

Institutions, government quality and regional growth

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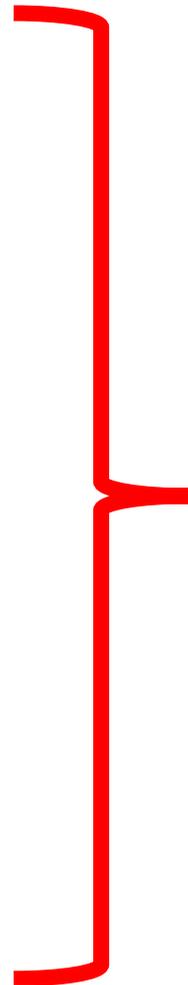
I.S.E.O. SUMMER SCHOOL 2018

"Challenges and Opportunities in a Shifting Global Economy"

Iseo, 21-30 June 2018



How has our understanding of growth changed?



How does this affect policy?

- **Policies have generally worked**
 - With caveats, positive impact
 - Impact growing over time (learning curve)
- **But...**
 - Decline in returns to intervention in many of the main axes (mainly infrastructure)

Expo Station, Seville



'Radial' motorways, Madrid



Castellón Airport

eljueves

SUPRIMIDO EL AVE TOLEDO-CUENCA-ALBACETE

AVE Toledo-Albacete



Ciudad Real Airport

FINANCIAL TIMES

July 17, 2015 5:38 pm

Spanish ghost airport costing €1bn attracts offer of just €10,000



CORRUPTION SEEN AS STEADY DRAIN ON ITALY'S SOUTH

EUROPEANS CONCERNED

Road Project, Begun in the '60s, Is a Symbol of Missed Aid

By RACHEL DONADIO

REGGIO CALABRIA, Italy — Italy's A2 highway, begun in the 1960s and still not finished, starts nearby. Naples in the ancient hill town of Salerno and ends, rather inconspicuously, 200 miles farther south at a local center at Giovanni Reggio Calabria.

Along the way, it frequently crosses in two lanes, with an obstacle course of construction sites that have inspired far-distant, furious, two-lane indignation: narrow lanes, high above the sea, while solid concrete link in the rain — and sometimes slip concrete and other building materials onto passing cars.

Nothing embodies the failures of the Italian state more neatly than the highway from Salerno to Reggio Calabria. Critics see it as the entire fruit of a plan for central Italy that, marred by the unrequited error that is endemic in southern Italy, has systematically dismantled the state while failing its citizens, leaving Calabria geographically and economically isolated.



In Venezuela, a New Term for Chávez
 President Hugo Chávez, who faced down his strongest challenge to re-extend his term, celebrated Sunday night in Caracas. Page A16.

The Patent, Used as a Sword
 Tech Giants' Legal Warfare Takes Toll on Innovation

Biden Up Next, Obama's Aides Plot Comeback

ROMNEY STRIVES TO STAND APART IN GLOBAL POLICY

HITS OBAMA'S RECORD

Advisers Reflect Wide Differences Among Republicans

By DEEDEE HANSEN

WASHINGTON — Mitt Romney is intensifying his efforts to draw a sharp contrast with President Obama on national security in the presidential campaign's closing stages, portraying Mr. Obama as having mismanaged the search in the Arab world and having left the nation exposed to a terrorist attack in Libya.

In a speech on Monday at the Virginia Military Institute, Mr. Romney will declare that "hope is not a strategy" for dealing with the rise of Islamic governments in the Middle East or an Iraq racing toward the capability to build a nuclear weapon, according to excerpts released by his campaign.

The essence of Mr. Romney's argument is that he would take the United States back to an earlier era, one that would result, at his young foreign policy director, Alex Hong, told reporters on Sunday, in "the restoration of a strategy that would do well for the years."

From 2000 to 2011, Italy received more than \$60 billion in the European Union financing to underwrite a wide array of programs, in areas including agriculture and infrastructure, most of it directed to the south, with little but a half-completed highway to show for it. Spain, which was given a little more than US\$100 billion, at least built a world-class high-speed rail network. (Greece received 50 billion, an enormous amount in per capita terms, also to a clear effect.) *Rachel Donadio, NYT, Oct. 7, 2012*

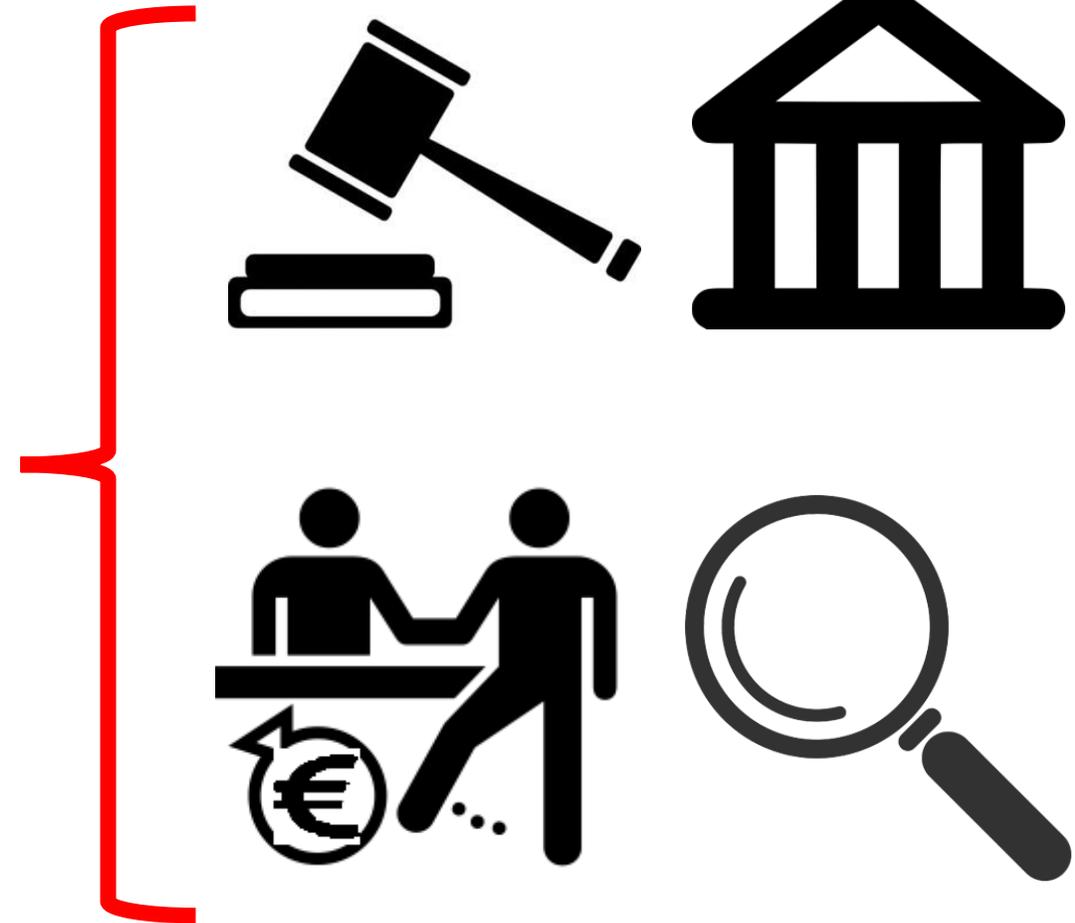
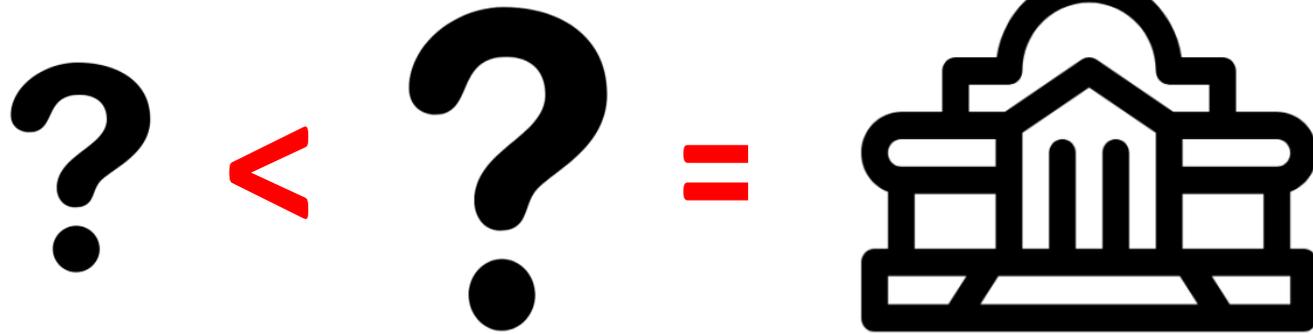
A1 Motorway Greece

Motorway Salerno-Reggio Calabria



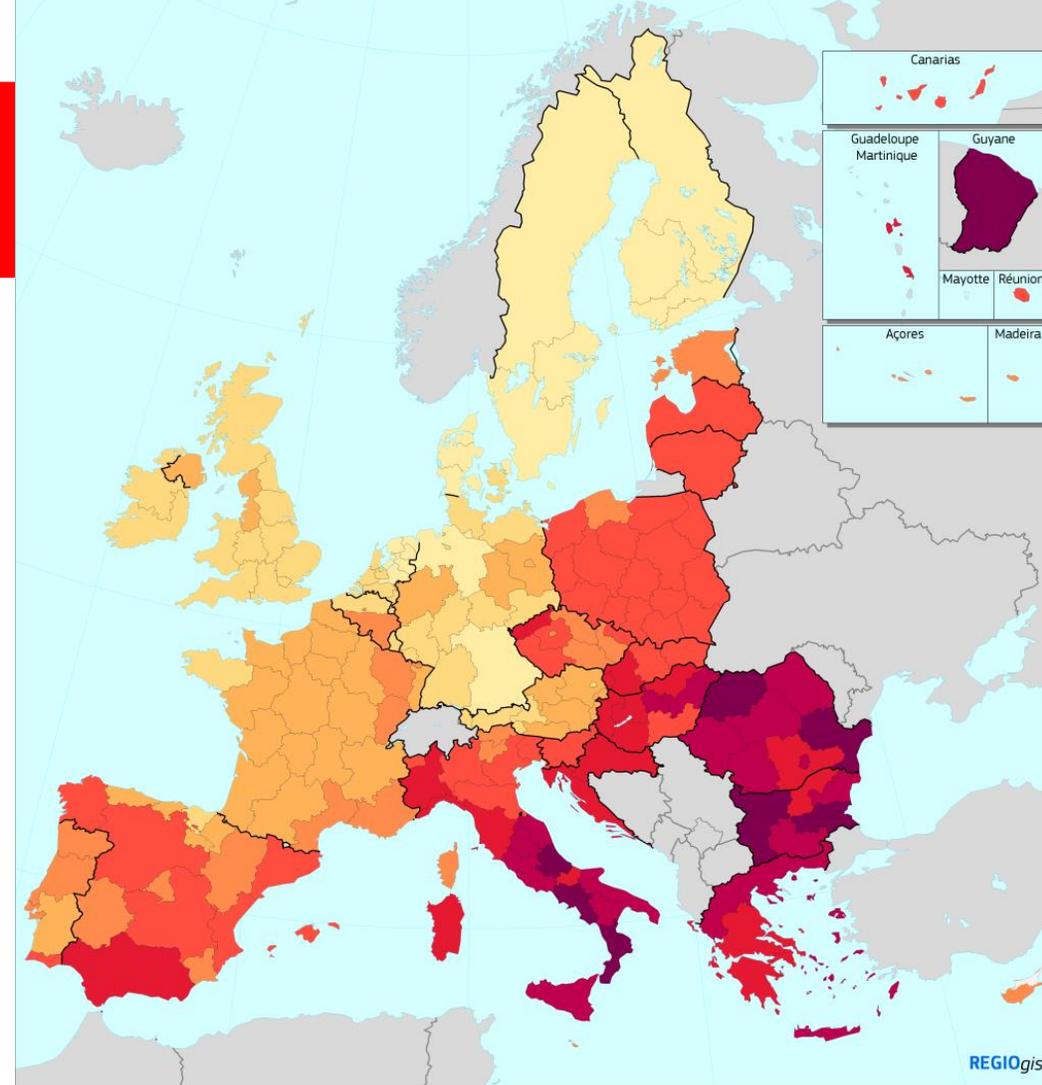
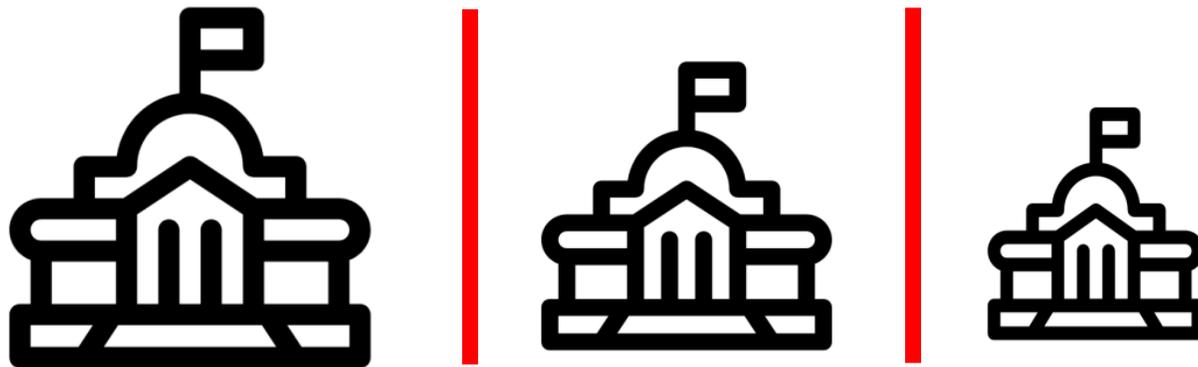
The role of institutions and governance

○ Why has ? grown?



