

MPA et al.-LR-R2013-11/3 – Exploratory and Employment/Output Gap Analyses

This library reference contains one Excel workbook entitled LR-3.xlsx. The tab “Mail Volume Data” provides the First-Class Mail and Standard Mail volume data used in the exploratory analyses. Columns C-H provide mail volumes for First-Class Mail and columns I-L provide mail volumes for Standard Mail. These columns are taken from the “Public” tab of USPS-R2010-4/9, RCFDATA.xlsx, using the columns with the corresponding names. In addition, data series for Quarter (“TIME” in column A), Adult Population (“N22 PLUS” in column N), and Quarterly Business Days (“BDAYS” in column O) are also taken from the “Public” worksheet columns with the corresponding names. Corresponding Calendar Quarters are added in column B. The First-Class Mail and Standard Mail volumes are totaled in columns S (“FC”) and W (“Std”), respectively. The natural log of the First-Class Mail and Standard Mail volumes per adult per business day are created in columns T and X, respectively (with the same “BG” prefix used by Mr. Thress and using the Adult Population and Quarterly Business Days series in the same way that Thress does). Finally, columns U and Y produce year-on-year growth rates by differencing the natural logs found in columns T and X (and adding the prefix “YonY”). These final two series are the dependent variables in the exploratory analyses discussed in section V of the statement.

The tab “Macro Data” contains the macroeconomic series used in the statement, all of which were obtained from the St. Louis Federal Reserve Bank website. The links are provided for each series. The series on Real Gross Domestic Product (column C), Total Nonfarm Payroll (column D), Real Retail Sales (column E), and Real Gross Private Domestic Investment (column F) are used to construct the growth rate data series for the independent variables used in the exploratory analyses discussed in section V.

The worksheet “Regression Analysis” provides the results of the eight exploratory analyses that are described in section V of the statement, which were performed in Eviews. Columns D and L provide the Exposure coefficient estimates for First-Class Mail and Standard Mail, respectively, using the four different macroeconomic variables discussed in section V (on rows 5, 9, 13, and 18). The results include standard errors (with corrections for any heteroskedasticity and serial correlation), as well as an intercept

term and an adjusted R-squared.¹ The regressions use the year-on-year growth rates from the "Mail Volume Data" tab as the dependent variables. The independent variables are the year-on-year growth rates in the macroeconomic variables in columns N-Q from the "Macro Data" worksheet.

The remaining portion of the "Regression Analysis" worksheet calculates the cumulative impact of the exposure coefficients from the eight exploratory regressions. Columns J-M provide the quarterly growth rates for the four macro variables since the start of the recession in rows 4-26 and the cumulative growth rates in rows 30-52. These quarterly and cumulative growth rates are then multiplied by the corresponding regression coefficients to produce the quarterly and cumulative impacts in columns O-R (First-Class Mail) and columns T-W (Standard Mail). The cumulative series (as well as a mean of these series) are graphed in the figures appearing in the "Figures" worksheet.

The worksheet "Long-Run Data on Cycles" produces the analysis of the relationship between the employment and output gaps and other macroeconomic variables that is discussed in section IV of the statement. The worksheet calculates the Employment Gap (column B) as the difference between the Unemployment Rate and the Natural Rate of Unemployment found in "Macro Data". It also calculates the Output Gap (column C) as the difference between the Gross Domestic Product and the Potential Gross Domestic Product (columns K and L, respectively from "Macro Data"). The cyclical components of Log Nonfarm Payroll and Log Real GDP are provided in columns E and F, respectively.² Tab "Figures" presents the relationship between the two corresponding pairs: 1) the Employment Gap and the Cyclical Component of Log Nonfarm Payroll; and 2) the Output Gap and the Cyclical Component of Log Real GDP.

¹ Calculated using the Newey-West (1987) adjustment for serial-correlation and heteroskedasticity.

² The cyclical components of these variables are calculated using the Hodrick-Prescott Filter in Eviews using the default smoothing parameter, lambda, of 1600.