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The impact of temporary tax changes on consumption: 2000–2015[☆]



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ABSTRACT

This paper provides estimates of the impact of fiscal policy induced temporary increases in disposable income (TIDI) on personal consumption expenditures from 2000 to 2015. The regression analysis suggests an economically large impact of TIDI on consumption. The interpretations of the results as casual depends on the plausibility of the argument that fiscal policy changes were at least partly exogenous to contemporaneous shocks to personal consumption expenditures.

1. Introduction

In response to financial crisis and the subsequent Great Recession of 2007–2009, the US government attempted to increase consumer spending via fiscal policy induced temporary increased disposable income. The idea behind these policies was simple: given more disposable income, people would increase their consumption spending. Economists have a variety of models for household consumption. Starting from [Keynes \(1936\)](#) consumption function, economists have developed increasingly sophisticated consumption models: the Life-cycle Consumption model ([Ando & Modigliani, 1963](#); [Modigliani & Brumberg, 1954](#)), the Permanent Income Hypothesis ([Friedman, 1957](#)) and the Ricardian Equivalence model ([Barro, 1974](#)). These models assumed increasing levels of household computational powers, foresight, self-control, and access to financial markets. Except for the Keynesian Consumption function, all of these models share the empirical implication that fiscal policy induced temporary changes in disposable income should have a minimal or no impact on consumption spending.

Initial empirical research, looked at policy changes in the late 1960s and mid-1970s. [Okun \(1971\)](#) and [Blinder \(1981\)](#) find that the 1968 ten percent tax surcharge on personal income decreased consumption by approximately 35 cents for each \$1 of tax surcharge. [Blinder \(1981\)](#) also estimates the impact of the 1975–76 temporary cuts in income taxes and finds a small increase in consumption spending relative to GDP.

Subsequent empirical studies (starting with [Campbell & Mankiw, 1989, 1990](#)) test the implications of the models for changes in income in general, and suggest that a large fraction of households, rather than smoothing consumption in the face of temporary fluctuations in income as predicted by the Permanent income/Life cycle models of consumption, set consumption equal to current disposable income. This may be due to liquidity constraints, i.e. the inability of households to borrow without collateral against future labor income or due to self-control issues where some households have a difficulty in refraining from spending whatever temporary windfalls come their way. Recently, [Kaplan, Violante and Wiedner \(2014\)](#), using household financial data from eight countries (including the US), find that even households with high levels of wealth have high marginal propensities to consume out of

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transitory changes in income if the household also hold low levels of liquid assets. The current consensus, as suggested by Mankiw (2000), Savers-Spenders Theory, is that the appropriate model of aggregate consumption is a mix of sophisticated households who act as life-cycle consumers along with rule of thumb or liquidity constrained households who consume much or all of current disposable income. Consistent with the Savers-Spenders Theory, economists tasked with tracking the US economy and developing economic outlooks, focus on disposable income, household wealth and measures consumer confidence as potential explanatory variables when discussing the behavior of consumption spending (see various Federal Reserve Monetary Policy Reports, e.g. Board of Governors of the Federal Reserve System, 2016) and the IMF World Economic Outlooks (e.g. International Monetary Fund, 2015). If consumption spending is driven by a mix of Life-cycle and Keynesian consumption type consumers, then temporary tax cuts should increase consumption spending. The size of the effect will depend on the distribution of the tax cuts among the different types of consumers. This suggests that an appropriately designed fiscal policy induced temporary increase in disposable income can have a sizable impact on consumption.

The focus of this of paper is to see if the fiscal policy induced temporary increases in disposable income (TIDI) between 2000 and 2015 had a noticeable impact on aggregate consumption. Previous research on this topic which is most similar to this paper is, Taylor (2009, 2011) who finds no or little impact of 2001 and 2008 tax rebates and American Recovery and Reinvestment Act of 2009 (ARRA) on consumption. Shapiro and Slemrod (2009) using results of a University of Michigan Survey Research Center question on the 2008 tax rebate report that 20% of respondents said they would spend the 2008 tax rebate while the remaining respondents said they would save rebate or use it to repay debt. Recently the Congressional Budget Office (2015) estimated the impact of the ARRA on real GDP using various estimates of demand multipliers, and find the impact on the real GDP peaked in 2010, increasing real GDP by 0.7–4.1% with the impact essentially diminishing to zero by 2014. The regression results of this paper reported below suggest, in contrast to Taylor (2009, 2011), that for some regression models TIDI are associated with large and precisely estimated increases in consumption spending.

