Strategic interaction and economic development incentives policy: Evidence from U.S. States

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ABSTRACT

This paper examines Economic Development Incentives (EDI) use by states. In particular, it examines if states engage in strategic interaction when making decisions about the total value of EDI offered in a given year. The goal is to better understand if competition among states for jobs and private investment is a contributing factor to the increase in EDI spending programs. Taking advantage of a national search engine, spatial econometric techniques are applied to state-level panel data and different metrics of neighborliness are considered to better identify patterns of EDI competition. Results from 48 states during the period 2007 to 2012 suggest the presence of strategic interaction: states increase their EDI spending when their neighbors do so. Estimates are robust to numerous specification checks, including an alternative source of EDI spending data. Notably, states compete more intensively over out-of-pocket incentives than those in the form of forgone revenue.

1. Introduction

State and local governments spend billions of dollars each year on economic development incentives (EDI). Every state has at least one, and in many cases, multiple types of incentive programs, including grants, tax exemptions, tax refunds, tax credits, and infrastructure investments (Truitt, 2004; Pew Center Report, 2012). EDI use varies tremendously across and within states. According to the *New York Times*, Texas offers the most incentives, exceeding 19 billion dollars a year, while Alaska, West Virginia and Nebraska award the most in per capita terms.[1] Although EDI goals may include redistributing growth across states via geographic targeting or promoting certain high-value industries, EDI are often used to promote economic growth or job creation. This creates concern about potential border wars.[2] For example, a few months after Kansas awarded AMC Entertainment $36 million to move just across the Kansas-Missouri border, Missouri attracted Applebee's headquarters from Kansas.[3] The creation of the Texas Enterprise Fund (TEF), the largest discretionary fund to entice companies to relocate, has inspired all of the Texas' neighboring states to imitate.[4]

An extensive academic literature discusses the potential harm from incentive competition among states (Ellis and Rogers, 2000; Patrick, 2014). Some argue that targeting incentives to specific businesses induces a loss to the overall national economy and have called on the U.S. Congress to "end the economic war among states" (Burstein and Rolnick, 1995). Others suggest that incentive competition results in an under-provision of public goods because it simply reshuffles businesses across locations (Bartik, 1991; Fish and Peters, 1997; Gorin, 2008; Wang, 2016). Surprisingly, little empirical research analyzes the extent to which state spending on EDI is influenced by EDI spending decisions in neighboring states.

This paper examines whether state-level EDI spending decisions take into account possible strategic interaction with respect to EDI spending in other states. Whereas models of strategic policy interaction abound in the literature, few papers analyze EDI policy interactions in particular. Much of the research focuses on municipalities' own characteristics in determining EDI use (Felix and Hines, 2013). Man (1999) and Byrne (2005) are among the few studies which explicitly account for policy interaction in tax increment financing adoption decisions by local jurisdictions. Only Jenn and Nourzad (1996) focus explicitly on state level EDI policy interaction. They use measures of incentive packages for 12 southern and bordering states from 1969 to 1985.

This paper uses spatial econometrics and direct measures of the magnitude of EDI spending to analyze strategic interaction in EDI policy. The analysis extends the literature in several ways. It exploits a

Table 1
Variable Names and Data Sources.

Variables	Description	Data Sources
Incentives	Per capita EDI spending ($)	Subsidy Tracker (GJF)
Grants	Per capita federal grants ($)	U.S. Census
l_income	Per capita personal income ($)	Bureau of Economic Analysis (BEA)
l_jobless rate	Unemployment rate (%)	Bureau of Economic Analysis (BEA)
l_above 65	Percentage of elder population (%)	U.S. Census
l_corruption	Convictions per 1,000,000 residents	U.S. Department of Justice
l_manufacturing	Manufacturing share of employment ($)	U.S. Census
l_infrastructure	Infrastructure spending (%)	U.S. Census
l_tax revenue	Per capita state tax revenue ($)	U.S. Census
l_sales tax rate	State general sales tax rate (%)	Tax Foundation
l_corporate_rate	Top statutory corporate income tax rate (%)	Tax Foundation
l_personal_rate	Top statutory personal income tax rate (%)	Tax Policy Center

Note: "l_" in front of variable names represent "lagged" and refers to one year lag value of the above variables.

national search engine which tracks EDI spending values across states over time. This approach provides for a more generalizable analysis compared with prior research that focuses on a specific geographic area and/or a specific type of incentive programs. In addition, an alternative data source is used to address shortcomings of the search engine data. A goal of analyzing strategic interaction is to determine if competition for jobs and investment is a factor driving the observed increase in EDI spending programs.

