



DOES STATE  
INFRASTRUCTURE  
SPENDING  
ATTRACT  
BUSINESS  
RELOCATION?

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Growth and state-local infrastructure spending

Growth and types of public infrastructure

Roles of economic bases

Is there any effect of state-local capital spending on business establishments by infrastructure type and industry classification?

# RESEARCH GAPS & QUESTIONS



Srithongrung (2008), Gemmell & Kneller(2013), Srithongrung & Kriz (2014): Impacts of state-local capital spending on local output and income growth



Bayraktar & Dodson (2015): impacts of capital sending by economic situation



Holmgren & Merkel (2017): impacts of capital spending by infrastructure type

LITERATURE

Holl (2004): Firm birth modeling

- ▶ Profit: Transportation VS business agglomeration
- ▶ Labor market quality

$$\begin{aligned} Est_{i,t} &= a + b_1 \ln pop_{i,t} + b_2 \ln hwy_{i,t} + b_3 \ln ex_{i,t} + b_4 bach_{i,t} + b_5 \ln totwage_{i,t} \\ &+ + b_6 \ln edcap_{i,t} + b_7 \ln trancap_{i,t} + + b_8 \ln envicap_{i,t} + b_9 \ln utilcap_{i,t} \\ &+ b_{10} herfin_{i,t} + \sum_{j=1}^{16} b_{11} LQ_{i,t} + \sum_{k=1}^{49} b_{12} S_t + \sum_{t=2004}^{2016} b_{13} T_i + e_{i,t} \end{aligned}$$

MODEL

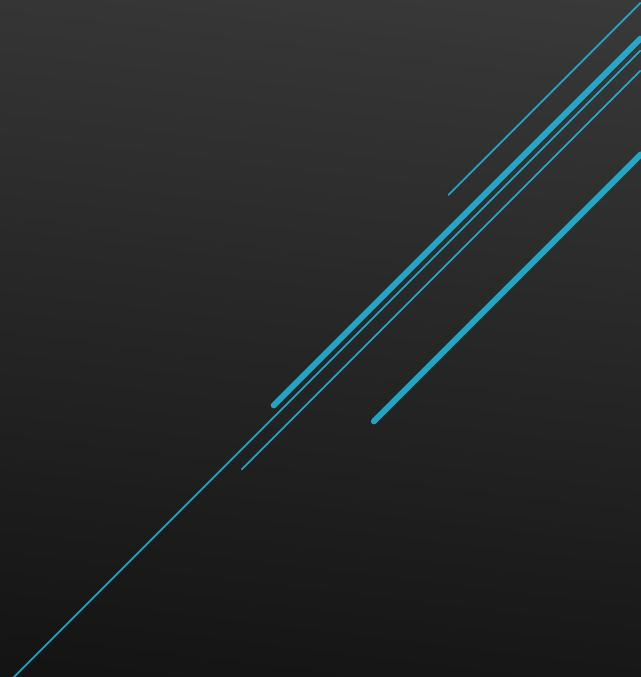
		Average	Std. Deviation	Min.	Max.	Obs.
Population	$lnpop_{i,t}$	3,920,000	680,880	509,106	6,159,770	650
Highway mileage	$lnhwy_{i,t}$	81,423	53,559	4,318	313,656	650
Export value (\$ Million, 1985 Value)	$lnex_{i,t}$	111	166	2	1220	650
Ratio of Bachelor Degree Population	$bach_{i,t}$	.19	.03	.11	.27	650
Total wage (\$ Thousand, 1985 value)	$lntotwage_{i,t}$	6,010,000	7,190,000	4,496,389	46,300,000	650
State and local edu. capital spending (\$ Thousand, 1985)	$lnedcap_{i,t}$	777,714	1,030,232	14,842	7,020,294	650
State and local tran. capital spending (\$ Thousand, 1985)	$lntrancap_{i,t}$	765,062	789,355	44,938	4,904,416	650
State and local envi. capital spending (\$ Thousand, 1985)	$lnenvicap_{i,t}$	306,789	424,355	1,897	2,922,165	650
State and local util. capital spending (\$ Thousand, 1985)	$lnutilcap_{i,t}$	389,108	743,969	0	5,456,024	650
Herfindahl index for economic diversity	$herfin_{i,t}$	544	1,133	7	8,911	650

