

Updating the Fiscal Impact Measure

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The Code

The code to update the FIM is on the Hutchins Sharepoint site under `Projects\Fiscal Impact\code`. In order to update the FIM from your PC, ensure that you have the following software and R packages: (1) Haver package in R, proprietary to Haver (2) Rmarkdown package in R (3) some TeX compiling software, probably MikTeX. The code is structured as follows:

1. `fim_datapull` updates the quarterly data using the Haver API plugin in R, reads in the manually collected data from csv's, and prepares the datasets for the FIM calculations. For a directory of the data Table 1 below.
 - a. Some crucial data need to be updated manually. See section 2 below.
2. `fim_projections` performs the main calculations to translate the CBO budget and economic projections into forecasts of the components that are used to construct the FIM. This script sources `fim_datapull`. These calculations include a number of potentially confusing adjustments to the CBO projections. These should be well-documented in the code, but they include:
 - a. Translating annual projections of taxes and transfers into a quarterly frequency
 - b. Adjusting fiscal-year based projections of COLA-based transfers into smoothed calendar-year, quarterly forecasts
 - c. Constructing an alternative path for personal taxes after year 2025 when the provisions expire (not necessary for near term projections, but we're keeping the code so we don't have to rewrite it later).
 - d. Reattributing federal Medicaid spending that occurs at the state and local level to the federal government, so that these transfers appear in the federal component of the FIM.
3. `fim_calculations` performs all of the calculations for the FIM and writes data to the appropriate folders, named by the date of the projection. It sources `fim_projections`. The code calculates the contribution to real GDP growth from each headline (state, federal, taxes + transfers) and subcomponent of the FIM beyond what would have occurred if the component had been growing with real potential GDP. Read the document, "Deriving the fiscal impact measure" for a more thorough treatment of the FIM calculations. This code produces two key dataframes:
 - a. `fim`, a df containing the fim calculations for the full series and all the subcomponents
 - b. `fim_interactive`, a df that has been tailored to post on the website and use as the underlying data for the interactive.
4. `fim_figures` takes data from `fim_calculations` and draws static figures for reference and to go in the PDF's on the website.
5. `Fiscal-Impact` produces the PDF that gets uploaded to the website.

Once the CBO data are up to date, one can simply run `fim_figures` with the option `render = TRUE` and produce the full suite of products necessary to update the website.

Updating the CBO data

There are three csv's in the `Fiscal Impact\data` folder that need to be updated manually when new CBO projections are published. They should be updated by maintaining the existing variable names,

formats, and date formats in the existing CSV's and either replacing or appending new data where appropriate. The basic idea is that we want to take CBO projections and append them to the end of historical data series (of course, with adjustments) in a smooth manner. The code above assumes that the series will have consistent names in the historical and projected data. The three csv's are:

1. `cbo_econ_proj_quarterly.csv` contains the CBO quarterly projections for GDP, inflation, and government consumption and investment. New data are published on a semiannual basis under the '**10-Year Economic Projections**' tab on [this page](#). The variable names in the csv should be preserved and match the codenames for the series in the Haver database. To find the variables to update, match the names in the CSV with their description in Table 1 below, and then find the relevant variables in the CBO data. This gets updated on a **semiannual basis**.
2. `cbo_econ_proj_annual.csv` contains the CBO annual projections for GDP, inflation, and government consumption and investment. New data are published on a semiannual basis under the '**10-Year Economic Projections**' tab on [this page](#). Ensure that you take projections for the *calendar year* rather than the *fiscal year*. Follow the same process as for the quarterly projections. This gets updated on a **semiannual basis**.
3. `cbo_budget_nipas_proj_annual.csv` contains CBO projections for annual (calendar year) federal tax and transfer items. CBO typically only projects these items in terms of the budget account (as opposed to the national accounts, which we need), but once per year they translate them into national accounts (NIPA) terms. We use this. The data can be found [here](#) (recurring reports) under '**Federal Receipts and Expenditures in the National Income and Product Accounts.**' Again, the variable names in the existing CSV match those of their Haver counterparts and should be preserved. This gets updated **once per year**.

