



# The Economic Stimulus Payments of 2008 and the aggregate demand for consumption <sup>☆</sup>



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## ABSTRACT

Households in the Nielsen Consumer Panel were surveyed about their 2008 Economic Stimulus Payment. In estimates identified by the randomized timing of disbursement, the average household's spending rose by 10 percent the week it received a Payment and remained high cumulating to 1.5–3.8 percent of spending over three months. These estimates imply partial-equilibrium increases in aggregate demand of 1.3 percent of consumption in the second quarter of 2008 and 0.6 percent in the third. Spending is concentrated among households with low wealth or low past income; a household's spending did not increase significantly when it learned about its Payment.

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## 1. Introduction

The US government passed the Economic Stimulus Act of 2008 in February 2008 in response to the recession that started in December 2007. The main part of Act was a \$100-billion program of Economic Stimulus Payments (ESPs) designed to raise consumer demand. The ESPs averaged \$900 and were disbursed to US taxpayers in the spring and summer of 2008. Around the time of the stimulus program, measured aggregate consumption is relatively smooth while measured disposable income rises and falls sharply with the disbursement of the Payments, providing “no evidence that the stimulus has had any impact in raising consumption” (Taylor, 2010; see also Feldstein (2008)). On the other hand, previous research finds significant increases in expenditures in response to predictable, predetermined and plausibly-exogenous changes in household-level income.<sup>1</sup>

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<sup>1</sup> See for example Parker (1999), Souleles (1999, 2002), and Hsieh (2003), or the reviews of Deaton (1992), Browning and Lusardi (1996), and Jappelli and Pistaferri (2010).

Most relevant, [Johnson et al. \(2006, 2009\)](#) and [Agarwal et al. \(2007\)](#) all find significant spending responses to the receipt of previous Federal tax rebates.<sup>2</sup>

This paper measures the spending responses of households to the Economic Stimulus Payments of 2008 and quantifies the partial-equilibrium increase in aggregate demand for consumer goods and services caused by the Payments so as to provide quantitative discipline for model-based inferences about the general-equilibrium efficacy of such tax-based stimulus policies. The effect of the receipt of the ESPs of 2008 on the demand for consumption is estimated by first measuring changes in the timing of household spending caused by differences in the timing of the receipt of ESPs, and then aggregating these changes using the temporal distribution of ESPs as reported by the U.S. Treasury and several different extrapolations from the observed goods to a broader measure of spending. “Receipt” is emphasized because our main analysis measures only changes in spending correlated with the date of receipt, so does not include for example changes in spending on the date of announcement. “Demand” is emphasized because the calculation is partial equilibrium and omits any multiplier effects or crowding-out from the policy.

To measure the spending effects of the ESPs, we conducted a multi-wave survey of roughly 60,000 households in Nielsen’s consumer panel (NCP, formerly Homescan consumer panel) during the spring and summer of 2008. The NCP contains annual information on household demographics and income, and weekly information on spending on a set of household goods. Participating households are given barcode scanners which they use to report spending on trips to purchase household goods and to answer occasional surveys designed by Nielsen and typically used to study the efficacy of marketing campaigns. Our supplemental survey, designed in conjunction with Nielsen, uses this existing survey technology to collect information on the date of arrival of the first Economic Stimulus Payment received by each household, as well as its amount, whether it arrived by check or direct deposit, and when the household learned about the Payment. In addition, this survey contains several additional questions useful for our analysis, such as about expectations, access to liquidity and the amount of the ESP spent on NCP and non-NCP items. The resulting dataset has several advantages relative to those used in previous research: the sample is larger, spending is observed weekly, and the ESP information is collected with a short recall window; the main disadvantage is the limited set of goods covered.

We identify the change in spending caused by the receipt of an ESP at the household level following the [Johnson et al. \(2006\)](#) methodology using the fact that the law randomized the disbursement of ESPs over time. Because it was not administratively possible for the IRS to mail all checks or letters accompanying direct deposits at once, Payments were mailed out to households during a nine-week period between mid-May and the end of July, or deposited into households’ accounts in one of the first three weeks of May. Among mailed checks and among deposited funds, the particular week in which the funds were disbursed depended on the second-to-last digit of the taxpayer’s Social Security number, a number that is effectively randomly assigned.<sup>3</sup>

This randomization is used to identify the causal effect of the receipt of a Payment by comparing over time the spending of households that received their ESPs earlier relative to the spending of households that received their ESPs later, within each method of disbursement. This approach identifies the causal effect of the receipt of a Payment because the variation in the timing of receipt is unrelated to differential characteristics of households receiving the ESPs at different times and that might affect household spending differentially, such as differences in seasonal spending patterns, contemporaneous changes in wealth, information about future income, or monetary policy. To be clear, households may have adjusted their spending due to the Act and to the macroeconomic effects of the Act. Our methodology measures the extent to which – in this new world with the Act in place and each household’s budget constraint fixed at its new level – the temporal pattern of spending differs for households that received their ESPs at different times but are otherwise (in expectation) identical. Differences in the temporal pattern of spending are thus due to differences in the timing of receipt (and factors uncorrelated with this timing) and measure the household-level impulse response of spending to the receipt of an ESP.

The average household’s spending rises on receipt of a Payment and remains elevated for some time. A household raises its spending on NCP-measured household goods in the week of receipt by roughly 14 dollars, 10 percent of average weekly spending, or 1.5 percent of the average ESP. This spending effect decays over the following weeks, so that during the four weeks starting with the week of receipt, spending on NCP-measured goods is higher by 30 to 50 dollars, 5 to 7 percent of average weekly spending, or 3.5–5.5 percent of the ESP, with ranges reflecting different point estimates across specifications. Finally, over the quarter starting with receipt, spending rises by 60–90 dollars, 2–4 percent of spending (but statistically insignificant), and 7–12 percent of the ESP. In most specifications, there is no pre-treatment effect, that is, no economically or statistically significant change in spending prior to receipt.

Do households also adjust their spending when they learn about the stimulus program, as predicted by standard models of consumer behavior? Because the time of announcement is common across households and so uncorrelated with the timing of receipt, our estimates omit any such spending response at announcement. However, we investigate whether households adjusted their spending at the different dates at which they each learned about their ESPs. While not ruling out small effects

<sup>2</sup> And households when surveyed about what they would do or have done with tax rebates report spending a significant fraction ([Shapiro and Slemrod, 1995, 2003](#); [Coronado et al., 2005](#)).

<sup>3</sup> The last four digits of a Social Security number (SSN) are assigned sequentially to applicants within geographic areas (which determine the first three digits of the SSN) and a “group” (the middle two digits of the SSN).

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