



Brexit and Regional Personality Traits:

*More Psychological Openness Could Have Swung
the Vote*

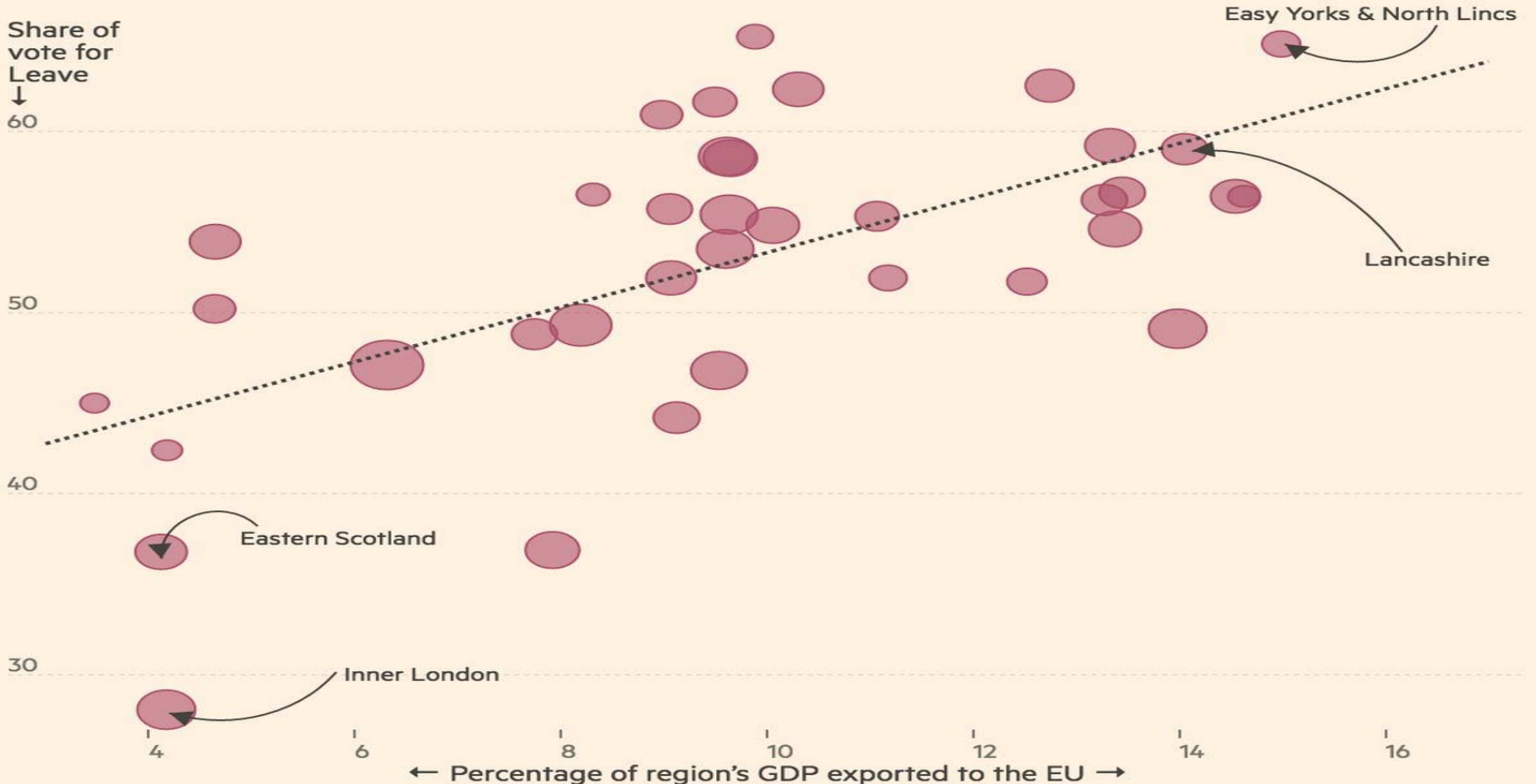
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Soudis, Ron Martin & Jason Rentfrow**

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Leave vote was strongest in regions most economically dependent on EU

The regions with the highest share of votes for Leave also tend to be the most economically intertwined with the EU. A higher percentage of East Yorkshire & Northern Lincolnshire's economic output is sold to other EU countries than is the case for any other UK region, yet 65 per cent of its electorate voted to Leave



