Qualifier
Empirical Corporate Finance

June 7, 2022

Please answer all 4 questions in detail. Each will be graded out of 25 points. Particular attention will be paid to detail and clarity of your answers. Make sure that you use proper sentences and well defined equations – not just bullet pointed buzz words.

1. Due to the growth of passive investing in index funds and ETFs; in recent decades, a handful of firms have become quite large and influential. Blackrock, Vanguard and State Street have been particularly important.

   (a) Why did the growth of passive investing apparently create such power for these passive investment funds?

   (b) What do we know about how these firms actually exercise their apparent power over the firms that their funds invest in?

   (c) What do we know about how these firms ought to exercise their power over the firms that their funds invest in?

   (d) What controversies have emerged concerning these issues? What evidence do we have about the merits of those concerns?

2. You are trying to determine the impact of tax changes on corporate investment. You have data on many firms f in 50 states s over many years t (1971-2020).

   Until part (e) you only get state-level data, not firm level data. Each state has it's own tax rate τ_{st} and from time to time those rates change. The following states have no tax on firms: Nevada, South Dakota, Wyoming, and Texas (until 1991). Assume that the following states changed their tax rates: California (twice), Conneticut (once), Delaware (4 times), Hawaii (twice), Indiana (once), Kansas (once), Kentuky (once), Maine (twice), Maryland (3 times), Montana (once), Nebraska (once), New Jersey (4 times), New Mexico (once), Ohio (twice), Rhode Island (4 times), Utah (twice), Vermont (twice), West Virginia (twice), Wisconsin (twice). Those changes are sometimes in the same years as each other and sometimes in different years. Of course in your data you have the exact dates and tax rates for each change. You also have access to standard macroeconomic data like that in the FRED database. At the state level you get the aggregate assets for non-financial businesses A_{st}, the investment by these firms I_{st}, sales by these firms S_{st}, and the state level market-to-book ratio MB_{st}.

   Until part (f), we will assume that every tax change is an increase from a prior rate τ_{st} to a new rate $\tau_{st+1} = (1+\delta)\tau_{st}$ where $0 < \delta < 1$. As you proceed you will need to make specific assumptions. Explain what assumptions you are making, and why they make sense.

   (a) Suppose that you only get data at the state level and not at the firm level. Write a traditional linear panel investment model with firm and year fixed effects. Explain what each coefficient means.

   (b) Rewrite the model using time as an explanatory variable, showing the exposure to a tax rate change. Explain what the coefficeints mean this time.

   (c) Suppose that we estimate your model using two-way fixed effects. What conceptual issues do we need to worry about? How might we address those issues?

(d) Now you worry about the possibility that different states might have differing tax sensitivities. For example perhaps states that are already highly taxed might have a stronger reaction. Write and justify a method that you can use to address this concern. What are the main difficulties you are likely to face?

(e) Now you are given access to firm level data in each state. For each firm in each state in each year, you know the firm's assets A_{ft}, the firm's investment I_{ft} sales by these firms S_{st}, and the firm's market-to-book ratio MB_{ft}, each firm's industry. For simplicity we assume no firm entry or exit. How, if at all, will this alter your answers for each of the previous parts of this question? Write out the equations explicitly and in detail. 1) Specify the assumptions you will be invoking, and why. 2) Explain what difference there is in the meaning of the coefficients that you are estimating with the firm level data as opposed to the state level data.

(f) If you want to answer a 'state level' question, is it better or worse to use the firm level data? Explain.

(g) Again you have firm level data. Now suppose that some of the tax changes are increase, and some are decreases. How will that affect your answers? Are you more, or less likely to be able to find significant tax effects in this case? Explain.

3. There are fewer publicly traded firms in the USA than there were two or three decades ago. Some people think that this is due to computerization. Some people think that this is due to the increased regulation imposed on public firms (eg. Sarbanes–Oxley Act of 2002). You have an idea that maybe both of these claims are wrong. Your idea is that large firms have had a big improvement in their cost of capital relative to small and medium sized firms.

(a) Explain in detail how you could attempt to test your idea against the other two more standard explanations. What kind of evidence might help to convince both yourself and others that your idea makes sense? What would be need to to argue that it is the dominant effect?

(b) What data will you use? What equations will you estimate? What coefficient predictions are you going to make?

(c) What does it mean for an econometric model to be identified? In what sense, if any, is your proposed model identified? Explain.

(d) What problems do you forsee with the implimentation? How will you attempt to overcome those difficulties.

(e) Suppose that you are wrong, what would you expect to see if the computerization hypothesis is correct?

(f) Suppose that you are wrong and that the regulation hypothesis is correct. What evidence would be likely to emerge in your propsed tests?

4. There are significant methodological differences among empirical researchers. An important distinction is between those who adopt a Rubin causal model and those who adopt a structural econometric approach.

(a) Explain the basic Rubin causal model approach. Why is it popular? What are it's key limitations?

(b) Explain the basic structural econometric approach. Why is it popular? What are it's key limitations?

(c) In what respects are the two approaches similar? In what respects are they sharply different?

(d) Under what conditions might one or the other approach seem more attractive to you? Explain.