

# Mobile Internet and Confidence in Governments

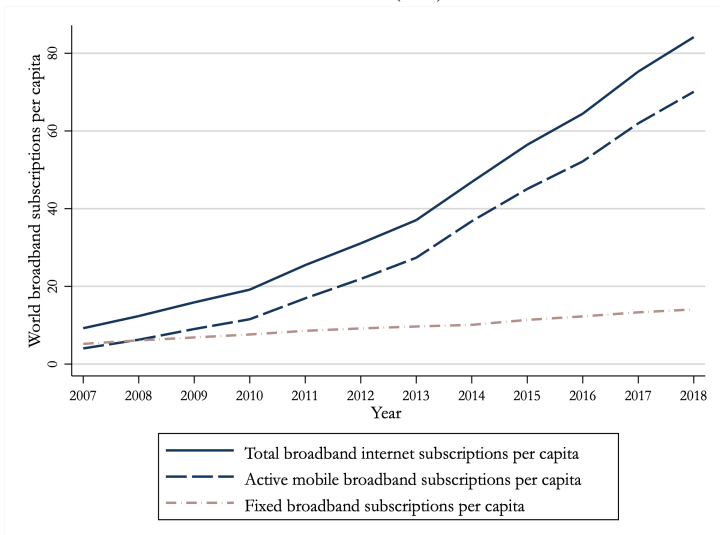
Ekaterina Zhuravskaya (Paris School of Economics, EHESS)

*Based on “3G and Confidence in Government”  
by Guriev, Melnikov, and Zhuravskaya, accepted to QJE*

Public lecture, November 2020

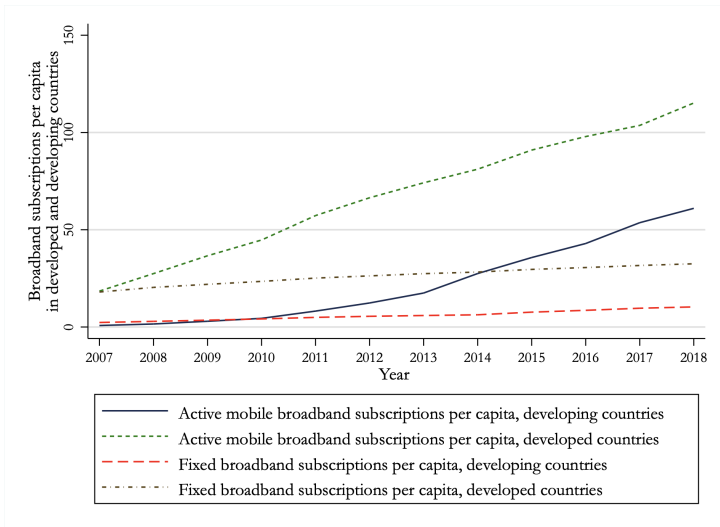
# ICT revolution in the last decade

Broadband internet access has grown because of the expansion of mobile broadband (3G) internet



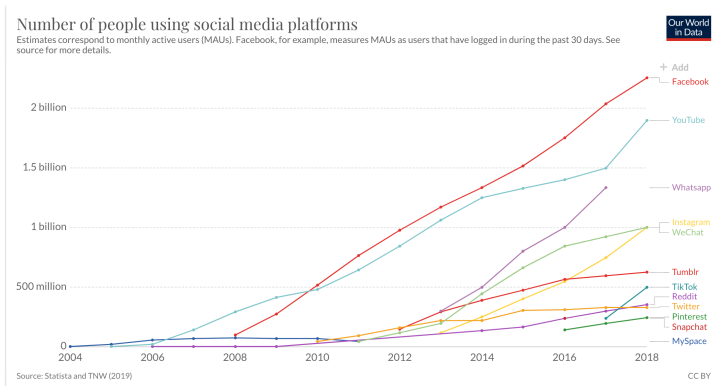
# ICT revolution in the last decade

Perhaps, more surprisingly, it is true in both developed and developing countries



# Implications beyond broadening internet access

- 3G was the first generation mobile technology allowing users to freely stream and upload videos
- it was a key driver of the rapid expansion of social media
- 3G not only change how much time we spend online, but what we do



## Ongoing public debate

What are the political implications of the expansion of mobile broadband internet around the world?

- Starting with Arab Spring, optimists call internet a “Liberation technology”
  - Improves access to independent political information
  - Social media enables two-way information flows, which helps coordinating protests
- Pessimists consider the internet and social media a “misinformation technology,” which
  - facilitates the dissemination of fake news
  - empowers non-democratic regimes by reducing costs of surveillance and propaganda
  - helps populists to connect to voters, especially through social media
- These conjectures found empirical support in a number of single-country studies (survey: Zhuravskaya, Petrova, and Enikolopov 2020)

## Martin Gurri's *The Revolt of the Public*

Yet, they seem to describe a global phenomenon:

In a recent book, a former CIA analyst Martin Gurri argues:

- *“the rise of Homo informaticus [a person relying on social media for information] places governments on a razor’s edge, where any mistake, any untoward event, can draw networked public into the streets... This is the situation today for authoritarian governments and liberal democracies alike. The crisis in the world [...] concerns loss of trust in government”*
- *“the greater the diffusion of information to the public [through social media], the more illegitimate any political status quo will appear... [It] poses an existential challenge to the legitimacy of every government”*

# What we do...

- Our paper is the first to document political effects of the expansion of mobile broadband internet across the world
- We combine data on:
  - the expansion of 3G internet across the globe over the last decade
  - survey data on attitudes toward governments from the Gallup World Poll (GWP)
  - election results for European democracies
  - and a lot of measures of institutional environment and corruption
- The global setting allows us to shed light on at least some of the mechanisms at play by comparing the effect of 3G on government approval across different institutional environments

# The main takeaways

- 1 On average, access to 3G internet decreases government approval
- 2 The availability of independent-of-the-government political information is one of the channels at play
  - The internet helps expose *actual* corruption
  - Censorship and the overall level of corruptness matter for the effect of 3G
- 3 In Europe, incumbents lose votes with the expansion of 3G internet
  - Only the *populist* opposition benefits



1 story is more persuasive than statistics with 1M obs.

A triumph of Klaus Iohannis, Romanian “Facebook President”



## Romania 2014: “Facebook President”

- In 2014 presidential election, to everybody’s surprise, incumbent Victor Ponta lost to a complete outsider, a former physics teacher, Klaus Iohannis
- Romania was the 2nd-most corrupt country in the EU and Iohannis won on the anti-corruption ticket
- Iohannis campaigned primarily on Facebook:
  - On election night, he wrote: *“Together, we have won the battle here on Facebook! ... For the first time, the online has made a difference.”*
- A post-election survey: 1/2 of Romanians use Facebook and 70% of them admit that social media played a major role in their voting decision
- ... Iohannis sticks to his election promises: he fights corruption in Romania from his office

It is not always all great, however...

