

Economic Freedom and Incentive Regimes: Evidence from United States MSAs

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Abstract

This paper explores the relationship between economic freedom and targeted economic development incentives (TEDIs) at the MSA level. Though previous research suggests that TEDIs have limited ability to influence economic activity, their use remains prevalent. This paper contributes to our understanding of the persistence of TEDIs by examining their role as a compensating differential, focusing on whether MSAs with relatively less economic freedom rely more on TEDIs to offset institutional differences. I use the novel Metropolitan Area Economic Freedom Index (MEFI) to measure economic freedom and the Panel Database on Incentives and Taxes (PDIT) to measure incentive regimes. Quadratic estimations of unobserved effects models support the notion that TEDI regimes serve as a compensating differential for a lack of economic freedom, primarily driven by an MSA's tax burden. However, results are not robust to linear estimations. These findings provide evidence to suggest that an MSA's incentive regime is used as a compensating differential for tax environments, but not for a wider range of institutional factors.

1 Introduction

Targeted economic development incentives (TEDIs) remain popular programs for government officials attempting to recruit economic activity. The degree to which governments employ incentives, though, varies across jurisdictions. Estimates of the annual aggregate cost of state and local incentives range from \$45 billion to \$95 billion, with costs varying by a factor of as much as 3-to-1 across states (Bartik 2017; Mitchell et al. 2020). Despite their popularity, the body of academic literature finds little support for the use of targeted tax breaks and subsidies as an economic stimulant. Why, then, do government officials continue to utilize these programs? And what explains the variation in incentive intensity across locations?

Several theories have been proposed to explain the persistence of TEDIs. Much of this work rests on public choice explanations, such as regulatory capture, concentrated benefits and dispersed costs, and political pandering, or strategic interaction between regions. More recently, scholars have turned their attention towards the role TEDIs play in compensating firms for institutional differences between potential locations.

Institutions and public policy have long been connected to economic development. Time and again empirical evidence has shown that regions are more prosperous where institutions align with the principles of economic freedom (Stansel and Tuszynski 2018; Lawson 2022). That is, prosperity is found where institutions allow for “personal choice, voluntary exchange, freedom to compete, and protections of persons and property” (Gwartney and Lawson 2003, p. 406).

The evidence linking economic freedom to improved living standards is robust, yet institutional quality – and therefore economic prosperity – varies across jurisdictions. Public officials seeking broad institutional reform to improve economic conditions, though, are often met with legislative challenges. Do TEDIs, then, serve as a substitute for institutional reform? It is this connection that is explored below.

Specifically, this paper examines whether TEDI regimes are used as a compensating differential for a lack of economic freedom at the metropolitan statistical area (MSA) level. Data from two novel data sets – the

Metropolitan Area Economic Freedom Index (MEFI) (Stansel 2019) and the W.E. Upjohn Institute's Panel Database on Incentives and Taxes (PDIT) – are used to evaluate 44 of the most economically important MSAs across five time periods.

Linear and quadratic unobserved effects models are used to evaluate the relationship between economic freedom and TEDI regimes. Quadratic models support the notion that TEDI regimes serve as a compensating differential for a lack of economic freedom, primarily driven by an MSA's tax burden. However, results are not robust to linear estimations. The findings of this analysis suggest that TEDIs largely serve to offset tax burdens rather than a wider range of institutional factors.

The rest of this paper is laid out as follows. Section 2 provides a brief review of related literature. Section 3 discusses why a relationship between economic freedom and incentive regimes may exist. Section 4 provides a discussion of the data while section 5 discusses the econometric approach. Results are provided in section 6 and section 7 concludes.

2 Related Literature

Despite the widespread, though varying use of TEDIs, empirical evidence suggests that firm-specific incentives are ineffective as broad economic stimulants (Slattery and Zidar 2020). Scholars have found little evidence to suggest that incentives sway business location decisions (Bartik 2018), stimulate job creation (Peters and Fisher 2004; Jensen 2017a; Jensen 2017b; Bundrick and Snyder 2018), improve incomes (Bundrick and Yuan 2019), increase business investment (Klemm and Van Parys 2012; De Blasio et al. 2015), or spur entrepreneurial activity (Tuszynski and Stansel 2018; Partridge et al. 2020). Rather, targeted incentives have shown to be a detriment to the fiscal health of states (McDonald III et al. 2021) while contributing to income inequality (Wang et al. 2018; Jansa 2020) and eroding economic freedom, particularly with respect to labor market freedom and tax policy (Dove and Sutter 2018).

