ECON 594: Applied Economics

Tables and Figures

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Papers are long and boring

> Police officers respond to a wide range of 911 calls, from violent crimes in progress to incidents involving mental health crises, homelessness, addiction, and interpersonal conflicts. Relying on police as universal first responders, however, may not be optimal: expanding officers' roles to include mediation and de facto social work can strain resources, reduce effectiveness in core law enforcement tasks, and increase the risk of unnecessary arrests or violence. An alternative approach is the integration of non-police first responders into municipal emergency-response systems. Typically composed of a non-uniformed mental health professional and a medic, these crisis response teams (CRTs) are trained to address crises related to substance use, mental health, and interpersonal conflict—situations that advocates argue differ fundamentally from traditional policing contexts and therefore warrant specialized responders (Irwin and Pearl, 2020; Krider et al., 2020).

What do you expect me to do, read this?

- Academics have limited attention
- Killer figures are memorable
- Try to tell the main story in two figures

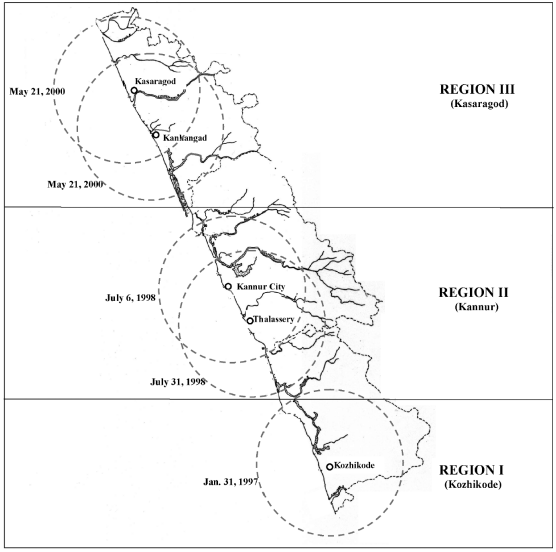
High-frequency data: Jensen (2007) on the price of fish

THE DIGITAL PROVIDE: INFORMATION (TECHNOLOGY), MARKET PERFORMANCE, AND WELFARE IN THE SOUTH INDIAN FISHERIES SECTOR*

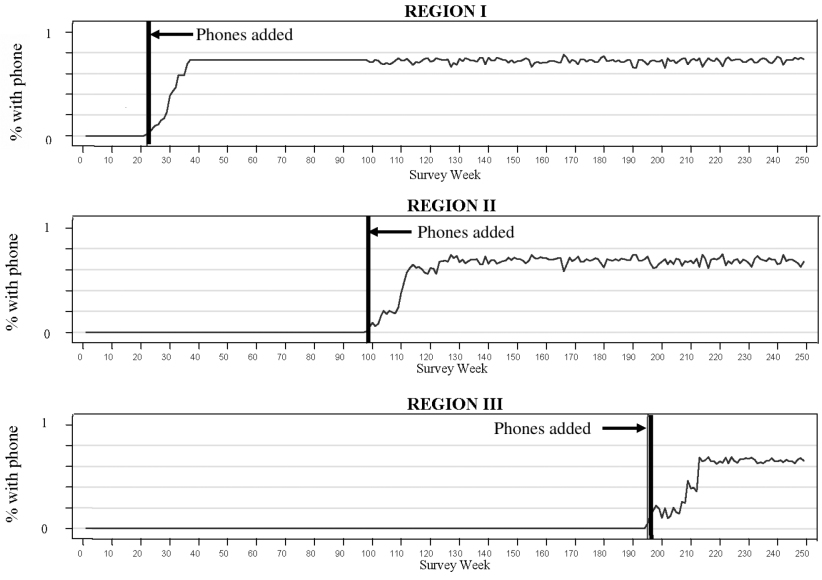
ROBERT JENSEN

When information is limited or costly, agents are unable to engage in optimal arbitrage. Excess price dispersion across markets can arise, and goods may not be allocated efficiently. In this setting, information technologies may improve market performance and increase welfare. Between 1997 and 2001, mobile phone service was introduced throughout Kerala, a state in India with a large fishing industry. Using microlevel survey data, we show that the adoption of mobile phones by fishermen and wholesalers was associated with a dramatic reduction in price dispersion, the complete elimination of waste, and near-perfect adherence to the Law of One Price. Both consumer and producer welfare increased.

