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What Should We Teach in Intermediate Macroeconomics?

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What Should We Teach in Intermediate Macroeconomics?

The major focus of a course in Intermediate Macroeconomics is building and understanding macroeconomic models and how they work. The course is the most analytical course in the curriculum and should lead students to embark on deep thinking about models and equilibrium. Students learn the essentials of a model and develop the concept of how to simplify a model to understand key concepts. Once the core of a model is developed, additional model features can be added to increase realism. Perhaps the most important macroeconomic concept in the course is that of general equilibrium--students learn to go beyond examining initial effects to determine adjustments that lead to long-run equilibrium.

As the course develops, students learn not just about models and equilibrium but about alternative theories (such as classical views compared with Keynesian views), how monetary and fiscal policy could potentially be used to offset shocks to the economy, and the determinants of long-run growth and the underlying trend in the state of the economy compared with business-cycle fluctuations around that trend. Students can also see how macroeconomists break the analysis of the economy into sectors, examining key variables and the driving forces affecting each sector of the economy, including the labor market, consumption spending, investment spending, international trade, government, money, and financial assets.

Although macroeconomic theory is the most important piece of the Intermediate Macro course, instructors need to relate the theory to data to show the theory's relevance. In today's world, that is easy because of tools, such as FRED or Bloomberg, that can be used in class. By using such tools effectively, an instructor can have great value-added in

the classroom. In what follows, I will describe five different ways in which an instructor can use data in class to illustrate theoretical concepts: (1) students present data in class, (2) the instructor shows data in class, (3) students work in teams organized by sector, (4) students work with data during class, and (5) students work with data outside of class. I have used all five methods at different times and in what follows I describe how to use each method.

Method 1: Students present data in class

In this method, each student is assigned one macroeconomic variable to follow over the course of the semester.¹ Their first assignment is to find the dates on which the variables will be released over the course of the semester from the website of the data agency producing the data. Then, each time their variable is released, the student does a short (two-minute) presentation in class that must include a plot of the data in Excel. In addition to students learning about data, there are two side benefits: they learn how to handle data and graph it using Excel and they get practice at doing a presentation. For the first presentation, students are asked to plot the data without any transformations. For the second presentation that students do, they are asked to show a more informative plot, for example, comparing growth rates of the variable over time. For the third presentation, students are required to show the relationship between their variable and some other variable that our theory suggests should affect it. If a class is large, then instead of assigning each student a variable, organize them in teams of three students each, and have each student do one presentation but have all three work to develop each presentation; this also helps develop teamwork.

Method 2: Instructor shows data in class

With very large classes, where having students present data themselves is not practical, and alternative is for the instructor show data in class. For example, in teaching large MBA classes, I present a set of “in the news” slides at the beginning of each class session. These can illustrate that day’s theory, or they can come from recent government data releases. I often use this opportunity to show graphs depicting the state of foreign economies. A very useful source of graphs is the Daily Shot, which is an online publication that is part of the Wall Street Journal, which provides a large number of graphs of interest relating to macroeconomic or financial data from around the world every business day.²

Method 3: Students work in teams organized by sector

In this method, student teams are set up to cover major sectors of the economy: households (consumption, housing, confidence), business (industrial production, corporate profits, durables), government (spending, deficit, taxes, debt), international (exchange rates, current account, foreign economies), labor markets (employment, wages), inflation (consumer prices, expectations), financial sector (stock prices, interest rates). Each team produces a report on their sector three times during the semester. The reports are then combined to develop a series of newsletter about the state of the economy. This report can be distributed to economics and finance faculty and students; for example, it might be used as an input for the student-managed investment fund. You can also have students compete to produce the most interesting graphic and try to get it printed in a publication, such as the Daily Shot.