Jair Bolsonaro, Brazilian “WhatsApp President”

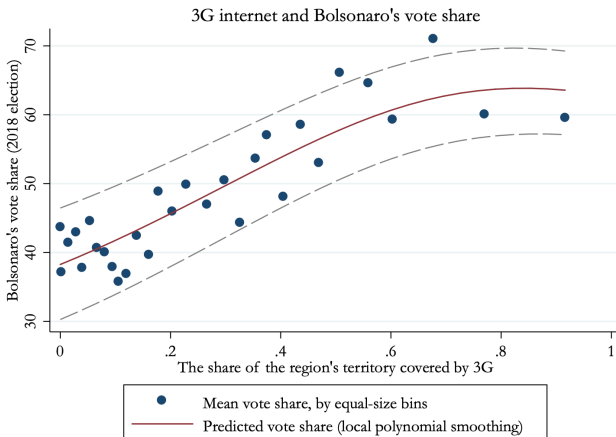


## Brazil 2018: “WhatsApp President”

- In 2018, a right-wing populist presidential candidate, Jair Bolsonaro, was also an outsider
- Due to electoral-campaign rules favoring incumbents, he had no access to TV → ran a fully digital campaign, mostly on WhatsApp
- He criticised entrenched elites, but also disseminated false stories about the incumbent
- WhatsApp is particularly well suited for spreading false news
  - ① 90% of Brazilian internet users actively use WhatsApp
  - ② because of widespread so-called “zero-rating” plans, which allow only limited number of applications, and do not give access external websites
  - ③ Encrypted chats within closed groups make fact checking impossible
- Bolsonaro won in the second-round with 55% of the vote

# Election results and mobile broadband internet coverage

- Bolsonaro's margin of victory was higher in places covered by mobile internet networks, necessary to connect to WhatsApp
- Despite the fact that mobile internet coverage is higher in urban areas, which were a priori less likely to vote for a populist right-wing candidate



Story No. 3 is about exposing corruption in autocracies where incumbents do not lose elections because opposition is not allowed to run, yet ratings of autocrats are affected

- This audience knows this story well
- A documentary “He is Not Dimon to You” ([https://www.youtube.com/watch?v=qrwlk7\\_GF9g](https://www.youtube.com/watch?v=qrwlk7_GF9g)) that can only be viewed on YouTube led to an unprecedented fall in ratings of the former Russia’s Prime Minister
- As of yesterday, the film had 36.7M views YouTube

# Roadmap

- Data
- Average results across the globe
- Mechanisms
  - The effect of online and offline censorship
  - The impact of 3G expansion in cleaner vs. dirtier countries
  - Does 3G internet help expose actual corruption
- Electoral implications
- Conclusions

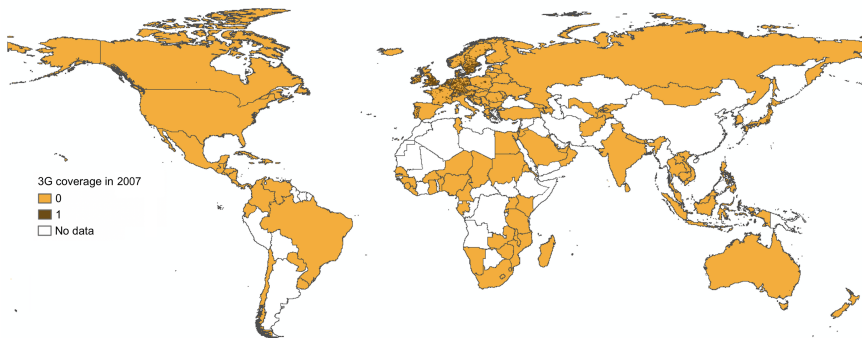
# Outcome 1: Confidence in government

- Gallup World Poll
- Survey of about 1 million people
- between 2008 and 2017
- the same questions asked to people in over 100 countries
- Questions: *“Do you have confidence in each of the following, or not: The national government? The judicial system and courts? The honesty of elections? Is corruption widespread throughout the government in your country, or not?”*
  - *Yes/No*
- information on subnational region for each respondent and the time of the interview



# 3G networks in 2007

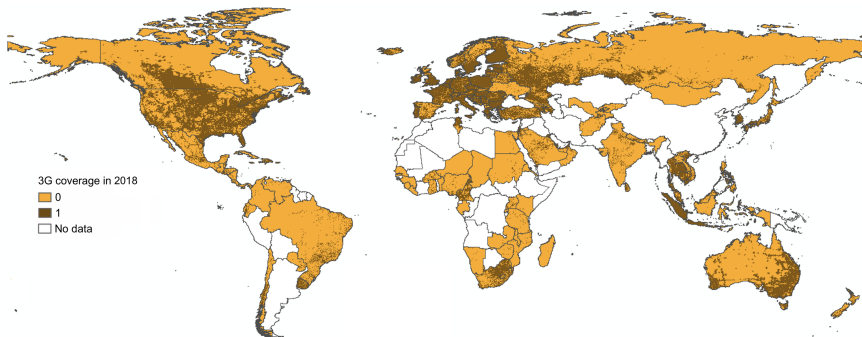
ITU: Only 0.04 active mobile broadband subscriptions per capita in 2007



Sample: Countries with 3G and GWP data.

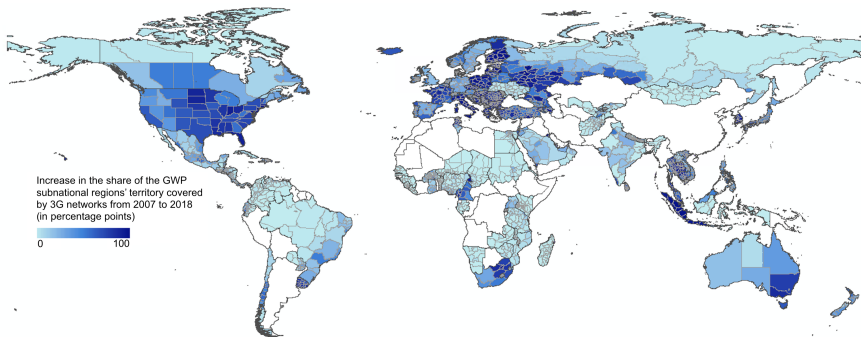
# 3G networks in 2018

ITU: 0.70 active mobile broadband subscriptions per capita in 2018



Sample: Countries with 3G and GWP data.

# The increase in 3G network coverage from 2007 to 2018 (by GWP subnational regions)



Sample: Countries with 3G and GWP data.

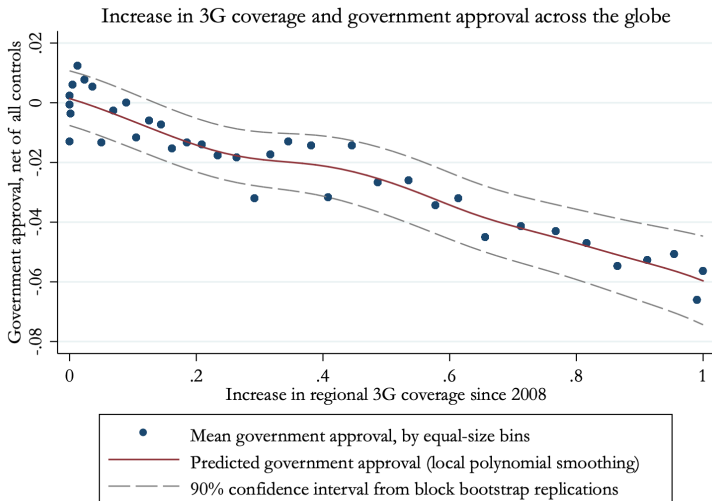
Map: 3G networks in Europe

# How we measure the political effects of 3G?

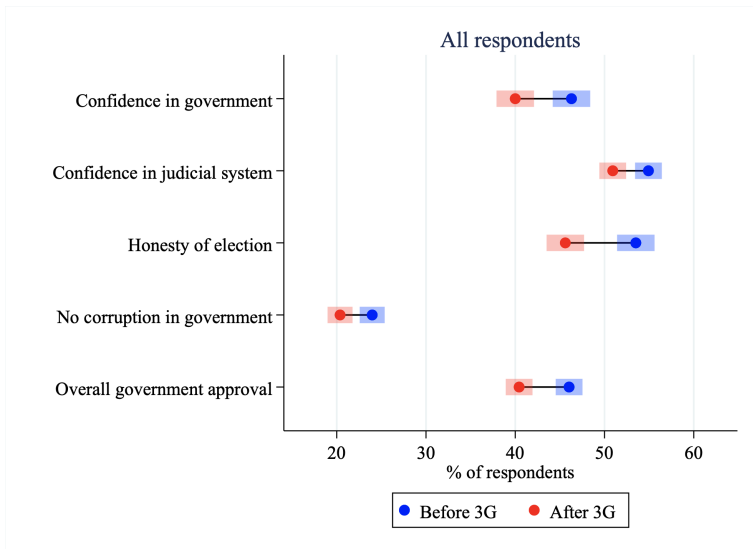
## Exercise No. 1

- Look at how government approval changes with the arrival of mobile internet into a subnational region, taking into account other factors that can affect government approval, such as economic development, demographics, education, income, etc.