Referendum results: Press Association
EU trade research: John Springford, Philip McCann, Bart Los and Mark Thissen
Graphic by John Burn-Murdoch / @jburnmurdoch

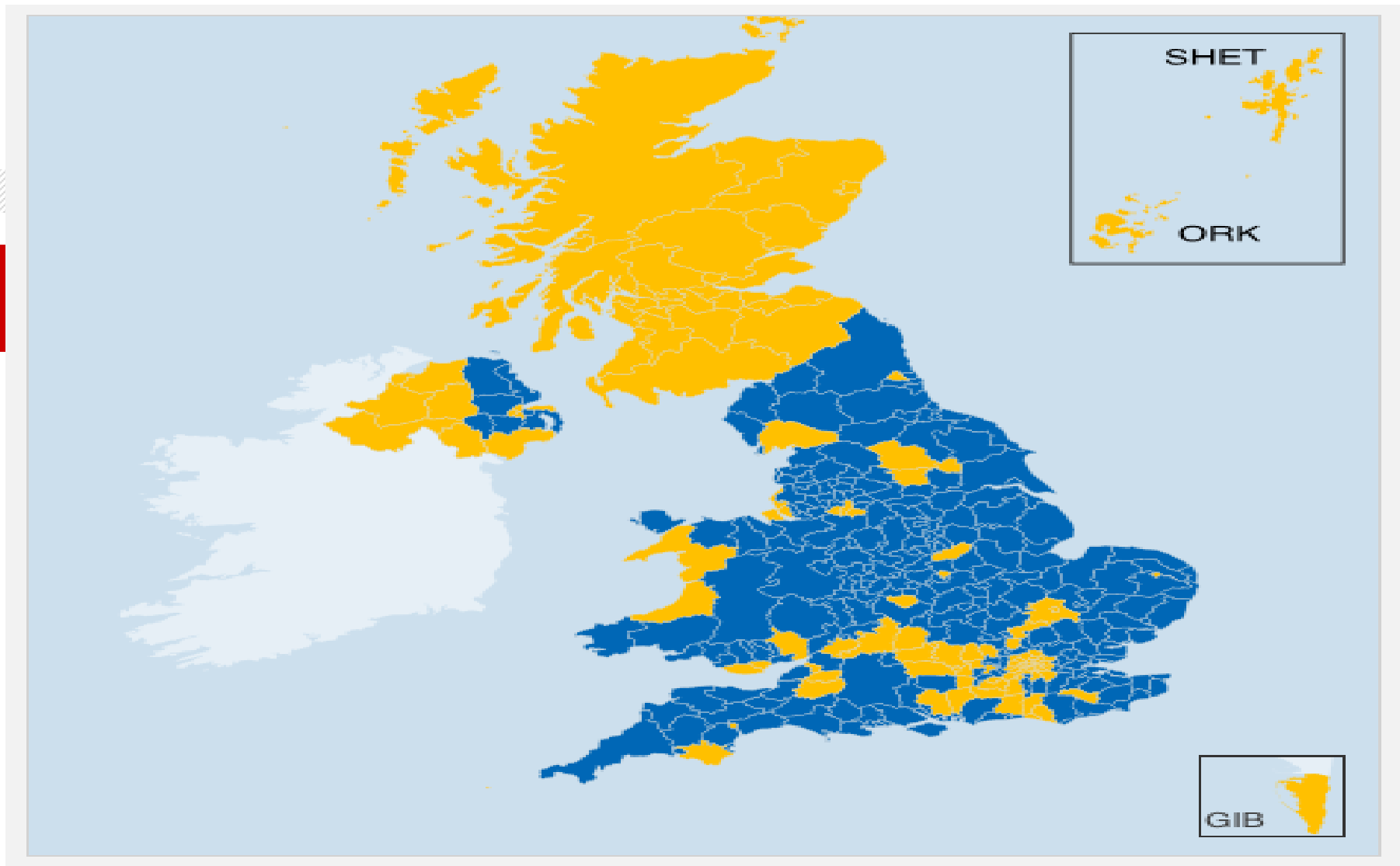


This is now “the geography of discontent”?



OUTLINE

- › **Key Q: what explains regional Brexit vote?**
[= “globalisation in crisis?” conference theme]
- › Why add a regional personality perspective?
- › How can this be done?
- › Estimation results for Brexit
- › Conclusions



Key:

- Majority leave
- Majority remain
- Tie
- Undeclared

Why/how could psychology explain this voting map?