Using a sample of 48 contiguous U.S. states from 2007 to 2012, the results suggest that states choose EDI spending levels strategically. EDI use is positively correlated across states: states increase their EDI spending when their neighbors do so. The degree of spatial dependence is larger when neighbors are defined beyond immediate bordering states. Comparison between different EDI data sources suggests that strategic interaction is more intense in out-of-pocket EDI spending than EDI in the form of foregone tax revenues. Additional evidence indicates that several explanatory variables of EDI spending exhibit spillover effects. To the extent that states compete via EDI use, concerns about negative impacts of such competition are salient to policymakers.

2. Overview of prior research

Broadly speaking, this paper fits in the extensive literature on fiscal policy interdependence, i.e. jurisdictions do not make fiscal decisions in isolation, but rather consider other jurisdictions' actions. The literature has identified several channels by which fiscal policy interdependence occurs (Brueckner, 2003; Revelli, 2005).

Tax and welfare competition may drive policy interdependence. Recognizing the mobility of resources (e.g. capital), communities set tax rates with an eye toward tax policies in neighboring communities. Concern that overly high tax rates will push away taxpayers and businesses drives strategic behavior. The tax competition literature is abundant with theoretical and empirical support for this mechanism (Brueckner and Saavedra, 2001; Revelli, 2005; Rork, 2003; Wilson, 1999). In a similar vein, communities strategically choose their welfare benefits fearing that overly generous benefits will attract poor migrants. Policymakers compete to lower their welfare benefits, resulting in a "race to the bottom." Figlio et al. (1999) and Saavedra (2000) among others find that welfare benefit determination is influenced by the potential of interstate migration. In particular, Figlio et al., (1999) find that states are more responsive to decreases in neighbors' benefits than

increases.

Policy interdependence can arise from externalities associated with public goods, i.e. spillovers. For example, one state's spending on roads also benefits users from nearby states. Case et al. (1993) are the first to incorporate fiscal interaction in a state's expenditure function and find that neighbors' expenditures positively affect home state's spending. Murdoch et al. (1993), Kelejian and Robinson (1993) and Burge and Rogers (2011) provide further evidence on spillovers among local governments in the US. Fiscal spillovers are also found in European countries (Silva et al., 2011; Šťastná, 2009; Foucault et al., 2008; Redoano, 2007; Werck et al., 2008; Ollé, 2006; Lundberg, 2006; Revelli, 2003).

Fiscal policy interaction may also arise from political yardstick competition, where imperfectly informed voters use policies of neighboring jurisdictions as a benchmark for evaluating policy efficiency in their own jurisdictions. This information asymmetry compels incumbents to mimic policies in other jurisdictions. A number of empirical studies support this mechanism (Besley and Case, 1995; Bordignon et al., 2003; Ollé, 2003; Ermini and Santolini, 2007).

Regarding EDI literature, a substantial body of empirical research focuses on the efficacy of EDI. Peters and Fisher (2004) and Patrick (2014) provide overviews. There is much less focus on the intensive and extensive margins of EDI use. Felix and Hines (Felix and Hines, 2013) distinguish U.S. communities that offer tax-based business incentives from those who do not as well as communities that offer tax increment financing (TIF) versus tax abatements and credits. They find cities and counties are more likely to offer business incentives if they are heavily populated, in closer proximity to state boundaries, have low income, have a concentration of manufacturing industries, and have troubled political cultures. They conclude that the poorest communities (whose household income is less than $25,000) are less likely to use TIFs.

Few studies analyze the strategic interaction of EDI policy. Man (1999) and Byrne (2005) explicitly consider strategic interaction in municipality's decision to implement tax increment financing (TIF). Both papers find evidence of strategic interaction in adoption decisions: the former considers cities in Indiana while the latter examines the Chicago metro area. Further, both papers find that fiscal stress is a determinant of TIF adoption. Jenn and Nourzad (1996) focus explicitly on state level EDI policy interaction. Using cross-section, times series data for 12 southern and bordering states from 1969 to 1985, they find