BUS RAPID TRANSIT AND OFFICE RENTS

If so, do they vary by type of transit mode?

RESEARCH PERSPECTIVE

Bus rapid transit (BRT) systems may become a dominant form of fixed guide public transportation in the next few decades.

In theory, BRT systems should command a market rent premium. There is no research measuring whether and the extent to which that premium is revealed in the market.

RESEARCH DESIGN

Hedonic analysis of differences in rent with special reference to being within one-half mile of a BRT corridor

STUDY AREAS

DATA

quarter of 2015

CoStar office rent data for first

- Cleveland
- Eugene-Springfield
- Kansas City
- Las Vegas
- Pittsburgh

MODEL

$\mathbf{R}_{i} = \mathbf{f}(\mathbf{S}_{i}, \mathbf{SM}_{i}, \mathbf{BRT}_{i})$

R is the asking rent per square foot for property *i* . A log-linear model is used allowing the coefficients of the independent variables to be interpreted as the dollar change in asking rent per square foot with respect to a one-unit change in the independent variable. Variables are:

Class A and Class B

Number of Floors

Year Built

Renovated

Vacancy Rate

Acres

Submarket

Acknowledgement and Disclaimer

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Do office, retail and apartment market asking rents include a transit premium?

RESULTS

Table 1: Office Rent Results for Downtown Cleveland, Ohio					
Variable	Beta	Error	t-score	1-tailed	р
	Clev	veland Downtown to Medi	cal Center		
Constant	2.645	20.019	0.132	0.895	
Class A	6.438	1.534	4.196	0.000	*
Class B	2.860	0.753	3.799	0.000	*
Floors	0.101	0.049	2.082	0.020	*
Year Built	-0.003	0.010	-0.286	0.388	
Renovated	0.559	0.741	0.754	0.226	
Vacancy Rate	-0.009	0.011	-0.839	0.202	
Acres	0.183	0.198	0.921	0.180	
BRT <=0.50 mile	2.438	1.141	2.137	0.018	*
Ν	113				
R2 adjusted	0.473				
F-ratio	13.567				

*p <0.10

Findings

- Class A office space commands higher rent than Class B as does the number of floors in an office building.
- Being within one-half mile of the Cleveland HealthLine BRT corridor increases rent by \$2.44 per square foot, ceteris paribus.

Table 2: Office Rent Results for Eugene, Oregon

Variable	Beta	Error	t-score	1-tailed	р
		Eugene-Springfield Line	e		_
Constant	-111.501	50.253	-2.219	0.033	
Class A	-4.549	3.736	-1.218	0.116	
Class B	-4.607	2.414	-1.908	0.033	*
Year Built	-0.067	0.026	-2.595	0.007	*
Renovated	2.47	4.209	0.587	0.281	
Vacancy Rate	-0.047	0.023	-2.056	0.024	*
Acres	0.133	0.119	1.119	0.136	
BRT <=0.50 mile	1.928	1.355	1.423	0.082	*
Ν	41				
R2 adjusted	0.248				
F-ratio	2.883				
R2 adjusted	0.473				
F-ratio	13.567				

*p <0.10

Findings

- Class A and B office space command lower rents than the referent Class C perhaps because the University of Oregon's dominates in the market with low-rise administrative, research and development needs.
- Being with one-half mile of the Emerald Express BRT corridor increases rent by \$1.93 per square foot, ceteris paribus.





Table 3: Office Rent Results for Downtown Kansas City, Missouri

Variable	Beta	Error	t-score	1-tailed p
	Και	nsas City Downtown		
Constant	-12.073	37.039	-0.326	0.745
Class A	5.099	2.017	2.528	0.007 *
Class B	0.44	1.276	0.345	0.366
Floors	-0.045	0.065	-0.69	0.247
Year Built	-0.012	0.019	-0.616	0.27
Renovated	1.828	1.087	1.681	0.049 *
Vacancy Rate	0.006	0.014	0.387	0.35
Acres	0	0.177	0.002	0.499
BRT <= 0.50 mile	2.669	1.728	1.544	0.064 *
Ν	79			
R2 adjusted	0.168			
F-ratio	2.97			

*p <0.10

Findings

- Class A office space commands the highest rents in the market while being in a renovated building also adds to rent.
- Being within one-half mile of the Downtown Max BRT corridor increases rent by \$2.67 per square foot, ceteris paribus.

