



EFFICIENCY AND TAX INCENTIVES:
THE CASE FOR REFUNDABLE TAX CREDITS

Lily L. Batchelder
Fred T. Goldberg, Jr.
Peter R. Orszag

EFFICIENCY AND TAX INCENTIVES: THE CASE FOR REFUNDABLE TAX CREDITS

Lily L. Batchelder,* Fred T. Goldberg, Jr.,** and
Peter R. Orszag***

INTRODUCTION.....	24
I. OVERVIEW OF REFUNDABLE TAX CREDITS	32
A. <i>Current Refundable Credits</i>	33
B. <i>Has Bipartisan Support for Refundable Credits Crested?</i>	38
II. THE EFFICIENCY CASE FOR REFUNDABLE TAX CREDITS	42
A. <i>Uniform Refundable Credits as the Efficient Default Structure for Tax Incentives</i>	43
1. <i>Efficient taxation in the presence of externalities</i>	44
2. <i>Putting theory into practice</i>	49
3. <i>Uniformity and refundable credits</i>	52
B. <i>Income Smoothing at the Household Level</i>	57
C. <i>Smoothing Macroeconomic Demand</i>	61

* Assistant Professor of Law & Public Policy, New York University School of Law.

** Partner, Skadden, Arps, Slate, Meagher & Flom LLP; former Commissioner of the Internal Revenue Service and Assistant Secretary of the Treasury for Tax Policy during the George H.W. Bush Administration.

*** Joseph A. Pechman Senior Fellow, The Brookings Institution; Co-Director, Urban-Brookings Tax Policy Center; Director, The Hamilton Project; former Special Assistant to the President for Economic Policy and Senior Economist on the Council of Economic Advisers during the Clinton Administration.

The authors thank Emil Apostolov, Jennifer Derstine, Gretchen Feltes, Matthew Hall, David Kamin, Mario Mendolaro, and Vinay Patel for outstanding research assistance, and Anne Alstott, Alan Auerbach, Leonard Burman, Stephen Cohen, Noel Cunningham, Peter Diamond, William Gale, Michael Graetz, Robert Greenstein, Jonathan Gruber, Daniel Halperin, Mitchell Kane, Louis Kaplow, Michael Knoll, Ruth Mason, Pamela Olson, Miranda Perry, Alex Raskolnikov, Emmanuel Saez, Deborah Schenk, Daniel Shaviro, Reed Shuldiner, Eugene Steuerle, Dennis Ventry, and participants in the NYU School of Law Faculty Workshop, NYU Wagner Research Colloquium, Penn Law School Tax Policy Workshop, Urban Institute roundtable “Giving Credit Where Credit Is Due,” and Tel Aviv University Tax Policy Workshop for extremely helpful suggestions. The views expressed in this Article are solely those of the authors, and all errors are ours.

III. POTENTIAL OBJECTIONS.....	65
CONCLUSION	72
APPENDIX A	74
APPENDIX B	75

INTRODUCTION

Each year the federal individual income tax code provides over \$500 billion worth of incentives intended to encourage socially beneficial activities, such as charitable contributions, homeownership, and education.¹ This is an enormous investment, exceeding our budget for national defense² and amounting to about 4% of Gross Domestic Product (GDP).³ The design of these tax incentives is an immensely important policy matter. Yet despite their efficiency rationale,⁴ little attention has been paid to the question of what economic efficiency implies about the form these tax incentives should take.

Currently the vast majority of tax incentives operate through deductions or exclusions, which link the size of the tax preference to a household's marginal tax bracket. Higher-income taxpayers, who are in higher marginal tax brackets, thus receive larger incentives than lower-income taxpayers. This Article argues that providing a larger incentive to higher-income households is economically inefficient unless policymakers have specific knowledge that such households are more responsive to the incentive or that their engaging in the behavior generates larger social benefits. Absent such empirical evidence, all households should face the same set of incentives.

This Article therefore proposes a dramatic change in how the government should provide tax incentives for socially valued activities: the default for all such tax incentives should be a uniform refundable tax credit. Unlike other forms of tax incentives, a uniform refundable credit is not related to a household's marginal tax rate and provides cash payments to qualifying households even if they owe no income tax. Such credits would thus provide a much more even and widespread motivation for socially valued behavior than the current set of tax incentives. Moreover, they could further enhance economic efficiency by smoothing household income shocks and macroeconomic fluctuations. While transforming deduction-like incentives into

1. See *infra* note 90 and accompanying text.

2. For 2006, the discretionary budget for the U.S. Department of Defense is \$419 billion. OFFICE OF MGMT. & BUDGET, BUDGET OF THE UNITED STATES GOVERNMENT, FY 2006: DEPARTMENT OF DEFENSE (2006), available at <http://www.whitehouse.gov/omb/budget/fy2006/defense.html>.

3. In 2005, U.S. GDP was \$12.5 trillion. See Bureau of Econ. Analysis, Current-Dollar and "Real" Gross Domestic Product (2006), <http://bea.gov/bea/dn/gdplev.xls>.

4. As explained below, we restrict our analysis to tax provisions intended to correct for positive externalities, thereby excluding provisions intended to measure income or ability to pay. To the extent that a provision has multiple rationales, our analysis only applies to the externality-correction element of the provision.

uniform refundable credits would represent a substantial tax reform, it could be done on a revenue-neutral basis.

Refundable credits are not a new concept in the tax code. Prior to 1975, all individual tax incentives were structured as deductions or exclusions or, occasionally, as non-refundable tax credits. Today refundable credits are more widespread, accounting for about 18% of the roughly \$500 billion in tax incentives.⁵ Nevertheless, increasingly there has been heated debate about whether refundable tax credits are an appropriate part of our tax system. Some policymakers believe that the purpose of the income tax is to raise revenue and that all Americans should pay at least some income tax as a duty of citizenship.⁶ They argue that “[i]f it’s a refundable credit, it has no business in the tax system”⁷ and that refundable tax credits are “turn[ing] our income tax code into a welfare system.”⁸ Others contend that the income tax should seek to reduce disparities of income, wealth, and opportunity and that refundable tax credits are a fundamental element of any fair tax system. These divergent perspectives are illustrated in last fall’s report by the President’s Advisory Panel on Federal Tax Reform⁹ and the extensive debate that has occurred regarding the priority given to refundability of the child tax credit.¹⁰

This Article is motivated by our concern about the focus of this debate. We believe that by focusing too exclusively on enforcement issues and the progressivity of the tax code—issues subject to deep partisan divides—the debate has moved policymakers away from common ground and obscured

5. See *infra* notes 62, 90 and accompanying figure and text.

6. See, e.g., Robert R. Eberle, *Should Paying Taxes Be a Requirement of Citizenship?*, INTELL. CONSERVATIVE, July 7, 2003, <http://www.intellectualconservative.com/article2450.html>. See also Editorial, *Lucky Duckies Again*, WALL ST. J., Jan. 20, 2003, at A14 (criticizing the Bush Administration for “exacerbat[ing] the growing problem of a bifurcated tax system” where some households owe income tax and some do not).

7. Don Alexander, Statement at the Tax Analysts Conference Series: Tax Reform and Simplicity—Must a Good Tax Code Be a Simple One? (July 8, 2005), in 2005 TAX NOTES TODAY 137-32.

8. James Toedtman, *Tax Break for Working Poor; But House and Senate Measures Still Differ*, NEWSDAY, June 13, 2003, at A08.

9. PRESIDENT’S ADVISORY PANEL ON FED. TAX REFORM, FINAL REPORT 49 (Nov. 1, 2005), available at http://www.taxreformpanel.gov/final-report/TaxReform_Ch4.pdf (“Some Panel members felt that the current system has gone too far in removing lower-income taxpayers from the tax rolls Other Panel members . . . believed that the income tax should be more progressive . . . because of a concern about substantial inequality of wealth in the country that has grown in the last decades.”).

10. See, e.g., David Firestone, *Tax Law Omits \$400 Child Credit for Millions*, N.Y. TIMES, May 29, 2003, at A1 (quoting one senator as saying, “I don’t know why they would cut [expansion of the refundability of the child tax credit] out of the bill. . . . These are the people who need it the most and who will spend it the most.”); Scott Shepard, *Working Poor Left Out of Child Credits; White House Defends Deal on Tax Cuts*, ATLANTA J.-CONST., May 30, 2003, at 7A (citing Administration official as saying many lower-income families did not have to pay any taxes at all and so could not expect a refund); Jonathan Weisman, *Bid to Save Tax Refunds for the Poor is Blocked*, WASH. POST., Sept. 23, 2004, at A4.

other sound rationales for refundability. To be sure, distributional concerns and the comparative advantages of the tax versus transfer systems are critical issues to be considered with respect to any current or proposed tax benefit. But for tax incentives justified on efficiency grounds, efficiency concerns should be a first-order consideration. Accordingly, this Article seeks to move beyond the stalemate that the debate has generated by examining refundable credits from an efficiency perspective instead.¹¹

The question this Article addresses is how to efficiently structure a tax incentive intended to encourage behavior generating positive externalities, assuming some type of tax incentive has been deemed appropriate and distributional objectives are set aside.¹² By contrast, previous literature generally has failed to disaggregate equity and administrative arguments for different forms of tax incentives from efficiency concerns. For instance, both the comprehensive tax base literature and the tax expenditure literature argue that tax incentives should be repealed because they inefficiently narrow the tax base and needlessly complicate the tax system.¹³ As a result, they have paid relatively little attention to the issue of efficient tax incentive design.¹⁴ Other work has acknowledged the possibility that tax incentives can be desirable but

11. We do consider administrative and compliance issues to the extent that they affect the efficient form for a tax incentive, but not as they affect the choice regarding whether to deliver an incentive through the tax or transfer system.

12. For discussion of what we mean by setting distributional objectives aside, see *infra* notes 20, 80.

13. For a summary of this literature, see David A. Weisbach & Jacob Nussim, *The Integration of Tax and Spending Programs*, 113 YALE L.J. 955, 958, 977-79 (2004).

14. The father of tax expenditure analysis, Stanley Surrey, confined his discussion of efficiency issues to a few paragraphs in each of his two books on the subject. See STANLEY S. SURREY, *PATHWAYS TO TAX REFORM: THE CONCEPT OF TAX EXPENDITURES* 134 (1973) [hereinafter SURREY I]; STANLEY S. SURREY & PAUL R. MCDANIEL, *TAX EXPENDITURES* 82-87 (1985) [hereinafter SURREY II]; see also Stanley S. Surrey, *Tax Incentives—Conceptual Criteria for Identification and Comparison with Direct Government Expenditures*, in *TAX INCENTIVES* 3, 18-19 (Tax Inst. of Am. ed., 1971) [hereinafter Surrey III]. He emphasizes how tax incentives in general can be wasteful (although not necessarily more than direct spending subsidies) because they may generate little behavioral response, SURREY I, *supra*, at 134; SURREY II, *supra*, at 80, 82, 87; Surrey III, *supra*, at 18-19, little social value may result from subsidized activity, SURREY II, *supra*, at 83, and the incidence of the subsidy may fall in part on middlemen, SURREY I, *supra*, at 211; SURREY II, *supra*, at 83-86. However, he does not discuss the merits of different forms of tax incentives from an efficiency perspective.

Surrey does argue that taxable refundable tax credits would generally be a better structure for tax incentives than deductions or exclusions but purely on equity and fairness grounds. SURREY I, *supra*, at 98-100; Surrey III, *supra*, at 108-11. At points he also raises the possibility that uniform refundable credits could remove some of the inequity of tax incentives. But he emphasizes that it would be very hard to achieve uniformity and then returns to questioning the wisdom of using the tax system to deliver subsidies. SURREY I, *supra*, at 136-38; Surrey III, *supra*, at 26. In his later writings, he declines to take a position on whether uniform or non-uniform refundable credits would be better. SURREY II, *supra*, at 108-11. In all of his discussions of refundable credits and uniformity, however, he does not discuss the issue in efficiency terms.

has only considered the merits of specific tax incentives on efficiency grounds or, alternatively, has focused exclusively on equity concerns.¹⁵ We depart from this prior scholarship by acknowledging that tax incentives can enhance efficiency, considering what efficiency implies about their ideal design, and concluding that uniform refundable credits are the most efficient default form.

We reach this conclusion first by explaining why uniform refundable credits represent the most efficient type of tax incentive absent evidence of differences in externalities and elasticities by income class. Under the most reasonable set of default assumptions,¹⁶ a tax incentive provision correcting for

15. For example, Zelinsky has discussed why tax incentives may enhance economic efficiency by correcting for positive externalities and has applied his analysis to the home-mortgage interest deduction and accelerated depreciation. See Edward A. Zelinsky, *Efficiency and Income Taxes: The Rehabilitation of Tax Incentives*, 64 TEX. L. REV. 973 (1986). However, his article is concerned with the decision of whether to retain or institute a tax incentive and not with what form of tax incentive is most efficient. *Id.* at 1023. Weiss has proposed converting certain investment tax incentives to credits, but this proposal was based on equity and not efficiency concerns. See Deborah M. Weiss, *Tax Incentives Without Inequity*, 41 UCLA L. REV. 1949 (1994).

The economics literature has examined the merits of credits relative to deductions only in a few specific examples, such as the deduction for charitable giving and the exclusion for gifts. See, e.g., Louis Kaplow, *A Note on Subsidizing Gifts*, 58 J. PUB. ECON. 469 (1995) (considering the optimal subsidy for gifts in the presence of externalities and concluding that a tax deduction is not obviously inferior to a credit); Peter Diamond, *Optimal Tax Treatment of Private Contributions for Public Goods With and Without Warm Glow Preferences*, 90 J. PUB. ECON. 897 (2006) (concluding that the optimal subsidy for private contributions to public goods may rise with earnings but not reaching any policy conclusions about whether the optimal subsidy is a deduction). Rosen provides a brief general discussion of the choice between a deduction and a credit when the purpose of a provision is to encourage certain behavior. See HARVEY ROSEN, PUBLIC FINANCE 377 (7th ed. 2005) (“If the purpose is mainly to encourage certain behavior, it is unclear whether credits or deductions are superior If people differ with respect to their elasticities of demand, it may make sense to present them with different effective prices.”). Gruber also provides a brief general discussion of the choice between deductions and credits but does not discuss the possibility that externalities or elasticities vary by income level. See JONATHAN GRUBER, PUBLIC FINANCE AND PUBLIC POLICY 507 (2005). He also briefly discusses the debate about refundability but only from an equity and not an efficiency perspective. See *id.* at 508. Seidman argues for converting some deductions and exclusions into refundable credits but largely on equity grounds. LAURENCE S. SEIDMAN, POURING LIBERAL WINE INTO CONSERVATIVE BOTTLES 20-27 (2006). He also differs in his skepticism of uniform credits, arguing that “a better prescription would simply be [that] . . . each refundable tax credit should utilize a schedule that the citizenry judges to be equitable.” *Id.* at 26.

16. Throughout this Article, we maintain that the most reasonable and parsimonious default assumptions are that underlying price elasticities and behavior do not vary systematically across the income distribution, and that income-specific deviations from this underlying set of parameters are additive white-noise random errors. We present some simplified calculations consistent with these types of default assumptions later in the Article. See *infra* Appendix A. We recognize that in theory, to the extent that these simplified assumptions are violated, the optimal form of a tax incentive may take a different structure than a uniform refundable credit. Nonetheless, in the absence of any other knowledge or evidence, we believe that our default assumptions provide the best practical guide for policymakers. For further assumptions of our analysis, see *infra* note 100.

positive externalities should apply uniformly across the income distribution and different lifetime earnings patterns. Refundable credits are the only straightforward way to achieve such uniform application.¹⁷ Thus, by default, they are the best way to minimize the distortions that necessarily result from our inability to perfectly correct for the externalities involved. Indeed, they are the most efficient default even if no externalities or negative externalities are present.

Non-uniform incentives certainly may be justified if the weight of available evidence suggests that the externalities generated by the activity or responsiveness to the subsidy vary systematically by income class. Moreover, these differences between various income groups surely exist in reality. Nevertheless, when—as is frequently the case—the evidence on these issues is nonexistent or directionally inconclusive, uniform refundable credits minimize the expected deadweight loss remaining as a result of errors in the incentive's structure.¹⁸ The burden of proof should therefore be on those who prefer some other form of tax incentive to demonstrate that deviations from a uniform refundable credit are warranted by empirical evidence.

Indeed, even when such empirical evidence exists, the optimal subsidy is almost certainly still some type of refundable credit. It is extremely unlikely that externalities and elasticities change in an abrupt and discontinuous fashion exactly at the point of zero income tax liability or the marginal tax rate thresholds. Yet such discontinuities are inherent in the application of all basic forms for tax incentives other than refundable credits.

Uniform refundable credits likely hold significant potential to enhance economic efficiency in practice on these grounds. Under current law, more than 35% of tax units during any given year have no income tax liability, and these tax units are home to almost half of all American children.¹⁹ Deductions,

It is worth noting that these default assumptions are similar to those widely accepted in other areas of the economics literature, especially as a practical guide to policy. For instance, they are used to justify a constant tax rate across different goods in the presence of uncertainty over price elasticities of demand, even though under the optimal Ramsey rule tax rates should vary by such elasticities for each type of good. *See, e.g.*, Joel Slemrod, *Optimal Taxation and Optimal Tax Systems*, 4 J. ECON. PERSP. 157, 159-60 (1990) (summarizing literature suggesting that uniform commodity taxes are optimal in the presence of uncertain parameters but disagreeing about whether evidence of the relevant parameters is actually unclear); *see also* CONG. BUDGET OFFICE, ECONOMIC ISSUES IN TAXING INTERNET AND MAIL-ORDER SALES 8 n.14 (Oct. 2003), available at <http://ftp.cbo.gov/ftpdocs/46xx/doc4638/10-20-InternetTax.pdf> (“Were individuals’ preferences known, tax rates could be set to vary among commodities according to how closely each good’s use was tied to leisure and other activities that cannot be taxed and how sensitive consumers were to a change in the good’s price. But individuals’ preferences cannot be known, and policymakers have settled instead for establishing uniform tax rates across commodities as a way to minimize excess burden.”).

17. *See infra* notes 36, 109, 122.

18. *See infra* notes 100-09 and accompanying text.

19. *See* William G. Gale, *Tax Bracket and Tax Liabilities for Families with Children*,

exclusions, and non-refundable credits are typically worthless to them. By contrast, refundable tax credits are the only simple type of income tax incentive that can reach these families and their children directly.

