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Economic Development Strategies: Taxes, Incentives, and Public Expenditures*

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Abstract: Economic development strategies may include tax, incentive, and public expenditure policies. Budget-constrained state and local governments must make tradeoffs when determining the final mix of economic development and other public policies each year. In this paper, I first provide descriptive evidence on economic development policy tradeoffs. I then classify economic development strategies and relate them to real GDP per capita growth.

Keywords: tax incentives, business incentives, corporate subsidies, local economic development, public expenditures

JEL Codes: R30, R12, H71

1. INTRODUCTION

I have spent a good portion of my career studying state and local economic development policies (Patrick, 2014a,b, 2016b,a, 2021b,a; Patrick et al., 2017; Partridge et al., 2020; Patrick and Stephens, 2020). Within the literature, decision-makers can find support and evidence against the policy of interest (for recent overviews, see Neumark and Simpson, 2015; Bartik, 2018; Neumark and Young, 2019; Bartik, 2020; Slattery and Zidar, 2020; Hanson, 2021; Hanson and Rohlin, 2021). Differences in the policy conclusions from this body of research stem from differences in empirical methodologies, the institutional details of the program, etc. There is also evidence that the same policy yields different outcomes in different places, with the existing research primarily focused on differences in local economic conditions. In this paper, I focus on another reason that I, and many others, have acknowledged but is relatively understudied – the policy mix in the location.

State and local governments must make tradeoffs as they adopt economic development strategies, choosing between policies and choosing how to balance economic development

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against other public policy priorities. Although not always thought of as economic development policies, many competing public expenditures also have long-term economic development implications (i.e., education expenditures, infrastructure, etc.). Despite significant research into economic development strategies and public expenditures, we know relatively little about the tradeoffs made by policymakers choosing specific strategies or how different strategies interact.

As a starting point for future regional scientists interested in economic development, this paper analyzes states' economic development policies, focusing on key elements such as statutory taxes, statutory incentives, participation in megadeals, and spending. I first identify underlying tradeoff patterns prevalent among states, while recognizing significant variations across and within states over time. By combining the various elements of economic development strategies, I classify states' overall economic development strategies and study potential links between these approaches and the subsequent increase in GDP per capita. The findings have the potential to provide valuable insights for future regional scientists interested in research to help guide economic development policy decisions by illuminating the relationships and tradeoffs influencing states' economic performance.

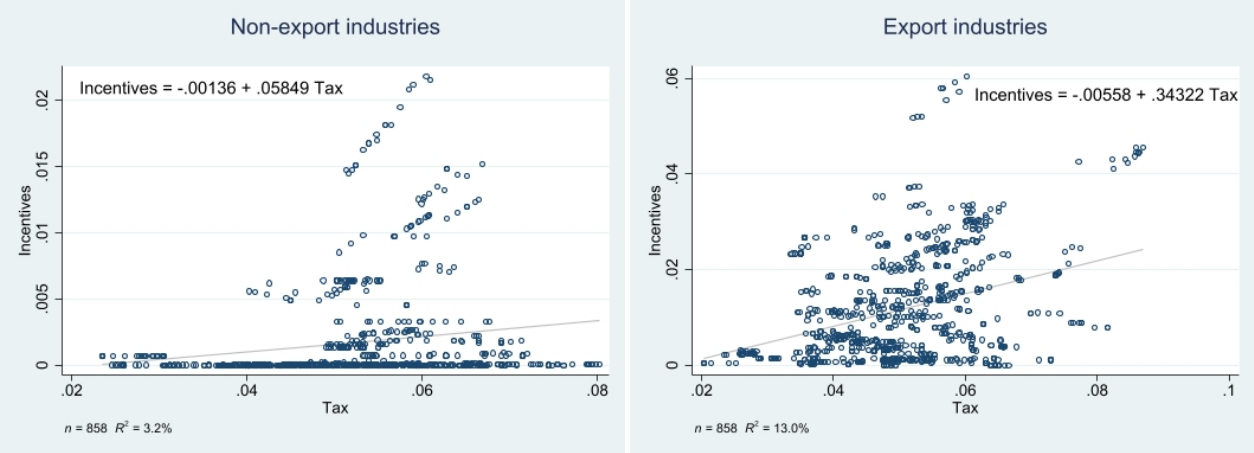
2. DATA

The state is the unit of primary unit of analysis for the investigation herein. It relies on statutory tax and incentives data from the Panel Database on Incentives and Taxes (PDIT), Megadeal data from Good Jobs First Subsidy Tracker, the US Census Bureau's Annual Survey of State Government Finance, and Bureau of Economic Analysis data on state gross domestic product (GDP).

The PDIT provides 1990-2015 annual, state-level data on the taxes and incentives for a typical, medium- to large-sized business within the state. The data cover 32 states (plus Washington, DC) and 45 industries that comprise approximately 92% of 2013 US private sector GDP and over 90% of private sector employment and wages (Bartik, 2017). Using average industry establishment balance sheet characteristics of industry establishments, tax structure, and eligibility rules for incentive programs in each state year, the value of taxes and incentives are simulated over twenty years and discounted to the base year. I use base year tax and incentive calculations as a share of value-added for export and non-export industries, discounted at 12% as this is the discount rate typically attributed to business decision makers (Bartik, 2017).

Taxes in the PDIT include business property taxes, state and local sales taxes on business inputs, corporate income, and state gross receipts taxes. The PDIT captures readily available, or statutory, incentives that most medium to medium-large businesses in an industry can utilize. This includes job tax credits, research and development tax credits, job training tax credits, investment tax credits, and property tax abatements. The database generally does not cover "deal closing" funds – discretionary programs allowing the governor or economic development authority to flexibly provide necessary incentives to successfully attract a large establishment. The PDIT, therefore, does not include data on the strategy of investing significant public resources to lure a single, large business. I use Good Jobs First data on Megadeals to quantify this strategy.

Figure 1: Relationship between states' taxes and incentives by industry export status



Source: Panel Database of Incentives and author's calculations.

Good Jobs First is a non-profit organization focused on data, research, and policy surrounding state and local economic development subsidies, corporate welfare, and corporate misconduct. Their Megadeal Subsidy Tracker provides details on economic development incentive packages valued at $50 million or more. I use the reported location and value of megadeals in the Megadeal Subsidy Tracker (Good Jobs First, nd).

