3G Internet and Confidence in Government

Sergei Guriev[1]

Nikita Melnikov[2]

Ekaterina Zhuravskaya[3]

[1]EBRD, Sciences Po, and CEPR

[2]Princeton University

[3]Paris School of Economics (EHESS) and CEPR

July 2019

Public discourse

The question of the relationship between the internet and political accountability has been at the center of public discourse in recent years

- Optimists view internet as "liberation technology" helping to:
    - inform the public about the government and the opposition
    - and overcome collective action problems during protests

- Pessimists, in contrast, consider internet as "mis-information technology," which is:
    - used for propaganda and surveillance by nondemocratic regimes
    - and for dissemination of false news by geopolitical actors, interested in destabilization, and anti-establishment politicians
    - In addition, it has been argued that internet distracts the public from politics by providing entertainment

Literature

- In response to this debate a growing number of academic studies examine political effects of internet, in general, and social media, in particular:
    - e.g., Falck et al. (2014), Steinert-Threlkeld et al. (2015), Miner (2015), Allcott and Gentzkow (2017), Acemoglu, et al. (2017), Qin et al. (2017), Enikolopov et al. (2018), Vosoughi et al. (2018), Campante et al. (2018), Manacarda and Tesei (2018), Enikolopov et al. (2019), Chen and Yang (2019)
- One can find scientific evidence to support each argument on both sides of the debate
- Most of these studies are either country- and context-specific, which is often necessary for identification, but specific context comes at a cost limiting external validity

This paper

Our aim is to document the effects of internet in **a global setting**

- We ask whether and how internet has changed the perceptions of corruption and government approval throughout the world in the last decade

- and whether it has affected political landscape in European democracies

  - Considering global setting allows us to study country characteristics which influence whether internet affects attitudes,

  - but it also comes at a cost of not being able to pin down the exact mechanism

What we do

- We study the relationship between confidence in government and internet access

- by combining the Gallup World Poll (GWP) data on individual attitudes around the world (with subnational localization) between 2008 and 2017

- with the data on the global expansion of 3G mobile networks

- We also use data on the results of parliamentary elections in 30 European countries, where there exists a classification of populist political parties, to examine how the expansion of 3G mobile networks affected populists' electoral results over the last decade

Preview of results

- We document that:

  1 Access to the internet, driven by the expansion of 3G mobile networks infrastructure, decreases the public's confidence in the country's governments and increases perceptions of corruption

  2 This effect is only present in countries, where the internet is not censored, and is stronger in places, where traditional media is censored

  3 Internet helps exposing actual corruption: corruption scandals translate into perceptions of corruption more in places with higher 3G mobile coverage

  4 Populists on the right and on the left have benefited politically from 3G mobile internet expansion

Roadmap

- Data
- Empirical strategy
- Main results
- Heterogeneity
- Robustness
- Conclusions

Data

1. Gallup World Poll data on attitudes of individuals with subnational localization for almost the whole world between 2008 to 2017

   - Government approval: *"Do you have confidence in each of the following, or not: 1. the national government? 2. the judicial system and courts 3. the honesty of elections? 4. Is corruption widespread throughout the government in your country, or not?"* All answers are: Yes/No.

   - Individuals' internet access: *"Does your home have access to the internet?"*

2. 3G and 2G mobile networks (for most countries in the world)
   - Binary indicator of signal at 1x1 km grid cell resolution
     - Source: Collins Bartholomew's Mobile Coverage Explorer
   - Combining the two datasets: 840,537 individuals in 2,233 subnational regions of 116 countries between 2008 and 2017

3. Vote for populists in 81 parliamentary elections of 30 European countries at subnational level between 2007 and 2017
   - Source: Chapel Hill Expert Survey complemented with text analysis of online sources
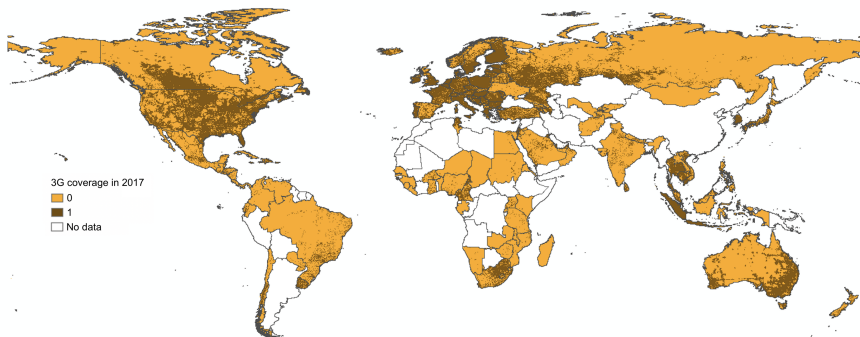
3G networks in 2008

