

## Taxes, Transfers, Progressivity, And Redistribution: Part 1

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In this article, the first of a two-article series, Slavov and Viard explain how to measure the extent of redistribution induced by a tax transfer system, the impact of the size and progressivity of taxes and transfers, and the proper comparison of the effects of taxes and transfers.

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In this article, which is the first part of a two-article series, we examine the features of taxes and transfers that make them redistributive. We emphasize the distinct roles played by the progressivity of taxes and transfers and the size of the taxes and transfers.

A tax system's progressivity measures the extent to which taxes are a larger share of income for higher-income households. The redistribution induced by a tax system is equal to the system's progressivity multiplied by its size, minus an adjustment term discussed below. A more progressive tax system causes more redistribution per tax dollar, but it may cause less total redistribution if the tax system is smaller. A tax cut can make a tax system more progressive while making it less redistributive (because of the reduction in its size); the Economic

Growth and Tax Relief Reconciliation Act of 2001 had that effect on the U.S. tax system.

The redistribution induced by transfers similarly depends on their progressivity and their size. Progressivity measures the extent to which transfers are a larger share of income for low-income households. Contrary to popular impression, transfers that rise with income can be progressive, as long as they rise less than proportionately with income.

### A. Measuring Inequality

To assess the extent of redistribution, we need a measure of income inequality, which is the extent to which income is concentrated at the top end of the distribution. A common measure of inequality is the Gini coefficient,<sup>1</sup> which ranges from zero (the value that would prevail if all incomes were equal) to one (the value that would prevail if a miniscule fraction of the population received all of the income). We can use the Gini coefficient to summarize the level of inequality and the amount of redistribution under different fiscal systems. The Gini coefficient is only one of many possible ways to measure inequality, and it has the inevitable limitations associated with any use of a single number to summarize the entire income distribution.<sup>2</sup> Nevertheless, the conclusions in this article about the relationship between redistribution, progressivity, and the size of taxes and transfers would remain valid under other inequality measures.

Moreover, it is important to keep in mind that the Gini coefficient does not prescribe a value judgment about whether a particular distribution of income is fair. For example, the measure does not reflect how individuals obtained their incomes and it does not take any position on whether individuals deserve, or have a moral claim to, their incomes.

<sup>1</sup>The Gini coefficient was developed by Corrado Gini, *Variabilità e Mutuabilità: Contributo allo Studio delle Distribuzioni e delle Relazioni Statistiche* (1912). The construction of the income data used to compute the Gini coefficient (or any other inequality measure) also raises several issues. For example, the analyst must decide whether to measure income on a lifetime or annual basis, whether to include realized or accrued capital gains, fringe benefits, imputed rent on owner-occupied homes, and other items, and whether to adjust for variations in household size. Our focus is on how to compute inequality after the income data are constructed.

<sup>2</sup>For a comparison of the Gini coefficient and other inequality measures, see Peter J. Lambert, *The Distribution and Redistribution of Income* 27-37, 106-132 (2001).

	(1) Share of Population	(2) Income	(3) Share of Income	(4) Cumulative Population Share	(5) Cumulative Income Share	(6) Deviation From Equal Income
Individual 1	20%	\$12,000	3.2%	20%	3.2%	16.8%
Individual 2	20%	\$31,000	8.2%	40%	11.3%	28.7%
Individual 3	20%	\$54,000	14.2%	60%	25.6%	34.4%
Individual 4	20%	\$88,000	23.2%	80%	48.8%	31.2%
Individual 5	20%	\$194,000	51.2%	100%	100%	0%
Gini Coefficient	0.444					

Computing the Gini coefficient involves summing many terms, one for each individual in society. To obtain the first term in the sum, subtract the poorest individual's share of society's total income from her share of the population (1 divided by the total population). To obtain the second term in the sum, subtract the combined share of total income for the poorest two individuals from these two individuals' population share (2 divided by the total population). To obtain the third term, subtract the poorest three individuals' combined share of total income from these three individuals' population share (3 divided by the total population). To obtain the rest of the terms, continue this process, moving up the income distribution. The last term, which is the combined population share for all individuals minus the combined share of income for all individuals, must be zero because the entire population (100 percent) earns all of society's income (100 percent).

Because the population shares and the income shares would be the same if everyone had the same income, each term is a measure of the cumulative deviation from equality. Adding up all of the terms, dividing by the population size, and multiplying by two yields the Gini coefficient.<sup>3</sup>

Table 1 presents a hypothetical example of five individuals ranked by income.<sup>4</sup> Each individual makes up 20 percent of the population, as shown in column 1, and earns the income given in column 2. Column 3 shows the share of the total income earned by each individual. Column 4 lists the cumulative share of population for individuals up to that point in the income distribution; column 5 lists the cumulative share of total income. For example, the bottom individual represents 20 per-

cent of the population, as shown in column 4 and earns 3.2 percent of the income, as shown in column 5. The bottom two individuals represent 40 percent of the population, as shown in column 4, and earn 11.3 percent of total income, as shown in column 5. (This income share differs slightly from the sum of 3.2 percent and 8.2 percent because of rounding.)

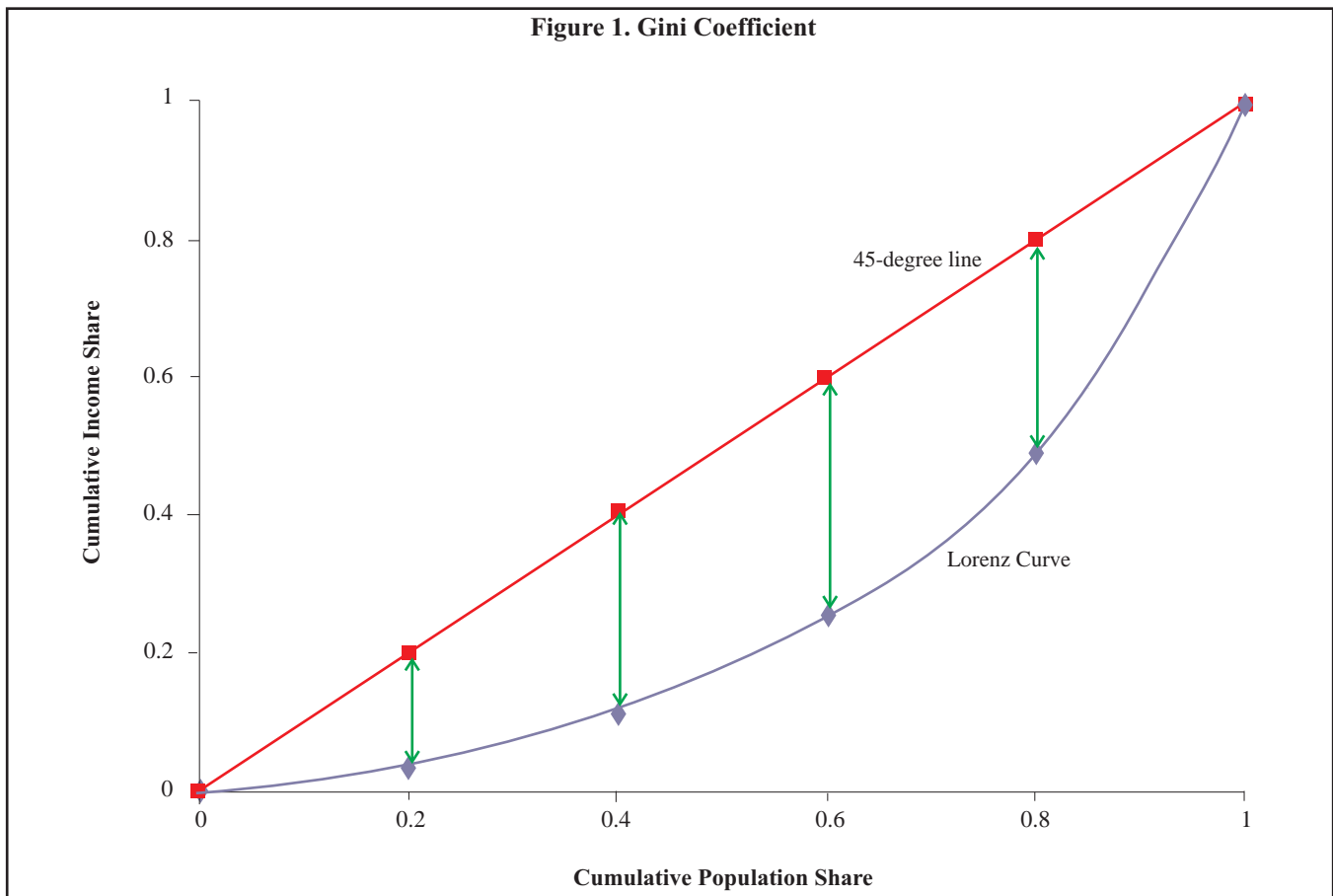
The deviation from equality for the bottom person is  $(0.2 - 0.032) = 0.168$ , and the cumulative deviation from equality for the bottom two people is  $(0.4 - 0.113) = 0.287$ , as shown in column 6. Similarly, the cumulative deviation from equality for the bottom three quintiles is 0.344, the cumulative deviation from equality for the bottom four quintiles is 0.312, and the cumulative deviation from equality for all five quintiles is zero (as it must be, for the reasons discussed above). To calculate the Gini coefficient, one simply adds these deviations from equality and divides by five, which is the population size, and multiplies the result by two. In this example, the result is  $(0.168 + 0.287 + 0.344 + 0.312 + 0) \times 2/5$ , or 0.444.

The Gini coefficient has a simple graphical interpretation, as shown in Figure 1. The horizontal axis measures the cumulative population share (column 4 of Table 1) and the vertical axis measures the cumulative income share (column 5 of Table 1). The curve that shows the relationship between the two is called the Lorenz curve. The 45-degree line shows the cumulative share of total income that would apply under perfect income equality and the arrows in the graph represent the deviations from equality (column 6 of Table 1). As the number of individuals becomes large, the sum of the deviations from equality divided by population size is approximately equal to the area between the 45-degree line and the Lorenz curve. The Gini coefficient, which is equal to double that sum, is approximately equal to the area between the Lorenz curve and the 45-degree line divided by the total area below the 45-degree line, as the total area below the 45-degree line is half of the total area in the graph.

The Congressional Budget Office has computed Gini coefficients for the U.S. income distribution for

<sup>3</sup>The mathematical formula is  $G = 2 \sum_{k=1}^n \frac{1}{n} \left( \frac{k}{n} - \sum_{i=1}^k \alpha_i \right)$ , in which  $\alpha_i$  denotes the share of income received by individual  $i$ , in which  $i = 1, \dots, n$ , each of the  $n$  individuals in society.

<sup>4</sup>The five individuals' incomes are equal to the average incomes, rounded to the nearest thousand dollars, in each of the five quintiles of the 2014 U.S. income distribution, as reported by the Census Bureau, available at <https://www.census.gov/hhes/www/income/data/historical/index.html>.



1979 through 2013. For each year, the CBO computes the Gini coefficient for before-tax, before-transfer income (which the CBO calls “market income”), before-tax, after-transfer income (which the CBO calls “before-tax income”), and after-tax, after-transfer income (which the CBO calls “after-tax income”). Figure 2 shows the time path of the Gini coefficients for all of those income definitions.<sup>5</sup>

In each year the Gini coefficient is higher for before-tax before-transfer income than for the other two income concepts. In 2013 the Gini coefficient for before-tax before-transfer income was 0.596, up from 0.476 in 1979.

Federal transfers reduce income inequality. In 2013 the Gini coefficient for before-tax after-transfer income was 0.485, 19 percent lower than the 0.596 Gini coefficient for before-tax before-transfer income. As explained below, federal transfers reduce income inequality because they are generally a larger share of income for low-income households

<sup>5</sup>The data are from Table 8 in the supplemental data Excel file posted by the CBO at <https://www.cbo.gov/publication/51361>.

than for high-income households. In other words, federal transfers are progressive.

Federal taxes further reduce income inequality. In 2013 the Gini coefficient for after-tax after-transfer income was 0.442, 9 percent lower than the 0.485 Gini coefficient for before-tax after-transfer income. As explained below, federal taxes reduce income inequality because they are generally a larger share of income for high-income households than for low-income households. In other words, federal taxes are progressive.