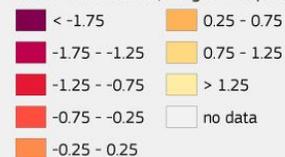
Institutional diversity

- But quality of institutions varies enormously across European regions



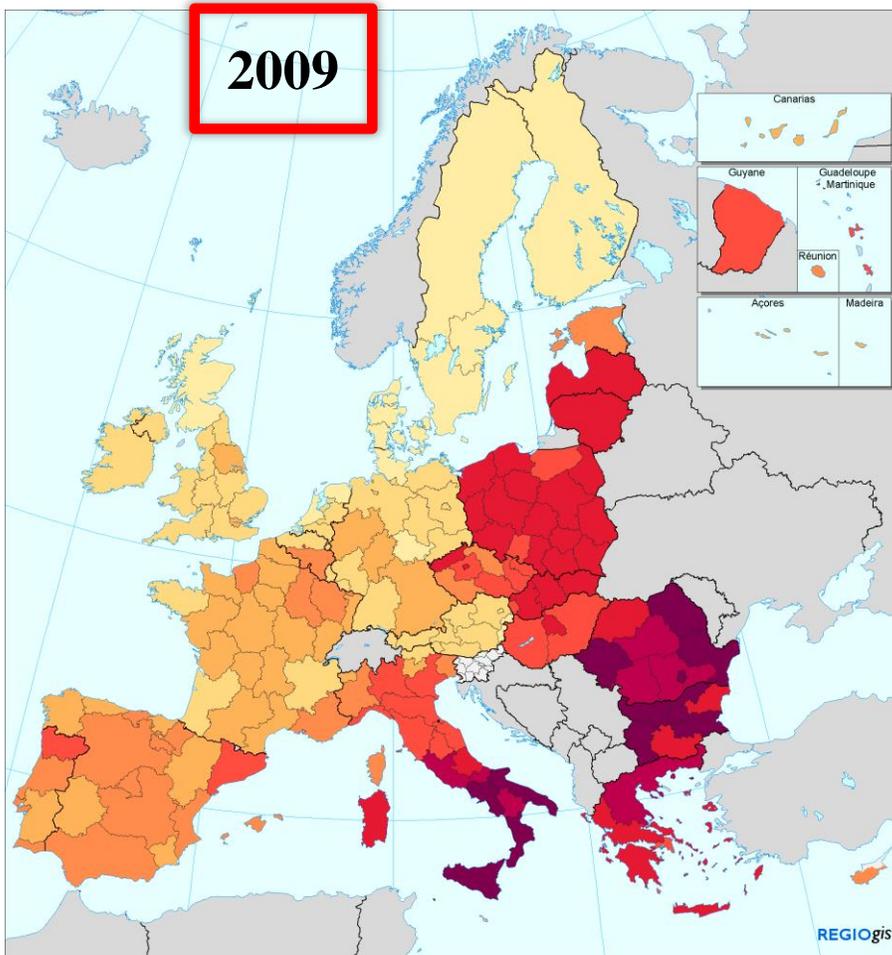
European quality of government, 2017

Standard deviation, range from poor quality (negative) to high quality (positive)



EU = 0
Source: World Bank data and a regional quality of government survey.

0 500 km



European Quality of Government index, 2009

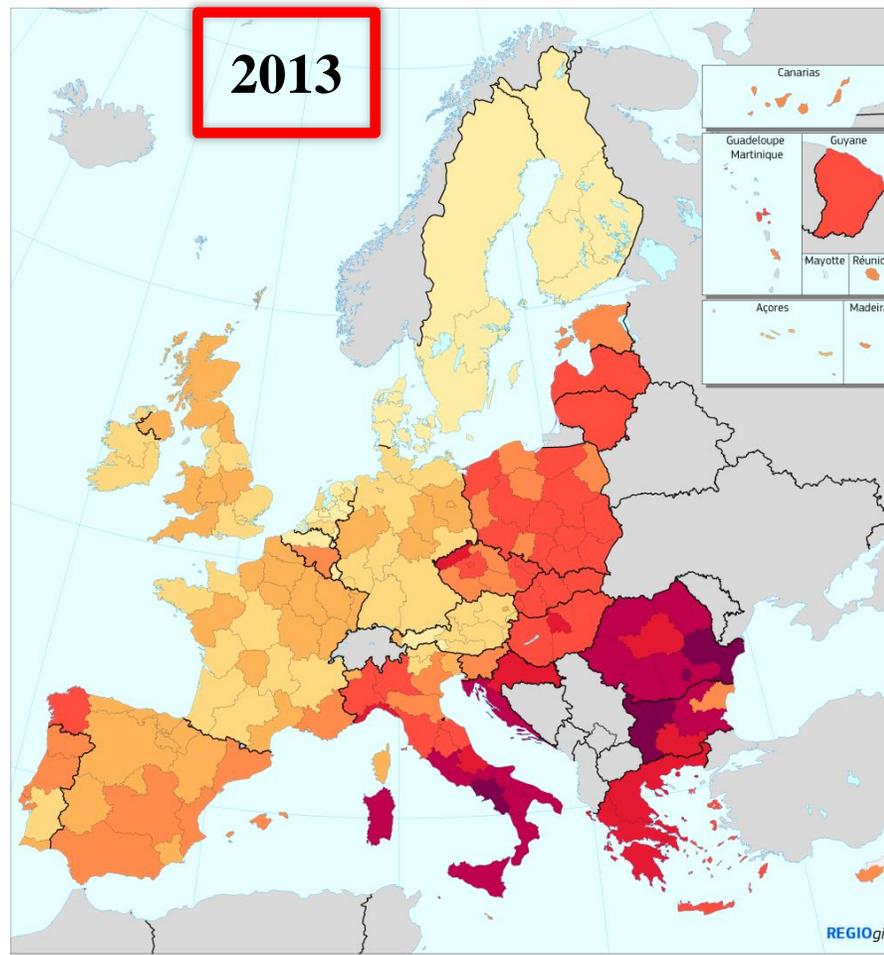
Standard deviation, range from poor quality (negative) to high quality (positive)



Note: EU = 0
Source: World Bank and regional quality of government survey

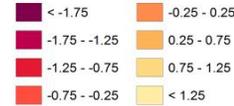
0 500 Km

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European Quality of Government index, 2013

Standard deviation, range from poor quality (negative) to high quality (positive)

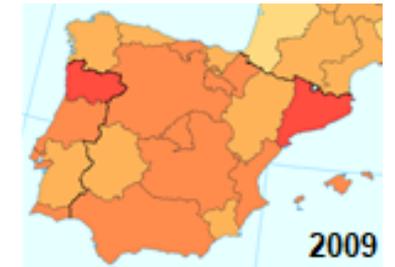


Note: EU = 0

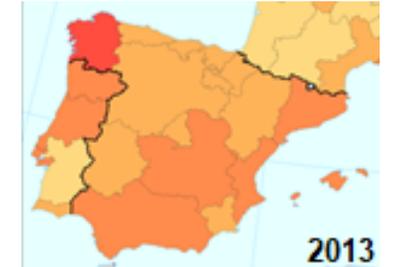
Source: World Bank and regional quality of government survey

0 500 Km

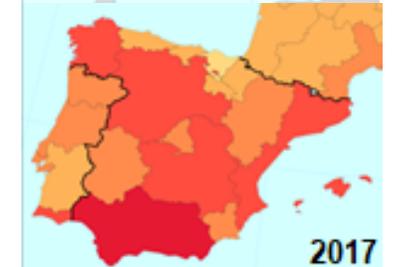
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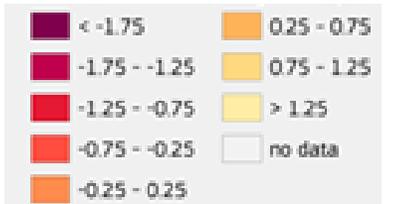
2009



2013



2017



Change in regional government quality (2009-17)
Mean = 0; +1 and -1 represent one standard deviation relative to the EU average.

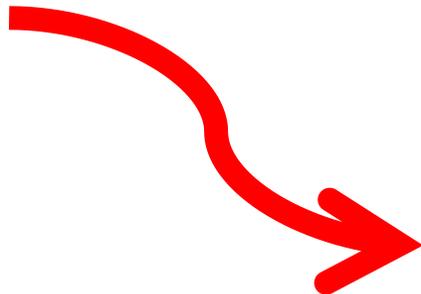
How does this affect policy?

○ **The implications of lack of good governance for development in the EU are both:**

