The relationship between poverty and sustainable development is complex. The global scale of environmental degradation is unprecedented in human history, and the United States bears a great deal of the responsibility for that degradation.\(^1\) Although the United States has less than 5 percent of the world’s population, our economy accounts for more than 28 percent of the world’s production of goods and services.\(^2\)

While the relationship between poverty and sustainable development is probably more important in the developing world than in developed countries,\(^3\) there are important issues in the developed countries as well. This chapter considers the relationship between poverty and sustainable development in the United States.

The chapter begins with an overview of economic inequality and poverty in the United States. It then discusses the relationship between poverty and environmental justice, and explains the role of government in the distribution of economic resources. The chapter closes with suggestions for using refundable tax credits to reduce poverty and inequality in the United States and for using “green” tax credits to offset the regressive impact of pollution taxes.

**Economic Inequality and Poverty in the United States**

Growing economic inequality and high levels of poverty are major problems for the U.S. economy, for our democratic institutions, and for our environment. The maldistribution of economic resources results in inefficient allocation and utilization of resources, as well as in social disharmony.\(^4\) A more equal distribution of economic resources could help to promote sustainable consumption and production. For example, with greater economic resources, those with modest incomes, not just the rich, could afford the initial upfront investment for more energy-efficient automobiles and homes.
There is substantial inequality in the distribution of earnings, income, consumption, and wealth in the United States today. Table 1 shows that in 2005 the bottom 20 percent of consumer units (households) had an average income of $9,676 and average consumption of goods and services of $19,120, while the top 20 percent of consumer units had an average income of $147,737 and average consumption of $90,469. Inequality in consumption is smaller than inequality in income because (1) consumers tend to maintain their levels of consumption even when their incomes fluctuate temporarily, (2) transfer programs increase the consumption levels for low-income households, and (3) higher-income families save a relatively greater percentage of their income and pay relatively more in taxes.

Table 1
Quintiles of Income Before Taxes: Average Annual Expenditures, Consumer Units, 2005

<table>
<thead>
<tr>
<th>All consumer units</th>
<th>Lowest quintile</th>
<th>Second quintile</th>
<th>Third quintile</th>
<th>Fourth quintile</th>
<th>Highest quintile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income before taxes</td>
<td>$58,712</td>
<td>$9,676</td>
<td>$25,546</td>
<td>$42,622</td>
<td>$66,813</td>
</tr>
<tr>
<td>Average annual expenditures</td>
<td>46,409</td>
<td>19,120</td>
<td>28,921</td>
<td>39,098</td>
<td>54,354</td>
</tr>
</tbody>
</table>

Note: A consumer unit generally includes all members of a household related by blood, marriage, adoption, or some other legal arrangement.

To be sure, the numbers in Table 1 do not capture some of the most remarkable aspects of inequality in America. For example, earnings inequality in the United States is fairly large, even among year-round, full-time workers. In 2006, for example, the typical chief executive officer (CEO) in a major U.S. company made 364 times as much as the average production worker, according to a recent survey of 386 Fortune 500 companies. With roughly 260 work days per year, that means that the typical CEO earns more in a day than an average worker earns in a full year. Of course, CEOs are by no means the only American workers who earn extraordinary compensation. Movie stars and athletes often have multimillion dollar contracts.
Economic inequality has also increased significantly in recent decades. One measure of income inequality is the Gini index, a mathematical measure of income inequality that can range from 0.0, indicating perfect equality (where everyone has the same income), to 1.0, indicating perfect inequality (where one person has all the income and the rest have none). According to the Census Bureau, the Gini index of household income inequality in 2005 was a fairly sizeable 0.469, up from just 0.428 in 1990, 0.403 in 1980, and 0.394 in 1970.9

Pertinent here, income inequality in the United States also tends to be larger than in other industrialized nations. For example, according to one recent survey, the most recent Gini indices of household income inequality were just 0.243 for Sweden, 0.273 for France, and 0.326 for the United Kingdom, compared with 0.357 for the United States in that survey.10

Of particular note, in recent years, the wealthiest Americans have seen an extraordinary increase in their share of household income. For example, in 2000, the top 400 individual taxpayers received 1.09 percent of all the income in America, up from just 0.52 percent in 1992.11