Explaining the Brexit vote

- › Benchmark paper: Becker, Fetzer and Novy (2016)
<http://voxeu.org/article/fundamental-factors-behind-brexit-vote>
- › Economics vs demography/education vs public finances vs (previous) political preferences vs EU exposure: **5 (very large!) sub-sets of explanations**
- › Sample: 380 Local Authority Districts (LAD) for UK

Table 5: Predictors of Brexit Vote: Economic Structure, Wages and Unemployment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Retail employment share (2001)	7.019*** (0.418)	5.514*** (0.403)	4.302*** (0.430)	4.186*** (0.407)	4.381*** (0.393)	4.233*** (0.392)	4.260*** (0.384)	3.872*** (0.420)	3.938*** (0.414)	3.876*** (0.409)	3.857*** (0.416)	3.858*** (0.416)	3.857*** (0.424)
Retail employment share change (2001-2011)				-1.443*** (0.371)	-1.596*** (0.377)	-1.469*** (0.362)	-1.230*** (0.345)	-1.661*** (0.396)	-1.389*** (0.385)	-1.507*** (0.430)	-1.464*** (0.452)	-1.454*** (0.452)	-1.457*** (0.468)
Manufacturing employment share (2001)		3.621*** (0.356)	3.688*** (0.302)	3.767*** (0.290)	3.679*** (0.292)	3.738*** (0.292)	3.930*** (0.299)	3.721*** (0.381)	4.012*** (0.403)	4.120*** (0.423)	4.124*** (0.423)	4.122*** (0.423)	4.117*** (0.447)
Manufacturing employment share change (2001-2011)							0.760** (0.369)		0.818** (0.392)	0.999* (0.510)	1.010** (0.503)	1.003** (0.505)	1.005* (0.513)
Construction employment share (2001)			3.220*** (0.426)	2.962*** (0.418)	2.974*** (0.409)	3.264*** (0.428)	3.182*** (0.430)	3.037*** (0.461)	2.977*** (0.457)	2.964*** (0.460)	2.923*** (0.496)	2.915*** (0.512)	2.915*** (0.513)
Construction employment share change (2001-2011)										0.374 (0.477)	0.364 (0.481)	0.361 (0.480)	0.363 (0.483)
Finance employment share (2001)								0.942** (0.472)	1.088** (0.464)	1.081** (0.463)	1.100** (0.476)	1.106** (0.482)	1.106** (0.485)
Finance employment share change (2001-2011)											-0.115 (0.392)	-0.114 (0.392)	-0.113 (0.397)
Median hourly pay (2005)								-1.454** (0.665)	-1.374** (0.661)	-1.399** (0.658)	-1.387** (0.657)	-1.410** (0.683)	-1.412** (0.683)
Median hourly pay change (2005-2015)						-0.839** (0.337)	-0.935*** (0.339)	-1.261*** (0.372)	-1.314*** (0.367)	-1.274*** (0.370)	-1.267*** (0.371)	-1.280*** (0.362)	-1.282*** (0.369)
Unemployment rate (2015)					0.881*** (0.299)	0.897*** (0.301)	0.996*** (0.304)	0.732** (0.304)	0.842*** (0.305)	0.820*** (0.307)	0.838*** (0.314)	0.862** (0.336)	0.860** (0.344)
Self-employment rate (2015)													-0.016 (0.380)
Participation rate (2015)												0.069 (0.393)	0.071 (0.388)
Best Subset									X				
Observations	380	380	380	380	377	377	377	377	377	377	377	377	377
R2	.454	.554	.637	.655	.66	.666	.67	.672	.677	.678	.678	.678	.678

Notes: Table reports results from OLS regressions. The dependent variable is the share of the Leave vote in a local authority area in England, Scotland and Wales. Empirical models selected using best subset selection on the set of predictors using the AIC information criterion. Best subset marked by "X". Robust standard errors are presented in parentheses, asterisks indicate: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

“Economics” only 1 sub-set of explanatory variables. Take away:
large residual.....