The potential benefits of uniform refundable credits are further magnified by a second feature: their ability to help smooth income at a household level. We explain how converting existing tax incentives into uniform refundable credits on a revenue-neutral basis would heighten household income smoothing in two ways. First, it would eliminate tax penalties that other types of tax incentives impose on households experiencing income fluctuations. Second, it would target such relief on relatively low-income years. In addition, new refundable credits could also heighten household income smoothing if they increased the progressivity of the tax system overall.²⁰ Such income smoothing can enhance efficiency by reducing adjustment costs associated with economic instability and offsetting failures in insurance markets, and it is likely to be particularly valuable for the low-income households that only refundable credits can reach.²¹

The final element of the efficiency case for refundable credits follows from their potential to help smooth household income: Refundable credits can help stabilize macroeconomic demand in the face of economy-wide shocks, which is also considered efficiency enhancing independent of distributional concerns.²² Relative to other forms for tax incentives, they can do so in two ways. First, they reduce tax burdens during recessionary periods as more households fall into the income range where refundability is relevant.²³ Second, they provide relatively larger benefits to lower-income families, who may bear more of the burden of income shocks or may be more likely to base their spending

105 TAX NOTES 1145 (2004); Peter R. Orszag & Matthew G. Hall, *Nonfilers and Filers with Modest Tax Liabilities*, 100 TAX NOTES 723 (2003); Scott A. Hodge, *Number of Americans Outside the Income Tax System Continues to Grow*, FISCAL FACTS 27 (Tax Found., Washington, D.C.), June 9, 2005, <http://www.taxfoundation.org/publications/show/542.html>. Throughout this Article, we use the terms tax units, families, and households interchangeably. For example, the term “families” includes individual filers, and the terms “households” and “tax units” refer to each individual or family unit that is a separate filing unit for tax purposes, even if they reside at the same residence.

20. This claim may appear to be in tension with our objective of setting distributional concerns aside, given the redistributive effect of progressivity. But by setting distributional concerns aside, we mean that, for purposes of this Article, we consider changes in the level of redistribution to be neither desirable nor objectionable in and of themselves, although distributional changes may have efficiency effects and may be a by-product of pursuing other objectives. Thus, although the link between household income smoothing and tax progressivity is not an advantage for income smoothing in our analysis, it also does not justify disregarding income smoothing’s efficiency benefits. Similarly, the redistributive nature of tax progressivity does not, in our analysis, justify disregarding its distortionary effects.

21. See *infra* notes 140-44 and accompanying text.

22. See *infra* note 151 and accompanying text.

23. See *infra* note 153 and accompanying text.

decisions on current, after-tax income.²⁴ Although greater income smoothing on a household and macroeconomic level could be achieved (and generally would be more efficiently achieved) by simply increasing the progressivity of the tax system as a whole, refundable credits are the best mechanism for doing so through a tax incentive if that is the only politically viable option. We test whether existing refundable credits have an empirically important effect on macroeconomic stabilization by examining the ability of the tax system to automatically smooth consumption with and without current-law refundability and find that currently the effect is relatively modest in the event of a recession that applies evenly across the income distribution.²⁵ However, the effect would clearly be more potent if use of refundable credits were significantly expanded.

While this Article generally focuses on arguments for refundable credits, it also addresses some common arguments against them, including the view that all Americans should pay some income tax as a civic duty. It argues that this is a weak objection to refundable credits because it implicates many other types of provisions, and assumes an arbitrary distinction between the income tax and other taxes, and between the tax and transfer systems. Moreover, the objection is generally empirically unpersuasive on its own terms. We estimate that the vast majority of beneficiaries of current-law refundable credits have positive income tax liability over time if historical earnings patterns are any guide.²⁶ As a result, even if one accepts the principle that all Americans should pay some income tax (which we do not), refundable credits are not necessarily precluded if tax liabilities are examined over longer periods of time. Instead, they are the “rough justice” equivalent of allowing carryovers and carrybacks of a non-refundable credit—a widely accepted tool of tax policy.

The other common set of objections to refundable credits involve fraud and administrative and compliance costs. With respect to fraud, there is no reason in theory, and no empirical evidence in practice, why there should be a “cliff effect” precisely at the point of positive income tax liability. If anything, fraud may be easier to hide when it comes in the form of a deduction or exclusion, which reduces taxable income, as opposed to a refundable credit.

A more relevant concern is that increasing the prevalence of refundable credits could increase administrative and compliance costs by creating incentives for tax units that are currently non-filers to begin filing. While these costs should be taken into account, they should not be overstated. Currently non-filers represent a relatively small share of the households who stand to gain from restructuring tax incentives into uniform refundable credits. Moreover, tax

24. See *infra* text accompanying note 169; Gadi Barlevy & Daniel Tsiddon, *Earnings Inequality and the Business Cycle* (Nat'l Bureau of Econ. Research, Working Paper No. 10,469, 2004), available at <http://www.nber.org/papers/w10469>.

25. See *infra* notes 160-63 and accompanying text.

26. See *infra* notes 180-81 and accompanying text and table.

incentives are inherently elective and non-filers would reap large benefits in many instances from the proposed transformation.

Before moving on, several limits on the scope of this Article should be emphasized. First, unless otherwise noted, it considers only federal individual income taxes and not the payroll tax or other taxes. Including other taxes strengthens some elements of the analysis, such as the conclusion that most refundable credits are used by households with positive tax liabilities if viewed over longer periods of time.

In light of the sheer number of existing tax incentives, a second limit is that this Article only provides a general framework for analyzing how a tax incentive should be structured if some sort of tax incentive is deemed appropriate. It does not apply this framework to questions of the advisability of enacting or maintaining specific tax incentives.

Third, it focuses solely on tax incentives, which we define as tax provisions intended to encourage certain behavior associated with positive externalities. It does not consider “structural” provisions of the tax code or provisions designed to measure income accurately or relieve “personal hardships” by adjusting for different household attributes or expenses that may affect ability to pay.²⁷ As a result, our analysis is meant to apply to tax incentives for goods and activities like home buying, education, savings, environmental conservation, and charitable contributions, but not to provisions like the standard deduction, the realization principle, or deductions for business expenses. To be sure, many tax incentives have multiple rationales. But because positive externalities are a clear rationale for many tax incentives, it is worth focusing exclusively on how best to address them through the tax system. To the extent that a given tax expenditure has multiple rationales, our analysis applies only to the externality-correction element of the provision.

Finally, although concerns about institutional comparative advantage, political process, and, of course, distributive justice are all essential issues in determining whether a behavioral incentive should be enacted through the tax or transfer system and in what form,²⁸ we set these issues aside and focus

27. For a discussion of such structural and personal hardship provisions in the tax code, see SURREY I, *supra* note 14, at 127-28; SURREY II, *supra* note 14, at 3. We acknowledge that there is some overlap between all of these provisions and tax incentives. For instance, tax benefits associated with health expenses may be designed to measure income more accurately, to encourage the purchase of health insurance, or both. *See, e.g.*, William D. Andrews, *Personal Deductions in an Ideal Income Tax*, 86 HARV. L. REV. 309 (1972).

28. *See, e.g.*, Anne L. Alstott, *The Earned Income Tax Credit and the Limitations of Tax-Based Welfare Reform*, 108 HARV. L. REV. 533 (1995); Dhammika Dharmapala, *Comparing Tax Expenditures and Direct Subsidies: The Role of Legislative Committee Structure*, 72 J. PUB. ECON. 421 (1999); Weisbach & Nussim, *supra* note 13; Lawrence Zelenak, *Tax or Welfare?: The Administration of the Earned Income Tax Credit*, 52 UCLA L. REV. 1867 (2005); Edward A. Zelinsky, *James Madison and Public Choice at Gucci Gulch: A Procedural Defense of Tax Expenditures and Tax Institutions*, 102 YALE L.J. 1165

primarily on efficiency considerations (and, to a lesser extent, on administrative and compliance concerns). We do so in part because we are interested in the best form for a tax incentive, not in whether it should be delivered through the tax or transfer system, and in part because the purpose of this Article is to put aside contentious issues of distributive justice in order to bridge the divide in the refundability debate. Most importantly, however, we do so because we believe that a clearer understanding of the potential efficiency implications of refundable credits may facilitate a more honest discussion along these other dimensions.

This Article proceeds as follows. Part I provides an overview of current and proposed refundable credits. Part II explains the elements of our efficiency case for refundable tax credits in more detail. In Part III, we briefly consider some of the arguments advanced by those who oppose expanding refundable credits. We then conclude by noting some limitations on our case for refundability and offering a brief summation of our argument.

I. OVERVIEW OF REFUNDABLE TAX CREDITS

The intellectual history of refundable tax credits in the United States can be traced to Milton and Rose Friedman's 1962 book, *Capitalism and Freedom*, in which the Friedmans proposed a negative income tax.²⁹ Under a negative income tax, households with no income receive a lump sum that phases out as income rises. The result is that those with incomes below a specified threshold amount receive payments ("negative income taxes"), while those with incomes above the threshold make positive tax payments. The Friedmans' proposal for a negative income tax built on a long intellectual history in support of basic income proposals, including the work of Lady Juliet Rhys-Williams who, in 1942, proposed eliminating a variety of transfer programs and income tax exemptions in the United Kingdom and instead providing every citizen with a basic cash allowance administered through the tax system.³⁰

Many economists view a negative income tax as desirable because of its potential to combine redistribution to low-income individuals and families with relatively flat marginal tax rates that minimize work disincentives.³¹ Indeed, a

(1993).

29. MILTON FRIEDMAN & ROSE D. FRIEDMAN, *CAPITALISM AND FREEDOM* 190-95 (1962).

30. See LADY JULIET RHYS-WILLIAMS, *TAXATION AND INCENTIVE* 128 (1953); Sally Reston, *New Tax Aid Plan Drawn in Britain*, N.Y. TIMES, Feb. 28, 1944, at 20.

31. The optimal tax literature generally supports a demogrant (a fixed transfer to all individuals) combined with flat, or even declining, marginal rates. See, e.g., Slemrod, *supra* note 16, at 157, 165 (citing James A. Mirrlees, *An Exploration in the Theory of Optimum Income Taxation*, 38 REV. ECON. STUD. 175 (1971), and others); Joel Slemrod et al., *The Optimal Two-Bracket Linear Income Tax*, 53 J. PUB. ECON. 269 (1994); see also Joseph Bankman & Thomas Griffith, *Social Welfare and the Rate Structure: A New Look at Progressive Taxation*, 75 CAL. L. REV. 1905 (1987). This is economically equivalent to a

version of a negative income tax was proposed by President Nixon in 1969.³² While a negative income tax has never been enacted in the United States,³³ the concept has substantially influenced policymakers as they have enacted other types of refundable credits over the past three decades that are intended more as incentives.³⁴

For purposes of our discussion, a refundable tax credit has four elements. It is a tax credit that is: (1) located in the federal income tax code, (2) administered in whole or in part through the tax system, (3) intended to induce certain behavior, and (4) “refundable,” meaning that it is paid in cash when a tax unit has no federal income tax liability to offset (although frequently the claimant will have positive tax liability when other federal, state, and local taxes are taken into account). The refundable credits that we are interested in therefore stand in contrast to negative income taxes because they are intended to stimulate certain behavior. Similarly, while some transfer programs like food stamps are economically analogous to refundable credits, they are also distinct from refundable credits as we discuss them because they are not located in the tax code, they are not administered through the tax system, and they frequently are not justified as behavioral incentives.³⁵

A. Current Refundable Credits

Currently the individual income tax code contains three main refundable tax credits: the Earned Income Tax Credit (EITC), the Child Tax Credit (CTC), and a small health insurance credit.³⁶ While one could argue that the EITC and

negative income tax.

32. In 2005 dollars, President Nixon proposed a minimum cash payment of \$8490 for a family of four, provided that all adult recipients were employed or seeking work. The first \$3825 of earnings would be disregarded and thereafter additional earnings would be taxed at a 50% rate up to \$21,240 in earnings. See Dennis J. Ventry, Jr., *The Collision of Tax and Welfare Politics: The Political History of the Earned Income Tax Credit*, in *MAKING WORK PAY: THE EARNED INCOME TAX CREDIT AND ITS IMPACT ON AMERICA'S FAMILIES* 15, 19-20 (Bruce D. Meyer & Douglas Holtz-Eakin eds., 2001). A variation of this proposal was ultimately enacted as the Earned Income Tax Credit.

33. The Alaska Permanent Fund provides a basic grant of about \$1000 to every resident of Alaska, but it is not linked to the tax system. See Alaska Permanent Fund Corp., *The Permanent Fund Dividend* (2005), <http://www.apfc.org/alaska/dividendprgrm.cfm>.

34. See Robert A. Moffitt, *The Negative Income Tax and the Evolution of U.S. Welfare Policy*, 17 J. ECON. PERSP., Summer 2003, at 119.

35. Food stamps are intended in part to increase food purchases among low-income families. However, because of the relatively small amounts given and the prevalence of markets for food stamps, in practice they are often considered to be close to a cash transfer. See Diane Whitmore, *What Are Food Stamps Worth?* (Princeton Univ. Indus. Relations Section, Working Paper No. 468, 2002) (finding that 70-80% of food stamp recipients spend more on food than their food stamp benefits, and that the remaining 20-30% of food stamp recipients value food stamps at about 80% of their face value).

36. There are also refundable credits for taxes withheld on wages, taxes withheld at source on non-resident aliens, certain uses of gasoline and special fuels, and overpayments

CTC fall outside the scope of our analysis because they operate to a large extent as distributional provisions that adjust marginal tax rates based on household size and implicit taxes imposed by the transfer system, some brief background is nevertheless helpful.

The EITC was first enacted in 1975 and expanded in 1978, 1984, 1986, 1990, 1993, and 2001.³⁷ It provides more than \$40 billion a year to roughly twenty million working families and individuals³⁸ and is the largest anti-poverty program for the non-elderly in the country.³⁹ The EITC is a fully refundable credit⁴⁰ that varies by family type and is conditioned on working. It is targeted mainly towards low- and middle-income families with children, although a small credit is also available for single workers. The EITC has a phase-in range, a “plateau,” and a phase-out range, all of which are indexed to

of tax. *See* I.R.C. §§ 31, 33, 34, 36 (2006). These are all intended simply to correct for overpayments of income or excise taxes as a result of inherent inaccuracies of the withholding system, fuel ultimately being used for a non-taxable purpose, or taxpayer error. The only other refundable credit we have identified—for investments in solar and wind energy equipment—was repealed in 1980. *See* I.R.C. § 46(a)(9)(C) (1980).

In addition, tradable tax credits and tradable deductions can be economically equivalent to refundable tax credits but they have generally been avoided by Congress since the repeal of safe harbor leasing, which effectively reduced the cost of transferring deductions. *See* DANIEL SHAVIRO, TAXES, SPENDING, AND THE U.S. GOVERNMENT’S MARCH TOWARD BANKRUPTCY (forthcoming 2007); Alvin C. Warren, Jr. & Alan J. Auerbach, *Transferability of Tax Incentives and the Fiction of Safe Harbor Leasing*, 95 HARV. L. REV. 1752 (1982). Some tax credits, however, like the low-income housing tax credit, are effectively sold, generally by developers to syndicated partnerships that recruit investors who can use the tax credit to become limited partners in the project. There have also been proposals to provide transferable tax credits to financial institutions administering individual development accounts (IDAs) so that nonprofit credit unions can serve as administrators. *See* CARE Act of 2003, S. 476, 108th Cong. § 511 (2003). IDAs are restricted savings accounts for low-income families, in which contributions are matched by the administering organization or financial institution.

Finally, theoretically refundable tax credits can be taxable themselves, which reduces their dollar value as income increases. Some non-refundable credits are taxable, *see, e.g.*, I.R.C. §§ 40, 87 (alcohol fuel credit) (2000); *id.* § 1397E(g) (qualified zone academy bonds credit included in gross income as if it were an interest payment on the bond), but currently no refundable credits are taxable.

37. Dennis J. Ventry, Jr., *The Collision of Tax and Welfare Politics: The Political History of the Earned Income Tax Credit, 1969-1999*, 53 NAT’L TAX J. 983 (2000). The most dramatic expansions occurred in 1986, 1990, and 1993. *See id.* app. tbl.1.

38. Internal Revenue Serv., *2004 Statistics on Income, Individual Income Tax Returns Publication 1304 (Complete Report)* tbl. 2.5 (2004), available at <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=134951,00.html>. Refunds, rather than reductions in positive income tax liability, represent the vast majority of the tax relief provided. *See* Tax Policy Center, *Earned Income Tax Credit: Number of Recipients and Amount of Credit, 1975-2003* (2003), available at http://taxpolicycenter.org/TaxFacts/TFDB/Content/PDF/eitc_recipients.pdf.

39. Bruce D. Meyer & Douglas Holtz-Eakin, *Introduction* to MAKING WORK PAY, *supra* note 32, at 1.

40. By fully refundable, we mean that the size of the credit never depends on a taxpayer’s tax liability before the credit, even though the size of the tax credit may depend on his or her income.

inflation. Under 2006 law, for example, the EITC provides a married couple with two children with a 40% tax credit for each dollar of earnings up to \$11,340 (the phase-in range). The maximum credit is thus \$4536.⁴¹ The credit remains at that level for earnings up to about \$17,000 (the plateau). It then phases down by about twenty-one cents for each dollar of earnings above the plateau. As a result, the credit is completely phased out at earnings of about \$38,000.⁴²

One of Congress's primary motivations in enacting the EITC was to increase work participation among low-income households by reducing the work disincentives created by means-tested transfer programs.⁴³ Empirical research has found that the EITC does increase work overall, especially among single mothers.⁴⁴ In addition, take-up rates in the program are significantly higher than in expenditure-side income support programs like Food Stamps or Temporary Assistance to Needy Families.⁴⁵

Perhaps as a result of these advantages, the EITC has enjoyed strong bipartisan support throughout most of its history. Ronald Reagan proposed a similar program in 1972 when he was governor of California, and the EITC has been expanded in both Democratic and Republican administrations.⁴⁶ Recently,

41. This is the result of 0.40 multiplied by \$11,340.

42. I.R.C. § 32 (2006); Rev. Proc. 2005-70, 2005-47 I.R.B. 979. For head of household filers with two or more children, the maximum credit and phase-in range are identical, but the phase-out range is \$2000 lower. For taxpayers with one child, the maximum credit is \$2747. Finally, for childless taxpayers, the EITC is much lower. The maximum credit is \$412. *Id.*

43. See, e.g., Ventry, *supra* note 32, at 15, 25.

44. The EITC seems to reduce work effort among secondary workers, mostly married women, but the overall effect on labor supply is positive. For further details, see V. Joseph Hotz & John Karl Scholz, *The Earned Income Tax Credit*, in MEANS-TESTED TRANSFER PROGRAMS IN THE UNITED STATES 141, 169-84 (Robert Moffitt ed., 2003); Bruce Meyer & Dan T. Rosenbaum, *Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers*, 116 Q.J. ECON. 1063 (2001); see also ROBERT GREENSTEIN & ISAAC SHAPIRO, CTR. ON BUDGET & POLICY PRIORITIES, NEW RESEARCH FINDINGS ON THE EFFECTS OF THE EARNED INCOME TAX CREDIT (1998), <http://www.cbpp.org/311eitc.htm>.