2. The data

Table 1 lists the fiscal policy induced temporary increases in disposable income (TIDI) from 2000:1 to 2015:3 along with a brief description of each policy. Fig. 1 shows the increases in disposable income due to the various temporary fiscal policy changes as described in Table 1. The data sources and definitions for all variables are given in Table 2. All variables are measured in real per capita chained 2009 \$ at seasonally adjusted annual rates (SAAR). Fig. 1 shows that the 2001 and 2008 tax rebates lasted one quarter and two quarters respectively peaking at \$637 and \$1,022 in real SAAR per capita terms. The increases in disposable income associated with the American Recovery and Reinvestment Act (ARRA) lasted 17 quarters from 2009:1 to 2013:1 with the maximum amounts from 2009:02 to 2010:1 at about \$484 after which the program is slowly phased out and is essentially out by 2012:1. The 2010 Tax Relief,

Unemployment Insurance Reauthorization and Job Creation Act or “Payroll Tax Holiday” reduced the Social Security tax rate by two percentage points for employees and the self-employed. With extensions, the Payroll tax Holiday (PTH) ran for eight quarters, 2011:1 to 2012:4, with maximum amount about \$345 per capita in 2012:4. Taken together, the ARRA and PTH were essentially “on” about three years from 2009:2 to 2012:4, increasing disposable income by an average level per quarter of \$431 in real SAAR per capita terms.

Fig. 2 shows the paths of personal consumption expenditure (PCE), Disposable personal income (DPI) and DPI net of the fiscal policy induced temporary increases in disposable income ($DPI_{net\ of\ TIDI}$). DPI is above $DPI_{net\ of\ TIDI}$ during periods when fiscal policy temporarily increased disposable income. After the expiration of the Payment Tax holiday (PTH) at the end of 2012,

DPI equals $DPI_{net\ of\ TIDI}$. Comparison of the path of DPI with $DPI_{net\ of\ TIDI}$ suggests that the fiscal policy induced temporary increases in disposable income had a modest impact on disposable income and thus a potentially modest impact on the level of consumption. The 2001 tax rebate increases disposable income only from 2nd to 3rd quarter. Consumption spending is flat from 1st to 3rd quarter to 2001 as the economy goes into the recession. The 4th quarter 2001 consumption increases after the tax rebate expired. Consumption is decreasing prior to the 2008 tax rebate, and stops decreasing when disposable personal income increases in

Table 1

Legislation induced temporary increases in Disposable Personal Income, 2001–2015.

Date passed	Name of legislation	Type of temporary increase to disposable income
June 2001	Economic Growth and Tax Relief Reconciliation Act	reduced income tax withholding, tax rebate \$300 individuals, \$600 married couples
Feb 2008	Economic Stimulus Act	Tax rebates same as in 2001 with a mean based phase out
Feb 2009	American Recovery and Reinvestment Act (ARRA)	Making work Pay Tax Credit: \$400 for individuals, \$800 for married couples both with a means based phase out starting at \$75,000 for individuals and \$150,000 for joint filers. Increased transfer payments to persons, such as expansion of the earned income tax credit and child tax credits
Dec 2010	Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act	“Payroll tax holiday”: Cut employee contributions for Social Security Taxes by 2% points for 2011. Maximum taxable Social Security earning for 2011 was \$106, 800 and for 2012 was \$110,000.
Dec 2011	Temporary Payroll Tax Cut Continuation Act	Extended payroll tax holiday to end of February 2012
Feb 2012	Middle Class Tax Relief and Job Creation Act	Extended payroll tax holiday to the end of 2012

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