Economics 1016
Summer 2020

Gregory A. Bruich, Ph.D.
Harvard University

# MIDTERM EXAM

Monday July 13, 2020

*Instructions:*

1. This exam is due by 11:59 p.m. Cambridge, MA time on Tuesday July 14.

2. Please type your answers in a word processor. Please put each question on its own page and convert the document to a single PDF. Then upload to Gradescope (linked through the Canvas assignment). Carefully use Gradescope to assign which pages in your PDF corresponds to the appropriate question.

3. This exam is open note, open book, and you may refer to the resources on the class Canavs site, including lecture slides, video recordings, empirical projects, and section notes. However, everything that you submit to us for evaluation must be in your own words based on your own understanding. For example, that means that you cannot copy and paste any sentences from readings, lectures, section notes, etc. You should acknowledge the sources that you consulted in formulating your answers.

4. No collaboration of any kind is allowed on this exam. You may not share resources with anyone else. You may not seek help from anyone or provide help to anyone, including classmates, family members, tutors, teaching fellows, and course assistants.

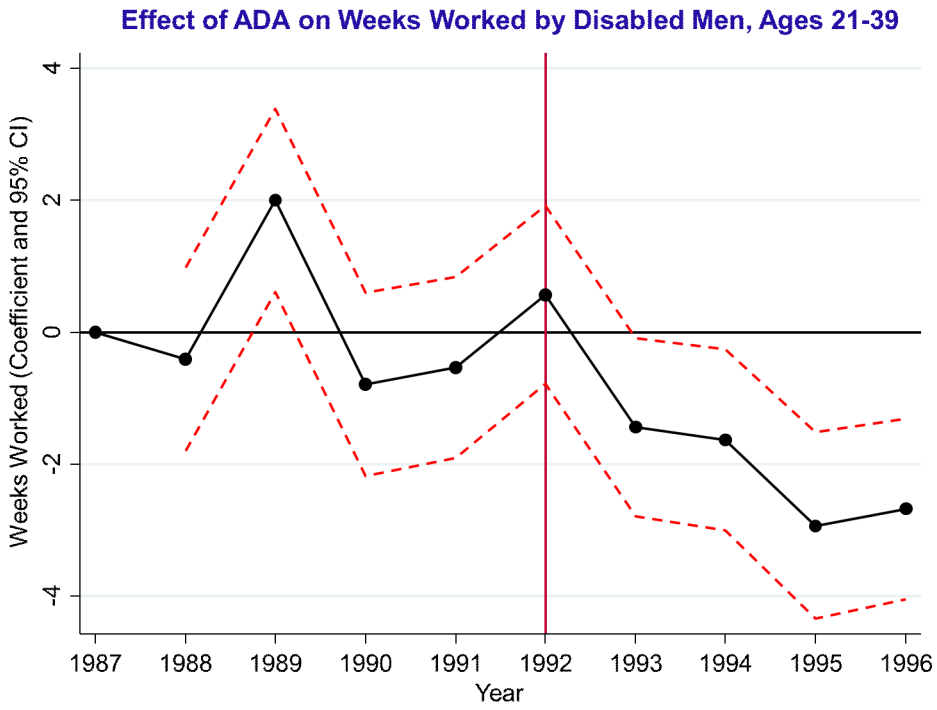
5. There are 10 questions, worth a total of 200 points, but some questions have multiple parts. Short answers should be very succinct. Show your work and intuition clearly: credit is given for explanations and not just having the correct answer.

*Note:* numbers have been chosen to make the calculations less cumbersome at the expense of making the questions less realistic.

## QUESTIONS

1. (20 points) You read three papers evaluating the impact of the Mariel boatlift on the Miami labor market. Briefly explain what each paper found. What accounts for the difference between the papers' findings?

2. The following graph is from Acemoglu and Angrist (2001).




i. (5 points) What is being plotted in this graph?

ii. (5 points) As a general matter, what is the parallel trends assumption?

iii. (5 points) How can one use this graph to help assess the parallel trends assumption?

iv. (5 points) What is the advantage of this type of graph over plotting raw averages?

*(continued on next page)*

3. On June 28, 2018, Massachusetts Governor Charlie Baker signed into law House Bill 4640 under which the state's minimum wage will rise from $11 to $15 an hour by 2023. Based on your work in Ec 1016, you have been asked to help Gov. Baker anticipate the likely impact of the new law on employment in Massachusetts.

3 (a) (15 points) Gov. Baker, who graduated from Harvard College in 1979, remembers learning from his introductory economics course (then taught by Otto Eckstein) that the definition of "monopsony" is when there is just one buyer in a market. However, clearly the number of employers in Massachusetts is much greater than one. Explain to Gov. Baker why monopsony nevertheless could be a good model of the labor market.

3 (b) (15 points) Policy experts have made various arguments in favor and against the $15 minimum wage, some of which have drawn upon economic theory. Use our theoretical analysis of the minimum wage (perhaps in the form of graphs of labor supply and labor demand) to show Gov. Baker why the following statements are *false*:

i. An opponent of the law argues that if the labor market is perfectly competitive, then a binding minimum wage will always reduce employment.

ii. A proponent of the law argues that if employers have monopsony power, then a binding minimum wage will never reduce employment.

3 (c) (15 points) Gov. Baker asks you to help him understand recent empirical evidence from Seattle's $15 minimum wage. However, as we know from class, the empirical evidence is mixed with Reich, Allegretto, and Godoey (2017) and Jardim et al. (2017) reaching different conclusions. Describe two potential explanations that might account for why these two papers reach different conclusions.