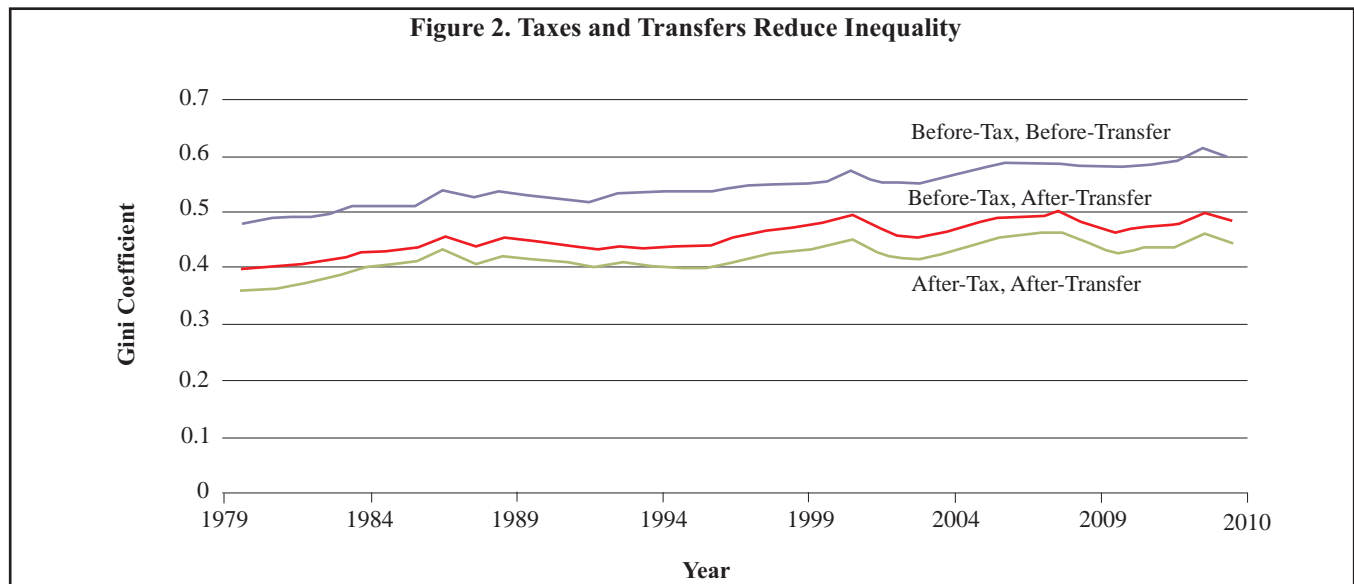
In combination, federal taxes and transfers reduced inequality by 26 percent in 2013, lowering the Gini coefficient from 0.596 to 0.442.

## B. Tax Progressivity and Redistribution

Starting with taxes, we examine how taxes and transfers reduce inequality. We now consider how to measure the progressivity of a tax system and the extent of redistribution that it induces.

**1. Measuring tax progressivity.** The progressivity of a tax system depends on the extent to which tax liabilities rise more sharply than income. The relevant question is whether average tax rates (taxes as a fraction of income) rise as income rises.

A tax system’s progressivity does not depend solely on the share of taxes paid by different income



groups. Instead, it is necessary to compare the groups' tax shares with their income shares. For example, consider a country in which high-income households pay 30 percent of total taxes. That could occur in several scenarios: because high-income households have 20 percent of total before-tax income and the tax system is significantly progressive; because high-income households have 30 percent of total before-tax income and the tax system is proportional; or because high-income households have 40 percent of total before-tax income and the tax system is significantly regressive.

A common measure of progressivity is the Kakwani index,<sup>6</sup> which equals the concentration coefficient for taxes minus the Gini coefficient for before-tax income. The concentration coefficient for taxes is similar to a Gini coefficient for taxes paid, as it measures inequality in tax burdens, except that the computation ranks individuals by before-tax income rather than by taxes paid.<sup>7</sup> The Kakwani progressivity index is the difference between the tax concentration coefficient, which is a measure of income groups' shares of total taxes, and the Gini coefficient for before-tax income, which is a measure of income groups' shares of total before-tax

income.<sup>8</sup> In accord with the previous discussion, progressivity depends on a comparison of tax shares and income shares.

If each individual's tax share equals his income share (for example, if an individual who earns 10 percent of the income also pays 10 percent of total taxes), the Kakwani index is zero, and the tax has no progressivity. If the tax shares are distributed less equally than before-tax income shares, so that high-income individuals pay a greater share of total taxes than their share of total before-tax income, the Kakwani index is positive and the tax is progressive. If high-income individuals pay a smaller share of total taxes than their share of total before-tax income, the Kakwani index is negative and the tax is regressive.

For example, introduce a 36 percent proportional income tax into our example in Table 1.<sup>9</sup> Table 2 shows the calculation of the Kakwani index. Column 2 indicates the tax paid by each individual,

*(Text continues on p. 1442.)*

<sup>6</sup>The index was developed by Nanak C. Kakwani, "Measurement of Tax Progressivity: An International Comparison," 87 *Econ. J.* 71 (1976). Like the Gini coefficient, the Kakwani index is only one of many potential indexes available to analysts, as discussed by Lambert, *supra* note 2, at 196-206.

<sup>7</sup>The formula is  $2 \sum_{k=1}^n \frac{1}{n} \left( \frac{k}{n} - \sum_{i=1}^k \gamma_i \right) - G_{beforetax}$ , in which  $\gamma_i$  is the share of total taxes paid by individual  $i$  and  $G_{beforetax}$  is the before-tax Gini coefficient.

<sup>8</sup>The construction of the tax data, like the construction of the income data (*supra* note 1), raises several issues. For example, it is necessary to decide who bears the economic burden of each tax, which has been a particularly contentious issue for the corporate income tax. Our focus is on how to measure progressivity after the tax data are constructed. We also ignore any incentive effects from the taxes in order to highlight how the indexes are calculated. Relative to a proportional tax that raises the same amount of revenue, a more progressive tax can reduce before-tax income at the top of the income distribution and have a larger overall impact on incentives to generate income.

<sup>9</sup>The proportional tax raises the same amount of revenue as the small progressive tax system described in Table 3; this is approximately 36 percent of total income. More precisely, it is \$136,250/\$379,000, which is total taxes from Table 3 divided by total income from Table 1.

**Table 2. Proportional Tax**

	(1) Share of Population	(2) Tax <sup>a</sup>	(3) Share of Tax	(4) Cumulative Population Share	(5) Cumulative Tax Share	(6) Deviation From Equal Tax	(7) After-Tax Income <sup>a</sup>	(8) After-Tax Income Share	(9) Cumulative After-Tax Income Share	(10) Deviation From Equal Income
Individual 1	20%	\$4,314	3.2%	20%	3.2%	16.8%	\$7,686	3.2%	3.2%	16.8%
Individual 2	20%	\$11,144	8.2%	40%	11.3%	28.7%	\$19,856	8.2%	11.3%	28.7%
Individual 3	20%	\$19,413	14.2%	60%	25.6%	34.4%	\$34,587	14.2%	25.6%	34.4%
Individual 4	20%	\$31,636	23.2%	80%	48.8%	31.2%	\$56,364	23.2%	48.8%	31.2%
Individual 5	20%	\$69,743	51.2%	100%	100%	0%	\$124,257	51.2%	100%	0%
Gini Coefficient			0.444							
Kakwani Index			0.000							
Reynolds-Smolensky Index			0.000							

<sup>a</sup>Rounded to the nearest dollar.

**Table 3. Small Progressive Tax**

	(1) Share of Population	(2) Tax	(3) Share of Tax	(4) Cumulative Population Share	(5) Cumulative Tax Share	(6) Deviation From Equal Tax	(7) After-Tax Income	(8) After-Tax Income Share	(9) Cumulative After-Tax Income Share	(10) Deviation From Equal Income
Individual 1	20%	\$0	0%	20%	0%	20%	\$12,000	4.9%	4.9%	156%
Individual 2	20%	\$4,650	3.4%	40%	3.4%	36.6%	\$26,350	10.9%	15.8%	24.20%
Individual 3	20%	\$13,500	9.9%	60%	13.3%	46.7%	\$40,500	16.7%	32.5%	27.52%
Individual 4	20%	\$30,800	22.6%	80%	35.9%	44.1%	\$57,200	23.6%	56%	23.95%
Individual 5	20%	\$87,300	64.1%	100%	100%	0%	\$106,700	44%	100%	0%
Gini Coefficient			0.363							
Kakwani Index			0.145							
Reynolds-Smolensky Index			0.081							

which is 36 percent of the income listed in column 2 of Table 1. Column 3 indicates the share of total tax paid by each individual. Because the tax is proportional, these are identical to the income shares. Columns 4 and 5 indicate, respectively, the cumulative shares of population and taxes accounted for by individuals who are at or below that rank in the income distribution. For example, the poorest three individuals collectively constitute 60 percent of the population and pay 25.6 (3.2 + 8.2 + 14.2) percent of the total tax. The deviation from equal tax shares shown in column 6 is computed by subtracting this amount from the share of population accounted for by these three individuals (in this case, 60 percent - 25.6 percent = 34.4 percent). Summing across the individuals, dividing by the population size of five, and multiplying by two results in a concentration coefficient for taxes of 0.444, which is identical to the Gini coefficient for before-tax income. Because the concentration coefficient and the Gini coefficient are the same, the Kakwani index is zero.

Now consider a progressive tax in which the average tax rates are zero, 15 percent, 25 percent, 35 percent, and 45 percent for individuals 1 through 5 respectively. This tax raises the same amount of revenue as the proportional tax in Table 2. Columns 1 through 6 of Table 3 show the computation of the Kakwani index. The Kakwani index is now 0.145, indicating that the tax is progressive.

A crucial feature of the Kakwani index is that it is unaffected by the size of the tax system. Multiplying the tax rates, and therefore the tax burdens, by a factor of 1.5 (as shown in columns 1 through 6 of Table 4) or by a factor of 2 (as shown in columns 1 through 6 of the top panel of Table 5) leaves tax shares unaffected. More generally, any tax system that maintains the same structure would still produce a Kakwani index of 0.145, regardless of the level of taxation.

**2. Measuring redistribution.** We now discuss how to measure the amount of redistribution, or the extent of inequality reduction, caused by a tax system. A common measure of redistribution is the Reynolds-Smolensky index,<sup>10</sup> which equals the difference between the Gini coefficient for before-tax and the Gini coefficient for after-tax income.

Consider the proportional tax shown in Table 2. Columns 7 through 10 show after-tax income, the share of after-tax income, the cumulative share of after-tax income, and the deviation from equality.

<sup>10</sup>Morgan Reynolds and Eugene Smolensky, *Public Expenditures, Taxes, and the Distribution of Income: The United States 1950, 1961, 1970* (1977).

They are the after-tax versions of columns 2, 3, 5, and 6 in Table 1. We can use this information to compute that the after-tax Gini coefficient is 0.444, the same as the before-tax Gini coefficient. Therefore, the Reynolds-Smolensky index for the proportional tax is zero, indicating that it induces no redistribution and does not reduce inequality.

Using the same procedure, the small progressive tax system in Table 3 has a Reynolds-Smolensky index of 0.081 and the medium-size progressive tax in Table 4 has a Reynolds-Smolensky index of 0.17. Comparing tables 3 and 4 shows that scaling up a progressive tax system across the board, with no change in its structure, increases the Reynolds-Smolensky index.

Consider a tax cut that moves the economy from the medium-size progressive tax system to the small progressive tax system. The tax cut leaves progressivity unchanged because each individual's tax cut is the same share of *her tax liability*. However, the tax cut reduces redistribution and increases the inequality of after-tax income because the higher-income individuals' tax cuts are larger shares of *their income*.

Moving to the large progressive tax system shown in Table 5, columns 7 through 10 of the top panel show the same calculations as the corresponding columns in tables 2 through 4 and suggest that the after-tax Gini coefficient is 0.073. However, that calculation is incorrect because the tax changes the ranking of individuals. Individual 5, who was the richest according to the before-tax income ranking, is the second poorest under the large progressive tax system. Under that system, individual 2 is in the middle of the distribution and individual 3 moves to the top. (Re-ranking may occur in actual tax systems because taxes depend on variables other than income, including age, disability status, or family size.) We refer to this calculation — in which the Gini formula is applied to after-tax income with individuals ranked by before-tax income — as the concentration coefficient for after-tax income.

To calculate the Gini coefficient for after-tax income correctly, we must use the after-tax income rankings. Columns 7 through 10 of the bottom panel of Table 5 shows the after tax incomes, the after-tax income shares, the cumulative shares of after tax income, and the deviation from equal income distribution based on the *new* ranking of individuals. The resulting Gini coefficient is 0.139. Therefore, the Reynolds-Smolensky index is 0.444 - 0.139 = 0.305.