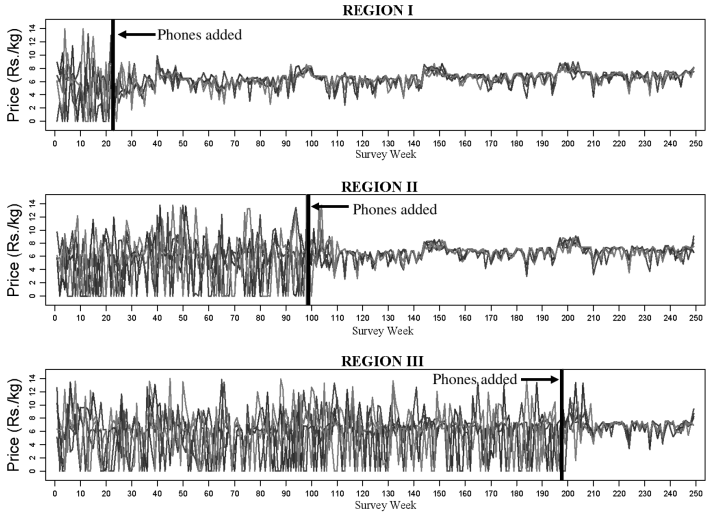
The spread of mobile phone coverage



The “first stage”



Wow



Unusual: effects convincing even without standard errors

The table version – which is more memorable?

TABLE III
PRICE DISPERSION AND WASTE IN KERALA SARDINE MARKETS

	Period 0 (pre-phone)	Period 1 (region I adds phones)	Period 2 (region II adds phones)	Period 3 (region III adds phones)
Max–min spread (Rs/kg)				
Region I	7.60	1.86	1.32	1.22
	(0.50)	(0.22)	(0.10)	(0.44)
Region II	8.19	7.30	1.79	1.57
	(0.44)	(0.29)	(0.19)	(0.16)
Region III	8.24	7.27	7.60	2.56
	(0.47)	(0.27)	(0.25)	(0.34)

Figures versus tables

Figures almost always better than tables for presenting results

- Exception: when summarizing lots of information (e.g. summary statistics)

To make quick figures in STATA:

- `parmest, fast` $\rightarrow$ `scatter` (point estimates), `rcap` (confidence intervals)
- `coefplot`

What does a good figure look like?

The most important principle: self-contained and easy to understand

- When you tell people things they dont need to know, they start to wonder if other things are also irrelevant

This means:

- Label axes (outcome, units, what they are)
- Label data features (e.g., vertical line marking a policy change)
- Cut out irrelevant info
- Use colors consistently across figures
- Make the important part big (legends inside the plot)
- Descriptive title that states the finding
- Figure notes explain what is happening
- Honest axes (don’t truncate to exaggerate differences)

Binary treatments: Bursztyn et al. (2020)

From Extreme to Mainstream: The Erosion of Social Norms[†]

By Leonardo Bursztyn, Georgy Egorov, and Stefano Fiorin[*]

Social norms, usually persistent, can change quickly when new public information arrives, such as a surprising election outcome. People may become more inclined to express views or take actions previously perceived as stigmatized and may judge others less negatively for doing so. We examine this possibility using two experiments. We first show via revealed preference experiments that Donald Trump's rise in popularity and eventual victory increased individuals' willingness to publicly express xenophobic views. We then show that individuals are sanctioned less negatively if they publicly expressed a xenophobic view in an environment where that view is more popular.

