

The CASE for COUNTING CHILDREN in a CARBON TAX DIVIDEND PLAN:

Net Benefits and Poverty Implications for a Per Capita Dividend

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In its most recent report, The Intergovernmental Panel on Climate Change (IPCC) finds that global emissions must reach net zero by 2050 in order to avoid the irreversible impacts of global warming.¹ The United States should be at the forefront, and carbon regulation across sectors will be critical to reaching this goal. In response, a range of carbon tax proposals are garnering bipartisan support.

A carbon tax would increase carbon prices, reducing its use and emissions—prerequisites for slowing climate change. However, lower-income families are least able to afford the higher costs, especially given that carbon-related consumption makes up a proportionally larger share of their total spending. Americans rely on carbon to heat their homes, drive their cars, and manufacture the goods they consume. Most carbon tax proposals recognize that increased carbon costs would disproportionately burden the poor, near poor, and lower middle class and contain provisions to address these impacts. But depending on how these policies are designed, the effect on child poverty can differ substantially.

Pairing a carbon tax with a universal dividend—a cash benefit to all citizens—may make the policy more politically and socially viable. An influential group of conservatives, including two former Secretaries of State, James Baker and George Shultz, as well as notable economists Gregory Mankiw and Martin Feldstein, proposed in 2017 a variant of such a plan in which the proceeds of a carbon tax would be distributed to citizens in the form of a carbon dividend. Similarly, on the left, a number of advocates of a basic income to reduce poverty and economic insecurity are attracted to using a carbon tax as a potential financing method because of the political attractiveness of combining the objectives of reducing poverty and global warming. Indeed, the bi-partisan group Americans for Carbon Dividends has proposed the Baker-Shultz plan to gradually increase carbon pricing and provide universal dividends.

Key Findings

- Providing carbon dividends to all adults and children reduces child poverty by almost 5 percent.
- Limiting carbon dividends to adults increases child poverty.
- Giving children a half-share dividend reduces incomes of nearly half of children in low-income families.
- Providing children a full share reduces the proportion of children in low-income families made worse off closer to 1 in 5.

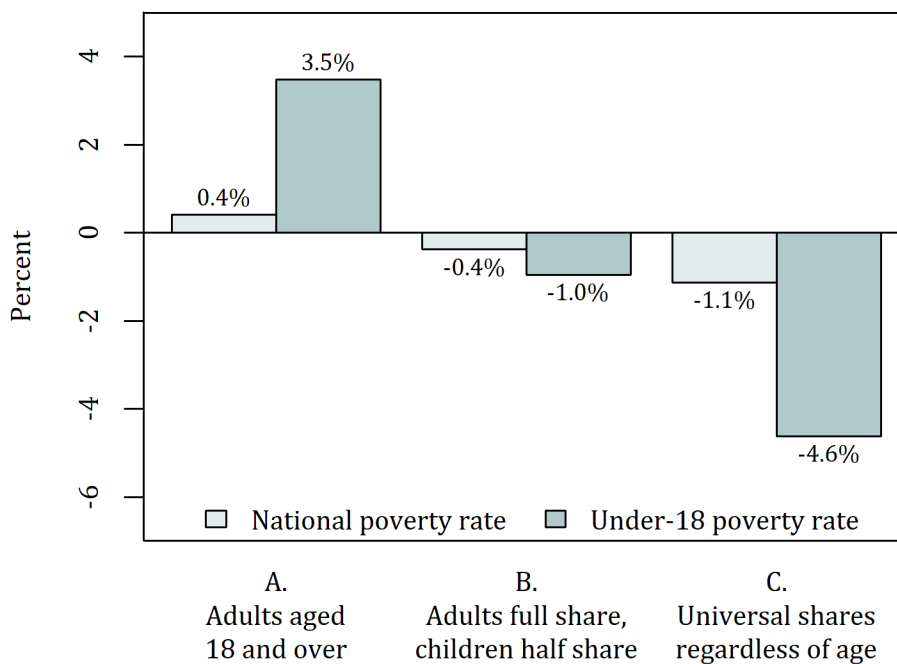
¹ See "Summary for policymakers of IPCC special report on global warming of 1.5°C approved by governments."



Basic income and carbon dividend proposals differ in how they account for children. One approach is to distribute benefits to all adults and children. A second approach provides benefits only to adults. (Of course, there can be hybrid models, as well.) The purpose of this research brief is to present empirical evidence on the effects of the two approaches on child poverty.

