

Consumer spending that was even stronger than previously reported, together with a higher figure for U.S. exports, accounted for most of the upward revision.

The March 28, 2002, *final* estimates delivered yet a third pleasant surprise, with the report that real GDP grew at an annual rate of 1.7% during the fourth quarter of 2001. An increased estimate of net exports of services was the major factor contributing to the 0.3 percentage point revision above the preliminary estimates. In short, after three rounds of estimates, the fourth quarter of 2001 appears now to have been a period of modest growth rather than sharp contraction.

The surprisingly high estimates of fourth-quarter GDP growth led some to question whether a full-fledged recession had begun in 2001 after all. A common rule of thumb is that a recession corresponds to two consecutive quarters of falling real GDP. Although real GDP fell in the third quarter of 2001, the finding that it actually rose during the fourth quarter means that the economic weakness of 2001 would not qualify as a recession, according to this rule of thumb.

The NBER, however, rejects the “two-negative-quarter” rule-of-thumb definition of a recession, for two main reasons. First, the NBER economists prefer not to rely on the behavior of a single economic variable, even one as important as real GDP, to define a recession. They pointed out, for example, that **employment** had decreased substantially during 2001, as happens during a typical **recession**. It was only because output per worker—which usually declines during recessions—grew at the surprisingly high annual rate of 5.1% in the fourth quarter of 2001 that total real GDP was able to increase, despite continuing declines in employment. Taking labor market developments into account as well as real GDP, the NBER still viewed the episode as a recession. A second reason for not relying strictly on real GDP for determining whether the economy is in recession is that GDP figures can be quite substantially revised over time—as the experience of 2001 shows clearly! Thus one would not want to rely on GDP figures alone in making judgments about the state of the economy.

A Ricardian Tax Cut?

In May 2001, Congress passed, and President Bush signed, the Economic Growth and Tax Relief Reconciliation Act of 2001, which featured both short-run and long-run tax cuts. In the short run, and in response to concerns about the ongoing economic slowdown, the Act included a provision for the distribution of rebate checks to taxpayers. To be mailed out over a period of months beginning in July 2001, the rebates were as large as \$300 for an individual, \$500 for a head of household, and \$600 for a married couple. The longer-run tax cut provided by the Act decreased income tax rates. For couples filing a joint return, the tax rate on the first \$12,000 of income was reduced from 15% to 10%. The highest tax rate, paid by upper-income taxpayers, was to be reduced to 35% from 39.6% over a five-year period, and other tax rates would be reduced by 3 percentage points over a five-year period.

Largely as a result of this tax bill, Federal receipts in the third quarter of 2001 were \$180.3 billion (seasonally adjusted at annual rates) lower than in the first quarter of that year. If the Ricardian equivalence proposition (p. 123 of the Fourth Edition) holds, then a tax cut should have no effect on consumption or national saving. Specifically, although a tax cut reduces government saving by reducing the budget surplus, Ricardian equivalence suggests that the tax cut should increase private saving by an equal amount, leaving national saving (the sum of government saving and private saving) unchanged.

Table 1 compares various components of national saving in the first quarter of 2001, before the tax cut was enacted, and in the third quarter of 2001, after taxpayers had begun to receive rebates and to benefit from reductions in tax rates. The results appear to fit the predictions of the Ricardian equivalence proposition. Government saving fell by \$228.5 billion (at an annual rate) from the first quarter

Table 1
Ricardian Equivalence and the Tax Cut of May 2001

	2001:Q1	2001:Q3	Change
	billions of dollars (seasonally adjusted at annual rates)		
Private saving	1307.9	1534.4	226.5
Personal	78.8	285.3	206.5
Business	1229.1	1249.1	20.0
Government saving	446.1	217.6	-228.5
Federal	303.7	86.2	-217.5

to the third quarter of 2001, reflecting the losses in tax revenue. But during this time period, private saving increased by an almost identical \$226.5 billion, so that national saving in the third quarter was virtually identical to its value in the first quarter. Effectively, the public chose to save virtually all of the tax cut, at least in the short run, so that consumption and national saving did not change. (Remember, Ricardian equivalence applies to changes in taxes or transfers but not to changes in government saving that arise from changes in government purchases. In this episode, the overwhelming proportion of the change in government saving stemmed from reduced taxes and increased transfer payments.)

There is some evidence that by early 2002 consumers had begun to spend out of their tax rebates, a trend weakening the case for pure Ricardian equivalence. Nevertheless, this episode illustrates that fiscal policymakers face a difficult challenge in predicting exactly how consumers will react to a given change in taxes or transfers.

Macroeconomic Consequences of the Boom and Bust in Stock Prices

Stock prices in the United States soared during the 1990s, especially during the second half of the decade, but then tumbled sharply early in the first year of the new century. Illustrating these trends, Figure 1 shows two major stock price indexes. The Standard and Poor's (S&P) 500 is an index of 500 stocks representing a broad cross-section of corporations headquartered in the United States. The NASDAQ index, a newer index than the S&P 500 and one more oriented to smaller, startup firms, more closely reflects the behavior of stocks of firms in the technology sector of the economy. As you can see in Figure 1, in a little more than five years, from the end of 1994 until March 2000, the S&P 500 index increased dramatically in value, by a factor of 3.3. Even more spectacular was the rise in the NASDAQ index, whose value increased by a factor of 6.7 over the same period. (In other words, a dollar's worth of stock purchased on the NASDAQ at the end of 1994 would have been worth on average about \$6.70 in early 2000, not including any dividends received.) Indeed, during the year ending in March 2000, the NASDAQ index more than doubled. The much larger increase in the NASDAQ

Figure 1
Stock prices in the United States

Sources: www.nasdaq.com and www.standardandpoors.com

