

# Parallel Tracks: The Impact of Independent Regulators on Open-access Competition in the Railways

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Introducing On-track Competition in Passenger Rail Services  
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New Mobility - High-Speed Transport Systems and Transport-Related  
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# Structure of the Presentation

- 1 Institutional Context, Literature
- 2 Research Question and Theoretical Argument
- 3 Research Design
- 4 Findings
- 5 Conclusion and Limitations

# Institutional Context

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IRAs: credible commitment to the liberalisation policy

(monitoring, appeal, and sanctioning powers powers)

# Open-access Competition in the EU

Source: IRG-Rail (2018)

## Legend

- De Jure Liberalisation of Open-access Services
- Data not available



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## Research Question

Are stronger regulators (i.e., more independence and powers) associated with more open-access competition?

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## Theory

Independent Regulators → Credible Commitment → Favourable Environments  
→ Larger market share of non-incumbent operators



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Market share: train-km of open-access operators / total pax train-km

Source: Annual reports of operators and infrastructure managers

<b>Variable</b>	<b>Mean</b>	<b>St.dv.</b>	<b>Min.</b>	<b>Max.</b>
Average Market Share (2013-17)	1.62	2.34	0.00	7.32
Strength of Regulator (REG)	8.09	1.07	6.72	9.95

REG = Independence + Competences [0,12]

## Multiple quantitative tests:

- Correlation test
- Difference in means, t-tests
- OLS regression
- Logistic regression
- Time fixed-effects model

# Results

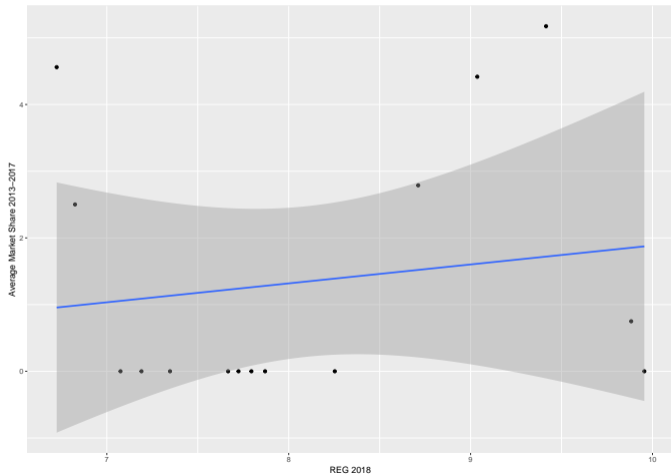
Pearson's product-moment correlation test

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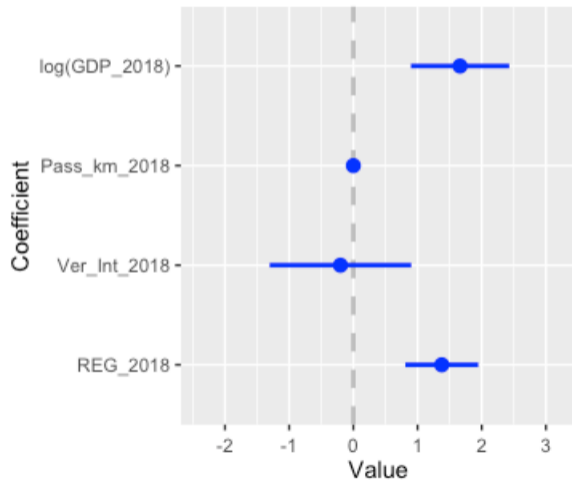
# Difference in means

Countries with and without competition

Statistically sign. at 10%, p-value = .09

<b>Countries</b>	<b>N</b>	<b>Market Share (2013-17)</b>	<b>REG</b>
With Competition	7	2.88	8.65
Without Competition	8	0.00	7.62

# OLS Regression





*Dependent variable: Average market share of open-access, non-incumbent operators (2013-17)*

	(1)	(2)	(3)	(4)	(5)
REG	1.209** (0.507)	1.116** (0.508)	1.232* (0.653)	1.377** (0.569)	1.506** (0.517)
Vertical Integration		-1.205 (1.074)	-1.273 (1.140)	-0.201 (1.102)	0.627 (1.091)
Pass-km			-0.00001 (0.00003)	-0.0001* (0.0001)	-0.0001** (0.0001)
log(GDP)				1.662* (0.765)	2.384** (0.794)
Political Constraints					10.905 (5.964)
Constant	-8.167* (4.137)	-6.695 (4.301)	-7.448 (5.129)	-51.103** (20.589)	-76.213*** (23.066)
Observations	15	15	15	15	15
R <sup>2</sup>	0.305	0.370	0.376	0.576	0.691
Adjusted R <sup>2</sup>	0.251	0.266	0.205	0.406	0.519
Residual Std. Error	2.031 (df = 13)	2.011 (df = 12)	2.092 (df = 11)	1.808 (df = 10)	1.628 (df = 9)
F Statistic	5.692** (df = 1; 13)	3.531* (df = 2; 12)	2.206 (df = 3; 11)	3.392* (df = 4; 10)	4.018** (df = 5; 9)

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Logistic Regression

<i>Dependent variable: Competition</i>				
	(1)	(2)	(3)	(4)
REG	0.241* (0.116)	0.199* (0.097)	0.103 (0.095)	0.122 (0.110)
Vertical Integration		-0.543** (0.205)	-0.364* (0.197)	-0.341 (0.212)
log(GDP)			0.175* (0.080)	0.224 (0.147)
Pass-km				-0.00000 (0.00001)
Constant	-1.481 (0.946)	-0.818 (0.822)	-4.687** (1.907)	-6.073 (3.966)
Observations	15	15	15	15
Log Likelihood	-9.706	-6.259	-3.545	-3.424
Akaike Inf. Crit.	23.412	18.517	15.090	16.847

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# Time fixed-effect model

<i>Dependent variable: Market share of open-access, non-incumbent operators</i>				
	(1)	(2)	(3)	(4)
REG	1.209** (0.507)	1.116** (0.508)	1.247* (0.649)	1.531** (0.548)
Vertical Integration		-1.205 (1.074)	-1.276 (1.135)	0.536 (1.152)
Pass-km			-0.00001 (0.00004)	-0.0001** (0.0001)
log(GDP)				2.255** (0.836)
Political Constraints				8.942 (6.063)
Constant	-8.167* (4.137)	-6.695 (4.301)	-7.555 (5.111)	-71.914** (24.281)
Observations	15	15	15	15
R <sup>2</sup>	0.305	0.370	0.377	0.656
Adjusted R <sup>2</sup>	0.251	0.266	0.207	0.465
F Statistic	5.692** (df = 1; 13)	3.531* (df = 2; 12)	2.222 (df = 3; 11)	3.433* (df = 5; 9)

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