Given the lackluster economic results, scholars have increasingly explored not only why TEDI programs remain popular, but why some jurisdictions employ them more intensely. One branch of this literature has focused on public choice theory to explain their persistence. Specifically, regulatory capture has been highlighted as playing a significant role in the pervasiveness of TEDI policy (Jansa and Gray 2017; Jansa 2019). Because the recipients of TEDIs are determined through a political process, it inevitably gives rise to rent-seeking behaviors and cronyism (Coyne and Moberg 2015). The concentrated benefits to the incented firms (and their constituencies) and the dispersed costs to taxpayers creates strong incentives for industry to influence the development of TEDI policy (Siegfried and Zimbalist 2000; Mitchell et al. 2018).

Political pandering has also received attention as the source of persistence (Jensen and Malesky 2018). That is, economists have posited that TEDIs exist solely to create gains for the politicians that award them. Calcagno and Hefner (2007) found a positive relationship between TEDIs and corporate tax revenue, arguing that this increased revenue affords political benefits by expanding politicians' ability to redistribute resources. Jensen et al. (2015) found that elected mayors spend more on TEDIs than non-elected city managers, which suggests that there may be an electoral benefit to awarding incentives.

Moreover, Jensen et al. (2014) found that surveyed voters report being more likely to vote for incumbent governors that utilize incentives than incumbents that do not, though Bundrick et al. (2021) fail to find evidence that Arkansas voters respond at the polls to either the quantity or magnitude of a governor's use of discretionary TEDIs. Nevertheless, Aobdia et al. (2024) found that not only is a firm more likely to be awarded TEDIs in a state where it makes financial contributions to politicians, but the award amount is significantly larger than in the states where the firm does not make financial contributions to politicians. Similarly, Sobel et al. (2024) found that states that have begun awarding significantly-larger-than-normal incentive packages for individual firms (so called "megadeals") see increases in both campaign contributions and the margin of electoral victory for incumbent legislators.

A second branch of literature has explored strategic interaction as the driver of continued incentive use. For instance, Ellis and Rogers (2000) model the use of TEDIs as a prisoner's dilemma between locations, in which both the potential for large gains and loss avoidance motivates each jurisdiction to provide TEDIs. Moreover, Wang (2018) demonstrates that states increase their use of TEDIs when their neighbors do.

Parallel to this notion of strategic interaction is the idea that TEDIs serve to offset differences in the business climates of locations. That is, jurisdictions may use TEDIs as a compensating differential to level the playing field with competing jurisdictions. Bartik (2005) argues that, because “a dollar is a dollar”, footloose firms are likely to respond to tax incentives in the same way they would respond to a general business tax cut. Evidence suggests that politicians began using TEDIs as a substitute for tax rate adjustments in the 1990s (Calcagno and Hefner 2007). More recently, Calcagno and Hefner (2018) found evidence that states with higher income tax burdens are more likely to offer a megadeal to select firms than states with lower income tax burdens. Slattery and Zidar (2020) show that states with higher corporate tax rates also have higher business tax expenditures. This is an intuitive relationship given that incentives designed to offset tax burdens should necessarily be larger in states with higher tax rates and may explain the variance observed in incentive intensity. Cheng et al. (2020) also demonstrate that tax incentives are used to offset tax differentials between states, particularly with respect to the corporate income tax.

To date, the literature on compensating differentials has focused primarily on TEDIs as offsets for tax differentials at the state level. However, locations at all levels of government vary in their relative attractiveness with respect to other institutional factors that contribute to the economic freedom of a region. Because having institutions compatible with the principles of economic freedom is associated with increased economic activity, government officials may use TEDIs as a compensating differential for a broader range of institutional differences between jurisdictions (Stansel and Tuszynski 2018; Lawson 2022). Accordingly, the remainder of this paper is dedicated to empirically exploring whether TEDIs serve as compensation for differences in economic freedom.