(Text continues on p. 1445.)

Table 4. Medium-Sized Progressive Tax										
	(1) Share of Population	(2) Tax	(3) Share of Tax	(4) Cumula- tive Population Share	(5) Cumula- tive Tax Share	(6) Deviation From Equal Tax	(7) After-Tax Income	(8) After-Tax Income Share	(9) Cumulative After-Tax Income Share	(10) Deviation From Equal Income
Individual 1	20%	\$0	0%	20%	0%	20%	\$12,000	6.9%	6.9%	13.13%
Individual 2	20%	\$6,975	3.4%	40%	3.4%	36.6%	\$24,025	13.8%	20.6%	19.37%
Individual 3	20%	\$20,250	9.9%	60%	13.3%	46.7%	\$33,750	19.3%	40%	204%
Individual 4	20%	\$46,200	22.6%	80%	35.9%	44.1%	\$41,800	23.9%	63.9%	16.11%
Individual 5	20%	\$130,950	64.1%	100%	100%	0%	\$63,050	36.1%	100%	0%
Gini Coefficient		0.275								
Kakwani Index		0.145								
Reynolds-Smolensky Index		0.170								

Table 5. Large Progressive Tax									
(1) Share of Population	(2) Tax	(3) Share of Tax	(4) Cumulative Population Share	(5) Cumulative Tax Share	(6) Deviation From Equality (Tax)	(7) After-Tax Income	(8) After-Tax Income Share	(9) Cumulative After-Tax Income Share	(10) Deviation From Equal Income
<b>Pre-Tax Income Ranking</b>									
Individual 1	\$0	0%	20%	0%	20%	\$12,000	11.3%	11.3%	8.7%
Individual 2	\$9,300	3.4%	40%	3.4%	36.6%	\$21,700	20.4%	31.6%	8.4%
Individual 3	\$27,000	9.9%	60%	13.3%	46.7%	\$27,000	25.4%	57%	3%
Individual 4	\$61,600	22.6%	80%	35.9%	44.1%	\$26,400	24.8%	81.8%	-1.8%
Individual 5	\$174,600	64.1%	100%	100%	0%	\$19,400	18.2%	100%	0%
<b>Post-Tax Income Ranking</b>									
Individual 1						\$12,000	11.27%	11.3%	8.73%
Individual 5						\$19,400	18.22%	29.5%	10.52%
Individual 2						\$21,700	20.38%	49.9%	10.14%
Individual 4						\$26,400	24.79%	74.6%	5.35%
Individual 3						\$27,000	25.35%	100%	0%
Gini Coefficient	0.139				Concentration Coefficient for after-tax income		0.073		
Kakwani Index	0.145				Atkinson-Plotnick Reranking Index		0.066		
Reynolds-Smolensky Index	0.305								



**Table 6. Relationship Between Kakwani and Reynolds-Smolensky Indexes**

	Kakwani Index	Reynolds-Smolensky Index	Size of Tax (T/(Y-T))	Atkinson-Plotnick Reranking Index
Proportional tax	0	0	0.561	0
Small progressive tax	0.145	0.081	0.561	0
Medium-sized progressive tax	0.145	0.170	1.170	0
Large progressive tax	0.145	0.305	2.559	0.066
Lump sum rebate only	-0.444	0.068	-0.152	0
Small progressive tax with rebate	0.734	0.161	0.219	0

If we had used the concentration coefficient for after-tax income instead of the correctly computed Gini coefficient for after-tax income, the presence of re-ranking would have caused us to overstate the extent of redistribution induced by the tax system. For example, increasing the tax on individual 5 (the richest person), and thereby increasing progressivity, reduces inequality as the tax moves individual 5's after-tax income down toward individual 4's after-tax income. However, once individual 5's after-tax income matches individual 4's after-tax income, any further tax increase on individual 5, although still increasing progressivity, does not reduce inequality between these two individuals; instead, it increases inequality between them by moving individual 5's after-tax income below individual 4's after-tax income.

A measure of the re-ranking caused by the tax can be summarized by the difference between the after-tax Gini coefficient (which uses the post-tax rankings) and the concentration coefficient for after-tax income (which uses the before-tax rankings). In this example, the re-ranking measure is 0.066 (0.139 - 0.073). The measure is often called the Atkinson-Plotnick re-ranking index.<sup>11</sup>

**3. The redistribution formula.** The above results establish that the small, medium-size, and large progressive tax systems shown in tables 3 through 5 are equally progressive, as measured by the Kakwani index. The results also show that scaling up the progressive tax system across the board generates more redistribution. The extent of redistribution therefore depends on the size of the tax system as well as its degree of progressivity.

Previous researchers have identified a relatively simple formula, which we call the "redistribution formula," that confirms the relationship between the progressivity of the tax system, its size, and the amount of redistribution it induces:

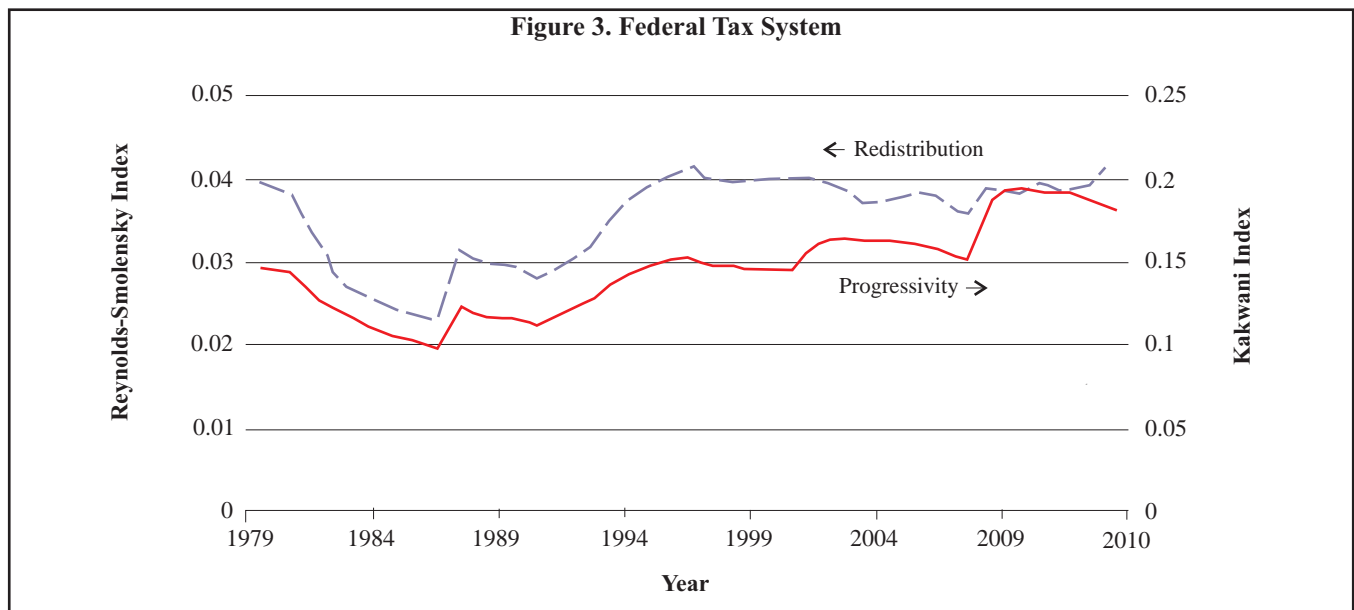
<sup>11</sup>See Anthony B. Atkinson, "Horizontal Equity and the Distribution of the Tax Burden," in *The Economics of Taxation* 3 (ed. Henry Aaron and Michael Baskin, 1980); and Robert Plotnick, "A Measure of Horizontal Equity," 63 *Rev. of Econ. and Stat.* 283 (1981).

(Reynolds-Smolensky index) = (Kakwani index) × (taxes/after-tax income) - (Atkinson-Plotnick re-ranking index)

The economic interpretation of the redistribution formula is clear-cut. The tax system's progressivity, as measured by the Kakwani index, controls the amount of redistribution that the system induces per dollar of tax revenue collected. To obtain the total redistribution induced by the tax system (as a share of the economy), it is necessary to multiply the tax system's progressivity by its size (as a share of the economy). The subtraction of the re-ranking term removes any illusory redistributive effects from the portion of progressivity that results in re-ranking (as occurred in Table 5).<sup>12</sup>

The first four rows of Table 6 summarize the components of the redistribution formula for the taxes in tables 2 through 5. For the proportional tax in Table 2, both the Reynolds-Smolensky and the Kakwani indexes are zero and there is no re-ranking. In Table 3, the Kakwani index is 0.145 and the Reynolds-Smolensky index is 0.081. The size of the tax system is 0.561 (total revenue of \$136,250 divided by total after-tax income of \$242,750). Multiplying the 0.561 size of the tax system by the Kakwani index of 0.145 yields 0.081, which equals the tax system's Reynolds-Smolensky index, as the tax system causes no re-ranking. A similar computation applies to the medium-size progressive tax system in Table 4. For the large progressive tax system in Table 5, re-ranking occurs. The size of the tax system, relative to after-tax income, is 2.559. Multiplying by the 0.145 Kakwani index and subtracting the 0.066 re-ranking measure yields the Reynolds-Smolensky index of 0.305.

<sup>12</sup>The formula was originally derived by Kakwani, "On the Measurement of Tax Progressivity and Redistributive Effect of Taxes With Applications to Horizontal and Vertical Equity," 3 *Advances in Econometrics* 149 (1984). For further discussion, see John Creedy, "Taxation, Redistribution, and Progressivity: An Introduction," 32 *Australian Econ. Rev.* 410 (1999); Creedy et al., "Equity and Efficiency Measures of Tax-Transfer Systems: Some Evidence for New Zealand," New Zealand Treasury Department Working Paper 08/04 (Dec. 2008); and Lambert, *supra* note 2, at 241.



Therefore, redistribution depends on both the progressivity of taxation (the share of taxes paid by different income groups, relative to their income shares) and the level of taxation. That result implies that scaling down a progressive tax system (through an across-the-board tax cut) leaves progressivity unchanged but reduces redistribution. Conversely, scaling up a progressive tax system through an across-the-board tax increase leaves progressivity unchanged but increases redistribution. The result also implies that a large tax system that is less progressive can (but need not) be more redistributive than a small tax system that is more progressive.

A simple example illustrates why the redistribution induced by a tax system depends on both its progressivity and its size. Suppose that the federal government collected only a single dollar in taxes, with the highest-income individual in the country paying the entire dollar. That tax system would be far more progressive than the current federal tax system because the entire tax burden would be borne at the very top of the income distribution. Yet, the system would induce much less redistribution than the current federal tax system because the removal of a single dollar from the highest-income individual would have almost no effect on inequality. Despite its extreme progressivity, the hypothetical tax system would be far too small to generate any noticeable redistribution.

**4. U.S. tax progressivity and redistribution.** The CBO tracks both progressivity (as measured by the Kakwani index) and redistribution (as measured by

the Reynolds-Smolensky index) for the federal tax system, as shown in Figure 3.<sup>13</sup>

Figure 3 reveals that progressivity rose and redistribution declined in the early 2000s. The Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA)<sup>14</sup> played a significant role in those developments. To obtain further insight, we examined the Urban-Brookings Tax Policy Center's estimates of the distribution of 2003 federal income and payroll tax burdens, both with EGTRRA and without EGTRRA. We used that data to compute the inequality, redistribution, and progressivity indexes. The calculations are unavoidably approximate because of the unavailability of household-level data and the need to use grouped data. The Tax Policy Center's tables report incomes and tax liabilities for each of the bottom nine deciles, for the next 5 percent, for the following 4 percent, and for the top 1 percent; we assume that all members of each income group have the group's average income and average tax liability.<sup>15</sup>

<sup>13</sup>The data for Figure 3 are also from Table 8 of the CBO spreadsheet, *supra* note 5. The CBO refers to both indexes as measures of "progressivity," but, as we explain in the text, the Reynolds-Smolensky index is actually a measure of redistribution.

<sup>14</sup>P.L. 107-16.

<sup>15</sup>Urban-Brookings Tax Policy Center, tables T03-0205 and T03-0206 (Nov. 26, 2003). We ignored the small number of households with negative before-tax incomes because the Tax Policy Center did not include them in the lowest decile or in any of the other income groups listed in the tables. Our calculations are available upon request.

