It's All Very Taxing
Interstate Tax Competition and the Balanced Budget

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Background

- To recover from the Great Recession, states have been doing whatever they can to create jobs
- Connecticut, 2014: Governor Dannel Malloy offers $400 million to United Technologies
- Nevada, 2014: State offers $1 billion to Tesla Motors
- Massachusetts, 2016: Boston offers $145 million to General Electric

Tax Competition

- Large Scale
  - Chirinko and Wilson (2011) - Tax competition is like "riding on a seesaw" in the United States
  - States tend to reduce their taxes when their neighbor raises them
  - "Wisconsin is open for business. In these challenging economic times while Illinois is raising taxes, we are lowering them." -Governor Scott Walker (2011)
- Small Scale
  - Cassell and Turner (2010) found "race to the bottom" tax competition in Ohio
  - Enterprise zone program encouraged municipalities to reduce tax rates to attract business
  - Similar effects have been found in Switzerland by Rossi and Dafflon (2004) and Feld et al. (2010)

The Problem with Tax Competition

- When tax competition is ineffective, state governments lose out on revenue from businesses that have remained in their state
- Genschel (2002) argues that corporate taxes make up only a small part of tax revenue, so competition shouldn't be an issue
- Roe (2009) points out that in Delaware, a state with more corporations than people, 17% of the state budget comes from incorporation fees

Given that state governments are not supposed to accumulate deficits directly and are required to balance their budget every year; this paper will focus on how these governments attempt to create that balance in the age of tax competition.

- Do states raise taxes on consumers or businesses?
- Do states cut spending on government programs?
- Differences in competitive behavior between small and large states

Methods and Theory

- The Laffer curve, which measures the relationship between tax rates and tax revenues
- Quadratic relationship, there is a certain point where government revenues are maximized
- If the government goes above this level, then it starts losing revenues
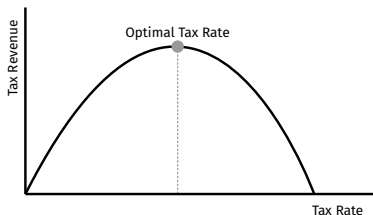
- Keynesian economic theory assumes that governments should spend more during recessions, to help boost the economy, even if it means taking a deficit
- This proves to be a problem for state governments, because they cannot incur deficits (however, they can issue bonds)
- The Ricardian equivalence expects governments to spend more than they take in during recessions, and vice-versa during expansions
- Based on the Ricardian equivalence, this project will assume, in the long run, that state governments spend as much as they take in

Methods and Theory

- Location theory, used in this project, will be new to tax competition literature, particularly in the United States
- Does tax competition affect small and large states differently?
- Is tax competition more effective in small states, as compared to large states?

Methods
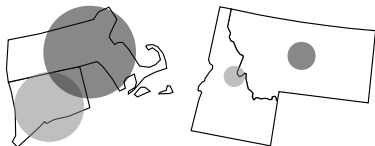
- Three econometric models will be created to estimate the effects of tax competition on state budget balances
  - Change in state government revenue sources
    - Total corporate tax revenue
    - Income tax revenue as percentage of total revenue
  - Change in total state government expenditures
- Another econometric model is developed to measure change in firm population
- Data will be collected from various government sources, from 1980 to 2012
- Modeling will be performed using statistical software, Stata/SE 8.2

Methods

$$CORPREV = \alpha + \beta_1 CORPTAX + \beta_2 CORPTAX^2 + \beta_3 INCTAX$$
$$+ \beta_4 UNEMP + \beta_5 EDU + \beta_6 POP + \beta_7 ENTRY + \epsilon \quad (1)$$

$$GOVEXP = \alpha + \beta_1 CORPTAX + \beta_2 CORPTAX^2 + \beta_3 INCTAX$$
$$+ \beta_4 INCTAX^2 + \beta_5 UNEMP + \beta_6 FEDSUB + \beta_7 INT \quad (2)$$
$$+ \beta_8 POP + \beta_9 ENTRY + \epsilon$$

$$INCREV = \alpha + \beta_1 CORPTAX + \beta_2 CORPTAX^2 + \beta_3 INCTAX$$
$$+ \beta_4 INCTAX^2 + \beta_5 UNEMP + \beta_6 EDU + \beta_7 ENTRY + \epsilon \quad (3)$$

$$ENTRY = \alpha + \beta_1 CORPTAX_2 + \beta_2 CORPTXCOMP_2 + \beta_3 MINWAGE_2$$
$$+ \beta_4 MINWGECOMP_2 + \beta_5 SALESTAX_2 + \beta_6 SALESTXCOMP_2 \quad (4)$$
$$+ \beta_7 HWYEXP_2 + \beta_8 RANNEY_2 + \beta_9 EDU + \epsilon$$

Results

- 5 of 48 states removed due to nonsensical data or outliers
- Regressions performed in Stata (random and fixed effects)
  - Ordinary least squares (OLS)
  - Generalized least squares (GLS)
    - Used to correct for heteroskedasticity and autocorrelation
  - Two staged least squares (instrumental variable *ENTRY*)
- *CORPREV*, *GOVEXP*, and *INCREV* models have R^2 between 0.58 and 0.74
- *CORPREV*, *GOVEXP* models are very sensitive to specification
  - Possible multicollinearity caused by *GSP*
- *ENTRY* models have R^2 between 0.19 and 0.28

Results

- Significant results using GLS fixed effects
  - *CORPTAX* and *INCTAX* are significant predictors of *CORPREV*
  - *CORPTAX*, but not *INCTAX*, is a significant predictor of *GOVEXP*
  - *INCTAX*, but not *CORPTAX*, is a significant predictor of *INCREV*
  - *CORPTAX*$_2$, but not *CORPTAXCOMP*$_2$ is a significant predictor of *ENTRY*
- Two staged models had very similar results to non-two staged models
  - In *GOVEXP* model, both *CORPTAX* and *INCTAX* are significant predictors

Discussion

- Laffer curve modeled in *CORPREV* model when using fixed effects, but without correcting for errors
- According to the models, state governments do not raise taxes on individuals in response to ineffective tax competition
- Instead, state governments respond by cutting spending, which may be considered the lesser of the two evils presented
- Possible questions for future research
  - Where do states cut in response to tax competition?
  - What should states invest in to make themselves appear more business-friendly?

Questions?