
# Running Deficits: Positives and Pitfalls

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# Summary

Governments run deficits for several reasons. By running short-run deficits, governments can avoid raising taxes during economic downturns, helping households to smooth consumption over time. Running deficits can stimulate aggregate demand in the economy, giving policy makers a valuable fiscal policy tool that can help support macroeconomic stability. Long-run deficits allow transfers of economic resources from younger to older generations, enabling older generations to enjoy anticipated benefits of future economic growth, but also may be used to impose large burdens on future generations.

Anticipation of changes in partisan control of government, according to some economists, provides a political motive for running deficits, as current policy makers may wish to restrict their successors' options. Research on state and foreign governments suggests that balanced-budget rules force governments to adjust spending and taxes sharply during economic downturns. Balanced-budget rules also appear to hold down taxes and spending, at least in the short run.

Deficits can seriously harm national economies. In the short run, fiscal overstimulation leads to inflation. In the long term, deficits either reduce capital investment, which retards economic growth, or increase foreign borrowing, which swells the share of national income going abroad. Governments can spend more than they collect in revenues by printing money, which causes inflation, or by borrowing. In the long run, governments that fail to repay borrowers, at least to the extent of stabilizing the ratio of government debt to gross domestic product, risk default and bankruptcy.

This report will be updated as events warrant.

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## Basic Public Finance Theory

Public finance theory suggests three reasons for deficit financing by government. First, governments can prevent sudden changes in taxes by borrowing. Second, debt finance gives governments a powerful macroeconomic policy tool. Third, debt finance can redistribute resources among generations.

If government borrowing can shift revenues and expenses into different time periods more easily or more cheaply than can households, then government can make taxpayers better off by smoothing tax levels using deficits.[1] The federal government can spread the cost of a major capital investment over many years by issuing debt in the form of bonds or Treasury bills. Deficit finance can spread an especially large cost such as a major war over several generations, or even centuries.[2] Debt financing also allows governments to keep taxes steady during temporary economic downturns, thus smoothing consumption for households. Of course, governments must eventually pay back what they borrow or go bankrupt.[3]

Second, increased government spending financed by borrowing can stimulate economic activity, giving government a fiscal policy tool to counteract recessions. A countercyclical fiscal policy, in which taxes are cut or spending is increased, can dampen economic fluctuations and limit the depth of economic downturns. Pro-cyclical fiscal policy, in which taxes are raised or spending is cut during recessions, tends to amplify economic fluctuations. During economic downturns, government revenues fall and expenditures rise as more people become eligible for unemployment insurance and income support programs, causing deficits to increase or surpluses to shrink. These programs are known as "automatic stabilizers" because deficit spending then provides a countercyclical stimulus to economic activity in the short run without the need for new legislative action.[4]

Both of these rationales presume that governments run surpluses during economic expansions to repay debt or accumulate reserves. Critics of deficit finance and active fiscal policy argue that policy makers are more willing to increase government spending when economic growth slows than to cut spending when growth accelerates.[5] In addition, designing fiscal policy is a slow and deliberative process, whereas economic downturns can emerge suddenly and are difficult to predict. Because economic shocks affect spending patterns with substantial lags, economic conditions may have changed significantly before new federal spending actually reaches the public. Few economists believe that large changes in fiscal policy designed to counterbalance short-term economic downturns can be timed precisely, although many economists believe fiscal policy is an important tool during prolonged periods of slow or negative growth.

[1] So-called "rainy day" funds, used by many state governments, allow smoothing of tax levels without deficit finance.

[2] The British government still pays interest on consol bonds issued during the Napoleonic Wars.

[3] A more precise definition of fiscal sustainability is that the public debt does not grow without bound.

[4] The Congressional Budget Office (CBO) computes a measure of the deficit that adjusts for business cycle effects to allow a more meaningful comparison of short-term fiscal stance across different years.

[5] Milton Friedman, *Capitalism and Freedom*. (Chicago: Univ. of Chicago Press, 1962), pp. 75-84.