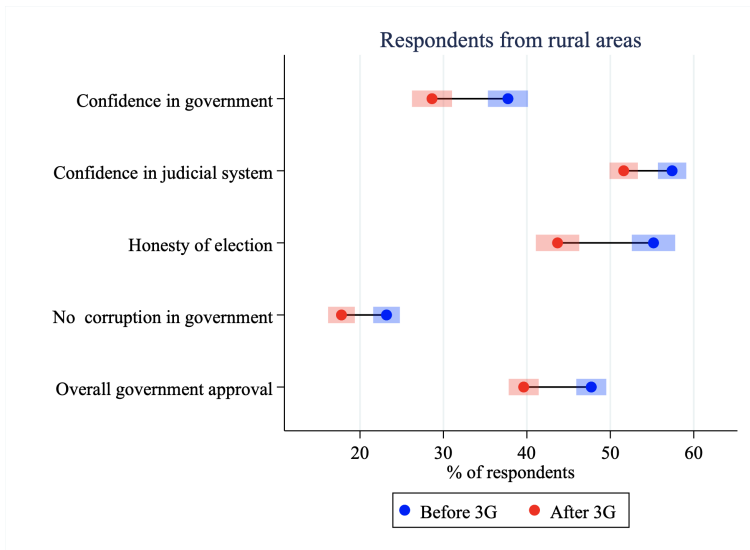
# 3G internet and government approval



# 3G internet and government approval, all respondents



# The effect is even bigger for rural respondents

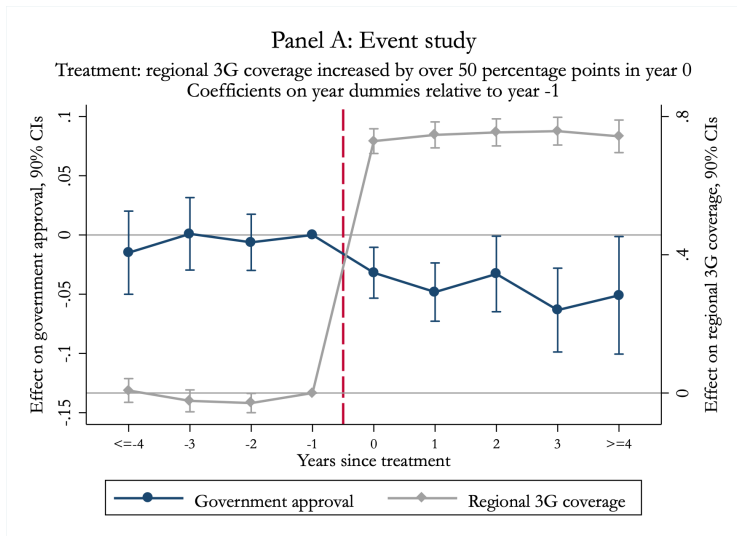


# Economists care about causality

- Could it be that the expansion of 3G networks is driven by a change in government approval or other factors related to it?
  - Yes, but it is unlikely
  - To show this, we look at the dynamics of government approval around sharp changes in regional 3G coverage
    - Define a sharp increase as more than half of the population of the subnational region get access to 3G in one year
    - 452 regions in 65 countries

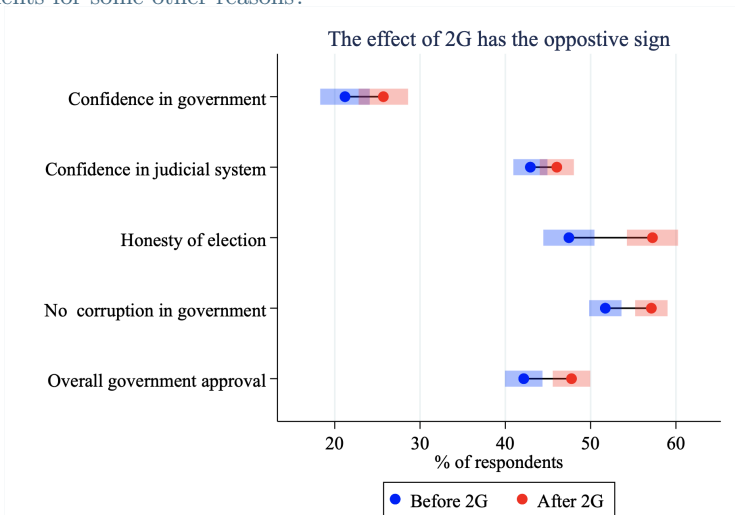


# Change in government approval around sharp 3G increases



## 2G networks allowed SMS, but not broadband internet

Could it be that any new ICT leads to fall in government approval? Could it be that the places that get new ICT technology have decreasing trends in trust of the governments for some other reasons?

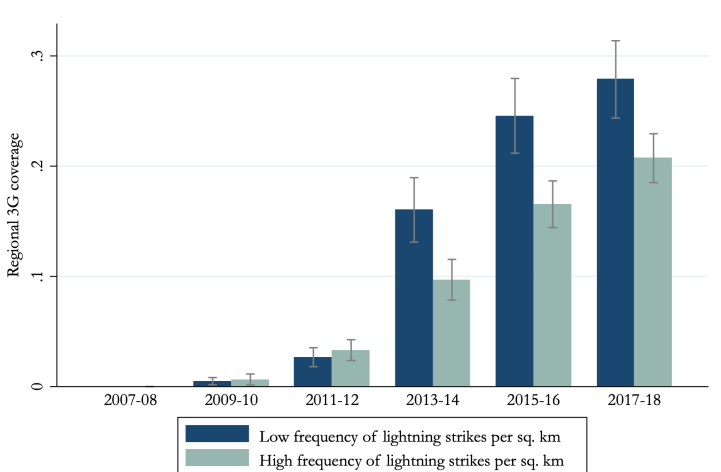


## Exercise No. 2

- To fully address causality, one needs to find a factor that affects 3G expansion, but is sure not to affect government approval (in other way than by affecting 3G)
- Frequent lightning strikes cause power surges, which substantially increase the costs of providing mobile service and maintaining the infrastructure
  - Thus, they hinder the rollout of telecommunication technologies
- We use frequency of lightning to predict which subnational regions will get mobile internet faster and which slower
  - Then, we compare trends in government approval in these groups of regions

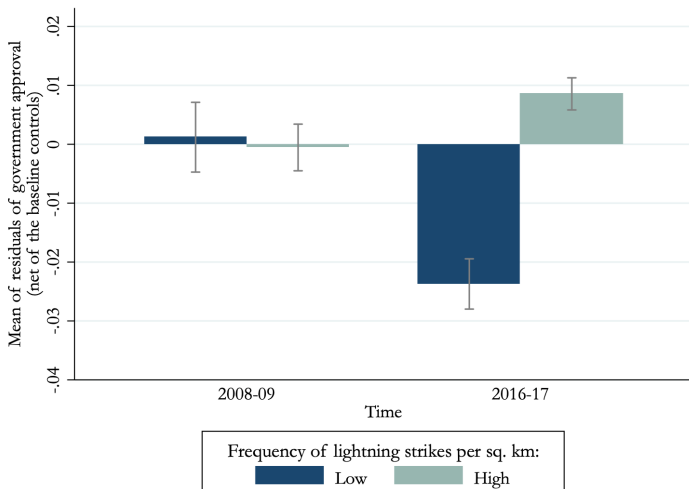
# Lightning frequency is a predictor of the speed of 3G expansion, when there is no power-surge protection