3 (d) (15 points) Another policy expert argues that a better way to transfer income to low wage workers would be to expand the Earned Income Tax Credit (EITC). Use our theoretical analysis of tax incidence (ideally with a graph) to show why this expert *may also be incorrect* and explain to Gov. Baker what factors would determine whether the expert's proposal would be successful in transfering income to low wage workers.

*(continued on next page)*

4 (10 points) Gov. Baker is so impressed with your strong command of labor economics that he asks you to estimate the effect of Massachusetts's $15 minimum wage after it goes into effect. Briefly describe how you would go about doing this. Be sure to explain what your identification assumption is and what evidence you would present to assess whether it is plausibly satisfied in the data.

5. (10 points) As we saw in class, Doran, Gelber, and Isen (2016) estimate that winning a H-1B visa through the randomized lottery conducted by the U.S. Citizen and Immigration Services reduces total firm employment by 0.5 workers, but this estimate was not statistically significant since its standard error was 0.55. Does that mean that H-1B visas do not crowd out employment of American workers? Explain.

6. (10 points) A tax increase expires, reducing the tax rates that workers have to pay. Since this tax was levied on workers, employers gained less from the cut in taxes than workers did. True, False, or Uncertain? Explain your answer.

7. Suppose workers value health insurance exactly as much as it costs. Are the following statements true, false, or uncertain? Explain your answer.

i. (5 points) Requiring employers to purchase health care for all their workers will have no effect on wages.

ii. (5 points) Requiring employers to purchase health care for all their workers will have no effect on the number of people firms employ.

*(continued on next page)*

8. (harder) Use the theory of tax incidence to answer the following questions.

8 (a) (10 points) In 2014, four-time NBA Most Valuable Player LeBron James became an unrestricted free agent, making him free to sign a contract to play for any NBA team. For the purposes of this question, LeBron's labor supply is **infinitely elastic** because free agency and his superstar skill set make him perfectly mobile across NBA teams (as well as other professions like working on television). Suppose there are two teams (A and B) for which LeBron can play that are identical in all respects except one: Team A is located in a state that taxes income at a flat rate $\tau_A = 25\%$, while Team B is located in a state that has no state income tax ($\tau_B = 0$).

Note that the tax rate used here is not realistic — it was chosen to simplify your calculations. You should assume that the only tax that is owed is the state tax rate in the state where the team is located (the real tax rules for professional athletes are more complicated).

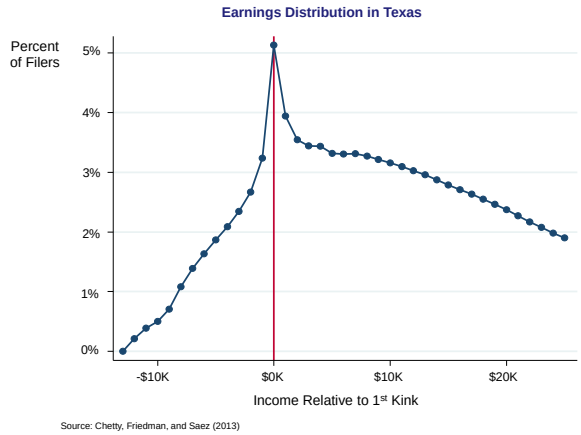
If LeBron can sign a contract to play for Team B for \$150 million, for how much would his contract be if he signs with Team A? Remember that LeBron is **infinitely elastic** and there is **no tax** in the state where Team B is located.

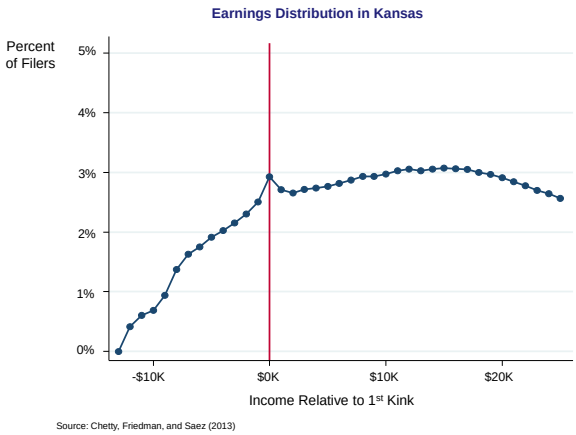
8 (b) (10 points) Now suppose LeBron's labor supply is no longer infinitely elastic, but is also not perfectly inelastic (i.e., $0 < \varepsilon_S < \infty$). What are the **smallest and largest** values his contract would be if he plays for Team A? Use one of the partial equilibrium tax incidence formulas we derived in class to explain your answer.

*(continued on next page)*

**9) The Earned Income Tax Credit.**

9(a) (10 points) You observe the following earnings distributions in Texas and Kansas. Let $\varepsilon_S$ denote the elasticity of labor supply with respect to the net wage. Based on these figures and assuming that there is perfect information, would you expect that $\varepsilon_S$ in Texas is greater than, smaller than, or equal to $\varepsilon_S$ in Kansas? Explain intuitively.




9(b) (10 points) Another hypothesis is that individuals might be better informed about taxes in one of the two states. How do Chetty, Friedman, and Saez (2013 *AER*) distinguish between the hypothesis that information is imperfect and the hypothesis that the elasticity $\varepsilon_S$ differs across areas?

10. (20 points) A detailed study commissioned by the state of Texas concludes (correctly) that the influx of Mexican immigrants to Texas did not change employment levels significantly. However, they did note that:

a) EITC uptake fell.
b) Food stamp uptake increased.
c) Average income of locals increased sharply.
d) A huge surge of new hi-tech firms in the city.

Use the theory of Immigration to discuss what could have possibly happened.

*Congratulations!*

*You have completed the first half of Economics 1016!*