The calculations indicate that EGTRRA made the federal income and payroll tax system more progressive. The Kakwani index for the tax system would have been 0.1061 without EGTRRA; EGTRRA increased the Kakwani index to 0.1104.

Despite the increase in progressivity, EGTRRA made the federal income and payroll tax system less redistributive and thereby increased the inequality of after-tax income. The Gini coefficient for before-tax income was 0.6108. Without EGTRRA, the Gini coefficient for after-tax income would have been 0.5782; EGTRRA increased the Gini coefficient for after-tax income to 0.5814. Therefore, the Reynolds-Smolensky index for the non-EGTRRA tax system was 0.0326 and the Reynolds-Smolensky index for the actual tax system with EGTRRA was 0.0294. EGTRRA reduced by 10 percent the amount of redistribution induced by the federal income and payroll tax system in 2003.

Although EGTRRA made the income and payroll tax system slightly more progressive, it also made the tax system significantly smaller. Without EGTRRA, federal income and payroll taxes would have been 30.71 percent of after-tax income; EGTRRA reduced the taxes to 26.63 percent of after-tax income. The redistribution formula reveals that the reduction in redistribution caused by the shrinkage of the tax system outweighed the increase in redistribution caused by the slightly heightened progressivity. The 0.0326 Reynolds-Smolensky index for the non-EGTRRA system was equal to the 0.1061 Kakwani index multiplied by the 0.3071 size of the tax system; the 0.0294 Reynolds-Smolensky index for the actual tax system with EGTRRA was equal to the 0.1104 Kakwani index multiplied by the 0.2663 size of the tax system.<sup>16</sup>

EGTRRA increased progressivity because it caused high-income households to pay a larger share of total taxes. In other words, high-income households generally received smaller tax cuts *as a share of federal tax liability* than other households. However, EGTRRA reduced redistribution and increased the inequality of after-tax income. That occurred because high-income households generally received larger tax cuts *as a share of before-tax income* than other households. For example, EGTRRA lowered federal payroll and income taxes for households in the fourth decile of the income distribution from 10.5 percent of income to 8.4 percent of income, a reduction equal to 2.1 percent of before-tax income. EGTRRA lowered income and payroll taxes for households in the top 1 percent

from 31.1 percent of income to 27.9 percent of income, a reduction equal to 3.2 percent of before-tax income. However, the proportional tax reduction was 20 percent for the fourth-decile households and only 10 percent for the top-percentile households. Starting from a progressive tax system, tax cuts can be a larger share of tax liability for lower-income households (thereby increasing progressivity) while also being a larger share of before-tax income for higher-income households (thereby reducing redistribution). That is what happened under EGTRRA.

### C. Transfers and Redistribution

Many researchers have applied the progressivity-redistribution analytical framework to taxes, but they have often ignored transfers. However, the analysis readily extends to transfers, which are simply negative taxes. In Table 7, we consider the small progressive tax examined in Table 3. However, we now assume that the government rebates half of the revenue to individuals on a uniform basis, with each individual receiving one-tenth of the revenue collected.<sup>17</sup>

The top panel of the table calculates the Kakwani and Reynolds-Smolensky indexes for the transfer payment alone. Column 2 shows that each individual receives a transfer of \$13,625, which is equivalent to a tax of -\$13,625. Each individual receives an equal share of total transfers, so the concentration coefficient for taxes is zero, producing a Kakwani index of -0.444. The Kakwani index for the uniform transfer is the same size as the Gini coefficient for before-transfer income, but has the opposite sign.

We previously said that a negative Kakwani index indicates a regressive tax because it means that high-income individuals pay a smaller share of the tax than their share of before-tax income. However, when total taxes are negative, that relationship reverses. A negative Kakwani index then implies that the transfer is progressive because it means that high-income individuals receive a smaller share of transfers than their share of before-tax income. As one would expect, the uniform transfer is progressive.<sup>18</sup>

*(Text continues on p. 1449.)*

<sup>16</sup>The re-ranking term is zero. While re-ranking may occur at the household level, it does not occur in the Tax Policy Center's grouped data.

<sup>17</sup>The government may spend the other half of revenue on national defense, infrastructure, or other public goods.

<sup>18</sup>Many academic researchers use the opposite terminology, referring to transfers that are concentrated on lower-income households as "regressive," as in Lambert, *supra* note 2, at 268-273. We believe that our terminology is more consistent with policy discussions.

Table 7. Small Progressive Tax With Lump Sum Rebate									
(1) Share of Population	(2) Tax	(3) Share of Tax	(4) Cumulative Population Share	(5) Cumulative Tax Share	(6) Deviation From Equal Tax	(7) After-Tax Income	(8) After-Tax Income Share	(9) Cumulative After-Tax Income Share	(10) Deviation From Equal Income
<b>Transfer Payments Only</b>									
Individual 1	20%	20%	20%	20%	0%	\$25,625	5.7%	5.7%	14.27%
Individual 2	20%	20%	40%	40%	0%	\$44,625	10%	15.7%	24.29%
Individual 3	20%	20%	60%	60%	0%	\$67,625	15.1%	30.8%	29.16%
Individual 4	20%	20%	80%	80%	0%	\$101,625	22.7%	53.6%	26.44%
Individual 5	20%	20%	100%	100%	0%	\$207,625	46.4%	100%	0%
Gini Coefficient	0.377								
Kakwani Index	-0.444								
Reynolds-Smolensky Index	0.068								
<b>Taxes and Transfers Combined</b>									
Individual 1	20%	-20%	20%	-20%	40%	\$25,625	8.2%	8.2%	11.76%
Individual 2	20%	-13.2%	40%	-33.2%	73.2%	\$39,975	12.9%	21.1%	18.90%
Individual 3	20%	-0.2%	60%	-33.4%	93.4%	\$54,125	17.4%	38.5%	21.49%
Individual 4	20%	25.2%	80%	-8.1%	88.1%	\$70,825	22.8%	61.3%	18.71%
Individual 5	20%	108.1%	100%	100%	0%	\$120,325	38.7%	100%	0%
Gini Coefficient	0.283								
Kakwani Index	-0.734								
Reynolds-Smolensky Index	0.161								

If transfers are proportional to income, so that each individual's share of transfers is the same as her income share, the Kakwani index is zero and the transfer is neither progressive nor regressive. If high-income individuals receive a larger share of transfers than they earn of before-tax income, the Kakwani index is positive and the transfer system is regressive.

As shown in the fifth row of Table 6, multiplying the Kakwani index by the size of taxes (which is negative when we consider only transfers) produces a Reynolds-Smolensky index of 0.068 (there is no re-ranking). The Reynolds-Smolensky index equals the difference between the Gini coefficient for before-transfer income (0.444) and the Gini coefficient for after-transfer income (0.377).

Transfers are progressive if they are a smaller share of income for higher-income households than for lower-income households. Even transfers that rise with income reduce income inequality, as long as they rise less than proportionately. An example of that type of transfer is the Social Security monthly benefit formula. Individuals who had higher lifetime earnings receive larger monthly benefits, but those benefits are smaller as a percentage of their average lifetime earnings.<sup>19</sup> As we will discuss in Part 2, policy analysts sometimes misunderstand the distributional effects of transfers. They sometimes view transfers as having harmful distributional effects whenever higher-income households' transfers are larger in dollar terms, even when higher-income households' transfers are smaller, relative to income.

Of course, uniform transfers are more progressive than transfers that rise with income. As mentioned above, the Kakwani index for a uniform transfer has the same absolute value as the Gini coefficient for before-transfer income, which is likely to be significantly higher than the Kakwani index for even a steeply progressive tax system. Uniform transfers are therefore a powerful redistributive tool. Of course, transfers that decline with income, such as those provided by anti-poverty programs, are even more progressive and redistributive than uniform transfers. In Part 2, we will further discuss the important redistributive role of transfers.

#### D. Combining Taxes and Transfers

We can also calculate the Reynolds-Smolensky index for the combined tax-transfer system, as shown in the bottom panel of Table 7. Because the

<sup>19</sup>The progressivity and redistribution measures apply to both lifetime and annual income measures. See discussion, *supra* note 1.

Gini coefficient for after-tax after-transfer income is 0.283, the Reynolds-Smolensky index is 0.161 (the difference between 0.283 and 0.444, which was the Gini coefficient for before-tax before-transfer income). That measures the total redistribution induced by the combined tax-transfer system.

The 0.161 Reynolds-Smolensky index for the combined tax-transfer system is 0.012 greater than the sum of the 0.081 Reynolds-Smolensky index for the tax system and the 0.068 Reynolds-Smolensky index for the uniform transfer. The small difference reflects the interaction of the tax system and the uniform transfer. The uniform transfer is more powerful when added to the tax system than it would be in isolation because it is a larger share of income in the former case.<sup>20</sup>

If a regressive tax finances transfers that are sufficiently progressive, the combination of the tax and the transfers can reduce inequality. Moreover, drawing on the previous conclusion, the tax and transfer can reduce inequality even if the regressive tax finances transfers that are larger in dollar terms for higher-income households because those transfers can still be progressive. For example, the Social Security system, which fits that description, is redistributive. In Part 2, we will further discuss proposals to increase redistribution by using regressive taxes to finance larger transfers.

It is mathematically possible to compute the Kakwani index for the combined tax-transfer system. It turns out that the combined system's index is a weighted average of the Kakwani indexes for the tax system and the transfer system, in which the weights are equal to each system's total revenue (with the transfer system having a negative weight

<sup>20</sup>Consider imposing the tax system first, which reduces the Gini coefficient from 0.444 to 0.363. Adding the uniform transfer further reduces the Gini coefficient by 0.08 (from 0.363 to 0.283), even though introducing the uniform transfer into the no-tax economy reduced the Gini coefficient by only 0.068. The redistribution formula explains the difference. The Kakwani index is -0.363 when the transfer is layered on top of the tax and is -0.444 when the transfer is introduced into the no-tax economy (in each case, the index equals the negative of the Gini coefficient for before-transfer income). By itself, the lower (absolute value of the) Kakwani index would make the transfer less redistributive. However, the total transfer is 0.219 of total disposable income when the tax system is already in place. In the no-tax economy, disposable income is larger and the transfer is only 0.152 of total disposable income. The redistribution formula states that layering the uniform transfer on top of the tax system induces redistribution of  $(-0.363) \times (-0.219)$ , or 0.08, and that introducing the uniform transfer into the no-tax economy induces redistribution of  $(-0.444) \times (-0.152)$ , or 0.068. The uniform transfer is slightly more redistributive when the tax system is already in place because, although the transfer is then less progressive, it is then a larger share of disposable income.

because it generates negative revenue).<sup>21</sup> The redistribution formula remains mathematically valid, so that the Reynolds-Smolensky index for the combined system is equal to the combined system's Kakwani index multiplied by the combined system's net revenue (scaled by disposable income), minus the re-ranking term, as shown in the last line of Table 6.

Despite their mathematical validity, the Kakwani index and the size measure do not have a clear or useful interpretation when applied to the combined tax-transfer system. The Kakwani index is hard to interpret as a measure of progressivity when a significant number of individuals have negative taxes and a significant number have positive taxes. Also, taxes minus transfers is not a meaningful measure of the size of the tax-transfer system. Although the redistribution formula remains mathematically valid, it lacks a clear economic interpretation.<sup>22</sup>

The most useful approach, therefore, is to compute the Kakwani index and apply the redistribution formula to taxes and transfers separately. In contrast, the Reynolds-Smolensky index can be meaningfully applied to the combined tax-transfer system as it provides a summary measure of the extent to which fiscal policy reduces inequality.

The distinction between taxes and transfers is somewhat arbitrary. For example, the earned income tax credit is often treated as a tax (as it is in the CBO analysis), even though it results in a transfer payment, or negative tax, to many of the individuals who receive it. The indexes have the same definition and the redistribution formula holds, regardless of how taxes and transfers are classified. An analyst can therefore always treat a tax as a negative transfer and a transfer as a negative tax. However, the best definitions of taxes and transfers are those for which the size of transfers and the size of taxes provide the most meaningful measures of the size of government. For example, classifying Temporary Assistance to Needy Families benefits as negative taxes rather than transfers would not

impair the mathematical validity of the Kakwani index or prevent the redistribution formula from holding. However, treating TANF as a reduction in the size (and an increase in the progressivity) of the tax system rather than as an increase in the size of the transfer system would not help policymakers understand the relative roles of progressivity and size in generating redistribution.