## Benefits and Costs of Smoothing Consumption via Deficit Finance

Helping households smooth income is a primary justification for short-run deficits according to standard public finance theory. If governments must balance their budgets in each fiscal year, so that current spending is constrained by available cash reserves and incoming revenues, then negative economic shocks require spending cuts or tax increases. Public spending tends to rise during recessions due to the effect of automatic stabilizers, while revenues fall. Thus, strict balanced-budget requirements force governments to run a pro-cyclical fiscal policy, which can either strain household budgets via tax increases or force painful cuts in public programs.

Economists have studied balanced-budget requirements in U.S. states, as well as budgetary restrictions used by other national governments.[6] All states except Vermont have balanced-budget requirements, though the strictness of those requirements varies. Many studies have found that the strictness of the balanced-budget requirement affects fiscal performance. Inman and Bohn found that tight balanced-budget rules cause states to reduce deficits by cutting spending, whereas softer constraints have little short-term effect.[7] Other researchers found that balanced-budget rules force governments to adjust spending and taxes sharply during economic downturns.[8] Fiscal crises may put strains on states and their citizens but may also force policy makers to face tough fiscal decisions that would otherwise be avoided. Balanced-budget rules also appear to hold down taxes and spending, at least in the short run. Over the longer term, both spending and taxes adjust, although state and local governments with tight budget-balance measures appear to spend less than those with less stringent requirements.

### Macroeconomic Demand Management

According to Keynesian theory, fiscal and monetary policy are the two major instruments of macroeconomic policy.[9] Deficit spending can be used to increase aggregate demand in the economy, causing output and prices to increase. When the economy is running below its potential level of output, expansionary fiscal policies such as deficits stimulate economic activity, bringing idle economic capacity back into use and pushing the economy back toward its full potential. On the other hand, if the economy is running near its full potential, expansionary fiscal policies lead to inflation. Running government surpluses reduces aggregate demand in the economy and helps restrain inflation. Fiscal policy, in coordination with appropriate monetary policies, can bring an economy closer to its potential while restraining inflation.

Economists associated with the New Classical Macroeconomics criticized the underlying assumptions of standard Keynesian theory, arguing that market forces naturally lead to equilibrium and economic efficiency. The concept of rational expectations, a central tenet of the

[6] For a review of research using U.S. state data, see James M. Poterba, "Budget Institutions and Fiscal Policy in the U.S. States," *American Economic Review*, vol. 86, no. 2 (1986), pp. 395-400. For a review of European budgetary rules, see Giancarlo Corsetti and Nouriel Roubini, "European versus American Perspectives on Balanced-Budget Rules," *American Economic Review*, vol. 86, no. 2 (1986), pp. 408-413.

[7] Henning Bohn and Robert P. Inman. "Balanced Budget Rules and Public Deficits: Evidence From the U.S. States," NBER Working Paper No. 5533, April 1996.

[8] James M. Poterba, "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy*, vol. 102, no. 4 (August 1994), pp. 799-821.

[9] Traditional Keynesian theory in undergraduate textbooks derives from John R. Hicks, "Mr. Keynes and the 'Classics': A Suggested Interpretation," *Econometrica* 5 (1937), pp. 147-59.

New Classical Macroeconomics, assumes that households and businesses are rational and foresighted. Nevertheless, economic agents make mistakes because of changing circumstances and uncertainty. The rational expectations approach presumes those mistakes are not systematically wrong in any direction. The combination of neoclassical microfoundations for macroeconomics and the assumption that economic agents are foresighted and rational, even when faced with complex dynamic decisions, led economists associated with the New Classical Macroeconomics to criticize Keynesian demand management policies.