Regional Personality Data

- › Survey on “Big 5” personality dimensions (openness, conscientiousness, neuroticism, agreeableness and extraversion)
- › N=417,217 for UK
- › Individual data (Big 5 and *additional biographical info*)
- › Aggregated to LAD level (380 LADs in UK))



Reasons for a geography of personality

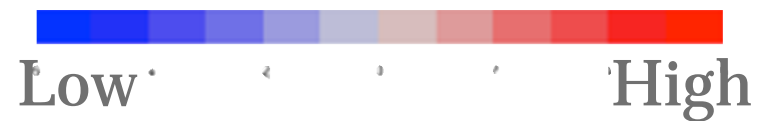
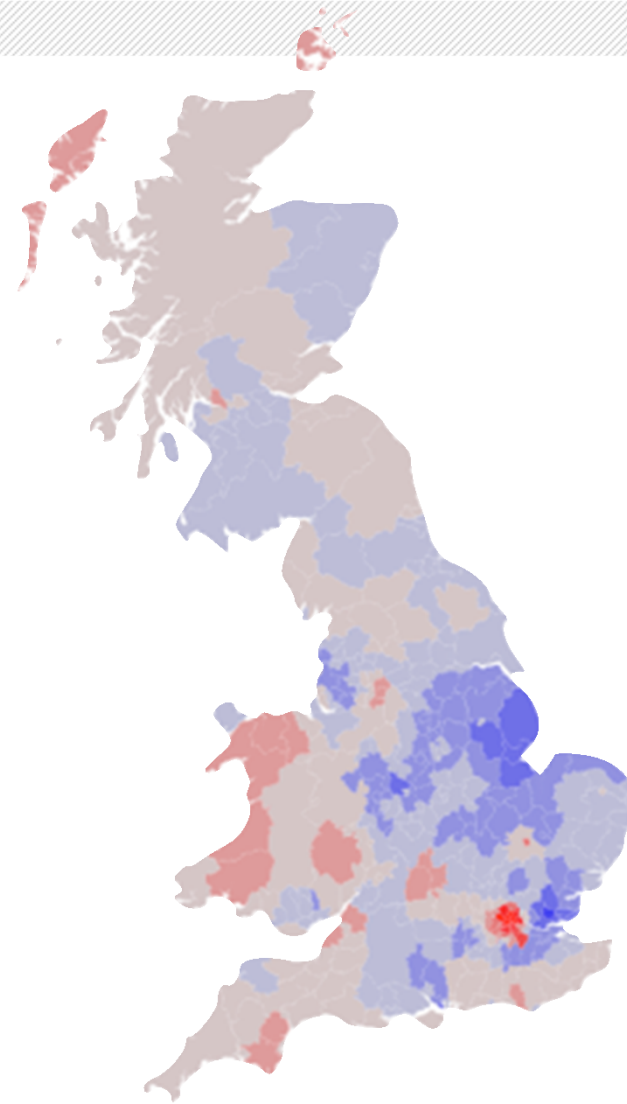
1. Selective migration
2. Social influence
3. Ecological influence

(Rentfrow et al, 2012)