Only 6.3% of the world's population had mobile internet signal
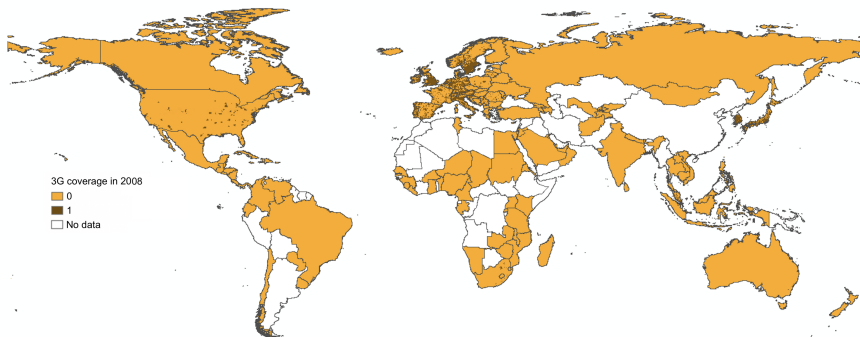
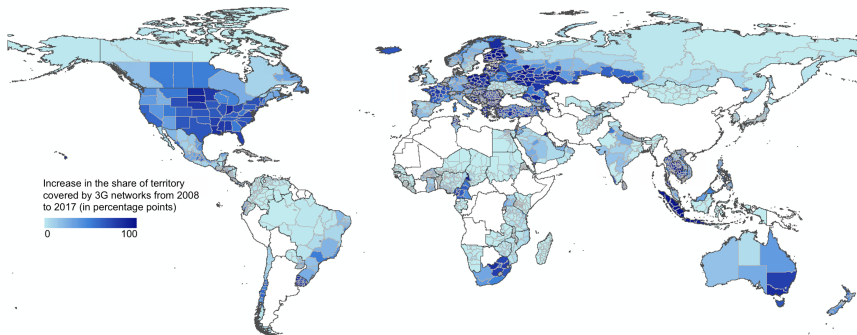Sample: countries with 3G and GWP data

3G networks in 2017

62% of the world's population had mobile internet signal

Sample: countries with 3G and GWP data

The increase in 3G network coverage b/w 2008 and 2017
in the GWP subnational regions

Sample: countries with 3G and GWP data

Empirical strategy

We are interested in the relationship:

$Gov\_approval_{irt} = \beta_1 Internet_{irt} + \beta_2 Development_{rt} + \mathbf{X}'_{irt}\eta + \varphi_r + \tau_t + \varepsilon_{irt}$

Individual internet access is instrumented with availability of 3G networks:

$Internet_{irt} = \alpha_1 3G_{rt} + \alpha_2 Development_{rt} + \mathbf{X}'_{irt}\eta + \varphi_r + \tau_t + \varepsilon_{irt}$

- i, r, t index individuals, subnational regions, and years, respectively
- $gov\_approval$ – government approval
- $internet$ – dummy for self-reported individual access to the internet
- $3G$ – share of the region's population with potential access to 3G
- $development$ – log of mean household income in the region or log night light density
- φ and τ – region and year fixed effects
- $\mathbf{X}$ – individual-level demographics and additional country-level controls (e.g., democracy)
- Two-way clusters at the level of the subnational regions (accounting for overtime correlation) and at the level of countries in each year (accounting for country-level shocks)

Main identification concerns

1. The main potential confound is economic development. We use two alternative controls for it:
   - The (log) average regional household income
   - The (log) nighttime light density