○ **Direct**

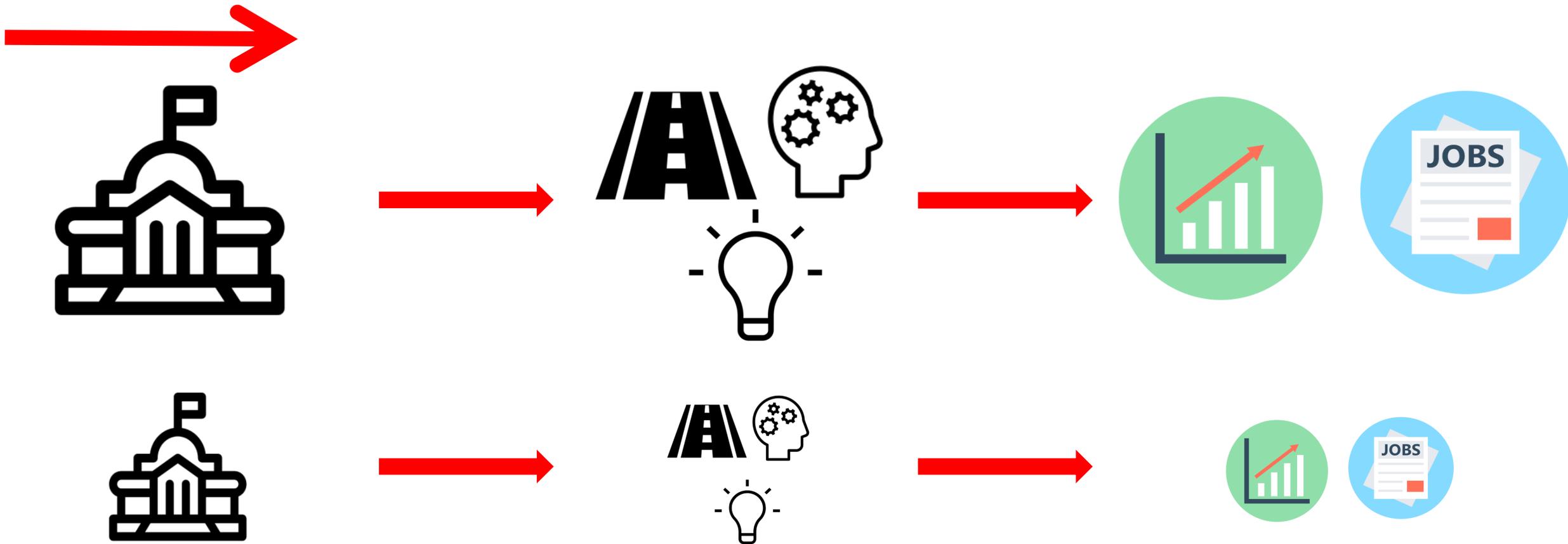


○ **Indirect**



European Regional Development Policy

○ Direct impact (1): Returns of public policy



Cohesion effort and quality of government

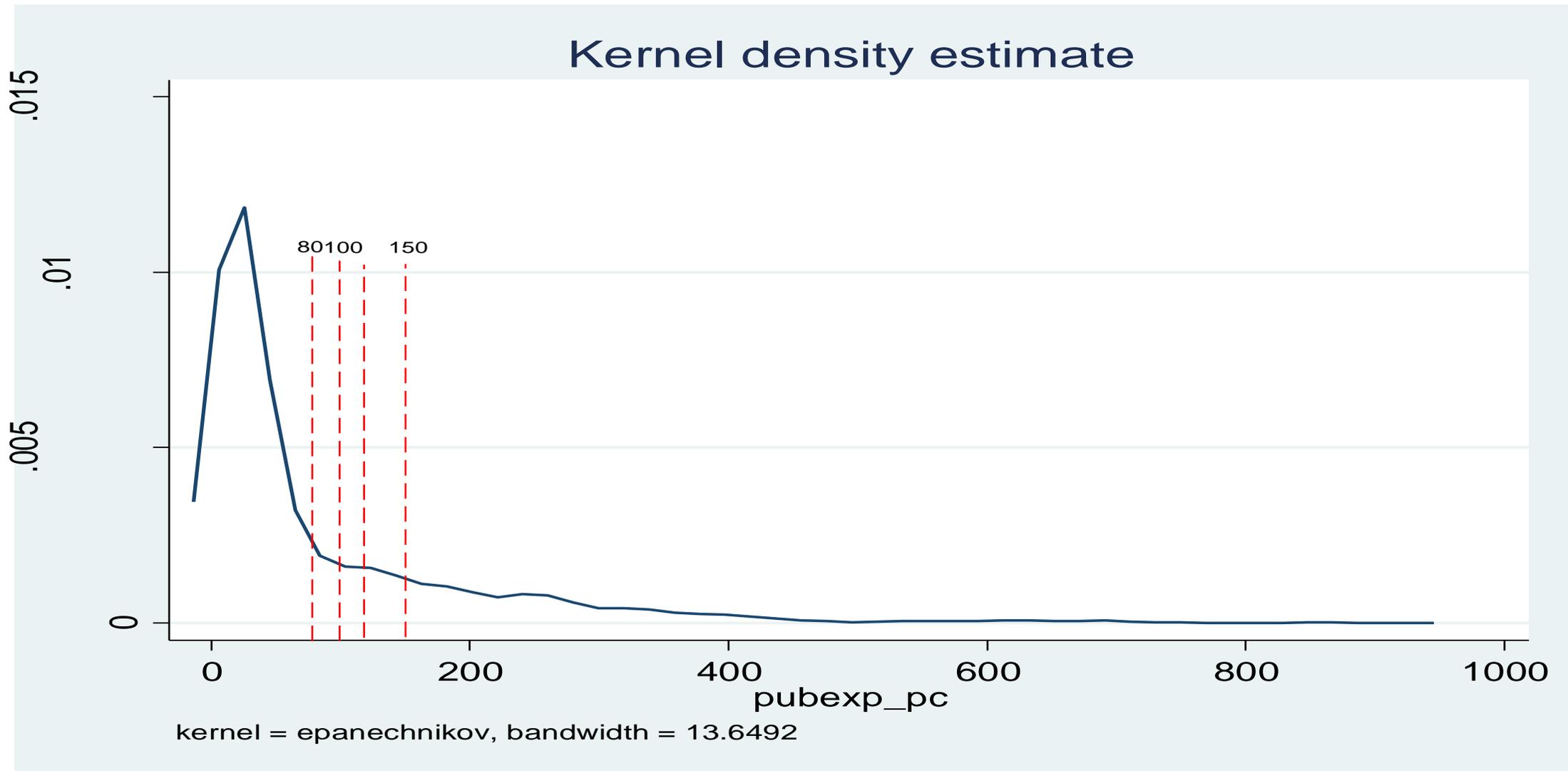
Dep. Variable	(1)	(2)	(3)	(4)	(5)
GDP pc growth	No threshold	>80€	>100€	>120€	>150€
In GDPpc	0.000780 (0.00877)	-0.0472** (0.0182)	-0.0621** (0.0197)	-0.0816*** (0.0240)	-0.0720*** (0.0221)
Cohesion expenditure pc	3.10e-05** (1.24e-05)	1.71e-05*** (5.21e-06)	1.72e-05** (6.58e-06)	2.54e-05* (1.17e-05)	1.48e-05 (1.65e-05)
Quality of government	0.00392 (0.00243)	0.0186** (0.00611)	0.0225*** (0.00633)	0.0258*** (0.00627)	0.0315*** (0.00721)
Cohesion exp x quality gov	-9.94e-07 (1.04e-05)	-4.07e-05** (1.51e-05)	-4.39e-05** (1.50e-05)	-5.49e-05** (2.01e-05)	-6.83e-05*** (1.94e-05)
Time controls	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes
Observations	972	252	218	193	165
R-squared	0.264	0.342	0.362	0.350	0.346
No. of countries	18	11	10	10	10

The returns of greater cohesion expenditure weaken as the threshold increases

While the impact of the quality of government becomes more and more important fundamental

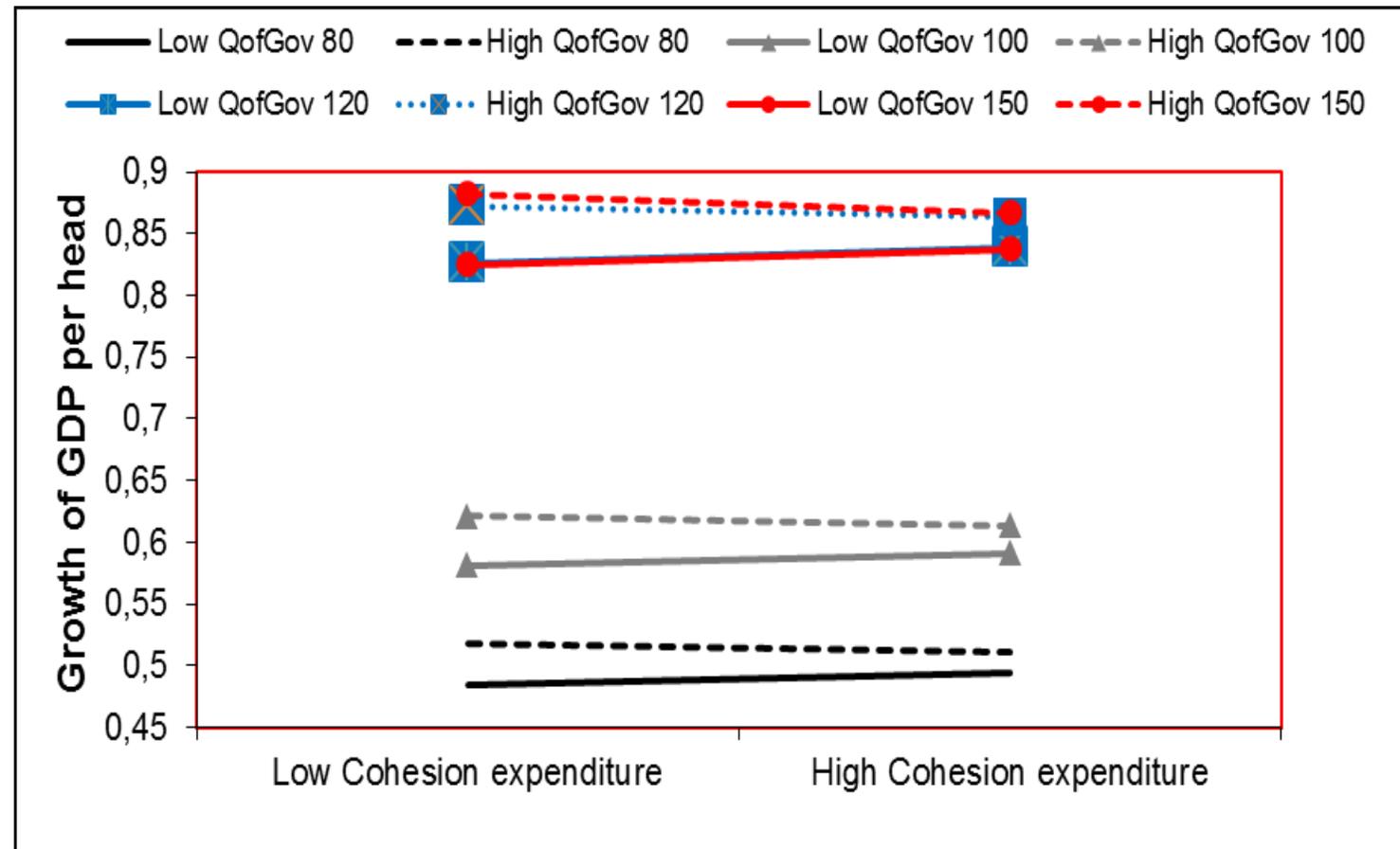
As does the interaction between expenditure and quality of government

Unequal distribution of the Cohesion effort



Government quality marks and investment limit

○ Direct impact



More funds or better governance?



Impact on growth of one standard deviation increase

	>80€	>100€	>120€	>150€
Increase in structural fund expenditure	1.93	1.68	1.59	1.50
Increase in quality of government	6.94	6.93	5.63	6.89

Impact of increase in quality of government is significantly greater above €80

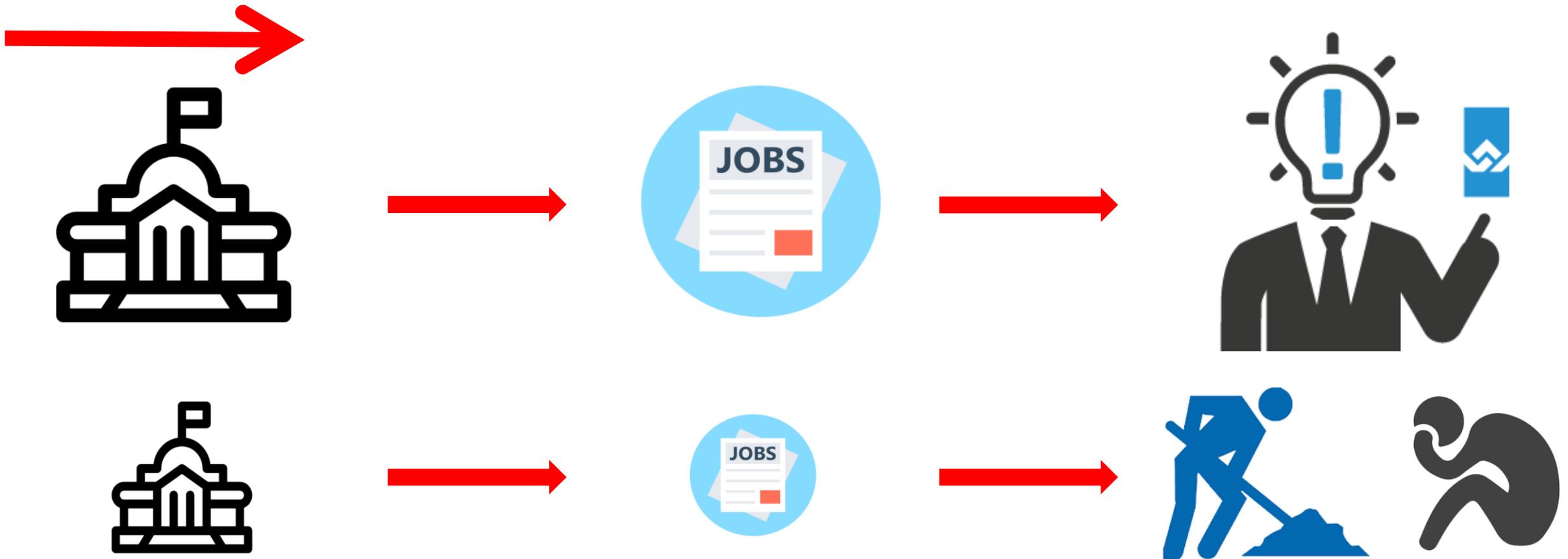
The economic returns of investing more in cohesion in Europe stop at €120

