

Media Lecture 1

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Why is the media special?

- Citizens need information in order to participate in politics
 - Information about the state of the world
 - Information about the political views of various political actors
 - Information about government policy
 - Information about the competence / honesty of political actors and government
- Information acquisition and transmission is a high fixed cost, low marginal cost activity.
 - So it doesn't make sense for each citizen to collect information directly (i.e., everyone can't be a reporter)
- The media are the organizations – either public, private non-profit, or private for-profit – that collect this information and distribute it to citizens.
- But, this means that if the media is biased in how it reports on information, it can have a disproportionate effect on society

Identifying the impact of the media

- What is the empirical challenge in identifying the impact of the media?
- How is this solved in the Yanagizawa (2014) paper?
- This identification approach (using TV reception) actually comes from Olken (2009), so let me take a detour to that paper to explain the idea...

Testing social capital's impact using TV

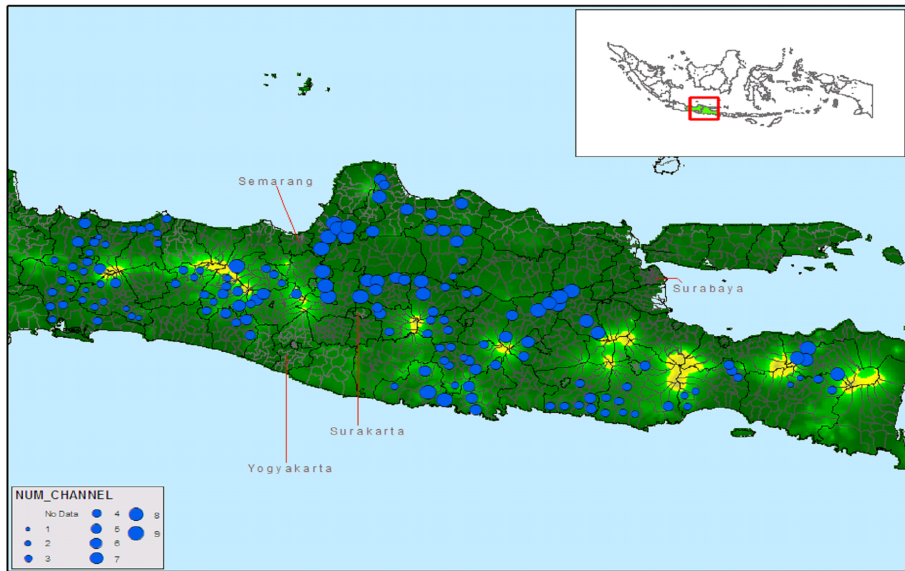
- Who has heard of “social capital”?
- Important idea in social science, namely that social ties – aka “social capital” – are important to democratic governance.
 - E.g., Putnam – “Making Democracy Work” and “Bowling Alone”
- Why might “social capital” matter?
 - Could be because people trust each other (with trust enforced through links on social network)
 - Could be because social links are a way to exclude people who fail to participate

Testing social capital's impact using TV

Olken (2009): "Does TV and Radio Destroy Social Capital?"

- Setting: Examines the impact of television (and radio) on social capital in over 600 Indonesian villages
- Main source of identification: plausibly exogenous variation in signal strength associated with the mountainous terrain of East / Central Java
- Additional sources of identification:
 - Compare social capital in subdistricts before and after introduction of private television in 1993
 - Use model of electromagnetic signal propagation to explicitly isolate impact of topography
- Then: examine the impact of television reception on corruption in road projects

Map: Variation in television reception



- Indonesian villages have extremely dense social networks
 - Typical Javanese village of 2,600 adults has 179 groups of various types
 - Types of groups: Neighborhood associations, religious study groups, ROSCAs, health and women's groups, volunteer work
- Television and radio
 - 80 percent of rural households watch TV per week in 2003
 - 11 national TV stations, showing mix of news, soap operas, movies, etc
 - Broadcasting centered around major cities
 - But prior to 1991, only 1 TV channel (gov't channel)
 - Will not separately identify TV and radio as I don't have independent data on radio, and they are likely co-linear in any case

Does better reception translate into increased use?