45. See, e.g., ALLEN L. SCHIRM & LAURA A. CASTNER, REACHING THOSE IN NEED: STATE FOOD STAMP PARTICIPATION RATES IN 2000 (2002), available at <http://www.fns.usda.gov/oane/MENU/Published/FSP/Files/Participation/Reaching2000.pdf> (finding that 59% of those eligible for food stamps participated in the program in 2000); Leonard E. Burman & Deborah I. Kobes, *EITC Reaches More Eligible Families than TANF, Food Stamps*, 98 TAX NOTES 1769 (2003) (reporting that, from 1990-1999, 80-86% of eligible tax units with children claimed EITC participation); Robert Moffitt, *The TANF Program*, in MEANS-TESTED TRANSFER PROGRAMS IN THE UNITED STATES, *supra* note 44, at 291, 309 (finding that only 18% of single mothers below the poverty line participate in TANF).

46. See Rebecca M. Blank & David T. Ellwood, *The Clinton Legacy for America's Poor*, in AMERICAN ECONOMIC POLICY IN THE 1990S 749, 756-57 (Jeffrey A. Frankel & Peter R. Orszag eds., 2002). Specifically, the EITC was created under President Ford and has been expanded under every president since. *Id.* The most significant expansions were under Presidents Reagan, George H. W. Bush, and Clinton. The Senate was controlled by Republicans during three of the seven expansions and by Democrats during four. The House

however, the EITC has come under criticism for having excessively high “error rates.” These error rates mostly reflect complexity in the rules for defining an eligible child under the EITC, and difficulty in determining whether a child has been properly claimed.⁴⁷ Congress and the IRS have taken steps and proposed others to address these problems,⁴⁸ including simplifying the definition of an eligible child and harmonizing it with the definition of a child under other tax provisions.⁴⁹

The second refundable credit, the CTC, was added to the income tax code in 1998. Originally, the CTC provided a \$400 credit per dependent child and was partially refundable for families with three or more children to the extent that their payroll taxes paid exceeded their EITC.⁵⁰ The CTC and its refundability were expanded in 2001, 2003, and 2004. As a result, under 2006 law, the credit amounts to \$1000 per child. It is also partially refundable for families whose annual earnings exceed \$10,000 (indexed to inflation as of 2002) even if they do not have three or more children.⁵¹ Specifically, families are eligible to receive fifteen cents of the credit on a refundable basis for each dollar they earn above the qualifying threshold. For example, in 2006 when the earnings threshold is \$11,300, a family with one child and \$15,000 in earnings could have up to \$555⁵² of the CTC refunded absent any federal income tax liability. The refundable element of the child tax credit thus effectively subsidizes low-wage work, reducing marginal rates by fifteen percentage points over a certain earnings range for low-income families.

was controlled by Republicans during one expansion and by Democrats during six. *Id.*

47. See, e.g., Hotz & Scholz, *supra* note 44, at 153-54; Janet McCubbin, *EITC Noncompliance: The Determinants of the Misreporting of Children*, 53 NAT'L TAX J. 1135 (2000).

48. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 required all EITC claimants to provide a Social Security Number (SSN) for themselves and their qualifying children and permitted the IRS to deny the credit without auditing before any refund was paid if a valid SSN was not provided. See McCubbin, *supra* note 47, at 1160. The Taxpayer Relief Act of 1997 barred certain taxpayers from claiming the EITC for two to ten years after an EITC claim by them was disallowed. It also imposed due diligence requirements on paid preparers and provided the IRS with additional information on SSNs and child custody orders. See *id.* at 1160-61. Some of the more recent proposed steps, involving “pre-certification” of EITC recipients, have proven to be particularly controversial. See *Waste, Fraud, and Abuse: Hearing Before the H. Comm. On Ways and Means*, 108th Cong. 94, 101-03 (2003) (statement of Leonard E. Burman); ROBERT GREENSTEIN, CTR. ON BUDGET & POLICY PRIORITIES, *THE NEW PROCEDURES FOR THE EARNED INCOME TAX CREDIT* (2003), available at <http://www.cbpp.org/5-20-03eitc2.pdf>; Eugene Steuerle, *Research Required for the EITC Pre-Certification Procedure*, 100 TAX NOTES 259 (2003).

49. Working Families Tax Relief Act of 2004, Pub. L. No. 108-311, tit. II, 118 Stat. 1166 (2004).

50. I.R.C. § 24(d)(1) (1998).

51. The provisions permitting refundability to the extent that payroll taxes paid exceed the EITC received remain an alternative for tax units with three or more children. I.R.C. § 24(d)(1)(B) (2006).

52. Fifteen percent of \$3700 is \$555.

The expansion of the refundability of the child tax credit in 2001 was intended to attenuate the work disincentives associated with the phase-out of the EITC and the “middle-class parent penalty,” whereby moderate-income taxpayers receive substantially smaller tax benefits associated with children than their lower- or higher-income counterparts.⁵³ For example, the phase-out of the EITC for a married couple with two children and earnings of more than about \$17,000 imposes an implicit tax of twenty-one cents per dollar earned until earnings equal about \$38,000. Because the refundable component of the CTC is conditioned on work and, depending on the number of children, may provide an additional fifteen cents per dollar earned over much of this phase-out range, it can significantly offset the implicit marginal tax rate of the EITC. Partial refundability of the CTC was also justified as reducing the marriage penalties that low- and moderate-income families face.⁵⁴ As a result, even though the non-refundable element of the child tax credit is generally intended as a distributional adjustment for the financial burden of raising children, the refundable portion of the CTC can be viewed as an incentive for work and marriage.

In 2002, a final refundable credit was enacted as part of the Trade Adjustment Assistance Reform Act of 2002.⁵⁵ It provides a tax credit for the purchase of health insurance by certain individuals. The credit is only available to trade-displaced workers or workers who are at least fifty-five years old and receiving a portion of their pension benefits from the Pension Benefit Guaranty Corporation, the federal agency that insures defined benefit pension plans. Eligible workers can receive a refundable tax credit for 65% of the cost of purchased health insurance, with no cap on the amount of the credit.⁵⁶ The credit differs from the EITC and CTC, however, in that take-up rates have been extremely low.⁵⁷ This may be a result of the strict limitations on the eligible population and the fact that health insurance can still be prohibitively expensive for many workers who qualify.⁵⁸

53. See David T. Ellwood & Jeffrey B. Liebman, *The Middle-Class Parent Penalty: Child Benefits in the U.S. Tax Code*, in TAX POLICY AND THE ECONOMY 1, 1 (James M. Poterba ed., 2001).

54. See Isabel Sawhill & Adam Thomas, *A Tax Proposal for Working Families with Children* 5-6 (Brookings Inst., Welfare Reform and Beyond Policy Brief No. 3, 2001), available at <http://www.brookings.edu/es/wrb/publications/pb/pb03/pb03.pdf>.

55. Trade Adjustment Assistance Reform Act of 2002, Pub. L. No. 107-210, 116 Stat. 933 (2002).

56. I.R.C. § 35 (2006).

57. At the end of 2003, only about 8000 taxpayers were claiming the credit, about 5% of those who were expected to benefit. See Robert Pear, *Sluggish Start for Offer of Tax Credit for Insurance*, N.Y. TIMES, Jan. 25, 2004, at A16.

58. See *id.* (noting that premiums for comprehensive family health insurance not purchased on a group basis are \$12,000 to \$18,000 per year).

The establishment of refundable credits in the federal tax code has been mirrored at the state level.⁵⁹ In addition, refundable tax credits are an increasingly common element of the tax systems of other industrialized countries, many of which have longer histories of using refundable credits. New Zealand, for example, has a history of tax rebates dating back to the 1946 Family Benefit.⁶⁰ And the United Kingdom, Belgium, and France have all enacted refundable tax credits analogous to the EITC.⁶¹

B. *Has Bipartisan Support for Refundable Credits Crested?*

As the previous discussion and Figure 1 illustrate, availability of refundable credits has expanded dramatically over the past three decades.⁶² In inflation-adjusted terms, the revenue and outlay cost of the EITC has risen by a factor of nine since 1975, and it more than tripled between 1990 and 2000 alone.⁶³ More recently, the partially refundable CTC and the fully refundable health insurance credit were enacted, and the refundability of the CTC was then expanded and accelerated.⁶⁴ Despite this growth, however, recent events have

59. As of 2006, fifteen states and the District of Columbia have their own refundable earned income tax credits (and four other states have non-refundable EITCs), although one state (Colorado) has temporarily suspended its credit and the EITC in another (Nebraska) does not go into effect until 2007. E-mail from Jason Levitis, Counsel to the State Fiscal Project, Ctr. on Budget & Policy Priorities, to Lily Batchelder, Assistant Professor of Law and Public Policy, N.Y. Univ. Sch. of Law (Aug. 17, 2006) (on file with author). Like the federal EITC, these state-level refundable tax credits permit families to receive the entire amount of the tax credit even if it exceeds their state income tax liability. In addition, thirteen states offer a refundable child and dependent care credit. Elaine Maag, *State Tax Credits for Child Care*, 108 TAX NOTES 239 (2005).

60. See Patrick Nolan, *New Zealand's Family Assistance Tax Credits: Evolution and Operation* 2 tbl.1 (N.Z. Treasury, Working Paper 02/16, 2002), available at <http://www.treasury.govt.nz/workingpapers/2002/twp02-16.pdf>.

61. See generally HM TREASURY, ECONOMIC AND FISCAL STRATEGY REPORT AND FINANCIAL STATEMENT AND BUDGET REPORT 193 (2005), available at http://www.hm-treasury.gov.uk/media/B5B/80/bud05_completereport_147.pdf; HM Revenue & Customs, What Are Tax Credits?, <https://www.taxcredits.inlandrevenue.gov.uk/Qualify/WhatAreTaxCredits.aspx>; Olivier Bargain & Kristian Orsini, *In-Work Policies in Europe: Killing Two Birds with One Stone?* (Inst. for the Study of Labor Discussion Paper No. 1445, 2004), available at <http://ssrn.com/abstract=644230>.

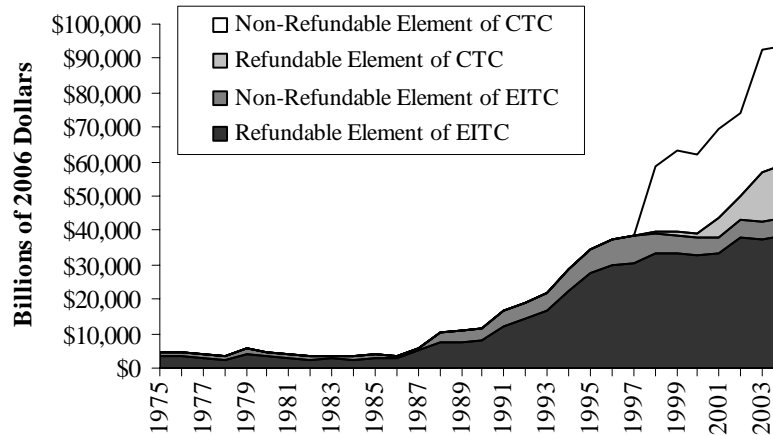
62. Under our definition, "refundable" credits may have both a refundable component and a non-refundable component. The non-refundable element of the CTC and EITC includes the portion of such credit that is used to offset taxes other than income taxes that are collected through the income tax system (e.g., payroll taxes on tip income and penalties on non-qualified withdrawals from retirement savings vehicles).

63. Adam Carasso & Eugene Steuerle, *Growth in the Earned Income and Child Tax Credits*, 98 TAX NOTES 401 (2003).

64. The Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA), Pub. L. No. 107-16, § 201, 115 Stat. 38, 45 (2001), extended the credit's partial refundability to include tax units that do not have three or more children. The refundability rate was scheduled to increase in 2005 from 10% to 15% of earnings above the threshold, but the Working Families Tax Relief Act of 2004 (WFTRA), Pub. L. No. 108-311, § 102, 118 Stat.

raised concerns for us about whether bipartisan support for refundable credits has unjustifiably crested.

Figure 1. Growth of Refundable Credits Over Time



Source: Authors' calculations based on data from the Internal Revenue Service, *Statistics on Income*, and the House Ways and Means Committee, *2004 Greenbook*. Calculations are adjusted to 2006 dollars using the Consumer Price Index.

Several factors likely contributed to the growth of refundable credits over the past three decades. Most notably, there are a number of sound policy arguments for refundable credits, which date back to Milton and Rose Friedman and are the focus of this Article. In our view, these policy rationales likely explain a large measure of their growth.

However, policymakers have also increasingly relied on the tax code rather than direct government expenditures to subsidize households and influence their behavior as a result of perceived or real incentives within the tax legislative process, a development that has supported the rise of refundable credits. For example, targeted tax credits have recently been used in areas, such as higher education, that traditionally would have been addressed through spending programs.⁶⁵ Overall, social tax expenditures have grown from about 3.5% of GDP in 1980 to about 5% of GDP in 2001.⁶⁶ Steuerle attributes this phenomenon primarily to political dynamics and to the budget rules Congress

1166, 1168 (2004), accelerated this increase to 2004.

65. Examples include the Hope and Lifetime Learning Credits, I.R.C. § 25A (2000).

66. Frank Sammartino et al., *Providing Federal Assistance for Low-Income Families Through the Tax System: A Primer* 61 fig.1 (Urban-Brookings Tax Policy Center Discussion Paper No. 4, July 2002), available at <http://www.urban.org/url.cfm?ID=410526>. The rise in social tax expenditures was accompanied, however, by a decline in business tax expenditures. *Id.*

created in the 1990 and the 1993 deficit reduction acts, both of which made it easier to enact tax expenditures, including refundable credits, relative to direct expenditure programs.⁶⁷

In addition, certain political dynamics specific to the refundable credits enacted help to explain their establishment and expansion. In particular, expanding the EITC was seen as an attractive alternative to raising the minimum wage because it could make work pay for lower-income families without increasing the cost of hiring workers for employers.⁶⁸ In 1995, former House Majority Leader Dick Armey argued against an increase in the minimum wage because “a direct subsidy like the Earned Income Tax Credit is a more compassionate means of assisting low-income families.”⁶⁹ In addition, both the EITC and CTC have traditionally been viewed as mechanisms for offsetting the effects of increases in payroll and excise taxes on lower-income households.⁷⁰

Together, these factors made refundable tax credits the social policy tool of choice for a time. Considerable interest in refundable credits continues. The Bush Administration proposed a refundable tax credit in its Fiscal Year 2004, 2005, 2006, and 2007 budgets for the purchase of health insurance in the individual health insurance market.⁷¹ The Administration has also proposed

67. As Steuerle writes:

[T]ighter budgetary limits were placed on discretionary spending than on spending in the tax system, which could be integrated with other tax changes. [In addition], despite the movement of tax expenditures toward the middle class, “conservatives” still [held] on to a belief that tax expenditures are reductions in tax and ways of giving money back to people even while “liberals” [came] to realize that they [could] achieve certain social objectives more easily if enacted as a tax cut.

Eugene Steuerle, *Tax Policy from 1990 to 2001*, in *AMERICAN ECONOMIC POLICY IN THE 1990s* 139, 154 (Jeffrey A. Frankel & Peter R. Orszag eds., 2002); see also Sammartino et al., *supra* note 66, at 4-5.

68. See Lawrence Zelenak, *Redesigning the Earned Income Tax Credit as a Family-Size Adjustment to the Minimum Wage*, 57 *TAX L. REV.* 301, 309-14 (2004). The expansion of the EITC was also justified in part as a family-size adjustment to the minimum wage, whereby no family with a full-time minimum wage worker would fall below the poverty line. See *id.*

69. David Broder, *So Much for Fairness*, *WASH. POST*, Sept. 24, 1995, at C7. The CATO Handbook for Congress similarly argues that the “EITC is also a far superior program to the minimum wage.” CATO INSTITUTE, *CATO HANDBOOK FOR THE 107TH CONGRESS* 294 (2001), available at <http://www.cato.org/pubs/handbook/handbook107.html>.

70. See Ventry, *supra* note 32, at 30. For example, the Iowa Policy Project recently proposed increasing cigarette taxes and using some of the funds to expand the state EITC, thereby offsetting some of the regressive effects that would otherwise follow from the cigarette tax increase. CHARLES BRUNER & PETER S. FISHER, IOWA POLICY PROJECT, *THE MERITS OF A CIGARETTE TAX, WITH ALTERNATIVE TAX OFFSETS* (2003), available at http://www.iowapolicyproject.org/2002-2004_reports_press_releases/030429-cigarette-tax.pdf. And part of the refundability of the CTC is explicitly linked to a family’s payroll tax burden. I.R.C. § 24(d)(1)(B) (2006).

71. OFFICE OF MGMT. & BUDGET, *ANALYTIC PERSPECTIVES: BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2004*, at 70-71 (2003); OFFICE OF MGMT. & BUDGET, *BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2005*, at 152 (2004); OFFICE OF MGMT. & BUDGET, *BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2006*, at

refundable tax credits linked to Health Savings Accounts used for employer-provided group health insurance.⁷² The recent report of the President's Advisory Panel on Federal Tax Reform (the "Tax Reform Panel") and others have suggested making the Saver's Credit refundable,⁷³ and some of the President's top advisors have proposed a refundable credit for household health care expenses.⁷⁴ Still others have proposed making the Hope tax credit and the child and dependent care credit refundable.⁷⁵

Nevertheless, controversy increasingly surrounds refundable credits. None of the proposals described above has been enacted. The EITC has been criticized for high error rates.⁷⁶ And there has been extensive debate about

129-30 (2005); OFFICE OF MGMT. & BUDGET, ANALYTICAL PERSPECTIVES: BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2007, at 255 (2006). The fiscal year 2007 proposal would provide a credit of up to \$1000 for individual filers and up to \$3000 for families with children for those purchasing health insurance in the individual market from a high-deductible health plan. The credit would be paid directly to the taxpayer or, alternatively, directly to the health insurer based on the taxpayer's prior year return. Senator Grassley and Senator Baucus have also proposed expanding the existing refundable credit for the purchase of health insurance to cover those households that receive unemployment compensation. *See* Health Care Tax Credit Expansion Act of 2003, S. 1693, 108th Cong. (2003).

72. Specifically, the fiscal year 2007 proposal would provide a tax credit for 15.3% of contributions to Health Savings Accounts (HSAs). The credit would be refundable to the extent of income subject to the payroll tax. HSA funds could be used to pay for uncovered medical expenses, and unspent funds could be rolled over from year to year. OFFICE OF MGMT. & BUDGET, ANALYTICAL PERSPECTIVES: BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2007, at 254 (2006); *see also* OFFICE OF MGMT. & BUDGET, BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2006, at 129-30 (2005).