Our findings are stark. Providing carbon dividends to all adults and children reduces child poverty. Limiting carbon dividends to adults increases child poverty.

Figure 1. Percent Change in Poverty after a Carbon Tax and Dividend



In close alignment with The Climate Leadership Council’s recommendation, we use a \$42 carbon tax per metric ton of CO₂ to model these differing dividend scenarios. Assuming approximately 5 billion tons of greenhouse emissions, the dividend in 2020 would be around \$40 per person per month. Our simulations use recent data from the Annual Social and Economic Supplement of the Current Population Survey and the Consumer Expenditure Survey, with poverty defined by the Supplemental Poverty Measure (see appendix for details). Figure 1 demonstrates the poverty impact of such a dividend if only distributed to adults aged 18 and over. We see that when children do not receive the dividend, the national poverty rate actually increases slightly by 0.4% relative to the baseline rate of 13.2%, and child poverty increases by 3.5% over a baseline child poverty rate of 12.6%.²

While it may seem counterintuitive, this trend demonstrates an important oversight in proposals that do not account for children. Children, like adults, add to a family’s overall consumption and, consequently, its carbon tax burden. When the dividend is only provided to adults, families with children could pay more than they benefit. Working-class families with children, especially, face an increased risk of being taxed into poverty. The benefits of equal carbon rebates to adults and children are substantial. Additional results in Figure 1 show that equal benefits would cut child poverty by

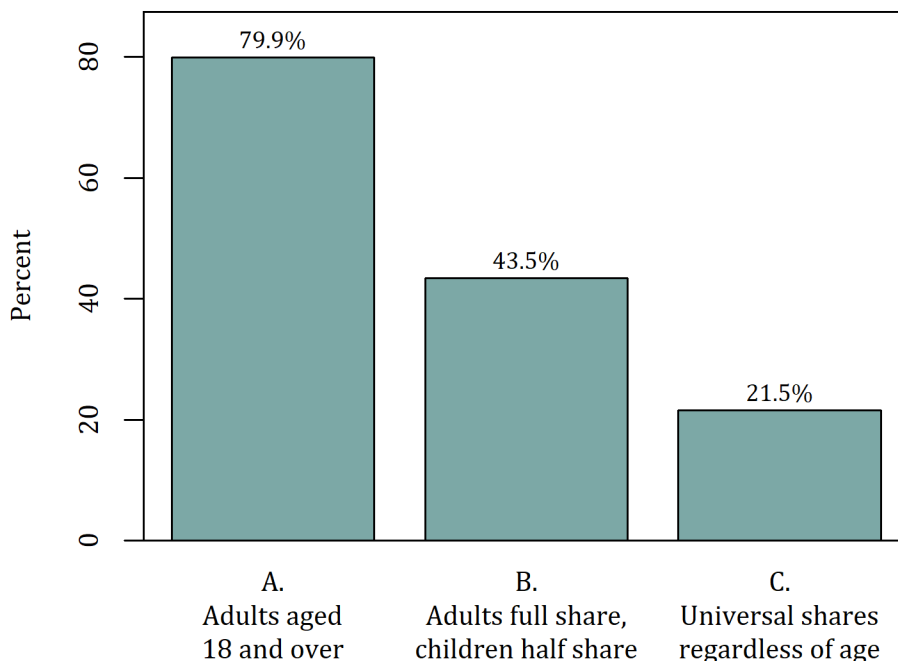
² See Appendix for details on estimating the baseline poverty rate by sample years with adjustments for underreported transfer income.

4.6% and also reduce the adult poverty rate by 1.1%. Also worth noting, is a third approach that has been considered in some circles, that provides adults with a “full share” dividend and children with a “half share.” While such a model would reduce the poverty rate for both adults and children, the child poverty rate would fall by only 1%—a fraction of what it would if each child received a full share dividend.³

An important aspect of a carbon tax and dividend is that while some families are lifted out of poverty, others may be pushed into poverty if the total dividend income is less than the increased carbon tax burden. Using a per capita dividend to offset the regressivity of a carbon tax implies that, on average, higher-income families will receive a net tax while lower-income families receive a net transfer. However, many low-income families may be vulnerable to net losses, especially low-income families with children.

Figure 2 illustrates the proportion of low-income families with children who might expect a net loss after a carbon tax and dividend. We estimate that nearly 4 out of 5 children in low-income families would suffer reductions in living standards when children are not counted; when children are counted at half shares, about 44% are still worse off. While this is a notable improvement, counting children equally as adults reduces the proportion of children in low-income families made worse off closer to 1 in 5. However, low-income families with net losses are only losing about 2 to 3% of income on average.