### E. Conclusions and Extensions

The redistribution induced by a tax system or a transfer system depends on both its progressivity and its size. Mathematically, redistribution (the extent to which a tax or transfer system reduces income inequality) is equal to progressivity (the extent to which tax or transfer payments are concentrated at the top of the income distribution) multiplied by the size of the tax or transfer system, minus a term that adjusts for any re-ranking done by the system. A less progressive tax system can therefore induce more redistribution than a more progressive one if it is sufficiently larger. Also, an across-the-board tax cut (in which each individual's tax cut is the same share of his or her tax liability) leaves progressivity unchanged but reduces redistribution because higher-income individuals receive a larger tax cut as a share of their income. The 2001 tax cut illustrates the roles of the tax system's progressivity and size; the tax cut slightly increased the tax system's progressivity, but it also reduced the size of the tax system and ultimately reduced redistribution.

In Part 2, we will discuss some factors that citizens and policymakers may wish to consider in choosing the degree of progressivity and the size of government. We will focus on whether it is preferable to attain any given amount of redistribution through a larger, less progressive fiscal system or through a smaller, more progressive fiscal system. We will discuss insights offered by the economic theory of optimal income taxation. We will also examine the choices that different countries have made, particularly the decisions by other OECD countries to adopt larger but less progressive fiscal systems than the United States. We will consider the debate in the United States about the introduction of a VAT, which would make the fiscal system less progressive but might expand its size and thereby increase redistribution. We will also discuss the common confusion about how to compare the progressivity of transfer payments and the progressivity of taxes. ■

<sup>21</sup>See Lambert, *supra* note 2, at 276. In the current example, the tax system generates 200 percent of the combined system's net revenue and the uniform transfer generates negative 100 percent of the combined revenue. The Kakwani index for the combined system is  $2 \times 0.145 + (-1) \times (-0.444) = 0.734$ .

<sup>22</sup>For further discussion, see Lambert, *supra* note 2, at 274-277.

## Taxes, Transfers, Progressivity, And Redistribution: Part 2

by Sita N. Slavov and Alan D. Viard



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In this article, the second and final in a series, Slavov and Viard discuss the policy issues regarding the choice of a fiscal system's size and progressivity.

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Policymakers face contentious decisions concerning the amount of redistribution to achieve through their fiscal systems. However, another dimension of choice is also important. As we discussed in our first article,<sup>1</sup> it is important to distinguish between redistribution and progressivity. The amount of redistribution achieved by a fiscal system measures the extent to which it reduces income inequality. The progressivity of a tax system measures the extent to which high-income households face higher average tax rates than low-income households. As we explained previously, the amount of redistribution depends on both the progressivity

and the size of a fiscal system. Policymakers can induce any given amount of redistribution through a larger tax-and-transfer system with limited progressivity or through a smaller tax-and-transfer system with greater progressivity. Indeed, they can induce significant redistribution with a regressive tax system if the transfer system's progressivity offsets the tax system's regressivity.

Political liberals who favor more redistribution and political conservatives who favor less redistribution both face this dimension of choice. Liberals must decide whether to emphasize policies to expand taxes and transfers or policies to make taxes and transfers more progressive, particularly when it is politically difficult to do both. Conservatives must decide whether to emphasize policies to contract taxes and transfers or policies to make taxes and transfers less progressive, particularly when it is politically difficult to do both.

In this article, we do not take a position on the direction redistributive policy should take. Instead, we provide three types of relevant background information. First, we show that some other developed countries induce greater redistribution than the United States by using tax systems that are larger, but less progressive, than the U.S. tax system, with the additional redistribution primarily delivered by the larger transfer payments financed by the larger taxes. Second, we identify some of the factors that should affect the choice between alternative redistributive policies. Third, we examine the ongoing policy debate in the United States, calling attention to practices that tend to tilt the debate in favor of a relatively smaller, more progressive fiscal system.

### A. International Experience

Many governments that are highly redistributive use large taxes and transfers but less progressive tax systems, often including VATs. Similarly, many governments with highly progressive tax systems do less redistribution because their taxes and transfers are smaller. Vividly illustrating this pattern, the United States has a more progressive tax system than most OECD countries but induces less redistribution than most other OECD countries because its taxes and transfers are relatively small.

**1. U.S. tax system is highly progressive.** In 2008 the OECD released a study indicating that the U.S. tax

<sup>1</sup>Sita N. Slavov and Alan D. Viard, "Taxes, Transfers, Progressivity, and Redistribution: Part 1," *Tax Notes*, Sept. 5, 2016, p. 1437.

system is among the most progressive of all member countries.<sup>2</sup> Many on both sides of the political spectrum found that report surprising because it appeared to contradict the popular narrative holding that other OECD countries' policies are more favorable to low-income families. But the OECD finding is correct and becomes unsurprising once the distinction between progressivity and redistribution is understood.

In our previous article, we explained that progressivity can be measured by the Kakwani index, which is the difference between the tax concentration coefficient and the Gini coefficient for before-tax before-transfer income. Recall that the tax concentration and Gini coefficients both begin with individuals ranked by before-tax before-transfer income. To compute the tax concentration coefficient, for each individual starting from the poorest, we take the share of population accounted for by individuals at or below that income level and subtract the share of total taxes paid by those individuals. Then we add up those differences over all income ranks, divide by the total population size, and multiply by 2. Intuitively, the concentration coefficient reflects the degree to which higher-income individuals pay a higher share of total taxes. If the richest person pays all the tax, the concentration coefficient is 1. If everyone pays the same dollar amount of taxes, the concentration coefficient is zero. If poor people pay higher dollar amounts than rich people, the concentration coefficient can be negative.<sup>3</sup> For the Gini coefficient, we perform the same calculation but replace tax shares with income shares, thereby measuring the extent to which higher-income individuals receive a larger share of total income. That is, the Gini coefficient is a concentration coefficient for income. Because the Kakwani index is equal to the tax concentration coefficient minus the Gini coefficient, it measures the degree to which the tax shares of the rich differ from their income shares. A positive Kakwani index indicates that the rich pay a higher share of taxes than their share of income, making the tax system progressive; similarly, a negative Kakwani index

indicates that the rich pay a lower share of taxes than their share of income, making the tax system regressive.

The OECD study provides enough data for us to calculate a measure analogous to the Kakwani index. For each country, we subtract the Gini coefficient for before-tax before-transfer income from the OECD's concentration coefficient for taxes. This measure is not exactly equal to the Kakwani index because the OECD's concentration coefficient for taxes ranks individuals by their after-tax after-transfer income. Thus, the ranking of individuals is different in the Gini coefficient and the tax concentration coefficient. However, the difference between the tax concentration coefficient and the Gini coefficient still provides a reasonable measure of tax progressivity, with a higher value implying greater progressivity. By this measure, the United States has the second-most progressive tax system in the OECD; only Ireland's is more progressive.<sup>4</sup>

One caveat to note is that the OECD's calculations included only income taxes and household social insurance contributions and omitted other taxes, such as employer social insurance contributions and indirect consumption taxes (including VATs and sales taxes). However, because these consumption taxes are regressive and are used more heavily in other OECD countries, including them in the calculations would only increase the progressivity of the U.S. tax system relative to other countries' tax systems.

**2. U.S. fiscal system is not highly redistributive.** Progressivity is not the same as redistribution. As we explained in our previous article, a country may have a highly progressive tax system but redistribute little because the level of taxes (and the transfers they finance) is low.

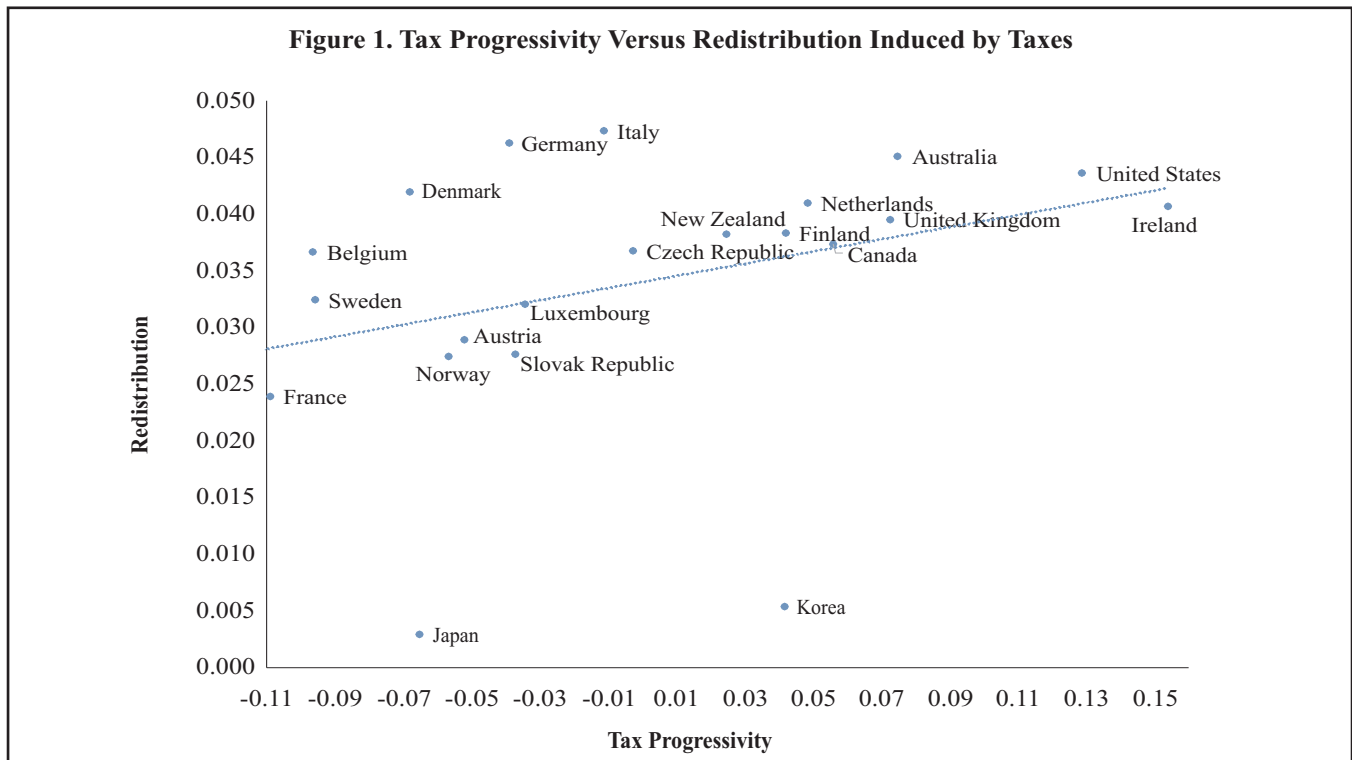
To measure redistribution, the OECD calculated, for each country, the difference between the concentration coefficient for before-tax before-transfer income and the concentration coefficient for after-tax

<sup>2</sup>OECD, *Growing Unequal? Income Distribution and Poverty in OECD Countries* (2008).

<sup>3</sup>The OECD calculated concentration coefficients in a somewhat different way than we did in our article. The OECD ranked individuals by after-tax after-transfer income rather than before-tax before-transfer income. The two measures may be different if the tax and transfer system causes significant re-ranking of individuals. For example, retirees with very low before-tax before-transfer income may rank higher in after-tax after-transfer income because of age-based pensions.

<sup>4</sup>Media reports about the OECD study proclaimed the United States to have the most (rather than the second-most) progressive tax system of all member countries. Those reports were based on a simple comparison of tax concentration coefficients, for which the United States has the highest value. As we explained in our previous article, however, the tax concentration coefficient is not a good measure of tax progressivity. The tax concentration coefficient indicates the degree to which richer individuals pay a higher share of the total tax burden, but it does not control for the share of before-tax before-transfer income earned by the rich. Even if two countries impose identical tax rates at every level of income, the rich would pay a higher share of the taxes in the country where they earn a higher share of income. A valid measurement of progressivity requires a comparison of tax shares and income shares.





after-transfer income, with individuals ranked (for purposes of computing both concentration coefficients) by after-tax after-transfer income. The OECD's measure of redistribution is analogous to the Reynolds-Smolensky index, which, as we discussed in our previous article, is the difference between the before-tax before-transfer Gini coefficient and the after-tax after-transfer Gini coefficient, with individuals ranked by before-tax before-transfer income in calculating the before-tax before-transfer Gini and by after-tax after-transfer income in calculating the after-tax after-transfer Gini.<sup>5</sup>

For each OECD country with complete data, Figure 1 plots the country's tax progressivity against the redistribution induced by its tax system (ignoring the additional redistribution induced by transfers). Figure 1 indicates that countries with more progressive tax systems generally induce more redistribution through their tax systems. For example, the United States, which has the second-

most progressive tax system, induces a relatively high level of redistribution compared with other OECD countries. However, Germany and Italy induce even more redistribution with much less progressive tax systems.