2. 3G infrastructure may potentially affect individuals' attitudes though channels different from internet access
   - We use 2G network coverage as a placebo treatment
     - 3G was the first generation that allowed users to browse the web from their phones

3. Internet may affect individuals' satisfaction and optimism, which in turn, affects assessment of goverment
   - Use life satisfaction measures as placebo

4. Reverse causality: Can 3G antennas be installed in places, where government becomes unpopular?

Average results, full sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel A: All locations							
	1st stage				*Reduced form*		
Regional 3G coverage	0.095***	-0.045**	-0.049***	-0.055**	-0.032**	-0.044***	-0.045***
	(0.017)	(0.022)	(0.017)	(0.022)	(0.015)	(0.017)	(0.017)
R-squared	0.482	0.162	0.162	0.167	0.224	0.240	0.237
					Second stage, 2SLS		
Individual access to the internet		-0.485**	-0.505***	-0.590**	-0.333**	-0.457**	-0.464**
		(0.242)	(0.183)	(0.249)	(0.162)	(0.185)	(0.188)
F-stat, excluded IV	33.26	30.29	34.94	29.79	32.89	31.96	31.96
Observations	840,537	772,353	748,471	732,856	722,768	617,863	617,863
Mean dep. var	0.440	0.514	0.534	0.505	0.226	0.432	0.439
No of countries	116	111	116	112	112	110	110
Subn. region & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Average results, rural sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel B: Rural locations							
	1st stage				*Reduced form*		
Regional 3G coverage	0.087***	-0.073***	-0.069***	-0.078***	-0.049***	-0.068***	-0.069***
	(0.016)	(0.024)	(0.019)	(0.025)	(0.015)	(0.018)	(0.018)
R-squared	0.502	0.169	0.156	0.159	0.193	0.222	0.220
					Second stage, 2SLS		
Individual access to the internet		-0.865***	-0.783***	-0.930***	-0.557***	-0.782***	-0.792***
		(0.288)	(0.222)	(0.334)	(0.182)	(0.222)	(0.226)
F-stat, excluded IV	28.6	27.02	30.02	24.89	27.71	27.37	27.37
Observations	501,957	464,831	448,449	440,786	432,460	371,055	371,055
Mean dep. var	0.35	0.539	0.556	0.516	0.215	0.445	0.452
No of countries	115	110	115	111	111	109	109
Subn. region & year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Does censorship affect the relationship between the internet and government approval?

- We distinguish between censorship of internet and censorship of traditional media using two Freedom House's indices:
    1. Freedom of the Press index
    2. Limits on Online Content (LOC) score (a component of the Freedom on the Net Index measuring censorship)
        - The LIC score is available only for a subset of countries, we use it as is and
        - construct a dummy for high censorship online (LOC ≥ 18) and assign this dummy the value of zero if LOC is missing, but the country in the current year is a perfect democracy (Polity2≥ 8)

- We include the interaction terms of 3G coverage and these two censorship indices

Internet has no effect when it is censored

Sample of countries with non-missing dummy for censorship online

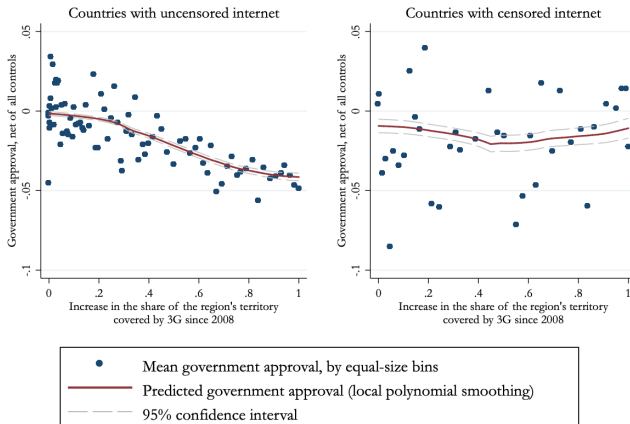|	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var:	Confidence in national government	Confidence in judicial system	Honesty of elections	No corruption in government	Share of questions with positive responses	1st principal component of responses
Panel A: Measure of internet censorship: a dummy for high Limits on Content						
Regional 3G coverage	-0.067***	-0.053***	-0.074***	-0.039**	-0.059***	-0.060***
	(0.025)	(0.019)	(0.022)	(0.016)	(0.017)	(0.018)
Regional 3G coverage × Censored internet dummy	0.094**	0.025	0.124***	0.029	0.078**	0.079**
	(0.041)	(0.029)	(0.041)	(0.024)	(0.031)	(0.032)
Observations	595,200	571,629	558,952	556,014	469,464	469,464
R-squared	0.162	0.171	0.161	0.246	0.248	0.244
Online censorship, controls	Yes	Yes	Yes	Yes	Yes	Yes
Subn. region & year FEs	Yes	Yes	Yes	Yes	Yes	Yes

