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THE ROLE OF LOCAL RAILWAY SERVICES ON HOUSING VALUE: EVIDENCE FROM ITALY

di

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Introduction

Small towns are suffering from a loss of inhabitants due to concentration of commercial and industrial activities nearby the main cities (Bonifazi and Heins, 2001).

The real estate market in the small towns is consequently suffering of a lack of demand and an excessive supply that cause a significant increase of the time on the market for both the ownership and the renting sector (Banca d'Italia, 2017).

Introduction

The recovery of the minor towns and municipalities may be supported by a local railway policy that increases the attractiveness of buying or renting houses outside the main cities and reduces the cost and the time necessary for commuting every day (Berechman and Paaswell, 1983).

Research question:

What are the main features of the local railway service having an higher impact on the housing value?



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Literature review

Real estate market and local railways

Topic	Reference
Local railways and market attractiveness	Debrezion, Pels e Rietveld, 2007
Local railways and commercial activities	Boarnet e Compin, 1999
Local railways and negative externalities	Seo, Golub e Kuby, 2014
Local railways and social issues	Ihlanfeldt, 2003

Literature review

Real estate values and local railways

Topic	Reference
Local railways and residential real estate	Billings, 2011
Local railways and commercial real estate	Cervero, 1984
Local railways and real estate quality standards	Zhong e Li, 2016

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Empirical analysis - Sample

Municipalities with local railway services in Lazio

Size (km ²)	n	%	Population density	N	%
Up to 10 km ²	2	2.00%	Up to 100 Inhabitants / km ²	21	21.00%
10 < km ² <50	54	54.00%	100 < Inhabitants / km ² <500	59	59.00%
50 < km ² <100	24	24.00%	500 < Inhabitants / km ² <1000	13	13.00%
100 < km ² <150	11	11.00%	1000 < Inhabitants / km ² <2000	5	5.00%
Over 150 km ²	9	9.00%	Over 2000 Inhabitants / km ²	2	2.00%

Municipalities in Lazio

Size (km ²)	n	%	Population density	N	%
Up to 10 km ²	27	7.14%	Up to 100 Inhabitants / km ²	182	48.15%
10 < km ² <50	261	69.05%	100 < Inhabitants / km ² <500	165	43.65%
50 < km ² <100	56	14.81%	500 < Inhabitants / km ² <1000	20	5.29%
100 < km ² <150	20	5.29%	1000 < Inhabitants / km ² <2000	9	2.38%
Over 150 km ²	14	3.70%	Up to 100 Inhabitants / km ²	2	0.53%

