

Federal Reserve Bank of Cleveland

Generational Equity and Sustainability in U.S. Fiscal Policy

by Jagadeesh Gokhale

Policymakers' budget perspectives show a puzzling dichotomy. Their projections and plans for the general budget seem to extend only five years out, but President Clinton's recent proposal for Social Security—that future budget surpluses be “reserved” until the program's solvency is restored—suggests a much longer perspective. After all, the official figures of the Social Security Administration (SSA) indicate that the program will not go bankrupt under current law until the year 2032.¹

The President's emphasis on Social Security reform may have been motivated by concern about generational equity. Preserving the program's current structure involves a choice between two politically unpopular alternatives: increasing taxes or cutting benefits. The former will impose larger burdens on working-age and future generations, while the latter will hurt retired generations. Achieving an equitable solution is likely to be an important goal of future reforms. Moreover, the required policy adjustments will probably be smaller if reforms are implemented sooner.

Social Security, however, is but one element in the government's fiscal policy and provides but one kind of benefit—income for retirees and the disabled and, on their death, for their survivors. The government, however, provides myriad other public goods and services that benefit citizens and are paid for by levying taxes. I argue here that financing these benefits merits the same long-term perspective and deserves the same concern about generational equity as does Social

Security. This means that long-term projections and actuarial calculations similar to those reported by the SSA should be extended to the entire budget. Such calculations would reveal the stance of fiscal policy regarding the tax treatment of different generations—and would inform us about its fairness.

Some may judge that equity across age groups is important on its own merits, but it also has significant implications for fiscal sustainability and economic efficiency. I briefly discuss the importance of generational accounting—a method of long-term fiscal analysis—and present results from calculations for the United States.² These show that the stance of U.S. fiscal policy is *prospectively generationally inequitable*; in other words, the implied fiscal burden on future generations is disproportionately large relative to that on living generations. It turns out that such a policy is also unsustainable over the long term. However, maintaining it for a few years will necessitate larger future policy adjustments and permanently higher fiscal burdens for future generations, on average. I also report calculations, similar to those the SSA made for the Social Security program, showing the magnitudes of alternative policy changes that are needed to establish prospective generational equity and long-term sustainability in U.S. fiscal policy. The results make a clear case for implementing corrective measures as early as possible.

U.S. policy is not evenhanded in its tax treatment of older, younger, and future generations. If living generations are taxed according to current policy until they die, they will give up 28.6 percent of their lifetime labor income. But if government spending goes as projected, future generations will give up almost half their lifetime labor income to balance the government's books. This indicates that current policy cannot be sustained indefinitely. The size and timing of the required changes are reported here. Postponing them is likely to prove costly.

■ The Importance of Generational Accounting

The U.S. government purchases goods and services for its citizens, financed by levying taxes on them.³ Part of annual revenue is handed back to the public immediately through Social Security, Medicare, Medicaid, welfare, and other transfer programs. Thus, government purchases are financed with *net taxes* (taxes net of transfers).⁴

Long-term budget balance requires that all future net taxes be equal, in present value, to the existing debt plus the present value of all future purchases. However, in any given year, net tax receipts need not equal purchases plus debt service in that year. The time profile of net tax receipts can be altered—for example, by lowering taxes in one year and increasing them in a future year in a way that preserves their present value—without disturbing the present-value balance between net taxes and debt plus purchases.

A change in the time pattern of net taxes will usually redistribute burdens among generations. For example, reducing income taxes today and increasing them several years hence so that the present value of income taxes (and, hence, of net taxes) remains unchanged, will reduce the net taxes of those who retire or die in the intervening period. Doing so, however, will impose larger net taxes on younger (and possibly future) generations.