Details on construction of the censored internet dummy

Robustness to using continuous Limits on Internet Content score

Heterogeneity: online censorship
Graphical representation

3G penetration and government approval across the globe

Countries with uncensored internet   Countries with censored internet

- Mean government approval, by equal-size bins
- Predicted government approval (local polynomial smoothing)
- 95% confidence interval

3G coverage and individual internet access   Lowess conditional of all controls

Internet matters when traditional media is censored
Sample of countries with non-missing continuous measure of censorship online

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var:	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
Panel A: All respondents						
Regional 3G coverage	-0.119*	-0.062	-0.175**	-0.110***	-0.089*	-0.089*
	(0.069)	(0.039)	(0.072)	(0.039)	(0.045)	(0.046)
Regional 3G coverage ×	0.180***	0.082**	0.201***	0.083***	0.123***	0.125***
Limits on Online Content score/10	(0.054)	(0.037)	(0.053)	(0.031)	(0.037)	(0.037)
Regional 3G coverage ×	-0.061***	-0.018	-0.046**	-0.017	-0.034**	-0.035**
Censorship of the Press score/10 (dmnd)	(0.021)	(0.014)	(0.019)	(0.012)	(0.014)	(0.014)
Observations	338,027	331,304	320,685	322,892	267,141	267,141
Number of countries	42	45	42	43	41	41

Note: We demean the Censorship of the Press score for the coefficient on 3G to be evaluated at no internet censorship and the mean value censorship of traditional media

Does the internet help expose actual corruption?

If so, corruption scandals should have a stronger effect on perceptions of corruption in locations with higher 3G coverage

- It is challenging to measure corruption in a global setting without relying on perceptions

- Furceri et al. (2019) construct the IMF's Global Incidents of Corruption Index (GICI) measuring actual corruption scandals created using text analysis of country reports of the Economist Intelligence Unit

- The index quantifies the importance of corruption for investment climate for each country $\times$ year by indicating the share of the report devoted to corruption

- We interact 3G coverage and GICI

  - We focus on the sample with strictly positive GICI
    - Zero GICI could mean: (a) there is no corruption or (b) corruption is common knowledge, so that there is no need to report it
    - The results are robust to using the full sample

3G coverage and corruption scandals

- Outcome – a dummy for perception that government is not corrupt
- Covariates – 3G coverage, log corruption scandals, their interaction, as well as all baseline controls, including region and year FEs

The effect of corruption scandals on perception that the government is not corrupt, by 3G penetration
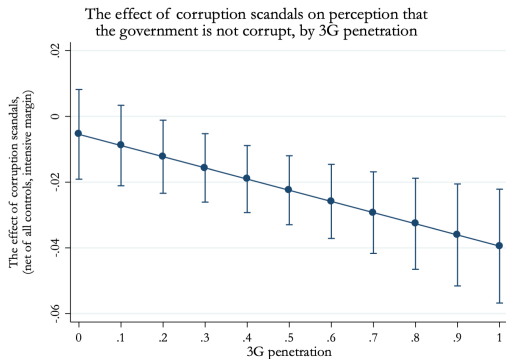
The results of this estimation are as follows:

$$Y = -\underset{(0.023)}{0.057}\ 3G - \underset{(0.007)}{0.007}\ log(Scandals) - \underset{(0.012)}{0.034}\ 3G \times log(Scandals) + \Delta^{'} controls$$

- Obs. 581,944; R-squared = 0.147.

Thus, internet exposes actual corruption, which ultimately should improve political accountability

Who benefits politically from the effect of internet on confidence in government?

