

**Public Finance Field Exam
August 2023**

Directions: Answer both questions, in whatever order you prefer.

1. Energy Conservation and Greenhouse Gas Emissions

One year ago, the United States passed into law the Inflation Reduction Act, which devoted substantial government tax revenues toward encouraging the adoption of energy technologies by households and firms aimed at reducing the level of greenhouse gas emissions. The key provisions were tax credits that target clean electricity production and investment, electric vehicle purchases, and investments in clean energy and energy efficiency by individuals. The credits were generally “uncapped,” in the sense that there were no budgetary limits imposed on the amount of credits claimed.

- a. Considering first the electric vehicle tax credits, would such a policy represent an efficient approach to the reduction in greenhouse gas emissions, relative to other possible alternatives? State clearly what assumptions you are making in providing your answer.
- b. An additional aspect of the electric vehicle tax credits is a domestic-content provision for electric cars and their batteries that limits the extent to which foreign-produced vehicles qualify for the tax credit. How does this change your answer to part a.?
- c. What would you expect the incidence of the electric vehicle tax credits to be, based on the description in parts a. and b.?
- d. Some months after the passage of the legislation and the original estimates of the budgetary costs of the provisions by the Congressional Budget Office, subsequent analysis suggested a much higher revenue cost of the electric vehicle provisions because of higher expected take-up of the credits. Assuming this more recent estimate is accurate, how would this affect your answer to part a.?
- e. One rationale for the name of the legislation was that, by providing production subsidies to certain industries and production technologies, the government would be adopting “supply-side” policies that would expand US productive capacity and thereby lower inflationary pressures in the economy. Evaluate this argument.
- f. In response to the domestic-content provisions mentioned in part b., some other countries have considered introducing similar programs for domestically produced electric vehicles. How would their doing so affect your previous answers?

2. Pension Reform in France

Let us consider a simplified version of the French pension system before the 2023 controversial pension reform that President Macron got enacted earlier this year. Before the reform, all French workers reaching age 62 were entitled to a pension equal to 50% of the average of the 10 best years of earnings [always assumed to be the last 10 years of work here]. People delaying claiming the pension past 62 were getting an adjustment upward of 5% per year of delay: you get $52.5\% = 50\% \cdot (1 + 0.05)$ of previous earnings if claiming at age 63, $55\% = 50\% \cdot (1 + 0.1)$ if claiming at age 64, etc. You cannot claim a pension before age 62.

- a. Explain what an actuarially fair adjustment for pensions based on age of claiming is and why it should not distort the retirement age. Use the lifetime budget graph concept to explain this graphically. Let's assume from now on that the French pension adjustment is actuarially fair.
- b. If individuals were rational savers, should we expect to see bunching in retirement at age 62, the earliest age pensions can be claimed? Why or why not?
- c. Empirically, we do see substantial bunching in retirement at age 62 in France. What is the most likely explanation for this result?

The 2023 reform increases the earliest claiming age from 62 to 64. After the reform, you can get a pension equal to 50% of your average previous earnings (over the last 10 years) if you claim at age 64, 52.5% if you claim at age 65, etc. But you cannot claim the pension before age 64.

- d. Draw the effect of the reform on the lifetime budget graph (assuming taxes that pay for retirement benefits are not adjusted). Suppose a rational individual would have retired and claimed at age 65 in the old system. In the new system, would the individual retire and claim at the same age, earlier or later? Why?
- e. Using repeated cross-sections of retirement behavior in France pre and post-reform, how would you analyze the impact of the reform on retirement age? Explain how a bunching method could allow you to find evidence of a causal impact of the reform on retirement behavior.
- f. In reality, the reform was phased-in across cohorts as follows (simplification): people turning 60 or more in 2023 could still claim at 62; people turning 59 in 2023 could claim at 63; people turning 58 or less in 2023 have to claim at 64 or later. How could you use this feature in a regression discontinuity design to get a more compelling identification of the impact of the reform on retirement behavior?
- g. The 2023 reform was not announced in advance and hence came as a surprise, explaining the anger and protests. Suppose the reform had been announced 10 years in advance (i.e. had passed in 2013). Do you think the effects on the transitory cohorts obtained in part f. would have been smaller or larger in this case?