FLS 6415 - Causal Inference for the Political Economy of Development

Week 11 - Collective Action & Comparative Cases

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Review of Large-N Causal Inference

- How to analyze data for causal inference:

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  1. Causal Inference logic -> Regression Structure

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  2. Outcome Type -> Regression Model

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- How to analyze data for causal inference:
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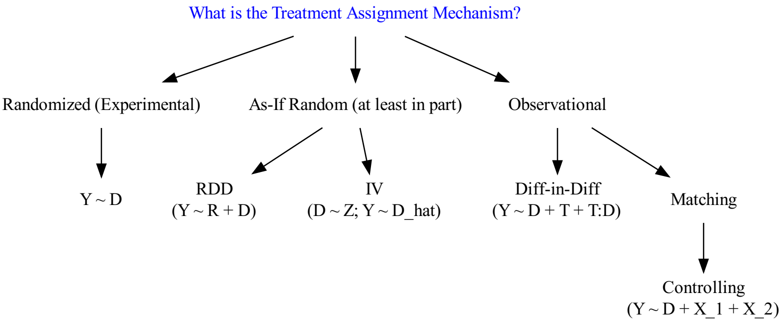
    2. Outcome Type -> Regression Model
    3. Treatment scale & Outcome scale -> Interpretation

Treatment Assignment Mechanisms

Analysis Types and Assumptions

Week		Researcher Controls Treatment Assignment?	Treatment Assignment Independent of Potential Outcomes	SUTVA	Additional Assumptions
	Controlled Experiments				
1	Field Experiments	✓	✓	✓	
2	Survey and Lab Experiments	✓	✓	✓	Controlled Environment for treatment exposure
	Natural Experiments				
3	Randomized Natural Experiments	X	✓	✓	Compliance with Randomization
4	Instrumental Variables	X	✓	✓	First stage and Exclusion Restriction (Instrument explains treatment but not outcome)
5	Regression Discontinuity	X	✓	✓	Continuity of covariates; No manipulation; No compounding discontinuities
	Observational Studies				
6	Difference-in-Differences	X	X	✓	No Time-varying confounders; Parallel Trends
7	Controlling for Confounding	X	X	✓	Blocking all Back-door paths
8	Matching	X	X	✓	Overlap in sample characteristics

Regression Structure



Outcome Variable Type

- Continuous -> Ordinary Least Squares

```
zelig(Formula,data=data,model="ls")
```

- Binary -> Logit

```
zelig(Formula,data=data,model="logit")
```

- Unordered categories -> Multinomial logit

```
zelig(Formula,data=data,model="mlogit")
```

- Ordered categories -> Ordered logit

```
zelig(Formula,data=data,model="ologit")
```

Interpretation

- **For OLS regression:**
- A 1 [unit1] change in treatment [causes/is associated with] a β [unit2] change in the outcome
- unit1 : Same units as treatment variable
  - Unless treatment is log(), then unit1 is 1% and unit2 is $\beta * ln(\frac{101}{100})$ (not %)
  - Which is almost the same as $\frac{\beta}{100}$ (not %)
- unit2 : Same units as outcome variable
  - Unless outcome is log(), then unit2 is $100 * (exp(\beta) - 1)$%
  - Which is almost the same as $100 * \beta$%

Interpretation

```
zelig(mpg wt,data=mtcars,model="ls")
```

	Dependent variable:
	mpg
wt	-5.344^{***}
	(0.559)
Constant	37.285^{***}
	(1.878)
Observations	32
R^2	0.753
Adjusted R^2	0.745
Residual Std. Error	3.046 (df = 30)

Interpretation

```r
zelig(mpg log(wt),data=mtcars,model="ls")
```

	Dependent variable:
	mpg
wt	−17.086***
	(1.510)
Constant	39.257***
	(1.758)
Observations	32
R^2	0.810
Adjusted R^2	0.804
Residual Std. Error	2.669 (df = 30)

