Public Finance Field Exam
August 2017

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

1. **Energy Conservation and Greenhouse Gas Emissions**

   Over the years, the United States, other countries, and some US states have either introduced or considered a variety of policies with at least one aim being to influence the level of emissions of "greenhouse" gases, i.e., gases which contribute to global temperature increases in proportion to their carbon content. Discuss the effects of each of the following policies, in terms of their effectiveness at limiting global emissions efficiently and their distributional consequences:

   (1) A US carbon tax, set at a constant rate per ton of carbon on all emissions within the United States, with revenues used to fund general government activities;

   (2) A US carbon tax, as in (1), but applied only to final consumer uses, such as tailpipe emissions of household vehicles, but not industrial uses, such as emissions by manufacturers and electricity producers;

   (3) As proposed recently by an influential group of former government policy advisors known as the "Climate Leadership Council," a US carbon tax, as in (1), but with (a) the full carbon tax phased in over time; (b) revenues rebated uniformly to households; and (c) carbon tax rebates to producers for goods exported to countries without a carbon tax, and carbon tax imposed on imports from such countries;

   (4) A California cap and trade system, as actually imposed under AB32 (the Global Warming Solutions Act of 2006) and very recently extended, which gives away most permits to the California producers governed by the system;

   (5) A US "alternative fuels" requirement, mandating each electricity generator to produce a certain fraction of its electricity using fuel with no carbon content, such as solar or wind power;

   (6) A US subsidy for the use of hybrid (gasoline and electric) or all-electric automobiles;

   (7) A worldwide carbon tax, set at the same rate across countries, with revenues kept by the nations where the taxes are paid; and

   (8) A worldwide carbon tax, as in (7), but with varying international rates set so that each nation achieves the same level of carbon emissions per capita.

2. **Income Tax Reform**

The current Republican administration and congress will be considering income tax reform. In this question, we will focus on the following (and imaginary) reform with 3 components:

I.   The top individual income tax rate is lowered from 39.6% to 33%. The preferential tax rate on dividends and realized capital gains stays at 20%.

II. Business profits from pass-through entities (sole proprietorships, partnerships, and S-corporations), which are taxed as ordinary income in the current system, are now taxed preferentially like dividends and capital gains with a top rate of 20%.

III. The tax rate on corporate profits of C-corporations is lowered down from the current 35% down to 20%.

Suppose that the tax reform is enacted in October 2017 and will start applying to incomes earned in 2018.

a.   Short-term theoretical analysis: drawing from knowledge of existing empirical evidence, explain what type of retiming behavioral responses one should expect in the short-run from such a reform. How will the reform affect reported incomes for years 2017 and 2018?

b.   Short-term empirical analysis: suppose you have access to repeated cross sections of individual income tax data for years 2016, 2017, and 2018. Propose a simple empirical method to analyze whether the behavioral responses you expect from a. effectively happened. State clearly the identification assumptions needed for the analysis to be valid.

c.   Medium-term tax avoidance theoretical analysis: describe how taxpayers (individuals and businesses) could respond in the medium-run (2-5 years out) along the tax avoidance margin (changing the way income is reported rather than the underlying economic behavior). Discuss in particular potential shifting across the following bases: wage income, pass-through business profits, and C-corporation business profits. Use your knowledge of existing empirical evidence to respond to this question.

d.   Medium-term tax avoidance empirical analysis: suppose you have access to repeated cross sections of individual income tax data for years 2016 and 2020. Propose a simple empirical method to analyze whether the tax avoidance behavioral responses you expect effectively happened. State clearly the identification assumptions needed for the analysis to be valid.

e.   Long-term real responses theoretical analysis: describe how taxpayers could change their true economic behavior in response to the tax reform. Discuss in particular whether highly skilled employees would work harder, whether entrepreneurs would work harder and expand their businesses faster, and whether C-corporations would increase their business activity.

f.   Long-term real responses empirical analysis: These real responses are the most challenging to identify empirical, why? Describe one aspect of real behavioral responses that you could compellingly identify with suitable data. For this question, you can define yourself the data you would want to use. Be sure to state clearly the identification assumptions needed for the analysis to be valid.

g.   Distributional analysis: what are the distributional consequences of the proposed tax reform? In particular, would the distributional consequences depend or not on your findings from questions b., d., and f?