Figure 2. Percent of Low-Income Children in Families Receiving a Net Loss after a Carbon Tax and Dividend



³ These results have been updated since the first release of this brief. The initial results, shown in Appendix Figure A1, do not apply a Congressional Budget Office accounting rule that restricts the amount of carbon revenues deemed available for recycling as dividends, and they do not account for price-indexed transfer programs that would increase benefit levels to account for consumption taxes that may be passed through to higher prices. We are grateful to Alexander Barron suggesting these changes. See the appendix for details.

Our estimates assume 100% of new revenue raised from a carbon tax would be returned in the form of a dividend. Yet, many proposals seeking to balance a variety of interests suggest rebating only a portion of the revenue raised. Smaller payouts to low-income families with children would increase the percent of low-income families who are worse off. On the other hand, we show in a separate brief that a carbon tax can be a complementary financing mechanism for funding more generous policy designs with larger poverty reduction effects.

Conclusion

Both global warming and child poverty are threats to our nation's future. The recent National Academy of Sciences report, *A Roadmap to Reducing Child Poverty*, estimates that the costs of child poverty to the nation—in the form of lost productivity and extra spending on medical care, criminal justice, and anti-poverty programs—are about one trillion dollars per year.

To maximize a policy's anti-poverty effects, children should be counted as “full” people. Doing otherwise, would not fully offset the regressive nature of a carbon tax on children, and many working-class families could be taxed into poverty. Policymakers will have the opportunity to promote both economic and environmental well-being for a generation that is growing up in a time of unprecedented economic and environmental uncertainty. If anything, the children are the ones who will bear the greater long-run cost of climate change, which accentuates the need to directly account for children as full beneficiaries of a carbon dividend.

Appendix

The analysis for this brief corresponds to a working paper, “The Poverty Impact and Distributional Effects of Alternative Income Guarantee Designs: How Much Does the Financing Matter?”⁴ The nationally-representative data are from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey, which we supplement with imputed spending data from the Consumer Expenditure Survey (CE) in order to estimate the tax burden from carbon pricing. Following the working paper, we use an alternative poverty measure constructed by adjusting family incomes for underreported transfer program income using the Urban Institute’s Transfer Income Model (TRIM), for which the latest available three years of data correspond to 2013 through 2015. We impute spending data by matching families on decile of household income-to-needs ratio, indicators for single adults, married adults, or more than two adults, and indicators for number of children (up to three or more).

A family’s carbon tax burden is set equal to their proportional share of the total tax amount, that is, an estimate of their relative carbon footprint. We use a simple approach that estimates a family’s carbon share as the family-level spending on carbon-related consumption (for example, natural gas, home heating oil, electricity, and gasoline) as a percent of aggregate carbon-related consumption. While this simplification does not directly address the nuanced effects of a carbon tax on various industries and relative price changes across all consumption, we find that the approximation produces similar results across the distribution of household spending relative to recent estimates.⁵ The total carbon tax revenue is based on a carbon price of \$42 per metric ton of greenhouse gases, and an aggregate estimate of 5 billion tons in total emissions (accounting for behavioral changes in carbon use), which is approximately \$210 billion in total tax revenues.⁶ We are assuming that the carbon tax incidence is fully passed along to the population according to the carbon share estimates noted above, and we redistribute dividends based on a revenue neutral policy while assuming no macroeconomic policy effects.

To show changes in poverty status, we use the Supplemental Poverty Measure (SPM), which, compared to the official poverty measure, provides a better picture of family well-being after taxes and transfers while also adjusting income for work-related and medical expenses and adjusting the poverty needs threshold by geography, household tenure, and family size. For our baseline poverty measure, we use the ASEC 2013-2015 data with adjusted transfer income based on TRIM estimates. The baseline national poverty rate is 13.2%, and the baseline under-18 child poverty rate is 12.6%. Then, the post-reform poverty status is constructed by subtracting our estimated carbon tax burden from a family’s net income and adding back a per capita dividend amount according to the specific plan: A. adults aged 18 and over, B. adults at full shares and children at half shares, and C. universally equal shares for children and adults.

4 For a detailed discussion on the relative merits of alternative carbon dividend plans, see the report by Donald Marron and Elaine Maag (2018): “How to design carbon dividends,” Tax Policy Center.