Above €80, regions with a higher quality of government perform significantly better at the same level of cohesion expenditure

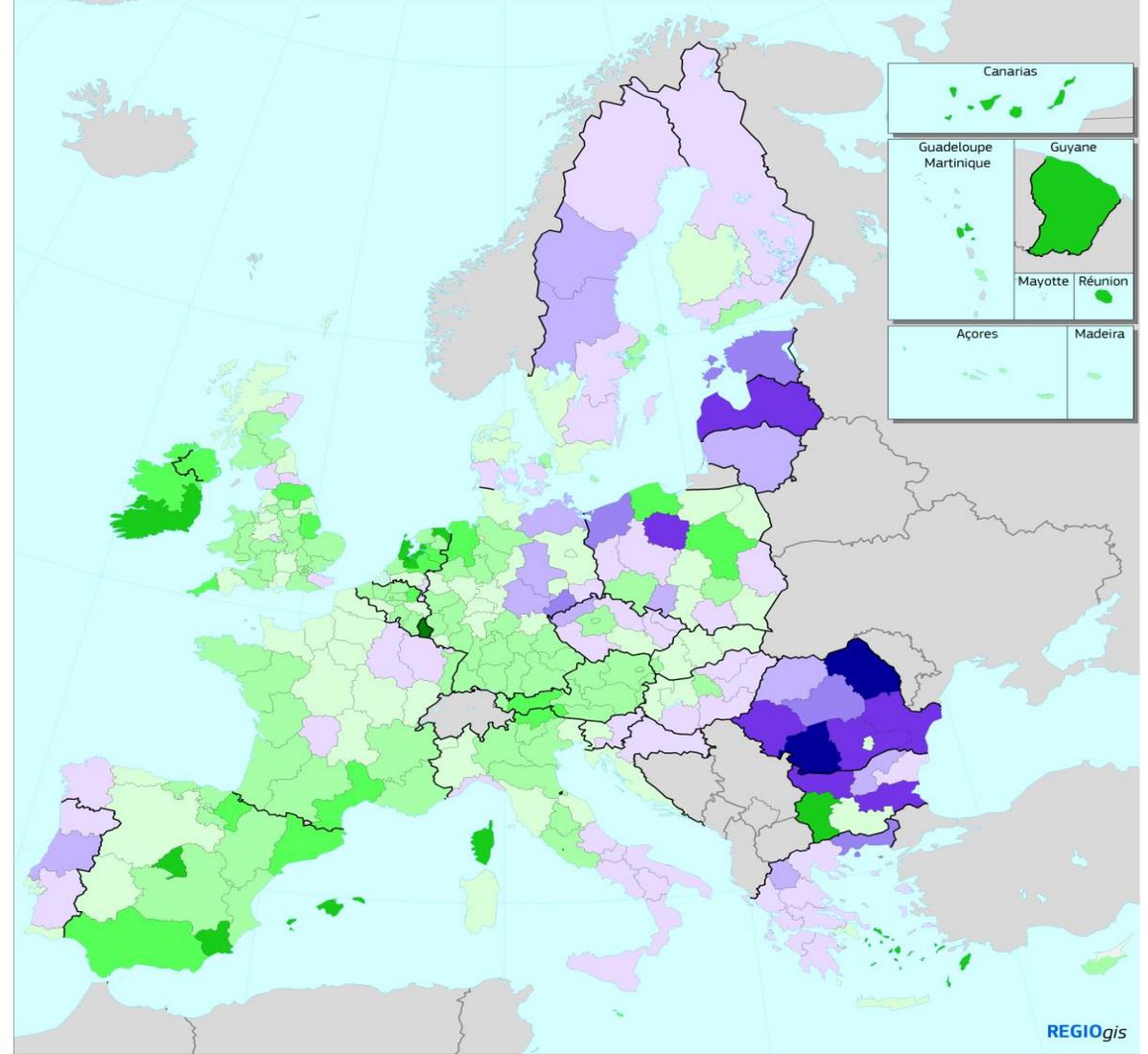
Massive increase in Cohesion budget (> 2.7 times) to overcome the problems of poor governance

Employment generation

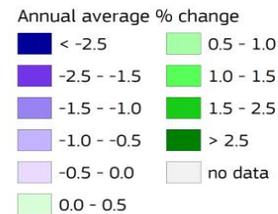
○ Direct impact (2): Employment



Big differences in long-term employment generation



Employment growth, 1990-2014



DE (new Länder): 1991-2014; HR: 1995-2014
Source: Eurostat, Cambridge Econometrics, DG REGIO

0 500 km

Employment generation

Dep. Variable:

Change in regional employment

	(1)	(2)	(3)	(4)
Human Capital (share of university students)	0.000135*** (4.44e-05)	0.000950*** (0.000233)	0.00104*** (0.000242)	0.000765*** (0.000227)
Innovation (patent applications per million inhabitants)	-2.97e-06 (2.29e-06)	3.04e-05** (1.34e-05)	3.16e-05** (1.26e-05)	2.85e-05** (1.40e-05)
Transport Infrastructure (roads per squared kilometre)	-0.000222* (0.000127)	-0.00278 (0.00190)	-0.00275 (0.00213)	-0.00120 (0.00193)
Government quality (QoG Index)	0.000772*** (0.000177)	0.00206 (0.00126)	0.000188 (0.00133)	0.000134 (0.00127)
Change of log of per capita GDP	0.0218** (0.0104)	0.0425*** (0.0109)	0.0779*** (0.0136)	0.0674*** (0.0123)
Change in high-skilled employment				0.485*** (0.0703)
Labour market variables	NO	NO	YES	YES
Year dummies	YES	YES	YES	YES
Region dummies	NO	YES	YES	YES
Observations	1,742	1,742	1,593	1,593
R-squared	0.189	0.201	0.253	0.309
EU regions	168	168	157	157

Regions with a larger proportion of highly qualified workers tend to generate more new jobs

Higher employment growth in regions with better innovative capacity

Transport infrastructure and government quality statistically insignificant

High-skilled employment generation

Dep. Variable:

Change in high-skilled employment

	(5)	(6)	(7)	(8)
Human Capital (share of university students)	0.000118*** (2.19e-05)	0.000347** (0.000137)	0.000569*** (9.98e-05)	0.000378*** (8.85e-05)
Innovation (patent applications per million inhabitants)	-3.88e-06* (1.98e-06)	1.24e-05 (1.10e-05)	6.54e-06 (8.22e-06)	1.59e-06 (8.18e-06)
Transport Infrastructure (roads per squared kilometre)	0.000135 (0.000111)	-0.00321*** (0.000744)	-0.00319*** (0.000996)	-0.00251** (0.000999)
Government quality (QoG Index)	0.000278*** (7.47e-05)	0.000553 (0.000404)	0.000111 (0.000515)	0.000447 (0.000468)
Change of log of per capita GDP	0.0112*** (0.00377)	0.00985** (0.00458)	0.0217*** (0.00589)	0.0151** (0.00583)
Change in employment				0.232*** (0.0228)
Change in low-skilled employment				-0.313*** (0.0411)
Labour market variables	NO	NO	YES	YES
Year dummies	YES	YES	YES	YES
Region dummies	NO	YES	YES	YES
Observations	1,725	1,725	1,593	1,593
R-squared	0.042	0.044	0.070	0.232
EU regions	166	166	157	157

Presence of a larger pool of highly skilled associated with growth in high-skilled employment

Transport infrastructure (main cohesion policy axis, intervention against crisis) linked to lower high-skilled employment generation

Low-skilled employment generation

Dep. Variable:	Change in low-skilled employment			
	(9)	(10)	(11)	(12)
Human Capital (share of university students)	7.13e-05*** (2.35e-05)	0.000350*** (0.000105)	0.000162 (0.000112)	4.45e-05 (8.92e-05)
Innovation (patent applications per million inhabitants)	1.37e-06 (1.53e-06)	2.12e-06 (8.66e-06)	7.61e-06 (8.78e-06)	3.37e-07 (6.20e-06)
Transport Infrastructure (roads per squared kilometre)	2.50e-05 (7.19e-05)	-3.60e-06 (0.00123)	0.000145 (0.00116)	-0.000126 (0.00117)
Government quality (QoG Index)	0.000327*** (0.000118)	0.00224*** (0.000517)	0.00122* (0.000617)	0.00120** (0.000489)
Change of log of per capita GDP	0.00666 (0.00619)	0.0166*** (0.00636)	0.0364*** (0.00698)	0.0204*** (0.00591)
Change in employment				0.301*** (0.0215)
Change in high-skilled employment				-0.345*** (0.0410)
Labour market variables	NO	NO	YES	YES
Year dummies	YES	YES	YES	YES
Region dummies	NO	YES	YES	YES
Observations	1,742	1,742	1,593	1,593
R-squared	0.072	0.083	0.129	0.348
EU regions	168	168	157	157

Low-skilled employment has grown more in regions with better quality of government – effective regional government, high accountability, law enforcement, control of corruption

Long-term unemployment

Dep. Variable:	Change in share of unemployed people being long-term unemployed				
	(1)	(2)	(3)	(4)	(5)
Human Capital (share of university students)	-0.0943*** (0.0183)	-0.636*** (0.0800)	-0.548*** (0.0998)	-0.460*** (0.0909)	-0.497*** (0.0990)
Innovation (patent app. per million inhabitants)	0.00130 (0.000951)	0.00585 (0.00507)	0.00123 (0.00554)	0.00367 (0.00518)	0.00237 (0.00522)
Transport Infrastructure (roads per squared km)	0.0315 (0.0376)	0.000802 (1.306)	0.461 (1.385)	0.227 (1.440)	0.271 (1.409)
Government quality (QoG Index)	-0.116** (0.0587)	-1.497*** (0.391)	-1.031** (0.451)	-0.989** (0.438)	-0.941** (0.441)
Change of log of per capita GDP	-13.70*** (3.818)	-14.84*** (4.822)	-17.14*** (5.866)	-10.48* (5.599)	-12.91** (5.851)
Change in employment				-83.78*** (15.42)	
Change in high-skilled employment					-63.61** (27.38)
Change in low-skilled employment					-80.76*** (23.54)
Labour market variables	NO	NO	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES
Region dummies	NO	YES	YES	YES	YES
Observations	1,686	1,686	1,588	1,588	1,588
R-squared	0.189	0.218	0.219	0.241	0.229
EU regions	164	164	156	156	156

A highly-skilled population connected to a reduced risk of LTU in the region (high employability of skilled people)

Advanced and effective government institutions associated with a reduction in LTU

Long-term unemployment (II)