3 On the Relationship Between Incentive Regimes and Economic Freedom

MSAs vary in their relative attractiveness for economic activity due, in part, to institutional differences. Evidence suggests that economic activity is more favorable in those MSAs where economic freedom exists. For instance, economic freedom is associated with increased entrepreneurial activity (Bologna Pavlik 2015) and incomes (Shumway 2018; Millsap 2018). Importantly, voters hold state and local elected officials responsible for economic conditions (Atkeson and Partin 1995; Carsey and Wright 1998; Hopkins and Pettingill 2018). The sensitivity of voters to the economy provides incentive for politicians to steer institutions so that they align with the principles of economic freedom. However, such broad policy reform often presents legislative challenges. Instead, elected officials may opt for enacting TEDI programs to offset the relative institutional deficiencies of the region, at least for some firms. That is, less economic freedom may be associated with more intense TEDI regimes.

Given this expected association, it is natural to ask which aspects of economic freedom are likely to drive this result. MEFI captures three tenets of economic freedom: government spending, taxation, and labor market freedom. Economic theory suggests that relationships may exist between each of these areas of economic freedom and TEDI regimes.

The relationship between TEDIs and government spending is ambiguous. On the one hand, increased government spending is indicative of a larger government. As government grows, private industry must compete with government for inputs to production as well as market share. This increased competition can increase costs and decrease revenues for firms, thereby crowding out private business. Accordingly, governments wishing to prevent this may look to offset the crowding out effect by awarding incentives to select firms.

On the other hand, evidence suggests that TEDIs may crowd out spending on productive public goods such as education and highways (Wang 2016). If the crowding out of public expenditures is significant enough, an MSA will have a higher level of measured economic freedom as it relates to government spending. That is, causality may run in the opposite direction as incentive intensity may lead to an increased score on the government spending component of MEFI.

Second, empirical evidence indicates that increased tax burdens reduce regional economic activity (Funderburg et al. 2013; Belotti et al. 2021; Chen et al. 2023). Given the distortions of taxation, it can be

assumed that a profit-maximizing firm would prefer to locate in an MSA with a relatively lower tax burden, all else equal. This notion is at the heart of most TEDI programs, as the typical program is designed to reduce a recipient firm's tax liability. In fact, four of the five categories of incentives captured by PDIT are either tax abatements or tax credits. It follows that one may reasonably expect MSAs with elevated tax burdens to also have more intense incentive regimes. As described above, this relationship has been found at the state level (Cheng et al. 2020; Slattery and Zidar 2020).

However, it should be noted that causality may run in the opposite direction. A government's extensive use of TEDIs may lead to a decrease in the tax component of economic freedom (Dove and Sutter 2018). Consider that an MSA that employs a robust incentive regime may hollow out the tax base, reducing tax revenue from which to provide public goods. Maintaining a given level of government expenditures, then, may require an MSA to increase tax rates to offset the lost revenue, leading to a worse score on the taxation component of MEFI.

Finally, TEDIs may work to offset the burdens imposed by labor market regulation. MEFI includes three variables to capture various aspects of this regulation – the minimum wage, government employment, and private union density. Each of these labor market variables may arbitrarily drive up the cost of labor, making one MSA less attractive relative to another. For instance, the minimum wage can prevent employers and employees from entering voluntary contracts while increases in government employment raise the competition for labor (Stansel 2019). Organized labor may also work to increase wages and benefits. It follows that one may reasonably expect higher labor costs driven by labor market regulation to be compensated for with TEDIs.

4 Data

Whether the theoretical associations between economic freedom and TEDI regimes hold in practice is investigated with a nested panel data set spanning 44 MSAs and five time periods (1992, 1997, 2002, 2007, 2012). The dependent variable is a measure of an MSA's TEDI regime intensity. TEDI regime data was collected from the Panel Database on Incentives and Taxes produced by the W.E. Upjohn Institute for Employment Research. The database provides annual coverage of 47 of the most economically important cities from 1990 through 2015 (Bartik 2017).¹

PDIT uses a rules-based simulation approach to measure incentive intensity rather than observed dollar values of individual awards. This simulation approach is intended to “measure the ‘standard deal’ that would be offered to a medium-sized export-base new facility that the state and city wished to attract” (Bartik 2017, p. 25). Thus, PDIT can be considered a measure of the intensity of an MSA's incentive regime.

The specific measurement provided by PDIT is the present value of state and local incentives as a proportion of the value-added for the group of export-base industries, where export-base industries are those that engage in transactions outside the local economy. This measurement is calculated by determining the incentives that would be awarded to a new hypothetical facility under the rules of the state and city. The hypothetical facility is then followed for a 20-year simulation period with the assumption that the incentive regime does not change. The simulation period uses a 3 percent real discount rate, which is intended to approximate the discount rate used by policymakers to compare benefits and costs.