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groningen

Openness



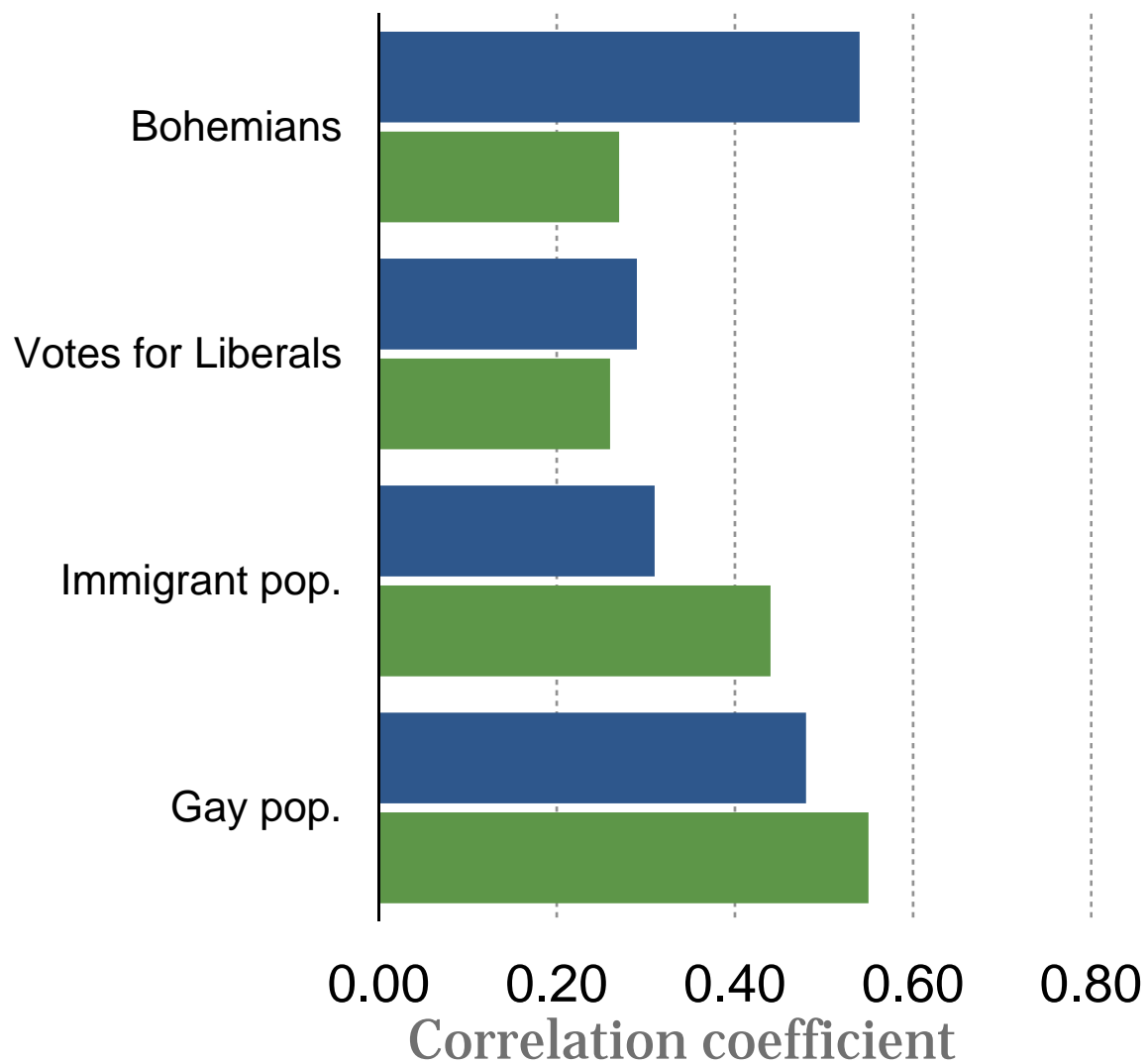
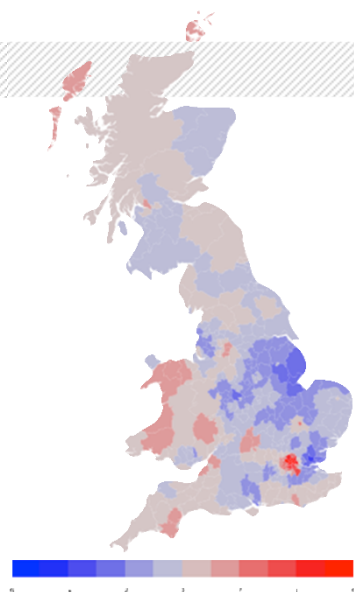
Rentfrow, Jokela, & Lamb
(2015). *PLOS One*



Openness

■ GB

■ US





The relevance of Big 5 for.....

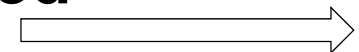
- › **Economic outcomes**: Garretsen et al (2017); Lee (2016); Huggins/Thompson (2016); Obschonka et al (2016).....
- › **Election outcomes**: Gerber et al (2011), Samek (2017).....
- › **What about *Openness* or *Neuroticism* for instance?**

	Dependent Variable:				
VARIABLES	Neuroticism (First stage results)	Output Growth	Employment Growth	Output Growth (Deviation from National)	Employment Growth (Deviation from National)
Traumatic Experience	0.120***				
	(0.0357)				
Neuroticism		-10.01**	-8.559**	-313.9**	-254.4**
		(4.800)	(3.702)	(125.3)	(100.8)
New Town	-0.0250**	1.204***	1.180***	24.05***	23.68***
	(0.00944)	(0.373)	(0.341)	(7.790)	(7.752)
Landlocked	0.00204	0.211	0.115	5.829	3.887
	(0.00831)	(0.138)	(0.108)	(3.510)	(3.004)
Distance to London	2.57e-05	-0.000867	-0.00106**	0.00356	-0.0157
	(2.41e-05)	(0.000632)	(0.000515)	(0.0179)	(0.0129)
Krugman Spes. Index	0.0659	2.261	0.685	55.45	14.57
	(0.0447)	(1.362)	(0.913)	(39.10)	(24.62)
Size (log)	-0.00319	0.128*	-0.0202	0.743	-2.663*
	(0.00455)	(0.0736)	(0.0754)	(1.713)	(1.589)
Young Population	0.0783	0.303	1.682	4.355	29.77
	(0.0594)	(1.585)	(1.265)	(41.10)	(33.30)
Constant	2.376***	30.49**	25.06**	907.7**	750.6**
	(0.167)	(14.21)	(10.97)	(367.2)	(296.0)
Observations	63	63	63	63	63