3. EVIDENCE OF TRADE-OFFS

This section examines basic relationships between states' taxes and incentives by industries' export status, involvement in Megadeals, and public expenditures. I highlight the following general patterns revealed by the data.

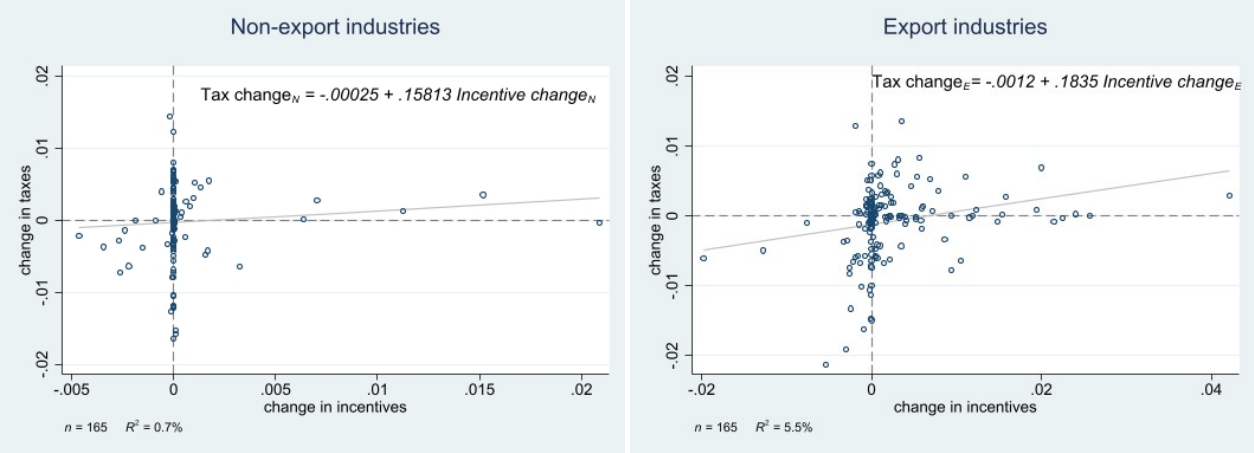
3.1. Incentives offset export industry taxes

Policymakers may encourage businesses through the structure of the tax system and through explicit incentive programs. The relationship between PDIT taxes and incentives indicates that policymakers lower the overall tax burden for export industries by providing incentives, but do not, on average, do so for non-export industries.

Figure 1 displays the relationship between states' taxes and incentives by export status. Although there is a slightly positive relationship between a state's level of taxes and incentives for non-export industries, the increase is relatively weak. On the other hand, Figure 1 shows a strong positive relationship between export industry taxes and incentives, with more generous statutory incentives as taxes rise. The result is a lower overall net tax burden for export industries.

Figure 2 displays the relationship between changes in states' taxes and incentives by export status. In other words, it demonstrates the extent to which policymakers *change* taxes and incentives together. Again, there is little relationship between tax and incentive

Figure 2: Annual changes in states' taxes and incentives by export status



Source: PDIT and author's calculations.

changes for non-export industries. The figure also reveals that it is common for states to leave incentives unchanged as taxes are adjusted. For export industries, most states adjust incentives in line with tax changes, consistent with incentives as a tax offset.

However, there are notable exceptions that point toward alternative strategies. Some states increased incentives while simultaneously reducing taxes, suggesting a strategy of decreasing overall net tax burdens. On the other hand, a few states chose to increase taxes while decreasing incentives, indicating an economic development strategy that does not rely on lower net tax burdens.

3.2. Export and non-export industry statutory policies generally move together

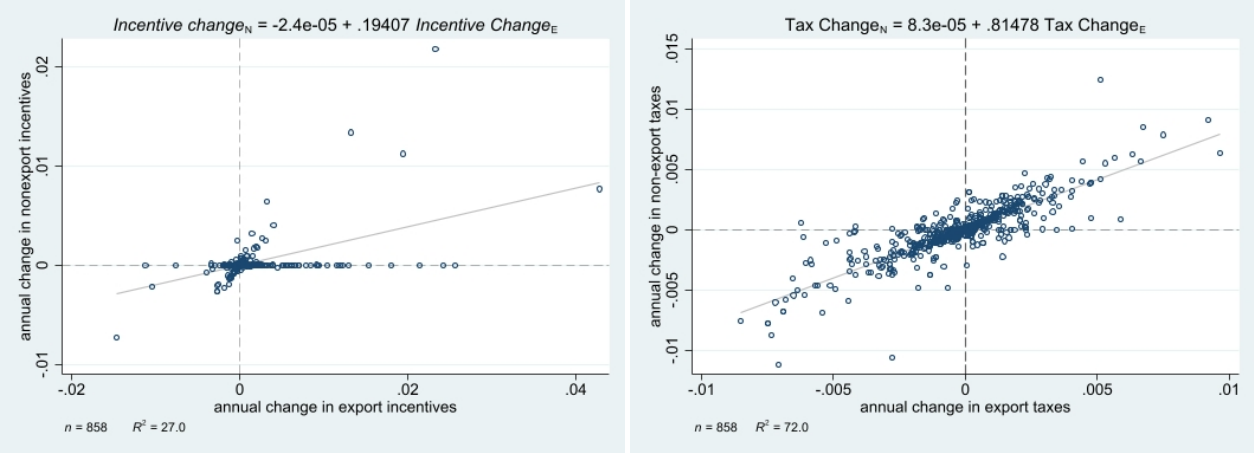
Differential strategies for export and non-export industries result in these industries experiencing unequal net tax burdens. This raises the question of how budget-constrained policymakers adjust taxes or incentives for export and non-export industries relative to each other. Figure 3 displays the annual changes for non-export industries compared to export industries. It suggests a positive relationship between taxes and incentives, albeit only weakly so for incentives. In general, policymakers appear to increase and decrease taxes across industries in tandem. Taken together with Figure 2, this indicates that incentive changes are the policy lever used to minimize net tax changes for export industries (and not for non-export industries).

Although there is a tendency for states to move export and non-export taxes together, Figure 3 also reveals that these changes are rarely equal. This supports the notion that policymakers strategically choose differential tax burdens for export and non-export industries.

3.3. Megadeals are not substitutes for statutory taxes and incentives

Policymakers could focus economic development resources on megadeals for very large establishments rather than statutory policies applicable to most companies within an industry.