Though PDIT provides information at the city level, I follow DiTommaso and Greenbaum (2021) in using PDIT to measure incentive intensity at the MSA level. When scaled to the MSA level, Newark, New Jersey and Aurora, Illinois are subsumed by the New York City and Chicago metro areas, respectively.

The independent variable of interest is a measure of economic freedom. Economic freedom data is collected from the Metro Area Economic Freedom Index produced by Stansel (2019). MEFI reports overall economic freedom scores for 330 MSAs on a scale of 1 to 10, with 10 being the freest. The overall score is the average of each MSA's score on three areas related to the notion of economic freedom – government spending, taxation, and labor market freedom. Each of these three area scores are comprised of three sub-area scores. An MSA's government spending score is determined by general consumption expenditures by government, transfers and subsidies, and insurance and retirement payments, all as a percentage of personal

¹These 47 cities encompassed 61% of private sector GDP in 2013 (Bartik 2017).

income. The taxation score is determined by income and payroll tax revenue, sales tax revenue, and revenue from property tax and other taxes, all as a percentage of personal income. Labor market freedom scores are determined by the minimum wage, government employment as a percentage of total employment, and private union density. MEFI provides overall scores, area scores, and sub-area scores every 5 years from 1972 to 2017. Harmonizing MEFI with PDIT provides data on 45 MSAs in the years 1992, 1997, 2002, 2007, and 2012.

Economic controls include real per capita income and the unemployment rate, both measured at the MSA level. The expected effect of real per capita income is ambiguous. On the one hand, richer metros likely have more economic activity and therefore have more opportunity to award incentives. On the other hand, poorer metros likely have less economic activity and, as a result, may have a relatively larger interest in awarding incentives to stimulate economic activity. The unemployment rate is included for similar logic. Metros with lower unemployment rates may have more opportunity to award incentives while metros with higher unemployment rates may have a relatively elevated interest in awarding incentives to fill the jobs gap. Real per capita income data were collected from the Bureau of Economic Analysis while unemployment rate data were collected from the Bureau of Labor Statistics.

Political controls include the form of municipal government, state government ideology, and whether the MSA is multi-state. The form of municipal government is intended to account for electoral pandering as evidence indicates that elected mayors provide larger incentives than do appointed city managers (Jensen et al. 2015). The variable is constructed as a dummy variable equal to 1 if the primary city in the MSA employs a mayor-council form of government and 0 otherwise. According to the National League of Cities, a mayor-council form of government is characterized by an elected mayor with administrative and budgetary authority and an elected council with legislative authority. Conversely, a council-manager form of government is characterized by an elected council that possesses authority over policy and appoints a city manager to carry out day-to-day administration. Data were collected by referencing relevant city websites.

State government ideology is intended to capture differences in political attitudes towards the use of incentives. I measure ideology using the state government ideology indicator produced by Berry et al. (2010), in which ideology is measured on a scale of 0-100 with 0 representing the most conservative ideologies and 100 representing the most liberal ideologies. I construct population weighted averages of the ideology indicator score for MSAs that span multiple states. It should be noted that, because Berry et al.'s indicator measures state governments, Washington D.C. is not included and is consequently dropped from the sample of MSAs. Thus, I am left with 44 MSAs in five time periods.

Multi-state is a dummy variable equal to 1 if the MSA spans more than one state. It is included to account for the possibility of increased interstate competition for economic activity resulting from geographical closeness. This is perhaps best highlighted by the Kansas City “border war,” in which the states of Kansas and Missouri offered incentives to corporations to move across state lines but within the metro area (Raice 2019). Multi-state MSAs are defined by the Office of Management and Budget.

Table 1: Metropolitan Statistical Areas Analyzed

Albuquerque, NM	Columbia, SC	Louisville, KY-IN	Pittsburgh, PA
Atlanta, GA	Dallas, TX	Memphis, TN-MS-AR	Portland, OR-WA
Baltimore, MD	Denver, CO	Miami, FL	Riverside, CA
Birmingham, AL	Des Moines, IA	Milwaukee, WI	Sacramento, CA
Boston, MA-NH	Detroit, MI	Minneapolis, MN-WI	St. Louis, MO-IL
Bridgeport, CT	Houston, TX	New Orleans, LA	San Antonio, TX
Buffalo, NY	Indianapolis, IN	New York City, NY-NJ-PA	San Diego, CA
Charlotte, NC-SC	Kalamazoo, MI	Omaha, NE-IA	San Francisco, CA
Chicago, IL-IN-WI	Kansas City, MO-KS	Orlando, FL	Seattle, WA
Cincinnati, OH-KY-IN	Las Vegas, NV	Philadelphia, PA-NJ-DE-MD	Tampa, FL
Cleveland, OH	Los Angeles, CA	Phoenix, AZ	Virginia Beach, VA-NC