Causality is a Big(5) Issue.....

- › Other IV examples for UK regions using Big5
Rentfrow data:
 1. Obschonka et al (2017) “In the shadow of coal”:
here, Big5 are instrumented with 19th century econ
development (=coalfield sites) in UK
 2. Lee (2016), “Psychology and the geography of
innovation”: Big5 (conscientiousness) instrumented
with 19th century Irish migrants across UK regions
 3. **Look for cases where IV is not/less needed**





Big 5 personality data and political outcomes

- › Why is causality not or less of an issue?
- › Findings mainly on individual voting (Gerber et al 2011)
 - Liberalism and openness
 - Conservatism and conscientiousness
 - Take the case of Trump vs Clinton (Samek, 2017)

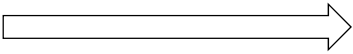
Dependent variable
REMAIN VOTE
 (% district vote)

NEUROTICISM	-38.104^{***} (10.512)
AGREEABLENESS	49.183^{***} (13.564)
CONSCIENTIOUSNESS	-34.634^{***} (10.702)
OPENNESS	87.654^{***} (6.177)
EXTRAVERSION	-16.701[*] (9.174)
AGE_(median)	-1.243^{***} (0.188)
SEX_1	-48.336^{***} (16.962)
ASIAN	-26.379^{***} (9.569)
BLACK	-3.155 (22.729)
MIXED	-98.559^{**} (46.119)
OTHER	44.875 (72.076)
INCOME	12.644^{***} (1.074)
UNEMPLOYMENT	-30.168 (35.750)
Constant	-146.031 (97.572)
Observations	380
Adjusted R²	0.643



