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The impact of commercial sweeping on the demand for monetary assets during the Great Recession ☆

Adrian R. Fleissig [a], Barry E. Jones [b,*]

[a] Department of Economics, California State University, Fullerton, 800 N. College State Blvd., Fullerton, CA 92834, United States
[b] Department of Economics, Binghamton University, PO Box 6000, Binghamton, NY 13902-6000, United States

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ABSTRACT

This study investigates how accounting for commercial sweeping affects estimates of elasticities of substitution between monetary assets over the period 1991 to 2012 using a Fourier flexible form. On the basis of the Fourier model, we find that adjusting the monetary data for commercial sweeps leads to higher average estimates for many elasticities of substitution over the sample period. The average value of an elasticity capturing substitution between currency and demand deposits and other checkable deposits nearly doubled when the elasticity was estimated using data that was adjusted for commercial sweeps as compared with unadjusted data. We also find that the share of commercial sweeps relative to total demand deposits eventually ended up lower following each of the past two recessions than it was leading up to them.

1. Introduction

Retail and commercial sweep programs have significantly distorted the Federal Reserve's M1 monetary aggregate. In a retail sweep, banks transfer funds from their customers' checkable deposits into savings deposits in order to reduce required reserves. As noted by Anderson and Rasche (2001), retail sweeping does not affect the customers' perceived funds in transaction accounts and may be "invisible" to them. Results from Dutkowsky and Cynamon (2003) showed that money demand functions estimated prior to the inception of retail sweeping in 1994 subsequently over-predicted M1 and that this could be accounted for using data on retail sweeps.[1] They suggested using data on sweeps to adjust M1 upwards. Failing to account for retail sweeping also leads to large distortions of estimated elasticities as shown by Jones et al. (2008a).[2] Commercial sweeping differs from retail sweeping in that a commercial sweep is a service that involves transferring funds from commercial demand deposit accounts to linked investment accounts. Banks charge fees for the service and their customers earn interest on the swept funds as discussed by Jones et al. (2005) and Cynamon et al. (2006). The growth of sweeps over the 1990s was analyzed by Dutkowsky et al. (2006).

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* Corresponding author.
E-mail addresses: afleissig@fullerton.edu (A.R. Fleissig), bjones@binghamton.edu (B.E. Jones).

[1] Lucas (2000) emphasized difficulties with fitting a demand function to M1 in the 1990s.

[2] For additional discussion of retail sweeping and its implications, see VanHoose and Humphrey (2001), Jones et al. (2005), and Anderson and Jones (2011).

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To examine the impact of retail and commercial sweeping, Dutkowsky et al. (2006) tested for long-run co-integration relationships between money velocity and the opportunity cost of money. Their results supported the existence of a long-run relationship between the velocity of M1 and its opportunity cost when the data are adjusted for both retail and commercial sweeps and they found that estimated interest rate semi-elasticities are very similar for different opportunity cost measures. They characterized their results as being weaker when M1 is only adjusted for retail sweeps and they found little evidence to support the MZM monetary aggregate.[3] Jones et al. (2005) presented additional evidence supporting the importance of commercial sweeps based on tests for weak separability. They found that when the monetary data is adjusted for retail sweeps, but not for commercial sweeps, only broader monetary asset groupings are weakly separable. In contrast, when the data are also adjusted for commercial sweeps, both narrow and broader monetary asset groupings are weakly separable. Thus, the separability of narrow monetary asset groupings hinges critically on accounting for commercial sweeps. Weak separability is an important requirement for the components of Divisia money measures as discussed, for example, by Belongia (1996). Belongia and Ireland (2014) highlight the importance of Divisia monetary aggregates, as opposed to conventional monetary aggregates, in determining the effects of quantitative easing in response to the Great Recession.

In this paper, we add to the existing evidence that it is critical to account for commercial sweeping when studying narrow money for the United States. Commercial sweeping has grown over time, but data indicate that it levelled off and declined slightly following the 2001 recession and that it peaked during the Great Recession before declining sharply. We find that the share of commercial sweeps relative to total demand deposits eventually ended up lower following each of the past two recessions than it was leading up to them - a pattern which is broadly consistent with theoretical relationships derived by Dutkowsky and VanHoose (2013). Next, we investigate how accounting for commercial sweeps affects estimates of Morishima elasticities of substitution for monetary assets over the period 1991 to 2012 using the Fourier flexible form. The system of Fourier demand share equations are first estimated using data that only account for retail sweeps and then using data that are also adjusted for commercial sweeps. From the Fourier model, we find that the estimated elasticities of substitution between currency and demand deposits and other checkable deposits, which together make up M1 (adjusted for sweeps), are higher throughout the sample period when estimated using data that were adjusted for commercial sweeps. In particular, the average value of the elasticity of substitution between these two components in response to a change in the user cost of currency and demand deposits is nearly double when estimated using data that are adjusted for commercial sweeps than when estimated using data that are not.

Jones et al. (2008b) focused on a particular subset of Morishima elasticities in order to characterize substitution in response to changes in the Federal Funds rate over the period from 1987 to 2004, but they did not consider commercial sweeping. Consistent with their results, we find that currency and demand deposits has a higher estimated elasticity of substitution with small-denomination time deposits than with money market mutual funds in response to changes in its user cost. We also find that the corresponding elasticity of substitution between currency and demand deposits and small-denomination time deposits has trended upwards since the end of the Great Recession and is considerably higher throughout the sample period when estimated using data that are adjusted for commercial sweeps than when using data that are not.

The remainder of the paper is organized as follows: Section 2 describes the monetary asset and user cost data; Section 3 presents our empirical results and Section 4 concludes the paper.

2. Data

The data on monetary assets and their user costs used in this paper are, aside from adjustments to account for commercial sweeping, the same as in Anderson and Jones (2011). Anderson and Jones (2011) construct a monetary services index (MSI-ALL) over all monetary assets currently reported on the Federal Reserve's H.6 Release.[4] They account for retail sweeping in the data by adding estimates of funds in retail sweep programs to demand deposits and other checkable deposits (OCD) as appropriate and correspondingly subtracting these estimates from savings deposits. We use the same set of monetary assets as are included in MSI-ALL, so that all assets that are included in M2 or MZM are included in our analysis. We describe the adjustments for commercial sweeps below.

As discussed in Cynamon et al. (2006) and Anderson and Jones (2011), commercial sweeping involves some assets that are not included in either M2 or MZM and, consequently, distorts those aggregates as well as M1. MZM is broad enough to capture commercial sweeping into institutional money funds, whereas M2 is not since it only includes retail money funds.

2.1. Components and user costs

In order to reduce the number of monetary assets in our demand system, we add currency, traveler's checks and demand deposits together and we sum across deposits at commercial banks and thrift institutions following Jones et al. (2008a,b). We also add retail and institutional money market funds together, whereas Jones et al. (2008a,b) only included retail money

[3] Sweep-adjusted narrow money measures are increasingly being used in empirical work. See, for example, Ireland (2009), Greene (2010), Aruoba and Schorfheide (2011), Haug and King (2011), Belongia and Ireland (2013) and Venkateswaran and Wright (2013).

[4] See Anderson et al. (2015) for an empirical analysis of the relationship between MSI-ALL and aggregate income and prices.