EC 103–003

Lab Practice 3

Prof. Santetti

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`INSTRUCTIONS`: *Lab Practices* have the purpose of reviewing the previous applied video lecture(s) and introducing new content to improve students' empirical macroeconomic analysis using R and RStudio.

In this practice, you will apply the data manipulation techniques you've learned in the last video lecture to macroeconomic data.

There is 1 problem, worth 8 points.

`Assignment due February 13 (M), by the end of class`.
`Points Possible: 8`

- Our *course syllabus* covers late submission policies. Turn in your assignment by the due date.
- Be honest. Don't cheat.
- As a Skidmore student, always recall your votes of academic integrity, and the **`Honor Code`** you have abided by:

> *"I hereby accept membership in the Skidmore College community and, with full realization of the responsibilities inherent in membership, do agree to adhere to honesty and integrity in all relationships, to be considerate of the rights of others, and to abide by the college regulations."*

Have fun!

Problem 1

In the `us_gdp_data.csv` file (available for download on `theSpring`), you will find data on several GDP components for the U.S. economy between 2008Q1 and 2022Q4 (notice that "Q" stands for quarter).

After loading the `{tidyverse}` package, import this data set into your RStudio environment. Call it `gdp_data`.

Then, make sure to check out its columns. These are GDP components extracted from the National Income and Product Accounts (NIPA) tables, that we've explored in class.

After you are all set up, answer the following questions (make sure to include your code and plain text answers—when needed—in your submission script):

(a) Create a new column, called `consumption`, adding up the specific components of aggregate consumption. Update your object, and call it `data_a`.

(b) From your `data_a` object, now create a new column, called `net_exports`, where you calculate the trade balance for the U.S. economy in each year. Update your object, and call it `data_b`.

(c) From your `data_b` object, now create a new column, called `total_govt_expenditures`, where you calculate aggregate government expenditures for the U.S. economy in each year. Update your object, and call it `data_c`.

(d) Notice that aggregate investment is missing from this table. Calculate its value for each year, calling this new column `investment`. Update your object, and call it `data_d`.

(e) From your `data_d` object, in what year and quarter were `imports` the smallest?

(f) From your `data_d` object, in what year and quarter were `exports` the largest?

(g) From your `data_d` object, in what year and quarter was `consumption` the largest?

(h) From your `data_d` object, in what year and quarter was `investment` the smallest?

Write your answers in a fresh R script. When you are done, save it and submit this single R file through `theSpring`.