Summarizing a 2-by-2 design

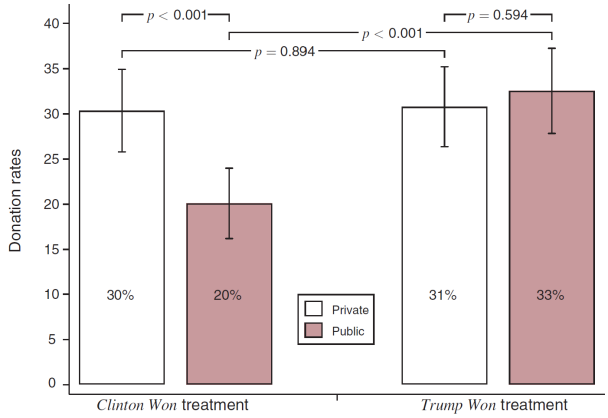


FIGURE 1. EXPERIMENT 1: DONATION RATES

Notes: The two bars on the left display donation rates to the anti-immigration organization for individuals in the private and public conditions in the *Clinton Won* treatment group (respectively $N = 392$ and $N = 408$), and the two bars on the right display those for individuals in the private and public conditions in the *Trump Won* treatment group (respectively $N = 419$ and $N = 381$). Error bars reflect 95 percent confidence intervals. Top horizontal bars show p-values for t-tests of equality of means between different experimental conditions.

Continuous treatments: variation in intergroup contact

Types of Contact: A Field Experiment on Collaborative and Adversarial Caste Integration[†]

By Matt Lowe[*]

I estimate the effects of collaborative and adversarial intergroup contact. I randomly assigned Indian men from different castes to participate in cricket leagues or to serve as a control group. League players faced variation in collaborative contact, through random assignment to homogeneous-caste or mixed-caste teams, and adversarial contact, through random assignment of opponents. Collaborative contact increases cross-caste friendships and efficiency in trade, and reduces own-caste favoritism. In contrast, adversarial contact generally reduces cross-caste interaction and efficiency. League participation reduces intergroup differences, suggesting that the positive aspects of intergroup contact more than offset the negative aspects in this setting. (*JEL* C93, D83, D91, J15, O15, Z13, Z21)

The empirical specification

$$y_{icl} = \alpha_{cl} + \beta \text{Prop. Oth. Caste on Team}_{icl} + \gamma \text{Prop. Oth. Caste of Opponents}_{icl} + \eta \mathbf{X}_{icl} + \epsilon_{icl}$$

How would you visualize this?

For non-linearities:

$$\begin{aligned} y_{icl} = \alpha_{cl} &+ \beta_1 1\left[\text{Prop. Oth. Caste on Team}_{icl} = \frac{1}{4}\right] \\ &+ \beta_2 1\left[\text{Prop. Oth. Caste on Team}_{icl} = \frac{1}{2}\right] + ... + \\ &+ \gamma \text{Prop. Oth. Caste of Opponents}_{icl} + \eta \mathbf{X}_{icl} + \epsilon_{icl} \end{aligned}$$

