

A Bucket Approach to Teaching the Fiscal Multiplier

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Abstract. This article presents a simple worksheet that allows students to generate an estimated range of the size of the fiscal multiplier. Additional resources provide the data necessary to apply the activity to the infamous American Recovery and Reinvestment Act (ARRA) in 2009, an update to the US economy circa 2022, as well as the Canadian economy as of 2025. The exercise not only helps to teach which factors affect the potency of fiscal policy, but also gives international students an opportunity to learn about the countries that are of most interest to them. Finally, any instinct to outsource such learning opportunities to AI is confronted by presenting AI generated alternatives to professional estimation as a point of comparison and a subject of critical assessment.

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1. Introduction

The concept of the fiscal multiplier is one of the most seminal and controversial in macroeconomics. When a country enters recession, and if interest rates are low, it is generally considered that governments can engage in discretionary fiscal policy to stimulate the economy (Mankiw 2011, Romer 2011). The ratio between changes in spending or taxes and a subsequent change in output is known as the “fiscal multiplier”, or “the change in GDP, measured in units, resulting from a one-unit increase in the respective fiscal variable” (Cardosa, 2025).

As a general rule of thumb, and in normal circumstances, we expect multipliers to be fairly low (i.e. less than 1), for spending multipliers to be higher than tax change multipliers, and for the multiplier to have a bigger cumulative impact over time (Batini et al. 2014).² In a systematic review of the evidence,

1. I appreciate helpful advice from Ryan Murphy and Marina Sanches. All errors are my own. Permanent versions of all teaching materials mentioned in this article can be found at <https://anthonyjevans.com/multiplier/>.

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Ramey (2011) found that spending multipliers tend to be 0.6-1 but might be 1.5 or higher during recessions. Tax rate changes tend to be much lower, often below -2. Various empirical approaches have been used to research the multiplier. Ramey (2011) argues that the most common way to deliver national-level estimates are either time series or a New Keynesian dynamic stochastic general equilibrium (DSGE) model. Alternatively, an approach more consistent with micro analysis would be an estimate across subnational units. This method has stronger identification (the smaller scale means that assumptions are more plausible and instruments are more relevant) but can't really deliver a macro level estimate. The main point is that a variety of methods are used because all have pros and cons. In their meta-analysis, Gechert and Rannenberg (2018) cover 98 previous studies and find that spending multipliers tend to be higher during economic downturns, and are ordinarily higher than tax multipliers. Cardoso et al. (2025) provide estimates of the multiplier for social protection spending for 42-countries spanning 1985-2020. The cumulative impact ranges from 7.4 in Mexico to -2.1 in Ireland with a median of 1.52.

Since the relationship between exogenous (i.e. policy determined) shocks to fiscal deficits impacts subsequent economic activity, the multiplier also plays a key role in determining the accuracy of macroeconomic forecasts. While monetary policy has become the favoured tool to manage aggregate demand, the global financial crisis prompted increased attention to fiscal policy. Ramey (2011) argues that better information about the multiplier might well have affected the composition of stimulus packages, and Blanchard and Leigh (2013) found that a systematic underestimation of fiscal multipliers led to lower-than-expected growth following the global financial crisis.

The global financial crisis prompted what has been referred to as a “renaissance” of research into the power of fiscal policy (Ramey 2019), and the American Recovery and Reinvestment Act (ARRA) of February 2009 serves as a potent and suitable example of the challenges of taking discretionary fiscal action during a crisis. Documentaries such as “Inside Obama’s White House” (BBC) and “Hank Paulson: What I Could Have Done Differently” (Netflix) brought to life the difficulties of the situation, offering students an opportunity to take an exciting look behind the scenes. Indeed, as a topic, the fiscal multiplier is also particularly well suited to placing students in a decision-making context, helping them to develop their understanding of links between academic research and public policy.

While fiscal multipliers are notoriously tricky to estimate (Batini et al. 2014), this justifies their use as a classroom exercise, where the focus is on understanding a concept rather than applying it to economic policy. Typical ways to incorporate a fiscal stimulus into a classroom setting is to discuss the pros and the cons (Yard 2014). My purpose is to establish a simple method to estimate of the size of the

2. Mineshema et al. (2014) find that the multiplier tends to larger in year 2 than in year 1 and Batini et al. (2014) estimate that on average this constitutes a 10-30 percent increase.