73. *See, e.g.*, PRESIDENT'S ADVISORY PANEL ON FED. TAX REFORM, *supra* note 9, at 122-23; *see also* H.R. 5233, 108th Cong. (2003); S. 2303, 108th Cong. (2003); *Defined Benefit Pension Plans: Hearing before the Subcomm. on Employer-Employee Relations of the H. Comm on Education and the Workforce*, 107th Cong. (2003) (statement of Mark Iwry, Senior Fellow, Brookings Inst.), available at <http://www.brook.edu/views/testimony/iwry/20030630.pdf>. The Saver's Credit provides a matching tax credit for elective contributions of up to \$2000 per spouse that are made to IRAs, Roth IRAs, 401(k) plans, and certain other qualified retirement plans. For married couples filing jointly, the credit matches 50% of contributions if adjusted gross income is \$30,000 or under, 20% if adjusted gross income is between \$30,000 and \$32,250, and 10% of contributions if adjusted gross income is between \$32,250 and \$50,000. The income thresholds are three-quarters of these amounts for head of household filers and half of these amounts for individual filers. I.R.C. § 25B (2006).

74. JOHN F. COGAN ET AL., HEALTHY, WEALTHY, AND WISE: FIVE STEPS TO A BETTER HEALTH CARE SYSTEM 38-39 (2005) (proposing a refundable tax credit of 25% of household health care expenses up to a maximum credit of \$500 for an individual or \$1000 for a family).

75. *See, e.g.*, Sammartino et al., *supra* note 66, at 14; *see also* Personal Access to Continued Education Act of 2003 (PACE), H.R. 3251, 108th Cong. (2003). PACE proposed increasing the Hope tax credit to \$2000 and making it refundable. The Hope tax credit provides a 100% credit for qualified higher education expenses up to \$1000 and a 50% credit for the next \$1000 in expenses. It is limited to students enrolled at least half-time who are in their first two years of higher education. I.R.C. § 25A (2006).

76. As discussed above, several steps have been taken to reduce non-compliance

refundability of the CTC.⁷⁷ While the underlying policy justifications for refundable credits and certain elements of the political environment that are conducive to them remain unchanged, political support appears to have stalled. We believe this is the case because of a blind spot in the policy debate. While policymakers have extensively debated the pros and cons of refundable credits on administrative and distributional grounds, they have largely overlooked one of the strongest arguments in their favor—economic efficiency.

II. THE EFFICIENCY CASE FOR REFUNDABLE TAX CREDITS

Any tax system should be built upon certain principles. First, it should minimize administrative and compliance costs. Second, it should be distributionally fair.⁷⁸ While there is little debate that this requires a progressive tax system, there is, not surprisingly, great debate over the appropriate degree of progressivity and how that progressivity should be measured and accomplished. Third, it should be efficient.⁷⁹ If markets were perfect, efficiency would imply interfering as little as possible in market outcomes. Because markets are imperfect, efficiency also entails eliminating market failures by minimizing transaction costs and correcting for externalities, market power, and information asymmetries.

Policymakers currently attempt to enhance economic efficiency through tax provisions that promote a wide variety of behavior that they deem socially beneficial. As explained above, this Article excludes tax provisions intended to measure income or ability to pay, instead focusing on tax incentives intended to correct for positive externalities (or, to the extent that a tax provision has multiple rationales, on the externality-related portion of the provision).⁸⁰ This seemingly narrow category, however, is actually quite vast.

surrounding the EITC and, in general, we believe there are readily available administrative solutions to this issue. *See supra* notes 48-49 and accompanying text.

77. *See, e.g.*, Firestone, *supra* note 10; Weisman, *supra* note 10.

78. Distributional fairness can be seen as encompassing the traditional tax policy concerns of both horizontal and vertical equity.

79. It is worth noting that these principles overlap to some degree. For instance, redistribution can be efficient if individuals gain utility from it even if they do not financially gain from it. Effectively, redistribution then creates positive externalities. Similarly, distributional fairness can promote efficiency in the presence of insurance market failures, liquidity constraints, and other factors. *See* WORLD BANK, WORLD DEVELOPMENT REPORT 2006: EQUITY AND DEVELOPMENT (2006); *see also* ROGER C. ALTMAN ET AL., THE HAMILTON PROJECT: AN ECONOMIC STRATEGY TO ADVANCE OPPORTUNITY, PROSPERITY, AND GROWTH (2006), available at http://www.brookings.edu/es/hamilton/THP_Strategy.pdf. Minimizing administrative and compliance costs can also be a part of efficiency by reducing transaction costs associated with a social-welfare-enhancing policy. Similarly, horizontal equity can be a part of efficiency to the extent that inconsistent tax policy interferes with market outcomes or is less effective at eliminating market failures.

80. As noted at the outset, this Article is also not intended to analyze the merits of using the tax code to promote specific types of behavior, including the behavior targeted by current tax incentives. Instead, the question we are interested in is how a tax incentive should

There are tax incentives for saving for retirement,⁸¹ home ownership,⁸² education,⁸³ and medical expenses.⁸⁴ Other tax incentives seek to promote work,⁸⁵ charitable giving,⁸⁶ and investment in life insurance,⁸⁷ annuities,⁸⁸ and state and local bonds.⁸⁹ Together, these tax incentives are estimated to reduce federal tax revenues on a static basis by an amount on the order of \$500 billion per year or over 4% of GDP.⁹⁰ To say the least, this is a sizable investment. The question of how to structure these tax incentives efficiently therefore merits serious and sustained attention.

A. Uniform Refundable Credits as the Efficient Default Structure for Tax Incentives

The primary thesis of this Article is that the default structure for all such tax incentives should be a uniform refundable tax credit. The reason is that a uniform refundable credit minimizes the deadweight loss associated with errors in an incentive's application, assuming evidence is nonexistent or inconclusive regarding how different income groups vary in the marginal externalities generated by their engaging in the subsidized activity and in their responsiveness to the incentive. This is the case irrespective of whether a

be structured if policymakers have decided that some sort of tax incentive is appropriate and have agreed to finance it in a manner that puts distributional objectives aside. This does not mean that the tax incentive will have no distributional effects. Rather, it means that, unless otherwise noted, these distributional effects will result solely from changes in the magnitude and incidence of the net social gain generated.

81. *See, e.g.*, I.R.C. §§ 25B, 219, 401, 408, 408A, 412 (2006) (Saver's Credit, IRAs, Roth IRAs, employer-based defined benefit and defined contribution retirement plans).

82. *See, e.g.*, §§ 121, 163(h)(2)(D) (exclusion for capital gains on sale of primary residence and home mortgage interest deduction).

83. *See, e.g., id.* §§ 25A, 117, 221, 529, 530 (Hope and Lifetime Learning credits, exclusion of scholarship and fellowship income, deduction for interest on student loans, 529 plans, Coverdell education savings accounts).

84. *See, e.g., id.* §§ 106, 223 (employer-financed health insurance and Health Savings Accounts).

85. *See, e.g., id.* §§ 24, 32 (Child Tax Credit and Earned Income Tax Credit).

86. *See, e.g., id.* § 170.

87. *See, e.g., id.* § 101.

88. *See, e.g., id.* § 72.

89. *See, e.g., id.* § 103.

90. STAFF OF J. COMM. ON TAXATION, 109TH CONG., ESTIMATES OF FEDERAL TAX EXPENDITURES FOR FISCAL YEARS 2006-2010 (Comm. Print 2006), available at <http://www.house.gov/jct/s-2-06.pdf>. The estimated cost in 2006 of the tax expenditures described in notes 81-89, *supra*, is \$510 billion. We recognize that some may disagree with our characterization of these tax benefits as designed to promote certain behavior, rather than, for example, being designed to measure ability to pay more accurately. In addition, it is important to note that this figure may be substantially higher or lower due to interaction effects.

subsidy is delivered through the tax or transfer system and irrespective of whether the subsidized behavior actually generates positive externalities.

1. *Efficient taxation in the presence of externalities*

A positive externality occurs whenever the behavior of one party makes another party better off but the first party does not receive the benefits of doing so and, as a result, does not incorporate these benefits into his or her decision about whether to engage in the behavior.⁹¹ When positive externalities apply to broad sections of the population, there is often no market for them, and, as a result, Coasian bargaining is not a solution. Instead the government can enhance efficiency by correcting for positive externalities through regulation, through direct expenditures on the activity in question or, as is our focus here, through tax incentives called Pigouvian subsidies.

Pigouvian subsidies correct for positive externalities by subsidizing the desired behavior so that the market price reflects the social value of the good, which is defined as its private value to consumers plus the value of the positive externalities it generates. As illustrated in Figure 2, when a Pigouvian subsidy is financed with a nondistortionary tax,⁹² the optimal subsidy equates the marginal social benefit of the behavior in question with the marginal social cost by providing a subsidy equal to the marginal external benefits at this point.⁹³

91. GRUBER, *supra* note 15, at 122-23. It is also possible that behavior gives rise to positive “internalities”—benefits to oneself that one does not fully take into account when deciding whether to engage in behavior. For instance, many people exhibit self-control problems where they know how they would like to act optimally but cannot follow through on this optimal plan. *Id.* at 162-64. We focus on externalities but much of our analysis could apply to internalities as well.

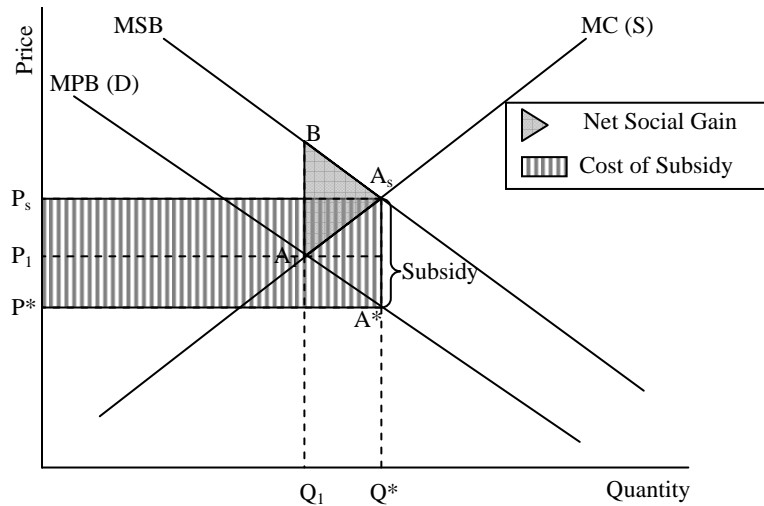
92. A nondistortionary tax in this context would be one that mimicked the incidence of the subsidy, i.e., one that has the same incidence by income level and other demographic characteristics as the new consumer and producer surplus created by the subsidy and the new externalities it generates. It would not, however, be based on the amount of subsidized activity in which the taxpayer chooses to engage. Kaplow refers to this nondistortionary financing mechanism as a “benefit-offsetting tax,” and we follow his nomenclature. See Louis Kaplow, *The Optimal Supply of Public Goods and the Distortionary Cost of Taxation*, 49 NAT’L TAX J. 513, 514, 517 (1996) [hereinafter Kaplow I]; Louis Kaplow, *On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy*, 18 J. ECON. PERSP., Fall 2004, at 159-60 [hereinafter Kaplow II].

93. As Kaplow has demonstrated, the optimal subsidy in this idealized scenario (where the subsidy is financed with a benefit-offsetting tax) is in fact the full value of the externality at the margin. Kaplow II, *supra* note 92, at 160-64. It is not the case that the behavior generating positive externalities should be subsidized only to the point where the marginal social gain exceeds the marginal social cost of financing the subsidy because the benefit-offsetting tax is, by definition, nondistortionary.

It is also not the case that the subsidy should be greater than the marginal external benefits because the benefit-offsetting tax will raise more revenue than the subsidy costs. The subsidy is efficiency enhancing (assuming it actually corrects for a positive externality) and policymakers can rebate the resultant budget surplus however they choose. However, the point remains that this net efficiency gain is maximized by setting the marginal social benefit

Doing so causes the marginal private actor to fully internalize the benefits to society of his or her behavior and results in the optimal supply of the good.

Figure 2. Optimal Pigouvian Subsidy



The net social gain from such an optimal subsidy is illustrated in Figure 2 and can be explained as follows. The cost of the subsidy is the rectangle $P_s A_s A^* P^*$. The marginal external surplus generated by the subsidy is the parallelogram $B A_s A^* A_1$. A portion of the subsidy, the trapezoid $P_s A_s A_1 P_1$, is captured as new producer surplus, while another portion, the trapezoid $P_1 A_1 A^* P^*$, is captured as new consumer surplus. When these areas are added together, the resultant net social gain is the triangle $B A_s A_1$.

In reality, however, it is typically impossible to fully fund the optimal Pigouvian subsidy with the perfect nondistortionary tax. Taxes entail

equal to the marginal cost. Kaplow I, *supra* note 92, at 513-14, 517.

If the subsidy is not financed with a benefit-offsetting tax, it is not clear whether it should be smaller or greater from an efficiency perspective; the answer depends on whether the actual financing structure is more or less distortionary than the benefit-offsetting tax and there is no prima facie reason to believe that it will vary systematically either way.

One caveat to these conclusions is that it may be optimal to impose a commodity tax on the behavior that reduces the size of the subsidy if the behavior is relatively inelastic with respect to price or a complement to leisure. See Kaplow I, *supra* note 92, at 518; Kaplow II, *supra* note 92, at 167; Emmanuel Saez, *The Optimal Treatment of Tax Expenditures*, 88 J. PUB. ECON. 2657, 2666-67 (2004). However, we consider this to be a separate issue from correcting for the externality and instead an issue of optimal commodity taxation.

A second caveat is that the optimal subsidy may be greater or smaller than the marginal externality if the subsidized activity is a substitute or complement to other activities that generate uncorrected externalities. See Louis Kaplow, *Optimal Control of Externalities in the Presence of Income Taxation* 11, 15, 18 (Nat'l Bureau of Econ. Research, Working Paper No. 12,339, 2006), available at <http://www.nber.org/papers/w12339>.

administrative and compliance costs and there may be political constraints on the amount spent on the subsidy.⁹⁴ Accordingly, the subsidy should be targeted in such a way that society gets the most “bang for its buck.” This occurs when it is targeted upon groups for which the marginal net social gain from increasing the subsidy⁹⁵ is largest relative to the marginal cost of the subsidy.⁹⁶

Two broad factors influence the “bang for the buck” from subsidizing certain groups and should thus guide how the subsidy is targeted in the presence of cost constraints on its size. First, for any given level of responsiveness to a subsidy, if a certain group’s behavior generates greater marginal externalities then, all else equal, the subsidy should be disproportionately targeted upon that group. Second, for any given level of marginal social benefit from the activity, if a certain group’s behavior is more elastic⁹⁷ with respect to the price of the activity then, all else equal, the subsidy should be disproportionately targeted on that group.⁹⁸ Essentially, externalities (the social benefit per unit of activity) and elasticities (the activity induced per dollar spent) determine the net social gain from subsidizing the behavior per dollar spent on the subsidy, and these two factors should guide the degree to which subsidies are targeted on particular groups in the presence of cost constraints.⁹⁹

This theory of Pigouvian subsidies suggests that the optimal tax incentive generally should apply uniformly across the income distribution unless there is evidence that marginal externalities generated by the subsidy or marginal

94. The precise benefit-offsetting tax is also likely unknowable in practice. However, as discussed *supra*, this does not mean that the actual financing mechanism is distortionary; it is just as likely that it reduces distortions by being less progressive than the benefit-offsetting tax.

95. Area BA_sA_1 in Figure 2.

96. Area $P_sA_sA^*P^*$ in Figure 2.

97. Throughout this Article, when we refer to elasticities, we are referring to uncompensated elasticities. This analysis assumes that the subsidy must apply to inframarginal activity as well as marginal activity. We consider the implications of relaxing this assumption in Part II.A.2.

98. In the less likely scenario that individuals face different marginal cost curves for the behavior in question, this would also be a factor. Also, the precise net social gain depends not just on the marginal elasticities and marginal externalities, but also on the exact shape of all three curves in Figure 2.

99. It is possible that the optimal subsidy will be negative in the presence of cost constraints. For example, suppose there are limits on how much policymakers are willing to spend influencing purchases of a socially beneficial good and all groups’ purchases generate the same marginal externalities but some groups are more price elastic than others. In this case, the net social gain might be maximized by imposing an additional tax (above the baseline tax system) on purchases by the low-elasticity group in order to increase the subsidy offered to the high-elasticity group while still meeting the cost constraint. Such an additional tax might also be appropriate as a Ramsey tax but, as noted, *supra* note 93, we consider this to be a separate issue of optimal commodity taxation that is distinct from externality correction.

responsiveness to the subsidy vary by income class.¹⁰⁰ Stated differently, tax incentives should provide the same price adjustment to all households unless the balance of the evidence suggests that more social benefits are generated by certain households engaging in the behavior than by others or that certain households are more responsive.

What constitutes a uniform price adjustment depends on the form of the externality. For example, if buying a solar panel generates \$100 of external benefits, the optimal and uniform subsidy would be \$100 per solar panel. If, however, buying a solar panel generates external benefits equal to 10% of the purchase price, then the optimal and uniform subsidy would be 10% of dollars spent.

The reason why uniform subsidies are most efficient absent evidence of how externalities and elasticities vary is that, under the most reasonable set of default assumptions,¹⁰¹ they minimize the expected deadweight loss generated by errors in the incentive's application.¹⁰² To see this point with respect to uncertainty about marginal externalities, imagine that certain behavior, for example charitable contributions, on average generates 5¢ of externalities per dollar contributed per year and policymakers have therefore determined to subsidize charitable contributions by, on average, 5¢ per dollar. Imagine further that there is a 50% chance that a dollar of contributions by a high-income household generates 10¢ of positive externalities, while a dollar of contributions by a low-income household generates none, and a 50% chance that this pattern is reversed.

Given the nonlinearity of deadweight loss, a uniform subsidy would be the most efficient approach in this situation (again in the absence of more information about the pattern of externalities and elasticities). Although the expected error would be the same irrespective of whether the entire subsidy was given to one group or spread evenly over both groups,¹⁰³ the expected deadweight loss would be minimized by a uniform subsidy because the loss from failing to correct for a positive externality rises with the square of the

100. In addition to the assumptions already delineated, *supra* note 16, this statement assumes that the tax and transfer system prior to the subsidy was designed without the externality in mind and that the subsidy was enacted solely for externality-based reasons. Especially in the context of work and savings incentives, these assumptions require careful consideration because the income tax itself is largely a tax on the return to labor and capital. In a second-best world in which the tax and transfer system was not set optimally prior to the subsidy and consideration of the relevant externality, general conclusions about whether a subsidy should ideally be enacted or adjusted are difficult to reach because the subsidy may exacerbate or mitigate other distortions.

101. *See supra* note 16.