(Are the pessimists wrong?)

- The criticism of governments online could be weaponized by populists against incumbents
- We consider the effect that the expansion of 3G coverage has had on the vote share of populist parties in Europe
  - Focus of Europe because of the availability of classification of political parties into populist / not populist
  - 30 countries, 81 elections, 410 subnational regions, and 1,126 election×region pairs
  - Time period: 2007 - 2017.
  - Parties are classified based on the Chapel Hill Expert Survey and on text analysis of online sources

3G coverage and the populists' vote share

Dep. Var:	(1)	(2)	(3)	(4)	(5)
			Vote share of:		
	Right-wing populists	Left-wing populists	Right-wing and left-wing populists	Centrist populists	All populists
Regional 3G coverage	0.077***	0.056**	0.133***	-0.017	0.117***
	(0.029)	(0.027)	(0.033)	(0.023)	(0.043)
Observations	1,123	1,123	1,123	1,123	1,123
R-squared	0.947	0.877	0.926	0.944	0.906
Subn. region & year FEs	Yes	Yes	Yes	Yes	Yes
Per capita GDP	Yes	Yes	Yes	Yes	Yes
Mean dep. var	0.135	0.058	0.193	0.073	0.266

3G coverage and the populists' vote share
Graphical representation

3G penetration and the populists' vote share in Europe
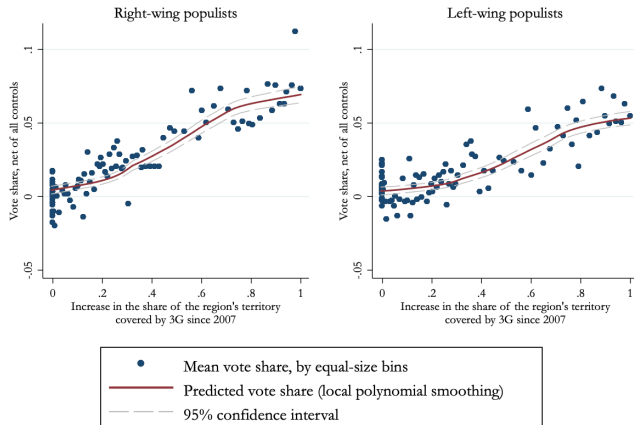
Heterogeneity: Geography and Development

- Strong effects of 3G internet in the subsample of African countries

  Results for Africa

- Strong effects of 3G internet in the subsample of developing countries with low internet censorship outside Africa

  Results for other Developing countries

- No effect of 3G internet in the subsample of OECD countries

  Results for OECD

Checks of identification assumptions

- Could average regional household income not measure regional development well?
    - The results are robust to controlling for nighttime light density (despite a smaller sample)

      Results with nightlights

- Could 3G capture other aspects of ICT than internet? We use 2G coverage as placebo: 2G did not allow browsing the web freely
    - 2G is, if anything, positive correlated with government approval
    - Controlling for 2G does not affect coefficients on 3G

      Results for 2G treatment

- Could the results be driven by the relationship between internet and general satisfaction and optimism?
    - Use live satisfaction now, belief about live satisfaction in 5 years, satisfaction with standard of living, and belief whether standard of living is getting better as placebo outcomes
    - Find no significant results

      Results for placebo outcomes

Alternative clusters

- Results are robust to alternative assumptions about variance-covariance matrix:
    - Country-level clusters
    - Conley (1999) spatial correlation at 500 and 1000km radii and 1 and 5 spatial lags

    Results with alternative clustering

Conclusions

This paper is the first to study the effects of the internet on government approval in a global setting. We find strong evidence that:

1. The expansion of internet access increases corruption perception and reduces government approval

2. The effect is only present in countries, where the internet is not censored, and is stronger in places, where traditional media is censored

3. Internet does help expose actual corruption scandals to the public

4. Populist politicians both at the extreme right and extreme left benefit politically from the criticism of incumbent governments

Overall, the results suggest that internet is a tool that can be used both to inform and to mis-inform the public