Interpretation

```
zelig(log(mpg) wt,data=mtcars,model="ls")
```

	Dependent variable:
	log(mpg)
wt	−0.272***
	(0.025)
Constant	3.832***
	(0.084)
Observations	32
R^2	0.798
Adjusted R^2	0.791
Residual Std. Error	0.136 (df = 30)

Interpretation

- **For Logit regression:**
- A 1 [unit1] change in treatment [causes/is associated with] a β change in the log-odds of the outcome

Interpretation

- **For Logit regression:**
- A 1 [unit1] change in treatment [causes/is associated with] a β change in the log-odds of the outcome
- A 1 [unit1] change in treatment [causes/is associated with] a $100 * (exp^{\beta} - 1)\%$ change in the odds (relative probability) of the outcome

Interpretation

```r
zelig(am wt,data=mtcars,model="logit") mtcars
```

	Dependent variable:
	am
wt	−0.353***
	(0.067)
Constant	1.542***
	(0.226)
Observations	32
R^2	0.480
Adjusted R^2	0.462
Residual Std. Error	0.366 (df = 30)

Interpretation

- **For Ordered Logit regression:**
- A 1 [unit1] change in treatment [causes/is associated with] a β change in the log-odds of moving up one unit on the outcome scale

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Interpretation

```
zelig(cyl wt,data=mtcars,model="ologit")
```

	Dependent variable:
	cyl
wt	5.186***
	(1.506)
Observations	32
Note:	*p<0.1; **p<0.05; ***p<0.01

Interpretation

- **For Unordered Logit regression:**
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- If there are C outcome categories, we get $C-1$ coefficients on each treatment variable
- A 1 [unit1] change in treatment [causes/is associated with] a β_C change in the log-odds of this outcome category compared to the base category
- A 1 [unit1] change in treatment [causes/is associated with] a $100 * (exp(\beta_C) - 1)$ change in the odds (relative probability) of this outcome category compared to the base category

Interpretation

```
zelig(color wt,data=mtcars,model="mlogit")
```

[1] "Black" "Blue" "Red" "Silver"

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept):1	0.236	1.768	0.134	0.894
(Intercept):2	0.858	1.769	0.485	0.628
(Intercept):3	-0.834	1.800	-0.463	0.643
wt:1	-0.074	0.530	-0.139	0.889
wt:2	-0.276	0.545	-0.505	0.613
wt:3	0.249	0.517	0.482	0.630

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- **Exactly** the same causal inference logic as Large-N
- We need counterfactuals to estimate treatment effects: **Comparative** Cases
- Even if we can ’observe’ the causal process, we can easily make mistakes
- The aim is to go beyond description

Comparative Case Studies

- Why can't we achieve causal inference from single case studies?

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- We need variation in the dependent variable if we are to explain it

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- Common error: "research that tries to explain the outbreak of war with studies only of wars" (KKV)

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  - Fewer comparisons: No uncertainty measure or confidence intervals. What's our standard of evidence?

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  - Statistical Inference: Non-random cases, so generalization is harder
  - Harder to balance confounders: More variables than cases!

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  - IV may be possible if there is some as-if random assignment, eg. leader death from cancer

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  - Diff-in-diff plausible if we have time-series data
  - IV may be possible if there is some as-if random assignment, eg. leader death from cancer
  - Or an RDD, eg. just missing out on WB loans due to GDP measure

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  - Matching to ensure balance on confounders through case selection - prune unmatched cases
  - Clearly we can't match on everything, so focus on getting balance on key confounders/alternative theories
- **Our Large-N dataset after matching might look very similar to a comparative case study**

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- Case Selection:
- Don't confuse two distinct considerations in choosing cases:
  1. Causal Inference (internal validity) - can our cases tell us with confidence that D causes Y?
  2. Population Inference (external validity) - How much can we generalize about this causal effect to a broader population?
- Ideally we want both: Control and representative variation
  - Our goal is not to explain why revolution happened in Iran, but why it happens generally

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  - So even if we randomize, need to check for balance and variation