- Show that in Central / East Java sample, television reception is orthogonal to a large number of village characteristics
- Estimate impact of channels on use at individual level with data from East / Central Java survey:

$$\begin{aligned} MINUTES_{hvsd} = & \alpha_d + NUMCHAN_{sd} \\ & + Y_{hvsd}\gamma + X_{vsd}\delta_1 + \delta_2 ELEVATION_{sd} + \varepsilon_{hvsd} \end{aligned}$$

where:

- $MINUTES_{hvsd}$ is number of minutes respondent spends watching TV or listening to radio
- Y_{hvsd} are respondent covariates (gender, predicted per-cap expenditure, has electricity)
- all specifications include district FE α_d
- standard errors clustered by subdistrict

Does better reception translate into increased use?

TABLE 4—MEDIA USAGE AND OWNERSHIP

	Individual-level data (Java survey)			
	Total minutes per day (1)	TV minutes per day (2)	Radio minutes per day (3)	Own TV (4)
Number of TV channels	14.243*** (2.956)	6.948*** (1.827)	6.997*** (1.881)	−0.007 (0.008)
Observations	4,213	4,250	4,222	4,266
R^2	0.18	0.16	0.10	0.17
Mean dep. var.	180.15	124.54	55.82	0.70

Participation in social groups

TABLE 5—PARTICIPATION IN SOCIAL GROUPS
(Cross sectional data)

	Village-level data (Java survey)		Individual-level data (Java survey)	
	Log number of groups in village (1)	Log attendance per adult at group meetings in past three months (2)	Number types of groups participated in during last three months (3)	Number times participated in last three months (4)
Number of TV channels	-0.068** (0.026)	-0.111** (0.045)	-0.186* (0.096)	-0.970 (0.756)
Observations	584	556	4,268	4,268
R^2	0.64	0.49	0.40	0.29
Mean dep. var.	4.94	1.97	4.27	22.77

- Qualitatively similar results using introduction of private TV (panel) and using electromagnetic model of signals to instrument for who receives channels

Affects number of people showing up at meetings

	Log attendance at meeting (1)	Log attendance of “insiders” at meeting (2)	Log attendance of “outsiders” at meeting (3)
Number of TV channels	−0.030** (0.015)	−0.047** (0.020)	−0.009 (0.032)
Observations	2,273	2,266	2,124
Mean dep. var.	0.26 3.75	0.19 2.77	0.26 2.71

But no impact on actual monitoring...

Log number of people who talk at meeting (4)	Number of problems discussed (5)	Any corruption- related problem (6)	Any serious action taken (7)
0.002 (0.020)	0.019 (0.059)	-0.009 (0.008)	0.000 (0.003)
2,200	1,702	1,702	1,702
0.22	0.37	0.15	0.15
2.07	1.18	0.06	0.02

Or on corruption

TABLE 9—IMPACT ON “MISSING EXPENDITURES”

	Missing expenditures in road project (1)	Missing expenditures in road and ancillary projects (2)	Discrepancy in prices in road project (3)	Discrepancy in quantities in road project (4)
Number of TV channels	−0.033* (0.019)	−0.042** (0.019)	−0.030*** (0.010)	0.003 (0.021)
Observations	460	517	476	460
R^2	0.35	0.29	0.30	0.32
Mean dep. var.	0.24	0.25	−0.01	0.24

Note: See notes to Table 8.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Media Bias

Yanagizawa-Drott (2014): Propaganda and Conflict: Theory and Evidence from the Rwandan Genocide

- What did Kapuscinski say about media and Rwandan conflict?
- How does Yanagizawa-Drott test this?
- What do you think of this paper? Do you believe it?

Empirical setup

- Empirical setup:

$$\log h_{vci} = \beta_v r_{ci} + X'_{ci} \Pi + \gamma_c + \epsilon_{ci}$$

where h_{vci} is number of people prosecuted for violence and r_{ci} is predicted radio reception and γ_c are commune fixed effects

- Does the fact that r_{ci} is radio reception, not actual radio listening, help?
- What other concerns might you have?

Checking for balance

EXOGENEITY CHECK

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Population in 1991, log	Population density in 1991, log	Distance to major town, log	Distance to major road, log	Distance to the border, log	North sloping	East sloping	South sloping	West sloping	Radio coverage in near by villages (<10 km)	Radio coverage in nearby villages (10–20 km)	Radio coverage in village, Radio Rwanda
Radio coverage in village	−0.049 (0.071)	0.196 (0.145)	0.092 (0.086)	−0.238 (0.154)	0.082 (0.189)	0.113 (0.087)	−0.008 (0.099)	0.020 (0.089)	−0.125 (0.109)	0.029 (0.018)	−0.009 (0.020)	0.061 (0.047)
Observations	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
R-squared	0.460	0.426	0.908	0.705	0.921	0.150	0.138	0.145	0.162	0.957	0.952	0.697
Propagation controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Commune FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