Appendix

3G coverage and internet access
Low vs. high censorship online

Individual internet use and growth of 3G penetration

Countries with uncensored internet   Countries with censored internet

- Individual internet access, by equal-size bins
- Predicted individual internet access (local polynomial smoothing)
- 95% confidence interval
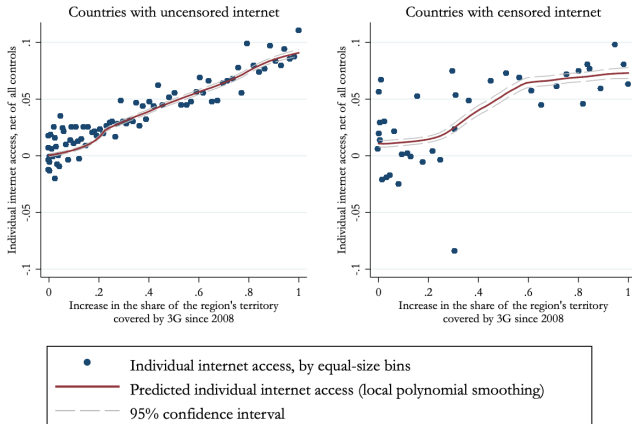
Effect of 3G for low vs. high censorship online
LOWESS conditional on all controls

3G penetration and government approval across the globe
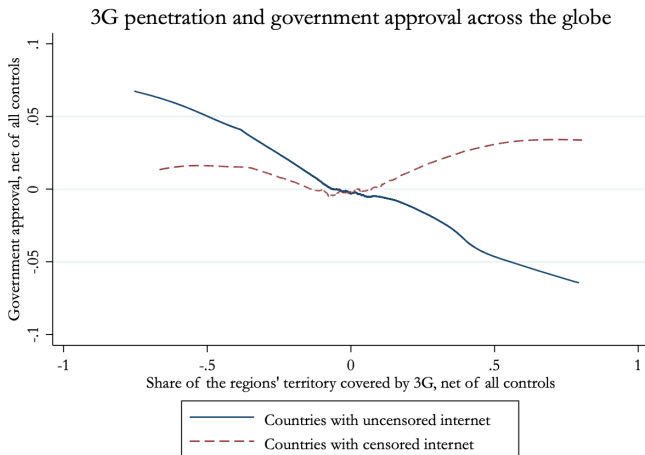
3G and populist vote
LOWESS conditional on all controls
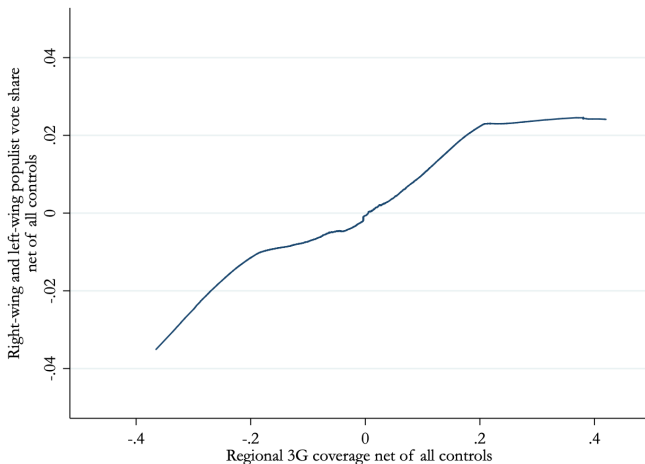
Construction of the dummy for high Limits on Content

- Freedom House's Limits on Content score (LOC) is available only for 65 countries, it ranges from 0 to 35 with higher values implying higher censorship

- We construct a dummy for online censorship, it equals one if the LOC score is 18 or above and zero if it is below 18
  - 18 is the value of Limits on Content score at which there is a zero effect of the internet (in Panel B of Table 2)

- To expand the sample, we also set the dummy to zero if a country does not have LOC score but in that year the country is a perfect democracy according to the Policy IV dataset (i.e., if the Polity2 score is 8 or above)
  - In the sample where both Polity2 and LOC score are available, a dummy for perfect democracy predicts the Limits on Content score to be below 18 with 99.7% probability