This may suggest that comparing different streams of net taxes with purchases—in effect, comparing alternative time paths of budget deficits and debt—is sufficient to reveal the generational stance of fiscal policy. However, the net tax burdens on different generations can also be altered *without* changing the time profile of aggregate net taxes or purchases, or, by implication, that of budget deficits and debt. For example, increasing both payroll taxes and Social Security benefits by the same amount in each future year would leave the time path of total net taxes unchanged. However, already-retired generations would gain through larger Social Security benefits, while young and future generations would lose because, in present value, their larger payroll taxes would exceed their larger Social Security benefits.⁵

Evaluating a given fiscal policy for generational equity, therefore, involves looking beyond budget deficits. Indeed, one must trace in detail which generations pay taxes and which receive transfers under that policy, and keep track of the timing of these transactions. This is precisely what generational accounting accomplishes.⁶

Understanding how today's policy distributes net tax burdens across living generations and how changing it might alter those burdens is important for economic efficiency. Such changes are likely to affect these generations' resources and, consequently, their decisions about how much to work and consume.⁷ Evaluating the implications of fiscal policy for future generations is important for the same reason: Maintaining, for even a few years, a policy stance that is highly unfavorable to future generations is likely to harm their incentives to work, save, and invest, thereby weakening future economic performance.

■ The Fiscal Burden

Generational accounting calculations show that under "reference" projections, the present value of the government's bills amounts to \$31.5 trillion (\$29.4 trillion in purchases plus \$2.1 trillion in outstanding debt).⁸ If we assume that living (including newborn) generations are treated throughout their lives as they are under reference policy, these generations will collectively pay net taxes of \$22.1 trillion in present value. Therefore, under the same assumption, the requirement of long-term budget balance implies that future generations (those born after 1995) would collectively have to pay \$9.4 trillion in present value.⁹ This latter figure—rather than outstanding government debt—more meaningfully reflects the fiscal burden that reference policy places on future generations.

■ Lifetime Net Tax Rates

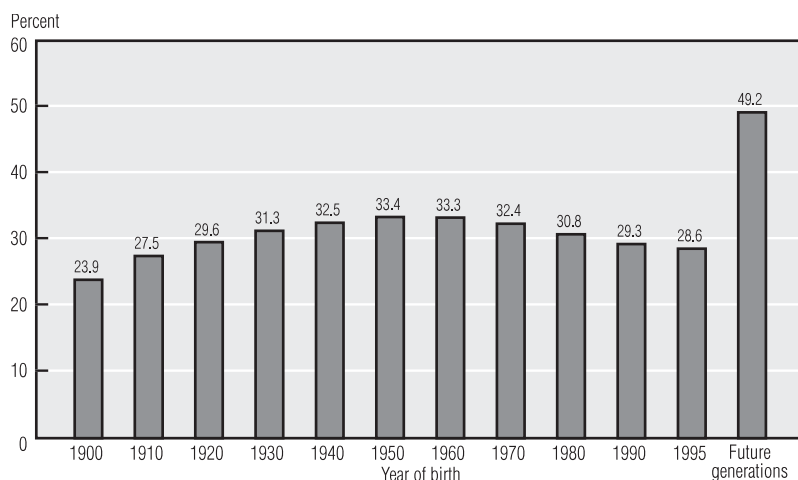
A given generation's *lifetime net tax rate* is the fraction of its lifetime labor earnings that it pays in net taxes to the government, where both numerator and denominator are present values at birth.¹⁰ First, consider only living generations (including the one just born). Their fiscal treatment under reference policy is reflected by the lifetime net

tax rates they would pay if that policy were maintained. Figure 1 shows that the generation born in 1900 pays at the rate of 23.9 percent. Lifetime net tax rates increase steadily for later-born generations, peaking at 33.4 percent for those born in 1950 then gradually declining to 28.6 percent for those born in 1995.¹¹ Thus, reference policy projections, combined with past payments by living generations, imply a differential lifetime fiscal treatment of the generations alive today.¹²

Looking forward, one may ask whether reference policy's generational stance is equitable toward future generations. To answer this question, we need to compare that policy's implicit treatment of future generations with its treatment of some living generation. The newborn generation is the natural candidate because its entire lifetime lies in the future. Calculations show that the present value gap of \$9.4 trillion—future generations' implicit burden under the assumption that all living generations will pay net taxes under reference policy—implies an average lifetime net tax rate of 49.2 percent!^{13, 14} The difference between this and the 28.6 percent rate on 1995 newborns (assuming lifetime fiscal treatment under reference policy) can be viewed as a measure of the *prospective generational inequity* contained in reference policy.