Earnings inequality has also increased significantly in recent decades. For example, from 1979 to 2003 the real wages of high earners (those in the 95th percentile of earnings) increased by 31.1 percent; on the other hand, workers in the 50th percentile saw their wages grow by just 10.2 percent over that period, and workers in the 10th percentile saw an increase of only 0.9 percent. Along the same lines, the Gini index of earnings inequality for full-time, year-round workers rose from 0.326 in 1970 to 0.409 in 2005.12

One of the primary reasons for these recent increases in earnings (and income) inequality is that the rewards for education have grown. In particular, the gap between the average wages of high school and college graduates has widened significantly in recent years; college graduates age 25 and over now earn almost twice as much as workers who stop their education with a high school diploma.13 The increased wage premiums for skilled and educated workers reflect the underlying shift from a manufacturing economy to a services economy. As the years go by, there are fewer good jobs in the U.S. manufacturing sector, and good jobs in the services sector tend to require high levels of education or experience.

Poverty is also a major problem in the United States. In 2008, the poverty level is $10,400 for a single individual, $17,600 for a single
parent with two children, and $21,200 for a married couple with two
children. In 2005, 12.6 percent (37 million people) lived in poverty,
up from 11.1 percent (23 million people) in 1973.

**Poverty, Health, and Inequality**

We know that the environment has a significant impact on human
development, health, and disease. In particular, hazardous agents in
our air, water, and soil are major contributors to illness, disability, and
death. The poor in the United States, as well as throughout the world,
typically face higher risks of ill health and environmental exposure
than the rich, in part because they are more likely to live near hazardous
wastes and toxic products. Tables 2 and 3 illustrate some of the inequities in the United States regarding exposure to selected environmental hazards.

### Table 2

**Proportions of African American, Hispanic, and White Populations Living in Air Quality Nonattainment Areas, 2004 (Percent)**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>African American</th>
<th>Hispanic or Latino</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates (fine)</td>
<td>6</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>4</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Ozone</td>
<td>43</td>
<td>59</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 3
Proportions of Certain Racial and Ethnic and Lower Socioeconomic Populations in Census Tracts Surrounding Waste Treatment, Storage, and Disposal Facilities (TSDF) Compared With the Proportions of These Groups in Other Census Tracts, 1994

<table>
<thead>
<tr>
<th>Demographic Breakdowns</th>
<th>Location of TSDFs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>African Americans</td>
<td>24.7</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Persons Living Below the Poverty Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Census tracts with either TSDFs or at least 50 percent of their area within 2.5 miles of a tract with TSDF</td>
<td>13.6</td>
<td>7.3</td>
<td>13.1</td>
</tr>
<tr>
<td>Census tracts without TSDFs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Dep’t of Health & Human Servs., Healthy People 2010: Understanding and Improving Health (2d ed., 2000), vol. 1, tbl. 8-B.

We made some progress cleaning up our environment and promoting environmental justice in the 1990s, but there clearly is more to be done.18 In the meantime, the poor will bear a disproportionate share of the burdens of pollution.

The Government’s Role in Reducing Poverty and Inequality

In a complex society like ours, economic rewards are determined by a combination of market forces and government policies. Markets arise automatically from the economic interactions among people and institutions. Here and there, government policies intervene to influence the operations of those markets and to shape the outcomes that result from market transactions.

Needless to say, policymakers cannot do much about market forces per se. But they can influence market outcomes through a combination of regulation, spending, and taxation. Government regulation defines and limits the range of markets, and so influences the shape of the initial distribution of economic resources. Government taxes and spending also have a significant impact on the distribution of economic resources. Most clearly, government taxes and transfers are the primary tools for the redistribution of economic resources and the mitigation of economic inequality.
The Major Federal Transfer Programs

Dozens of federal transfer programs provide assistance to individuals for retirement, disability, health, education, housing, public assistance, employment, and other needs. The vast majority of these programs transfer cash or in-kind benefits (e.g., food or medical care) directly to individuals. Social welfare analysts generally differentiate between transfer programs that are “means-tested” and those that are not. For programs that are means-tested (e.g., family support, Medicaid, and food stamps), eligibility and benefits depend upon an individual’s need, as measured by the individual’s income and assets. For programs that are not means-tested (e.g., social insurance programs like Social Security and Medicare), eligibility is based on other criteria such as age and work history. Table 4 shows the federal government’s outlays for the principal federal transfer programs.