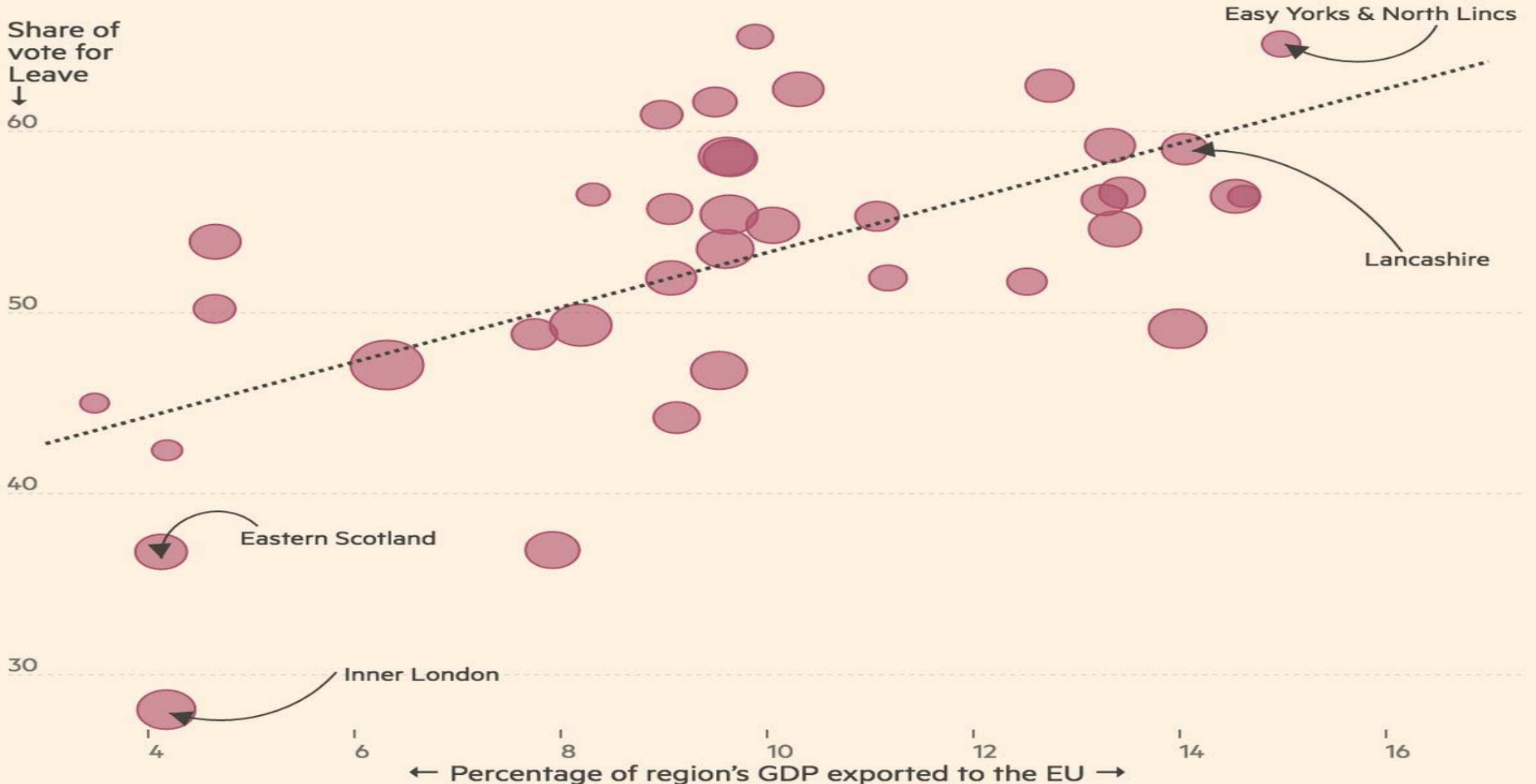


How relevant are Big5 for Brexit vote

- › Univariate regression with Openness: adj. $R^2=0.453$
- › Previous table: $R^2= 0.643$ (> 0.5 with only Big5)
- › What if we add dominant economic , social and demographic explanations to the model: 

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Graphic by John Burn-Murdoch / @jburnmurdoch



Back to our puzzle.....

TABLE 1 The Remain vote share explained

	<i>Dependent variable:</i>		
	REMAIN vote (% of total district vote)		
	(1)	(2)	(3)
EXTRAVERSION		-16.701 [*] (9.174)	-2.682 (5.099)
AGREEABLENESS		49.183 ^{***} (13.564)	31.696 ^{***} (7.658)
NEUROTICISM		-38.104 ^{***} (10.512)	4.938 (5.583)
OPENNESS		87.654 ^{***} (6.177)	30.848 ^{***} (4.126)
CONSCIENTIOUSNESS		-34.634 ^{***} (10.702)	-15.596 ^{***} (5.990)
Population (x1.000)	0.005 ^{**} (0.002)		0.005 ^{**} (0.002)
Manufacturing (% of total employment)	-0.259 ^{***} (0.083)		-0.198 ^{***} (0.068)
Unemployment (% of active population)	0.587 ^{**} (0.265)		0.383 (0.257)
Age (median)	-0.477 ^{***} (0.085)		-0.453 ^{***} (0.077)
Higher Education (% of population)	1.199 ^{***} (0.095)		0.933 ^{***} (0.090)
# Educational Qualific. (% of population)	0.152 (0.146)		-0.122 (0.143)
Immigration (% of population)	-0.149 ^{***} (0.045)		-0.166 ^{***} (0.037)
Scotland dummy	15.732 ^{***} (0.995)		15.596 ^{***} (1.096)
Constant	28.784 ^{***} (5.509)		-138.279 ^{***} (52.759)
Observations	380	380	380
Adjusted R ²	0.866	0.643	0.891

Note: *p-value <0.1 ** p-value<0.05 ***p-value<0.01.



About results for openness.....

- › *Could it have swung the vote?*
 - 1 s.d. increase in openness implies a 5,87% increase in Remain vote! (column 2)
 - in full model: 1,61% increase
- › Openness ranks 4th in set of 14 explanatory variables
- › Related new study (Obschonka et al 2017): similar findings for Brexit



Conclusions/research agenda

- › More on theory (why Big5 matters for these outcomes)
- › Big5 of whom? ((non)native?; age?.....)
- › Policy implications or interventions (examples....)
- › BUT: *including psychology leads to a better understanding of economic and political geography, and to a better understanding of spatial impact of structural changes*