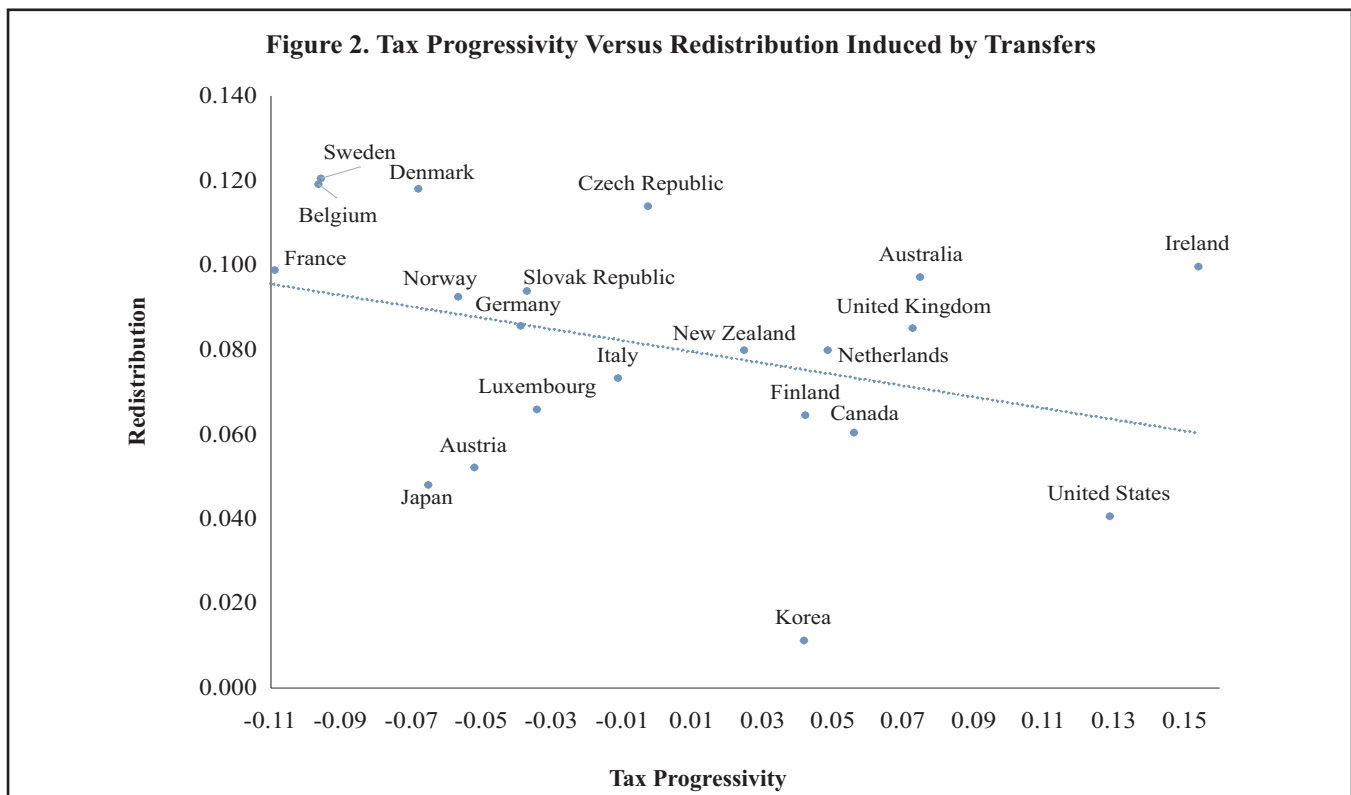
Figure 2 plots the progressivity of taxes against the redistribution brought about by the transfer system. Figure 2 suggests that countries with more progressive tax systems actually do less redistribution through transfers. The United States actually induces the second-lowest volume of redistribution through transfers among the OECD countries.

Finally, Figure 3 plots the progressivity of taxes against the total reduction in income inequality brought about by the combined tax-transfer system.<sup>6</sup> Figure 3 suggests that there is a weak positive

<sup>5</sup>The Reynolds-Smolensky index is the same as the OECD redistribution measure if the tax and transfer system does not cause re-ranking of individuals. An alternative interpretation is also possible. The OECD calculates its redistribution measure after aggregating people into after-tax after-transfer income deciles. So if re-ranking does not occur between deciles, we can interpret the OECD redistribution measure as the Reynolds-Smolensky index under the assumption that all individuals within a decile have identical before-tax before-transfer incomes, pay identical taxes, and receive identical transfers.

<sup>6</sup>In calculating the change in the concentration coefficient for income brought about by transfers, the OECD compares the concentration of before-tax before-transfer income with the concentration of before-tax after-transfer income. In calculating the change in the concentration coefficient brought about by taxes, the OECD compares the concentration of before-tax after-transfer income with the concentration of after-tax after-transfer income. The change in the concentration coefficient from taxes and transfers combined equals the sum of the changes in the concentration coefficients from taxes and transfers, as discussed in our previous article. For France, the OECD's reported reduction in the concentration coefficient from taxes and transfers combined is not equal to the reported reductions from transfers alone and taxes separately. In Figure 3 we use the sum of the reported reduction from taxes and

(Footnote continued on next page.)



relationship between tax progressivity and the overall amount of redistribution induced. However, some European countries such as Belgium, Denmark, and Sweden induce above-average levels of redistribution with below-average tax progressivity. At the other end of the spectrum, the United States does less overall redistribution than most OECD countries despite having taxes that are much more progressive.

The stark difference between progressivity and redistribution for the United States compared with other countries arises from differences in the size of government. Despite the high progressivity of taxes in the United States, taxes are relatively low — only 25.6 percent of disposable income compared with the OECD average of 29.3 percent.<sup>7</sup> Because the OECD study includes only taxes paid directly by households and because other OECD countries rely more heavily on indirect taxes, these figures understate the true difference in the size of government between the United States and other countries. According to 2013 data from the OECD Stat database, total taxes (both direct and indirect) make up

reported reduction from transfers in place of the reported total reduction because the latter appears to be incorrect.

<sup>7</sup>See Edward D. Kleinbard, *We Are Better Than This: How Government Should Spend Our Money*, Ch. 12 (2014) (performing a similar analysis of OECD data and reaching similar conclusions).

25.4 percent of GDP in the United States compared with the OECD average of 34.2 percent.

Our results are consistent with an observation by professor Peter H. Lindert of the University of California, Davis:

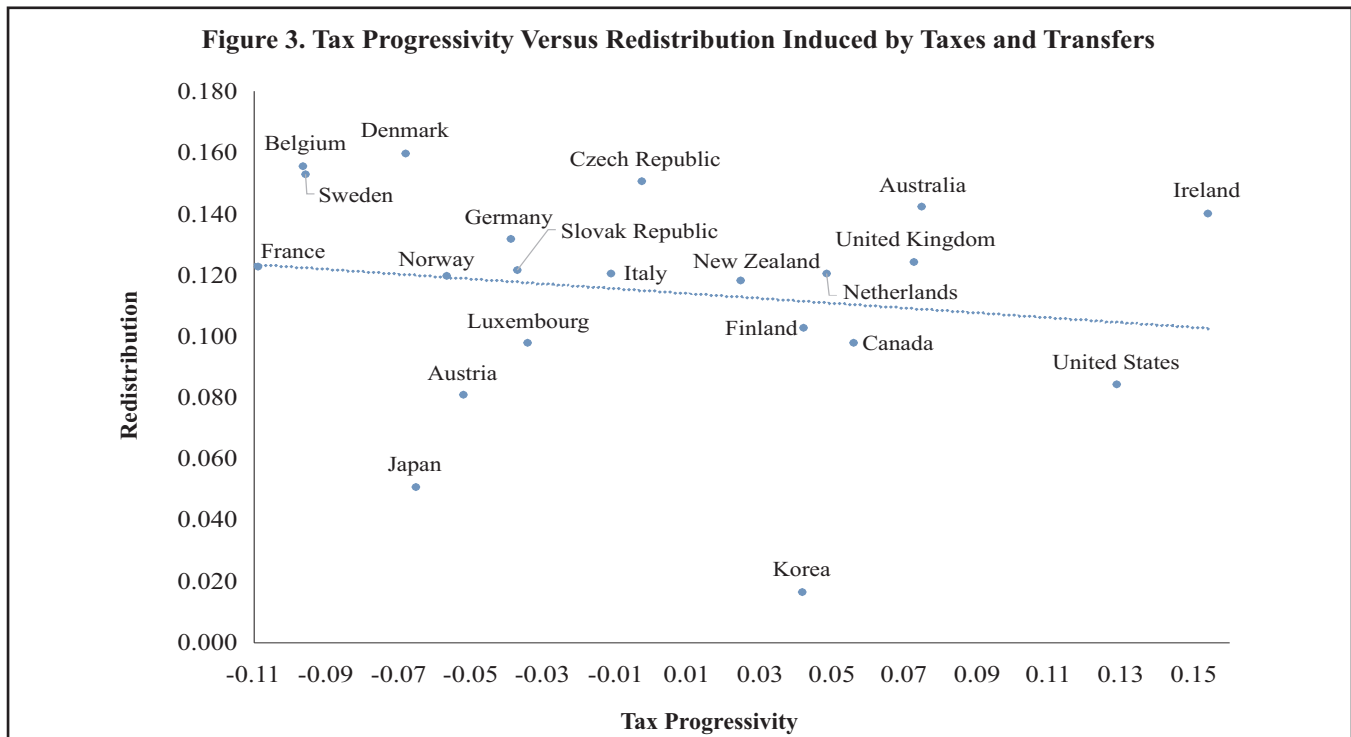
In general, high-budget welfare states have a more pro-growth and regressive mix of taxes. . . . They rely more heavily on labor income taxes and flat consumption (or value-added) taxes. . . . Granted, the rates of overall taxation are still higher in high-budget countries, yet their attention to the side-effects on economic growth seems to have led them to choose types of taxes that minimize or eliminate any damage to growth.<sup>8</sup>

## B. Comparing the Redistributive Strategies

Although we do not attempt to determine the proper trade-off between the size and progressivity of a fiscal system, we discuss some factors that may affect that choice.

**1. High-end and low-end inequality.** Different distributional preferences may lead to different choices about the size and progressivity of the fiscal system. Consider a policymaker whose primary concern is

<sup>8</sup>Lindert, “Why the Welfare State Looks Like a Free Lunch,” National Bureau of Economic Research Working Paper 9869, at 31 (July 2003).



that households in the bottom 20 percent of the income distribution have too little relative to those in the top 80 percent. That policymaker's focus on low-end inequality may lead her to prefer a large tax system with little or no progressivity over a smaller and more progressive tax system because the former system can raise more revenue to finance larger transfer payments to the poor, even if it places less burden on the very rich. Alternatively, consider a policymaker whose primary concern is that the top 1 percent has too much relative to those in the bottom 99 percent. That policymaker's focus on high-end inequality may lead her to prefer a small, highly progressive tax system over a larger, less progressive tax system because the former may place a higher burden on the very rich even if it raises less revenue to finance transfer payments to the poorest households.

The measures of progressivity and redistribution that we discussed in the first article obscure the choice between those distributional preferences. Those measures are based on the Gini coefficient and reflect a definition of inequality and redistribution that may not match commonly held value judgments. For example, any transfer of \$1 across 20 percentiles of the income distribution causes the same reduction in the Gini coefficient, regardless of which percentiles are involved and (perhaps more oddly) regardless of the size of the income gap

across the percentiles.<sup>9</sup> So the transfer of \$1 from a household in the top percentile to a household in the 80th percentile, the transfer of \$1 from a household in the 80th percentile to a household in the 60th percentile, and the transfer of \$1 from a household in the 40th percentile to a household in the 20th percentile all reduce the Gini coefficient by the same amount. Because the Reynolds-Smolensky index is based on the reduction in the Gini coefficient, it treats all three transfers as inducing the same amount of redistribution. But policymakers might reject that assessment. A policymaker primarily concerned about low-end inequality would probably view the third transfer as more beneficial than the first and second transfers, and a policymaker primarily concerned about high-end inequality would probably view the first transfer as more beneficial than the second and third transfers.<sup>10</sup>

<sup>9</sup>For the mathematical analysis, see Peter J. Lambert, *The Distribution and Redistribution of Income* 33-35 (3d ed. 2001). Lambert also discusses "extended Gini coefficients" that place either greater or lesser weight on high-end inequality relative to low-end inequality, depending on the choice of a parameter used to construct the coefficients. *Id.* at 115-116.