Sample of countries with below-median GDP per capita



# What is the dynamics of government approval in regions with different lightning frequency?

Sample of countries with below-median GDP per capita



# What could explain this effect of 3G?

## Mechanism 1: The information channel

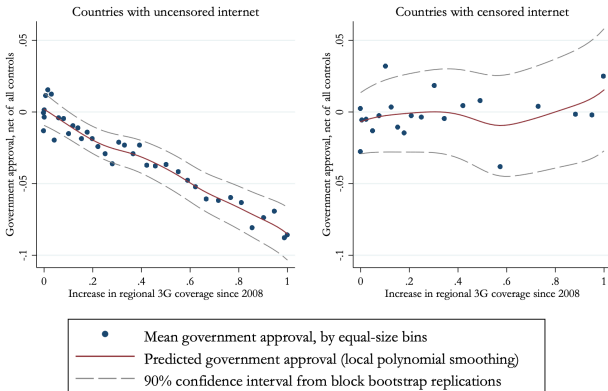
If 3G provides citizens with negative information on government performance (be that real or fake)

- The effect should be weaker if internet content is censored
- The effect should be stronger if alternative channels of information (e.g., traditional media) are censored

# Comparative analysis: Internet censorship

3G coverage and government approval: Low vs. high internet censorship

Increase in 3G coverage and government approval across the globe



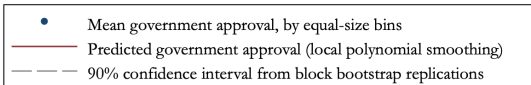
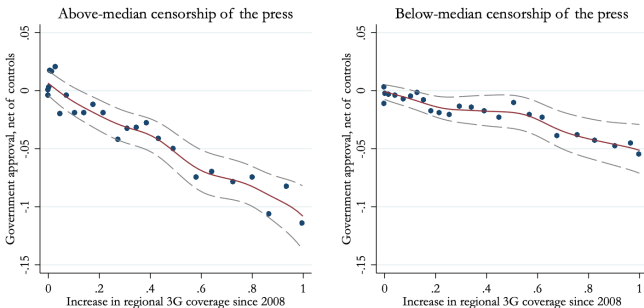
Difference comes from content, not access to internet

Data: Limits on Online Content score from Freedom House

# Comparative analysis: Censorship of traditional media

The effect of 3G is stronger when traditional media is censored

## Increase in 3G coverage and government approval in countries with uncensored internet



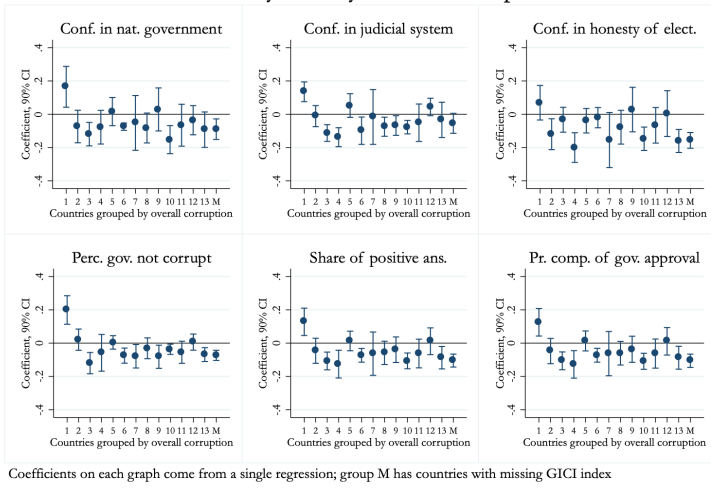


## Why is the *average* effect negative?

- Social media is more prone to disseminating negative messages
  - which biases the public opinions towards being focused on the negative, after the arrival of 3G
- The elites in many countries have some control over traditional media, which means that the pre-3G view of the government was too positive, and this positive bias gets corrected with 3G
- Yet, if the government is super-clean (e.g., Denmark or Switzerland), even when social media is biased toward negative news, people should learn that in other countries the situation is even worse, if so, they should improve confidence in own government
  
- Is the effect negative everywhere?

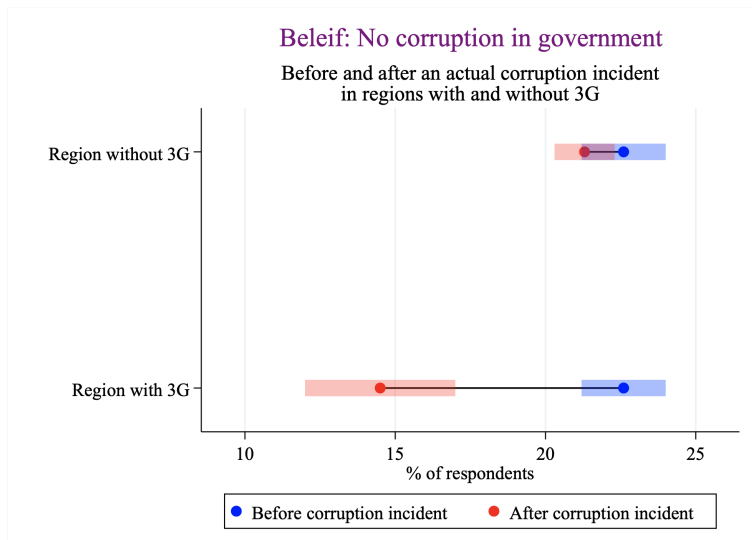
# In clean countries, 3G expansion *increases* ratings

The effect of 3G by country's overall corruption level on:



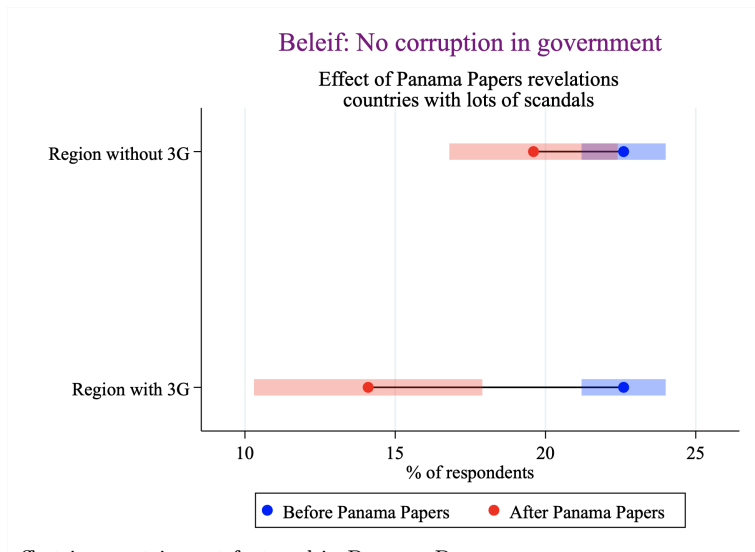
Clean countries: Denmark, Germany, Japan, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, New Zealand

# Does 3G internet help expose actual corruption? GICI



Data: Global Incidents of Corruption Index (GICI) from Furceri, et al. (2019)

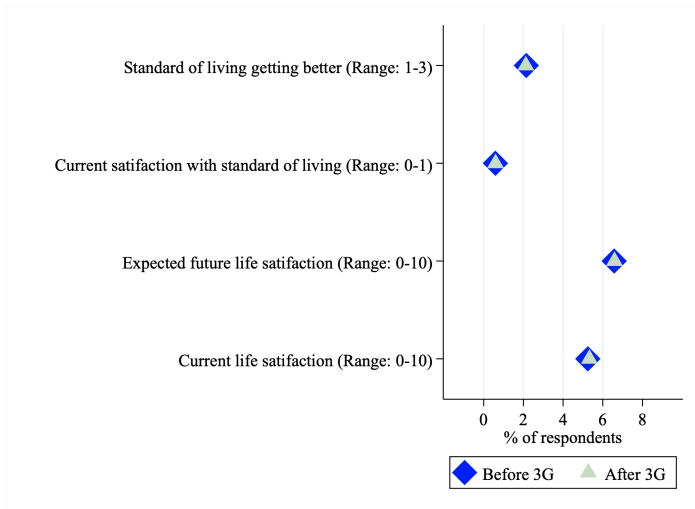
# Does 3G help expose actual corruption? Panama Papers



No effect in countries not featured in Panama Papers

# Alternative mechanism “general unhappiness”

Could it be that social media makes people generally unhappy?