TABLE III
MAIN EFFECTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable: log(prosecuted persons)								
	Total violence			Militia violence			Individual violence		
Radio coverage in village	0.507** (0.226)	0.526** (0.242)	0.484** (0.235)	0.582** (0.239)	0.559*** (0.216)	0.544*** (0.206)	0.450* (0.233)	0.465* (0.252)	0.418* (0.246)
Population in 1991, log			0.590*** (0.131)			0.589*** (0.171)			0.624*** (0.150)
Population density in 1991, log			-0.014 (0.070)			0.004 (0.101)			-0.015 (0.069)
Distance to major town, log			0.068 (0.150)			-0.233 (0.149)			0.113 (0.152)
Distance to major road, log			-0.196** (0.076)			-0.245*** (0.090)			-0.193** (0.075)
Distance to the border, log			0.171* (0.103)			0.030 (0.126)			0.186* (0.103)
East sloping, dummy			0.017 (0.070)			0.098 (0.092)			0.014 (0.084)
North sloping, dummy			0.065 (0.068)			0.041 (0.092)			0.079 (0.068)
South sloping, dummy			-0.013 (0.074)			-0.028 (0.101)			-0.012 (0.077)
Observations	1065	1065	1065	1065	1065	1065	1065	1065	1065
R-squared	0.63	0.64	0.66	0.52	0.53	0.55	0.62	0.63	0.65
Commune FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Propagation controls	N	Y	Y	N	Y	Y	N	Y	Y

Placebo check using another radio station

TABLE IV
PLACEBO EFFECTS OF RADIO RWANDA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent variable: log(prosecuted persons)								
	Total violence			Militia violence			Individual violence		
Radio coverage, Radio Rwanda	0.192 (0.269)	0.069 (0.281)	-0.004 (0.275)	-0.099 (0.384)	-0.315 (0.376)	-0.403 (0.345)	0.274 (0.283)	0.167 (0.291)	0.104 (0.287)
Radio coverage, RTL			0.560** (0.246)			0.669*** (0.238)			0.482* (0.253)
Observations	1065	1065	1065	1065	1065	1065	1065	1065	1065
R-squared	0.63	0.65	0.65	0.52	0.54	0.55	0.62	0.64	0.65
Commune FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Propagation controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Additional controls	N	Y	Y	N	Y	Y	N	Y	Y

Other examples

- What about impacts on politics?
- Two examples:
- “Radio and the Rise of the Nazis in Prewar Germany”
 - Goebbels (Nazi Minister of Propaganda): “It would not have been possible for us to take power or to use it in the ways we have without the radio.”
 - How to test?
 - They use the same idea + a time change in radio content.
 - Prior to 1933, the Nazis (and Communists) were denied airtime by Weimar government. They get airtime in January 1933 when Hitler comes to power.
 - Compare the impacts of this change in areas with and without good radio signals (which also change), looking at annual parliamentary elections between 1928 and 1933.
 - So what is this empirical strategy? Estimate:

$$y_{it} = \alpha + \beta_1 \text{Slant}_t \times \text{Exposure}_{it} + Z'_{it}\beta_2 + \gamma_i + \tau_t + \epsilon_{it}$$