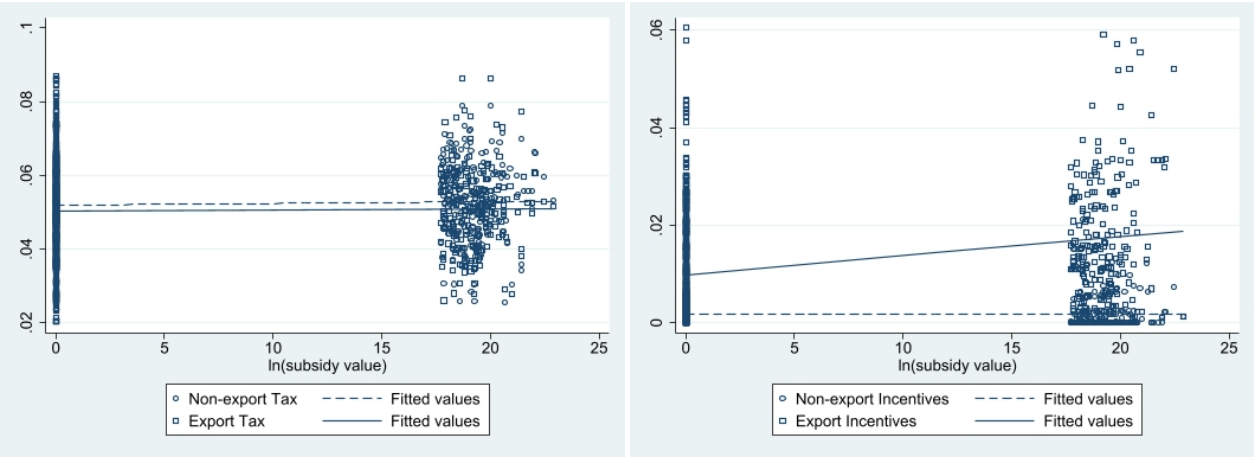
Figure 3: Changes in statutory taxes and incentives



Source: PDIT and author's calculations.

Figure 4 plots states' taxes and incentives relative to the logged value of awarded megadeal subsidies each year. There is no relationship, indicating that policymakers are not substituting megadeal strategies for more broadly applicable tax and incentive policies. The slightly upward-sloping line for export industry incentives and megadeal values simply reflects that megadeals are generally for export firms and include statutory incentives.

Figure 4: Megadeal subsidies relative to taxes and incentives



Source: PDIT, Good Jobs First Megadeal Subsidy Tracker, author's calculations.

3.4. Megadeals and non-export incentives are associated with lower spending per capita

State and local governments face budget constraints, most of which are required to balance current revenues and expenditures annually. Thus, policymakers must "pay" for megadeals and incentives through either increased tax on other parts of the tax base, decreased incentives for other parts of the tax base, debt, or decreased expenditures. Differential net tax

burdens across industries suggest that other parts of the tax base bear at least part of the cost of megadeals and incentives. Table 2 further explores the extent to which coincident changes in expenditures and revenues occur.

Table 2 presents the results of six separate regressions of state finance outcomes on the levels of taxes, incentives, the value of megadeal subsidies, and state and year fixed effects. Columns 1-4 report the results for direct own expenditures per capita in the general, total education, K-12 education, and higher education categories, respectively. Increasing non-export incentives and the amount of megadeal subsidies are strongly associated with lower general and education spending per capita. Higher non-export incentives significantly decrease both K-12 and higher education spending per capita. The decrease in total education spending associated with larger megadeal subsidies is driven by decreases in higher education spending per capita.

Columns 5 and 6 report the results for individual and corporate income tax revenues per capita. Non-export incentives are associated with lower per capita income tax revenues from both individual and corporate sources. Interestingly, higher non-export taxes are associated with higher individual income taxes, while the opposite is true for export taxes. Corporate income tax per capita increases with export incentives and decreases with export taxes, non-export incentives, and megadeal subsidy values.

Taken together, these results suggest that, on average, policymakers "pay" for non-export incentives and megadeal subsidies by both reducing expenditures and shifting the net tax burden to other parts of the tax base.

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Annual panel				
Export tax	0.050	0.012	0.020	0.087
Non-export tax	0.052	0.011	0.023	0.080
Export incentives	0.012	0.011	0	0.061
Non-export incentives	0.002	0.004	0	0.022
Megadeal subsidy value	2.22×10^8	9.73×10^8	0	1.74×10^{10}
Direct general expenditure per capita	7.995	16.911	0	169.560
Total direct education expenditure per capita	1.816	3.921	0	47.976
K-12 education direct expenditure per capita	0.031	0.183	0	3.094
Higher education direct expenditure per capita	1.475	3.294	0	43.445
Individual income tax revenue per capita	1.992	5.255	0	65.417
Corporate income tax revenue per capita	0.301	0.674	0	7.609
5-year annual panel				
Real GDP per capita	0.074	0.166	0.008	1.521
Change in real GDP per capita	0.043	0.178	-0.047	1.466
Percent change in real GDP per capita	0.238	0.274	-0.116	1.068

Table 2: State spending and revenue per capita

	(1) Direct General	(2) Total Direct Ed.	(3) K-12	(4) Higher Ed.	(5) Indiv. Income Tax	(6) Corp. Income Tax
Export taxes	−191.2	−19.60	−1.836	−18.03	−191.3***	−12.80**
	(142.4)	(33.54)	(1.530)	(28.65)	(46.07)	(5.752)
Non-export taxes	7.641	−19.22	−1.600	−13.07	155.4***	5.604
	(151.5)	(35.67)	(1.627)	(30.47)	(49.00)	(6.117)
Export incentives	96.90*	15.16	3.032***	9.487	18.68	4.792**
	(55.87)	(13.15)	(0.600)	(11.24)	(18.07)	(2.256)
Non-export incentives	−558.6***	−104.9**	−5.654***	−83.90**	−189.9***	−25.72***
	(179.3)	(42.20)	(1.926)	(36.06)	(57.98)	(7.238)
Megadeal subsidy value	$-6.22 \times 10^{-10**}$	$-1.53 \times 10^{-10**}$	2.02×10^{-12}	$-1.33 \times 10^{-10**}$	-1.28×10^{-10}	$-1.83 \times 10^{-11*}$
	(2.62×10^{-10})	(6.18×10^{-11})	(2.82×10^{-12})	(5.28×10^{-11})	(8.49×10^{-11})	(1.06×10^{-11})
Constant	27.40***	6.063***	0.198***	4.912***	5.805***	0.961***
	(3.273)	(0.771)	(0.0352)	(0.658)	(1.059)	(0.132)
Observations	820	820	820	820	820	820
R^2	0.401	0.383	0.415	0.362	0.354	0.386

Notes: The table reports the results of six separate regressions of state finance outcomes on the level of export taxes, non-export taxes, export taxes, non-export taxes, the value of megadeal subsidies, state and year fixed effects. Columns 1-4 outcomes are direct own expenditures per capita in the general, total education, K-12 education, and higher education categories. Columns 5 and 6 are individual and corporate income tax revenue per capita, respectively.