102. We are grateful to Alan Auerbach, Daniel Shaviro, and Reed Shuldiner for pushing our thinking on this point.

103. Specifically, if a 10¢ subsidy is given only to high-income households or only to low-income households, the expected error will be 5¢ per dollar contributed ($1/2 * 10¢ + 1/2 * 0¢$) and the same is true if a 5¢ subsidy is given to each ($1 * 5¢$).

uncorrected externality.¹⁰⁴ Thus, returning to the example, a uniform subsidy of 5¢, which would leave 5¢ of uncorrected externalities in both cases, would result in an expected remaining deadweight loss of 25¢.¹⁰⁵ Meanwhile, a 10¢ subsidy given to one group, which would result in 10¢ of uncorrected externalities in one case and none in the other, would result in an expected remaining deadweight loss of 50¢.¹⁰⁶ The uniform subsidy therefore minimizes the expected remaining deadweight loss when the distribution of externalities is unknown. Appendix A provides a mathematical presentation of this point.

Another way of stating this conclusion is that the nonlinearity of deadweight loss implies that when the expected errors generated by two forms of Pigouvian subsidies are identical, a small number of big errors in the application of the subsidy leave greater deadweight losses than a large number of small errors.¹⁰⁷ In the absence of evidence that externalities and elasticities vary by income class, the most reasonable assumption is that uniform subsidies generate a larger number of small errors and fewer large errors, while the pattern of errors generated by non-uniform subsidies is the reverse. As such, uniform subsidies should maximize the efficiency gains from the subsidy.

This conclusion holds even if policymakers have enacted a tax incentive for behavior that doesn't actually generate positive externalities but, perhaps because it has become politically entrenched, repeal is no longer an option. Then, if the activity generates no externalities, the subsidy inefficiently narrows the tax base and should be targeted upon those whose behavior is least elastic in order to minimize the resultant distortions.¹⁰⁸ Alternatively, if the activity actually generates negative externalities, then the provision exacerbates an existing market failure and should be targeted on those whose behavior generates the least negative externalities in addition to being targeted upon

104. The deadweight loss of a tax rises with the square of the tax rate. ROSEN, *supra* note 15, at 314-15.

105. $1/2*(5¢)^2 + 1/2*(5¢)^2 = 25¢$.

106. $1/2*(10¢)^2 + 1/2*(0¢)^2 = 50¢$.

107. It is also possible that the expected errors generated by a uniform subsidy are smaller than under a non-uniform subsidy—but not the reverse—when evidence of how externalities vary across the income distribution is unavailable or directionally inconclusive. For example, in the case described above, it could be that instead there is a one-third chance that a dollar of contributions by a high-income household generates 10¢ of positive externalities while a dollar of contributions by a low-income household generates none, a one-third chance that this pattern is reversed, and a one-third chance that one dollar of contributions by either generates 5¢ of social benefits. If a 10¢ subsidy were given only to low-income households (or high-income households), the expected error would then be 5¢ per dollar contributed ($1/3*10¢ + 1/3*5¢$). However, if a 5¢ subsidy were given to both households, the expected error would be only 3.3¢ ($1/3*5¢ + 1/3*5¢$). Thus, in this scenario the optimal subsidy would be uniform, even disregarding the nonlinearity of deadweight loss, because any other structure runs the risk of getting things doubly wrong by giving a bigger incentive to the group that actually should get a smaller one, and vice versa. We do not focus on this situation because it presents a simpler case.

108. See *supra* note 93.

relatively inelastic consumers. Either way, absent evidence that elasticities or externalities differ by income class, a uniform subsidy once again minimizes the deadweight loss associated with the provision.

Refundable tax credits are the only straightforward way to provide a uniform subsidy for behavior generating positive externalities through the individual income tax.¹⁰⁹ For example, a refundable credit can provide the same percentage subsidy for interest rates on socially beneficial investments because the subsidy does not vary with the marginal tax rate, unlike the exclusions and deductions for interest on state and local bonds or for savings in employer-sponsored pensions. Similarly, a refundable credit can lower the price of education by the same dollar amount, without the value of the subsidy depending on whether the claimant has positive income tax liability, unlike the non-refundable Hope and Lifetime Learning tax credits. Thus, as a practical matter, uniform refundable credits are generally the most efficient way to structure individual income tax incentives unless and until the preponderance of the evidence suggests that elasticities or the size of the externalities generated vary systematically across the income distribution.

2. *Putting theory into practice*

The above analysis raises several questions about how to implement these conclusions in practice. In particular, we consider: (1) whether deductions, exclusions, or non-refundable credits are ever an efficient form for tax incentives; (2) whether a tax incentive structured as a refundable credit should be taxed itself in order to provide a uniform subsidy; and (3) whether and when contribution floors, contribution caps, and income limits are appropriate.

On the first issue—putting aside administrative and compliance costs which are discussed in Part III—it is likely that some type of refundable credit is always the efficient form for a tax incentive.¹¹⁰ To be sure, externalities and elasticities associated with subsidized behavior likely vary across the income distribution. Assuming such differences exist, the optimal incentive should be focused upon individuals whose behavior is more responsive or generates greater social benefits, which may entail the incentive rising with income in

109. See *supra* note 36 and *infra* note 122. Individual income tax incentives are not, however, the only way to provide a uniform subsidy through the tax code more broadly. For example, if household savings generate positive externalities, financial institutions could be offered tax subsidies for the amount of household savings they hold and, in a competitive market, the subsidy should be passed on to the saver. Even in this instance, though, the subsidy should generally be structured as a refundable credit so that financial institutions in a loss position are included. For a discussion of inefficiencies that can result when corporate tax incentives for investment are not refundable, see Warren & Auerbach, *supra* note 36, at 1760.

110. Deductions and exclusions are, however, appropriate for tax provisions designed to measure income or ability to pay.

certain instances.¹¹¹ However, even when the optimal subsidy should rise with income, it must still be a non-uniform refundable credit.¹¹² This is so because it is implausible that externalities and elasticities change abruptly at the point of positive income tax liability and the thresholds for the various marginal tax rates. These thresholds are essentially arbitrary and vary by family size, marital status, and year, just to name a few factors. Yet the other basic forms for tax incentives—deductions, exclusions, and non-refundable credits—all entail precisely such discontinuities and “cliff effects.”

The next question is whether a refundable credit should itself be taxed. If distributional objectives continue to be set aside and the optimal subsidy is uniform, this implies that all tax units should receive the same after-tax subsidy, assuming people are rational and respond to after-tax incentives.

In order to achieve such after-tax uniformity, the subsidy should not be taxed if it is calculated based on an after-tax purchase, contribution, or return.¹¹³ For example, a credit for 20% of expenditures on solar panels should not be taxed because such purchases are presumably made out of after-tax funds. Taxing the subsidy would result in tax units facing a zero marginal tax rate receiving a 20% subsidy and tax units in higher tax brackets receiving a smaller subsidy.¹¹⁴ Intuitively, the desirability of not taxing the subsidy in this scenario can be seen by the fact that the subsidy is intended to serve as the portion of the purchase price that represents benefits to society as a whole and not to the consumer personally. Accordingly, the consumer should not be taxed on the subsidy because he or she is serving as a mere conduit, paying the producer for benefits that others are receiving.

The subsidy should, however, be taxed if it is calculated based on a pre-tax purchase, contribution, or return, and the optimal subsidy is again one that is uniform on an after-tax basis.¹¹⁵ For example, a credit for investors in state and

111. We acknowledge that it is neither feasible nor desirable to adjust tax incentives on the basis of differing externalities in all circumstances, for instance if the activities of certain ethnic or religious groups generate more or fewer externalities. Our focus here is on the efficient structure for the tax incentive by income class, putting aside these other important normative and legal considerations. The tax system does, however, adjust tax incentives based on demographic characteristics beyond income class, such as age and the presence of children, and our analysis could apply equally to these sources of variation in the externalities generated.

112. An example of a non-uniform refundable credit is one that provides a subsidy of $X\%$ of the purchase price of a good, where X rises with income.

113. This conclusion is a variation of Stanley Surrey's argument that if a direct grant would be included in income, so too should a tax subsidy for the same purpose. See SURREY II, *supra* note 14, at 110-11.

114. For example, suppose solar panels cost \$100 (P), the subsidy is 20% (S), low-income people are in the 0% bracket (T_L), and high-income tax units are in the 50% bracket (T_H). If the subsidy were taxed, low-income tax units would get a \$20 subsidy per panel ($P*S*(1 - T_L)$) while high-income tax units would get a \$10 subsidy. If the subsidy were not taxed, both would get a \$20 subsidy ($P*S$).

115. In the solar panel example, this implies that the subsidy should be taxable to the

local bonds matching 20% of their pre-tax interest rate should be taxable in order to achieve after-tax uniformity (assuming such interest is no longer excludable). Otherwise, investors in the zero tax bracket would receive a 20% after-tax subsidy and investors in higher tax brackets would receive a larger subsidy.¹¹⁶ Intuitively, taxing the subsidy makes sense in this scenario because calculating the subsidy based on a pre-tax return provides an advantage to investors in higher tax brackets.¹¹⁷

The final implementation question is whether and when contribution floors, contribution caps, and income limits are desirable. Under current law, all three are prevalent mechanisms for reducing the cost of tax incentives, including through the Alternative Minimum Tax. Contribution floors exclude an initial

solar panel producer like all other solar panel revenue. This could occur either by taxing a credit claimed by the solar panel producer, or by allowing the consumer to claim the credit as in *supra* note 114, in which case it should be capitalized into the price, thereby becoming taxable income for the producer.

116. For example, suppose that the pre-tax return on state and local bonds is 10% (I), the subsidy to the pre-tax return is 20% (S), and, as in *supra* note 114, low-income people are in the 0% bracket (T_L) and high-income tax units are in the 50% bracket (T_H). Pre-subsidy, low-income people therefore receive a 10% after-tax return and high-income people receive a 5% after-tax return. If the subsidy were not taxed, low-income investors would receive a 20% subsidy to their after-tax return ($(S*I)/(I*(1 - T_L))$) and high-income investors would receive a 40% subsidy ($(S*I)/(I*(1 - T_H))$). If the subsidy were taxed, both would receive a 20% subsidy to their after-tax return ($(S*I*(1 - T))/(I*(1 - T))$).

117. Relatedly, taxing the credit in this situation has the added benefit of eliminating windfalls that are only available to high-income investors if the subsidy is not fully capitalized into the interest rate of the bond and, as a result, the investor (and not just the state or local government) receives part of the subsidy.

In the example in *supra* note 116, if the pre-tax return on all bonds is 10%, the pre-tax return on state and local bonds should fall to 8.3% (I') if the subsidy is taxed and fully capitalized. Then low-income investors will receive a 10% after-tax, after-subsidy return $(1 - T_L)(I' + (S*I'))$ and high-income investors will receive a 5% after-tax, after-subsidy return $(1 - T_H)(I' + (S*I'))$, which is the same as each receives from other bonds. If the subsidy is still taxed but is not fully capitalized and the pre-tax return only falls to 9% (I''), both low-income and high-income investors will receive a windfall 12.5% increase in their after-tax return if they invest in state and local bonds. For low-income tax units, the after-tax return from investing in state and local bonds will be 10.8% $(1 - T_L)(I'' + (S*I''))$, while for high-income tax units it will be 5.4% $(1 - T_H)(I'' + (S*I''))$.

If the subsidy is not taxed, the pre-tax return on state and local bonds should fall to 7.1% (I''') if the subsidy is fully capitalized. Then low-income investors will only receive an after-tax return of 8.5% $(I'''*(1 - T_L) + (S*I'''))$ and will choose not to invest. This is not necessarily a problem because high-income investors will receive a 5% after-tax return $(I'''*(1 - T_H) + (S*I'''))$, which is the same as their return from other bonds. However, if the subsidy is not taxed *and* is not fully capitalized, high-income investors will receive windfalls that are unavailable to low-income investors. For example, if the pre-tax return only falls to 8% (I''''), low-income tax units will receive an after-tax return of 9.6% $(I''''*(1 - T_L) + (S*I''''))$ so they again will choose not to invest. Meanwhile, high-income tax units will receive an after-tax return of 5.6% $(I''''*(1 - T_H) + (S*I''''))$, or a windfall of 0.6%.

It is also worth noting that uniform tax incentives are more likely to be fully capitalized into the price of a good because of the ease of marketing.

amount of subsidized activity from eligibility for the incentive.¹¹⁸ Contribution caps exclude activity or expenditures beyond a certain level from the incentive's reach.¹¹⁹ Meanwhile, income limits curtail or eliminate the ability of higher-income taxpayers to claim a tax incentive.¹²⁰

Contribution floors can enhance the cost effectiveness of a tax incentive by targeting the subsidy on marginal activity and thereby increasing the net social gain per dollar spent on the subsidy.¹²¹ As a result, they merit serious consideration when the amount of inframarginal behavior that individuals within an income group engage in is relatively homogeneous. By contrast, contribution caps often diminish the efficiency benefits of a tax subsidy by reducing or eliminating the incentive effect of the subsidy at the margin. Nevertheless, they may be warranted if marginal externalities decline as an individual engages in more of the subsidized activity. Finally, the efficiency of income limits turns on knowledge of how marginal externalities and elasticities vary across the income distribution, just as the desirability of uniform subsidies does. On one hand, as discussed in Part II.A.1, if there is evidence that higher-income households are less price elastic with respect to the subsidized behavior or if their behavior generates fewer positive externalities, then income limits may be justified if there are cost constraints on the subsidy. On the other hand, if applying a tax incentive to all households increases the responsiveness of all households to the subsidy by, for example, reducing marketing costs or making the subsidy easier to understand, then income limits may not be desirable.

3. *Uniformity and refundable credits*

The above analysis suggests that policymakers should seriously consider transforming a variety of current and proposed tax incentives into uniform subsidies. While refundable credits are not the only way to accomplish uniformity, they are the most straightforward mechanism.¹²² What may not be

118. While not necessarily a tax incentive, an example can be found in the deduction for medical expenses, which only applies to medical expenses above 7.5% of Adjusted Gross Income. I.R.C. § 213 (2006).

119. For example, the home mortgage interest deduction and the deductions, exclusions, and non-refundable credits for retirement savings include contribution caps. *Id.* §§ 25B, 163(h)(2)(D), 219, 401, 408, 408A, 412.

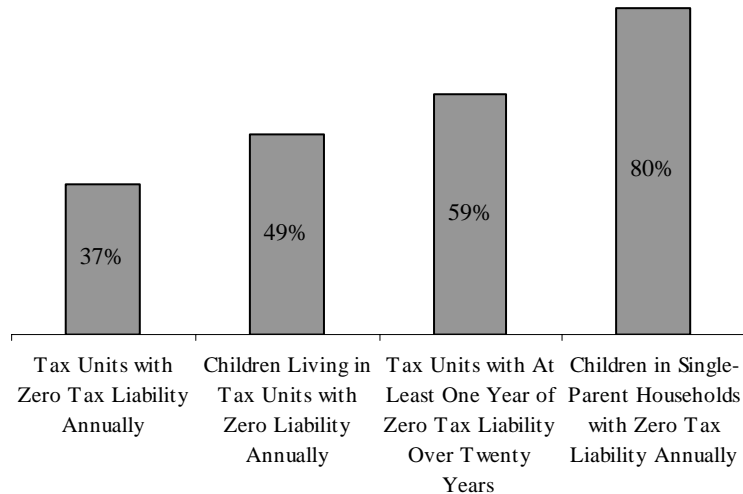
120. For example, the Earned Income Tax Credit and some tax incentives for retirement savings include income limits. *Id.* §§ 25B, 32, 219.

121. A nice example can be found in the Tax Reform Panel's proposal to provide an above-the-line deduction for charitable contributions exceeding one percent of income, which was justified on the basis that "[u]sing a fixed percentage of income as the threshold for the deduction would ensure a uniform incentive to contribute, regardless of income." PRESIDENT'S ADVISORY PANEL ON FED. TAX REFORM, *supra* note 9, at 75-76. Of course for the incentive to be truly uniform, it would have to be a refundable credit.

122. See *supra* notes 36, 109. Another alternative is to employ non-refundable credits and allow carryovers and carrybacks. Aside from timing differences, making an existing credit refundable is identical to allowing carryovers and carrybacks of the credit for any

obvious, however, is just how important refundable credits are for achieving uniformity and the magnitude of what is at stake. This can be seen from two perspectives: annual and lifetime income.

Figure 3. Federal Income Tax Liability



From an annual perspective, most existing tax subsidies provide sharply divergent incentives to lower-income and higher-income households. Typically they operate through deductions, exemptions, exclusions, deferral, and non-refundable credits that do not permit carryovers and carrybacks. With the exception of credits, this means that they provide weak incentives to those in low tax rate brackets, despite their sometimes large cost in terms of forgone revenue. If the incentive is a below-the-line deduction, it provides no incentive to non-itemizers, who currently comprise about 65% of filers.¹²³ Furthermore, on an annual basis, all of these types of tax incentives never reach the

claimant who has positive net income tax liability over the long term. According to our estimates in Table 2, *infra*, among taxpayers who are eligible for the refundable portion of the EITC or CTC at some point during a twenty-year period, roughly 75% are likely have positive income tax liability over that period. Thus, at current levels of refundability, carryovers and carrybacks of a uniform non-refundable credit are likely to accomplish similar results. They are, however, far more complicated for taxpayers. Moreover, carryovers do not provide uniform subsidies due to the time value of money. Theoretically, this latter problem could be fixed by providing interest on carryovers. Realistically, however, carryovers do not include such interest payments, and as a result making the credit refundable should generally be preferred.

123. Internal Revenue Serv., *2003 Statistics on Income, Individual Income Tax Returns Publication 1304 (Complete Report)* tbl. 1.2 (2003), available at <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=134951,00.html>.

increasingly significant share of low- and moderate-income individuals and families who do not have any federal income tax liability to offset.

As illustrated in Figure 3, currently more than one-third of households do not have any federal income tax liability in any given year. About 24% of tax units file a tax return but have no income tax liability, and another 13% do not file.¹²⁴ The non-filers almost always have incomes of \$10,000 or less.¹²⁵ Over a twenty-year period, we estimate that roughly three-fifths of tax units have no federal income tax liability in one or more years.¹²⁶ Moreover, almost half of all children live in households with no income tax liability in any given year, and 80% of children in single parent households are part of tax units with no income tax liability in any given year.¹²⁷ As a result, if policymakers want to create incentives through the individual income tax for all or most tax units to engage in certain behavior each year, such as saving or obtaining education for themselves or their children, refundability should not only be considered an acceptable instrument of tax policy—it is imperative.¹²⁸

The limits of non-refundable tax incentives can be seen in an array of current programs. For example, the bottom 40% of the income distribution receive only 3% of the tax benefits for employer-sponsored pensions and IRAs, which operate through exclusions, deductions, and deferral.¹²⁹ Partly in response to this disparity, the Saver's Credit discussed earlier¹³⁰ was created in 2001 to match a portion of retirement savings by lower-income individuals and

124. Orszag & Hall, *supra* note 19, at 723. Income tax liability is net of credits, including refundable credits. *See also* Scott A. Hodge, *Number of Americans Outside the Income Tax System Continues to Grow*, FISCAL FACTS 27 (Tax Found., Washington, D.C.), June 9, 2005, <http://www.taxfoundation.org/publications/show/542.html> (finding that 32% of filers had zero tax liability in 2004, and 40% of tax units had zero tax liability when non-filers are included).