<sup>10</sup>More generally, the reduction in the Gini coefficient is proportional to the distance in ranks across which \$1 is transferred. So a transfer of \$1 across 40 percentiles (for example, a transfer from a household in the 60th percentile to a household in the 20th percentile) reduces the Gini coefficient by twice as much as the 20th-percentile transfers discussed in the text. Once again, policymakers might not always agree with that evaluation.

Other distributional preferences are possible. For example, a policymaker might put greater weight on middle-income households than on either the poor or the rich. That policymaker might be inclined to favor a small, highly progressive fiscal system because it would make fewer transfers to the poor and would focus the tax burden on the rich.

**2. Effects on incentives to earn income.** The redistributive benefit of taxes and transfers is only part of the story. Policymakers must also consider the economic costs of taxes and transfers, including a reduction in incentives to earn income. Before considering this issue, it is useful to distinguish two types of tax rates. An individual's average tax rate refers to the individual's total tax paid as a share of income. An individual's marginal tax rate refers to the additional tax the individual pays on an additional dollar of income. The tax progressivity measures that we have discussed depend on only average tax rates, because these determine the burden that taxes impose on people of different income levels. However, both average and marginal tax rates play roles in determining incentives to earn income.

A large tax system creates high average tax rates, which lowers the incentive to participate in the labor force. A progressive tax requires high marginal tax rates on high incomes, thereby reducing the incentive of high-income workers to earn additional income. Because inefficiency rises at an increasing rate as the tax rate is raised, a more progressive tax system generally causes more inefficiency than a less progressive tax system of the same size. Transfer payments create high implicit marginal tax rates if they are phased out with income; if they are not phased out, a larger tax system is required to finance them.

The economic theory of optimal income taxation offers a highly stylized framework for considering those issues. The theory assumes that individuals differ in their ability to earn income, so that economic inequality arises in the absence of taxation. The government wishes to reduce inequality through redistribution because it places greater weight on an extra dollar of consumption by someone who is worse off than it places on an extra dollar of consumption by someone who is better off. To reduce inequality, the government taxes wages and makes transfer payments. The taxes and transfers induce economic inefficiency by discouraging work, but they are necessary to achieve the government's redistributive goals. In the face of this trade-off, the government chooses the tax-transfer schedule that yields the best balance between redistribution and economic efficiency.

The optimal tax-transfer schedule depends on several factors. If labor supply decisions are more responsive to incentives, taxes and transfers induce more economic inefficiency, which should prompt the government to choose smaller taxes and transfers. If there is greater inequality in the ability to earn income, the need for redistribution is greater, and the government should choose larger taxes and transfers. Also, a government with stronger redistributive preferences (placing particularly large relative weight on those who are less well off) should choose higher taxes and transfers than a government with more modest redistributive preferences.

Many economists have computed optimal tax-transfer schedules. The numerical results are sensitive to the authors' specific assumptions, and they are also affected by the limitations (discussed below) of the optimal tax framework. The results are sufficient, however, to make two points. First, optimal taxation for a government with redistributive preferences does not necessarily require a steeply progressive tax schedule.<sup>11</sup> Second, an increase in the strength of the government's redistributive preferences does not necessarily call for an increase in tax progressivity. Computations by professor Matti Tuomala of the University of Finland reveal that when the government's preferences become more redistributive, the optimal marginal tax rates are higher but do not necessarily rise more steeply as income rises.<sup>12</sup> Moreover, average tax rates do not necessarily rise steeply at the highest income levels. As professor Louis Kaplow of Harvard Law School comments in his summary of the optimal-tax literature:

Neither strong egalitarian preferences nor a very low labor supply response (nor both in combination) produces increasing marginal tax rates at high income levels . . . lower labor supply elasticities, greater underlying inequality, and a greater social preference for equalizing income all unsurprisingly favor higher marginal tax rates, which allow a larger transfer to be funded. However, although each of

<sup>11</sup>Although specific assumptions about the distribution of income can lead to a high optimal top tax rate (see, e.g., Peter Diamond and Emmanuel Saez, "The Case for a Progressive Tax: From Basic Research to Policy Recommendations," 25 *J. Econ. Persp.* 165 (2011)), this result does not necessarily follow from the assumption of redistributive preferences alone. For further discussion of optimal tax arguments for high top rates, see Aparna Mathur, Sita N. Slavov, and Michael R. Strain, "Should the Top Marginal Income Tax Rate Be 73 Percent?" *Tax Notes*, Nov. 19, 2012, p. 905.

<sup>12</sup>Tuomala, *Optimal Income Tax and Redistribution* 94-100 (1990).

these factors favor higher overall tax rates, none has an unambiguous effect on the shape of the optimal income tax schedule.<sup>13</sup>

The most widely used form of the optimal tax framework makes several restrictive assumptions. It assumes that there is only a single time period, implying that individuals do not save and invest for the future. It also assumes that the only source of inequality is differences in the ability to earn labor income, that taxes and transfers are based solely on labor income, and that the only economic distortion caused by taxes and transfers is a reduction in work effort. It further assumes that the only ground for concern about inequality is the greater social value of consumption by those who are less well off. A full analysis of redistributive strategies must consider a variety of possible effects omitted from the standard form of the optimal tax framework.

**3. Other possible effects.** If transfer programs have large inefficiencies other than their effects on work incentives, redistribution through a smaller and more progressive tax-transfer system may be more appealing than redistribution through a larger and less progressive system. Those concerns would be relevant, for example, if transfer programs were poorly administered or if they distorted consumption patterns (for example, by increasing healthcare costs). Alternatively, if transfer programs have smaller inefficiencies of those kinds or even yield efficiency gains, redistribution through a larger and less progressive tax-transfer system becomes more appealing than redistribution through a smaller and less progressive system. For example, transfer programs might enable low-income households to obtain education or job training that liquidity constraints prevent them from obtaining in private markets.

Another concern is the impact of taxes and transfers on saving and investment incentives. A smaller but more progressive fiscal system may impose heavier taxes on saving and investment as part of its quest for progressivity. Moving to a larger but less progressive fiscal system could allow a reduction in saving and investment distortions. However, it might be possible to reduce those distortions while maintaining a smaller, highly progressive fiscal system if part or all of the individual and corporate income taxes were replaced by a progressive consumption tax.

Another modification of the optimal tax framework might reflect concerns about inequality other than differences in the social value of consumption across income groups. For example, it is often

asserted, although generally not spelled out rigorously, that an increase in the economic resources of the top 1 percent causes an undesirable concentration of economic or political power. If that concern is valid, it may offer a reason to focus on high-end inequality and a reason to prefer a smaller, more progressive fiscal system over a larger, less progressive system. Another possible justification for focusing on high-end inequality would arise if many of the rich derived much of their income from unproductive activities, which economists refer to as “rent-seeking.”

We now consider how the relevant issues have been discussed in the U.S. policy debate.

### C. The U.S. Policy Debate

In the United States, the political strategies of liberals and conservatives appear to have helped shape the choice of a small, progressive fiscal system. Although liberals generally favor an expansion of taxes and transfers, they have tended to place the highest priority on maintaining the progressivity of the fiscal system. Although conservatives generally favor a tax system that is less progressive and induces less economic inefficiency, they have tended to place the highest priority on preventing an expansion of the tax-transfer system.

Professor Edward D. Kleinbard of the University of Southern California Law School argued in an influential 2014 book that liberals should deemphasize progressive taxation and instead focus on expanding the size of government.<sup>14</sup> In an article accompanying the publication of his book, Kleinbard explained his key point:

Progressive fiscal outcomes do not require particularly progressive tax systems — just big ones, to support substantial government investment and insurance programs. . . . The better response to income disparity, then, is not to tax the rich more, but to boost revenue over all so that government can invest more, and offer higher quality social insurance programs . . . both conservatives and progressives get things wrong. To address troubling trends in income inequality, we need more government, not less. But we do not need steeply higher marginal income tax rates to yield a richer, more equal and happier society.<sup>15</sup>

Other observers have expressed views similar to Kleinbard’s. Professor Reuven S. Avi-Yonah of the University of Michigan argues that the key to

<sup>14</sup>Kleinbard, *We Are Better Than This*, *supra* note 7.

<sup>15</sup>Kleinbard, “Don’t Soak the Rich,” *The New York Times*, Oct. 9, 2014. See also Kleinbard, *We Are Better Than This*, *supra* note 7, at ch. 12.

<sup>13</sup>Kaplow, *The Theory of Taxation and Public Economics* 75, 77 (2008).

reducing inequality is “not to increase taxes on the rich (although some reforms in this direction can be adopted), but instead to adequately fund and even strengthen the social safety net. The only way to do this in the medium to longer term is to adopt a VAT.”<sup>16</sup> Leonard E. Burman of the Urban-Brookings Tax Policy Center argues that “the next Bernie Sanders would do well to look at Scandinavia’s tax systems, not just their spending,” noting that Denmark, Norway, and Sweden finance their large public sectors with efficient tax systems that rely heavily on VATs and other regressive taxes.<sup>17</sup>

Kleinbard’s views have not attracted universal agreement. Professor Linda Sugin of Fordham Law School argues that Kleinbard is too optimistic about the ability to achieve redistribution through transfers and unduly dismissive of the potential role of tax policy. She questions Kleinbard’s conclusion that it would be politically easier to address low-end inequality through transfers than to address high-end inequality through taxes, contending that the “same forces that fight progressivity on the tax side also fight it on the spending side.”<sup>18</sup>

We identify four relevant features of the U.S. policy debate that may have influenced the decision to adopt a smaller, more progressive fiscal system rather than a larger, less progressive fiscal system.

**1. Liberals’ focus on high-end inequality.** Liberals often emphasize high-end inequality, which, as we discussed above, tends to lead to support for a smaller, more progressive fiscal system. Concern about high-end inequality has been highlighted by the Occupy movement and has been magnified by the rise in the income share of the top 1 percent. Professor Daniel Shaviro of New York University Law School echoes a common view when he argues that high-end inequality has harmful consequences that are ignored by the optimal tax framework.<sup>19</sup> Poverty and low-end inequality tend to receive less attention in the U.S. policy debate; for example, the two major parties’ presidential candidates have rarely mentioned the poor during the 2016 campaign.<sup>20</sup>

Some observers have challenged the focus on high-end inequality. Professor Sendhil Mullainathan of Harvard University comments, “I worry that our outrage at the top 1 percent is distracting us from the problem that we should really care about: how to create opportunities and ensure a reasonable standard of living for the bottom 20 percent.”<sup>21</sup> Professor David Kamin of New York University Law School also calls for greater emphasis on how tax changes affect the poor.<sup>22</sup> Kleinbard argues that at high income levels, the marginal utility of consumption does not always fall as income continues to rise.<sup>23</sup> Striking a cautious note, Shaviro concludes that “the correctness of the prudential choice that Kleinbard advocates — addressing low-end inequality in lieu of, rather than along with, high-end inequality — remains unclear, at least to me.”<sup>24</sup>

Liberals have also tended to frame their concerns about high-end inequality in terms of fair tax shares rather than redistribution, giving rise to additional emphasis on tax progressivity.

**2. Liberals’ fair-share rhetoric.** As Tax Analysts Contributing Editor Joseph J. Thorndike has repeatedly observed, liberals tend to call for the rich to pay their fair share of taxes rather than calling for redistribution from the rich. He comments, “Arguments for progressive taxation have generally focused on the allocation of fiscal burdens, not on the larger distribution of wealth. Progressivity has been used as an argument for remaking the revenue system, not American society.”<sup>25</sup> Liberals have found that rhetorical emphasis to be effective. Thorndike notes that “Americans have been most receptive to allocative claims about the distribution of the tax burden” and that those claims “tend to work, even when more radical arguments about redistribution do not.”<sup>26</sup> He observes that the most progressive elements of the federal tax system “were originally sold as a way to redistribute the tax burden, not wealth or income,”<sup>27</sup> although he notes that Franklin Roosevelt used redistributive rhetoric in the early years of his presidency.<sup>28</sup> Thorndike finds that the rhetorical emphasis has been harmful to political liberals’ ultimate policy

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<sup>21</sup>Mullainathan, “A Top-Heavy Focus on Income Inequality,” *The New York Times*, Mar. 9, 2014.