Method 4: Students work on data during class

This method lends itself to flipped classroom approaches, as students engage in active learning during class. The instructor shows data from FRED or Bloomberg or other sources during class. Students are then assigned a variable to examine using the same methods as the instructor. Students would need to bring laptops or iPads to class for this to work. Topics can be geared to the particular class. Some examples include: (1) distinguishing between nominal and real variables,³ showing how extract the signal from noisy data,⁴ understanding data revisions,⁵ seasonal adjustment,⁶ comparing GDP per capita across countries,⁷ gains from looking at disaggregated data,⁸ and engaging in monetary policy in practice.⁹

Method 5: Students work with data outside of class

In this method, students are assigned projects to work on using data outside of class. For example, in my textbook *Macroeconomics* (co-authored with Andrew Abel and Ben Bernanke), a section at the end of most chapters contains problems called “Working with Macroeconomic Data”. These provide many ideas to illustrate theory and relate it to data, such as (1) calculate real interest rates and show how they have changed over time, (2) calculate the openness index as the sum of imports as a share of GDP and exports as a share of GDP, (3) test the rationality of forecasts of interest rates or inflation rates by creating a scatter plot of forecasts versus actuals, (4) plot the US capital-labor ratio, output-labor ratio, and consumption-labor ratio and see if there is evidence of a steady state,¹⁰ (5) plot the monetary base as a share of GDP and the level of federal government debt as a share of GDP to see if there is evidence of monetization of debt,¹¹ and (6) plot

TFP growth over the business cycle to examine patterns over time and over the business cycle.¹²

Summary

Instructors can add value to their courses in Intermediate Macroeconomics by using online tools to relate data to theory.¹³ There are many options for how to structure the data component of such a course: students present data in class, instructor shows data in class, teams set up by sector, students work with data during class, or students work with data out of class. My personal website has more details, lists of variables, and examples; see https://facultystaff.richmond.edu/~dcrousho/online_macro.html.

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- Croushore, Dean. 2015. Teaching an economics capstone course based on current issues in monetary policy. *Eastern Economic Journal* 41 (4): 504–12.
- Croushore, Dean, and Hossein S. Kazemi. 2019. Teaching courses in macroeconomics and monetary policy with Bloomberg analytics. *Journal of Economic Education*, forthcoming.

NOTES

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- ¹ See my website for a list of variables at <https://facultystaff.richmond.edu/~dcrousho/docs/Macroeconomic%20Data%20for%20presentations.pdf>.
- ² See the Daily Shot at <https://blogs.wsj.com/dailyshot/>.
- ³ For example, see this graph I created in FRED: <https://fred.stlouisfed.org/graph/fredgraph.png?g=mtKc>. For a list variables available in both nominal and real forms, see <https://facultystaff.richmond.edu/~dcrousho/docs/Nominal%20variables%20with%20real%20counterparts%20from%20NIPA.pdf>.
- ⁴ An example of noisy data is available at <https://facultystaff.richmond.edu/~dcrousho/docs/examples%20of%20students%20working%20with%20data%20in%20class%20noise%20versus%20signal.pdf>.
- ⁵ For a list of variables for looking at data revisions, see <https://facultystaff.richmond.edu/~dcrousho/docs/Variables%20for%20looking%20at%20data%20revisions.pdf>.
- ⁶ For a list of variables for looking at seasonal variation, see <https://facultystaff.richmond.edu/~dcrousho/docs/SA%20&%20NSA%20Data%20on%20FRED.pdf>. See an example of this at <https://facultystaff.richmond.edu/~dcrousho/docs/examples%20of%20students%20working%20with%20data%20in%20class%20seasonal%20adjustment.pdf>.
- ⁷ See the Penn World Tables for this at <https://www.rug.nl/ggdc/productivity/pwt/>.

⁸ For an example, see <https://facultystaff.richmond.edu/~dcrousho/docs/examples%20of%20students%20working%20with%20data%20in%20class%20disgregated%20data.pdf>.

⁹ This can be done using a simulation, such as the Fed Chair Game from the Federal Reserve Bank of San Francisco at <https://sffed-education.org/chairthefed/default.html>.

¹⁰ See, for example, <https://facultystaff.richmond.edu/~dcrousho/docs/example%20of%20student%20outside%20work%20test%20for%20steady%20state.pdf>.

¹¹ For an example, see <https://facultystaff.richmond.edu/~dcrousho/docs/example%20of%20student%20outside%20work%20test%20for%20monetization%20of%20debt.pdf>.

¹² For an example, see <https://facultystaff.richmond.edu/~dcrousho/docs/example%20of%20student%20outside%20work%20examine%20TFP%20movements%20in%20cycles.pdf>.

¹³ See Croushore (2015) for examples of how to use these ideas in a senior capstone course. See Croushore and Kazemi (2019) for using Bloomberg in a similar vein.