Timeline

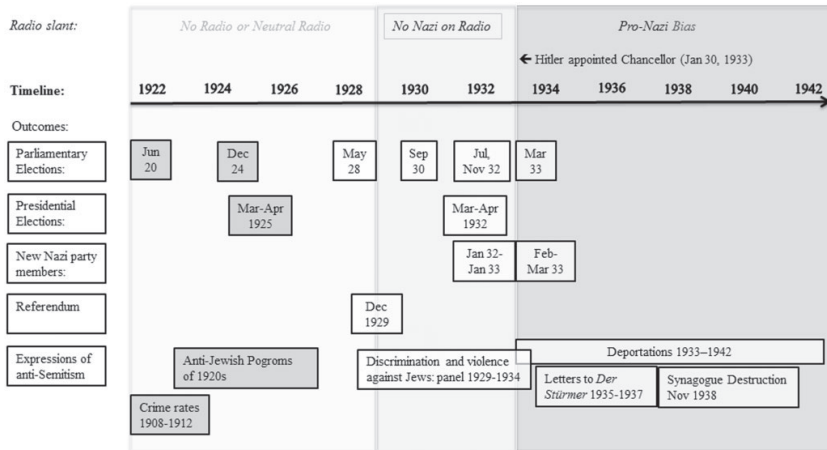
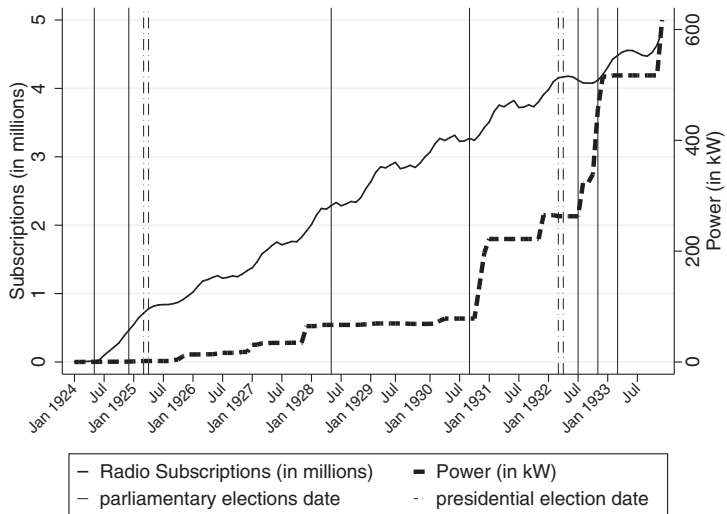


FIGURE III

The Timing of the Measurement of Outcome Variables and of the Change in Radio Content

Increase in Radio



Signal strength predicts radio subscriptions

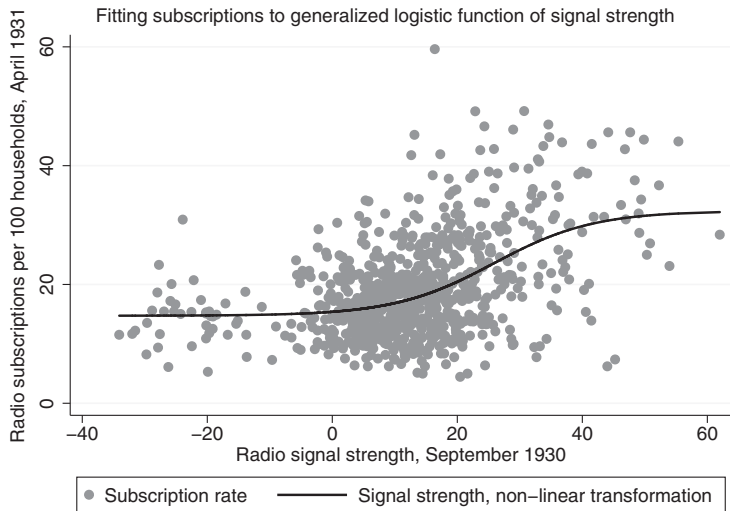


TABLE IV
RADIO AND AN INCREASE IN NAZI VOTE SHARE

	(1)	(2)	(3)	(4)
	Change in vote share of the Nazi party since previous elections			
Election dates	Sep 1930 (change from May 1928)		Mar 1933 (change from Nov 1932)	
Panel A: reduced-form estimation				
Radio signal strength	-0.061*** [0.022]		0.045** [0.020]	
Radio signal strength, nonlinear transformation		-0.217*** [0.071]		0.128* [0.071]
Region fixed effects	Yes	Yes	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes
Observations	958	958	918	918
Panel B: OLS and IV results				
Date for the subscription rate variable	Apr 1931		Apr 1933	
Specification	OLS	IV	OLS	IV
Radio subscription rate, %	-0.086* [0.045]	-0.347*** [0.095]	0.032* [0.017]	0.222* [0.117]
Region fixed effects	Yes	Yes	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes
Observations	857	855	853	851
F-statistic for the exclusion of the instrument		50.19		20.30
Panel C: Altonji-Elder-Taber tests				
Index of observables (predicted signal strength)	-0.037 [0.070]		-0.047 [0.049]	
Index of observables (predicted nonlinear signal strength)		0.014 [0.210]		-0.348* [0.200]
Population, fifth-order polynomial	Yes	Yes	Yes	Yes
Observations	958	958	918	918
R ²	0.432	0.432	0.573	0.576

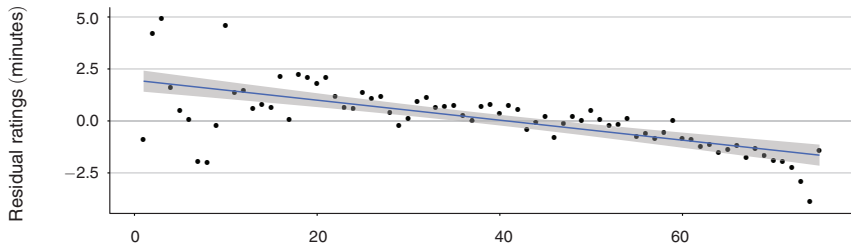
- When radio was anti-Nazi.... Columns 1 and 2 show lower vote share
- Switches when government is pro-Nazi

What about in the US?

