

Did the 2008 Tax Rebates Stimulate Short-Term Growth?

In preparing its economic forecast published in September 2008, the Congressional Budget Office (CBO) estimated that 40 percent of the tax rebates issued in the spring and summer under the Economic Stimulus Act of 2008 (Public Law 110-185) would be spent within six months—raising the growth of consumption in the second and third quarters of 2008 by 2.3 percent and 0.2 percent, respectively, and reducing it by 1.0 percent in the fourth quarter, when the distribution of the rebates was expected to end.¹ However, analysts disagree about the economic impact of tax rebates. This brief examines the issue in light of the evidence currently available.

Differing Views About the Effectiveness of Tax Rebates

Economists are divided about the effectiveness of tax rebates for stimulating short-term growth. Some argue that the temporary nature of rebates leads households to save, not spend, virtually all of the additional income. If so, rebates do not add much to short-term growth. Others argue, however, that even temporary tax cuts will encourage spending, particularly if they are directed toward low-income households or those with few liquid assets. Such households, those analysts maintain, are more prone to spend any additional income.

That disagreement is evident in analyses of the two large federal tax rebates in this decade—the roughly \$35 billion in rebates distributed from July through September in 2001 under the Economic Growth and Tax Relief Reconciliation Act and the approximately \$95 billion in rebates distributed mostly from April to July in 2008 under the Economic Stimulus Act. Some analysts have

suggested that differences in the characteristics of those two rebates imply different degrees of effectiveness. For example, the 2001 rebates were essentially advance tax refunds resulting from a reduced tax rate for the lowest tax bracket effective for all 2001 liabilities. Because that reduced tax rate was scheduled to last through 2010, the 2001 rebates might have been viewed as less temporary than the 2008 tax rebates; if so, relatively more of the 2001 rebates might have been spent. However, the 2008 rebates were limited to low-income and middle-income groups, whereas the 2001 tax rebates were distributed without regard to income.² That difference would suggest that relatively more of the 2008 tax rebates might have been spent rather than saved.

Differences between the economic and budgetary environments in 2001 and 2008 also might have influenced the relative effectiveness of the rebates. Although both rebates were distributed during recessions, the economic environment at the time of the 2008 rebates was worse, with higher rates of unemployment and lower levels of consumer confidence. Although those worse conditions may suggest that more of the rebates would have been spent because recipients were in greater need, it is also possible that the overall response of consumers was to increase precautionary saving in anticipation of yet harder times ahead. Similarly, the outlook for the federal budget deficit in 2008 was worse than in 2001, and that difference might have resulted in less spending of the rebates by some people who viewed those larger deficits as implying higher future tax burdens.

Estimates of the spending effects of tax rebates vary widely. A study of the 2001 rebates suggests that as much

1. The figures cited are annual rates. See Congressional Budget Office, *The Budget and Economic Outlook: An Update* (September 2008).

2. The 2008 rebates were also refundable to those without tax liabilities, thus providing benefits to low-income groups that the 2001 rebates did not.

as two-thirds of those rebates was spent within six months. For the 2008 rebates, some analysts have put the figure as low as 10 percent to 20 percent—in contrast to CBO’s estimate of 40 percent. All such estimates for the 2008 rebates should be considered preliminary because the data needed for a more thorough analysis of their effects are not yet available.

Estimates of the Impact of the 2001 and 2008 Tax Rebates

Studies of tax rebates fall into three groups, depending on the type of data employed: those based on detailed data about spending by individual households; those based on qualitative answers to surveys in which people were asked what they intended to do or had already done with their rebate check; and those based on national data on income and consumer spending.³

Studies Based on Detailed Data on Households’ Spending

Each type of study is subject to problems, but careful studies of the first type—those based on quantitative measurement of the spending behavior of individual households—are generally less problematic than the other two. Studies of the first type not only provide quantitative rather than qualitative measures for individual households, but they can also use households that did not receive tax rebates as a control group. Drawbacks of studies of this type, however, are that they rely on samples of people to characterize the whole population and therefore

may be subject to sampling error; there may be outliers in the data that distort the results; and detailed data are not available until years after the time period that is being studied.

As an example of that first group, a widely cited study of the 2001 tax rebates by David Johnson, Jonathan Parker, and Nicholas S. Souleles used data from the Consumer Expenditure Survey to estimate the average proportion of the rebates that was spent rather than saved. They concluded that between 20 percent and 40 percent of the rebates was spent in the quarter it was received and that a total of about two-thirds was spent by the end of the next quarter. They also found strong evidence that households with low income or few liquid assets spent a substantially larger fraction of their rebate than did other households.