Table 4
Outlays for the Principal Federal Benefit Programs
(Billions of Dollars)

<table>
<thead>
<tr>
<th>Program</th>
<th>2007 actual</th>
<th>2013 estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Security</td>
<td>$581</td>
<td>$842</td>
</tr>
<tr>
<td>Medicare</td>
<td>372</td>
<td>500</td>
</tr>
<tr>
<td>Medicaid</td>
<td>191</td>
<td>287</td>
</tr>
<tr>
<td>Unemployment compensation</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td>Supplemental Security Income</td>
<td>33</td>
<td>49</td>
</tr>
<tr>
<td>Earned income tax credit</td>
<td>38</td>
<td>44</td>
</tr>
<tr>
<td>Food assistance</td>
<td>49</td>
<td>60</td>
</tr>
<tr>
<td>Family support</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>Housing assistance</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Retirement and disability programs for civilians,</td>
<td>149</td>
<td>197</td>
</tr>
<tr>
<td>military and veterans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Exec. Office of the President and Office of Mgmt. & Budget, Historical Tables, Budget of the United States Government, Fiscal Year 2009 (2008), tbl. 8.5.
Measuring the Impact of Government on Inequality and Poverty

Most government operations have only a slight or indirect impact on the distribution of earnings and income. Spending on the military and other government operations, for example, probably has relatively little impact on economic inequality. Even among entitlement programs, relatively few programs are means-tested, and only about 10-15 percent of the federal budget is spent for such explicit redistribution. All in all, government tax and transfer policies currently reduce household income inequality by about 20 percent, as shown in Table 5.19

Table 5
Share of Aggregate Household Income by Quintiles and the Gini Index, 2005

<table>
<thead>
<tr>
<th>Quintiles</th>
<th>Market income</th>
<th>Disposable income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>1.50</td>
<td>4.42</td>
</tr>
<tr>
<td>Second</td>
<td>7.26</td>
<td>9.86</td>
</tr>
<tr>
<td>Middle</td>
<td>14.00</td>
<td>15.33</td>
</tr>
<tr>
<td>Fourth</td>
<td>23.41</td>
<td>23.11</td>
</tr>
<tr>
<td>Highest</td>
<td>53.83</td>
<td>47.28</td>
</tr>
<tr>
<td>Gini Index</td>
<td>0.493</td>
<td>0.418</td>
</tr>
</tbody>
</table>


Transfer programs reduce household income inequality much more than taxes. According to a recent Census Bureau report, subtracting taxes and including the earned income tax credit lowered the Gini index of household income inequality by just 4.6 percent in 2003 (from 0.498 to 0.475), while transfer programs lowered the Gini index by 17.0 percent (from 0.475 to 0.394).20

To be sure, high income households pay the lion’s share of taxes, but they also receive an ever-increasing share of household income. In that regard, Table 6 shows estimates by the Congressional Budget Office (CBO) of the share of income, share of federal tax liabilities, and effective federal tax rates for all households in 2004.21
Shares of Income, Shares of Federal Tax Liabilities, and Effective Federal Tax Rates by Household Income Category, 2004

<table>
<thead>
<tr>
<th>Quintiles</th>
<th>Share of pretax income</th>
<th>Share of federal tax liabilities</th>
<th>Total effective federal tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>4.1</td>
<td>0.9</td>
<td>4.5</td>
</tr>
<tr>
<td>Second</td>
<td>8.9</td>
<td>4.5</td>
<td>10.0</td>
</tr>
<tr>
<td>Middle</td>
<td>13.9</td>
<td>9.7</td>
<td>13.9</td>
</tr>
<tr>
<td>Fourth</td>
<td>20.4</td>
<td>17.6</td>
<td>17.2</td>
</tr>
<tr>
<td>Highest</td>
<td>53.5</td>
<td>67.1</td>
<td>25.1</td>
</tr>
<tr>
<td>All quintiles</td>
<td>100.0</td>
<td>100.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Top 10 percent</td>
<td>38.8</td>
<td>52.3</td>
<td>26.9</td>
</tr>
<tr>
<td>Top 5 percent</td>
<td>29.0</td>
<td>41.3</td>
<td>28.5</td>
</tr>
<tr>
<td>Top 1 percent</td>
<td>16.3</td>
<td>25.3</td>
<td>31.1</td>
</tr>
</tbody>
</table>


There is some dispute about how much the U.S. tax and transfer systems affect poverty levels. As already mentioned, some 37 million Americans (12.6 percent) were poor in 2005 using the official estimate of poverty (based on money income). Based on market income, however, the Census Bureau estimated that 18.9 percent of Americans were poor before taxes and transfers. After taxes and transfers, the Census Bureau estimated that just 10.3 percent of Americans had disposable income that left them in poverty.