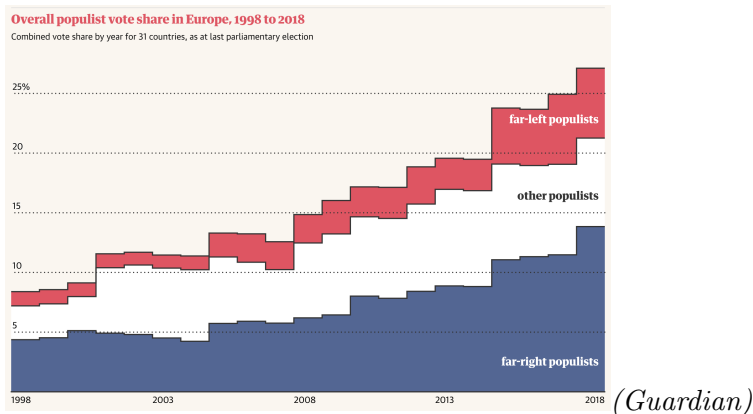


## Outcome 2: Elections

What are electoral implications of voter disillusionment with the government, caused by 3G expansion?

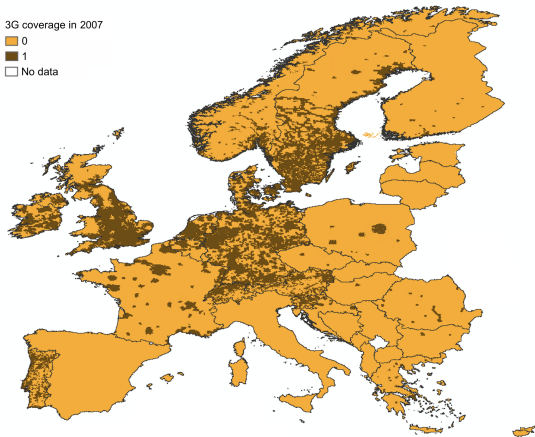
- We test for the effect of 3G on vote shares for:
  - incumbents, opposition, Populist and Green parties in Europe
- Focus of Europe because:
  - A recent rise of populist parties in Europe
- Data:
  - 33 European democracies
  - 102 parliamentary elections between 2007 and 2018
  - Populist parties are classified based on the Chapel Hill Expert Survey and text analysis of online sources
  - Subnational level

# Rise of populism in Europe



- The number of Europeans living in a country with a populist in cabinet has increased 13-fold from 12.5M in 1998 to 170.3M in 2018

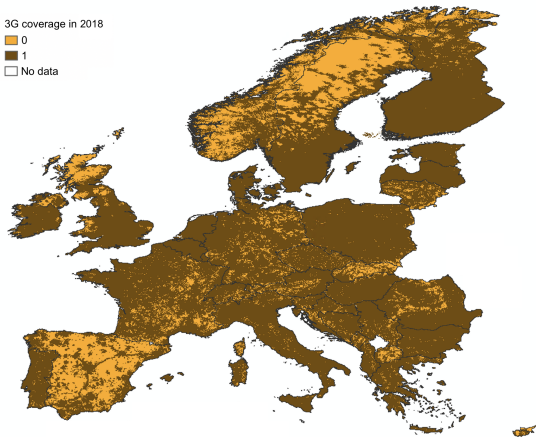
# 3G networks in Europe 2007



Sample: Countries with 3G and GWP data.

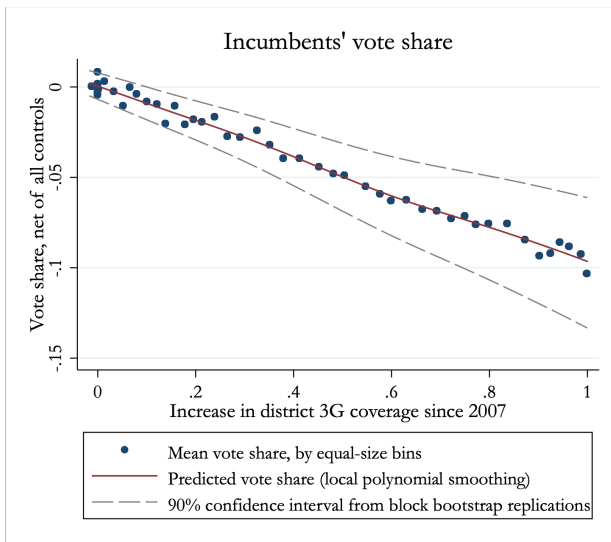


# 3G networks in Europe in 2018

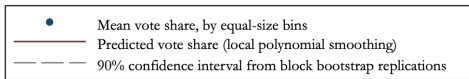
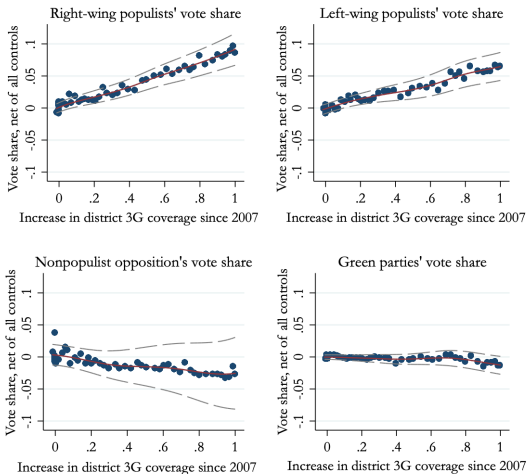


Sample: Countries with 3G and GWP data.

# Electoral implications of 3G internet: incumbents



# Electoral implications of 3G internet: opposition



# Why populists?

- **Importantly, populist incumbents are hurt by the criticism of the government online as much as other incumbents**
- The mechanism behind the effect on populist opposition is unclear and could be both coincidental and causal
- The timing of the 3G expansion could have coincided with the time when the populist message resonated with voters
- It could also be that some opposition political messages are better suited to the format of social media
  - Populist messages may be simpler, and thus, better suited for a short and catchy communication
    - For instance, the Green parties' narrative is more complex, asking voters to take responsibility for the planet
- More research needed to understand this

# Conclusions

- Access to mobile broadband internet reduces government approval
- Independent political information is an important mechanism:
  - The effect is only present in countries, where the internet is not censored, and is stronger when the traditional press is censored
  - The internet helps expose actual corruption to the public
  - Mobile broadband internet increases government approval in the least corrupt countries
- The expansion of 3G internet has electoral implications in democracies:
  - In Europe, 3G reduces incumbent parties' vote shares
  - Only the populist opposition gains from the 3G expansion
    - This suggests that providing critical information about governments may not be the only channel, as the story of Bolsonaro illustrates

# Appendix

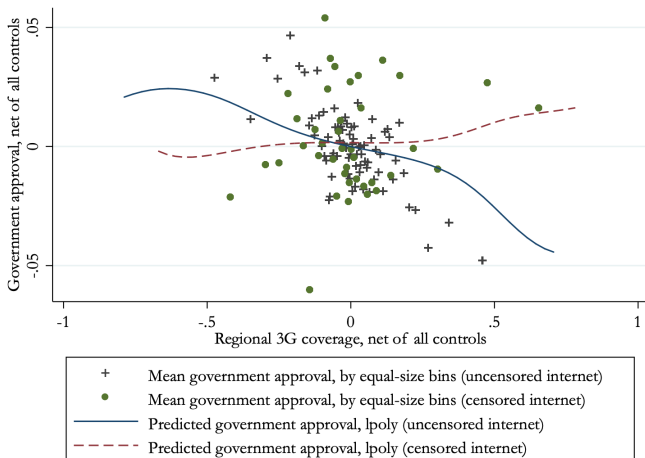
# Classification of political parties in Europe (example)

