## Public Finance Field Exam

## August 2022

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

1. **Infrastructure Investment**

In November, 2021, the U.S. Congress passed, and President Biden signed into law, the Infrastructure Investment and Jobs Act (IIJA), which increased federal spending on infrastructure projects over a five-year period by $550 billion, through direct federal spending and subsidies to state and local governments.

1. Given that state and local governments already spend substantial sums annually on infrastructure investment funded by their own revenues and borrowing, what are the possible justifications for this increase in spending by the federal government?
2. How would your responses to part a. influence the form that the federal spending should take (e.g., direct spending, unconditional grants to state and local governments, matching subsidies for state and local government spending, spending based on local economic conditions, etc.)?
3. Suppose that you were given the assignment of determining whether local governments already spend an optimal amount on infrastructure, given the preferences of their residents. What research strategy might be appropriate? What would you expect to find?
4. The Congressional Budget Office estimated that new funding included in the legislation would fall short of the new spending by $256 billion, with this gap filled by additional borrowing by the federal government.
   1. How might this increased budget deficit affect the generational incidence of the IIJA?
   2. Assuming the balance of the funding for the IIJA comes from reductions in spending on current government consumption and transfer payments (i.e., not from reductions in government investment), what would you assess the overall generational incidence of the IIJA to be?
5. One argument in recent years for increased infrastructure investment has been that real interest rates are low. But low interest rates could also provide an argument for more private investment. Do low interest rates justify increasing infrastructure investment relative to private investment?
6. **Tax Enforcement**

Let us consider a simple model of tax evasion with risk-neutral taxpayers. Assume that there is a linear tax with uniform rate *t*. Let us denote by *z* real income and by *y* reported income, so that under-reporting is *z-y*. Let us always assume that *z* ≥ 0 and *y* ≥ 0.

Assume that if the taxpayer is caught cheating, the government can force the individual to repay evaded taxes with a surcharge at rate *s* > 0 per dollar of evaded tax.

1. Assume that the probability of being caught is given bya fixed parameter *p* with 0 < *p* < 1. Show that the individual fully reports income if *p*×(1+*s*) > 1 and fully evades if *p*×(1+*s*) < 1.

Based on this, why have many studies concluded that individuals evade too little relative to the standard rational model of tax evasion?

1. Assume now that the probability of being caught is a decreasing function of *y*, *p*(*y*) with *p'*(*y*) < 0. Solve for the optimum reporting level *y* in that case and provide an economic intuition. [Note: you cannot get a closed form solution in this case, only an implicit formula.]
2. Assume further that income *z* = *zT* + *zS* where *zT* is income that is third-party reported to the government by the payer (e.g., wage earnings from a formal employer), while *zS* is income that is not third-party reported (e.g., earnings from informal self-employment).

What do we know from empirical studies about the evasion rates for *zT* and *zS* income?

1. Explain what shape for *p*(*y*) we should expect (as a function of *y*) given the decomposition of *z* into *zS* and *zT* from c.
2. Suppose the government takes seriously the lesson from c. and d. and wants to improve enforcement by expanding third-party reporting for self-employed workers and implements the following reform: Before 2022, gig-work platforms (such as Uber or Lyft) were required to send third-party 1099-K forms to their (self-employed) workers and to the IRS only when aggregate annual payments to the worker exceeded $20,000. Thanks to the American Rescue Plan Act of 2021 and starting in 2022, this threshold is lowered down $600.

Explain how you could use micro-tax data before and after the reform to analyze whether the reform is effective in improving tax compliance with gig workers.

Be sure to state clearly what are the identification assumptions you would need and what are the potential threats to identification.

1. (Continuing from e.) Actually, before 2022, some states (such as Maryland, Massachusetts, New Jersey, or Vermont) had already imposed 1099-K filing requirements much lower than $20,000. For simplicity, let’s assume that a group of states (denoted by C) had already in place the $600 filing requirement for 1099-Ks before 2022 while other states (denoted by T) just followed the federal government threshold. Explain how you could use this to improve your empirical analysis of the 2021 federal reform in e.
2. Consider now another form of third-party expansion: any person or business hiring a self-employed person (such as a house cleaner or lawn mower) needs to supply a 1099-MISC form to the government and the self-employed hired worker showing the amount paid for the service. (Currently 1099-MISC forms are required only for payments above $600 and the reform would lower this threshold to $0.) Address this reform as in your answer to e.