For example, Robert Barro argued that deficit spending has no fiscal effect because households save in anticipation of future tax increases, offsetting any short-term stimulative effects. This concept is known as Ricardian equivalence.[10] The theory of Ricardian equivalence implies that only the net present value of government expenditures and taxes needed to pay for them matter, but that the timing of taxes does not.[11] Empirical research has failed to find evidence of Ricardian equivalence in its pure form, but some research has identified some Ricardian effects in savings behavior.[12]

Contrary to the predictions of Ricardian equivalence, the overwhelming evidence of economic research and macroeconomic experience suggests that deficit spending creates a short-term fiscal stimulus. Despite the imprint that New Classical Macroeconomics has left on macroeconomic modeling, nearly all economists believe deficits affect prices and output in the short run and recognize the usefulness of fiscal policy as a tool for macroeconomic management, at least in some circumstances.

More recent research sets older Keynesian theories upon more modern foundations. This research stresses that the structure of labor markets creates wage rigidities. For example, the price of soybeans may change by the minute, but the wages of employees do not. These wage rigidities lead to the appearance of involuntary unemployment or excess capacity during economic downturns, and thus provide a role for traditional Keynesian demand management. New Keynesian theories, like the New Classical Macroeconomics, treat economic expectations of the future in a serious way, unlike traditional Keynesian theory. For example, if traders in bond markets anticipate that deficits will cause inflation in the future, that will cause interest rates to rise in the present. Rising interest rates will then change current decisions of firms and households.

## Political Explanations

The political business cycle literature provides a theory of economic fluctuations based on politicians' desire to maximize their chances of reelection. Early versions of political business cycle models presumed politicians could fool myopic voters by pumping up government spending

[10] This concept is named after David Ricardo (1772-1823), a London financier and economist engaged in debates about the management of debts accumulated during the Napoleonic Wars. Ricardo, while providing examples pointing out that the real burden of a stream of interest payments was essentially the same as the burden of immediate payment of borrowing associated with those payments, was concerned that the opportunity to carry public debt could encourage "profligacy" in government expenditure. David Ricardo, *The Principles of Political Economy and Taxation*, 3rd ed., (London: Murray, 1821), ch. 17.

[11] Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, vol. 82, no. 6. (November-December, 1974), pp. 1095-1117.

[12] M. Gabriella Briotti, "Economic Reactions to Public Finance Consolidation: A Survey of the Literature," European Central Bank Occasional Paper no. 38, October 2005.

before elections.[13] More sophisticated versions assume voters are rational and not myopic, but are unable to distinguish between sustainable prosperity based on policy and administrative competence from temporary prosperity based on deficit spending.[14] Drazen reviewed the literature and found strong evidence that voters react to economic conditions, but weak evidence that macroeconomic policy is manipulated to sway elections.[15]

The alternation of partisan control of government may explain a persistent tendency towards deficit spending. Several articles in the economics of politics literature, such as Alesina and Tabellini or Persson and Svensson, contend the government of the day can constrain its successors' choices by running budget deficits.[16] If a successor government has different spending priorities, the current government may be tempted to influence future fiscal policies by using debt to change the incentives and constraints facing future decision makers. Such policies are highly unlikely to be as economically efficient as a more consistent fiscal policy.

## Intergenerational Transfers

One explanation of persistent deficits is that future generations do not vote, even if they will be asked to pay for programs enacted by older generations. Generations now alive face a temptation to pass on the costs of programs that benefit themselves to following generations that have no say. Some shifting of resources to older generations, however, can be justified on the basis of equity. To the extent that technological change leads to greater prosperity over time, future generations will have access to higher standards of living. To the extent that population growth increases the size of the economy, the burden of financing pay-as-you-go retirement systems is reduced. If some of those gains are shifted from younger to older generations, then incomes and levels of well-being would be more equal among generations. Furthermore, a fiscal policy that shifts some resources from younger to older generations can raise living standards of all following generations by transferring a portion of the benefits of future economic growth into the present.

A simple example illustrates this possibility.[17] Consider an economy with a fixed population divided among age-specific cohorts. For the sake of simplicity, suppose individuals live 75 years. Also assume, for the sake of simplicity, that income of each cohort is the same, arrives from a source outside the economy, and grows 3% per year. Consider a fiscal policy that causes each age-specific cohort (except the oldest) to transfer 2% of its income to the one-year-older cohort. All transfers, except for the oldest and youngest cohorts, cancel out. The youngest cohort gets 98% of its pre-transfer income, and the oldest gets 102% of its pre-transfer income. Although the loss of the youngest cohort and gain of the oldest cohort balance out for each year, each

[13] Nordhaus, William D., "The Political Business Cycle," *Review of Economic Studies*, vol. 42, no. 2 (April 1975), pp. 169-190.