Replication files here

Binning manually

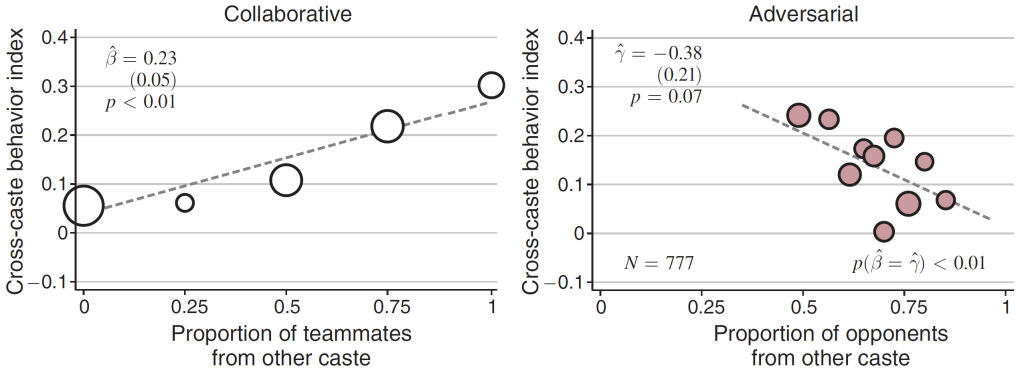


FIGURE 4. COLLABORATIVE AND ADVERSARIAL CONTACT
HAVE OPPOSITE EFFECTS ON OVERALL CROSS-CASTE BEHAVIORS

Binning automatically

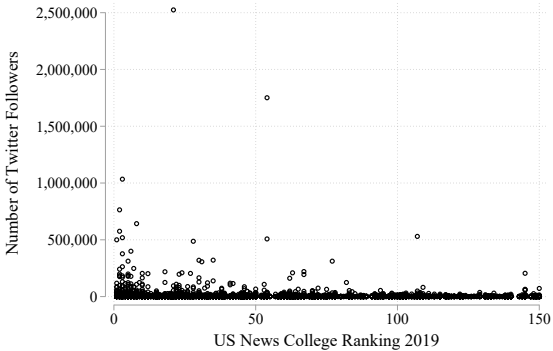
Binsreg for Python, R, STATA: https://nppackages.github.io/binsreg/

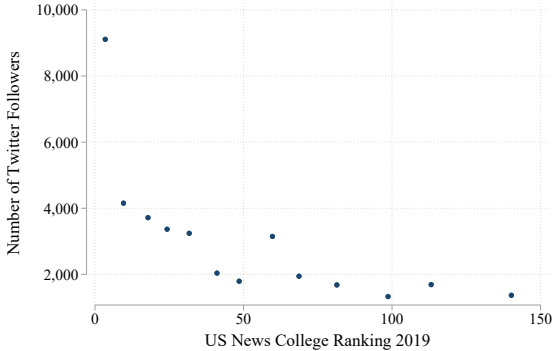
- See Cattaneo et al. (2021) “On Binscatter”

Useful to do this to understand the data before analyzing

- Even for analysis, probably only need the basics (e.g. no need for CIs)

Binsreg example





Transforming variables and interpreting magnitudes

Try to make coefficients easily interpretable:

1. For tables, include the control mean
2. Log the outcome: coefficients are approximately percent changes
3. Consider standardizing the outcome, so effects are in standard deviations
   - I.e. $y_i \to \tilde{y}_i = \frac{y_i - \bar{y}}{\sigma_y}$ (get σ_y in STATA from `summarize y, detail`)
   - Very common in papers on education interventions (e.g. this one)
   - Don't standardize something that is already interpretable
4. To group together outcomes, consider making an index
   - Standardize then average (Kling et al. 2007)
5. Make RHS variale interpretable (e.g., $1000s)

Principles for good tables

Layout

- Horizontal lines only (no vertical lines)
- Super-columns to define groups or outcomes

Content

- Don't report control variable coefficients
- Report control means (or complier control means with IV)
- Include *p*-value tests for main hypotheses
- Bottom rows: FE, clustering, and N per column

Descriptive titles and table notes

The golden rule: is this bit of information useful to the reader?

Control means

TABLE 5—COLLABORATIVE CONTACT INCREASES INCENTIVIZED CROSS-CASTE TRADE

					Cross-caste trade	
	Traded	Cross-caste trade		Trade payout	Other team	Non-playing backup
	(1)	(2)	(3)	(4)	(5)	(6)
Prop. Oth. Caste on Team	0.01	0.06				
	(0.02)	(0.04)				
Prop. Oth. Caste of Opponents	−0.06	−0.15				
	(0.10)	(0.17)				
Color switch bonus = 50	−0.00	0.22				
	(0.02)	(0.04)				
Color switch bonus = 100	0.01	0.25	0.02	85.97	−0.03	0.05
	(0.02)	(0.04)	(0.04)	(6.52)	(0.04)	(0.02)
Observations	1,510	1,510	1,510	1,510	1,510	1,510
Individuals	755	755	755	755	755	755
Homog. team mean	0.88	0.52	0.52	83	0.36	.064
Caste × league fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Caste × league × (bonus > 0) fixed effects	No	No	Yes	Yes	Yes	Yes
Trade bonus dummy	Yes	Yes	Yes	Yes	Yes	Yes
p-value (collaborative = adversarial)	0.47	0.22				
p-value (coll. × bonus = coll. × no bonus)			0.23	0.027	0.39	0.75
p-value (adv. × bonus = adv. × no bonus)			0.94	0.63	0.94	0.84

Three things to remember

1. Figures first, tables as a last resort
2. Use detailed notes to make exhibits self-contained
3. Make magnitudes easily interpretable