4. STRATEGY GROUPS

The previous section highlights some general average relationships; however, it also indicates substantial variation in the tradeoffs and policy mix chosen by decision-makers. In this section, I define strategy groups based on a state's position in distributing statutory taxes and incentives by export status, megadeal participation, and position in the distribution of total education spending per capita. I focus on the combination of these in 1990, 1995, 2000, 2005, 2010, and 2015 to assess the effects on five-year changes in economic growth in the next section.

To reflect the competitive nature of economic development strategies, I first calculate for each state-year the quartiles for incentives and taxes. I then assign state-year export and non-export policies in the first two quartiles as low (and the third and fourth quartiles as high). Thus, a state with non-export incentives in the first quartile of incentives in that year is assigned to the low non-export incentive group.

Given that the net tax burden combines taxes and incentives, I then group state-year export and non-export strategies by combining tax and incentive groups. Tables 3 and 4 report the number of state-years in each of the four groups for non-export and export industries, respectively. Most state-years are categorized as low incentives for non-export industries. High non-export industry taxes are also slightly more likely, regardless of the level of incentives. On the other hand, most states choose a high incentive-low tax strategy for export industries, followed by a high incentive-high tax strategy.

Table 3: Non-export statutory tax and incentive groups

	Low Incentive	High Incentive	Total
Low Tax	75	11	86
High Tax	84	22	106
Total	159	33	192

Table 4: Export statutory tax and incentive groups

	Low Incentives	High Incentives	Total
Low Tax	26	86	112
High Tax	9	71	80
Total	35	157	192

Next, I group state-years into statutory policy strategy groups by combing the non-export and export strategies. Table 5 lists the combinations in the data and details the transition matrix for strategy changes. Table 5 demonstrates that states do transition between statutory policy strategies, which provides important variation for later GDP per capita regressions with state-fixed effects. Staying with the same approach is the most likely transition for six strategies, of which five feature high export incentives. Three statutory policy strategies saw 100 percent of states transition to another strategy after five years. All three provided non-export incentives in the high quartiles. Two of the three transitioned to strategies with low-quartile non-export incentives. Percentage

Table 5: Statutory Policy Strategy Transition Matrix

Strategy	Non-export	Export	1	2	3	4	5	6	7	8	9	10	11
1	low tax, low incentive	low tax, low incentive	58.82	5.88	0	0	29.41	0	5.88	0	0	0	0
2	high tax, low incentive	low tax, low incentive	0	25	0	25	0	50	0	0	0	0	0
3	low tax, high incentive	low tax, low incentive	100	0	0	0	0	0	0	0	0	0	0
4	high tax, low incentive	high tax, low incentive	0	10	0	30	0	0	0	0	40	0	20
5	low tax, low incentive	low tax, high incentive	13.04	0	0	0	73.91	2.17	0	0	10.87	0	0
6	high tax, low incentive	low tax, high incentive	0	0	0	7.14	7.14	64.29	0	0	21.43	0	0
7	low tax, high incentive	low tax, high incentive	12.5	0	12.5	0	0	0	37.5	25	0	0	12.5
8	high tax, high incentive	low tax, high incentive	0	0	0	0	0	0	0	0	0	0	100
9	high tax, low incentive	high tax, high incentive	0	2.38	0	4.76	11.9	9.52	0	0	64.29	0	7.14
10	low tax, high incentive	high tax, high incentive	0	0	0	0	0	0	100	0	0	0	0
11	high tax, high incentive	high tax, high incentive	0	0	0	5	0	10	5	5	10	0	65
Total			10.91	2.42	0.61	4.85	27.27	10.91	3.64	1.82	24.85	0	12.73
12	high tax, high incentive	low tax, low incentive											
13	low tax, low incentive	high tax, low incentive											
14	low tax, high incentive	high tax, low incentive											
15	high tax, high incentive	high tax, low incentive											
16	low tax, low incentive	high tax, high incentive											

Notes: The table presents the % probability of transitioning from one statutory policy strategy to another. Five combinations of potential export and non-export strategies do not appear in the data during the analysis period and therefore do not appear in the transition matrix. They are reported at the end of the table for completeness.

Table 6: Statutory Policy Groups and Megadeals

Statutory Policy Strategy	Non-export	Export	No Megadeals		At least one Megadeal		Total
			Count	Percentage	Count	Percentage	
1	low tax, low incentive	low tax, low incentive	14	70.00%	6	30.00%	20
2	high tax, low incentive	low tax, low incentive	4	80.00%	1	20.00%	5
3	low tax, high incentive	low tax, low incentive	1	100.00%	0	0.00%	1
4	high tax, low incentive	high tax, low incentive	6	66.67%	3	33.33%	9
5	low tax, low incentive	low tax, high incentive	18	32.73%	37	67.27%	55
6	high tax, low incentive	low tax, high incentive	6	31.58%	13	68.42%	19
7	low tax, high incentive	low tax, high incentive	7	77.78%	2	22.22%	9
8	high tax, high incentive	low tax, high incentive	0	0.00%	3	100.00%	3
9	high tax, low incentive	high tax, high incentive	17	33.33%	34	66.67%	51
10	low tax, high incentive	high tax, high incentive	1	100.00%	0	0.00%	1
11	high tax, high incentive	high tax, high incentive	6	31.58%	13	68.42%	19
Total			80	41.67%	112	58.33%	192

Source: PDIT, Good Jobs First Megadeal Subsidy Tracker, and authors calculations.

I next combine the statutory policy strategy groups in Table 5 with information on whether the state awarded a megadeal within the last five years. Table 6 provides the count of state-years by megadeal status for each statutory strategy group. In general, state-years with statutory policies, including high export incentives, are more likely to have awarded at least one megadeal within the last five years. Conversely, state-years that do not offer high incentives as part of their export strategy are more likely to have not participated in a megadeal.