Country	Right-wing populists	Left-wing populists	Other populists
France	FN–Front National (2007, 2012, 2017), Debout la France (2017)	La France Insoumise (2017)	
Germany	National Democratic Party of Germany (2009, 2013, 2017), The Republicans (2009), Alternative for Germany (2013, 2017)	Die Linke (2009, 2013, 2017)	Die Partei (2017)
Greece	LA.O.S.–Popular Orthodox Rally (2007, 2009, 2012), Golden Dawn (2012, 2015), ANEL–Independent Greeks (2012, 2015)	SYRIZA–Coalition of the Radical Left (2007, 2009, 2012, 2015), Popular Unity (2015)	
Italy	FdI–Brothers of Italy (2013, 2018), LN–Northern League (2008, 2013, 2018), CasaPound Italia (2018)	Civil Revolution (2013), Power to the People (2018)	M5S–Five Star Movement (2013, 2018), PdL–The People of Freedom (2008, 2013), IdV–Italy of Values (2008), Forza Italia (2018)

[Back to main slides](#)

# Effect of 3G for low vs. high censorship online

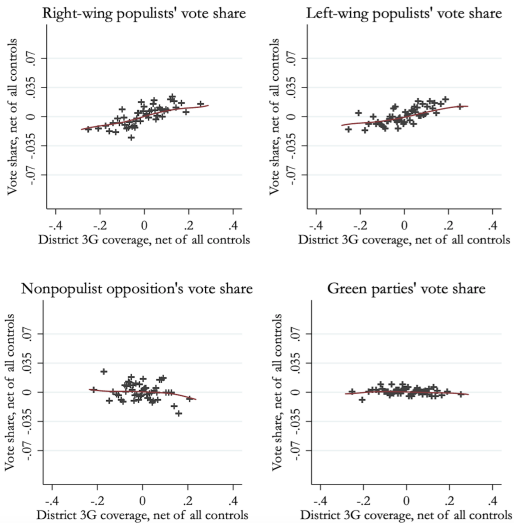
LPOLY conditional on all controls



[Back to main slides](#)

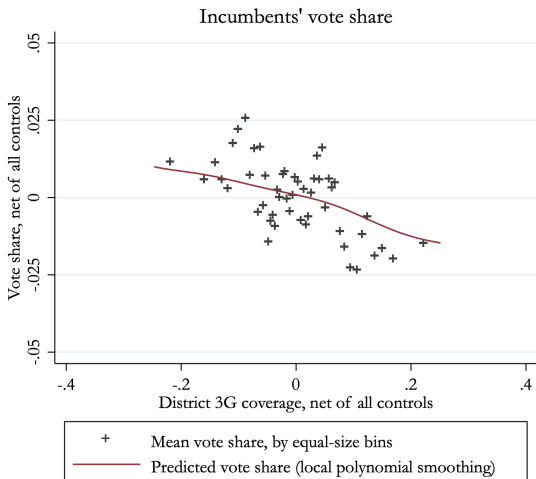


# 3G and the opposition parties' vote share



[Back to main slides](#)

# 3G and the incumbent's vote share



[Back to main slides](#)

# Time-invariant measure of internet censorship

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. Var:</i>	Confidence in national government	Confidence in judicial system	Honesty of elections	No corruption in government	Share of questions with positive responses	1st principal component of responses
<b>Panel B: Time-invariant dummy for internet censorship</b>						
Regional 3G coverage	-0.098*** (0.025)	-0.055*** (0.018)	-0.124*** (0.023)	-0.056*** (0.017)	-0.081*** (0.018)	-0.082*** (0.018)
Regional 3G coverage × × Dummy: countries with internet censorship	0.091** (0.043)	0.027 (0.028)	0.201*** (0.043)	0.056*** (0.021)	0.084*** (0.031)	0.085*** (0.032)
Observations	648,705	624,264	611,221	606,955	515,365	515,365
R-squared	0.157	0.166	0.158	0.235	0.239	0.235
Subnational region & year FEs	✓	✓	✓	✓	✓	✓
Baseline controls	✓	✓	✓	✓	✓	✓

Back to main slides

# Continuous measure of internet censorship

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. Var:</i>	Confidence in national government	Confidence in judicial system	Honesty of elections	No corruption in government	Share of questions with positive responses	1st principal component of responses
<b>Panel D: Time-invariant continuous measure of internet censorship</b>						
Regional 3G coverage	-0.231*** (0.067)	-0.134*** (0.040)	-0.262*** (0.063)	-0.112*** (0.041)	-0.160*** (0.050)	-0.163*** (0.051)
Regional 3G coverage × ×Mean internet censorship score	0.089** (0.035)	0.048** (0.021)	0.137*** (0.036)	0.037* (0.019)	0.063** (0.029)	0.065** (0.030)
Observations	338,027	331,304	320,685	322,892	267,141	267,141
R-squared	0.175	0.174	0.159	0.193	0.234	0.233
Subnational region & year FEs	✓	✓	✓	✓	✓	✓
Baseline controls	✓	✓	✓	✓	✓	✓

Back to main slides

# Heterogeneity analysis by individual-level characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Dep. Var.:</i>	The 1st principal component of the measures of government approval							
<i>Sample:</i>	All	Rural	All	Rural	All	Rural	All	Rural
Regional 3G coverage	-0.048*** (0.015)	-0.065*** (0.018)	-0.081*** (0.016)	-0.096*** (0.019)	-0.070*** (0.015)	-0.084*** (0.017)	-0.058*** (0.015)	-0.075*** (0.018)
Regional 3G coverage × Unemployed	-0.023*** (0.007)	-0.027*** (0.008)						
Regional 3G coverage × Employment status missing	-0.015*** (0.005)	-0.015*** (0.006)						
Regional 3G coverage × Tertiary education			0.082*** (0.013)	0.103*** (0.015)				
Regional 3G coverage × Secondary education			0.020** (0.008)	0.019** (0.009)				
Regional 3G coverage × Income above country median					0.038*** (0.003)	0.043*** (0.004)		
Regional 3G coverage × Income missing					-0.018 (0.031)	-0.019 (0.038)		
Regional 3G coverage × Age below 25							0.013*** (0.004)	0.019*** (0.006)
Regional 3G coverage × Age above 60							-0.006 (0.006)	-0.003 (0.006)
Observations	617,863	371,055	617,863	371,055	617,863	371,055	617,863	371,055
R-squared	0.242	0.225	0.242	0.226	0.242	0.226	0.242	0.225
Subnational region & year FEs	✓	✓	✓	✓	✓	✓	✓	✓
Baseline controls	✓	✓	✓	✓	✓	✓	✓	✓
Censorship of the traditional press controls	✓	✓	✓	✓	✓	✓	✓	✓

[Back to main slides](#)

## Controlling for luminosity: government approval

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. Var.:</i>	Confidence in national government	Confidence in judicial system	Honesty of elections	No corruption in government	Share of questions with positive responses	1st principal component of responses
<b>Panel A: All respondents</b>						
Regional 3G coverage	-0.058*** (0.021)	-0.033** (0.014)	-0.062*** (0.020)	-0.039*** (0.015)	-0.049*** (0.015)	-0.050*** (0.015)
Observations	771,483	747,624	731,993	721,945	617,104	617,104
Mean dep. var.	0.514	0.533	0.505	0.226	0.432	0.439
Number of countries	111	116	112	112	110	110
Subnational region & year FEs	✓	✓	✓	✓	✓	✓
Baseline controls	✓	✓	✓	✓	✓	✓
Nighttime light density instead of income	✓	✓	✓	✓	✓	✓