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        - Randomization does not guarantee balance on confounders in small samples
        - Randomized sampling is not the same as randomized treatment
    - So even if we randomize, need to check for balance and variation
    - Probably easier to ’block’ on key confounders and impose variation in treatment - purposive sampling

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  - If we only study success cases, we don't know the counterfactual
  - The 'treatment' may also have been present in the 'control' cases
  - We want to explain interesting things, so we often pick 'extreme' cases, but the extremeness might reflect confounders, not the treatment
  - But: If we select cases explicitly for a *range* of values of the outcome, that's better

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    - We risk 'survival bias' if we only look at 'active' cases
        - Eg. cases where 'deterrence' fails coincide with poor communication
        - But communication is also poor every second that deterrence worked!

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  - Pick units with ’median’ values - or a range of values - on the confounding and outcome variables

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  - If we want to compare mens and womens running speeds, **DO NOT** pick Usain Bolt and Florence Griffith-Joyner
  - Pick units with 'median' values - or a range of values - on the confounding and outcome variables
  - Do this at the same time as balancing confounders - hard!

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  - **Diverse cases:** Covering all values of treatment and covariates, eg. Slater

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  - **Diverse cases:** Covering all values of treatment and covariates, eg. Slater
  - **Extreme cases:** Highest and lowest values of treatment, eg. Lieberman

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- Methods for alternative objectives:

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  - **Deviant cases:** If you want to disprove a theory or generate a new hypothesis

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  - **Most different cases:** When searching for a hypothesis to explain Y

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  - **Deviant cases:** If you want to disprove a theory or generate a new hypothesis
  - **Most different cases:** When searching for a hypothesis to explain Y
  - **Influential cases:** How sensitive is our relationship to mismeasurement of a key case?

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  2. Small-N study to identify relationship, then tested for generalizability in Large-N sample (Lieberman)

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- Three forms of mixed methods:
  1. Large-N measurement supports case selection for Small-N analysis (Seawright and Gerring)
  2. Small-N study to identify relationship, then tested for generalizability in Large-N sample (Lieberman)
  3. Large-N analysis to show causal mechanism within-case, then generalized using comparative case studies (Ziblatt and Slater)

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- Strategies for increasing the number of observations:

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    1. Additional measurable implications of the causal theory

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  - Tax compliance

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- Levitsky and Way (2003)
  - What is their theory?

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  - How do the comparative cases provide supportive evidence?

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    - How generalizable are the findings?

Collective Action

- Levitsky and Way (2003)
  - What is their theory?
  - How do the comparative cases provide supportive evidence?
  - How generalizable are the findings?
  - How did they select their cases?

Collective Action

- Levitsky and Way (2003)
  - When do authoritarian parties collapse? (No specific treatment variable)

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  - When do authoritarian parties collapse? (No specific treatment variable)
  - Does a ruling party that emerged from violent revolution cause a lower risk of authoritarian party collapse? (Specific treatment variable)

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  - Does a ruling party that emerged from violent revolution cause a lower risk of authoritarian party collapse? (Specific treatment variable)
  - Does a [ruling party that emerged from violent revolution] cause a [lower risk of authoritarian party collapse]?

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- Levitsky and Way (2003)
- Causal theory/mechanisms that affect collective action:

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  - Clearer group boundaries and solidarity

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- Causal theory/mechanisms that affect collective action:
  - Clearer group boundaries and solidarity
  - Leader legitimacy
  - Raising the moral and social costs of defection
  - Greater ’stomach’ for repression

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  - **Population:**

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  - **Population:** One-Party Competitive Authoritarian regimes during economic crisis (scope condition)

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  - **Treatment:**

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  - **Sample:** Kenya, Mozambique, Zimbabwe, Zambia
  - **Treatment:** Party formed by violent conflict

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  - **Sample:** Kenya, Mozambique, Zimbabwe, Zambia
  - **Treatment:** Party formed by violent conflict
  - **Control:**