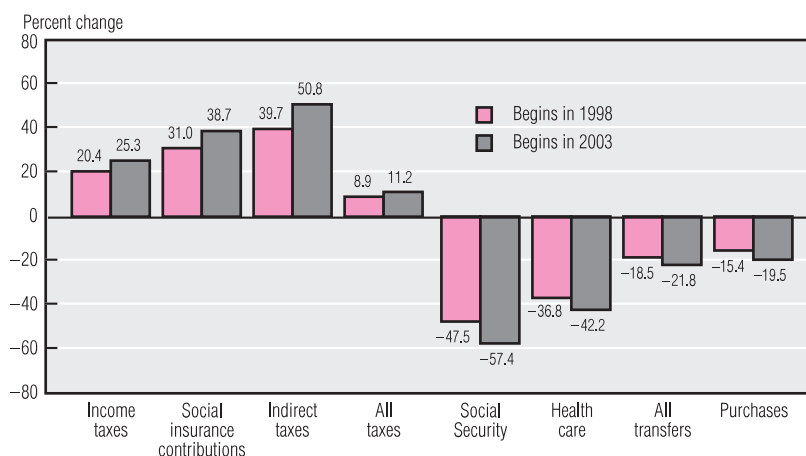
Prospective generational equity (the relative fiscal treatment of newborn and future generations) is a serious concern because it implies long-term unsustainability. If reference policy were maintained, each new generation would pay the same lifetime net tax rate as 1995 newborns (28.6 percent). However, obtaining the revenue needed for all projected purchases would require future generations to pay an average rate of 49.2 percent. So, at some future date, either net taxes must be increased (by hiking taxes or reducing transfers) or government must cut purchases to balance its books.¹⁵ The change must be large enough to achieve prospective generational equity and sustainability; that is, the lifetime net tax rate on newborns under the new policy must equal the implied average rate on future generations.¹⁶

FIGURE 1 LIFETIME NET TAX RATES: REFERENCE POLICY



SOURCE: Jagadeesh Gokhale, Benjamin Page, and John Sturrock, “Generational Accounts for the United States: An Update,” in Alan Auerbach, Laurence J. Kotlikoff, and Willie Leibfritz, eds., *Generational Accounting around the World*. Cambridge, Mass.: National Bureau of Economic Research (forthcoming).

FIGURE 2 POLICIES FOR ACHIEVING PROSPECTIVE GENERATIONAL EQUITY AND FISCAL SUSTAINABILITY



NOTE: Indirect taxes include excise and property taxes.
SOURCE: Jagadeesh Gokhale, Benjamin Page, and John Sturrock, “Generational Accounts for the United States: An Update,” in Alan Auerbach, Laurence J. Kotlikoff, and Willie Leibfritz, eds., *Generational Accounting around the World*. Cambridge, Mass.: National Bureau of Economic Research (forthcoming).

■ Policies for Achieving Prospective Generational Equity and Sustainability

The SSA’s report shows that under intermediate demographic and economic assumptions, restoring long-term solvency would require increasing payroll tax rates 2.19 percentage points,¹⁷ which would mean raising the rate from the current 12.4 percent to almost 14.6 percent.

In the same spirit, I now address the question of what fiscal measures are required to achieve prospective generational equity and long-term sustainability in the entire government budget.¹⁸

Figure 2 provides some answers. It shows alternative policy changes, beginning either in 1998 or 2003, that impose higher lifetime net tax rates on living (including newborn) generations, thus reducing the implied average net tax rate on future generations.¹⁹ Each of these policies would make the lifetime net tax rate on 1995 newborns equal to the implied rate on future generations.