5 Across the distribution of total household spending per capita, we estimate average carbon shares for each decile 1 through 10 equal to 4.6, 6.3, 7.1, 8.4, 9.8, 10.1, 10.6, 12.6, 13.5, and 17.1%, respectively. For comparison, see per capita carbon footprint estimates by Anders Fremstad and Mark Paul (2017): “A short-run distributional analysis of a carbon tax in the United States,” Working paper series 434, Political Economy Research Institute, August 2017. For a detailed analysis of a carbon tax incidence under an alternative set of assumptions, see Joseph Rosenberg, Eric Toder, and Chenxi Lu (2018): “Distributional implications of a carbon tax,” Center on Global Energy Policy and Tax Policy Center report, Noah Kaufman (ed.), July 2018.

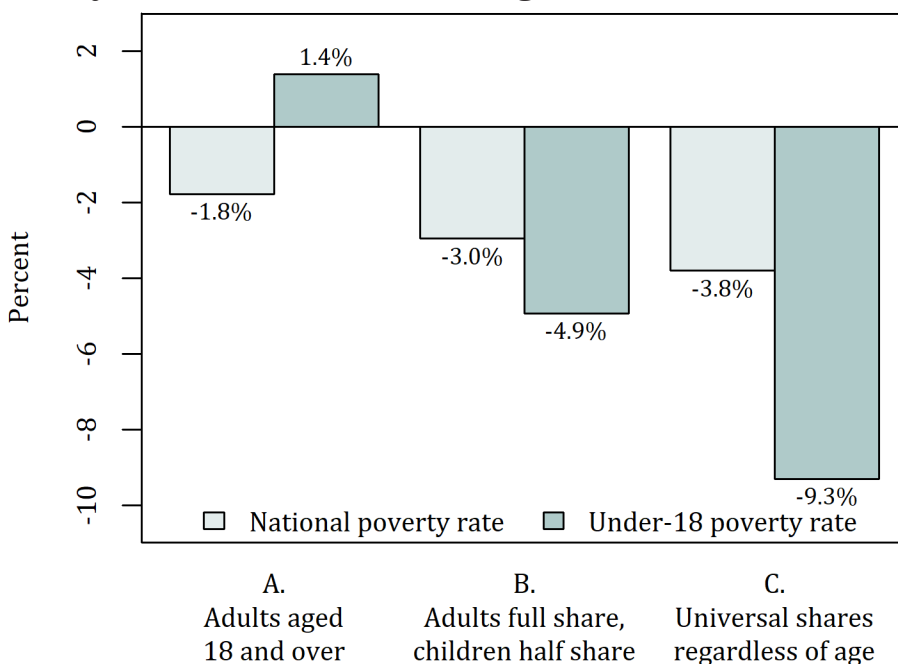
6 For estimates of carbon pricing, see the Interagency Working Group on Social Cost of Greenhouse Gases (2016): “Technical update of the social costs of carbon for regulatory impact analysis under Executive Order 12866,” Technical support document, United States Government. For estimates of the total greenhouse emissions, see the Congressional Budget Office (2018): “Options for reducing the deficit: 2019 to 2028,” Report 54667.

Updated Methods Since Initial Publication

The initial release of this brief presented a simplified analysis to show the likely impact of a carbon tax and dividend plan on children depending on the plan’s beneficiary design. Updated estimates include additional modeling assumptions based on Congressional Budget Office (CBO) guidelines and transfer programs indexed to inflation. The results are qualitatively similar.

Figure A1 shows the main poverty results before applying the CBO accounting rule limiting the carbon revenues available for redistribution and the price-indexing of certain transfer programs (Figure A1 has been updated by Figure 1 since a previous release of this brief). The CBO rule follows from a requirement that carbon tax proposals meet budget neutrality or else face higher scrutiny in passage. The prime implication is that a carbon tax would generate new revenues but also lead to a decrease in tax revenues from business that reduce production in response to carbon pricing. Therefore, CBO applies a so-called haircut rule that would decrease the available revenues by 25% to offset the potential behavioral response of tax revenue declines. Additionally, the results in Figure A1 do not include the price-indexing of transfer income from sources such as Social Security, Supplemental Security Income, Worker’s Compensation, and veteran’s benefits, for example. In the main results, we assume that the benefit values from these transfer programs would increase to match the inflationary effects of a consumption tax being passed through to consumers via higher prices.

Figure A1. Percent Change in Poverty after a Carbon Tax and Dividend Unadjusted for CBO Accounting Rules or Transfer Indexing



Note: The results shown above correspond to a previous release of this brief before introducing an updated methodology to account for the likely implementation of a carbon tax and dividend policy.

Acknowledgements

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