## SUMMARY STATISTICS

## PRILIMINARY RESULTS: TWO-WAY FIXED EFFECTS WITH ADJUSTED AUTOCORRELATION

Independent var.: log establishment in industry	Inpop	Inhwy	Inexport	bachelor	Intotalwa ge	Inedcap	Intrancap	Inenvica p	Inutilcap	herfin	LQ	Adj. R <sup>2</sup>
21: MINING, OIL & GAS EXTRACTION	-0.46	0.05	0.08	-2.06	0.84	-0.001	-0.03	0.01	-0.007	-25.47	21,55	0.82
22: UTILITIES	0.55	-0.08	0.01	0.97	-0.09	-0.04	0.016	0.003	0.004	-1.32	61	0.89
<b>23: CONSTRUCTION</b>	-0.44	-0.7	-0.005	-0.76	0.93	<b>0.03</b>	-0.001	0.003	-0.003	1.72	none	0.85
<b>31-33: MANUFACTURING</b>	0.27	-0.09	0.03	-0.72	0.285	<b>0.02</b>	-0.01	0	-0.004	0.87	4445	0.96
42: WHOLESALE TRADE	0.46	-0.05	0.009	-0.49	0.13	0.006	0.002	-0.004	0	-0.046	none	0.95
<b>44-45: RETAIL TRADE</b>	0.5	-0.06	0.01	-0.55	0.14	<b>0.008</b>	-0.002	0.001	-0.002	2.96	62	0.97
48-49: TRANSP. & WAREHOUSE.	-0.22	-0.04	0.01	-0.24	-0.67	0	0.0004	0.002	-0.001	1.75	54	0.97
51: INFORMATION	0.27	-0.14	0.009	-0.087	0.27	0.01	-0.03	0.003	-0.003	4.27	61	0.95
<b>52: FINANCE AND INSURANCE</b>	0.34	-0.09	0.003	-0.8	0.26	<b>0.02</b>	-0.008	-0.001	-0.004	1.067	4445	0.97
53: REAL ESTATE, RENTAL AND LEASING	-0.15	-0.21	-0.02	-0.41	0.74	0.012	-0.014	0	-0.002	8.89	none	0.97
54: PROFESSIONAL, SCIENTIFIC, TECH. SERVICES	0.47	-0.186	0	-0.135	0.234	0.002	0.007	0.002	-0.001	2.09	none	0.99
55: MGNT OF COMPANIES/ENTERPRISES	0.47	-0.37	0.02	<b>0.61</b>	0.22	0.011	-0.013	-0.001	-0.002	-2.9	none	0.88
<b>56: ADMIN. SUPPORT SERVICES</b>	0.46	-0.3	0.01	<b>0.24</b>	0.28	0	-0.001	-0.001	<b>0.002</b>	0.89	56	0.99
<b>61: EDUCATIONAL SERVICES</b>	0.53	-0.3	0.014	<b>1.19</b>	0.131	-0.008	-0.002	-0.007	<b>0.005</b>	4.15	51	0.96
62: HEALTH CARE, SOCIAL ASSISTANCE	0.61	-0.15	-0.002	<b>0.25</b>	0.1	0.001	-0.007	-0.002	-0.0002	3.67	23, 4849	0.98
71: ARTS, ENTERTAINMENT, RECREATION	0.32	-0.14	-0.12	<b>0.45</b>	0.22	0.001	-0.008	0.002	-0.0007	6.42	21, 23	0.98

# DISCUSSION

- ▶ State-local government spending on **educational projects** attracts new firms in **construction, manufacturing, retails** and **finance** and **insurance**.
  - ▶ State-local government spending on **utility projects** attracts new firms in **administrative support** and **educational services**.
  - ▶ **Dispersion industry:** Mining industry – transportation cost is important; this is proved by significant and negative coefficient of Herfindahl index and significant and positive coefficient of highway stocks.
  - ▶ **Agglomeration industries:** Real estate, healthcare and art & entertainment (highways stock coefficient is negative and significant while Herfindahl index coefficient is positive and significant).
  - ▶ **Human capital industries:** the coefficients of the bachelor's degree variables are significant and positive in the following equations: Management, Administrative Support, Education Services, Healthcare, and Arts and Entertainment.
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- ▶ Methodology: autocorrelation is not completely solved
- ▶ Unit roots and cointegration seem to create “wrong signs” on highway stock and Herfindahl index

## IMPROVEMENT POINTS