Dep. Variable:	Change in share of unemployed people being long-term unemployed				
	(1)	(2)	(3)	(4)	(5)
Human Capital (share of university students)	-0.0943*** (0.0183)	-0.636*** (0.0800)	-0.548*** (0.0998)	-0.460*** (0.0909)	-0.497*** (0.0990)
Innovation (patent app. per million inhabitants)	0.00130 (0.000951)	0.00585 (0.00507)	0.00123 (0.00554)	0.00367 (0.00518)	0.00237 (0.00522)
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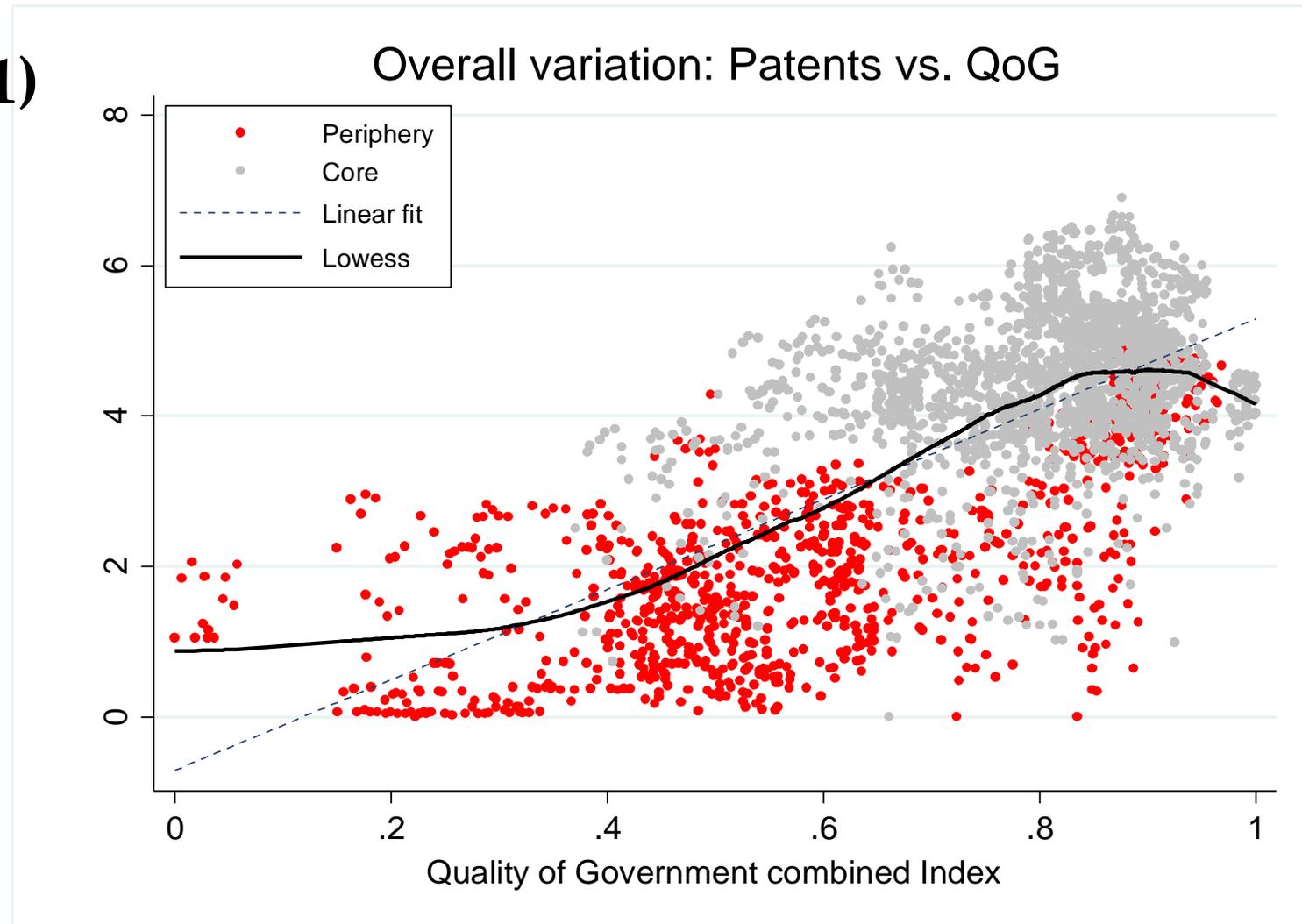
Employment a key factor behind reduction of LTU (social exclusion)

Low-skilled employment generation contributes to LTU reduction more than high-skilled employment

No significant changes in other coefficients

Returns of innovation policies

○ Indirect impact (1)



Whole of Europe

Dependent variable: Δ Patents application	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Quality of Government Combined Index (QoG)	0.746*** (0.272)	0.868*** (0.265)	0.784*** (0.282)	0.667** (0.279)	0.612** (0.264)	0.536** (0.252)
Patents application (t-1)	-0.492*** (0.022)	-0.491*** (0.021)	-0.480*** (0.021)	-0.482*** (0.021)	-0.483*** (0.022)	-0.486*** (0.021)
Business R&D expenditure as percentage of GDP	0.113*** (0.031)	0.113*** (0.031)	0.122*** (0.030)	0.111*** (0.031)	0.112*** (0.031)	0.108*** (0.031)
Spatial weight of R&D expenditure	0.089* (0.050)	0.097* (0.052)	0.127** (0.055)	0.131** (0.057)	0.132** (0.057)	0.099* (0.051)
Social Filter Index ^a		0.129*** (0.022)				
Employed people with tertiary education	0.116*** (0.041)		0.136*** (0.040)			
Long-term unemployment	-0.078** (0.037)			-0.066* (0.039)		
Agricultural Employment	-0.034 (0.033)				-0.080** (0.033)	
Employment in high tech industry	0.156*** (0.025)					0.158*** (0.024)
time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,047	3,047	3,051	3,067	3,063	3,067
Nuts regions	225	225	225	225	225	225
R ² within	0.542	0.540	0.532	0.528	0.529	0.536

A higher quality of government is associated with a better regional innovative performance

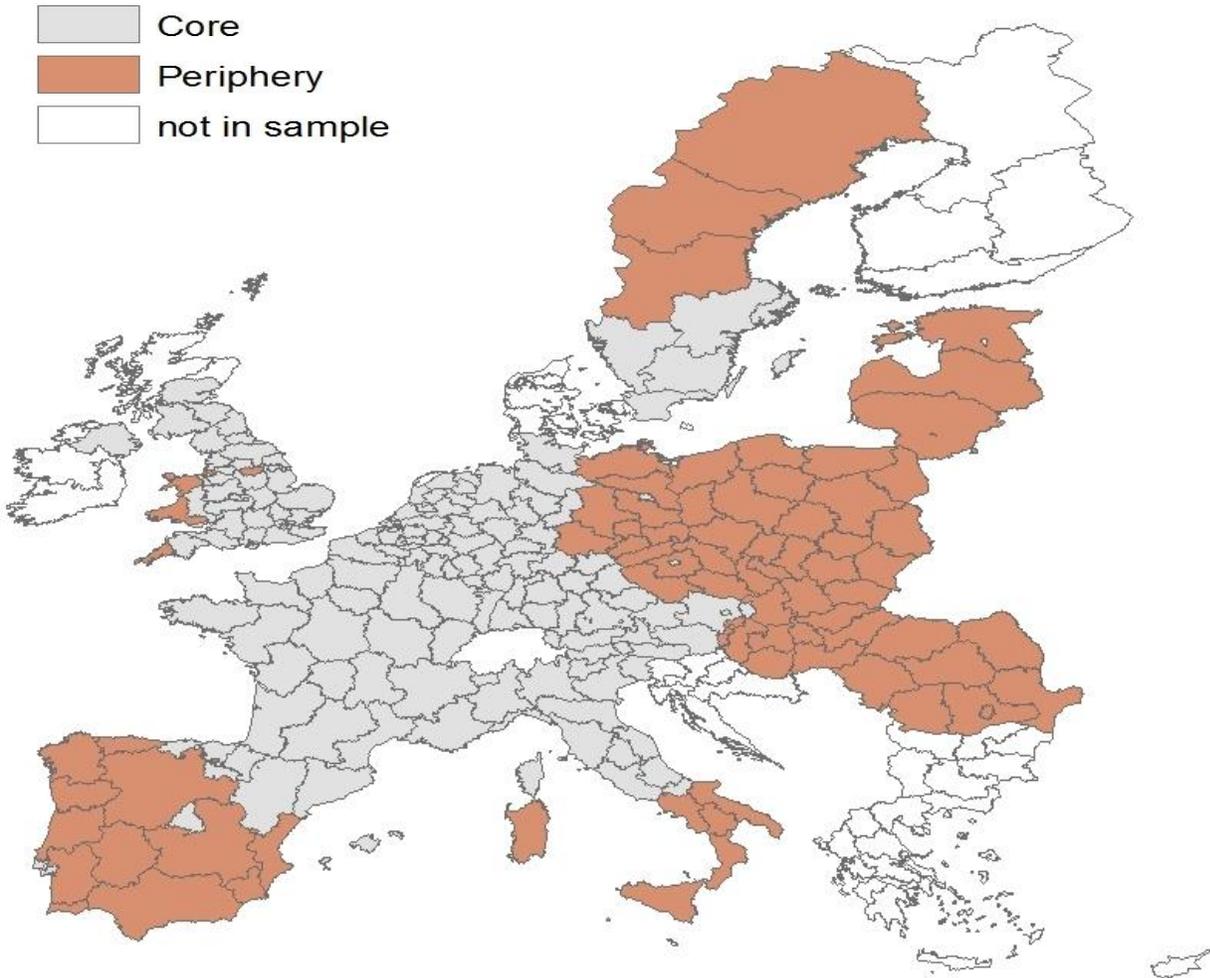
Controls as expected: R&D spending, R&D spillovers and Social Filter positively correlated with patents' growth; evidence of technological convergence

Note: Estimation method: robust fixed effects. Robust standard errors in parenthesis; *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logarithms except for the QoG Index and the Social Filter Index. a/ the Social Filter is obtained as the first principal component of: Employed people with tertiary education, Unemployment rate, Employment in high tech industry, Agricultural Employment.

Core vs. Periphery

Full sample sub-divided into 'Periphery' and 'Core' groups according to the 2000-2006 DG Regio's classification of Objective 1 regions

EU-28 Nuts2 regions



Core regions					
Component	Obs	Mean	Std. Dev	Min	Max
QoG combined index	1911	0.80727	0.11100	0.37042	1.000
Control of Corruption	1911	0.81824	0.12041	0.31191	1.000
Rule of Law	1911	0.80093	0.12523	0.33753	1.000
Govt Effectiveness	1911	0.73852	0.12010	0.25222	0.95069
Govt Accountability	1911	0.75059	0.10559	0.28941	0.94573

Peripheral regions					
Component	Obs	Mean	Std. Dev	Min	Max
QoG combined index	1014	0.59183	0.21194	6.38E-09	0.96846
Control of Corruption	1014	0.59676	0.19093	1.78E-07	0.96919
Rule of Law	1014	0.59073	0.21461	1.72E-07	0.99070
Govt Effectiveness	1014	0.53814	0.22183	1.89E-07	1.000
Govt Accountability	1014	0.56544	0.20105	1.62E-07	1.000

Periphery

Dep. variable: Δ Patents application	Objective 1 Regions				
	(1)	(2)	(3)	(4)	(5)
QoG Index	1.230*** (0.435)				
Control of Corruption		1.179*** (0.380)			
Rule of Law			0.699 (0.490)		
Government Effectiveness				0.856*** (0.320)	
Government Accountability					0.056 (0.317)
Patents application (t-1)	-0.571*** (0.043)	-0.573*** (0.042)	-0.570*** (0.042)	-0.570*** (0.043)	-0.569*** (0.041)
Business R&D expenditure as percentage of GDP	0.054* (0.032)	0.045 (0.032)	0.047 (0.033)	0.050 (0.032)	0.041 (0.034)
Spatial weight of R&D expenditure	0.036 (0.162)	0.013 (0.155)	0.002 (0.156)	0.043 (0.166)	-0.009 (0.151)
Social Filter Index	0.095** (0.037)	0.078** (0.037)	0.105*** (0.038)	0.102*** (0.037)	0.099*** (0.039)
time effects	Yes	Yes	Yes	Yes	Yes
Observations	1,006	1,006	1,006	1,006	1,006
Nuts regions	78	78	78	78	78
R ² within	0.428	0.428	0.423	0.428	0.434

In regions lagging behind, better institutions have a stronger impact on innovation (higher coefficients than in full sample)

R&D investments and R&D spillovers have marginal or insignificant effect, whereas basic social conditions play a key role

Core

Dep. variable: Δ Patents application	Non-Objective 1 Regions				
	(6)	(7)	(8)	(9)	(10)
QoG Index	0.0854 (0.325)				
Control of Corruption		0.581* (0.295)			
Rule of Law			-0.235 (0.391)		
Government Effectiveness				-0.054 (0.154)	
Government Accountability					-0.421* (0.222)
Patents application (t-1)	-0.485*** (0.026)	-0.482*** (0.027)	-0.484*** (0.026)	-0.485*** (0.026)	-0.482*** (0.027)
Business R&D expenditure as percentage of GDP	0.159*** (0.051)	0.157*** (0.052)	0.157*** (0.051)	0.158*** (0.052)	0.154*** (0.051)
Spatial weight of R&D expenditure	0.119** (0.056)	0.116** (0.054)	0.118** (0.056)	0.117** (0.057)	0.113** (0.056)
Social Filter Index	0.062** (0.027)	0.064** (0.025)	0.053* (0.030)	0.058** (0.025)	0.054** (0.025)
time effects	Yes	Yes	Yes	Yes	Yes
Observations	2,041	2,041	2,041	2,041	2,041
Nuts regions	147	147	147	147	147
R ² within	0.631	0.632	0.631	0.631	0.632

In core regions, there is less evidence of gains in innovative capacity from institutional development

Differences in patenting capacity are explained by local investment in R&D and that of neighbouring regions

Social filter always matters

Note: Robust standard errors in parenthesis; *** p<0.01, ** p<0.05, * p<0.1. All variables are in natural logarithms except for the QoG Index and the Social Filter Index.