The 44 MSAs included in this study are displayed in Table 1. Summary statistics are provided in Table 2. The average incentive regime provides TEDIs worth 0.901 percent of the value added of the typical firm. The largest category of incentives is property tax abatements (0.327 percent of the value added) followed by

job creation tax credits (0.243 percent) and income tax credits (0.195 percent). Research and development tax credits (0.093 percent) and customized job training subsidies (0.043 percent) are relatively small pieces of the typical incentive regime.

Table 2: Summary Statistics

Variable	N	Mean	Std. Dev.	Min.	Max
Panel A. Incentives					
Total Incentives	220	0.901	0.884	0	4.433
Property Tax Abatements	220	0.327	0.514	0	2.760
Job Creation Tax Credits	220	0.243	0.408	0	1.818
Income Tax Credits	220	0.195	0.387	0	1.933
R&D Tax Credits	220	0.093	0.124	0	0.395
Customized Job Training Subsidies	220	0.043	0.058	0	0.264
Panel B. Economic Freedom					
Overall Freedom	220	6.759	0.703	4.976	8.213
Government Spending (<i>Area 1</i>)	220	6.719	1.026	4.202	8.730
Taxation (<i>Area 2</i>)	220	5.762	0.670	3.816	7.479
Labor Market Freedom (<i>Area 3</i>)	220	7.795	0.921	4.970	9.520
Panel C. Controls					
Unemployment Rate	220	5.692	1.611	2.120	10.961
Real Per Capita Income (\$K)	220	44.564	9.674	30.138	110.223
Municipal Government	220	0.645	0.479	0	1
Government Ideology	220	48.138	14.373	18.172	72.237
Multi-State	220	0.318	0.467	0	1

5 Econometric Approach

I use unobserved effects models to estimate the relationship between economic freedom and incentive regimes. The estimated equations are:

$$Incentives_{it} = \varrho + \alpha MEFI_{it-1} + \chi_{it}\delta + \mathbf{z}_i\gamma + \boldsymbol{\theta}_t\pi + h_{g(i)} + c_i + \epsilon_{it} \quad (1)$$

$$Incentives_{it} = \varrho + \beta_1 MEFI_{it-1} + \beta_2 MEFI_{it-1}^2 + \chi_{it}\delta + \mathbf{z}_i\gamma + \boldsymbol{\theta}_t\pi + h_{g(i)} + c_i + \epsilon_{it} \quad (2)$$

In these equations, *Incentives* represents the incentive regime of MSA *i* in time *t*. *MEFI* represents the economic freedom score (overall or area) of MSA *i* in time *t* − 1. χ is a vector of the economic and political control variables that vary across MSA *i* and time *t*, $\mathbf{z}$ represents variables that vary across MSA *i*, $\boldsymbol{\theta}_t$ represents time dummies, $h_{g(i)}$ represents the unobserved effects specific to each state, c_i represents the unobserved effects specific to each MSA, and ϵ_{it} is the idiosyncratic error.

Equation (1) is a linear model. The variable of interest is $MEFI_{it-1}$. A positive coefficient α suggests that an increase in an MSA's economic freedom leads to a more intense incentive regime within the MSA. A negative coefficient α implies that an increase in economic freedom within an MSA leads to a less intense incentive regime. If TEDIs serve as a compensating differential for a lack of economic freedom, α is expected to be negative.