125. Orszag & Hall, *supra* note 19, at 723.

126. This estimate is based on simulations described *infra* notes 178-83.

127. *See* Gale, *supra* note 19, at 1145. In these estimates, the tax bracket is calculated prior to credits and is based on 2004 law.

128. *Cf.* COGAN ET AL., *supra* note 74, at 38-39 (“While our proposal to make out-of-pocket medical expenses tax-deductible offers important benefits for many low- and middle-income working families, it does not help families that pay little or no income tax. To address this inequity. . . we propose a refundable tax credit . . .”).

129. Leonard E. Burman et al., *Distributional Effects of Defined Contribution Plans and Individual Retirement Accounts*, in *THE DISTRIBUTIONAL EFFECTS OF GOVERNMENT SPENDING AND TAXATION* 69, 77 tbl.3.1 (Dimitri B. Papadimitriou ed., 2006). This is due in part to lower rates of coverage for lower-skill workers (which are themselves related to deductions and exclusions being worth less for lower-skill workers) and in part to the smaller amounts that such workers save. It is worth noting, however, that there is evidence that if offered the same financial incentive to contribute, the differential in contributions between lower-income and higher-income workers is much more modest than under the current system of tax incentives. *See* Esther Duflo et al., *Saving Incentives for Low- and Middle-Income Families: Evidence from a Field Experiment with H&R Block*, 121 Q.J. ECON. (forthcoming Nov. 2006).

130. *See supra* note 73 and accompanying text.

families. However, because the credit is not refundable, only one-seventh of tax filers who have income low enough to qualify for the 50% match can actually receive the credit if they contribute to a qualified retirement savings vehicle.¹³¹ Furthermore, fewer than one out of every thousand of the returns that qualify based on income can actually receive the maximum possible credit (\$1000 per person) if they make the maximum eligible contribution because the credit is not refundable.¹³² A similar problem can be seen in the context of the child and dependent care tax credit, where virtually no households qualify for the maximum credit as a result of its nonrefundability.¹³³

The second perspective from which one can see the necessity of refundable credits for uniformity is lifetime income. While policymakers and academics typically focus on the incidence of tax benefits by annual income level, our analysis implies that tax incentives should, by default, apply uniformly not only within and across annual income classes but also within and across different lifetime earnings groups. Stated differently, all else equal, the value of a tax incentive generally should not vary by the size of one's lifetime earnings, whether one earns more earlier or later in the life cycle, or whether one's earnings are more smooth or more volatile over time. This last issue is our primary focus here.¹³⁴

As a threshold matter, even putting aside tax incentives, tax burdens are not distributed evenly within lifetime income classes under a progressive income tax as a result of the annual accounting period. Instead, the annual accounting period effectively imposes "fluctuation penalties" on taxpayers whose income is more variable from year to year because the increase in their marginal tax rates during years of temporarily high income is not fully offset by the reduction in their marginal rates during years of temporarily low income. These fluctuation penalties impose an additional lifetime tax (for any given level of lifetime income) on those with more variable incomes. Such fluctuation

131. WILLIAM G. GALE ET AL., THE RETIREMENT SECURITY PROJECT, THE SAVER'S CREDIT: EXPANDING RETIREMENT SAVINGS FOR MIDDLE- AND LOWER-INCOME AMERICANS 8 (2005), available at http://retirementsecurityproject.org/pubs/File/RSP-PB_SaversCredit.pdf. Ironically, single taxpayers with children are most likely to be excluded—only one-seventeenth of head of household filers who make qualifying contributions and meet the income tests for the 50% credit can receive it because the credit is non-refundable. *Id.* at 9 tbl.4.

132. *Id.* at 8.

133. See Elaine Maag, *Recent Expansions to the Child and Dependent Care Tax Credit*, 101 TAX NOTES 539 (2003).

134. The first issue was discussed implicitly in the previous Part. The second implies that tax incentives, like tax rates, should, all else equal, be as smooth as possible over time. It also suggests that tax incentives should be structured as refundable credits in order to apply uniformly across an individual's life cycle because, for example, a non-refundable credit accompanied by carryovers and carrybacks does not provide the same subsidy as a refundable credit for a taxpayer who does not have positive tax liability early in the life cycle, once one accounts for the time value of money. See *supra* note 122 and accompanying text.

penalties are typically larger if marginal rates rise more rapidly and thus if the tax system is more progressive.¹³⁵ However, tax incentives structured as deductions, exclusions, or non-refundable credits also create fluctuation penalties in the context of a progressive tax even though they are regressive.¹³⁶ While such types of tax incentives decrease the progressivity of the tax system, they simultaneously increase fluctuation penalties for the tax units who claim them.

Refundable tax credits are the only straightforward way to ensure that tax incentives do not entail such fluctuation penalties and thereby apply uniformly within different lifetime earning groups and across different lifetime earnings patterns. This can be seen in three different policy settings. First and most simply, policymakers could enact a new tax incentive structured as a uniform refundable credit. In this case, the refundable credit would necessarily apply uniformly within and across different lifetime earning groups because its value would never vary with income.

Alternatively, an existing non-refundable credit could be converted on a revenue-neutral basis into a uniform refundable credit. Such a reformed tax incentive would also apply uniformly within and across lifetime income groups and would eliminate the tax penalties that the previous incentive imposed on tax units with relatively volatile incomes. To see this last point, suppose that there is currently a non-refundable credit of up to \$1000 for engaging in certain behavior, such as paying for education.¹³⁷ Under 2006 law, if a married couple with two children engaged in the behavior and earned \$50,000 per year, they would receive the credit every year. However, if the family earned the same average income, but earned less than \$40,000 in one year and more than \$60,000 in the second—perhaps because one earner was caring for a new child in the first year and then re-entered the labor force—the family would only receive the credit in the second year because they would have no income tax

135. Specifically, the sharper the increases in marginal rates as income rises, the larger the penalty imposed on those with fluctuating incomes relative to those whose income is more stable. One can view this penalty as the purchase price for a form of after-tax earnings insurance because the more rapid the increase in marginal tax rates, the more that the tax system reduces the variation in after-tax income. *See infra* notes 154-59 and accompanying text. In this case, the income averaging devices discussed below, including refundable credits, reduce this purchase price while providing the same level, or greater levels, of after-tax earnings insurance. While the authors agree on the need to reduce fluctuation penalties for low- and moderate-income individuals and families, we disagree on the extent to which the tax law should ameliorate other distortive impacts of the annual accounting period in the context of a progressive income tax.

136. This conclusion only holds if the marginal income tax rate schedule is concave, meaning that marginal tax rates rise more rapidly at the low end of the income distribution and more slowly at the high end of the income distribution. While marginal tax rates do not change smoothly as income increases, they generally rise more rapidly at lower incomes than at higher incomes.

137. This example is not far from reality. The Hope and Lifetime Learning tax credits are non-refundable credits for expenditures on higher education.

liability to offset in the first year. This discrepancy would be eliminated if the credit were refundable.

Finally, similar effects result from converting an existing tax incentive structured as a deduction or exclusion into a refundable credit. For example, a deduction for expenditures on a certain good could be converted to a refundable credit that matches a fixed percentage of expenditures on the good on a revenue-neutral basis. In this scenario, the conversion would once again make the incentive apply uniformly across different lifetime earning patterns. Under the deduction or exclusion, the decrease in the value of the incentive during a year of temporarily low income generally is not fully offset by the increase in its value during a year of temporarily high income.¹³⁸ In addition, a deduction or exclusion is worthless for a household in a year in which its income temporarily declines to the point that it has no income tax liability.¹³⁹ The uniform refundable credit would exhibit none of these characteristics. Instead, its value would remain constant in the face of different earnings patterns and degrees of income volatility.

Thus, all the other basic forms for tax incentives deviate from the uniform subsidy that we argue is the most efficient default. Moreover, the fluctuation penalties that they create may result in further efficiency losses by distorting individual choices over the lifecycle and reducing incentives for risk-taking at the margin. By contrast, refundable credits represent the only simple individual income tax incentive that can apply uniformly across different annual and lifetime income groups and, within a given lifetime income group, across different earning patterns. As such, they should be the default structure for tax incentives.

B. Income Smoothing at the Household Level

While the previous discussion is sufficient to establish that refundable credits are an essential tool of tax policy so long as policymakers are interested in enhancing efficiency through Pigouvian tax subsidies, the potential efficiency benefits of refundable credits are magnified further by a second feature that is unrelated to externalities: their ability to help smooth household income.

138. Marginal tax rates generally rise more slowly at higher levels of taxable income, and thus average marginal tax rates (as opposed to average effective tax rates) are generally higher if one earns income more smoothly. This in turn implies that the value of deduction or exclusion is greater for tax units in the same lifetime income class with smoother earnings because the value of a deduction or exclusion over time equals one's average marginal tax rate times the amount that one excludes or deducts annually.

139. This last effect can, again, be mitigated if the household is allowed to carryover or carryback the deduction or exclusion. Some fluctuation penalty will nevertheless typically remain due to the time value of money or if the deduction is carried to a relatively low tax bracket year.

Greater income smoothing is desirable not simply because of risk aversion and the declining marginal utility of money, but also because it can reduce adjustment costs associated with economic instability and offset failures in insurance markets. In particular, smoothing after-tax household income increases individuals' and families' abilities to plan their expenditures and avoids the additional costs (such as moving costs and credit card debt) of financing constant changes in household living standards.¹⁴⁰ In addition, people tend to value losses negatively more than they value identical gains positively, suggesting further utility gains from reducing a household's income volatility.¹⁴¹ At the same time, the market may fail to provide the efficient level of insurance against income shocks because of adverse selection problems.¹⁴²

Greater income smoothing is particularly beneficial for lower-income households from an efficiency perspective because their utility losses from income variability may be relatively large as a result of liquidity constraints, because they generally have more volatile incomes than other families,¹⁴³ and because income shocks can result in declines in their economic circumstances that persist over a long period of time and are passed on to their children.¹⁴⁴

140. For example, when credit card debt is not an option, families often turn to "payday lenders," who charge average annual interest rates on the order of 400%. See CMTY. REINVESTMENT ASS'N OF N.C., TOO MUCH MONTH AT THE END OF THE PAYCHECK: PAYDAY LENDING IN NORTH CAROLINA 37 (2001), available at <http://www.cra-nc.org/paycheck.pdf>.

141. See, e.g., RICHARD H. THALER, THE WINNER'S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE 63-78 (1992).

142. ROSEN, *supra* note 15, at 193-94. While providing income-smoothing insurance through the tax system can help correct for these failures, it can create moral hazard problems.

143. See Lily L. Batchelder, *Taxing the Poor: Income Averaging Reconsidered*, 40 HARV. J. LEGIS. 395, 446 tbl.2 (2003) (finding that the coefficient of variation for tax units in the bottom decile of average income is roughly 70%, but 25% or less for the second, third, and top quartiles); Jeffrey B. Liebman, *Should Taxes Be Based on Lifetime Income?* Vickrey Taxation Revisited 60 fig.5 (July 2002) (unpublished manuscript), available at <http://www.ksg.harvard.edu/jeffreyliebman/LiebmanLLTAX.v1.pdf>.

144. For example, looking at Canadian data, Oreopolous and his coauthors find that the family income of households in which the father experiences a job loss is 15% lower eight years after the job loss than what it would have been if the displacement had not occurred. Philip Oreopolous et al., *The Intergenerational Effects of Worker Displacement* 14 (Nat'l Bureau of Econ. Research, Working Paper No. 11,587, 2005), available at <http://www.nber.org/papers/w11587>. In addition, they find that the subsequent income of children from such families is 8% lower than similar children whose fathers did not experience an employment shock and that this result is driven by lower-income households. *Id.* at 16. Specifically, the subsequent earnings of children in the lowest quartile are 17% lower than they would have been if the father had not been displaced. *Id.* at 19. See also Barlevy & Tsiddon, *supra* note 24, at 24-25 (summarizing literature finding that the income share of low- and middle-income households has tended to fall in post-War recessions); Ann Huff Stevens, *Long-Term Effects of Job Displacement: Evidence from the Panel Study of Income Dynamics* (Nat'l Bureau of Econ. Research, Working Paper No. 5343, 1995), available at <http://www.nber.org/papers/W5343> (finding that six or more years after an involuntary job loss, wages, and earnings remain reduced by approximately 9% and that these effects are generally larger for workers with less than a college education).

Uniform refundable credits that replace other forms of tax incentives on a revenue-neutral basis can help households experiencing volatile earnings in two ways. First, as discussed above, they eliminate the fluctuation penalties imposed on such households by other forms of tax incentives. Second, they provide relief from such penalties during years of relatively low income. Effectively, they increase the value of the tax incentive in relatively low-income years and decrease it in relatively high-income years, while also shifting some of the value from even to volatile earners within the same lifetime income class.

These income-smoothing benefits from conversion into a uniform refundable credit can be understood more technically by considering the coefficient of variation of after-tax income, which is a standard measure of income variability. It is defined as the standard deviation of after-tax income (roughly speaking, the average amount by which after-tax income tends to vary from its mean) divided by average after-tax income. The lower the coefficient of variation, the greater the income-smoothing benefits. If policymakers transform an existing deduction, exclusion, or non-refundable tax credit into a refundable tax credit on a revenue-neutral basis, the coefficient of variation is reduced. This occurs because the after-tax income of families engaging in the behavior is increased in relatively low-income years and reduced in relatively high-income years,¹⁴⁵ while the level of income smoothing for other tax units remains unchanged.¹⁴⁶ Appendix B provides an example illustrating this result.

Uniform refundable credits also smooth household income in a second scenario: if the credit is new and is financed in a manner that increases the progressivity of the underlying marginal rate structure.¹⁴⁷ In general,

145. Specifically, the change narrows the standard deviation of after-tax income for tax units engaging in the behavior while leaving their average after-tax income unchanged, thereby reducing their coefficient of variation. Stated differently, even though the average after-tax income of this group is constant, the after-tax income of families that engage in the behavior and have fluctuating incomes is increased, while the after-tax income of families that engage in the behavior and have smoother income is reduced.

146. Overall, the conversion to a refundable credit will increase income smoothing, but specific taxpayers could experience declines in income smoothing. For example, if the conversion induces many more tax units to engage in the behavior, this could reduce the after-tax income of prior claimants because the subsidy would be spread over more taxpayers. Greater income smoothing would still be the result in the aggregate and for new claimants. Similarly, the conversion could decrease income smoothing for certain higher-income households for whom income declines previously did not result in a decline in the value of the tax incentive because they were still in the same tax bracket. For them, conversion to the refundable credit would not affect their standard deviation of after-tax income (the numerator), but would lower their after-tax income (the denominator). Nevertheless, greater income smoothing would still result for society as a whole.

147. In theory, such a redistributive refundable credit could arise if the Pigouvian subsidy was financed with a nondistortionary benefit-offsetting tax and the social surplus generated by the subsidy was distributed in a progressive manner. *See supra* notes 92-93. In this case, the incentive would tend to increase income smoothing through the progressive tax, yet it would not generate any additional distortions. As a result, the credit would

progressive taxes smooth household income by requiring that households pay a smaller portion of their income in lean years and a larger portion in lush years. The progressive financing of redistributive refundable credits has the same effect.¹⁴⁸ Although our intent is to set distributional objectives aside, the efficiency effects of such refundable credits nevertheless warrant consideration.¹⁴⁹ When a Pigouvian subsidy is financed in a manner that results in distortionary redistribution and the redistribution is assumed to have no social value, the behavior generating externalities still should be subsidized but in a way that maximizes the net social gain in light of the distortionary cost of the tax used to finance it.¹⁵⁰

Previously we highlighted two factors that can affect this calculus for a given group: (1) the size of the marginal externalities generated by its behavior, and (2) its marginal responsiveness to the subsidy. Here we suggest a third factor: the size of the efficiency gains generated by the tax incentive's tendency to increase income smoothing for the group. In essence, these income-smoothing benefits can be viewed as increasing the net social gain from the subsidy or reducing the distortionary cost of financing a Pigouvian subsidy with a tax that is more progressive than the nondistortionary tax. While such income smoothing could be achieved (and generally would be more efficiently achieved) by increasing the progressivity of the tax system overall, that

enhance efficiency both by correcting for a positive externality and by smoothing income at a household level. In practice, a redistributive refundable credit might arise because a Pigouvian subsidy is financed with a tax that is more progressive than the nondistortionary benefit-offsetting tax, which is generally unachievable.

148. These claims about the income smoothing potential of refundable credits may raise questions about the relationship between income smoothing and the fluctuation penalties discussed in *supra* Part II.A.3. In general, one way to smooth income is to eliminate fluctuation penalties in a manner that increases after-tax income in relatively low-income years, as would occur if other forms of tax incentives were transformed into uniform refundable credits on a revenue-neutral basis. But the tax system can also smooth after-tax income through more progressive taxation. Progressive taxes smooth after-tax income by adjusting the timing of tax payments to fall disproportionately in higher-income years, irrespective of the size of total lifetime tax payments. Typically, progressive taxes magnify fluctuation penalties because taxpayers with fluctuating incomes are then forced to pay taxes at even higher marginal rates in high-income years than they would if they earned their income more smoothly, but this need not be the case. Greater tax progressivity only increases fluctuation penalties to the extent that it results from more progressive annual marginal tax rates that are not accompanied by income-averaging provisions. Converting tax incentives into uniform refundable credits can be seen as an income averaging device for tax incentives.

149. As noted at the outset, by setting distributional objectives aside for purposes of this Article, we consider changes in the level of redistribution to be in and of themselves neither desirable nor objectionable. As a result, if a tax incentive is going to be financed with a progressive tax, it is still worth consideration in our analysis. However, we only consider its efficiency-enhancing and efficiency-reducing effects, for example through income smoothing and the distortionary cost of the tax, and not its tendency to satisfy or frustrate different people's distributional preferences. *See also supra* note 20.

150. *See supra* notes 92-99 and accompanying text.

possibility does not eliminate the efficiency gains from enhancing income smoothing through tax incentives, especially if tax incentives are the only politically viable option for softening income fluctuations.

In short, structuring a tax incentive as a uniform refundable credit will, in a variety of scenarios, tend to increase household income smoothing, thereby augmenting the incentive's efficiency benefits.