Controlling for endogeneity

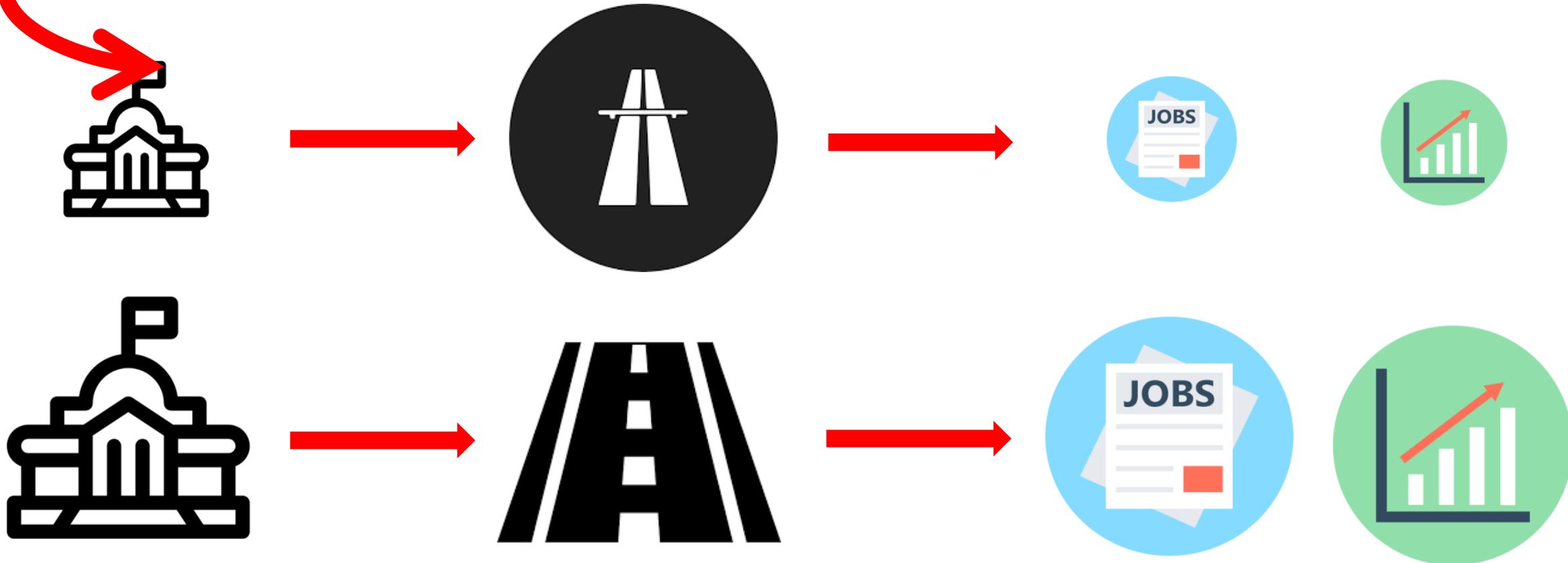
Dep. variable:	QoG index	Control of Corruption	Rule of Law	Govt Effectiv.	Govt Account.	Δ Patents application				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Literacy rate in 1880	0.234*** (0.0249)	0.208*** (0.0228)	0.185*** (0.0195)	0.241*** (0.0280)	0.119*** (0.0192)					
QoG Index (error term 1 st stage)						0.840*** (0.250)				
Control of Corruption (error term 1 st stage)							0.919*** (0.217)			
Rule of Law (error term 1 st stage)								0.384 (0.278)		
Government Effectiveness (error term 1 st stage)									0.466*** (0.156)	
Govt Accountability (error term 1 st stage)										-0.0823 (0.204)
Patents application (t-1)	-0.00111 (0.00118)	-0.00125 (0.00135)	0.00180* (0.00106)	-0.005*** (0.00187)	0.0044*** (0.00143)	-0.439*** (0.0131)	-0.439*** (0.0131)	-0.439*** (0.0131)	-0.438*** (0.0131)	-0.439*** (0.0131)
Business R&D expenditure as percentage of GDP	-0.013*** (0.00167)	-0.00260 (0.00191)	-0.013*** (0.00149)	-0.013*** (0.00265)	-0.020*** (0.00202)	0.166*** (0.0199)	0.166*** (0.0198)	0.166*** (0.0199)	0.166*** (0.0199)	0.166*** (0.0199)
Spatial weight of R&D expenditure	-0.011*** (0.00390)	0.00633 (0.00445)	-0.00617* (0.00349)	-0.026*** (0.00615)	-0.020*** (0.00468)	0.244*** (0.0469)	0.244*** (0.0469)	0.244*** (0.0470)	0.244*** (0.0469)	0.245*** (0.0470)
Social Filter Index	-0.018*** (0.00147)	-0.0037** (0.00169)	-0.024*** (0.00132)	-0.021*** (0.00234)	-0.011*** (0.00179)	0.102*** (0.0177)	0.103*** (0.0178)	0.0996*** (0.0177)	0.0999*** (0.0177)	0.100*** (0.0178)
Access to markets (90 mins distance flights)	0.0222** (0.00960)	0.0177** (0.00878)	0.0158** (0.00752)	0.0227** (0.0108)	0.0348*** (0.00738)	0.114*** (0.0294)	0.113*** (0.0294)	0.115*** (0.0294)	0.115*** (0.0294)	0.115*** (0.0295)
time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,571	2,571	2,571	2,571	2,571	2,571	2,571	2,571	2,571	2,571
Nuts regions	186	186	186	186	186	186	186	186	186	186

Instrument is relevant
(strongly correlated with
endogenous variable)

Results are confirmed

Returns of infrastructure policies

○ Indirect impact (2): Returns of infrastructure policies



Distorted endowment of motorways

	<i>Motorways – Km (2009)</i>	Km Motorways/ 1000 Km ²	Km Motorways/ 10.000 hab.	Km Motorways/ 1000 M€ de GDP
EU 15	61,504	18.98	1.53	5.6
Portugal	2,623 (7)	28.49 (5)	2.49 (3)	15.6 (1)
Spain	13,515 (1)	26.77 (6)	2.93 (1)	12.8 (2)
Sweden	1,855 (8)	4.12(14)	1.96 (6)	6.3 (3)
Austria	1,696(10)	20.22 (9)	2.01 (5)	6.2 (4)
France	11,042 (3)	20.08(10)	1.69 (7)	5.8 (5)
Germany	12,645 (2)	35.43 (4)	1.55(10)	5.3 (6)
Belgium	1,763 (9)	57.75 (2)	1.59 (8)	5.2 (7)
Denmark	1,128(11)	26.18 (7)	2.02 (4)	5.1 (8)
Greece	1,103(12)	8.36(12)	0.98(13)	4.7 (9)
Netherlands	2,637 (6)	63.50 (1)	1.58 (9)	4.6 (10)
Italy	6,629 (4)	22.00 (8)	1.09(12)	4.4 (11)
Finland	739(13)	2.19(15)	1.37 (11)	4.3 (12)
Luxembourg	147(15)	56.84 (3)	2.80 (2)	3.9 (13)
Ireland	423(14)	6.04(12)	0.92(14)	2.6 (14)
United Kingdom	3,559 (5)	14.54(11)	0.57(15)	2.3 (15)

Strange decision-making



Vasco da Gama bridge



Expo Station, Seville



'Radial' motorways, Madrid



eljueves

AVE Toledo-Albacete

SUPRIMIDO EL AVE
TOLEDO-CUENCA-ALBACETE



Castellón Airport



Ciudad Real Airport

FINANCIAL
TIMES

July 17, 2015 5:38 pm

Spanish ghost airport costing €1bn attracts offer of just €10,000



CORRUPTION SEEN AS STEADY DRAIN ON ITALY'S SOUTH

EUROPEANS CONCERNED

Road Project, Begun in the '60s, Is a Symbol of Missed Aid

By RACHEL DONADIO

REGGIO CALABRIA, Italy — Italy's A3 highway, begun in the 1960s and still not finished, starts nearby. Naples in the ancient hill town of Salerno and ends, rather inconspicuously, 200 miles farther south on a local street at downtown Reggio Calabria.

Along the way, it frequently crosses in two lanes, with an obstacle course of construction sites that have inspired far dirtier, faster, two-lane roads. Long-span concrete viaducts high above the sea, while solid tunnels look in the rain — and occasionally slip concrete and other building materials onto passing cars.

Nothing embodies the failures of the Italian state more neatly than the highway from Salerno to Reggio Calabria. Critics see it as the entire fruit of a plan for central Italy, started by the original center that, spurred by the organized crime that is endemic in southern Italy, has systematically dismantled the state while taking its effects, leaving Calabria geographically and economically isolated.



In Venezuela, a New Term for Chávez
 President Hugo Chávez, who faced down his strongest challenge to re-election, celebrated Sunday night in Caracas. Page A16.

The Patent, Used as a Sword
 Tech Giants' Legal Warfare Takes Toll on Innovation

Biden Up Next, Obama's Aides Plot Comeback

ROMNEY STRIVES TO STAND APART IN GLOBAL POLICY

HITS OBAMA'S RECORD

Advisers Reflect Wide Differences Among Republicans

By DEEDEL SANJIAN

WASHINGTON — Mitt Romney is intensifying his efforts to draw a sharp contrast with President Obama on national security in the presidential campaign's closing stages, portraying Mr. Obama as having contributed the most to the Arab world and having left the nation exposed to a terrorist attack in Libya.

In a speech on Monday at the Virginia Military Institute, Mr. Romney will declare that "hope is not a strategy" for dealing with the rise of Islamic governments in the Middle East or an Iraq racing toward the capability to build a nuclear weapon, according to excerpts released by his campaign.

The essence of Mr. Romney's argument is that he would take the United States back to an earlier era, one that would result, at his young foreign policy director, Alex Hong, told reporters on Sunday, in "the restoration of a strategy that would do well for the years."