On the other hand, a recent comparative study by the economist Timothy M. Smeeding found that our tax and transfer systems had more modest effects. His study estimated that our current tax and transfer systems reduced the poverty rate of two-parent families by just 0.5 percentage points in 2000, from 13.7 to 13.2 percent. That was a mere 3.6 percent reduction in two-parent poverty rates, compared with an average reduction of 44 percent across all 11 high-income countries studied (including the United States).

**Recommendations for Reducing Poverty**

Two recommendations for reducing poverty and enhancing sustainability flow from an analysis of the current U.S. tax and transfer systems.
1. Reform the Current Welfare System. The current system of transfer and tax programs for low-income workers is unnecessarily complicated, inequitable, and expensive to administer, and it needs to be reformed. The House Committee on Ways and Means recently identified 85 programs that provide everything from cash aid to energy assistance—each with its own eligibility criteria and administrative system. Not surprisingly, many low-income Americans never receive the benefits to which they are entitled. For example, less than 60 percent of those eligible for food stamps actually receive them.

The bottom line is that we are unlikely to achieve any meaningful reform of the welfare system by simply, in Edgar K. Browning’s words, “trying to patch up each one of the innumerable and uncountable programs.” Instead, we should replace the current system with a comprehensive and unified tax and transfer system. This goal could be achieved by “cashing out” as many welfare programs as possible and using that money to help pay for a system of refundable tax credits.

Refundable tax credits could replace personal exemptions, standard deductions, and the many other child and family benefits in the current income tax system, and these tax credits could also replace all or a large portion of most welfare benefits. This new tax and transfer system would not necessarily cost any more than the current system, as costs could be managed by adjusting the size of the refundable tax credits and by adjusting the structure of tax rates. Moreover, the money generated as a result of administrative savings from combining these tax breaks and welfare programs into refundable tax credits could also be used for financing these credits.

For example, imagine a simple, integrated tax and transfer system with $2,000 per person refundable tax credits, $2,000 per worker refundable earned income credits (computed as 20 percent of the first $10,000 of earned income), and two tax rates: 20 percent of the first $50,000 of income, and 35 percent on income above $50,000.

A single mother with two children who earns $10,000 a year would be entitled to three $2,000 refundable tax credits and a $2,000 worker credit. She would owe $2,000 in taxes on her $10,000 of pre-transfer earnings, and that would leave her with $16,000 of disposable income after taxes and transfers.

Those refundable tax credits should be paid out on a monthly basis. Each individual would present something like the current IRS Form W-4, Employee’s Withholding Allowance Certificate, to her em-
ployer—or to a bank. Employees would then receive advance payment of their credits from their employers in the form of reduced withholding, while other beneficiaries would have their payments directly deposited into their bank accounts.

This comprehensive tax and transfer system would be simpler than the current system, would encourage low-skilled workers to enter and remain in the workforce, and would minimize marriage penalties. And it would help ensure that low-income families actually get their benefits. The Temporary Assistance for Needy Families program currently reaches just 52 percent of eligible families. On the other hand, the Earned Income Tax Credit reaches 86 percent of eligible households, and it does so without any welfare stigma or loss of privacy.

As noted above, much of the cost of this new system could be paid for by cashing out current programs. As an initial step, we should cash out the food stamp program. Like most welfare programs, it has arcane eligibility criteria, baffling administrative procedures, and high administrative costs. Repealing the food stamp program would free up its $33 billion annual appropriation to instead pay for the refundable tax credits.

Next, we should cash out low-income housing programs and get rid of the Low Income Home Energy Assistance Program. Instead of providing rental subsidies, mortgage-interest subsidies, and home energy assistance to just a fraction of low-income families, we should give all low-income families $2,000 per person tax credits and let them choose their own energy-efficient housing.

