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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Structure of the Presentation

Institutional Context

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Rail Market Reforms in the EU:

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Two pillars of EU reforms

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- Empowerment of Independent Regulators (IRAs) (Recast Directive 2012/34/RU)

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- Market liberalisation of freight and passenger services (Fourth Railway Package)
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Rail Market Reforms in the EU:
Two pillars of EU reforms

- Market liberalisation of freight and passenger services (Fourth Railway Package)
- Empowerment of Independent Regulators (IRAs) (Recast Directive 2012/34/RU)

The rationale of the reforms: *Competition → Efficiency → Attractiveness*
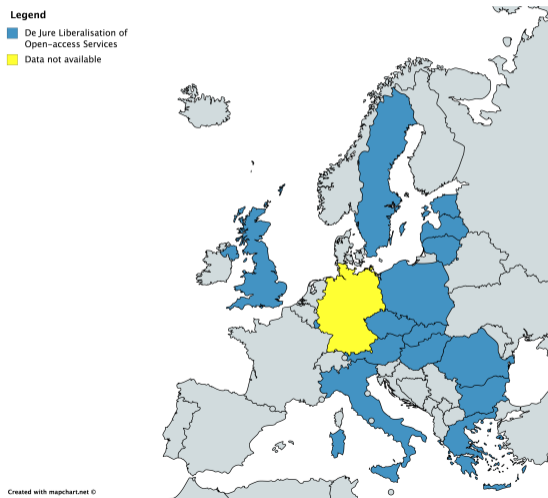IRAs: credible commitment to the liberalisation policy
(monitoring, appeal, and sanctioning powers powers)

Open-access Competition in the EU

Source: IRG-Rail (2018)

Research Question and Theoretical Argument

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

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Theory

Independent Regulators $\rightarrow$ Credible Commitment $\rightarrow$ Favourable Environments
$\rightarrow$ Larger market share of non-incumbent operators

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Questionnaire capturing:

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Dependent Variable: Average market share of non-incumbent operators (2013-17)
Market share: train-km of open-access operators / total pax train-km
Source: Annual reports of operators and infrastructure managers

Descriptive Statistics

Variable	Mean	St.dv.	Min.	Max.
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]

Methods

Multiple quantitative tests:

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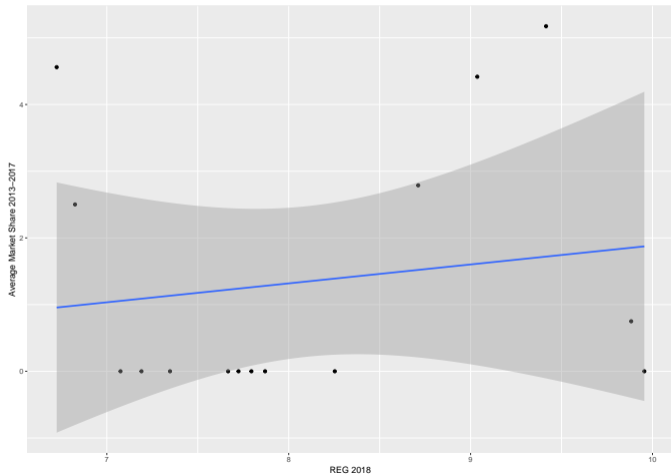- Time fixed-effects model

Results
Pearson's product-moment correlation test

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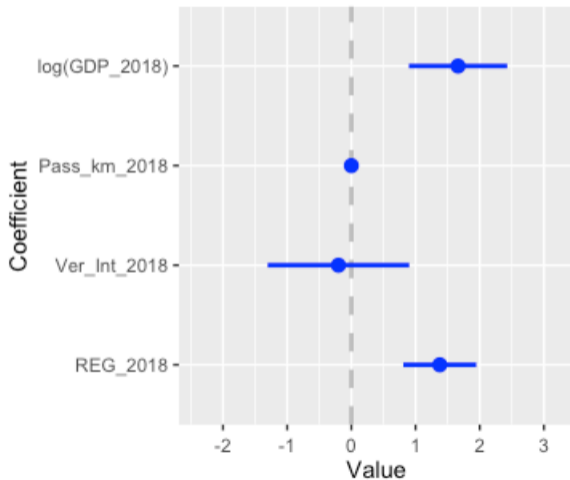Positive Corr = .55, significant at 5%

Difference in means
Countries with and without competition

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

Countries	N	Market Share (2013-17)	REG
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**	1.116**	1.232*	1.377**	1.506**
	(0.507)	(0.508)	(0.653)	(0.569)	(0.517)
Vertical Integration		−1.205	−1.273	−0.201	0.627
		(1.074)	(1.140)	(1.102)	(1.091)
Pass-km			−0.00001	−0.0001*	−0.0001**
			(0.00003)	(0.0001)	(0.0001)
log(GDP)				1.662*	2.384**
				(0.765)	(0.794)
Political Constraints					10.905
					(5.964)
Constant	−8.167*	−6.695	−7.448	−51.103**	−76.213***
	(4.137)	(4.301)	(5.129)	(20.589)	(23.066)
Observations	15	15	15	15	15
R^2	0.305	0.370	0.376	0.576	0.691
Adjusted R^2	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

	Dependent variable: Competition			
	(1)	(2)	(3)	(4)
REG	0.241*	0.199*	0.103	0.122
	(0.116)	(0.097)	(0.095)	(0.110)
Vertical Integration		−0.543**	−0.364*	−0.341
		(0.205)	(0.197)	(0.212)
log(GDP)			0.175*	0.224
			(0.080)	(0.147)
Pass-km				−0.00000
				(0.00001)
Constant	−1.481	−0.818	−4.687**	−6.073
	(0.946)	(0.822)	(1.907)	(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

	Dependent variable: Market share of open-access, non-incumbent operators			
	(1)	(2)	(3)	(4)
REG	1.209**	1.116**	1.247*	1.531**
	(0.507)	(0.508)	(0.649)	(0.548)
Vertical Integration		−1.205	−1.276	0.536
		(1.074)	(1.135)	(1.152)
Pass-km			−0.00001	−0.0001**
			(0.00004)	(0.0001)
log(GDP)				2.255**
				(0.836)
Political Constraints				8.942
				(6.063)
Constant	−8.167*	−6.695	−7.555	−71.914**
	(4.137)	(4.301)	(5.111)	(24.281)
Observations	15	15	15	15
R^2	0.305	0.370	0.377	0.656
Adjusted R^2	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)

Conclusions and Limitations

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Thank you

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