From 2000 to 2011, Italy received more than \$60 billion in the European Union financing to underwrite a wide array of programs, in areas including agriculture and infrastructure, most of it directed to the south, with little but a half-completed highway to show for it. Spain, which was given a little more than US\$100 billion, at least built a world-class high-speed rail network. (Greece received 50 billion, an enormous amount in per capita terms, also to a clear effect.) *Rachel Donadio, NYT, Oct. 7, 2012*

A1 Motorway Greece

Motorway Salerno-Reggio Calabria



Growth & investment in motorways

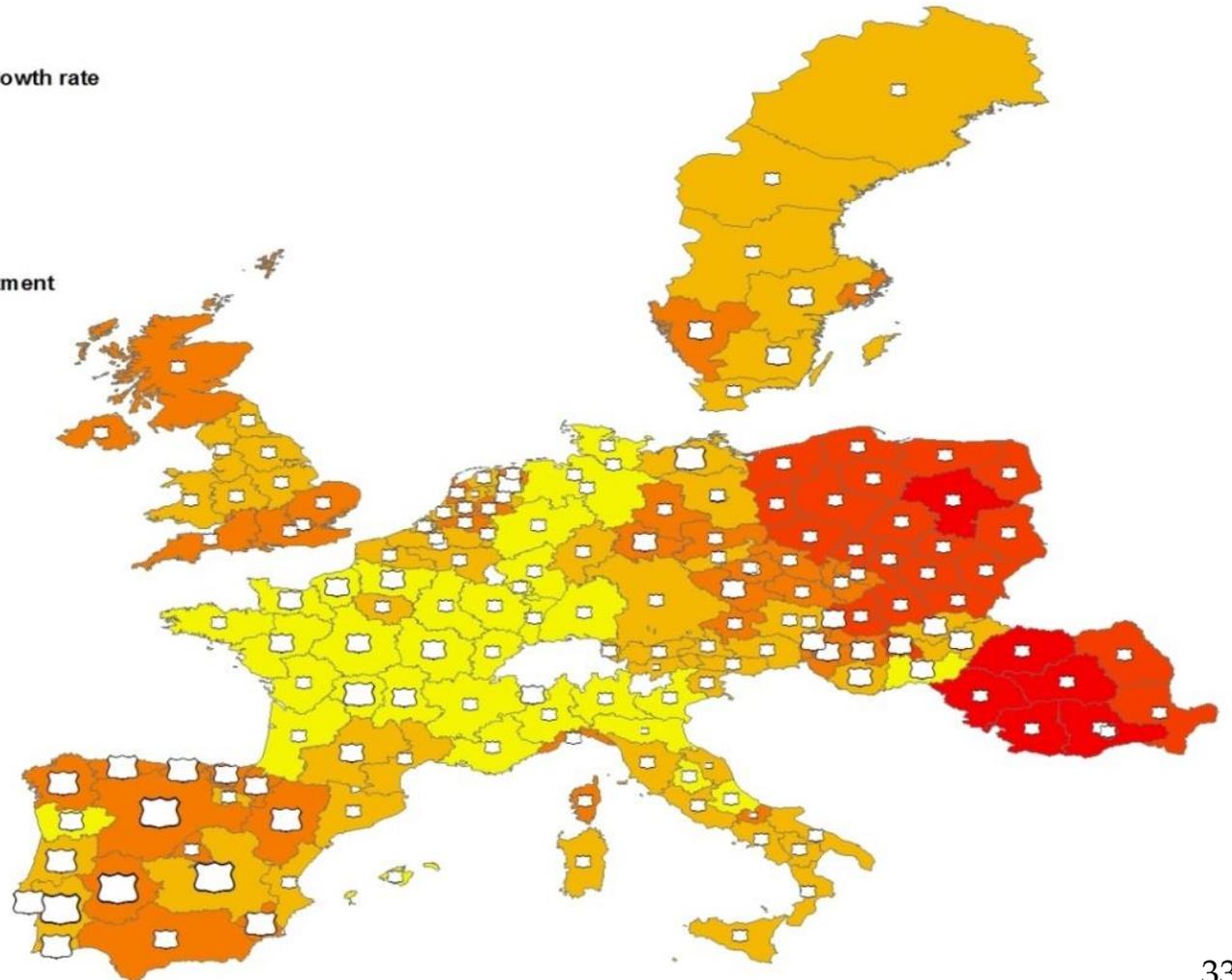
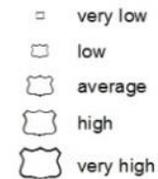
○ Indirect impact

Legend

per capita GDP growth rate



motorways investment



Growth & investment in secondary roads

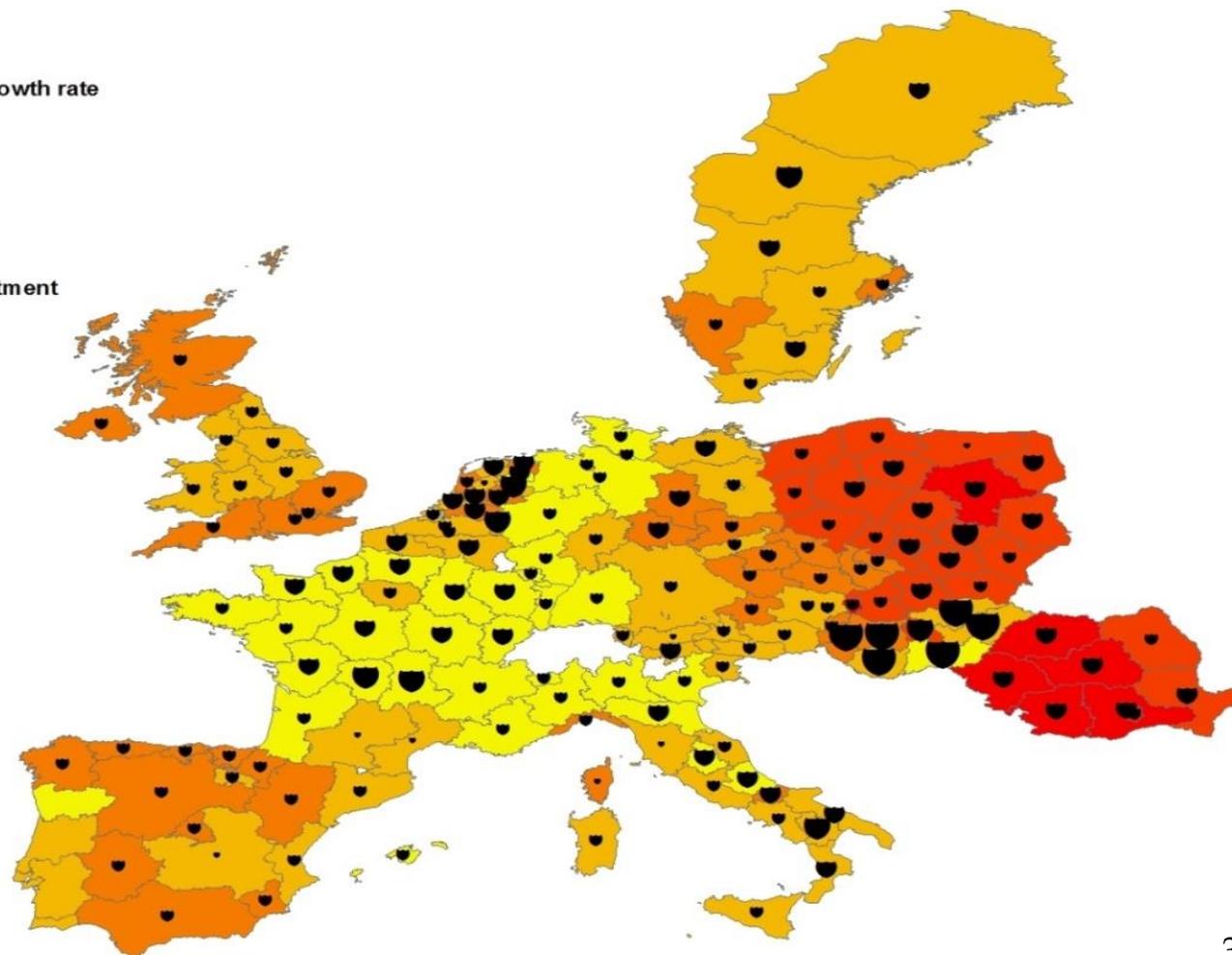
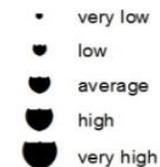
○ Indirect impact

Legend

per capita GDP growth rate



other roads investment



Motorways – full sample

Dep. variable: Δ ln GDP	QoG Combined Index		Control of Corruption	Rule of Law	Government Effectiveness	Government Accountability
Ln of initial GDP	-0.0302*** (0.0103)	-0.0940*** (0.0130)	-0.0901*** (0.0130)	-0.0952*** (0.0132)	-0.0886*** (0.0124)	-0.0787*** (0.0128)
Change in motorways per 1000 inhabitants	0.126** (0.0613)	0.0847 (0.0525)	0.0640 (0.0496)	0.0752 (0.0528)	0.0695 (0.0527)	0.0707 (0.0511)
Quality of Government (QoG) Component	0.0318*** (0.00500)	0.0346*** (0.00466)	0.0254*** (0.00409)	0.0275*** (0.00394)	0.0215*** (0.00280)	0.00611** (0.00273)
Interaction term (motorways investment)*(QoG)	-0.118 (0.0856)	-0.0663 (0.0739)	-0.0703 (0.0736)	-0.0797 (0.0786)	-0.0298 (0.0594)	-0.0650 (0.0588)
Spatial Weight of motorways investment		0.784*** (0.162)	0.714*** (0.149)	0.771*** (0.158)	0.731*** (0.163)	0.745*** (0.154)
Agricultural Employment		-0.00285*** (0.000648)	-0.00244*** (0.000669)	-0.00308*** (0.000655)	-0.00293*** (0.000648)	-0.00265*** (0.000679)
Ln patents application		0.00657*** (0.00171)	0.00592*** (0.00179)	0.00609*** (0.00177)	0.00624*** (0.00167)	0.00480*** (0.00174)
Ln of employed people with tertiary education		0.0158*** (0.00469)	0.0107** (0.00472)	0.0202*** (0.00459)	0.0124*** (0.00471)	0.0132*** (0.00495)
Regional population	-4.46e-05*** (1.21e-05)	-1.53e-05** (7.52e-06)	-2.33e-05*** (6.54e-06)	-1.66e-05** (7.09e-06)	-1.25e-05 (7.69e-06)	-2.54e-05*** (7.20e-06)
time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,293	2,269	2,269	2,269	2,269	2,269
R ² within	0.377	0.458	0.470	0.484	0.481	0.466
Nuts regions	166	166	166	166	166	166

Positive impact of motorways investment when other growth determinants are not accounted for

The coefficient of all institutional components is positive and highly significant

But their interaction is insignificant

Controls: positive network effect from motorway investment, positive impact of innovation and HK endowment, negative effect of agricultural employment

Motorways – lagging regions

Dep. variable: Δ ln GDP	QoG Combined Index	Control of Corruption	Rule of Law	Government Effectiveness	Government Accountability
Ln of initial GDP	-0.123*** (0.0201)	-0.117*** (0.0215)	-0.110*** (0.0204)	-0.104*** (0.0187)	-0.0890*** (0.0208)
Change in motorways per 1000 inhabitants	-0.0478 (0.0773)	-0.0837 (0.0729)	-0.0500 (0.0825)	-0.0353 (0.0647)	-0.0737 (0.0715)
Quality of Government (QoG) Component	0.0603*** (0.00788)	0.0449*** (0.00832)	0.0347*** (0.00804)	0.0384*** (0.00460)	0.0121*** (0.00387)
Interaction term (motorways investment)*(QoG)	-0.110 (0.103)	-0.0896 (0.103)	-0.134 (0.110)	-0.114 (0.0857)	-0.0334 (0.0632)
Spatial Weight of motorways investment	0.409** (0.187)	0.439** (0.184)	0.291 (0.199)	0.524*** (0.188)	0.552*** (0.195)
Agricultural Employment	-0.00292*** (0.000829)	-0.00248*** (0.000843)	-0.00309*** (0.000777)	-0.00319*** (0.000826)	-0.00308*** (0.000808)
Ln patents application	0.00748*** (0.00279)	0.00673** (0.00290)	0.00584** (0.00267)	0.00677** (0.00294)	0.00558* (0.00284)
Ln of employed people with tertiary education	0.0417*** (0.0102)	0.0296*** (0.00997)	0.0348*** (0.00933)	0.0387*** (0.01000)	0.0266** (0.0101)
Regional population	1.14e-06 (1.12e-05)	-2.41e-05** (9.57e-06)	-1.35E-05 (1.06e-05)	9.04e-06 (1.19e-05)	-2.43e-05** (1.09e-05)
time effects	Yes	Yes	Yes	Yes	Yes
Observations	936	936	936	936	936
R ² within	0.449	0.430	0.451	0.423	0.409
Nuts regions	70	70	70	70	70

Insignificant impact of motorways investment in the periphery

Institutions have a stronger effect (higher coefficient)

And the interaction remains insignificant

Controls: spillover effect sensibly reduced; magnitude of all other coefficients has increased, especially human capital