Finally, in order to properly reattribute the Medicaid spending to federal, state and local entities, we need data on the FMAPs, or shares of state Medicaid spending that is paid for by the federal government. The csv to **update on an annual basis** is called `nhe_fmap.csv`. The data can be found here: [CMS.gov](#) National Health Expenditure Data > Historical > NHE by type of service and source of funds.csv. The latest year of data should come from the line items for total federal spending on Medicaid and CHIP, total state and local spending on Medicaid and CHIP. `fhsare` is the share of total spending on Medicaid and CHIP that is federal.

Table 1: Metadata for FIM data

Note: In general, 'h' denotes a real variable as opposed to nominal, 'g' refers to government expenditure items, 'f' refers to federal government expenditure items, and 's' to state and local government expenditures.

Variable Name / Haver Code	Description	Raw Source for Historical Data
gdp	Gross Domestic Product (SAAR, Bil.\$)	BEA, NIPAS
c	Personal Consumption Expenditures (SAAR, Bil.\$)	BEA, NIPAS
ch	Real Personal Consumption Expenditures (SAAR, Bil.Chn.2012.\$)	BEA, NIPAS
gdph	Real Gross Domestic Product (SAAR, Bil.Chn.2012\$)	BEA, NIPAS
jc	Personal Consumption Expenditures: Chain Price Index (SA, 2012=100)	BEA, NIPAS
jgdp	Gross Domestic Product: Chain Price Index (SA, 2012=100)	BEA, NIPAS

jgf	Federal Govt Consumption & Gross Investment: Chn Price Index(SA, 2012=100)	BEA, NIPAS
jgs	State & Local Govt Consumption/Gross Investment: Chn Price Index(SA, 2012=100)	BEA, NIPAS
yptmr	Government Social Benefit Payments to Persons: Medicare (SAAR, Bil.\$)	BEA, NIPAS
yptmd	Government Social Benefit Payments to Persons: Medicaid (SAAR, Bil.\$)	BEA, NIPAS
yptu	Govt Transf to Persons: Unemployment Insurance Benefits (SAAR, Bil.\$)	BEA, NIPAS
gtfp	Government Social Benefit Payments to Persons (SAAR, Bil.\$)	BEA, NIPAS
ypog	Personal Current Transfer Payments to Government (SAAR, Bil.\$)	BEA, NIPAS
yptx	Personal Current Taxes (SAAR, Bil.\$)	BEA, NIPAS
ytpi	Government Tax Receipts on Production & Imports (SAAR, Bil.\$)	BEA, NIPAS
yctlg	Government Tax Receipts on Corporate Income (SAAR, Bil.\$)	BEA, NIPAS
g	Government Consumption Expenditures & Gross Investment (SAAR, Bil.\$)	BEA, NIPAS
gfrcf	Federal Govt Tax Rcpts on Corporate Income: Federal Reserve Banks (SAAR, Bil.\$)	BEA, NIPAS
grcsi	Contributions for Government Social Insurance (SAAR, Bil.\$)	BEA, NIPAS
dc	Personal Consumption Expenditures: Implicit Price Deflator (SA, 2012=100)	BEA, NIPAS
gf	Federal Government Consumption & Gross Investment (SAAR, Bil.\$)	BEA, NIPAS
gs	State & Local Government Consumption & Gross Investment (SAAR, Bil.\$)	BEA, NIPAS
gfh	Real Federal Government Consumption & Gross Investment (SAAR, Bil.Chn.2012\$)	BEA, NIPAS
gsh	Real State & Local Govt Consumption & Gross Investment (SAAR, Bil.Chn.2012\$)	BEA, NIPAS
gfrpt	Federal Government Personal Current Tax Receipts (SAAR, Bil.\$)	BEA, NIPAS
gfrpri	Federal Government Tax Receipts on Production & Imports (SAAR, Bil.\$)	BEA, NIPAS
gfrcp	Federal Government Tax Receipts on Corporate Income (SAAR, Bil.\$)	BEA, NIPAS
gfrs	Contributions for Federal Government Social Insurance (SAAR, Bil.\$)	BEA, NIPAS
gftfp	Federal Government Social Benefit Payments to Persons (SAAR, Bil.\$)	BEA, NIPAS
gfeg	Federal Grants-in-Aid to State & Local Governments (SAAR, Bil.\$)	BEA, NIPAS
gsrpt	State & Local Government Personal Current Tax Receipts (SAAR, Bil.\$)	BEA, NIPAS
gsrpri	State & Local Government Tax Receipts on Production & Imports (SAAR, Bil.\$)	BEA, NIPAS