Finally, I assign each state-year to a quartile of that year's total own direct education spending per capita. I combine the statutory policy group, megadeal participation group, and education expenditure per capita quartile to form economic development strategy groups. The result is 128 (12x2x4) possible economic development strategy groups, of which 55 appear across 192 state-year combinations.[1]

5. STRATEGY GROUPS AND GROWTH

This section examines the relationship between economic development strategies and states' real GDP per capita.

Table 7 reports select results obtained by estimating:

$$y_{it} = \textit{Economic Development Strategy}_{it} + \gamma_i + \mu_t + \varepsilon_{it}, \tag{1}$$

where *Economic Development Strategy* is a vector of indicator variables for the 55 economic development strategies that appear in the data. The outcome variable y_{it} is real GDP per capita. γ_i and μ_t are vectors of state and time fixed effects, respectively. The state fixed effects ensure that the regression captures deviations from states' mean GDP per capita.

Economic development strategies are the combination of statutory policy strategy group, megadeal participation, and education spending quartile. To ease interpretation, the tables

[1]There are 88 possible economic development strategy groups when considering only the 11 statutory policy groups observed in the data.

report these components separately for each economic development strategy. The coefficients should therefore be interpreted as the estimated effect of an economic development strategy characterized by the combination of strategy elements reported in the table. The omitted strategy consists of first quartile education spending, low tax-low incentive export and non-export strategies, and no megadeals.

Table 7 reports the change in real GDP per capita associated with economic development strategies in descending order, with estimates indistinguishable from zero omitted. Full results are provided in Appendix Table A2.

The most striking finding is that all strategies associated with positive changes in GDP feature education spending in the higher quartiles. The five strongest coefficients are obtained from strategies in the highest education spending per capita quartile. On the other hand, negative GDP per capita effects are associated with the lowest spending per capita quartile. Interestingly, the high education spending per capita is not necessarily being funded by high industry taxes. The top 9 strategies include low export taxes with a mix of export incentives. All but two of these also have low non-export taxes. Megadeals do not appear to be a defining feature of positive effects either, with 11 out of 23 positive estimates associated with strategies that did not include a megadeal in the last five years.

To further investigate, I estimate the following:

$$\Delta y_{it} = \textit{Economic Development Strategy}_{(it-1)} + \gamma_i + \mu_t + \varepsilon_{it}, \tag{2}$$

where Δy_{it} is the 5-year percent change in real GDP per capita or the 5-year absolute change in GDP per capita. The change is regressed on lagged economic development strategy as well as state and year fixed effects. As before, the elements of economic development strategies with effects distinguishable from zero are reported, with full results available in the Appendix.

Table 8 reports the results for the 5-year percent change in real GDP per capita. Again, there is a mix of strategies associated with growth. All strategies include education spending per capita above the first quartile, although several are in the second quartile. Each strategy with second-quartile education spending also features a low-tax-high-incentive policy for at least one type of industry. Strategies including megadeals are less prevalent than those that do not.

Table 9 repeats the previous exercise with the absolute change in real GDP per capita as the outcome. The only statistically significant strategy consists of third-quartile education spending per capita, low tax-high incentive export policy, high tax-low incentive non-export strategy, and a megadeal.

To delve deeper into which changes drive the results in Tables 8 and 9, I regress (percent) change in real GDP per capita on indicator variables for (lagged) high non-export taxes, export taxes, non-export incentives, export incentives, and awarding a megadeal as well as the total own direct education spending per capita quartile. As before, these regressions include state and year-fixed effects. The results are presented in Table 10.

The estimates in Table 10 indicate that moving to a higher education spending per capita quartile is associated with a higher rate of per capita GDP growth, confirming the notion intimated in earlier results that investments in education are an important part of successful economic development strategies. Megadeals, on the other hand, are associated

Table 7: State Real GDP per Capita and Economic Development Strategy

Economic Development Strategy Elements				
Export Strategy	Non-Export Strategy	Megadeal	Total Ed. Expend. per capita quartile	Estimated Effect of Overall Strategy
low tax, high incentive	high tax, low incentive	1	4	0.848***
low tax, low incentive	low tax, low incentive	1	4	0.504***
low tax, high incentive	low tax, high incentive	0	4	0.410***
low tax, low incentive	high tax, low incentive	0	4	0.403***
low tax, high incentive	low tax, low incentive	1	4	0.398***
low tax, low incentive	low tax, low incentive	0	3	0.327***
low tax, low incentive	low tax, low incentive	0	4	0.326***
low tax, high incentive	low tax, low incentive	0	4	0.322***
low tax, low incentive	low tax, low incentive	1	3	0.317**
high tax, high incentive	high tax, low incentive	1	4	0.309***
low tax, high incentive	low tax, low incentive	1	3	0.267***
high tax, high incentive	high tax, low incentive	0	3	0.265***
low tax, low incentive	high tax, low incentive	0	2	0.265**
high tax, high incentive	high tax, low incentive	0	4	0.257**
low tax, high incentive	low tax, low incentive	0	3	0.249***
low tax, high incentive	high tax, low incentive	0	2	0.242*
high tax, high incentive	high tax, high incentive	1	4	0.235**
high tax, high incentive	high tax, low incentive	1	3	0.230**
high tax, high incentive	high tax, low incentive	0	2	0.207**
high tax, low incentive	high tax, low incentive	0	3	0.201**
low tax, low incentive	low tax, low incentive	0	2	0.192*
low tax, high incentive	high tax, low incentive	0	3	0.159*
low tax, high incentive	high tax, low incentive	1	2	0.151*
low tax, low incentive	low tax, low incentive	1	1	-0.202*
Observations	188			
R-squared	0.853			

Notes: The table reports the estimated effect of economic development strategies on real GDP per capita in descending order, with estimates indistinguishable from zero omitted. Full results are provided in Appendix Table A2. Estimates are obtained by regressing state real GDP per capita on economic development strategy indicators, state and year fixed effects. Columns report the elements that are combined to form each economic development strategy.

with lower economic growth rates – perhaps, because they are also associated with lower higher education spending per capita. However, megadeals are part of growth-enhancing strategies in Tables 8 and 9 when coupled with higher quartile education spending per capita. Similarly to megadeals, high non-export incentives are associated with lower changes in real GDP per capita in Table 10 and lower education spending per capita in Table 2, but are associated with GDP per capita growth when paired with specific other policies.