Continuous Measure of Online censorship

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var:	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
Panel B: Measure of internet censorship: continuous Limits on Content index						
Regional 3G coverage	-0.162**	-0.113***	-0.161**	-0.075*	-0.125**	-0.127**
	(0.070)	(0.041)	(0.070)	(0.040)	(0.051)	(0.052)
Regional 3G coverage ×	0.089**	0.052**	0.098***	0.040*	0.071**	0.073**
Limits on content score/10	(0.035)	(0.021)	(0.038)	(0.022)	(0.028)	(0.028)
Observations	338,027	331,304	320,685	322,892	267,141	267,141
R-squared	0.173	0.172	0.156	0.192	0.230	0.229
Online censorship, controls	Yes	Yes	Yes	Yes	Yes	Yes
Subn. region & year FEs	Yes	Yes	Yes	Yes	Yes	Yes

Back to main slides

3G coverage and government approval in Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel A: African countries, all respondents							
Regional 3G coverage	0.122***	-0.095*	-0.106**	-0.135**	-0.077**	-0.103**	-0.104**
	(0.024)	(0.055)	(0.042)	(0.058)	(0.033)	(0.042)	(0.043)
Mean of dep. var.	0.177	0.541	0.559	0.464	0.166	0.419	0.428
Observations	198,546	185,798	187,910	182,750	181,784	163,090	163,090
Number of countries	31	30	31	30	30	30	30
Panel B: African countries, respondents from rural locations							
Regional 3G coverage	0.099***	-0.169***	-0.164***	-0.217***	-0.103***	-0.170***	-0.174***
	(0.025)	(0.061)	(0.044)	(0.069)	(0.036)	(0.046)	(0.046)
Mean of dep. var.	0.123	0.568	0.576	0.485	0.177	0.438	0.447
Observations	137,886	129,854	130,764	127,718	126,724	114,332	114,332
Number of countries	31	30	31	30	30	30	30

Back to main slides   Results for other Developing countries   Results for OECD

3G coverage and government approval in OECD countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel A: OECD countries, all respondents							
Regional 3G coverage	0.071***	0.024	0.047	-0.028	0.011	0.015	0.015
	(0.024)	(0.045)	(0.036)	(0.037)	(0.028)	(0.031)	(0.031)
Mean of dep. var.	0.768	0.419	0.523	0.593	0.321	0.458	0.462
Observations	258,228	239,157	217,617	214,897	213,770	183,163	183,163
Number of countries	33	33	33	33	33	33	33
Panel B: OECD countries, respondents from rural locations							
Regional 3G coverage	0.071***	0.023	0.025	-0.029	-0.008	0.001	0.001
	(0.026)	(0.048)	(0.036)	(0.04)	(0.031)	(0.030)	(0.030)
Mean of dep. var.	0.744	0.423	0.533	0.602	0.321	0.465	0.468
Observations	135,846	125,409	113,259	111,865	111,108	94,504	94,504
Number of countries	33	33	33	33	33	33	33

Back to main slides   Results for other Developing countries   Results for Africa

3G coverage and non-OECD countries outside Africa
excluding countries with high censorship

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel A: Rest of the World, all respondents							
Regional 3G coverage	0.084**	-0.058**	-0.047**	-0.056**	-0.026	-0.044**	-0.044**
	(0.035)	(0.026)	(0.02)	(0.025)	(0.019)	(0.019)	(0.019)
Mean of dep. var.	0.342	0.546	0.509	0.468	0.201	0.418	0.426
Observations	331,727	304,562	297,665	297,476	289,749	244,059	244,059
Number of countries	49	46	48	48	48	46	46
Panel B: Rest of the World, respondents from rural locations							
Regional 3G coverage	0.078**	-0.073**	-0.053*	-0.044	-0.044**	-0.047**	-0.047*
	(0.034)	(0.033)	(0.028)	(0.034)	(0.022)	(0.024)	(0.024)
Mean of dep. var.	0.242	0.567	0.534	0.481	0.179	0.429	0.438
Observations	198,509	183,960	178,270	178,918	172,940	145,813	145,813
Number of countries	48	45	47	47	47	45	45