Equation (2) is a quadratic model, which allows the marginal effect of a change in economic freedom to vary across different levels of economic freedom. One reason the marginal effect may vary across levels of economic freedom is that an MSA's relative economic freedom may matter more for its use of TEDIs than its absolute economic freedom, particularly if strategic interaction between jurisdictions is driving policy. Consider the expansion of a profit-maximizing firm. The firm will choose the location of the expansion

facility based on the relative net benefits of the potential locations. Government officials wishing to secure economic development projects within an MSA may pursue policies that increase economic freedom, thereby increasing the net benefits of that location. However, the absolute increase in economic freedom (i.e., net benefits) in any one MSA may not have a large enough impact on its relative position among all MSAs to spur a decreased reliance on TEDIs. For instance, an MSA that moves from the 10th percentile to the 15th percentile of economic freedom is still relatively unattractive in the universe of locations and thus may continue to rely on TEDIs. That is, the MSA may view improving economic freedom and increasing incentive use as complementary policies when economic freedom is at low levels. An MSA that moves from the 85th percentile to the 90th percentile, though, is relatively attractive and may be able to reduce its use of incentives as it continues to improve its competitive position. An increase in an MSA's economic freedom, then, may not be associated with a decrease in its incentive intensity until it has reached a high level of economic freedom relative to all other MSAs.

The variable of interest in Equation (2) is $MEFI_{it-1}^2$. If TEDIs serve as a compensating differential, β_2 is expected to be negative. A negative coefficient on β_2 indicates that at higher levels of economic freedom, increases in economic freedom lead to decreased incentive intensity. Of interest in evaluating this equation is the turning point. The turning point can be estimated by calculating $\frac{-\hat{\beta}_1}{2\hat{\beta}_2}$ and using the Delta method to determine its 95-percent confidence interval.

Estimating Equations (1) and (2) requires three important considerations. First, the potential for reverse causality must be addressed (Dove and Sutter 2018). An MSA with a more intense incentive regime may necessarily be less economically free. Consider that four of the five incentive categories captured by PDIT are tax expenditures. Governments may elect to recover the foregone revenue from these incentives by increasing tax rates, which would reduce an MSA's economic freedom score. I account for reverse causality by lagging economic freedom scores $MEFI$ by one year.

Second, estimation must consider the relationship between the state heterogeneity $h_{g(i)}$ and MSA heterogeneity c_i and the observed explanatory variables. The random effects estimator assumes that the unobserved heterogeneity is not correlated with the observables, effectively moving $h_{g(i)}$ and c_i to the idiosyncratic error term. Alternatively, the fixed effects estimator allows for correlation between the unobserved heterogeneity and the observed explanatory variables. Given the level of aggregation in the data, it is appropriate to use the fixed effects estimator rather than the random effects estimator.

The third consideration – arising from the nested data structure – is whether to allow for fixed effects at the MSA level or the state level. The fixed effects estimator may result in imprecise estimates when allowing for unit-specific fixed effects because it can eliminate a significant portion of the variation in the observables (Papke and Wooldridge 2023). Where nested data structures exist, some of this variation can be recovered using fixed effects at higher levels of aggregation. For instance, state-level fixed effects can be used in place of MSA-level fixed effects. To be clear, using MSA-level fixed effects will eliminate both the state-specific heterogeneity $h_{g(i)}$ and MSA-specific heterogeneity c_i as well as z_i (i.e. – the multi-state variable). Using state-level fixed effects will eliminate state-specific heterogeneity $h_{g(i)}$ but allow for estimation of z_i . I report estimations using both MSA-level and state-level fixed effects. It should be noted that multi-state MSAs are treated as being nested within their primary state.

6 Results

6.1 Linear Models

The first task is to determine the average marginal effect of a change in economic freedom on an MSA's incentive regime by estimating Equation (1). Table 3 provides these results. Columns 1 and 2 provide estimates using the overall economic freedom score as the independent variable of interest. The coefficient of interest, α , is negative in the MSA-level fixed effects regression, but positive in the state-level fixed effects regression. In both estimates, α is not statistically different from zero. This suggests that, on average, a change in an MSA's overall economic freedom has no effect on the intensity of its incentive regime.

Columns 3 through 8 provide estimates using the three area freedom scores – government spending,