<sup>22</sup>Kamin, “Reducing Poverty, Not Inequality: What Changes in the Tax System Can Achieve,” 66 *Tax L. Rev.* 593 (2013).

<sup>23</sup>Kleinbard, *We Are Better Than This*, *supra* note 7, at Ch. 12.

<sup>24</sup>Shaviro, “Book Review of *We Are Better Than This*,” 68 *Nat’l Tax J.* 681, 686 (2015).

<sup>25</sup>Thorndike, “Is Regressive Taxation the Best Response to Inequality?” *Tax Notes*, Sept. 23, 2013, p. 1363.

<sup>26</sup>Thorndike, “Time to Raise Taxes on the Rich? History Says Maybe,” *Tax Notes*, June 6, 2016, p. 1309.

<sup>27</sup>Thorndike, “Liberals Should Talk About Horizontal, Not Vertical, Equity,” *Tax Notes*, Apr. 27, 2015, p. 372.

<sup>28</sup>Thorndike, “Did Americans Invent Soak-the-Rich Taxation?” *Tax Notes*, Apr. 28, 2014, p. 416.

<sup>16</sup>Avi-Yonah, “Taxation and Inequality: A Case for the VAT,” 57 *Challenge* 97 (2014).

<sup>17</sup>Burman, “The Fiscal Legacy of Bernie Sanders’s Surprising Presidential Candidacy,” *TaxVox* blog, June 16, 2016.

<sup>18</sup>Sugin, “Don’t Give Up on Taxes,” *Tax Notes*, Dec. 22, 2014, p. 1373.

<sup>19</sup>Shaviro, “The Map-Maker’s Dilemma in Evaluating High-End Income Inequality,” New York University Law and Economics Working Paper 424 (June 2016).

<sup>20</sup>Binyamin Appelbaum, “The Millions of Americans Donald Trump and Hillary Clinton Barely Mention: The Poor,” *The New York Times*, Aug. 11, 2016.

goals. He laments that “liberals are constantly in danger of fetishizing progressive taxation at the expense of progressive government” and concludes, “Perhaps the greatest tragedy of U.S. progressive politics in the 20th century has been its fixation on progressive taxation.”<sup>29</sup>

As we discussed in our previous article, the U.S. tax-transfer system induces a significant amount of redistribution. That would remain true under any of the tax and budget reform options proposed by either major political party. Yet explicit advocacy of redistribution, as opposed to advocacy of tax progressivity, appears to be taboo. Controversy arose on the 2008 campaign trail when Barack Obama favorably referred to policies that “spread the wealth around,” even though many long-standing and widely accepted policies fit that description. A recent *New York Times* article describes the lengths to which the Obama administration went to avoid any discussion of redistribution during the debate over the Affordable Care Act and thereafter.<sup>30</sup> The article quotes William Daley, the president’s former chief of staff, as saying that “redistribution” is a loaded word that Republicans use as a hammer against Democrats. He commented, “It’s a word that, in the political world, you just don’t use.” The article asserts that the administration chose Alan Krueger rather than Rebecca M. Blank to chair the Council of Economic Advisers in 2011 because Blank had written in 1992 that “redistribution of economic resources” was a necessary part of a commitment to economic justice. The issue briefly resurfaced in September 2012 with the discovery of a 1998 video in which Obama said that he “actually believe[s] in redistribution, at least at a certain level to make sure that everybody’s got a shot.”<sup>31</sup> As *Slate* columnist Matthew Yglesias commented, Obama’s support for redistribution was surely already apparent from his policy proposals.<sup>32</sup> Indeed, it should be easy to see that both major political parties support (varying amounts of) redistribution.

The terminology used in the public debate is quite different from that used by economists and other members of the tax policy community. The National Tax Association recently surveyed its members’ views on a variety of economic questions and the public’s views on a subset of the questions. One question posed to both groups asked, “Is the

redistribution of income within the United States a legitimate role for government?” Among NTA members, 71 percent said yes, 12 percent said no, and 17 percent gave other responses. Among the general public, 17 percent said yes, 51 percent said no, and 32 percent gave other responses.<sup>33</sup> Because there is little reason to think that NTA members are more politically liberal than the general public, the difference in responses appears to reflect differences in the willingness to openly discuss redistribution.

The rhetoric has clear-cut implications for the choice between the redistributive strategies. A proposal to increase the progressivity of the tax system can be justified as a proposal to ensure that high-income households pay their fair share of the tax burden (although it can be countered by arguments that the rich are already paying their fair share). In contrast, a proposal to impose a regressive tax to finance larger transfer payments cannot be defended on those terms. For example, liberals have been reluctant to embrace a VAT because it would reduce progressivity, even though it could pave the way for a larger tax-transfer system.<sup>34</sup>

The manner in which conservatives frame fiscal issues further reinforces the tilt toward a smaller, highly progressive fiscal system.

### 3. Conservatives’ emphasis on size of government.

Conservative rhetoric is more likely to warn against increasing the size of government rather than increasing taxation of the rich. Many conservatives have expressed opposition to a VAT even though it would reduce progressivity and improve economic efficiency. Those conservatives worry that a VAT would make it easier to increase the size of government because it is more efficient and less visible than the current income tax system. For example, Grover Norquist has called a VAT “an extremely efficient money machine for big government.”<sup>35</sup> To be sure, two candidates proposed VATs (without labeling them as such) in the 2016 Republican presidential primary.<sup>36</sup> But other candidates voiced the traditional Republican concerns about the proposals. For example, Sen. Marco Rubio, R-Fla.,

<sup>29</sup>Diane Lim, Joel Slemrod, and Eleanor Wilking, “Expert and Public Attitudes Towards Tax Policy: 2013, 1994, and 1934,” *66 Nat’ Tax J.* 775 (Dec. 2013).

<sup>30</sup>In contrast, Kleinbard prefers to talk about public investment and social insurance. His framing of the issue emphasizes the benefits of transfers and other government spending, thereby tilting the debate in favor of a larger, less progressive fiscal system. Kleinbard elaborates on his preferred terminology in *We Are Better Than This*, *supra* note 7, at chs. 5 and 11.

<sup>31</sup>Norquist, “Don’t Give Obama a VAT,” *Human Events*, Apr. 23, 2010.

<sup>32</sup>For discussion of the proposals of Cruz and Sen. Rand Paul, R-Ky., see Viard, “The VAT: Coming Soon to a Campaign Stop Near You,” *Tax Notes*, Feb. 8, 2016, p. 719.

<sup>29</sup>Thorndike, “Regressive Taxation,” *supra* note 25, at 1364-1365.

<sup>30</sup>John Harwood, “Don’t Dare Call the Health Law ‘Redistribution,’” *The New York Times*, Nov. 24, 2013.

<sup>31</sup>Harry Bradford, “Obama 1998 Loyola Speech Leaked,” *The Huffington Post*, Sept. 18, 2012.

<sup>32</sup>Yglesias, “Obama Favors Redistribution,” *Slate*, Sept. 19, 2012.

argued that the VAT proposed by Sen. Ted Cruz, R-Tex., would be easy to raise until “you’ve got Europe.”<sup>37</sup>

In keeping with their focus on the size of government, Republicans have generally advocated tax reduction as a way to lower taxes for everyone rather than as a way to reduce redistribution. For example, the 2001 tax cut included significant tax reductions for low-and middle-income households along with high-income households; indeed, as we discussed in our previous article, that law actually made the tax system more progressive even as it reduced the redistribution induced by the tax system. (Any transfer payment reductions required to finance the 2001 tax cut would further reduce redistribution.) Moreover, supporters of the 2001 tax cut consistently emphasized the law’s middle-income tax reductions while ignoring or downplaying its high-income tax reductions.<sup>38</sup>

With conservatives pressing for a smaller government and liberals pressing for the rich to pay a high share of the tax burden, it is hardly surprising that the United States has adopted a smaller, more progressive fiscal system rather than a larger, less progressive system. That tendency is further reinforced by a widely held misunderstanding about the progressivity of transfers.

**4. Shared misconception about transfers.** As we discussed in our previous article, taxes are progressive if they are a larger fraction of income for high-income households than for low-income households. Conversely, transfers are progressive if they are a lower fraction of income for high-income households than for low-income households. A transfer program in which benefits rise with income can therefore be progressive, as long as benefits rise less than proportionately with income. Under the proper percentage-of-income criterion, essentially all transfer payment programs are progressive and almost all proposals to cut transfer payments (even many means-testing proposals) are regressive.

As economist C. Eugene Steuerle has repeatedly noted, however, many participants in the policy debate misunderstand this point. They use the correct fraction-of-income criterion to evaluate taxes but an incorrect dollar-value criterion to evaluate transfers. They condemn increases in transfer payments as regressive if high-income households receive larger dollar benefits, even when those households’ benefits are a smaller frac-

tion of their income. Conversely, they praise reductions in transfer payments as progressive if high-income households lose more dollars of benefits, even when those households’ losses are a smaller fraction of their income.<sup>39</sup>

For example, a recent analysis condemned a proposal to expand Social Security benefits for not being progressive, complaining that it provided five times greater per capita benefits to the highest-income 20 percent than to the lowest-income 20 percent.<sup>40</sup> Yet the plan was actually quite progressive because benefits were a far smaller share of income for high-income households than for low-income households. Similarly, a recent analysis of a proposal to reduce Social Security benefits concluded that “the changes are progressive” because the benefit reductions would be a smaller fraction of benefits for low-income households, even though the benefit cuts would surely be a larger share of those households’ total incomes.<sup>41</sup> In contrast, Kleinbard uses the correct criterion: “Government spending invariably is very progressive: Lower-income Americans get disproportionately more value from government spending *relative to their incomes*” (emphasis added).<sup>42</sup>

The use of inconsistent standards stacks the deck against proposals that use less progressive taxes to finance increased transfer payments. Simple theoretical analysis shows, and the OECD evidence discussed above confirms, that large regressive systems can induce significant redistribution by financing large transfer payments. Yet that redistribution is likely to be overlooked if transfers are erroneously judged by a harsher standard than taxes.

#### D. Conclusion

In this article, we have shown that the United States has a small but progressive tax system compared with other nations and does less redistribution than other nations. We have discussed the factors that policymakers might consider in deciding how and to what extent to redistribute income. We have argued that from a theoretical perspective, a preference for redistribution does not necessarily require a highly progressive tax system, which is confirmed by the choices of many European nations

<sup>39</sup>Steuerle, “Progressivity and Government Downsizing,” *Tax Notes*, Jan. 15, 1996, p. 319; Steuerle, “And Equal (Tax) Justice for All?” *Tax Notes*, Jan. 10, 2000, p. 269; and Steuerle, “Can the Progressivity of Tax Changes Be Measured in Isolation?” *Tax Notes*, Sept. 1, 2003, p. 1187.

<sup>40</sup>Jim Kessler and David Brown, “How the Sanders Social Security Plan Is Not Progressive,” *Third Way*, Jan. 29, 2016.

<sup>41</sup>Committee for a Responsible Federal Budget, “Rep. Ribble Releases Legislation to Make Social Security Solvent” (July 13, 2016).

<sup>42</sup>Kleinbard, “Don’t Soak the Rich,” *supra* note 15.

<sup>37</sup>Available at <http://www.nytimes.com/2016/01/15/us/politics/transcript-of-republican-presidential-debate.html>.

<sup>38</sup>For analysis of the arguments made by supporters of the 2001 tax cut, see Viard, “The High-Income Rate Reductions: The Neglected Stepchild of the Bush Tax Cuts,” *AEI Tax Policy Outlook* (Sept. 2010).



that have high levels of redistribution combined with less progressive taxes. Finally, we have provided an analysis of the debate over progressivity and redistribution in the United States, arguing that the small, progressive tax system is a result of liberals prioritizing increased progressivity over larger government and conservatives prioritizing smaller government over reduced progressivity. We have argued that another factor pushing toward smaller, more progressive taxes is a misunderstanding of progressivity in the context of transfers. That misunderstanding biases redistribution policy toward the use of progressive taxes rather than transfers.

Rising medical costs and an aging population will raise the cost of redistribution, requiring policymakers to carefully examine and compare alternative redistribution strategies. Increasing both the size and progressivity of the fiscal system will likely be problematic because of concerns about economic efficiency and politics.<sup>43</sup> Reducing both the size and progressivity of the fiscal system will likely be politically infeasible. Therefore, both conservatives and liberals must decide whether to prioritize their preferences about the size of the fiscal system or their preferences about its progressivity. ■

<sup>43</sup>Kleinbard, *We Are Better Than This*, *supra* note 7, at Ch. 12, emphasizes that point.

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