdcipe.org/conferences/occdumd/>

6. Peter Lanjouw, Inequality of What? Building a Distribution and Summarizing Inequality. DEC Course on Poverty and Inequality Analysis. Module 5: Inequality and Pro-Poor Growth. The World Bank, 2008 <http://go.worldbank.org/L3YVURASC0>

7. Forster and D'Ercole, same as above.

Is Life Getting Better?

Time frames:

Some surveys ask about annual income while others ask for weekly or monthly, which is then converted to annual. Short term income, like monthly, could be highly variable, such as seasonal work, while annual income is more stable. Annual and weekly incomes, that is, may not be comparable indicators.⁸

Additionally, when different countries do surveys, they may use different definitions of 'household'. For example, household for some countries just means those living in the same dwelling, while other countries require that people have to contribute to the resources.⁹

Finally, many surveys use only a single question to ask about household income, and may ask only one person in the household about income of the entire household. However, one person may not be able to give a good estimate of the total household income.¹⁰

8. Forster and D'Ercole, same as above.

9. OECD, 2008. Key features of OECD Data in Income distribution from Annex 1.A1 of Growing Unequal? http://www.oecd.org/document/2/0,3343,en_2649_33933_45043394_1_1_1_1,00.html#Methods_and_Concepts

10. John Micklewright and Sylke V. Schnepf. How reliable are income data collected with a single question? *Journal of the Royal Statistical Society: Series A (Statistics in Society)*. March 2010, Volume 173 Issue 2, Pages 409 – 429. <http://www3.interscience.wiley.com/journal/123305750/abstract>

Is Life Getting Better?

Calculating income inequality:

Some simple measures are based on percentiles, such as deciles or quartiles. For example, many reports tell the percent of income earned by the top 10% of wage earners. Percentiles is one of the many inequality indicators used by OECD¹¹ and the US CIA World Factbook.¹²

The Gini coefficient, described in a previous handout, is the most common measure of inequality.¹³ This indicator is basically a cumulative measure of what percent of earners earn what percent of income. However, the Gini coefficient has a problem in that adding together inequality, or the Gini coefficients, of all subgroups in a society don't add up to the total inequality, or Gini coefficient of the whole society.¹⁴ Thus the Gini coefficient can't be used to study how inequality among sub-populations contributes to inequality within the society as a whole.

11. Society at a Glance 2009: OECD Social Indicators: Equity Indicators, Income inequality. <http://www.oecd-ilibrary.org/>

12. "Household income or consumption by percentage share" World Factbook, Definitions and Notes. CIA. 2010. <https://www.cia.gov/library/publications/the-world-factbook/docs/notesanddefs.html>

13. Measuring Inequality. International Bank for Reconstruction and Development, The World Bank. <http://go.worldbank.org/3SLYUTVY00>

14. Houghton, Jonathan; Khandker, Shahidur R. Handbook on poverty and inequality. ; The World Bank. 2009. <http://go.worldbank.org/I0Y1NQB150>

Is Life Getting Better?

The Theil family of indicators address the problem of the Gini coefficient. One of the Theil indicators, for example, “is based on a ratio comparison of the household’s share of aggregate income and the household’s income relative to the mean.” Because of how it is constructed, when using the Theil, “it is possible to identify a group’s contribution to inequality relative to the whole.”¹⁵

The Atkinson class of indicators are unique in that the value depends on inequality, and also on the society's preference for equality.¹⁶ Thus, the value of the Atkinson indicator of inequality can be higher or lower, depending on how much value the society places on reducing inequality.

In sum, theoretically, each of these different indicators of inequality measures something slightly different. However, at least according to one report, different measures of inequality typically give the same results.¹⁷

15. J.J. Hisnanick and A.L. Rogers. Household Income Inequality Measures Based on the ACS Data: 2000-2005. Program Participation and Income Transfers Branch, Housing and Household Economic Statistics Division, U.S. Census Bureau. Pages 5 and 6. <http://www.census.gov/hhes/www/income/publications/working.html>

16. Hisnanick and Rogers. Same footnote as above.

17. Haughton and Khandker. Same footnote as before.

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Comparing data from different countries:

Generally, when calculating inequality across countries, local currencies have to be converted to some kind of international 'standard'. Only then can the incomes (or prices used in determining consumption) in one country be compared to the incomes (or prices) in other countries.

If some part of the conversion methodology has to be revised, then the degree of inequality among countries would be revised as well.

In fact, there have been recent revisions in the international price comparisons, and the revisions led to calculations showing higher inequality among countries than was previously thought.¹⁸

18. B. Milanovic, Global inequality recalculated: The effect of new 2005 PPP estimates on global inequality, August 2009. <http://go.worldbank.org/AJVRQUZK40>

Is Life Getting Better?

Absolute or relative inequality:¹⁹

The table below shows an example of absolute and relative inequality.

Table 1. Table of average incomes.

	Country A	Country B	B relative to A	Difference between B and A
1900	10	50	5	40
1950	20	100	5	80
2000	40	200	5	160

In this example, the average incomes in both “countries” doubled between 1900 and 1950, and then doubled again between 1950 and 2000. The relative difference, or B/A remains the same, so the relative inequality between the countries stays the same. However, the absolute difference between A and B quadrupled over this time period, so the absolute inequality increased quite a bit.

An interpretation of the table would be that the world is getting richer, but at the same time, the gap between rich and poor countries is increasing.

19. Anthony Atkinson and Andrea Brandolini. On Analyzing the World Distribution of Income. The World Bank Economic Review, 2010, 24(1), p.1-37.

Is Life Getting Better?

One study²⁰ presents a chart showing absolute and relative inequality, between 1820 and 1992. The chart shows a gradual increase in relative inequality, with a leveling off between 1950 and 1992, but a very steep increase in absolute inequality, especially after 1950.

The argument is that the data show, as described in the example above, that the world is getting richer, but that the gap between the rich and poor countries is increasing.

This study writes that most publications and estimates use relative inequality. However, according to the study, relative inequality only tells part of the story. Absolute inequality should be included as well in studies of global inequality.

20. Atkinson and Brandolini. Previously mentioned paper.

Is Life Getting Better?

Conclusion

Inequality is a very complex indicator and there are many issues which are not yet resolved. In large part, the choice of how to measure inequality often depends on what data are available, and understanding and being aware of the potential data problems.

For example, as mentioned previously, at least one report says that the various measures of inequality typically show the same results.²¹ On the other hand, another report says that different data sets and different methods of estimation lead to different conclusions about whether income inequality.²²

So, at present, there are still many questions and disagreements on various aspects of measuring inequality, and it is not clear on when or if these issues will be resolved.

21. Houghton and Khandker, Same footnote as before. Chapter 6, says “in practice, the different measures of inequality typically tell the same story.”

22. Sudhir Anand and Paul Segal. What Do We Know about Global Income Inequality? *Journal of Economic Literature* 2008, 46:1, 57–94.
<http://www.aeaweb.org/articles.php?doi=10.1257/jel.46.1.57>
also here http://www0.gsb.columbia.edu/ipd/pub/jel_46_1.pdf

Is Life Getting Better?

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This pamphlet was reviewed by Dr. Jim Cobbe, Professor in the Department of Economics, Florida State University, and by Dr. Bill Goffe, Department of Economics, SUNY Oswego. We revised the pamphlet based on their comments. Any errors that remain are ours.

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