Similar findings emerged from a study of the 2001 tax rebates by Sumit Agarwal, Chunlin Liu, and Nicholas S. Souleles that used credit card data. Although credit card debt typically dropped immediately after people received the rebate, it then rose by about 40 percent of the rebate, on average. People confronting credit card limits were more likely to spend the rebate, while those with less binding constraints were more likely to save it.

Also in this first group of studies is one of the 2008 tax rebates by Christian Broda and Jonathan Parker that used weekly data provided by participating consumers, who, in their homes, scanned the bar codes on their purchases—mainly from grocery stores, mass merchandise outlets, and drugstores. The researchers’ findings imply that about 19 percent of the tax rebates was spent in the second quarter of 2008 and that cumulative spending amounted to about 33 percent through the third quarter. They also found that households with low income or few liquid assets spent more of their rebate than did other households.

Studies Based on Surveys

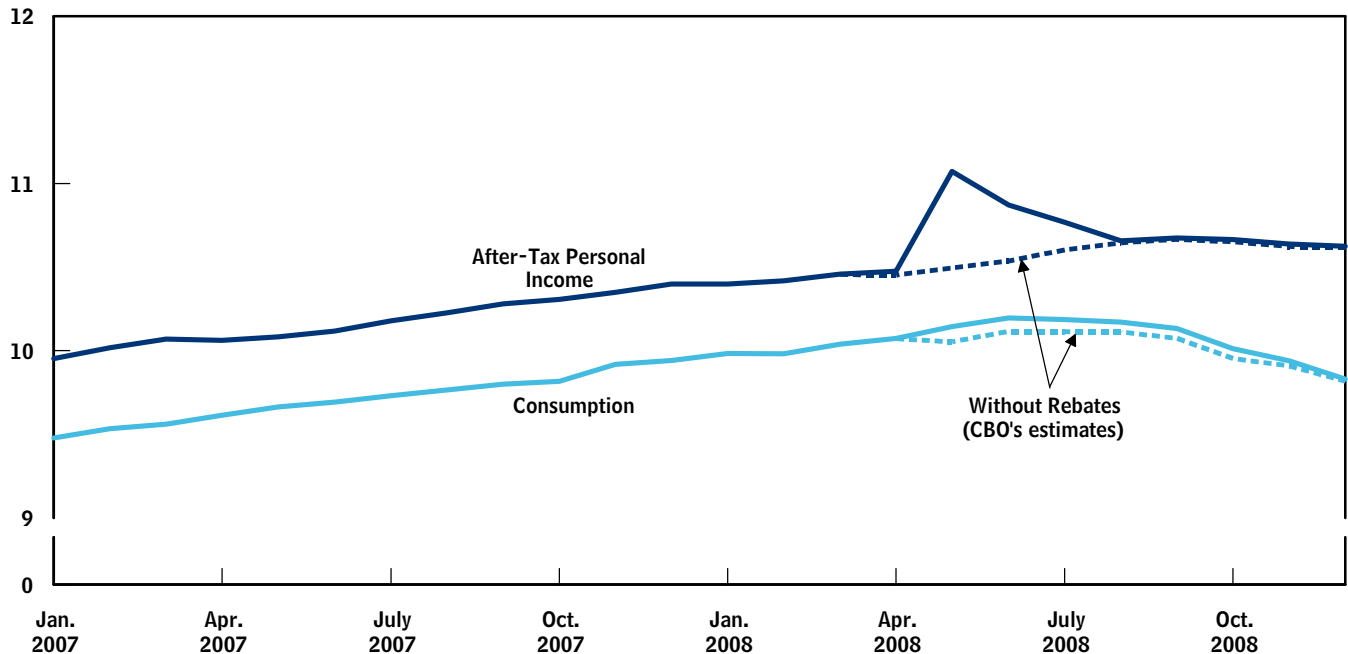
Studies of the second type, those that rely on responses to survey questions about spending, are subject to error because of incorrect answers. For example, people may report that they saved the tax rebate because they initially used it to pay down credit card debt; but if doing so enabled them to use credit to finance subsequent purchases, then, in fact, they spent the rebate. Also, respondents may have erroneously reported that they saved the tax rebate, because they thought that was the answer