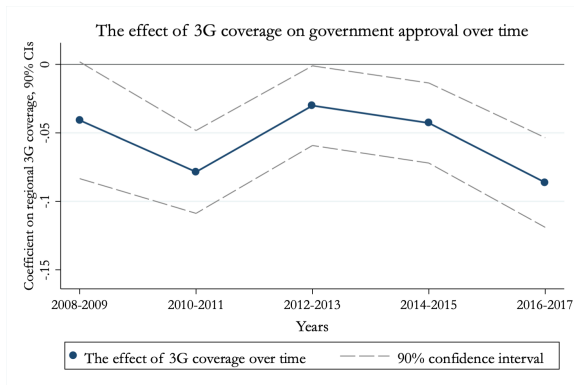
Back to main slides

# Conley correction for spatial correlation

Dependent variable: 1st principal component of responses about confidence in government		
	Assumptions about variance-covariance matrix:	Regional 3G coverage
Coefficient		-0.057
(1)	Baseline: 2-way clusters by region and country-year	(0.015)***
(2)	Clusters by country	(0.019)***
	Conley correction for spatial correlation within:	
(3)	- 500km and 1 temporal lag	(0.013)***
(4)	- 500km and 5 temporal lags	(0.014)***
(5)	- 500km and 10 temporal lags	(0.014)***
(6)	- 1000km and 1 temporal lag	(0.014)***
(7)	- 1000km and 5 temporal lags	(0.014)***
(8)	- 1000km and 10 temporal lags	(0.015)***
Observations		617,863

[Back to main slides](#)

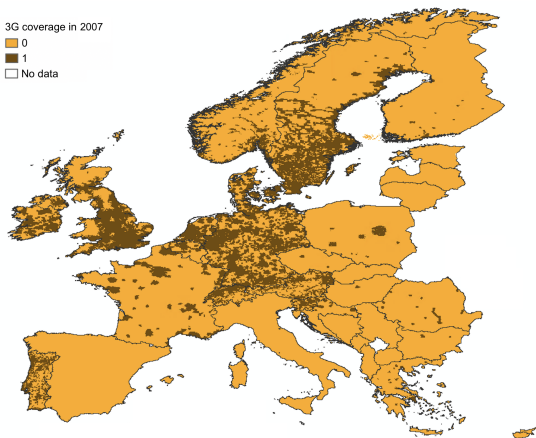
# 3G coverage and government approval, by time period



[Back to main slides](#)



# 3G networks in Europe 2007

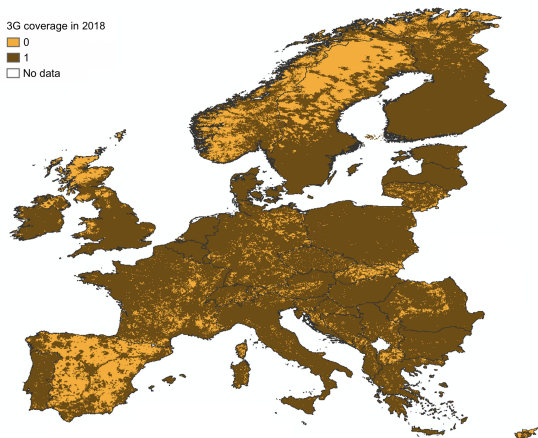


Sample: Countries with 3G and GWP data.

[Back to data](#)

[Back to election results](#)

# 3G networks in Europe in 2018

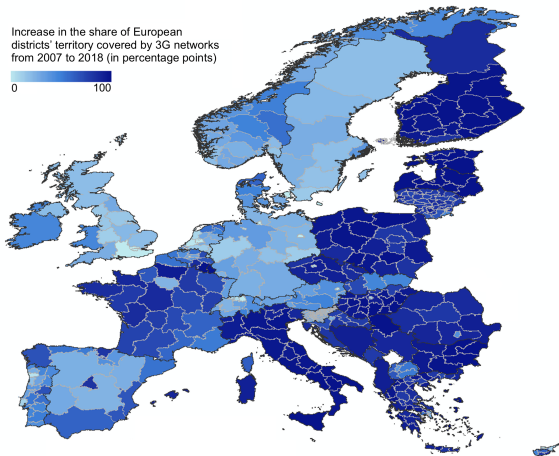


Sample: Countries with 3G and GWP data.

[Back to data](#)

[Back to election results](#)

# 3G coverage growth by district in Europe in 2007-2018



Sample: Countries with 3G and GWP data.

[Back to data](#)

[Back to election results](#)

## Details about the GWP dataset

- 13,004 region×year observations
- Mean number of years per region is 5.8
  - for the 75% of the regions, the time dimension is  $\geq 4$  years
- Mean number of regions per country×year is 16.4
  - for the 75% of the country×years, the number of subnational regions is 9 or above
- Mean number of respondents per region×year is 65 (median: 40)

[Back to data](#)

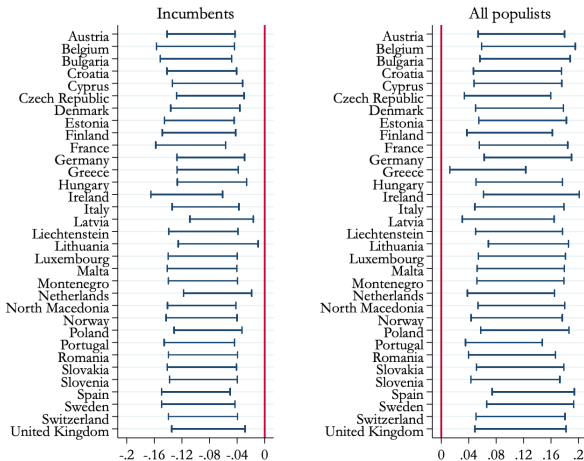
## Details about the European elections dataset

- 1,250 district  $\times$  election observations in 33 countries.
- Median district is present in the dataset for 3 elections, mean number of elections per district is 3.14.
  - All districts are present for at least 2 elections
- Mean number of districts per country is 12 (median: 9)

[Back to data](#)

# Election results excluding individual countries

90% CI when a country is excluded



## Incumbent's vote as a share of registered voters

	(1)	(2)	(3)	(4)
<i>Dep. Var.:</i>	Vote share (as a share of registered voters) of:			
	Top 2 parties from the 1st election	Ruling party (the party of the Prime Minister)	Populist parties if they are among top 2 parties from the 1st election	
<i>Unit of observation:</i>	District-year	District-year-incumbent	District-year	
District 3G coverage	-0.068** (0.030)	-0.066*** (0.020)		-0.082*** (0.028)
District 3G coverage × Populist party			-0.104*** (0.033)	
District 3G coverage × Nonpopulist party			-0.059*** (0.020)	
Observations	1,234	1,536	1,536	341
R-squared	0.903	0.925	0.926	0.970
Mean dep. var.	0.370	0.201	0.201	0.203
District & year FEs	✓			✓
Incumbent-by-district & year FEs		✓	✓	
Baseline controls	✓	✓	✓	✓
Excl. countries without populists among top 2 parties in the 1st election				✓

[Back to main slides](#)

# Opposition vote as a share of registered voters

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Dep. Var.:</i>	Vote share (as a share of registered voters) of:						
	Right-wing populists	Left-wing populists	Other populists	All populists	All populists	Green parties	Nonpopulist opposition
<i>Unit of observation:</i>	District-year	District-year	District-year	District-year	District-year	District-year	District-year-ruling coalition
District 3G coverage	0.043*** (0.016)	0.032*** (0.012)	-0.028* (0.014)	0.047* (0.025)	0.060** (0.025)	-0.008 (0.007)	-0.038 (0.031)
Observations	1,250	1,250	1,250	1,250	1,002	1,141	1,566
R-squared	0.954	0.877	0.946	0.923	0.808	0.879	0.920
Mean dep. var	0.087	0.040	0.039	0.166	0.122	0.026	0.285
District & year FEs	✓	✓	✓	✓	✓	✓	✓
Ruling coalition-by-district&year FEs							✓
Baseline controls	✓	✓	✓	✓	✓	✓	✓
Excl. countries with populists in power					✓		