Other roads – full sample

Dep. variable: Δ ln GDP	QoG Combined Index		Control of Corruption	Rule of Law	Government Effectiveness	Government Accountability
Ln of initial GDP	-0.0252** (0.0101)	-0.0901*** (0.0140)	-0.0910*** (0.0142)	-0.0872*** (0.0139)	-0.0877*** (0.0135)	-0.0816*** (0.0139)
Change in other roads per 1000 inhabitants	0.00102** (0.000487)	0.000607 (0.000476)	0.000831 (0.000509)	0.000228 (0.000525)	0.000893* (0.000480)	0.000508 (0.000447)
Quality of Government (QoG) Component	0.0235*** (0.00484)	0.0246*** (0.00436)	0.0212*** (0.00431)	0.0132*** (0.00347)	0.0181*** (0.00257)	-0.000716 (0.00266)
Interaction term (other roads investment)*(QoG)	0.00157* (0.000829)	0.00234*** (0.000873)	0.00195** (0.000965)	0.00267*** (0.00101)	0.00212** (0.000816)	0.00285*** (0.00103)
Spatial Weight of other roads investment		0.00366** (0.00155)	0.00351** (0.00159)	0.00342** (0.00154)	0.00346** (0.00149)	0.00317** (0.00147)
Agricultural Employment		-0.00352*** (0.000626)	-0.00324*** (0.000643)	-0.00359*** (0.000641)	-0.00364*** (0.000610)	-0.00346*** (0.000648)
Ln patents application		0.00534*** (0.00180)	0.00491*** (0.00187)	0.00451** (0.00187)	0.00529*** (0.00178)	0.00355* (0.00184)
Ln of employed people with tertiary education		0.0136*** (0.00512)	0.0102** (0.00502)	0.0143*** (0.00500)	0.0111** (0.00496)	0.00948* (0.00516)
Regional population	-4.46e-05*** (1.21e-05)	-1.53e-05** (7.52e-06)	-2.33e-05*** (6.54e-06)	-1.66e-05** (7.09e-06)	-1.25e-05 (7.69e-06)	-4.46e-05*** (1.21e-05)
time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,158	2,134	2,134	2,134	2,134	2,134
R ² within	0.387	0.472	0.470	0.484	0.481	0.466
Nuts regions	161	161	161	161	161	161

**Investments in other roads
only weakly correlated
with regional growth**

**Government quality
confirmed as key growth
determinant (except for
Govt Accountability)**

**If associated with higher
levels of institutional
quality, other roads
investment becomes a
significant driver of
economic performance**

**Controls as before. Positive
network effect from other
roads investment**

Other roads – lagging regions

Dep. variable: Δ ln GDP	QoG Combined Index	Control of Corruption	Rule of Law	Government Effectiveness	Government Accountability
Ln of initial GDP	-0.129*** (0.0218)	-0.131*** (0.0232)	-0.109*** (0.0220)	-0.109*** (0.0197)	-0.0934*** (0.0213)
Change in other roads per 1000 inhabitants	0.000401 (0.000497)	0.000914* (0.000516)	-0.000188 (0.000559)	0.000859* (0.000507)	0.000377 (0.000466)
Quality of Government (QoG) Component	0.0595*** (0.00801)	0.0503*** (0.00953)	0.0272*** (0.00698)	0.0375*** (0.00445)	0.00835* (0.00498)
Interaction term (other roads investment)*(QoG)	0.00352*** (0.00118)	0.00374*** (0.00116)	0.00445*** (0.00151)	0.00273*** (0.000918)	0.00352*** (0.00116)
Spatial Weight of other roads investment	0.00299 (0.00204)	0.00402* (0.00214)	0.00320 (0.00194)	0.00200 (0.00194)	0.00317* (0.00186)
Agricultural Employment	-0.00339*** (0.000834)	-0.00295*** (0.000889)	-0.00367*** (0.000825)	-0.00362*** (0.000759)	-0.00363*** (0.000805)
Ln patents application	0.00753*** (0.00276)	0.00675** (0.00287)	0.00630** (0.00300)	0.00567** (0.00274)	0.00495* (0.00291)
Ln of employed people with tertiary education	0.0420*** (0.0134)	0.0305** (0.0127)	0.0338*** (0.0127)	0.0338*** (0.0113)	0.0227* (0.0119)
Regional population	5.04e-06 (8.77e-06)	-2.01e-05** (7.85e-06)	-1.21e-05 (8.12e-06)	1.29e-05 (9.26e-06)	-2.19e-05** (8.89e-06)
time effects	Yes	Yes	Yes	Yes	Yes
Observations	876	876	876	876	876
R ² within	0.472	0.460	0.438	0.459	0.431
Nuts regions	66	66	66	66	66

Weak positive correlation between investments in other roads and growth

QoG always significant

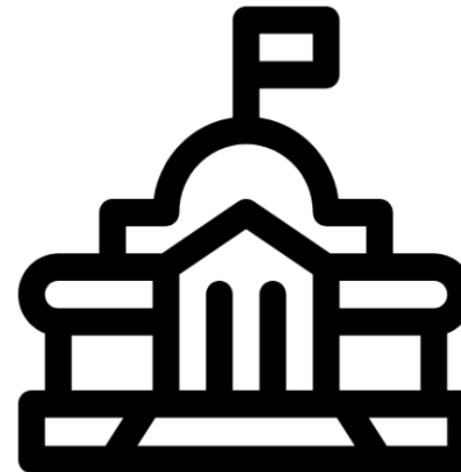
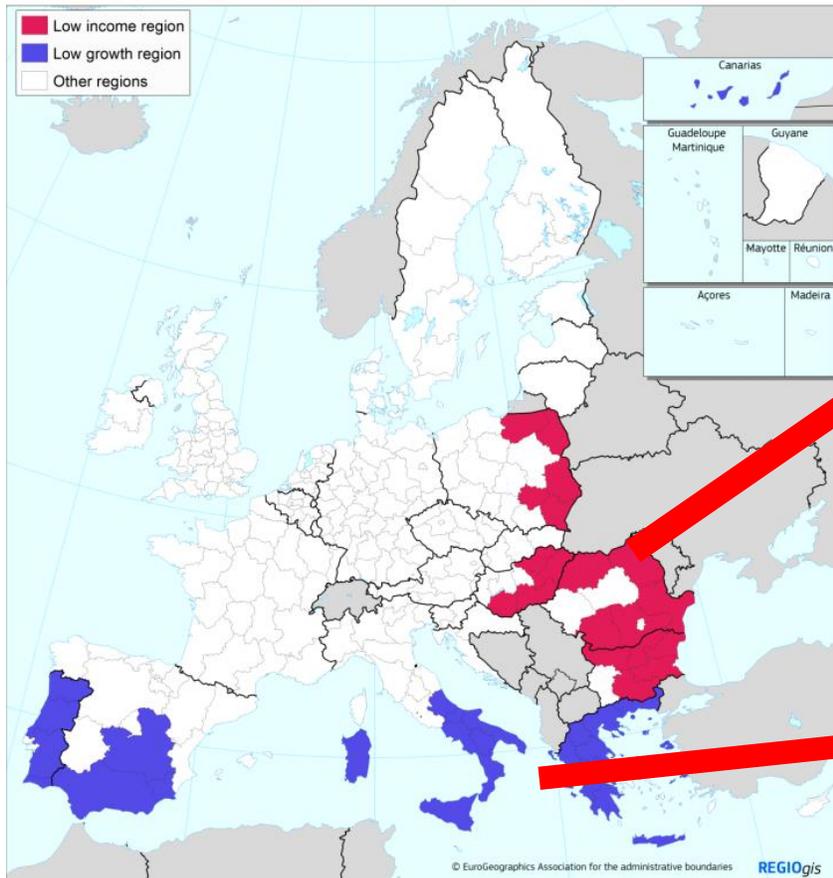
The better the institutional quality and the higher the investment in local roads, the higher the change in regional GDP

Weak evidence of spillover effect. Innovative potential and human capital strongly affect growth

Different policies for different types of regions

○ Different policies for different types of territories

Lagging Regions



Types of less developed regions

	Employment rate 20-64 2013	Unemployment rate 2013	Low education attainment in % of people aged 25-64 2013	R&D as a % of GDP 2011	Quality of Government index 2013	Road accessibility 2013
EU-28	68.3	10.8	24.8	2	0	272
Low Income regions	62.5	10.1	21.3	0.5	-1.1	95
Low Growth regions	51.2	24.9	51.4	0.9	-0.8	82

Low growth regions

Fixed effects analysis

Variables	(1)	(2)	(3)	(4)	(5)
Level of accessibility index	-0.065** (0.030)	-0.125*** (0.034)	-0.024 (0.042)	-0.067* (0.035)	-0.100*** (0.031)
Change of accessibility index	-0.438*** (0.100)	-0.229* (0.128)	-0.150 (0.126)	-0.437*** (0.107)	-0.296*** (0.087)
Level of human capital & innovation index	0.095*** (0.032)	0.069* (0.037)	0.087** (0.034)	0.095** (0.034)	0.074** (0.033)
Change of human capital & innovation index	-0.020 (0.037)	-0.009 (0.042)	-0.017 (0.039)	-0.014 (0.041)	-0.011 (0.041)
Level of institutional quality (QoG)	-1.117*** (0.193)				
Change of institutional quality (QoG)	0.792*** (0.171)				
<i>Institutional index components</i>					
Level of corruption index		0.013 (0.116)			
Change of corruption index		0.281*** (0.090)			
Level of rule of law index			-0.792*** (0.184)		
Change of rule of law index			-0.103 (0.073)		
Level of government effectiveness				-0.621*** (0.16)	
Change of government effectiveness				0.231** (0.096)	
Level of government accountability					-0.233 (0.147)
Change of government accountability					0.795*** (0.117)
Constant	3.124*** (0.686)	1.222** (0.556)	2.603*** (0.680)	2.778*** (0.791)	1.401*** (0.466)
Observations	347	347	347	347	347
Number of regions	27	27	27	27	27

Levels and improvements in accessibility have been detrimental for growth in low growth regions

Human capital and innovation endowments essential

QoG big barrier, but improvements fuel growth

Low income regions

Fixed effects analysis

Variables	(1)	(2)	(3)	(4)	(5)
Level of accessibility index	-0.602*** (0.124)	-0.600*** (0.133)	-0.613*** (0.127)	-0.560*** (0.115)	-0.581*** (0.115)
Change of accessibility index	0.746*** (0.238)	0.808*** (0.246)	0.673** (0.268)	0.765*** (0.223)	0.706*** (0.224)
Level of human capital & innovation index	0.088** (0.034)	0.097** (0.036)	0.073** (0.032)	0.099*** (0.034)	0.0740** (0.031)
Change of human capital & innovation index	-0.038 (0.041)	-0.045 (0.042)	-0.040 (0.047)	-0.043 (0.040)	-0.010 (0.043)
Level of institutional quality (QoG)	-0.387* (0.211)				
Change of institutional quality (QoG)	-0.129 (0.311)				
<i>Institutional index components</i>					
Level of corruption index		-0.109 (0.175)			
Change of corruption index		0.038 (0.185)			
Level of rule of law index			-0.571*** (0.169)		
Change of rule of law index			0.065 (0.291)		
Level of government effectiveness				-0.185 (0.223)	
Change of government effectiveness				-0.135 (0.165)	
Level of government accountability					-0.426*** (0.142)
Change of government accountability					0.0587 (0.182)
Constant	8.585*** (2.054)	6.951*** (1.919)	9.806*** (1.879)	6.449*** (2.055)	9.145*** (2.314)
Observations	244	244	244	244	244
Number of regions	19	19	19	19	19

Poor accessibility a barrier, improvements foster growth

Human capital and innovation endowments essential

QoG negative, but improvements still not relevant

Conclusions

- **Good governance matters**
 - *Directly:* Good governance is a fundamental factor for the economic performance of regions in Europe
 - *Indirectly:* Good governance influences the outcomes of other policies
- **Improvements in governance, powerful driver of growth**
 - Changes in governance matter more than initial levels
 - Poor governance not an insurmountable barrier for jobs and growth
 - Incapacity/unwillingness to improve governance is

Key policy takeaways

- **One-size-fits-all policies are not the solution**
 - Determinants of growth vary considerably across different types of regions
 - Different approaches are thus needed
- **Governance improvements essential for low growth regions**
 - Benefits from improving basic growth endowments have become exhausted. Reducing corruption and gov. effectiveness the way forward
- **In low income regions basic endowment shortages still the main barrier to development**

Institutions, government quality and regional growth

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