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  - **Treatment:** Party formed by violent conflict
  - **Control:** Party not formed by violent conflict

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  - **Control:** Party not formed by violent conflict
  - **Treatment Assignment:**

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    - **Treatment Assignment:** Complex historical processes
    - **Outcome:**

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  - **Sample:** Kenya, Mozambique, Zimbabwe, Zambia
  - **Treatment:** Party formed by violent conflict
  - **Control:** Party not formed by violent conflict
  - **Treatment Assignment:** Complex historical processes
  - **Outcome:** Regime survival

Collective Action

- Levitsky and Way (2003)
- Estimating the causal effect is easy:

	Control	Treated
Regime collapse	Kenya, Zambia	
Regime survival		Mozambique, Zimbabwe

Collective Action

- Levitsky and Way (2003)
  - The 'work' is in measuring the variables and controlling for alternative explanations

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Collective Action

- Levitsky and Way (2003)
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  - Not ex ante explicit
  - But designed to achieve balance
- Generalizability?
  - How unusual are Zimbabwe and Mozambique?

Collective Action

- Levitsky and Way (2003)
- Case Selection?
  - Not ex ante explicit
  - But designed to achieve balance
- Generalizability?
  - How unusual are Zimbabwe and Mozambique?
  - Can't say much outside of Africa

Collective Action

- Lieberman (2003)
  - What is his theory?

Collective Action

- Lieberman (2003)
  - What is his theory?
  - How do the comparative cases provide supportive evidence?

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  - How generalizable are the findings?
  - How did he select his cases?

Collective Action

- Lieberman (2003)
  - Why is it so much harder to collect taxes in Brazil than South Africa?

Collective Action

- Lieberman (2003)
  - Why is it so much harder to collect taxes in Brazil than South Africa?
  - Do salient racial cleavages increase willingness to pay taxes?

Collective Action

- Lieberman (2003)
  - **Population:**

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:**

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa
  - **Treatment:**

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa
  - **Treatment:** Cross-class racial cleavage

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa
  - **Treatment:** Cross-class racial cleavage
  - **Control:**

Collective Action

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  - **Sample:** Brazil and South Africa
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  - **Control:** Non-racial class cleavage

Collective Action

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    - **Population:** Developing countries
    - **Sample:** Brazil and South Africa
    - **Treatment:** Cross-class racial cleavage
    - **Control:** Non-racial class cleavage
    - **Treatment Assignment:**

Collective Action

- Lieberman (2003)
  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa
  - **Treatment:** Cross-class racial cleavage
  - **Control:** Non-racial class cleavage
  - **Treatment Assignment:** History of social relations, constitutional conventions, policies

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  - **Outcome:**

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  - **Population:** Developing countries
  - **Sample:** Brazil and South Africa
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  - **Control:** Non-racial class cleavage
  - **Treatment Assignment:** History of social relations, constitutional conventions, policies
  - **Outcome:** Compliance of the rich with direct taxation

Collective Action

- Lieberman (2003)
- Balancing on Confounders

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization
  - Development Strategy

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization
  - Development Strategy
  - Income levels

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization
  - Development Strategy
  - Income levels
  - Income inequality

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization
  - Development Strategy
  - Income levels
  - Income inequality
  - Ethnic diversity

Collective Action

- Lieberman (2003)
- Balancing on Confounders
  - Authoritarian history/democratization
  - Development Strategy
  - Income levels
  - Income inequality
  - Ethnic diversity
  - Wars/International context

Collective Action

- Lieberman (2003)
  - Brazil and South Africa might be imbalanced on the amount of fish they catch

Collective Action

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  - And there's always a chance that this might matter

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- Don't balance on recent indiciators of trust, corruption or culture. Why?