Table 8: Percent Change in States' Real GDP per Capita and Overall Economic Development Strategy

Economic Development Strategy Elements				
Export Strategy	Non-Export Strategy	Megadeal	Total Ed. Expend. per capita quartile	Estimated Effect of Overall Strategy
low tax, low incentive	low tax, high incentive	0	2	0.329***
				(0.0835)
low tax, high incentive	low tax, high incentive	1	2	0.260**
				(0.110)
high tax, high incentive	low tax, high incentive	0	2	0.258**
				(0.111)
high tax, high incentive	high tax, low incentive	0	4	0.236***
				(0.0885)
low tax, high incentive	low tax, high incentive	0	2	0.213***
				(0.0728)
high tax, high incentive	high tax, high incentive	0	4	0.211*
				(0.108)
low tax, high incentive	high tax, high incentive	1	2	0.186*
				(0.110)
high tax, high incentive	high tax, high incentive	1	3	0.170**
				(0.0806)
Observations	160			
R-squared	0.969			

Notes: The table reports the estimated effect of lagged economic development strategies on the 5-year percent change in states' real GDP per capita, with estimates indistinguishable from zero omitted. Full results are provided in Appendix Table A3. Estimates are obtained by regressing the 5-year percent change in state real GDP per capita on lagged economic development strategy indicators, state and year fixed effects. Columns report the elements that are combined to form each economic development strategy.

Table 9: Change in states' real GDP per capita and overall economic development strategy

Economic Development Strategy Elements				
Export Strategy	Non-Export Strategy	Megadeal	Total Ed. Expend. per capita quartile	Estimated Effect of Overall Strategy
low tax, high incentive	high tax, low incentive	1	3	1.240***
				(0.210)
Observations	156			
R-squared	0.707			

Notes: The table reports the estimated effect of lagged economic development strategies on the 5-year change in states' real GDP per capita, with estimates indistinguishable from zero omitted. Full results are provided in Appendix Table A4. Estimates are obtained by regressing the 5-year change in state real GDP per capita on lagged economic development strategy indicators, state and year fixed effects. Columns report the elements that are combined to form each economic development strategy.

Table 10: Changes in States' Real GDP and Strategy Components

	(1) %Δ Real GDP per capita	(2) Δ Real GDP per capita
High tax non-exports	0.0269	0.0212
	(0.0281)	(0.0635)
High tax exports	-0.0188	-0.0901
	(0.0234)	(0.0553)
High incentives non-exports	0.0354	-0.118**
	(0.0262)	(0.0573)
High incentives exports	0.0107	0.0440
	(0.0213)	(0.0466)
Total Ed. Direct Expend. Quartile	0.0268**	0.0402
	(0.0123)	(0.0274)
Megadeal	-0.0395**	0.00152
	(0.0160)	(0.0349)
R-squared	0.948	0.423

Notes: The table reports the results from 2 separate regressions. The outcomes in Columns 1 and 2 are percent change in real GDP per capita and change in real GDP per capita, respectively. The variables of interest are indicator variables for high non-export taxes, export taxes, non-export incentives, export incentives, and awarding a megadeal as well as the total own direct education spending per capita quartile, state, and year fixed effects.

6. CONCLUSIONS

We know state and local governments make tradeoffs among policy priorities when allocating scarce resources. The final mix of policies and tradeoffs interact – sometimes in supporting ways and other times in competing ways. This is true, if not more so, for economic development strategies involving foregone revenue and direct spending. However, we rarely consider the tradeoffs and overall policy mix when evaluating the outcomes of economic development policies.

Herein, I have presented rudimentary evidence of the tradeoffs between different components of an economic development strategy. I have also documented the tremendous variation in the policy mix across states and over time. By utilizing these elements to form economic development strategy groups, I have shown that while certain growth-enhancing strategies share common themes, the specific combination of strategies is crucial. Is the tradeoff between incentives and education spending? Or is it between revenue generation from export versus non-export industries? The answer matters, and I hope I have inspired some regional scientists to think much harder about how to incorporate the idea of tradeoffs and policy mix into our research.

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APPENDIX

Table A1: Real GDP per capita and economic development strategy

Overall Strategy	Economic Development Strategy Elements				Estimated Effect of Overall Strategy
	Export Strategy	Non-Export Strategy	Megadeal	Total Ed.Expend. per capita quartile	
2	low tax, low incentive	low tax, low incentive	0	2	0.192*
					(0.101)
3	low tax, low incentive	low tax, low incentive	0	3	0.327***
					(0.105)
4	low tax, low incentive	low tax, low incentive	0	4	0.326***
					(0.103)
5	low tax, low incentive	low tax, low incentive	1	1	-0.202*
					(0.104)
6	low tax, low incentive	low tax, low incentive	1	2	0.15
					(0.116)
7	low tax, low incentive	low tax, low incentive	1	3	0.317**
					(0.133)
8	low tax, low incentive	low tax, low incentive	1	4	0.504***
					(0.11)
9	low tax, low incentive	high tax, low incentive	0	2	0.265**
					(0.109)
10	low tax, low incentive	high tax, low incentive	0	4	0.403***
					(0.14)
11	low tax, low incentive	high tax, low incentive	1	2	0.079
					(0.145)
12	low tax, low incentive	low tax, high incentive	0	2	0.0405
					(0.104)
13	high tax, low incentive	high tax, low incentive	0	2	0.165
					(0.101)
14	high tax, low incentive	high tax, low incentive	0	3	0.201**
					(0.0947)
15	high tax, low incentive	high tax, low incentive	0	4	0.214
					(0.13)
16	high tax, low incentive	high tax, low incentive	1	1	0.16
					(0.111)
17	high tax, low incentive	high tax, low incentive	1	4	0.213
					(0.131)
18	low tax, high incentive	low tax, low incentive	0	1	0.0575
					(0.0912)
19	low tax, high incentive	low tax, low incentive	0	2	0.0801
					(0.0916)
20	low tax, high incentive	low tax, low incentive	0	3	0.249***
					(0.0891)
21	low tax, high incentive	low tax, low incentive	0	4	0.322***
					(0.0884)
22	low tax, high incentive	low tax, low incentive	1	1	0.0327
					(0.082)
23	low tax, high incentive	low tax, low incentive	1	2	0.0995
					(0.093)
24	low tax, high incentive	low tax, low incentive	1	3	0.267***
					(0.0853)
25	low tax, high incentive	low tax, low incentive	1	4	0.398***
					(0.0838)
26	low tax, high incentive	high tax, low incentive	0	1	0.12
					(0.127)
27	low tax, high incentive	high tax, low incentive	0	2	0.242*
					(0.129)
28	low tax, high incentive	high tax, low incentive	0	3	0.159*
					(0.0949)
29	low tax, high incentive	high tax, low incentive	1	1	0.0588
					(0.105)
30	low tax, high incentive	high tax, low incentive	1	2	0.151*
					(0.0899)