Back to main slides



## 3G helps expose actual corruption in Europe

	(1)	(2)	(3)
<i>Dep. Var.:</i>	Perception of no corruption in government		Internet access at home
<i>Sample:</i>	Respondents in European countries		
Regional 3G coverage	0.011 (0.024)	0.022 (0.024)	0.048** (0.021)
Regional 3G coverage × Actual corruption incidents	-0.075** (0.038)	-0.068* (0.037)	
Actual corruption incidents	-0.038* (0.022)	-0.030 (0.021)	
Observations	197,500	127,667	277,764
R-squared	0.329	0.157	0.370
Subnational region & year FEs	✓	✓	✓
Baseline controls	✓	✓	✓
Sample excludes observations with zero corruption incidents		✓	

[Back to results](#)

## Three margins of 3G impact

Expansion of 3G affects internet use through three margins

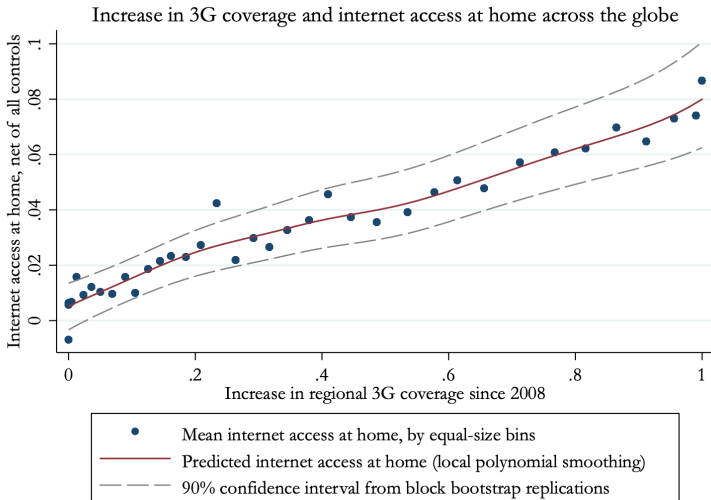
- ❶ extensive: the probability of getting a connection
- ❷ intensive: the number of hours spent online
- ❸ qualitative: the nature of internet use

We only have data on internet access at home, so can only check (i) and only partially:

$$Internet_{irt} = \alpha_1 3G_{rt} + \alpha_2 Development_{rt} + X'_{irt} \lambda + \varphi_r + \tau_t + \epsilon_{irt}$$

- *Internet* – dummy for self-reported internet access at home

# 3G internet and internet access at home



# Regional 3G coverage, internet access at home, and government approval

	(1)	(2)	(3)	(4)	(5)
<i>Dep. Var.:</i>	Internet access at home		1st principal component of government approval		
<i>Sample:</i>	All	All	All	Internet access at home: No	Yes

**Panel A: Sample of all respondents**

Regional 3G coverage	0.080*** (0.017)	-0.056*** (0.015)	-0.073*** (0.016)	-0.071*** (0.019)	-0.035** (0.015)
Internet access at home		-0.010*** (0.002)	-0.023*** (0.004)		
Regional 3G coverage × × Internet access at home			0.033*** (0.008)		
Observations	840,537	617,863	617,863	347,809	269,981
R-squared	0.482	0.239	0.240	0.212	0.291

**Panel B: Subsample of rural residents**

Regional 3G coverage	0.083*** (0.017)	-0.080*** (0.018)	-0.098*** (0.019)	-0.097*** (0.022)	-0.044*** (0.016)
Internet access at home		-0.013*** (0.003)	-0.027*** (0.004)		
Regional 3G coverage × × Internet access at home			0.036*** (0.009)		
Observations	501,957	371,055	371,055	242,933	128,032
R-squared	0.502	0.223	0.223	0.213	0.266

Back to main slides

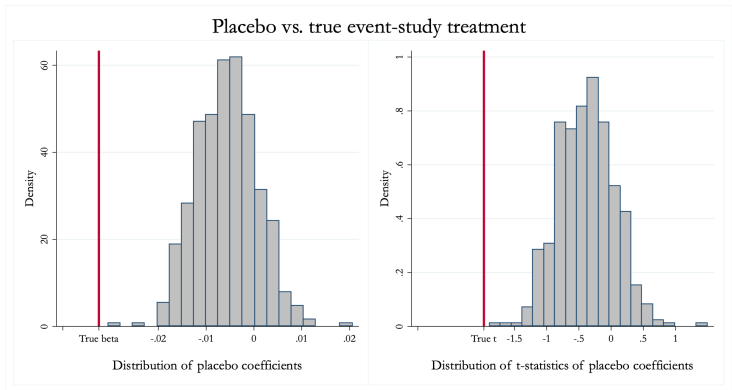
## Altonji et al. (2005) and Oster (2017) tests

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. Var:</i>	Confidence in national government	Confidence in judicial system	Honesty of elections	No corruption in government	Share of questions with positive responses	1st principal component of responses
<b>Panel A: Altonji-Elder-Taber test</b>						
Predicted from observables regional 3G coverage	0.119 (0.322)	-0.074 (0.200)	0.150 (0.321)	-0.039 (0.202)	0.030 (0.238)	0.031 (0.241)
<b>Panel B: Oster test</b>						
Oster $\delta$ for $\gamma_1 = 0$	-4.22	5.83	-5.84	1.63	-1012.00	-733.96

Back to main slides

Identification: The events are not associated with a change in government approval in the other regions

Placebo events: same country-years, different regions drawn at random (200 it.)

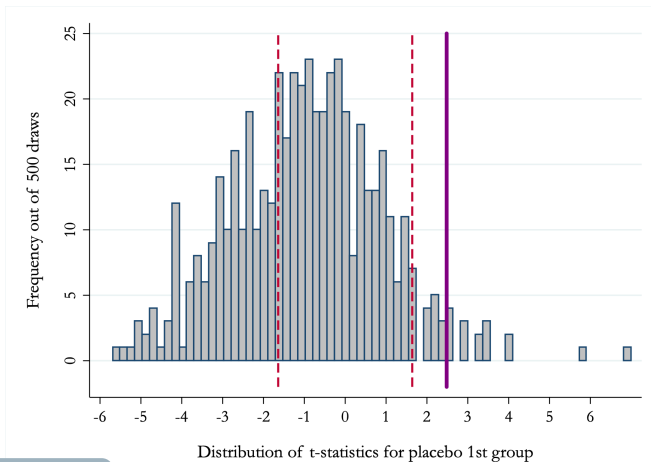


Sample: country-years where at least 40% of regions have no event within the same country-year as regions with events.

[Back to main slides](#)

# Results of the placebo for the heterogeneity w.r.t. overall corruption level

Countries are randomly allocated to groups (500 draws)

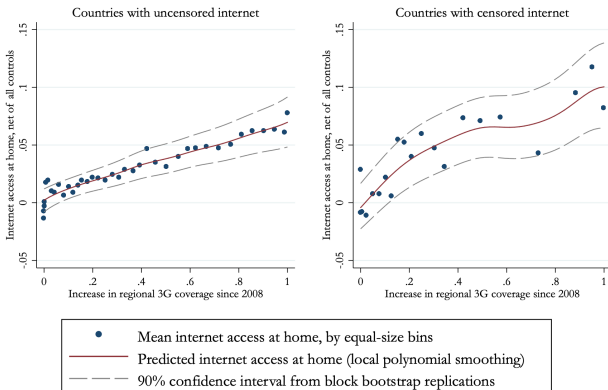


[Back to main slides](#)

# Difference comes from content, not access to internet

## 3G coverage and access to the internet at home: Low vs. high internet censorship

Increase in 3G coverage and internet access at home across the globe



Back to main slides