Figure 2 shows that beginning in 1998, income tax revenues would have to increase 20.4 percent forever relative to reference projections. For social insurance contributions, the revenue increase would have to be higher (31.0 percent),

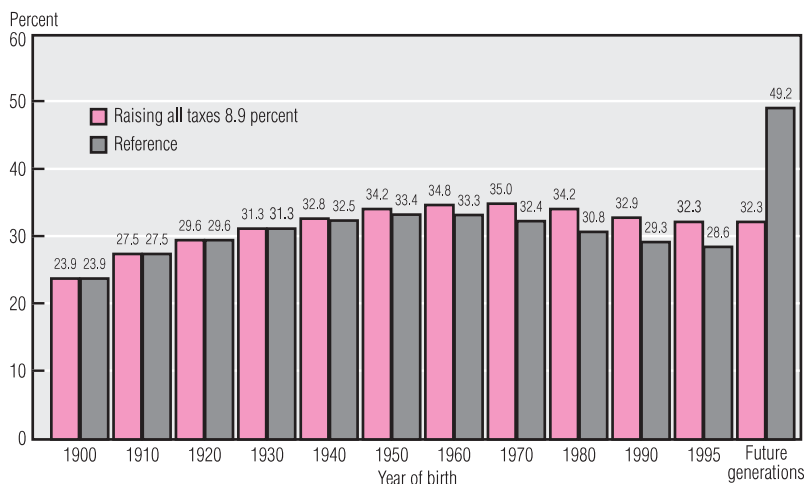
because the contributions base is smaller for social insurance than for income tax. Hiking other taxes (excise, sales, and property) would involve a 39.7 percent revenue gain. Alternatively, all tax revenues together would have to be 8.9 percent higher forever, beginning in 1998.

As an example, figure 3 shows the lifetime net tax rates facing various living and future generations after the 8.9 percent tax hike is implemented in 1998. The resulting fiscal policy hits working-age generations hard but changes older generations’ rates comparatively little.²⁰ The figure shows that the lifetime net tax rate on newborns and the implied rate on future generations are equalized at 32.3 percent. As a result, this policy is sustainable—as are all the others described in this section. If the new policy is kept in place, each succeeding generation will pay the same 32.3 percent rate as 1995 newborns. Now, however, the rate on future generations that is just sufficient to pay for all projected government purchases is also 32.3 percent, not higher than the rate on newborns (as would occur under reference policy).²¹

Prospective generational equity and sustainability could also be achieved by permanently cutting either health care (Medicare and Medicaid) benefits by 36.8 percent or Social Security benefits by 47.5 percent in 1998.²² Health care spending requires a lower percentage cut than Social Security benefits because rapid growth in the per capita cost of care causes future medical expenditures to grow faster. As a result, living generations receive more, in present value, from health care transfers than from Social Security benefits, and a given percentage reduction in health care benefits increases older generations’ net taxes much more than the same percentage reduction in Social Security benefits. The equivalent result could be achieved by lowering government purchases 15.4 percent every year relative to reference projections, beginning in 1998.²³

Using these numbers, one can compare the imbalance of the unified government budget with that of Social Security alone. As mentioned earlier, one way to make the entire government’s budget sustainable is to hike social insurance contributions 31 percent. Because the payroll tax base is much smaller than the base for social insurance contributions, it would require a much bigger hike—