Empirical analysis - Sample

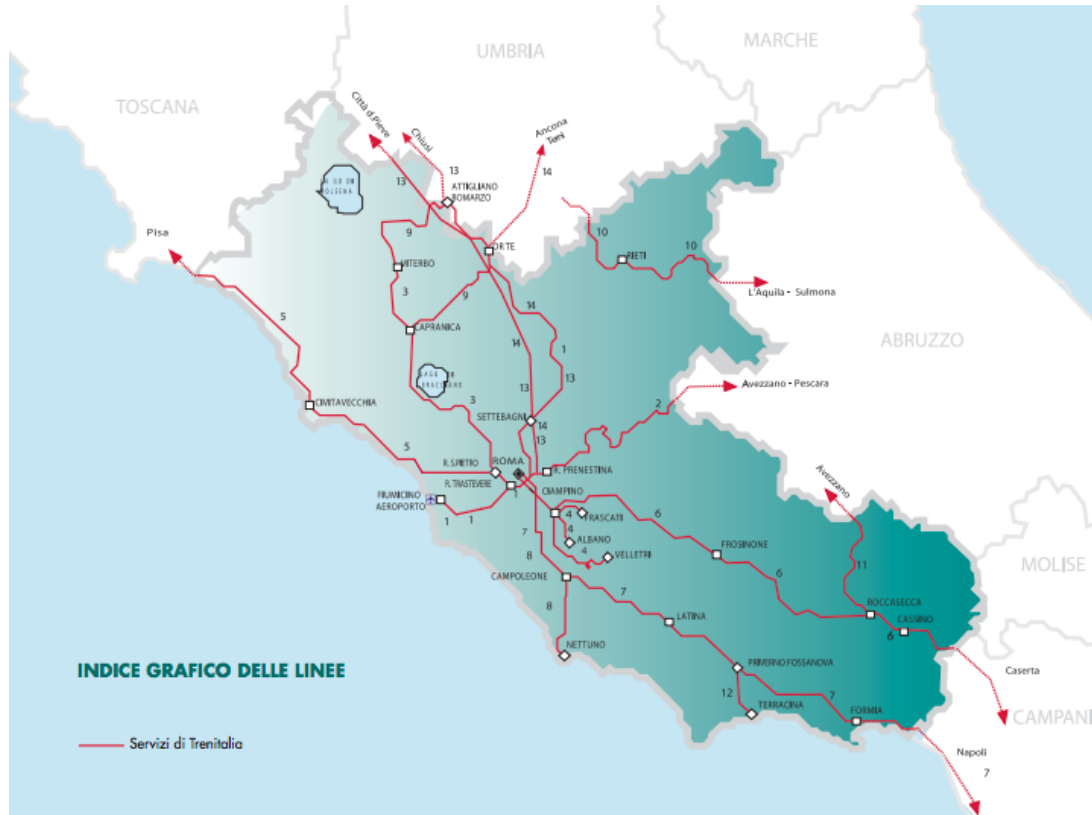


Ownership market					
Price / m ²	Overall	Central	Semi-central	Suburbs	Out of the city
Economic	1293.62	1259.21	1172.50	1311.46	1355.71
Standard	1360.40	1316.44	1346.28	1302.38	1523.60
Villas	1583.19	1614.38	1483.68	1527.45	1696.48
Renting market					
Rent / m ²	Overall	Central	Semi-central	Suburbs	Out of the city
Economic	4.78	4.63	4.64	4.77	5.01
Standard	5.52	5.36	5.37	5.37	5.95
Villas	6.66	7.30	5.83	6.63	6.58



Time period: 2006-2016
Frequency: Half year

Empirical analysis - Sample



Trains	
ARC	FL5
FL1	FL6
FL2	FL7
FL3	FL8
FL4A	TLS
FL4F	TPF
FL4V	VOCS

Empirical analysis - Methodology

$$Price_{it}^{m^2} = \alpha_t + \sum_{k=1}^n \beta_k^P F_{it} + \varepsilon_{it}$$

$$Rent_{it}^{m^2} = \alpha_t + \sum_{k=1}^n \beta_k^C F_{it} + \varepsilon_{it}$$

Location

Quality standards

Refurbishments

Type of building

Empirical analysis - Methodology

$$\text{Land Value}_{it}^P = \text{Price } m_{it}^2 - \sum_{k=1}^n \beta_k^P F_{it}$$

$$\text{Land Value}_{it}^P = \gamma_{it} + \delta_1 N^\circ \text{Lines}_{it} + \delta_2 N^\circ \text{Trains}_{it} + \delta_3 \text{KmPr}_{it} + \delta_4 N^\circ \text{Towns}_{it} + \varepsilon_{it}$$

$$\text{Land Value}_{it}^C = \text{Rent } m_{it}^2 - \sum_{k=1}^n \beta_k^C F_{it}$$

$$\text{Land Value}_{it}^C = \gamma_{it} + \delta_1 N^\circ \text{Lines}_{it} + \delta_2 N^\circ \text{Trains}_{it} + \delta_3 \text{KmPr}_{it} + \delta_4 N^\circ \text{Towns}_{it} + \varepsilon_{it}$$



Empirical analysis - Results

	Ownership market	Renting market
Costant	1421.26**	5.03**
Central	-166.32**	-0.31**
Semi Central	-236.39**	-0.77**
Suburbs	-193.23**	-0.41**
Out of the city	-	-
High Quality	220.96**	0.86**
Medium quality	-	-
Low quality	-200.96**	-0.36**
Refurbished	279.32**	2.38**
Not refurbished	-	-
Economic	8.95**	0.31**
Standard	-	-
Villas	240.85**	1.82**
R ²	21.14%	29.60%
Areas	2493	2950
Municipalities	95	95

Empirical analysis - Results

Size in km ²		
	Ownership market	Renting market
Up to 10 km ²	1206.89	3.74
10 < km ² <50	1251.69	4.43
50 < km ² <100	1284.73	4.00
100 < km ² <150	1467.15	4.82
Over 150 km ²	1515.23	4.89
Population density		
	Ownership market	Renting market
Up to 100 Inhabitants / km ²	1278.44	4.37
100 < Inhabitants / km ² <500	1278.44	4.37
500 < Inhabitants / km ² <1000	1456.59	4.56
1000 < Inhabitants / km ² <2000	3104.78	10.61
Over 2000 Inhabitants / km ²	n.d.	n.d.

Empirical analysis - Results

	Ownership market	Renting market
	(3a)	(3b)
Costant	1363.50**	4.56**
N° Lines	244.35**	0.97**
N° Trains	2.87**	0.01**
Km Main city	4.52**	0.01**
N° Towns	-25.86**	-0.08**
R ²	24.71%	15.12%
Areas	2493	2950
Time periods	22	22
Municipalities	95	95

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Conclusion

The existence of local railway stations impacts on the housing value and the pricing effect is higher when different lines serve the same train station, the distance from the main cities is higher and the number of stops for each line is lower.

Small towns that are suffering from a population decrease may increase the number of inhabitants and support the growth of the housing market by increasing the activity of the train station and the main focus has to be on a fast connection with the main cities in the area rather than having a local railway service that connects with other small towns.

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