C. *Smoothing Macroeconomic Demand*

The final element of the case for refundable credits is their ability to smooth macroeconomic demand. Like household income smoothing, macroeconomic consumption smoothing can enhance efficiency, even putting distributional concerns aside. In particular, macroeconomic demand fluctuations can make it difficult for companies to optimize their investment and production functions, resulting in adjustment costs. These difficulties can inhibit domestic and foreign investment, which in turn can impair economic growth. As a result, there is broad consensus in support of taxing and spending policies that are automatically countercyclical.¹⁵¹

Uniform refundable credits can help stabilize macroeconomic demand fluctuations in several, related ways. If the credit replaces an existing tax incentive on a revenue-neutral basis, it should smooth after-tax income on a macroeconomic level by eliminating fluctuation penalties in a way that increases the value of the tax incentive in recessionary periods. In addition, if the refundable credit increases the progressivity of the underlying marginal rate structure, it should further smooth macroeconomic demand fluctuations and enhance economic efficiency (subject to the caveats in the prior sub-section)¹⁵² because taxpayers should face lower marginal rates or claim more refundable credits in recessionary periods.¹⁵³ Either way, refundable tax credits can make the tax system a more potent "automatic stabilizer."

151. There is less consensus about the merits of discretionary counter-cyclical taxing and spending policy because implementation lags and weak consumption responses can result in discretionary policies either having no effect or exacerbating the business cycle rather than smoothing it. See John B. Taylor, *Reassessing Discretionary Fiscal Policy*, 14 J. ECON. PERSP., Summer 2000, at 21; Alan J. Auerbach, *Is There a Role for Discretionary Fiscal Policy?* (Nat'l Bureau of Econ. Research, Working Paper No. 9306, 2002), available at <http://www.nber.org/papers/w9306>. But see Alan J. Auerbach, *The Effectiveness of Fiscal Policy as Stabilization Policy* (July 2005) (unpublished manuscript, on file with authors), available at <http://emlab.berkeley.edu/users/auerbach/effective.pdf> (concluding that fiscal policy can be responsive to economic conditions and policy lags do not appear to preclude the use of discretionary policy for macroeconomic stabilization).

152. See *supra* notes 149-50 and accompanying text. Specifically, like household income smoothing, this latter type of macroeconomic smoothing is generally most efficiently accomplished by increasing the progressivity of the tax system as a whole, but accomplishing it through tax incentives still merits consideration if they are the only politically viable option.

153. The EITC provides a good example of this effect. See Timothy Dowd,

As the literature on automatic stabilizers demonstrates, the tax system generally is an automatic stabilizer because it attenuates macroeconomic demand shocks without requiring explicit government action.¹⁵⁴ For example, consider a simple tax system with a proportional tax. If pre-tax income falls by one dollar, after-tax income only falls by one dollar minus the tax, thereby potentially mitigating the effect on consumption of the economic shock.¹⁵⁵

A common measure of the potency of the tax system in cushioning the consumption effect of macroeconomic income shocks is the ratio of the change in total taxes to a change in pre-tax income. Joseph Pechman referred to this ratio as the system's "built-in flexibility."¹⁵⁶ Others have referred to it as the "normalized tax change."¹⁵⁷ We follow the latter nomenclature. The normalized tax change is essentially an estimate of the portion of an income shock that does not affect household consumption because of offsetting changes in tax payments.¹⁵⁸

In general, a progressive tax system is an even more effective automatic stabilizer than a proportionate tax because tax rates fall if total pre-tax income declines and rise if total pre-tax income increases. Its normalized tax change is therefore larger than the normalized tax change of a proportional tax that raises the same amount of revenue. Furthermore, the more progressive the tax system is, the more effective it is as an automatic stabilizer.¹⁵⁹

Because refundable credits can make the tax system as a whole more progressive than it would otherwise be, they can bolster its role as an automatic stabilizer. In particular, converting an existing tax incentive to a uniform refundable credit on a revenue-neutral basis, or adding a new uniform refundable credit that increases the progressivity of the marginal rate structure,

Distinguishing Between Short-Term and Long-Term Recipients of the Earned Income Tax Credit, 58 NAT'L TAX J. 807, 824 (2005) (finding that the unemployment rate and changes in the unemployment rate are positively and significantly correlated with the probability of claiming the credit).

154. See, e.g., Alan J. Auerbach & Daniel Feenberg, *The Significance of Federal Taxes as Automatic Stabilizers*, 14 J. ECON. PERSP., Summer 2000, at 37; Thomas J. Kniesner & James P. Ziliak, *Tax Reform and Automatic Stabilization*, 92 AM. ECON. REV. 590 (2002).

155. This can be seen mathematically by considering a tax system in which $T = tY$, where T is taxes, t is the tax rate, and Y is pre-tax income. After-tax income is $Y - T$, or $Y(1 - t)$. As a result, if pre-tax income falls by \$1, after-tax income falls by only $1 - t$ dollars.

156. Joseph A. Pechman, *Responsiveness of the Federal Income Tax to Changes in Income*, 2 BROOKINGS PAPERS ON ECON. ACTIVITY 385 (1973).

157. Auerbach & Feenberg, *supra* note 154, at 41.

158. In the simple proportional tax example, *supra* note 155, the normalized tax change is simply t .

159. To see these points mathematically, consider a progressive tax system $T = t(Y)Y$, where $t(Y)$ increases as income does (i.e., $t'(Y) > 0$). After-tax income then declines by $(1 - t(Y)) - t'(Y)Y$ dollars if pre-tax income falls by \$1, which is a smaller decline than $1 - t$ dollars since $t'(Y) > 0$. The greater $t'(Y)$ is, the more effective the system is as an automatic stabilizer.

should, as a matter of theory, help smooth macroeconomic demand fluctuations. This macroeconomic smoothing should in turn increase the net social gain from the subsidy, once again even if any associated redistribution itself is not valued.

Table 1. Effectiveness of Tax System in Stabilizing Consumption in the Face of Macroeconomic Income Shock

	Normalized Tax Change, 2006
Proportionate Income Shock	
<i>Assuming no smoothing through saving or borrowing</i>	
Current law	29.0%
Refundability of EITC and CTC eliminated	27.3%
<i>Adjusting for smoothing through saving & borrowing</i>	
Current law	28.7%
Refundability of EITC and CTC eliminated	27.0%
Skill-Biased Income Shock	
<i>Assuming no smoothing through saving or borrowing</i>	
Current law	18.3%
Refundability of EITC and CTC eliminated	16.6%

Source: Authors' calculations from the Urban-Brookings Tax Policy Center Microsimulation Model. *See supra* note 160. Our calculations include federal payroll and income taxes.

In order to test whether this effect is important, we examined the normalized tax change of the tax system using results from the Tax Policy Center microsimulation model¹⁶⁰ under current law and under a scenario where the current-law EITC and CTC were not refundable. As Table 1 shows, we first found that the normalized tax change for income and payroll tax rates combined is 29.0% under current law. In other words, in the face of a downward shock to pre-tax income, after-tax income will decline by 71.0% of the income shock. If refundability of the EITC and CTC was eliminated, the normalized tax change would be 27.3%, implying that after-tax income would decline by 72.7% of any shock to pre-tax income.¹⁶¹ This relatively modest effect of the refundable components of the EITC and CTC at a macroeconomic level presumably reflects the limited scale of current-law refundability and the

160. For details on the methodology underlying the model, see Urban-Brookings Tax Policy Ctr., Overview of the Tax Policy Center Microsimulation Model (Jan. 14, 2004), <http://taxpolicycenter.org/TaxModel/tmdb/TMTemplate.cfm?DocID=299>.

161. Auerbach & Feenberg, *supra* note 154, similarly find a relatively modest effect on the normalized tax change from the EITC.

relatively large share of income received and taxes paid by high-income tax units,¹⁶² which results in the influence of policies affecting higher-income households swamping the income-smoothing effects that the refundability of the EITC and CTC has on lower-income tax units.¹⁶³

The effectiveness of the tax system as an automatic stabilizer, however, depends not just on the normalized tax change, but also on the marginal propensity to consume out of current after-tax income. If the tax system merely mitigates temporary fluctuations in after-tax income for households that are not liquidity constrained, it may have little effect on consumption because such households may already smooth their spending on their own over time through saving and borrowing. Households that are liquidity constrained, by contrast, will adjust their spending more strongly to changes in current after-tax income.

Accordingly, we also examined the impact of refundable credits on the effectiveness of the tax system as an automatic stabilizer when liquidity constraints are taken into account. It is common to split the population into two groups based on their likelihood of being liquidity constrained. We follow Zeldes,¹⁶⁴ and Auerbach and Feenberg,¹⁶⁵ in dividing tax units depending on whether their non-housing wealth exceeds two months' worth of income. The Tax Policy Center model suggests that according to this definition, liquidity-constrained households account for half of pre-tax income,¹⁶⁶ which is within the range found by Auerbach and Feenberg.¹⁶⁷ Applying a marginal propensity to consume out of current after-tax income, in the face of a pre-tax income shock, of 0.9 for the liquidity-constrained households and 0.1 for the non-liquidity-constrained households, we found that the normalized tax change is 28.7% under current law and 27.0% if the EITC and CTC were not refundable.¹⁶⁸ Adjusting for differences in households' marginal propensity to

162. The Tax Policy Center model suggests that 15.7% of all tax units benefit from refundability of the EITC and CTC in a given year, but those tax units receive only 5.7% of total Adjusted Gross Income.

163. This point is highlighted by examining the effect of assuming a proportional tax system rather than a progressive one, which results in a much greater decline in the normalized tax change. For example, if the estimated average effective tax rate of 21.0% was the marginal rate applying to all income, the normalized tax change would be only 21.0%, implying that after-tax income would decline by 79.0% of any shock to pre-tax income.

164. Stephen P. Zeldes, *Consumption and Liquidity Constraints: An Empirical Investigation*, 97 J. POL. ECON. 305, 328 (1989).

165. Auerbach & Feenberg, *supra* note 154, at 45-46.

166. Liquidity-constrained households are not found, however, only in the bottom half of the income distribution, which explains the similarity between our first and second sets of estimates in Table 1.

167. Auerbach & Feenberg, *supra* note 154, at 46.

168. In this scenario, another portion of the income shock would not translate into reduced demand as a result of non-liquidity-constrained tax units smoothing consumption through saving and borrowing. Thus, although macroeconomic demand would be more stable overall under these assumptions, the tax system's role in stabilizing consumption is reduced.

consume out of current, after-tax income thus generates similar results to those instances where such differences are not taken into account.

Finally, it is possible that macroeconomic shocks do not apply proportionately across the income distribution, but rather are “skill-biased” and disproportionately affect lower-income individuals and families. In fact, most recent recessions appear to have been skill-biased; the income share of the top 20% of households has tended to rise during post-War recessions.¹⁶⁹ Skill-biased recessions should increase the effectiveness of refundable tax credits as an automatic stabilizer. In order to examine this possibility, we calculated the normalized tax change for a shock that only hits the bottom 40% of the income distribution. As Table 1 shows, under such a scenario, the normalized tax change for income and payroll tax rates combined is 18.3% under current law and 16.6% if the EITC and CTC were not refundable. In other words, in the face of a downward skill-biased shock to pre-tax income, after-tax income would decline by 81.7% of the income shock under current law, and by 83.4% if refundability were eliminated. A skill-biased shock therefore reduces the effectiveness of the tax system as an automatic stabilizer overall due to the low tax rates of those affected. But the role of refundability becomes relatively more significant, as the rest of the tax system diminishes in its capacity to automatically stabilize consumption.

Thus, while in theory refundable credits can make the tax system more effective as an automatic stabilizer of macroeconomic demand, we find in practice that this effect is relatively minor given the scale and scope of current refundable tax credits and the small share of income affected by them. To be sure, if the shock disproportionately affects lower-income individuals and families, even current-law refundability contributes relatively importantly to the tax system’s role as an automatic stabilizer. But more importantly, our results are limited to current-law refundability. If new refundable credits were enacted or existing tax incentives were transformed into refundable credits, this should strengthen the ability of the tax system to stabilize automatically macroeconomic demand and magnify the efficiency benefits of refundable credits even further.

III. POTENTIAL OBJECTIONS

While the above analysis has established that refundable credits—and especially uniform refundable credits—are an essential element of any tax system that attempts to promote socially valued activities or enhance income smoothing through tax incentives, opponents of refundable credits have raised four main objections. First, some question the extent to which government should engage in redistribution between different income groups. Second, some argue that the distinction between the tax and transfer systems should be strictly

169. See Barlevy & Tsiddon, *supra* note 24, at 25.

enforced so that the tax system is only used to raise revenue and subsidies are only delivered through the transfer system.¹⁷⁰ Third, some believe that all Americans have a civic duty to pay at least some income tax, even if just one dollar, so that they feel some stake in governmental decisions. Fourth, some argue that administrative and compliance costs will undercut or eliminate the potential efficiency gains from structuring a tax incentive as a refundable credit. Together, all four concerns are typically embodied in complaints that refundable credits will turn the tax system into a welfare system and generate widespread fraud and abuse.¹⁷¹

The purpose of this Article is not to challenge the theories of distributive justice, democratic participation, and institutional comparative advantage that underlie these arguments, although we generally disagree with them. Instead, we seek to demonstrate that these objections generally fail to counter the efficiency-based arguments for structuring tax incentives as refundable credits that we have advanced.

In particular, concerns about the extent of governmental redistribution do not justify rejecting refundable credits correcting for positive externalities if the efficiency benefits are large enough to offset any social welfare losses that some may believe result from redistribution.¹⁷² In addition, concerns about delivering incentives through the tax system instead of the transfer system are generally best viewed as objections to tax incentives overall, not to refundable credits specifically.¹⁷³

The position that all Americans should pay some income tax as a duty of citizenship merits some further discussion. It dates back to at least the nineteenth century¹⁷⁴ and was invoked in Blum and Kalven's famous monograph *The Uneasy Case for Progressive Taxation*.¹⁷⁵ More recently, this

170. This position is sometimes based on a formalist view of what constitutes a pure tax system. See Alexander, *supra* note 7 (“If it’s a refundable credit, it has no business in the tax system.”). And sometimes it is based on a functionalist view of the comparative advantages of different agencies and legislative committees. See SURREY I, *supra* note 14, at 141-48; Dick Arney, *The Child Tax Credit and Welfare: The Child Tax Credit Should Be Part of the Welfare Debate*, FREEDOMWORKS, Aug. 14, 2003, http://www.freedomworks.org/informed/issues_template.php?issue_id=1520.

171. See David Lightman, *A Tax Credit Divide; House’s Extension Package a Dilemma for Both Parties*, HARTFORD COURANT, June 12, 2003, at A4; Toedtman, *supra* note 8 (summarizing several politicians’ objections to refundable credits).

172. See *supra* notes 92-99 and accompanying text.

173. But see our discussion below about the question of whether administrative and compliance costs associated with refundable credits may undermine the efficiency benefits of delivering tax incentives in this form. See *infra* notes 185-96 and accompanying text.

174. See, e.g., CHARLES FRANCIS BASTABLE, PUBLIC FINANCE 319 (MacMillan 1903) (1892) (“The danger of relieving the lowest class of labourers from nearly all the burdens of the State, while it holds preponderating political power is apparent.”).

175. See Walter J. Blum & Harry Kalven, Jr., *The Uneasy Case for Progressive Taxation*, 19 U. CHI. L. REV. 417, 515 (1952) (“Another drawback is that depression would tend to relieve too large a part of the population from the obligation to pay taxes. Whatever

view appears to have garnered some support among members of the President's Tax Reform Panel.¹⁷⁶

On its face, this argument against refundable credits is unconvincing. To begin, the argument is not just a counter to refundable credits, but to any tax provision that eliminates tax liability, whether a tax incentive or a provision (like the deduction for business expenses) that is designed to measure income or ability to pay. In addition, the argument rests on a false distinction between taxes paid and the benefits flowing from government. If society is determined to subsidize certain behavior or provide transfers to lower-income households, then requiring every American to pay some income tax needlessly entails "tak[ing] with one hand in order to give back with the other."¹⁷⁷ It arbitrarily supports taxing one dollar and then immediately transferring it back through a spending program, while opposing the elimination of the tax in the first place.

If, nonetheless, one persists in believing that each adult has a civic duty to pay some tax and that the taxes and benefits of government should be considered wholly separately, there is the further question of whether households claiming refundable credits actually do pay tax on net over time. In fact, it is likely that most do because any household claiming a refundable credit that is conditioned on earnings (like the EITC and CTC) necessarily pays payroll taxes, and in most cases the household pays a variety of other federal, state, and local taxes as well. Moreover, even if one is interested strictly in federal income taxes, it is likely that many refundable credit beneficiaries pay a positive amount of federal income tax over time as a result of the income variations that people tend to experience over their lives.

These hypotheses are borne out empirically. In order to test them, we ran simulations applying a simplified model of 2003 federal income tax law¹⁷⁸ to inflation-adjusted earnings data from the Panel Survey of Income Dynamics.¹⁷⁹

the force of democratic participation by way of paying taxes as an argument against having any exemption, it must be recognized that at some point surely there can be too large a number of citizens out from under the tax system.").

176. PRESIDENT'S ADVISORY PANEL ON FED. TAX REFORM, *supra* note 9, at 69 ("Some Panel members also expressed the concern that a Work Credit structure that did not phase out would increase the number of individuals who would not pay income tax."); *see also* Eberle, *supra* note 6; Julie Hirschfeld Davis, *Senate Nears Deal on Tax-Credit Checks; Bipartisan Plan May Send \$400 a Child to 6.5 Million Families with Low Incomes*, BALTIMORE SUN, June 5, 2003, at 3A.

177. BASTABLE, *supra* note 174, at 319.

178. The model assumes, for example, that a tax unit could have claimed the EITC and CTC in 1974 if their inflation-adjusted earnings would have made them eligible under 2003 law, even though both provisions were not yet enacted.

179. The tax model included the basic marginal rate brackets, standard deduction, personal and dependent exemptions, EITC, and CTC. The longitudinal earnings data was drawn from the Panel Survey of Income Dynamics (PSID), a longitudinal survey of a representative sample of individuals and the families in which they reside. It covers the years of 1968 to 1992 and is weighted to represent the United States population in 1968. The methodology we used is summarized in Batchelder, *supra* note 143, at 440-45, with three

As summarized in Table 2, our simulations suggest that about three-quarters of tax units who would be eligible for the refundable element of the EITC or CTC at some point during a twenty-year period under current law should nevertheless have positive net federal income tax liability over that period if historic earnings patterns are any guide.¹⁸⁰ When we broadened the inquiry to include the employer and employee share of the payroll tax, over 99% of this group should have positive federal tax liability over the same twenty years.¹⁸¹

Table 2. Percentage of Tax Units Eligible for Refundability in One or More Years with Positive Federal Tax Liability over the Period

	Period Examined			
	10 Years	15 Years	20 Years	25 Years
Income Tax Only	58%	68%	75%	82%
Income and Full Payroll Tax	97%	97%	99%	99%

It is worth noting that our findings are likely an underestimate for several reasons¹⁸² and do not appear to be strictly limited to refundable credits under current law.¹⁸³

exceptions. First, our sample is limited to tax units with the number of years of continuous data specified in Table 2. For example, when we examine ten years of data, we look only at the first ten years of continuous data for a given tax unit. Second, our sample is not restricted to tax units that exhibit the same filing status over the entire period. Finally, 2003 law is applied.