Table 4: Office Rent Results for Las Vegas, Nevada

Variable	Beta	Error	t-score	1-tailed	р
		Metropolitan Las Vegas	S		
Constant	-194.665	34.952	-5.569	0	
Class A	5.697	1.054	5.404	0	*
Class B	0.536	0.515	1.04	0.149	
Floors	1.16	0.144	8.082	0	*
Year Built	-0.104	0.018	-5.878	0	*
Acres	0.077	0.036	2.151	0.016	*
Central East	0.736	2.562	0.287	0.774	
North LV	-2.547	2.675	-0.952	0.341	
Northwest	2.233	2.582	0.865	0.387	
Outlying NE	-4.183	3.12	-1.341	0.18	
LV-Henderson	-0.572	2.645	-0.216	0.829	
South LV	0.484	2.575	0.188	0.851	
SW LV	1.183	2.585	0.458	0.647	
West LV	-0.004	2.577	-0.002	0.999	
Downtown	0.725	3.057	0.237	0.813	
BRT <= 0.50 mile	4.806	1.534	3.133	0.001	*
Ν	955				
R2 adjusted	0.304				
F-ratio	28.721				

*p <0.10

Findings

- Class A office space commands the highest rents in the market as does the number of floors in a buildin
- Being within one-half mile of the BRT corridor increases rent by \$4.81 per square foot, the highest difference in absolute and percent terms among the case studies, *ceteris paribus*.

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Table 5: Office Rent	Results for Pittsbur	gh, Pennsylvania			
Variable	Beta	Error	t-score	1-tailed	р
		Allegheny County			
Constant	-36.336	15.91	-2.284	0.023	
Class A	8.363	0.785	10.651	0.000	*
Class B	3.384	0.517	6.548	0.000	*
Floors	0.05	0.036	1.401	0.081	*
Year Built	-0.026	0.008	-3.216	0.001	*
Renovated	0.691	0.46	1.501	0.067	*
Vacancy Rate	-0.032	0.008	-4.033	0.000	*
Acres	0.072	0.052	1.379	0.085	*
CBD	-1.74	0.866	-2.008	0.045	*
Monroeville	-1.979	1.139	-1.737	0.083	*
North Pittsburgh	-2.527	0.807	-3.132	0.002	*
NE Pittsburgh	-3.838	1.031	-3.724	0.000	*
Parkway East	-3.156	0.759	-4.156	0.000	*
Parkway West	-1.854	0.832	-2.229	0.026	*
South Pittsburgh	-1.659	0.83	-1.997	0.046	*
West Pittsburgh	-2.641	1.06	-2.492	0.013	*
BRT <= 0.50 mile	1.571	0.736	2.135	0.017	*
Ν	423				
R2 adjusted	0.503				
F-ratio	27.657				

*p <0.10

Findings

- With the nation's (and one of the world's) oldest BRT systems, it appears that the market has fully internalized its benefits.
- Class A office space commands higher rent than Class B as does the number of floors in an office building and whether it has been renovated among other factors.
- Being within one-half mile of the Cleveland HealthLine BRT corridor increases rent by \$1.57 per square foot, ceteris paribus.

Summary

Table 6: Summary of BRT Corridor Location and Office Rents
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System	Downtown and Nearby Centers	Central County
Cleveland	\$2.44	
Eugene-Springfield	\$1.93	
Kansas City	\$2.67	
Las Vegas		\$4.81
<u>Pittsburgh</u>		\$1.57

Findings

- BRT systems are shown based on their downtown focus (Cleveland, Eugene-Springfield, Kansas City) or regional focus (Las Vegas, Pittsburgh).
- In all cases, office rents are higher within one-half mile of BRT corridors, *ceteris paribus*.