[14] Kenneth Rogoff, "Equilibrium Political Business Cycles," *American Economic Review*, vol. 80, no.1 (1990), pp. 21-36.

[15] Drazen, Allan, "The Political Business Cycle After 25 Years," *NBER Macroeconomics Annual*, vol. 15 (2000), pp. 75-117.

[16] Alberto Alesina and Guido Tabellini, "A Positive Theory of Fiscal Deficits and Government Debt," *Review of Economic Studies*, vol. 57, July 1990, pp. 403-414; Torsten Persson and Lars E. O. Svensson, "Why a Stubborn Conservative Would Run a Deficit: Policy with Time-Inconsistent Preferences," *Quarterly Journal of Economics*, vol. 104 (May 1989), pp. 325-345.

[17] This example is closely related to the overlapping generations model. For a comprehensive exposition and analysis see David Gale, "Pure Exchange Equilibrium of Dynamic Economic Models," *Journal of Economic Theory*, vol. 5 (1973), pp. 12-36.

individual born after the start of the plan gains because of economic growth (so long as the economy's interest rate is below 3% per year). With a 3% growth rate over 74 years, income increases by 891%. Therefore, the gain in buying power per dollar of income in present value terms for a cohort born after the start of the policy is

$$1.02*\left(\frac{1.03}{1+\boldsymbol{r}}\right)^{74} - (.98)$$

where ***r*** is the real interest rate. So long as the real interest rate is less than 3%, which is true for long-term historical real rates of return for U.S. Treasury bills, the policy of shifting resources to older generations makes all generations better off.[18] This highly simplified example shares the same basic structure as pay-as-you-go social insurance programs, in which young workers pay contributions that are more or less immediately used to pay benefits to older retirees.[19]

The possibility of raising standards of living by shifting resources from younger to older generations has its limits. The example above relies on the assumption that the policy continues indefinitely into the future. With a finite ending point this policy would be unsustainable because some young cohorts near that end point would be made worse off and would be unwilling to give up resources.

The current fiscal policies of the United States imply that large transfers will be made to the baby-boom generation from younger generations.[20] Computations by Auerbach, Gokhale, and Kotlikoff indicate that future generations will pay much more in taxes than they will receive from the government.[21] In 2000, Gokhale and others estimated that a newborn male in 1998 would pay $142,500 more in taxes than what he would receive from the government; the corresponding estimate for a newborn female was $71,300.[22] Due to increased federal deficits and the introduction of Medicare Part D, those estimates would be higher for current newborns. Despite the projected magnitude of these intergenerational transfers, younger generations might not be worse off than their parents if economic grows at a sufficiently swift pace.

These generational transfers are largely driven by the growth in the number of beneficiaries of entitlement programs relative to the work force, as well as by rapid increases in health care costs. The possibility that some future generation may eliminate fiscal policies that it perceives will lower its standard of living introduces political risk into social insurance programs funded by a pay-as-you-go mechanism.[23] If a generation anticipates that a younger generation will stop

[18] Goetzmann and Ibbotson found that the real rate of return on U.S. Treasury bills from 1924-2004 was less than 1% per year. See Table II in William N. Goetzmann and Roger G. Ibbotson, "History and the Equity Risk Premium," Yale School of Management working paper, October 2005, available at http://econ.ucsb.edu/conferences/equity05/papers/Goetzmann.pdf.

[19] For a defense of pay-as-you-go financing, see Peter Diamond, "Social Security," *American Economic Review*, vol. 94, no.1 (March 2004), pp. 1-24.

[20] Laurence J. Kotlikoff and Scott Burns, *The Coming Generational Storm*, (Cambridge, Mass.: MIT Press, 2004).