3. Studies in the first group include David Johnson, Jonathan Parker, and Nicholas S. Souleles, “Household Expenditure and the Income Tax Rebates of 2001,” *American Economic Review*, vol. 96, no. 5 (December 2006), pp. 1589–1610; Sumit Agarwal, Chunlin Liu, and Nicholas S. Souleles, “The Reaction of Consumer Spending and Debt to Tax Rebates: Evidence from Consumer Credit Data,” *Journal of Political Economy*, vol. 115, no. 6 (December 2007), pp. 986–1019; and Christian Broda and Jonathan Parker, “The Impact of the 2008 Tax Rebates on Consumer Spending: A First Look at the Evidence,” *Kellogg Insight* (August 2008). Studies in the second group include Matthew D. Shapiro and Joel Slemrod, “Consumer Response to Tax Rebates,” *American Economic Review*, vol. 93, no. 1 (March 2003), pp. 381–396; and *Did the 2008 Tax Rebates Stimulate Spending?* Working Paper 14753 (Cambridge, Mass.: National Bureau of Economic Research, February 2009). Studies in the third group include Macroeconomic Advisers, “So Far, So Good: A Progress Report on the 2008 Tax Rebates,” *Macroeconomic Focus* (August 2008); and Martin S. Feldstein, “The Tax Rebate Was a Flop: Obama’s Stimulus Plan Won’t Work Either,” *Wall Street Journal*, August 6, 2008.

Figure 1.

Consumption and Income With and Without Rebates Provided Under the Economic Stimulus Act of 2008

(Trillions of dollars)



Source: Congressional Budget Office based on data from the Department of Commerce, Bureau of Economic Analysis.

Note: The cumulative area between lines showing consumption (personal spending) with and without the effects of rebates is 40 percent of the area between the lines showing income with and without the rebates. In the figure, it is assumed that the 40 percent of rebates is spent over six months, according to this pattern: 15 percentage points in the first month and 5 percentage points in each subsequent month. On the basis of those assumptions, CBO estimates that the rebates added 2.3 percent (at an annual rate) to the growth of consumption in the second quarter of 2008 and 0.2 percent in the third quarter but—because of those effects—reduced the growth of consumption by 1.0 percent in the fourth quarter.

they were “supposed” to give. More generally, because money is fungible, they may have had trouble identifying what they planned to do or actually had done with the specific dollars provided by the rebate.

An example in this second group is a study of the 2001 tax rebates by Matthew D. Shapiro and Joel Slemrod based on a survey of households. The authors found that only about 22 percent of those answering the survey said that the rebate would lead them to “mostly increase” their spending, as opposed to mostly saving it or using it to pay off debt. By its nature, however, the findings of this study are much more subjective than those based on quantitative evidence.

Similarly, in their study of the 2008 tax rebates, Shapiro and Slemrod again relied on survey data and reached

similar conclusions. In particular, only one-fifth of those surveyed indicated that they would mostly spend their rebate. Almost half said they would mostly use it to pay off debt, and a third of those surveyed indicated it would mostly be saved. Overall, the authors estimated that a third of the rebates would be spent, predominantly in the quarter when they were received.

Studies Based on National Data on Income and Spending

Studies of the third type—those that examine changes in households’ expenditures as reported in the national income and product accounts, which are compiled by the Department of Commerce’s Bureau of Economic Analysis—also have inherent shortcomings. The most important is that the estimated effect of the rebates depends critically on the assumption of what national

income and spending would have been in the absence of the rebates. Some economists have argued that the lack of a significant jump in consumer spending in the second quarter of 2008 (when after-tax personal income jumped because of the rebates) indicates that the rebates were ineffective. However, that inference is misleading because past evidence suggests that the impact on spending of the tax rebates would have been spread out over a number of months.

Figure 1 shows a counterfactual path for monthly consumer spending, constructed by subtracting from actual spending CBO's estimate of the effect of the rebates. That estimate (that 40 percent of the rebates was spent) implies that the rebates raised the growth of consumption in the second and third quarters by 2.3 percent and 0.2 percent, respectively, but reduced it by 1.0 percent in the fourth quarter, when the distribution of the rebates ended. As the figure shows, by itself simple observation of aggregate consumption over time may not detect the effect of rebates; no spike in spending corresponds to the spike in income.

One way to address the question of what would have occurred in the absence of the rebates is to use an econometric model to estimate their effects (assuming responses similar to those in the past). Using that approach, a study by Macroeconomic Advisers found

that roughly 30 percent of the 2008 rebates was spent. However, such studies are based on a very small number of past examples of rebates, and taking account of the specific characteristics of different rebates is difficult to do in such a model.

Because of the difficulties associated with analyses based on national data, CBO places more confidence in studies of the first two types, which rely on differences in spending by people who benefit from the tax rebates and by those who do not.

This brief was written by Frank Russek, under the supervision of Robert Dennis and John Peterson. CBO's earlier work on the effectiveness of tax rebates includes *Estimated Macroeconomic Impacts of the American Recovery and Reinvestment Act of 2009*, letter to the Honorable Charles E. Grassley (March 2, 2009); and *Options for Responding to Short-Term Economic Weakness* (January 2008). Douglas Hamilton (formerly of CBO), Mark Lasky, and Benjamin Page were instrumental in developing CBO's quantitative assumptions about the total impact of the tax rebates and the timing of the response by consumers.

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