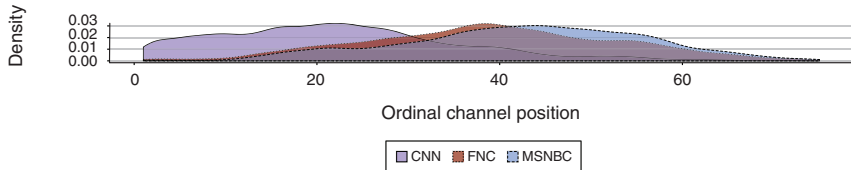
- You might think that this only matters in autocratic or unusual settings. What about here? Views?
- What would you want to test?
- Martin and Yurukoglu (2017) look at Fox News
- Identification? A previous paper looks at the introduction of Fox news 20 years ago. But what about today?
- Their idea: look at channel surfing.
- For people who watch cable, lower-numbered cable channels get more viewership
- So they look at Fox's cable position

Channel position and viewership

Panel A



Panel B



- What should you be concerned about?
 - They check this and if anything results go the wrong way

TABLE 5—FNC CABLE POSITION PLACEBO TESTS

	Predicted viewing		Predicted voting		1996 contributions		1996 vote
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FNC position	0.100 (0.034)	0.033 (0.026)	0.027 (0.022)	−0.0004 (0.017)	0.0002 (0.0002)	0.001 (0.0003)	−0.006 (0.012)
Fixed effects	State-year	County-year	State-year	County-year	State-year	County-year	State-year
Demographics	Extended	Extended	Extended	Extended	Extended	Extended	Extended
Number of clusters	4,830	4,839	4,814	4,827	4,830	4,839	4,830
Observations	59,551	59,694	17,400	17,451	59,551	59,694	59,551
R^2	0.380	0.827	0.339	0.729	0.176	0.436	0.571

TABLE 3—REDUCED-FORM REGRESSIONS: ZIP CODE VOTING DATA

	2008 McCain vote percentage			
	(1)	(2)	(3)	(4)
FNC cable position	−0.011 (0.023)	0.004 (0.020)	−0.027 (0.008)	−0.015 (0.008)
MSNBC cable position	0.054 (0.019)	0.041 (0.016)	0.008 (0.005)	0.003 (0.006)
Has MSNBC only	−2.118 (1.585)	−0.465 (1.306)	0.749 (1.002)	1.374 (1.219)
Has FNC only	7.557 (1.175)	5.500 (0.975)	2.262 (0.547)	1.061 (0.504)
Has both	4.223 (1.521)	4.351 (1.269)	1.358 (0.661)	0.814 (0.609)
Fixed effects	None	State	State	County
Cable system controls	Yes	Yes	Yes	Yes
Demographics	None	None	Extended	Extended
Number of clusters	6,035	6,035	4,814	4,814
Observations	22,584	22,584	17,400	17,400
R^2	0.148	0.294	0.833	0.907

TABLE 4—SECOND STAGE REGRESSIONS: ZIP CODE VOTING DATA

	2008 McCain vote percentage			
	(1)	(2)	(3)	(4)
Predicted FNC minutes	0.152 (0.056, 0.277)	0.120 (0.005, 0.248)	0.157 (−0.126, 0.938)	0.098 (−0.121, 0.429)
Satellite FNC minutes		−0.021 (−0.047, 0.001)		−0.015 (−0.073, 0.022)
Fixed effects	State	State	County	County
Cable system controls	Yes	Yes	Yes	Yes
Demographics	Extended	Extended	Extended	Extended
Number of clusters	4,814	3,993	4,729	4,001
Observations	17,400	12,417	17,283	12,443
R ²	0.833	0.841	0.907	0.919

- Interpretation?
- Each minute of additional average Fox viewership increases McCain vote share by 0.12 percentage points (!)
- Note thought that their variation is about 2.5 minutes = 1 sd in channel coverage
- But we are not immune from media's impact in the US either!