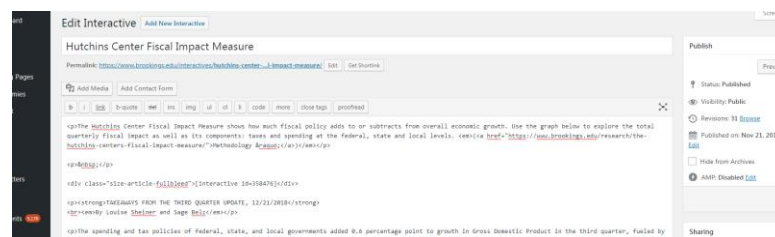
gsrccp	State & Local Government Tax Receipts on Corporate Income (SAAR, Bil.\$)	BEA, NIPAS
gsrs	Contributions for State & Local Government Social Insurance (SAAR, Bil.\$)	BEA, NIPAS
gstfp	State & Local Government Social Benefit Payments to Persons (SAAR, Bil.\$)	BEA, NIPAS
ptgh	Government Consumption & Investment: Contrib to Real GDP % Change (SAAR, %Pt)	BEA, NIPAS
ptgsh	State & Local Govt Consumption/Investment: Contrib to Real GDP % Chg (SAAR, %Pt)	BEA, NIPAS
ptgfh	Federal Govt Consumption & Investment: Contrib to Real GDP % Change (SAAR, %Pt)	BEA, NIPAS
pcw	CPI-W: All Items (SA, 1982-84=100)	BLS
gdppothq	Real Potential Gross Domestic Product [CBO] (SAAR, Bil.Chn.2012\$)	CBO
gdppotq	Potential Gross Domestic Product [CBO] (SAAR, Bil.\$)	CBO
recessq	Quarterly NBER Recession/Expansion: Recession Shading	NBER

The Website Interactive

Beyond updating the text on the website, we also need to update the downloadable PDF, downloadable data, and the backend data for the interactive itself. The interactive on the website is maintained by the comms team but we should be able to update the data ourselves through Wordpress. As of this writing there are technical issues with this so I won't describe this part of the process.

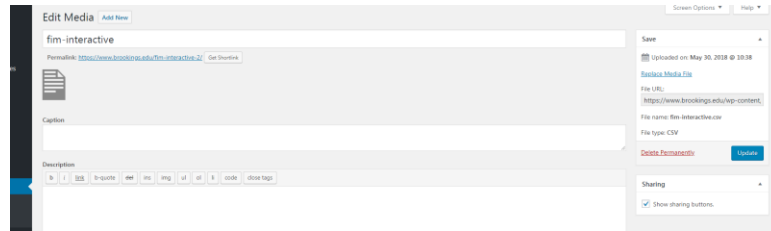
Updating the website involves simply updating the Wordpress page and uploading the fim-interactive CSV and the Fiscal-Impact PDF as downloadables.

1. Update the landing page. Go to Content > Interactives > Hutchins Center Fiscal Impact Measure. It looks like this:



Update the text, publishing date and any other relevant entries. Upload new files for the Download: Print version (PDF) and Download: Raw data (CSV) entries.

2. Update the data for the interactive figure. Go to Media > Search “fim-interactive”. Click on the file, then go to Edit more details > Replace media file > Choose file. Select and upload the most recent fim-interactive.csv from this month's folder. Close out the page.



3. Go to the FIM webpage, hard refresh and make sure everything looks right. In particular, ensure that the interactive is updated and that all the dates on the page are correct.