

Lorenz curve A curve that shows the distribution of income by arraying incomes from lowest to highest on the horizontal axis and indicating the cumulative fraction of income earned by each fraction of households on the vertical axis.

Showing the Income Distribution with a Lorenz Curve

Figure 18-6 presents the distribution of income using a *Lorenz curve*. A **Lorenz curve** shows the distribution of income by arraying incomes from lowest to highest on the horizontal axis and indicating the cumulative fraction of income earned by each fraction of households on the vertical axis. If the distribution of income were perfectly equal, a Lorenz curve would be a straight line because the first 20 percent of households would earn 20 percent of total income, the first 40 percent of households would earn 40 percent of total income, and so on. Panel (a) of Figure 18-6 shows a Lorenz curve for the actual distribution of income in the United States in 1980 and another curve for the distribution of income in 2005, using the data in Table 18-6. We know that income was distributed more unequally in 2005 than in 1980 because the Lorenz curve for 2005 is farther away from the line of equal distribution than is the Lorenz curve for 1980.

Panel (b) illustrates how to calculate the *Gini coefficient*, which is one way of summarizing the information provided by a Lorenz curve. The Gini coefficient is equal to

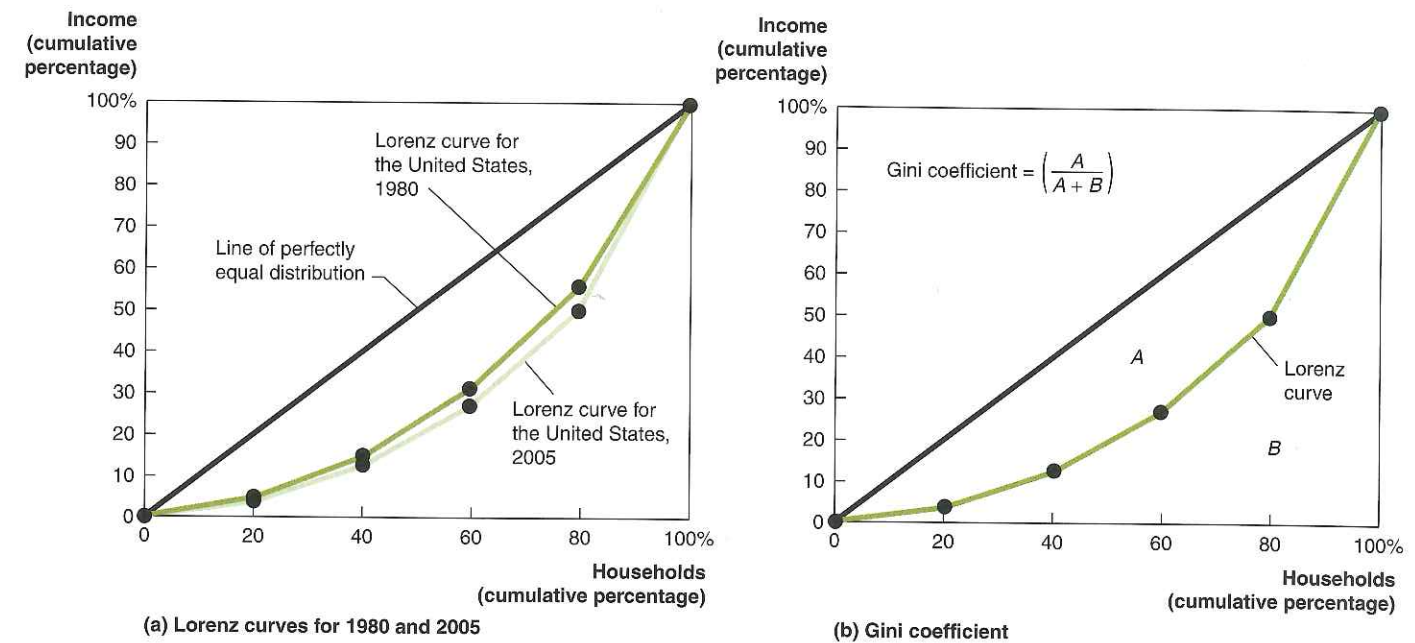


Figure 18-6 | The Lorenz Curve and Gini Coefficient

In panel (a), the Lorenz curves show the distribution of income by arraying incomes from the lowest to the highest on the horizontal axis and indicating the cumulative fraction of income by each fraction of households on the vertical axis. The straight line represents perfect income equality. Because the Lorenz curve for 1980 is closer to the line of perfect equality than the Lorenz curve for 2005, we know that income was

more equally distributed in 1980 than in 2005. In panel (b), we show the Gini coefficient, which is equal to the area between the line of perfect income equality and the Lorenz curve—area A—divided by the whole area below the line of perfect equality—area A plus area B. The closer the Gini coefficient is to 1, the more unequal the income distribution.

the area between the line of perfect income equality and the Lorenz curve—area A in panel (b)—divided by the whole area below the line of perfect equality—area A plus area B in panel (b). Or:

$$\text{Gini coefficient} = \left(\frac{A}{A + B} \right)$$

If the income distribution were completely *equal*, the Lorenz curve would be the same as the line of perfect income equality, area A would be zero, and the Gini coefficient would be zero. If the income distribution were completely *unequal*, area B would be zero, and the Gini coefficient would equal 1. Therefore, the greater the degree of income inequality, the greater the value of the Gini coefficient. In 1980, the Gini coefficient for the United States was 0.403. In 2005, it was 0.469, which tells us again that income inequality increased between 1980 and 2005.