180. Table 2 includes all tax units with positive tax liability. We recognize that it is somewhat arbitrary to draw a line between one dollar of tax liability and no tax liability but this appears to be an important distinction for opponents of refundable credits. Further support for our findings can be found in Dowd, *supra* note 153, at 816 (finding that over a fifteen-year period, 41% of EITC recipients receive the credit for one or two years and 49% receive it for three or fewer years); *see also* PRESIDENT'S ADVISORY PANEL ON FED. TAX REFORM, *supra* note 9, at 29 (discussing a Treasury study estimating that about two-thirds of taxpayers in the bottom (zero rate) bracket in a given year had moved to a higher bracket after ten years).

181. There is a fair amount of evidence that employees bear the full incidence of both the employer and employee share of the payroll tax. *See, e.g.*, Jonathan Gruber, *The Incidence of Payroll Taxation: Evidence from Chile*, 15 J. LAB. ECON. S72 (1997).

182. First, as Table 2 illustrates, the proportion of tax units currently eligible for refundability that have positive tax liabilities over time increases with the number of years examined, which suggests that this proportion would rise still further if we had data over a longer time period. Second, because our simulations apply 2003 law to years when the EITC and CTC were much smaller or did not exist, they do not account for the effect of both provisions on earnings. If anything, the proportion would likely be higher if these effects were incorporated because, on average, the EITC appears to have increased labor force participation. *See supra* note 44. Similarly, because our estimates apply over a period in which female labor force participation rates were continuing to increase, future labor force participation rates should be higher than in our historical sample for this reason as well. Finally, in order to maximize the likelihood that tax units were eligible for the EITC, we restricted the sample to years when the head of the household was between ages twenty-five and sixty-five. *See* I.R.C. § 32(c)(1)(A)(ii)(II) (2006). If we include years when tax units are

Thus, even if one accepts the principle that all Americans should pay some income tax, this principle would not necessarily preclude refundable credits once income tax liabilities are examined over longer time periods. Instead, most current refundable credits are paid to individuals and families with positive long-term federal income tax liability. Furthermore, aside from timing differences our estimates suggest that for many tax units making an existing tax credit refundable is identical to providing for carryovers and carrybacks of a non-refundable credit.¹⁸⁴ In this respect, they should be even less controversial because carryovers and carrybacks are widely accepted tools for mitigating the arbitrary differences in tax burdens that result from the annual accounting period.

The final common objection to refundable credits is that administrative and compliance costs may undercut or eliminate their potential benefits. This objection is typically embodied in three different concerns. First, some cite the relatively high noncompliance rates associated with the EITC historically as evidence that refundable credits may be especially prone to unintentional noncompliance or fraud. Second, some argue that, as a result of liquidity constraints, the IRS will have more difficulty reclaiming erroneously issued refundable credits and taxpayers will find it more costly to repay such credits. Finally, some express concern that the potential efficiency gains from structuring tax subsidies as uniform refundable credits may be swamped by the administrative and compliance costs associated with creating incentives for some non-filing tax units to begin filing tax returns.

We generally find the first two objections unpersuasive. As discussed above, existing data on EITC noncompliance is outdated; the rate is likely to decline significantly as a result of an array of recent reforms, and at its highest point the EITC noncompliance rate was lower than the noncompliance rate for many other groups.¹⁸⁵ Even if this were not the case, though, high EITC

elderly and therefore ineligible for the EITC, this increases the proportion with positive long-term tax liabilities even further.

183. For example, one could imagine that a new refundable credit might result in a substantial portion of tax units having negative lifetime income tax liabilities if many eligible households currently have zero long-term income tax liability. However, when we examined the entire sample (including those ineligible for current refundable credits), we found that less than 0.2% of tax units have zero net income tax liability over a twenty-year period. Our findings do, however, depend on the level and form of refundable credits.

184. Disregarding the differences due to the time value of money, refundability of a credit is identical to allowing carrybacks for a person with positive net lifetime income tax liability as of the current tax year, and to allowing carryovers for a person who has positive net lifetime income tax liability going forward. Daniel Shaviro has also made the point that refundability is generally equivalent to a tax reduction that is re-sequenced over time. *See SHAVIRO, supra* note 36.

185. *See supra* notes 47-49 and accompanying text. The IRS has estimated that in 1999 the EITC noncompliance rate was 27-32%. INTERNAL REVENUE SERV., COMPLIANCE ESTIMATES FOR EARNED INCOME TAX CREDIT CLAIMED ON 1999 RETURNS (2002), <http://www.irs.gov/pub/irs-utl/compesteitc99.pdf>. By contrast, the current noncompliance

noncompliance rates would not justify rejecting refundable credits as a method for delivering tax incentives. There is no reason in theory, and no empirical evidence in practice, why there should be a “cliff effect” in unintentional noncompliance or fraud precisely at the point of positive income tax liability. If anything, fraud may be easier to hide when it comes in the form of a reduction of taxable income as opposed to an increase in refundable credits.¹⁸⁶ Instead EITC noncompliance is largely driven by the complexity of the credit and difficulty in obtaining reliable third-party reporting on one of the main determinants of eligibility: who is a qualifying child.¹⁸⁷ Other tax incentives (whether refundable or not) could be structured more simply, and reliable third-party reporting already exists or is readily attainable for many of the most costly tax incentives that are currently structured as deductions and exclusions, such as those for homeownership, retirement savings, charitable contributions, and education.¹⁸⁸

Administrative and compliance costs associated with liquidity constraints are also not a strong objection to refundable credits because, once again, they are not specific to refundable credits but rather may arise whenever a refund is erroneously issued to a tax unit with little savings. Such liquidity-constrained households need not be low-income.¹⁸⁹ In addition, as with all tax underpayments, the IRS can recapture the amount owed over time. Indeed, as noted above, our simulations suggest that over 80% of households that are eligible for a refundable credit at some point under current law earn enough in other periods to have positive income tax liability over time.¹⁹⁰ This implies that there are few situations where future earnings are so low that recapture is impossible. Moreover, recapture is likely to be easier in the context of the many

rate for small business income is 57% and for farm income it is 72%. JASON FURMAN, CTR. ON BUDGET & POLICY PRIORITIES, CLOSING THE TAX GAP 2 (2006), <http://www.cbpp.org/4-10-06tax3.pdf>.

186. For example, over 80% of individual misreporting is attributable to understated income, not overstated deductions. See *The Causes of and Solutions to the Federal Tax Gap: Hearing Before the S. Comm. on the Budget*, 109th Cong. 3 (2006) [hereinafter *Tax Gap Hearing*] (statement of Nina Olson, National Taxpayer Advocate), available at <http://budget.senate.gov/republican/hearingarchive/testimonies/2006/NinaOlsenTestimony.pdf>. This may be the case because, unlike exclusions and like refundable credits, deductions create a paper trail.

187. See *supra* notes 47-49 and accompanying text. Currently the overall tax noncompliance rate is 16.3%. FURMAN, *supra* note 185, at 1. However, when third-party reporting is not available, the noncompliance rate rises to 20-80%. *Tax Gap Hearing*, *supra* note 186, at 2.

188. See, e.g., I.R.S. Form 1098-T (2005), available at <http://www.irs.gov/pub/irs-pdf/f1098t.pdf> (tuition payments); I.R.S. Form 1099-R (2005), available at <http://www.irs.gov/pub/irs-pdf/f1099r.pdf> (distributions from tax-preferred retirement savings vehicles).

189. See, e.g., Edward N. Wolff, *Recent Trends in Wealth Ownership, 1983-1998* (Jerome Levy Econ. Inst. Working Paper No. 300, Apr. 2000) (finding that in 1998 the middle quintile of the income distribution only had enough accumulated financial reserves to sustain consumption at 125% of the poverty line for 3.4 months).

190. See *supra* Table 2.

existing tax incentives that subsidize savings because they create an asset against which collection is possible.¹⁹¹ Relative to the EITC, recapture is also less likely to be necessary for many existing non-refundable tax incentives if they were transformed into uniform refundable credits because reliable third party information reporting provides taxpayers with the information necessary to complete their returns and the knowledge that the same information will be reported to the IRS.

A final administrative concern that merits more discussion is the possibility that increasing the prevalence of refundable credits will create incentives for tax units that are currently non-filers to begin filing, thereby increasing administrative costs for the government and compliance costs for these households. While such costs are real and should be taken into account, they should not be overstated for several reasons. First, non-filers represent a relatively small share of the households that stand to gain from structuring tax incentives as uniform refundable credits. Currently only about 13% of tax units are non-filers in any given year, while close to 40% have no federal income tax liability and are thus excluded altogether from non-refundable tax incentives.¹⁹² Many more tax units receive weaker benefits than they would if existing tax incentives were transformed into uniform refundable credits on a revenue-neutral basis.¹⁹³ In addition, to some extent the compliance burden for non-filers is a one-time cost. Each time a tax unit begins filing in order to receive a tax incentive newly structured as a refundable credit, the incremental compliance cost associated with adding another refundable credit for which the tax unit is eligible is reduced substantially. Third, all tax incentives are elective and, even for non-filers, the administrative and compliance costs associated with claiming them are likely to be swamped in many instances by the dollar value of the credit. Currently it costs an individual taxpayer an average of \$243 to have their return filed by a professional preparer, and a paper return only entails about \$2 in direct processing costs for the IRS.¹⁹⁴ These expenses pale in comparison to, for example, the \$2000 that a low-income non-filer could receive if the Lifetime Learning Credit were made refundable or the \$3400 they

191. Recapture would be even easier if the credit were deposited into the savings vehicle, as proposed in William G. Gale et al., *Improving Opportunities and Incentives for Saving by Middle- and Low-Income Households* (Brookings Inst., Hamilton Project White Paper No. 2006-02, 2006), available at http://www.brookings.edu/views/papers/200604hamilton_2.pdf.

192. See Orszag & Hall, *supra* note 19, at 723.

193. See, e.g., Gale et al., *supra* note 191, at 15 tbl.2.

194. See JOHN L. GUYTON ET AL., THE EFFECTS OF TAX SOFTWARE AND PAID PREPARERS ON COMPLIANCE COSTS 11 (2005), available at <http://www.urban.org/url.cfm?ID=1000802>; *Washington Technology: The IRS and E-filing Your Income Taxes*, WASHINGTONPOST.COM, Feb. 19, 2002, http://www.washingtonpost.com/wp-srv/washtech/transcripts/archive_lutes_021902.htm (featuring an interview with Terry Lutes, Director, IRS Electronic Tax Administration).

could receive if the hybrid car tax credit were refundable.¹⁹⁵ Finally, an exclusive focus on non-filers masks costs and efficiency losses borne by other parties when a Pigouvian subsidy is not uniform. Non-uniform subsidies are more difficult to understand and, as a result, taxpayers may be less responsive to them, they may incur more expenses understanding them, and marketing the subsidy may be more costly.¹⁹⁶

In summary, therefore, the administrative and compliance costs associated with inducing some new tax units to file seem to be a poor rationale for denying non-filers the sizable benefits offered by current tax incentives, and denying society the substantial efficiency benefits of uniformity.

CONCLUSION

This Article has endeavored to reframe the debate about refundable credits by setting aside questions of distributive justice and the comparative advantages of the tax and transfer systems. It concludes that refundable credits are an entirely appropriate way to structure tax incentives—and almost always the most efficient way to structure such incentives—for several reasons.

First, uniform refundable credits are the most efficient default structure for a tax incentive intended to correct for positive externalities when, as frequently occurs, evidence of externalities and elasticities associated with the desired behavior is unavailable or inconclusive. Indeed, even when such evidence is available, some type of non-uniform refundable credit must be the most efficient design because refundable credits are the only straightforward way to ensure that a tax incentive reaches the roughly two-fifths of tax units with no positive income tax liability in a given year, and it is highly unlikely that the optimal subsidy would exclude precisely this group and only this group.

The efficiency benefits of refundable credits are magnified by their ability to smooth household earnings and, to a greater or lesser extent, bolster the role of the tax system as an automatic stabilizer of macroeconomic consumption. Moreover, we conclude that the arguments of refundable credit opponents generally fail to counter these efficiency-based rationales for refundable credits and, at times, are unpersuasive on their own terms.

There are, however, clearly limits on the extent and type of refundable credits that should be adopted. For example, the empirical finding that the vast majority of the recipients of refundable credits in any given year are likely to

195. I.R.C. § 30B (2006).

196. An anecdotal example of these costs can be found in Katherine Patton, *The New Hybrid and Alternative Vehicle Tax Credit—An Attempt at Federal Environmental Policy Making* (May 10, 2006) (unpublished manuscript, on file with authors). The author posed as a consumer interested in purchasing a hybrid car and asked what tax benefit she would receive. The dealers either said they did not know or directed her to contact her tax accountant. If the credit were uniform and refundable, such cautious marketing and mid-year advice from tax professionals would be unnecessary.

have positive lifetime income tax liabilities would presumably no longer apply if refundable tax credits were expanded to an unprecedented degree. Although this would not affect the efficiency-based rationales for refundable credits that we have advanced, it may be a consideration for those who believe that all citizens should pay some income tax.

Similarly, many behavioral tax incentives may be bad policy regardless of refundability, either because the behavior in question does not generate positive externalities, or because of administrative and compliance costs. Even if an incentive for private behavior is appropriate, consideration should be given to whether the subsidy is better delivered through the tax system or through direct transfers or regulation. For instance, the transfer system may have greater expertise in the area, lower administrative and compliance costs, or more effective legislative oversight, enforcement, and delivery capabilities.

Nevertheless, taking these limitations into account, we believe serious consideration should be given to restructuring existing tax incentives, and structuring any new tax incentives, as uniform refundable credits. The United States already spends almost 4% of GDP each year subsidizing socially valued activities through the tax code in forms that have little justification. Our proposal to change the default structure for such incentives would dramatically improve the effectiveness and fairness of this substantial investment.

APPENDIX A

Consider a pattern of subsidies, $S(t)$, chosen by policymakers to minimize the expected squared "error" relative to an optimal subsidy (where the squared error is an appropriate loss function because the deadweight loss rises with the square of the uncorrected externality). The optimal $S^*(t)$, where t indexes people and $S^*(t)$, is assumed equal to some constant plus a stochastic term:

$$S^*(t) = \mu + \varepsilon(t)$$

The stochastic term $\varepsilon(t)$ is distributed normally with a mean of 0 and a variance of σ^2 . The realization of $\varepsilon(t)$ for each individual is not known when policymakers must choose $S(t)$. These admittedly simplified assumptions are consistent with the default assumptions we maintain in the text,¹⁹⁷ and in the absence of information to the contrary, are in our view the most reasonable practical guide for policymakers.

Given these assumptions, the minimization problem is simply to choose $S(t)$ to minimize:

$$\int [S^*(t) - S(t)]^2 dt \text{ subject to } \int S(t) dt = K$$

where K is the total amount to be spent on the subsidy. Note

$$\begin{aligned} & \text{Min} \int [S^*(t) - S(t)]^2 dt \\ & = \text{Min} \int [\mu^2 + 2\varepsilon(t)\mu - 2S(t)\mu - 2S(t)\varepsilon(t) + \varepsilon^2 + S(t)^2] dt \\ & = \text{Min} \left\{ \mu^2 T - 2\mu K + \sigma^2 + \int S(t)^2 dt \right\}, \end{aligned}$$

where T is the total population receiving the subsidy, the budget constraint has been substituted in, and the assumption that $\varepsilon(t)$ is independent of $S(t)$ has been applied.

Since the first three terms are fixed, the problem collapses to minimizing $\int S(t)^2 dt$. That minimization occurs when $S(t) = k$, so that the subsidy is uniform across people. The expected squared error is thus minimized by setting a uniform subsidy:

$$S(t) = k = \mu = \frac{K}{T},$$

for each person. Any variation from $S(t) \equiv \mu$ would increase the expected squared "error." The result is consistent with the algebraic example presented in the text.¹⁹⁸

197. See *supra* notes 16, 100.

198. See *supra* notes 102-06 and accompanying text.

APPENDIX B

The ability of conversion to a refundable credit to enhance income smoothing can be illustrated by an example. For instance, suppose Sally Saver and Sue Spender both earn a steady income of \$30,000 per year. Meanwhile, Fran Saver and Faye Spender both have incomes that fluctuate between \$20,000 and \$40,000. Perhaps Fran and Faye each have a mother who can no longer can take of herself, and they each agree to share responsibility for caring for their mothers with a sibling. During years when the sibling cares for the mother, Fran and Faye each work overtime. In the other years, each cuts back on her hours significantly. As a result, even though they have the same income and earning potential overall, Fran and Faye's income varies widely, while Sally and Sue experience no income fluctuations.

	Pre-Tax	After-Tax (Deduction)	After-Tax (Ref. Credit)
<i>Savers</i>			
Sally Saver Yearly Income	\$30,000	\$30,000	\$29,375
Fran Saver Income Year 1	\$20,000	\$20,000	\$21,875
Fran Saver Income Year 2	\$40,000	\$35,000	\$34,375
CV Sally Saver	0%	0%	0%
CV Fran Saver	33%	27%	22%
<i>Spenders</i>			
Sue Spender Yearly Income	\$30,000	\$27,500	\$27,500
Faye Spender Income Year 1	\$20,000	\$20,000	\$20,000
Faye Spender Income Year 2	\$40,000	\$32,500	\$32,500
CV Sue Spender	0%	0%	0%
CV Faye Spender	33%	24%	24%
<i>Society</i>			
CV	17%	12%	11%

Now suppose they are the only people in a four-person economy and that the first \$25,000 of income each year is tax exempt and thereafter income is taxed at a 50% rate. There is a deduction of \$5000 for taxpayers who are saving for college for one of their children. Sally Saver and Fran Saver elect to do so, but Sue Spender and Fay Spender do not. The question is what effect converting the deduction to a refundable credit on a revenue-neutral basis would have on income smoothing.¹⁹⁹ The revenue-neutral refundable credit would be \$1875.²⁰⁰

199. In this example, the change is financed in a manner that does not alter the progressivity of the underlying marginal rate structure.

200. The revenue-neutral refundable credit is calculated on a steady-state basis. The deduction is worth \$2500 per year to Sally Saver ($0.5 * \$5000$). It is worth nothing to Fran

As illustrated above, converting the deduction to a refundable credit substantially reduces the coefficient of variation for Fran Saver, while having no effect on Sally Saver or the Spenders. Sally Saver does end up with less after-tax income, but her after-tax income is no more volatile. As a result, the conversion has increased household smoothing for the society overall.

Saver in year 1 and \$2500 to Fran Saver in year 2 ($0.5 * \$5000$). Thus, the total value is \$7500 for both of them over two years, or \$1875 per person, per year.