[21] Alan J. Auerbach, Jagadeesh Gokhale, and Laurence J. Kotlikoff, "The 1995 Budget and Health Care Reform: A Generational Perspective," *Economic Review*, Federal Reserve Bank of Cleveland, issue QI, 1994, pp. 20-30.

[22] Jagadeesh Gokhale, Benjamin Page, Joan Potter, and John Sturrock, "*Generational Accounts for the United States: An Update*," CBO Technical Paper Series, 2000.

[23] John B. Shoven and Sita N. Slavov, "Political Risk versus Market Risk in Social Security" (April 2006). NBER Working Paper No. W12135, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=896208.

contributing to a pay-as-you-go social insurance program, then it may decide to end the program itself. A generation whose descendants are unwilling to finance its benefits would have little to gain, apart from altruistic impulses, by continuing its contributions.[24]

## Costs of Financing Deficits

A government that runs deficits and is unwilling to raise taxes or cut spending faces three choices. First, domestic borrowing can be increased at the cost of crowding out domestic investment. Second, a government can borrow from foreign investors and governments. Borrowing from the rest of the world prevents deficits from crowding out investment. That is, foreign investors can provide financial resources now in exchange for future interest payments and profits. As foreign investors accumulate larger portfolios of stocks, bonds and other assets, the flow of interest payments, dividends and repatriated profits abroad increases as well. Third, a central government can print money to reduce the real value of debt denominated in domestic currency.

All three options have unpleasant consequences. Over time, each can seriously damage national economies. Simple supply and demand theory implies that a smaller supply of savings for private investment will lead to higher interest rates and lower growth in private capital stocks. Lower stocks of private capital threaten economic growth, and slower economic growth translates into lower average living standards in the future. Borrowing from the rest of the world permits higher levels of investment and faster growth at the cost of sending a higher fraction of earnings abroad. If foreigners lend capital by purchasing stocks and bonds rather than by building auto plants, for example, they may decide suddenly someday to take their investments elsewhere. This could strain domestic and international financial systems, thus constricting firms' and households' access to capital. Finally, inflation caused by printing money distorts the flow of information generated by the price system and disrupts financial markets. Investors, if they wish to avoid capital losses in real terms, demand higher interest rates when they see signs of inflation. A major reduction in the real value of the federal debt would require a significant acceleration in inflation. Few economists believe that the restrictive monetary policies needed to squeeze rapid inflation out of an economy would not require substantial economic disruption, at least in the short run.

On the other hand, reducing government deficits can improve economic performance in at least three ways. First, paying off government debt increases the supply of investment funds available for domestic investment. Second, paying off government debt held by foreign governments or investors reduces the amount of interest payments going abroad. Alternatively, paying off debt held by domestic investors gives them the opportunity to rebalance their portfolios by buying foreign assets, which offsets some of the flow of dividends and profits going abroad, or by buying domestic assets that otherwise would have been bought by foreign investors. Third, scaling down the federal debt decreases the temptation to reduce its real value by printing money, lessening the possibility of a major acceleration in inflation. Finally, most economists believe reducing government borrowing lowers interest rates, which in turn have positive effects on investment and growth.

[24] Altruistic impulses play an important role in many questions concerning intergenerational transfers. For an overview of recent research on the subject, see L.-A. Gérard-Varet, S.- C. Kolm and J. Mercier-Ythier (eds.), *Handbook of the Economics of Giving, Reciprocity and Altruism*, vol. 1, (Amsterdam: North Holland, 2006).

## Conclusion

The ability of governments to run deficits can help avoid short-term fiscal crises caused by adverse economic shocks. Long-term deficits can be used to allow older generations to enjoy some of the anticipated fruits of future economic growth. A government can sustain a debt indefinitely, so long as the size of the debt relative to the size of the economy does not grow without bound. Maintaining a large debt requires large interest payments and can retard economic growth. Thus deficits can serve as a useful tool of economic management, but also can cause substantial economic damage to an economy.

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