Table 3: Economic Freedom and Incentive Regimes

	<i>Dependent Variable: Total Incentives</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MEFI - Overall	-0.114	0.084						
<i>Economic Freedom</i>	(0.199)	(0.213)						
MEFI - Area 1			0.014	0.070				
<i>Government Spending</i>			(0.154)	(0.160)				
MEFI - Area 2					-0.082	-0.048		
<i>Taxation</i>					(0.136)	(0.175)		
MEFI - Area 3							-0.073	0.031
<i>Labor Market Freedom</i>							(0.147)	(0.120)
Unemployment Rate	-0.089*	-0.052	-0.082	-0.045	-0.086*	-0.058	-0.081	-0.058
	(0.052)	(0.059)	(0.056)	(0.060)	(0.051)	(0.060)	(0.051)	(0.060)
Per Capita Income (\$K)	-0.018	-0.015	-0.020	-0.015	-0.020*	-0.013	-0.019*	-0.014*
	(0.012)	(0.011)	(0.013)	(0.011)	(0.012)	(0.010)	(0.011)	(0.007)
Municipal Government	-0.279***	0.105	-0.258***	0.109	-0.294***	0.099	-0.271***	0.101
	(0.074)	(0.136)	(0.063)	(0.142)	(0.096)	(0.134)	(0.065)	(0.143)
Government Ideology	-0.002	-0.002	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
Multi-State		0.721***		0.735***		0.720***		0.715***
		(0.169)		(0.165)		(0.189)		(0.186)
Constant	2.750*	0.618	1.932*	0.648	2.523***	1.444	2.506*	0.979
	(1.402)	(1.239)	(1.095)	(1.125)	(0.939)	(0.964)	(1.313)	(1.094)
Time Dummies?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.298	0.307	0.297	0.308	0.298	0.306	0.298	0.306
Level of FE	MSA	State	MSA	State	MSA	State	MSA	State
Groups	44	31	44	31	44	31	44	31
N	220	220	220	220	220	220	220	220

Notes: Cluster-robust standard errors in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

taxation, and labor market freedom – as the variables of interest. The coefficient of interest, α , is positive in both estimates that use government spending as the variable of interest and negative in both estimates using taxation as the variable of interest. The direction of the coefficient flips between the two estimates using labor market freedom as the variable of interest. In each of the six regressions, though, α is not statistically different from zero. These results indicate that, on average, a change in an MSA's government spending, taxation, or labor market freedom has no effect on the intensity of an MSA's incentive regime. Overall, linear models fail to provide evidence that TEDIs serve as a compensating differential for an MSA's lack of economic freedom.

6.2 Quadratic Models

The second task is to evaluate whether the marginal effect of a change in economic freedom varies across different levels of economic freedom by estimating Equation (2). The results are presented in Table 4. For brevity, I report only the variables of interest and the respective estimated turning point.

Columns 1 and 2 provide MSA-level and state-level fixed effects estimates using the overall economic freedom score as the independent variable of interest. The coefficient of interest, β_2 , is negative in both regressions, respectively. The coefficient is not statistically significant in the state-level fixed effects estimate. However, β_2 is significant at the 10-percent level in the MSA-level fixed effects estimate. The direction of the coefficient in Column 1 suggests that at low levels of economic freedom, an increase in economic freedom increases the intensity of an MSA's incentive regime. At high levels of economic freedom, an increase in economic freedom decreases the intensity of an MSA's incentive regime. The point at which further increases in economic freedom lead to a decrease in incentive intensity is estimated to be an overall economic freedom score of 6.4.

Consider that 30 of the 44 MSAs in this analysis had an overall economic freedom score of 6.4 or higher in 2012, the most recent MEFI scores used in this analysis. This means that over 68% of the MSAs analyzed were beyond the turning point, indicating that further increases in economic freedom would result in decreases in

Table 4: Economic Freedom and Incentive Regimes: Heterogeneous Effects

	<i>Dependent Variable: Total Incentives</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MEFI Overall	3.628 (2.191)	2.44 (1.98)						
MEFI Overall ²	-0.283* (0.161)	-0.182 (0.147)						
MEFI Area 1			0.45 (0.597)	0.625 (0.611)				
MEFI Area 1 ²			-0.033 (0.041)	-0.043 (0.041)				
MEFI Area 2					2.147** (0.993)	2.629** (1.222)		
MEFI Area 2 ²					-0.202** (0.089)	-0.241** (0.11)		
MEFI Area 3							0.202 (0.827)	0.048 (0.621)
MEFI Area 3 ²							-0.019 (0.053)	-0.001 (0.044)
Turning Point	6.4	6.71	6.73	7.26	5.3	5.44	5.42	19.56
95% CI	[5.64, 7.17]	[5.73, 7.68]	[2.33, 11.14]	[3.95, 10.57]	[4.68, 5.92]	[4.88, 6.01]	[-9.33, 20.16]	[-853, 892]
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.318	0.319	0.3	0.313	0.32	0.34	0.299	0.306
Level of FE	MSA	State	MSA	State	MSA	State	MSA	State
Groups	44	31	44	31	44	31	44	31
N	220	220	220	220	220	220	220	220

Notes: Area 1 is government spending, Area 2 is taxation, and Area 3 is labor market freedom. Controls include unemployment rate, real per capita income, form of municipal government, government ideology, and multi-state. 95% confidence intervals calculated using the delta method. Cluster robust standard errors in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

incentive intensity. This provides some evidence to suggest that TEDIs serve as a compensating differential for economic freedom.