Collective Action

- Lieberman (2003)
    - Brazil and South Africa might be imbalanced on the amount of fish they catch
    - And there’s always a chance that this might matter
    - But if we have balanced all **theoretically-relevant** confounders, that’s pretty good
- Don’t balance on recent indiciators of trust, corruption or culture. Why?
    - These variables are post-treatment - affected by the national political community

Collective Action

- Lieberman (2003)
  - Complements the comparative case study with a cross-national regression

Collective Action

- Lieberman (2003)
  - Complements the comparative case study with a cross-national regression
  - Measurement accuracy vs generalizability

Collective Action

- Slater (2009)
  - What is his theory?

Collective Action

- Slater (2009)
  - What is his theory?
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- Slater (2009)
  - What is his theory?
  - How do the comparative cases provide supportive evidence?
  - How generalizable are the findings?
  - How did he select his cases?

Collective Action

- Slater (2009)
  - When does protest occur?

Collective Action

- Slater (2009)
  - When does protest occur?
  - When does protest succeed?

Collective Action

- Slater (2009)
  - When does protest occur?
  - When does protest succeed?
  - Theory: Economic crisis or modernization or a stronger middle-class is not enough: Democrats also have to overcome the collective action problem

Collective Action

- Slater (2009)
  - When does protest occur?
  - When does protest succeed?
  - Theory: Economic crisis or modernization or a stronger middle-class is not enough: Democrats also have to overcome the collective action problem
  - Does the support of communal elites make mass protest more likely, and more likely to succeed?

Collective Action

- Slater (2009)
  - Holding region constant

Collective Action

- Slater (2009)
  - Holding region constant
  - Balance cases on income / material interests (alternative theory)

Collective Action

- Slater (2009)
  - Holding region constant
  - Balance cases on income / material interests (alternative theory)
  - Tries to correct a selection bias in the literature: Scholars measure protest but not the **absence of protest**

Collective Action

- **Population:**

Collective Action

- **Population:** Authoritarian regimes

Collective Action

- **Population:** Authoritarian regimes
- **Sample:**

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:**

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:** Communal elites support the opposition

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:** Communal elites support the opposition
- **Control:**

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:** Communal elites support the opposition
- **Control:** Communal elites support the regime/split

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:** Communal elites support the opposition
- **Control:** Communal elites support the regime/split
- **Treatment Assignment:**

Collective Action

- **Population:** Authoritarian regimes
- **Sample:** 10 country-years in Southeast Asia
- **Treatment:** Communal elites support the opposition
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- **Treatment Assignment:** Historical processes of colonialism, decolonisation, and authoritarianism

Collective Action

- **Population:** Authoritarian regimes
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- **Treatment:** Communal elites support the opposition
- **Control:** Communal elites support the regime/split
- **Treatment Assignment:** Historical processes of colonialism, decolonisation, and authoritarianism
- **Outcome:**

Collective Action

- **Population:** Authoritarian regimes
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- **Treatment:** Communal elites support the opposition
- **Control:** Communal elites support the regime/split
- **Treatment Assignment:** Historical processes of colonialism, decolonisation, and authoritarianism
- **Outcome:** No protests, failed protests or protest success

Collective Action

TABLE 1
Communal Elites versus Rival Explanations for Democratic Mobilization in Southeast Asia

	Philippines (1986)	Thailand (1973)	Thailand (1992)	Indonesia (1998)	Indonesia (1978)	Malaysia (1998)	Burma (1988–90)	Burma (2007)	Singapore	Vietnam
Economic development	Low-medium	Low-medium	Medium-high	Medium	Low-medium	Medium-high	Low	Low	High	Low-medium
Economic downturn	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes
Stolen election	Yes	No	No	No	No	No	Yes	No	No	No
International diffusion	No	No	Yes	No	No	Yes	No	Yes	No	Yes
Politically autonomous communal elites	Yes	Yes	Yes	Split	Split	Split	Split	Split	No	No
Communal elites' predominant posture	Opposition	Opposition	Opposition	Opposition	Regime	Regime	Deadlock	Deadlock	Regime	Regime
Mobilization outcome	Revolution	Revolution	Revolution	Revolution	Crackdown	Crackdown	Crackdown	Crackdown	Quiescence	Quiescence