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Table A1 – Continued

31	low tax, high incentive	high tax, low incentive	1	3	-0.07
					(0.103)
32	low tax, high incentive	high tax, low incentive	1	4	0.848***
					(0.0973)
33	low tax, high incentive	low tax, high incentive	0	1	-0.0451
					(0.0853)
34	low tax, high incentive	low tax, high incentive	0	2	0.0661
					(0.0891)
35	low tax, high incentive	low tax, high incentive	0	4	0.410***
					(0.122)
36	low tax, high incentive	low tax, high incentive	1	1	-0.112
					(0.135)
37	low tax, high incentive	low tax, high incentive	1	2	0.0867
					(0.135)
38	low tax, high incentive	high tax, high incentive	1	1	-0.128
					(0.0988)
39	low tax, high incentive	high tax, high incentive	1	2	0.0911
					(0.134)
40	high tax, high incentive	high tax, low incentive	0	1	0.0646
					(0.085)
41	high tax, high incentive	high tax, low incentive	0	2	0.207**
					(0.0933)
42	high tax, high incentive	high tax, low incentive	0	3	0.265***
					(0.0895)
43	high tax, high incentive	high tax, low incentive	0	4	0.257**
					(0.104)
44	high tax, high incentive	high tax, low incentive	1	1	0.0742
					(0.083)
45	high tax, high incentive	high tax, low incentive	1	2	0.114
					(0.0903)
46	high tax, high incentive	high tax, low incentive	1	3	0.230**
					(0.0896)
47	high tax, high incentive	high tax, low incentive	1	4	0.309***
					(0.0885)
48	high tax, high incentive	low tax, high incentive	0	2	0.0895
					(0.135)
49	high tax, high incentive	high tax, high incentive	0	1	0.0363
					(0.0946)
50	high tax, high incentive	high tax, high incentive	0	3	0.157
					(0.106)
51	high tax, high incentive	high tax, high incentive	0	4	0.206
					(0.13)
52	high tax, high incentive	high tax, high incentive	1	1	-0.00906
					(0.0827)
53	high tax, high incentive	high tax, high incentive	1	2	-0.0314
					(0.0984)
54	high tax, high incentive	high tax, high incentive	1	3	0.15
					(0.0928)
55	high tax, high incentive	high tax, high incentive	1	4	0.235**
					(0.109)
Constant					0.0555
					(0.0735)
Observations					188
R-squared					0.853

Table A2: Percent change in states' real GDP per capita and overall economic development strategy

Overall Strategy	Economic Development Strategy Elements				Estimated Effect of Overall Strategy
	Export Strategy	Non-Export Strategy	Megadeal	Total Ed.Expend. per capita quartile	
2	low tax, low incentive	low tax, low incentive	0	2	-0.0946
					(0.0977)
3	low tax, low incentive	low tax, low incentive	0	3	0.0391
					(0.0969)
4	low tax, low incentive	low tax, low incentive	0	4	-0.0137
					(0.103)
6	low tax, low incentive	low tax, low incentive	1	2	-0.105
					(0.106)
7	low tax, low incentive	low tax, low incentive	1	3	-0.0798
					(0.117)
8	low tax, low incentive	low tax, low incentive	1	4	0.119
					(0.144)
9	low tax, low incentive	high tax, low incentive	0	2	0.0299
					(0.0942)
10	low tax, low incentive	high tax, low incentive	0	4	0.0924
					(0.144)
12	low tax, low incentive	low tax, high incentive	0	2	0.329***
					(0.0835)
13	high tax, low incentive	high tax, low incentive	0	2	-0.0259
					(0.086)
14	high tax, low incentive	high tax, low incentive	0	3	0.0968
					(0.079)
15	high tax, low incentive	high tax, low incentive	0	4	0.125
					(0.111)
16	high tax, low incentive	high tax, low incentive	1	1	-0.0389
					(0.107)
17	high tax, low incentive	high tax, low incentive	1	4	0.127
					(0.111)
18	low tax, high incentive	low tax, low incentive	0	1	0.00117
					(0.0751)
19	low tax, high incentive	low tax, low incentive	0	2	-0.0692
					(0.0814)
20	low tax, high incentive	low tax, low incentive	0	3	0.00624
					(0.0801)
21	low tax, high incentive	low tax, low incentive	0	4	0.00906
					(0.0834)
22	low tax, high incentive	low tax, low incentive	1	1	-0.065
					(0.0688)
23	low tax, high incentive	low tax, low incentive	1	2	-0.137
					(0.086)
24	low tax, high incentive	low tax, low incentive	1	3	-0.0085
					(0.083)
25	low tax, high incentive	low tax, low incentive	1	4	-0.0387
					(0.0834)
26	low tax, high incentive	high tax, low incentive	0	1	0.0842
					(0.105)
27	low tax, high incentive	high tax, low incentive	0	2	0.121
					(0.109)
28	low tax, high incentive	high tax, low incentive	0	3	0.105
					(0.0795)
29	low tax, high incentive	high tax, low incentive	1	1	-0.0911
					(0.105)
30	low tax, high incentive	high tax, low incentive	1	2	0.00412
					(0.0751)
31	low tax, high incentive	high tax, low incentive	1	3	0.0173
					(0.103)
32	low tax, high incentive	high tax, low incentive	1	4	-0.0429
					(0.0699)
34	low tax, high incentive	low tax, high incentive	0	2	0.213***
					(0.0728)