The regressions provided in Columns 3 through 8 of Table 4 provide some insight into the area of economic freedom driving the heterogeneous effects across levels of freedom. The coefficient of interest, β_2 , is negative in each of the six regressions. However, it is statistically insignificant when government spending (columns 3 and 4) and labor market regulation (columns 7 and 8) scores are used as the variables of interest. This again indicates that an MSA's incentive regime is not dependent on its government spending or labor market freedom. That is, I fail to find evidence that TEDIs are used to offset institutional disadvantages arising from an MSA's size of government or labor market regulations.

When using taxation as the variable of interest, though, β_2 is significant at the 5-percent level. The direction of the coefficient in Columns 5 and 6 indicate that at high levels of taxation (low taxation scores), an increase in tax freedom increases the intensity of an MSA's incentive regime. At low levels of taxation (high taxation scores), an increase in tax freedom decreases the intensity of an MSA's incentive regime. The point at which further reductions in tax burdens lead to a decrease in incentive intensity is estimated to be a taxation score of 5.3 in the MSA-level fixed effects model and 5.44 in the state-level fixed effects model. Based on 2012 MEFI scores, 39 of the 44 MSAs in this analysis possessed taxation scores of at least 5.3 while 36 possessed a score of least 5.44. This means that 81.8% to 88.6% of the MSAs analyzed are beyond the turning point, indicating that further reductions in tax burdens would result in decreases in incentive intensity. These results suggest that TEDIs serve as a compensating differential for an MSA's tax burden, a conclusion that aligns with the findings of Calcagno and Hefner (2018), Cheng et al. (2020), and Slattery

and Zidar (2020).

7 Conclusion

Despite the body of evidence casting doubt on the economic viability of TEDIs, government officials continue to regularly award them, though some more intensely than others. Scholars have increasingly turned their attention to examine why such policies remain popular, generally citing public choice theory, strategic interaction, and compensating differentials. This paper extends our knowledge on the use of TEDIs as a compensating differential by examining whether TEDIs compensate for a wider range of institutional differences affecting the economic freedom of 44 of the most economically important MSAs.

Linear unobserved effects models fail to provide evidence that the intensity of an MSA's incentive regime is related to its overall level of economic freedom or to its government spending, taxation, or labor market freedom. However, quadratic models provide some evidence to suggest that TEDIs serve as a compensating differential for overall economic freedom, though the result is not robust to each specification. Disaggregating the overall economic freedom score reveals a strong relationship between an MSA's incentive intensity and tax burden, but not with its government spending or labor market freedom scores.

These results have important implications. Namely, they provide further evidence that incentive regimes are used as a compensating differential for variations in tax environments, but not for a wider range of institutional differences that may make one MSA less attractive than another. These findings suggest, then, that persistent use of incentives is tied to efforts to offset tax burdens while the variation of intensity across jurisdictions is a result of variations in tax environments. Given the body of evidence, policymakers must consider the efficiency trade-offs of opting for TEDIs as a compensating differential for high taxes rather than reducing the overall tax burden.

I offer three caveats as a final word. First, the ability to precisely estimate the association between economic freedom and incentive regimes is constrained by the modest data set. Data limitations restrict the sample size to 44 MSAs across 5 time periods, but one may reach different conclusions should data become available for more MSAs or time periods.

Second, this analysis is focused on the relationship between TEDIs and economic freedom at the MSA level. However, considerable portions of the institutional variation and incentive policies experienced at the MSA level are determined at the state level. Accordingly, future research should consider whether TEDIs serve as a compensating differential for a wider range of institutional differences at the state level.

Finally, PDIT simulates the standard deal for the typical firm in an MSA. However, alternative measures of incentives, such as comprehensive dollar values of incentive awards, may lead to different results should they become available. Additional investigations into the relationship between economic freedom and officials' use of TEDIs are therefore warranted.

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