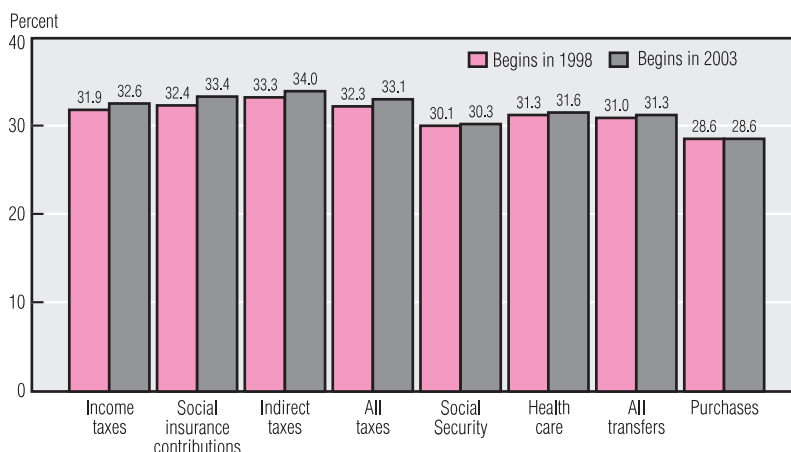
FIGURE 3 LIFETIME NET TAX RATES: REFERENCE POLICY VS. RAISING ALL TAXES 8.9 PERCENT



NOTE: The 8.9 percent tax hike begins in 1998.

SOURCES: Jagadeesh Gokhale, Benjamin Page, and John Sturrock, "Generational Accounts for the United States: An Update," in Alan Auerbach, Laurence J. Kotlikoff, and Willie Leibfritz, eds., *Generational Accounting around the World*. Cambridge, Mass.: National Bureau of Economic Research (forthcoming); author's calculations.

FIGURE 4 FUTURE GENERATIONS' LIFETIME NET TAX RATES: POLICY CHANGES IMPLEMENTED IN 1998 AND 2003



SOURCES: Jagadeesh Gokhale, Benjamin Page, and John Sturrock, "Generational Accounts for the United States: An Update," in Alan Auerbach, Laurence J. Kotlikoff, and Willie Leibfritz, eds., *Generational Accounting around the World*. Cambridge, Mass.: National Bureau of Economic Research (forthcoming).

56.4 percent.²⁴ This means raising the payroll tax rate from 12.4 percent to 19.3 percent to achieve generational equity and fiscal sustainability, a far larger increase than the one needed to restore Social Security solvency.

The Costs of Postponing Corrective Policy Changes

Figure 2 also shows that waiting a few years to implement policies establishing prospective generational equity and long term sustainability will be costly. Such a delay will enable some living

generations to escape the tax hike or transfer cut, so the change, when it comes, will have to be larger. For purchase reductions, waiting implies bigger outlays for a few years, necessitating a deeper future percentage cut to generate the present value reduction needed as of 1995, the base year. Moreover, figure 4 indicates that average lifetime net tax rates on future generations after the policy change would be higher (except for purchase reductions) if the changes were deferred for five years.²⁵

Conclusion

For all the attention they receive, fiscal deficits are largely irrelevant when it comes to evaluating fiscal policy's generational equity and sustainability or estimating the financial burdens being heaped on young and future generations. In contrast to deficit accounting, generational accounting is a direct method for assessing the sustainability of fiscal policy and for determining which generations will pay the biggest share of the government's bills. Applying this method to the United States suggests that national fiscal policy is generationally inequitable and unsustainable: Additional initiatives are needed to avoid imposing enormous burdens on today's and tomorrow's children. For example, beginning in 1998, revenue from all taxes would have to be increased almost 9 percent forever. Alternatively, all transfers would have to be reduced 19 percent, or all government purchases cut about 15 percent. Moreover, postponing initiatives to achieve prospective generational equity and sustainability will only make the future economic environment more taxing.

Footnotes

1. See the *1997 Report of the Trustees of the Old Age and Survivors' Insurance and Disability Trust Funds*. Washington, D.C.: U.S. Government Printing Office, 1998. Note that trust fund income excluding interest will begin to fall short of outgo in the year 2013.

