Jerry Travis Smith

Dr. John Allison

English 200

April 13, 2001

 In all areas of real-world statistical analysis, perhaps the hardest thing to objectively obtain is an accurate measure of income inequality. Researchers face a daunting task in deciding on which demographic groups to cover, the size of the group samples to compare, and even the way in which to present the information in order to reflect its significance. Despite the many methods of expressing inequality, many researchers use the Lorenz curve and the Gini coefficient to compare their results. In comparison to other methods of measuring inequality, the method of using the Lorenz curve and the Gini coefficient is by far the most flexible and acceptable way to gauge income inequality.

 The Lorenz curve is a graph whose independent variable is the percent of full time workers and whose dependant variable is percent of full time worker earnings. Five points are plotted because the raw data is split into quintiles. A line is then drawn between the points. Each quintile represents the percentage of total income that each quintile is responsible for. A 45-degree line is drawn from the origin to the upper-right edge of the graph. The Gini coefficient is a measure of the distance from the 45-degree line to the valley of the Lorenz curve. In a society where one person made all the money and no one else in the sample had income, the Gini coefficient would be 1. In contrast, a society in which everyone made the same amount of money (therefore having no inequality) the coefficient would be 0. In the real world, the coefficient falls somewhere in between these extremes.

According to Dr. William King of Drexel University, “The Lorenz Curve construction also gives us a rough measure of the amount of inequality in the income distribution” (“Measuring”). The fact that the Lorenz curve only provides a rough estimate has left many experts shaking their heads at any statistics based on the Gini coefficient. However, Rector and Hederman point out that income statistics are largely flawed due to underreporting of total income (9). Goetz Kluge says that it is best to use the Gini coefficient with data “in which top-groups (high wealth or income) are missing or not reliably represented” (“Entropy”). Because the data being used to compute inequality is flawed in nature, the Gini coefficient works best because it is more fault-tolerant than some of the so-called more accurate methods. Kluge recommends using other methods to measure income distribution whenever the data is extremely accurate. In the case of income, however, extremely accurate data is hard to find.

Kuan Xu while writing for the Journal of Economic and Business Statistics stated, “The Gini index (or coefficient) is probably the most used measure of income inequality. It … allow[s] the social planner to select a level of inequality aversion and to stress the different proportions of the income distribution” (223). The US Census Bureau apparently shares in this belief because it uses the Gini coefficient in its income inequality analysis. Considering the Bureau has the biggest samples of data from which income inequality is computed, it makes sense to use the Gini coefficient as a measure so as to have a major study that is updated at regular intervals to compare one’s findings against. The Gini coefficient has been used since the 1940’s as a measure of inequality. Many of the other measures of inequality, such as the Kullback-Liebler method, have not been used nearly that long. Comparing the findings from one method of measure to the findings of another is not feasible because of the differences in computation. Therefore, it is much harder to compare statistics from the past that are based on the Gini to current statistics based on a method of computation because the original raw data must be recomputed using the method in question. In a study involving thousands of people in the sample, the recomputation of the data could stretch out the research process for months and cost a great deal of money.

In conclusion, if the raw income data is extremely accurate, the Gini coefficient is probably not your best choice for measuring inequality. However, considering the somewhat flawed state of most income data, the use of the Gini will yield the most accurate results. The Gini also happens to be the most widely used and accepted method for measuring inequality, which, in turn, translates into lower research costs. Therefore, the Gini coefficient method is the best overall choice for measuring income inequality.

Works Citied

King, William. Measuring. Drexel University. 15 Apr. 2001 <http://william-king.www.drexel.edu/top/prin/txt/factors/dist4.html>.

Kluge, Goetz. “Entropy and Inequality Measures.” 6 Aug. 2000. 15 Apr. 2001 <http://poorcity.richcity.org/frmentro.htm>.

Rector, Robert and Rea S. Hederman. “Income Inequality: How Census Data Misrepresent Income Distribution.” Report for the Heritage Center for Data Analysis. 29 Sep. 1999: 9.

Xu, Kuan. “Inference for Generalized Gini Indices Using the Iterated-Bootstrap Method.” Journal of Business and Economic Statistics 18.2 (2000): 223.