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Table A2 – Continued

35	low tax, high incentive	low tax, high incentive	0	4	0.13
					(0.134)
37	low tax, high incentive	low tax, high incentive	1	2	0.260**
					(0.11)
38	low tax, high incentive	high tax, high incentive	1	1	-0.0134
					(0.0946)
39	low tax, high incentive	high tax, high incentive	1	2	0.186*
					(0.11)
40	high tax, high incentive	high tax, low incentive	0	1	0.0168
					(0.0697)
41	high tax, high incentive	high tax, low incentive	0	2	0.0322
					(0.086)
42	high tax, high incentive	high tax, low incentive	0	3	0.0528
					(0.0789)
43	high tax, high incentive	high tax, low incentive	0	4	0.236***
					(0.0885)
44	high tax, high incentive	high tax, low incentive	1	1	-0.0345
					(0.0684)
45	high tax, high incentive	high tax, low incentive	1	2	0.0357
					(0.0804)
46	high tax, high incentive	high tax, low incentive	1	3	0.0311
					(0.0825)
47	high tax, high incentive	high tax, low incentive	1	4	-0.0699
					(0.0807)
48	high tax, high incentive	low tax, high incentive	0	2	0.258**
					(0.111)
49	high tax, high incentive	high tax, high incentive	0	1	-0.0203
					(0.0778)
50	high tax, high incentive	high tax, high incentive	0	3	0.111
					(0.0878)
51	high tax, high incentive	high tax, high incentive	0	4	0.211*
					(0.108)
52	high tax, high incentive	high tax, high incentive	1	1	-0.0354
					(0.0675)
53	high tax, high incentive	high tax, high incentive	1	2	-0.000409
					(0.0851)
54	high tax, high incentive	high tax, high incentive	1	3	0.170**
					(0.0806)
55	high tax, high incentive	high tax, high incentive	1	4	0.124
					(0.0927)
Constant					0.0957
					(0.0625)
Observations					160
R-squared					0.969

Table A3: Change in states' real GDP per capita and overall economic development strategy

Overall Strategy	Economic Development Strategy Elements				(2)
	Export Strategy	Non-Export Strategy	Megadeal	Total Ed.Expend. per capita quartile	Estimated Effect of Overall Strategy
2	low tax, low incentive	low tax, low incentive	0	2	0.236
					(0.199)
3	low tax, low incentive	low tax, low incentive	0	3	0.117
					(0.197)
4	low tax, low incentive	low tax, low incentive	0	4	0.241
					(0.209)
6	low tax, low incentive	low tax, low incentive	1	2	0.252
					(0.214)
7	low tax, low incentive	low tax, low incentive	1	3	-0.106
					(0.238)
8	low tax, low incentive	low tax, low incentive	1	4	0.25
					(0.292)
9	low tax, low incentive	high tax, low incentive	0	2	0.0997
					(0.192)
10	low tax, low incentive	high tax, low incentive	0	4	-0.03
					(0.291)
12	low tax, low incentive	low tax, high incentive	0	2	0.0749
					(0.169)
13	high tax, low incentive	high tax, low incentive	0	2	0.0795
					(0.174)
14	high tax, low incentive	high tax, low incentive	0	3	0.0118
					(0.161)
15	high tax, low incentive	high tax, low incentive	0	4	0.0149
					(0.224)
16	high tax, low incentive	high tax, low incentive	1	1	0.00265
					(0.236)
17	high tax, low incentive	high tax, low incentive	1	4	-0.219
					(0.226)
18	low tax, high incentive	low tax, low incentive	0	1	0.0277
					(0.153)
19	low tax, high incentive	low tax, low incentive	0	2	0.233
					(0.165)
20	low tax, high incentive	low tax, low incentive	0	3	0.0793
					(0.163)
21	low tax, high incentive	low tax, low incentive	0	4	0.141
					(0.169)
22	low tax, high incentive	low tax, low incentive	1	1	0.174
					(0.142)
23	low tax, high incentive	low tax, low incentive	1	2	0.254
					(0.175)
24	low tax, high incentive	low tax, low incentive	1	3	0.0816
					(0.169)
25	low tax, high incentive	low tax, low incentive	1	4	0.0412
					(0.17)
26	low tax, high incentive	high tax, low incentive	0	1	0.0563
					(0.215)
27	low tax, high incentive	high tax, low incentive	0	2	0.149
					(0.222)
28	low tax, high incentive	high tax, low incentive	0	3	-0.0315
					(0.17)
30	low tax, high incentive	high tax, low incentive	1	2	0.0172
					(0.164)
31	low tax, high incentive	high tax, low incentive	1	3	1.240***
					(0.21)
32	low tax, high incentive	high tax, low incentive	1	4	0.0522
					(0.142)
34	low tax, high incentive	low tax, high incentive	0	2	0.0443
					(0.147)
35	low tax, high incentive	low tax, high incentive	0	4	0.245
					(0.271)

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Table A3 – Continued

37	low tax, high incentive	low tax, high incentive	1	2	-0.233
					(0.224)
38	low tax, high incentive	high tax, high incentive	1	1	0.0798
					(0.191)
39	low tax, high incentive	high tax, high incentive	1	2	0.0128
					(0.222)
40	high tax, high incentive	high tax, low incentive	0	1	0.0122
					(0.142)
41	high tax, high incentive	high tax, low incentive	0	2	0.0214
					(0.175)
42	high tax, high incentive	high tax, low incentive	0	3	0.055
					(0.161)
43	high tax, high incentive	high tax, low incentive	0	4	0.0623
					(0.179)
44	high tax, high incentive	high tax, low incentive	1	1	0.0802
					(0.143)
45	high tax, high incentive	high tax, low incentive	1	2	0.0341
					(0.164)
46	high tax, high incentive	high tax, low incentive	1	3	0.0386
					(0.168)
47	high tax, high incentive	high tax, low incentive	1	4	-0.0466
					(0.165)
48	high tax, high incentive	low tax, high incentive	0	2	0.0162
					(0.225)
49	high tax, high incentive	high tax, high incentive	0	1	-0.0382
					(0.158)
50	high tax, high incentive	high tax, high incentive	0	3	0.0997
					(0.178)
51	high tax, high incentive	high tax, high incentive	0	4	0.0958
					(0.219)
52	high tax, high incentive	high tax, high incentive	1	1	-0.045
					(0.138)
53	high tax, high incentive	high tax, high incentive	1	2	0.0554
					(0.172)
54	high tax, high incentive	high tax, high incentive	1	3	-0.0185
					(0.163)
55	high tax, high incentive	high tax, high incentive	1	4	0.0509
					(0.187)
Constant					0.157
					(0.129)
Observations					156
R-squared					0.707