2. This *Economic Commentary* borrows heavily from Jagadeesh Gokhale and Laurence J. Kotlikoff, "Generational Equity and Generational Accounting," in John B. Williamson, Diane Watts-Roy, and Eric R. Kingdon, eds., *The Generational Equity Debate*, Columbia University Press (forthcoming), and from Jagadeesh Gokhale, Benjamin Page, and John Sturrock, "Generational Accounts for the United States: An Update," in Alan Auerbach, Laurence J. Kotlikoff, and Willie Leibfritz, eds., *Generational Accounting around the World*. Cambridge, Mass.: National Bureau of Economic Research (forthcoming).

3. As used here, the word “government” encompasses federal, state, and local agencies. “Purchases” refers to spending on national defense, legislative, judicial, and administrative services, infrastructure for transportation and trade, public parks, education, and so on. Public provision of these goods is justified on the grounds that private firms would fail to provide them in sufficient quantity, a situation that is likely to occur when the goods entail significant “externalities” that prevent firms from charging a price to all who benefit from them. For example, the existence of public parks improves the environment, benefiting even those who never visit them.
4. Government purchases also confer benefits on current and future generations. However, it is difficult if not impossible to allocate these benefits by age and sex because of their public nature. Here, I assume that these benefits are equally distributed across living and future generations.
5. The same is true of revenue-neutral changes in the tax structure. For example, substituting income for sales taxes shifts burdens from older to younger generations because the ratio of older generations’ consumption spending to that of younger generations is greater than the ratio of their income to that of younger generations. Similarly, cutting welfare benefits and increasing health care benefits augments the fiscal burdens of younger generations, who receive relatively more welfare and less health care benefits than do older ones.
6. For a more detailed, technical description, see Alan J. Auerbach, Jagadeesh Gokhale, and Laurence J. Kotlikoff, “Generational Accounts: A Meaningful Alternative to Deficit Accounting” in David Bradford, ed., *Tax Policy and the Economy*, vol. 5. Cambridge, Mass.: National Bureau of Economic Research, 1991; and Laurence J. Kotlikoff, *Generational Accounting: Knowing Who Pays, and When, for What We Spend*. New York: The Free Press, 1992. Generational accounts have been constructed for 24 countries, including Germany, Italy, Norway, Sweden, Canada, New Zealand, Australia, Japan, Portugal, Argentina, and Thailand.
7. See, for example, Jagadeesh Gokhale, Laurence J. Kotlikoff, and John Sabelhaus, “Understanding the Postwar Decline in United States Saving: A Cohort Analysis,” *Brookings Papers on Economic Activity*, vol. 1 (1996).
8. The “reference” budget projections used here do not incorporate the policy changes enacted in the Balanced Budget and Taxpayer Relief Acts of 1997 because long-term projections under the new policies were not available when the calculations were made. However, the reference projections are generic in the sense that they cut base spending, health care, and other (non-Social Security) programs in about the same proportions as under the 1997 Acts. Hence, the results reported here should roughly correspond to those under the Acts. The long-range projections were provided by the Congressional Budget Office. For more details, see Gokhale, Page, and Sturrock (footnote 2).
9. When the calculations were made, 1995 was the latest year for which a full set of actual budgetary and other necessary data was available. Hence, 1995 is used as the base year, and living generations are defined as those born in 1995 or earlier. Note that \$9.4 trillion in present value is not a small number because it refers to net tax payments that will begin several years in the future. For example, someone born in 1996 will not pay income and other taxes for another 15 years or more, someone born 20 years hence will not pay taxes for another 35 years or more, and so on.
10. “Generation” refers to all people born in a given year. “Future generations” include those born in 1996 and later. All dollar figures are reported as constant 1995 dollars.
11. The decline in the rate for those born after 1950 occurs because of the steep projected growth in future health care outlays.
12. The newborn generation’s lifetime net tax rate is based entirely on projected taxes and transfers under reference policy.
13. To find the required rate on future generations, we distribute the residual aggregate burden (\$9.4 trillion) equally among all future generations (except for an adjustment for labor productivity growth), and divide the resulting net tax burdens by the present values (at birth) of their per capita projected labor earnings. This yields the uniform lifetime net tax rate that future generations must bear to achieve long-term budget balance.
14. The equal distribution of the aggregate residual burden (except for a growth adjustment) implies that lifetime net tax burdens grow at the same rate as the present values of lifetime labor incomes.
15. The length of time that can elapse before a policy adjustment becomes imperative is demonstrably finite.
16. Of course, a policy that equalizes net tax rates on newborn and future generations will not necessarily establish equity across all living and future generations, although that may be possible with a complicated set of tax hikes, transfer reductions, and purchase cuts.
17. The current Old Age, Survivors’ and Disability Insurance (OASDI) tax rate is 12.4 percent. The “long-term” calculations in the SSA’s report pertain to a 75-year horizon. Here, payroll taxes refer to the part of Federal Social Insurance Contributions taxes used to fund the OASDI program. Apart from the results based on its intermediate assumptions cited here, the SSA also reports the payroll tax hikes required under alternative (high- and low-cost) assumptions on several economic and demographic variables.
18. There is, however, a conceptual difference between achieving prospective generational equity and sustainability in the entire budget as described here and restoring long-term solvency to the Social Security program as indicated by the SSA’s report. The latter requires only that there be enough funds in present value to pay legislated benefits annually for the next 75 years with terminal-year assets sufficient to meet expenditures for one year. On the other hand, prospective generational equity requires that the implied average lifetime net tax rate on *all* future generations be the same as the lifetime net tax rate on current newborns under a given policy.
19. “Achieving prospective generational equity” refers to equalizing the lifetime net tax rates of 1995 newborn and future generations only. The policy changes considered do not equalize these rates for all living and future generations, although they do bring them closer together.
20. This is not true for all the policies. For example, cutting health care benefits would increase older generations’ lifetime net tax rates by more than the rates of younger and future generations.