Back to main slides   Results for Africa   Results for OECD

Control for nighttime light density

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
Panel A: All respondents							
	1st stage				*Reduced form*		
Regional 3G coverage	0.096*** (0.018)	-0.036 (0.025)	-0.043** (0.019)	-0.044* (0.024)	-0.045*** (0.017)	-0.041** (0.019)	-0.041** (0.019)
					Second stage, 2SLS		
Individual access to the internet		-0.387 (0.272)	-0.443** (0.199)	-0.473* (0.259)	-0.474** (0.188)	-0.428** (0.206)	-0.430** (0.208)
F-stat, excluded instrument	28.46	25.54	28.88	25.01	27.87	26.46	26.46
Observations	740,658	677,315	655,517	641,178	634,602	540,012	540,012
Mean dep. var	0.426	0.51	0.53	0.499	0.22	0.427	0.434
Panel B: Respondents from rural areas							
	1st stage				*Reduced form*		
Regional 3G coverage	0.087*** (0.019)	-0.050* (0.027)	-0.058*** (0.020)	-0.057** (0.027)	-0.066*** (0.017)	-0.058*** (0.020)	-0.058*** (0.020)
					Second stage, 2SLS		
Individual access to the internet		-0.597* (0.316)	-0.671*** (0.245)	-0.686** (0.333)	-0.769*** (0.238)	-0.697*** (0.255)	-0.696*** (0.258)
F-stat, excluded instrument	21.57	19.9	21.66	18.57	19.84	18.94	18.94
Observations	440,331	406,185	391,241	384,104	378,231	323,234	323,234
Mean dep. var	0.334	0.533	0.551	0.508	0.208	0.438	0.446

Back to main slides

Conley spatial correlation of standard errors

Dependent variable: 1st principal component of responses about confidence in government		
	Assumptions about variance-covariance matrix:	Regional 3G coverage
Coefficient		-0.045
(1)	Baseline: 2-way clusters by region and country-year	(0.017)***
(2)	Clusters by country	(0.019)**
	Conley correction for spatial correlation within:	
(3)	- 500km and 1 temporal lag	(0.015)***
(4)	- 500km and 5 temporal lags	(0.015)***
(5)	- 1000km and 1 temporal lag	(0.015)***
(6)	- 1000km and 5 temporal lags	(0.016)***
Observations		617,863

Back to main slides

2G coverage and government approval

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var:	Individual access to the internet	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
	First Stage				*Reduced form*		
Panel A: The effect of 2G on internet access and confidence in the government							
Regional 2G coverage	-0.013	0.046	0.035*	0.075**	0.068***	0.051**	0.050**
	(0.019)	(0.033)	(0.02)	(0.034)	(0.020)	(0.023)	(0.024)
Mean of dep. var.	0.44	0.514	0.534	0.505	0.226	0.432	0.439
Observations	840537	772353	748471	732856	722768	617863	617863
Panel B: The effect of 3G and 2G and on internet access and confidence in the government							
Regional 3G coverage	0.095***	-0.043**	-0.048***	-0.053**	-0.029**	-0.043***	-0.043***
	(0.017)	(0.022)	(0.017)	(0.021)	(0.015)	(0.016)	(0.017)
Regional 2G coverage	-0.004	0.042	0.031	0.071**	0.065***	0.047**	0.046**
	(0.018)	(0.033)	(0.02)	(0.034)	(0.020)	(0.023)	(0.023)
Mean of dep. var.	0.440	0.514	0.534	0.505	0.226	0.432	0.439
Observations	840537	772353	748471	732856	722768	617863	617863

Back to main slides

Satisfaction and optimism as placebo outcomes

Dep. Var:	(1) Life satisfaction	(2) Life satisfaction in 5 years	(3) Satisfaction w/ standard of living	(4) Standard of living getting better
Panel A: All respondents				
Regional 3G coverage	0.034	-0.073	0.015	-0.027
	(0.065)	(0.077)	(0.014)	(0.034)
Observations	922,399	858,368	865,001	861,972
R-squared	0.255	0.210	0.175	0.171
Mean dep. var	5.560	6.794	0.621	2.157
Panel B: Respondents from rural areas				
Regional 3G coverage	0.002	-0.093	0.014	-0.001
	(0.085)	(0.104)	(0.016)	(0.036)
Observations	528,126	490,372	499,787	505,678
R-squared	0.268	0.212	0.182	0.168
Mean dep. var	5.278	6.581	0.592	2.138

Back to main slides