To be sure, it would take more than just a system of refundable tax credits to solve the problem of poverty in America. We would need to provide additional benefits to individuals who are not able to work. For example, many elderly and disabled individuals would need additional cash benefits. The additional benefits that these recipients need could continue to come in the form of SSI benefits, or they could be distributed through additional refundable tax credits.

Finally, an effective welfare system would also need to provide some services to beneficiaries. Education, training, job search and placement, counseling, and a clean environment are but a few that come to mind.

We also need to redesign our health care system to provide universal health care coverage. Under a plan proposed by the New America Foundation, the federal government would guarantee access to
adequate and affordable health insurance for everyone. In exchange, each person would be required to maintain health insurance and to pay for that insurance with a combination of employer and employee contributions and government assistance based on ability to pay. An adequate but basic level of health care coverage would be required, and community insurance pools would offer individuals a choice among plans. Government assistance would be provided in the form of refundable tax credits calculated on a sliding scale based on need.

All in all, a comprehensive system of $2,000 per person refundable tax credits, $2,000 per worker tax credits, health care tax credits, and other work supports would lead to dramatic reductions in poverty and inequality in the United States.

2. Promote Sustainable Development. An integrated tax and transfer system could also be used to promote sustainable development. For example, once we accept the logic inherent in refundable tax credits, we could use them to distribute rebates of environmentally sensible polluter taxes.33

Many people oppose gasoline excise tax hikes and carbon emissions taxes on the grounds that these taxes would hurt poor people. In tax parlance, such taxes are said to be regressive as opposed to progressive. One solution is to impose those environmental taxes on polluters but offset their regressive impact with refundable “green” tax credits for consumers.35 Americans would get a cleaner environment, the costs of pollution would be internalized in the financial accounting of companies that pollute, and polluters would bear the true costs of the damage they cause.

For example, a carbon emissions tax could be made progressive by coupling it with rebates paid out in the form of refundable tax credits. Modest rebates (or “prebates” if paid ahead of time) would protect low-income families from any carbon tax burden and would reduce the burden on middle-income taxpayers, too. For example, we might impose a carbon tax that costs modest consumers of energy $500 per year and then rebate $500 a year to low-income families.

Alternatively, we could impose whatever pollution taxes and regulations we believe are necessary to achieve sustainable development and then increase the amount of the personal tax credits described above to offset any additional burdens on consumers. In short, we could use refundable tax credits to mitigate any economic burdens on households that result from pollution taxes or regulation.
Finally, we need to redouble our efforts to improve air, water, and soil quality, and we need to better manage the effects of toxics and waste. In particular, we need to minimize the risks to human health posed by hazardous sites, which are so often situated in or close to poor communities.

**Conclusion**

The Constitution of the United States created a new American government to, among other things, “establish Justice” and “promote the general Welfare.” The American experiment has worked because it has encouraged its citizens to be productive. But America can work even better. The way to make America work better is to make the government’s responsibility to “promote the general Welfare” work better. We should redesign our tax, transfer, and regulatory policies to reduce poverty and promote sustainable development.
ENDNOTES


4. In that regard, according to the United Nations’ recent report on sustainable development:

At the domestic level, sound environmental, social and economic policies, democratic institutions responsive to the needs of the people, the rule of law, anti-corruption measures, gender equality and an enabling environment for investment are the basis for sustainable development.


19. U.S. Census Bureau, The Effects of Government Taxes and Transfers on Income and Poverty: 2005 (Current Population Report No. P60-232, Mar. 2007), tbl. 3. The second column of Table 5 shows the Census Bureau’s estimates of the market’s initial distribution of household income before government taxes and transfers, by quintiles of population (“market income”). Before government taxes and transfers, the richest 20 percent of American households received 53.83 percent of household income, while the poorest 20 percent received just 1.50 percent. That is a rather unequal distribution of income. The Gini index for the market distribution of household income in the United States in 2005 was a sizeable 0.493.

The third column of Table 5 shows the “disposable income” shares that households end up with after government taxes and transfers in the year 2005. Taxes and transfers increased the relative share of income held by the bottom three quintiles at the expense of the share of income held by the top two quintiles, and the Gini index fell to 0.418.


28. Recall that the poverty level for a single parent with two children is $17,600 in 2008. HHS Poverty Guidelines, supra note 14.


33. Under the polluter-pay principle, governments should require polluters to bear the costs of their pollution.


36. U.S. Const. pmbl.