21. These experiments are based on reference projections and a 6 percent real discount rate. All of them equalize the lifetime net tax rates of newborn and future generations, but the equalized rate is different for different policies. For example, raising income taxes yields an equalized lifetime net tax rate of 31.9 percent; raising payroll taxes yields a rate of 32.4 percent; hiking other taxes produces 33.3 percent, and increasing all taxes equalizes the rates at 32.3 percent. Cutting Social Security benefits yields an equalized rate of 30.1 percent, whereas reducing health care benefits produces an equalized rate of 31.3 percent. Cutting purchases by 15.4 percent does not affect the rate on newborns; it reduces future generations' rate to 29.6 percent, equal to that on newborns (see figure 4).

22. Note that, because the policy changes considered are immediate and permanent, living generations' net payments will increase. In particular, 1995 newborns' lifetime net tax rate will rise. Larger net tax payments by living generations will ease the burden on future generations and reduce the average lifetime net tax rates they must bear.

23. In the case of purchase cuts, living generations' lifetime net tax burdens do not change because they continue to pay the same taxes and receive the same benefits as under reference policy. Nevertheless, the required average lifetime net tax rate on future generations is reduced because the present value of the government's bill is lower.

24. This result follows from the fact that OASDI taxes constitute 55 percent of all federal, state, and local social insurance contributions. Since the latter must be increased by 31 percent to achieve sustainability for the entire government budget, the former must be increased by $\{[(.55 + .31)/.55] - 1\} \times 100 = 56.4$ percent.

25. For example, figures 2 and 4 show that a hike of 20.4 percent in income tax revenues, if implemented in 1998, equalizes the lifetime net tax rate on newborns and future generations at 31.9 percent. Waiting until 2003 to implement this policy, however, increases the required revenue hike to 25.3 percent and raises the equalized rate to 32.6 percent.



Jagadeesh Gokhale is an economist at the Federal Reserve Bank of Cleveland. He thanks Terry Fitzgerald and an anonymous referee for helpful comments.

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