

Project notes for Eirini

Dropbox

I'll invite you to a folder called "LaborShare". In that folder you'll see some sub-folders that are empty, except for Data and Papers, at the moment.

I/O Labor Shares

The analysis I need done depends on Input/Output tables. Using those, we can calculate a measure of the elasticity of total output with respect to labor (or capital). This is based on a paper(s) by Baqaee and Fahri (but the 2019 paper is key), which I'll put in the Papers folder in Dropbox.

Your job will be to write code to read the spreadsheets of I/O tables (they're in XLS) into either Stata or R. I don't actually care which you want to use, I can work with either. R might be slightly preferable as the matrix processing gets a little easier once we've got that, but I am more proficient in Stata so for me there is no big difference.

There is an example script in the "Code" folder that reads in sheets from a US spreadsheet in the Data folder. It shows what I am trying to do programmatically. It pulls in the I/O information for one year, and then builds a matrix from that. That matrix requires some additional rows and columns for the calculations we need to make. Those columns and rows are built from some other information in the I/O table, as well as getting a bunch of zeros in other places.

Once those matrices are built, the calculation of the labor elasticity is straightforward matrix algebra.

My main goal is to have a script that reads in any and all the spreadsheets present in the Data folder, so that if we find more, we have to do minimal work to read them in (famous last words).

So the first job is to essentially replicate this existing code, but build it out so that it will process through all the spreadsheets for all the countries in all the folders in the data folder. You may have to go back to the OECD data site where these came from, <http://www.oecd.org/sti/ind/input-outputtables.htm>, to find documentation on what some rows means or how the data is defined.

Once we get this up and running, we'll need to play with assumptions about capital payments and stuff like that, but this will be a good start.

Logic

Why am I doing this? Quick description. What Baqaee and Fahri show is that we can write growth in output as

$$g_Y = \epsilon_K g_K + \epsilon_L g_L + g_{TFP}$$

which seems trivial, but they show how to build the ϵ terms from underlying I/O data, not from an assumption about that we have an aggregate production function, and that $\epsilon_K = \alpha = 1/3$ or anything like that. They also decompose g_{TFP} , but that isn't quite what I'm after here.

Essentially, the ϵ_K and ϵ_L are functions of the *cost* shares across different industries, but also depend on how industries relate to one another through the I/O framework. So the right elasticity here might not be equal to the aggregate shares of output, as is typically assumed. This project's goal is simple. Calculate

the elasticities the “right way” and see (1) whether they change over time within a given country or (2) are similar across countries.

Expectations

I have the sample script, but I’ve never worked through anything with the other downloaded data. You’re going to need to investigate that stuff a little to see how it conforms to the spreadsheet sample I’ve got. You will have to make modifications and figure out how to make things conform for this new data.

We should meet every week, so let’s pick a regular time. At those meetings, you should have a list of specific questions about things that require some kind of choice or judgement. I’ll expect you to be solving technical issues about reading things, creating the matrices, etc.. for yourself. If you have questions about the paper, theory, and how/why we’re calculating what we are, that I can help with.

I expect the code to be well commented, so that I can look at it and understand what you are writing. I expect that it will not be just hard-coded with file names, but rather be general enough to handle new files if we can find those.

I realize that you are on the market this year, so I expect that you will let me know if and when you have to finish drafts of your paper, and won’t be able to put much time into this project. That is fine! But you should keep me informed. And I expect that you’ll give me those drafts so I can offer comments! Your first priority is the job market.