Can Civilian Attitudes Predict Civil War Violence?

Kosuke Imai

Department of Politics
Princeton University

January 6, 2014
Asian Political Methodology Conference
Methodological Motivation: Sensitive Questions

- Survey is used widely in social sciences
- Validity of survey depends on the accuracy of self-reports

**Sensitive questions** $\implies$ social desirability, privacy concerns
- Prejudice, illegal behavior, support for militants
- Lies and nonresponses $\implies$ potential bias

Survey “experiments” as a solution:
1. Randomization: Randomized response method
2. Aggregation: List experiment (item count technique)
3. Cueing: Endorsement experiment

Validating endorsement experiments:
1. Comparison with list experiments (Blair, Imai & Lyall AJPS)
2. Can endorsement experiments improve the prediction of violence?
Empirical Application: Attitudes and Civil War Violence

- How do we measure civilian attitudes in a conflict setting?
- Current efforts in Afghanistan rely on direct questions

- Why are direct questions a bad idea?
  1. Threats to enumerators and respondents
  2. Nonresponse, social desirability bias
  3. Interviews are public
  4. Danger of selection bias in sampling locations (role of gatekeepers)

- ANQAR by ISAF (Nov. – Dec. 2011): 50% refusal rate

- Do “hearts and minds” matter?
- Do attitudes predict subsequent behavior?
  - Most studies use prior violence to predict future violence
  - They ignore or dismiss the role of civilian attitudes
Public Nature of Interviews

Kosuke Imai (Princeton)
Sampling Design

- Location: 13 Pashutun dominated provinces in the south
- Time period: Jan 18 – Feb 3, 2011
- Multi-stage sampling: province → district → village → individual
- Respondents: 2745 male respondents in 204 villages, 16+ years

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Districts</th>
<th>Villages</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total</td>
<td>sample</td>
<td>total</td>
</tr>
<tr>
<td>Helmand</td>
<td>13</td>
<td>5</td>
<td>1,578</td>
</tr>
<tr>
<td>Khost</td>
<td>13</td>
<td>5</td>
<td>880</td>
</tr>
<tr>
<td>Kunar</td>
<td>15</td>
<td>5</td>
<td>818</td>
</tr>
<tr>
<td>Logar</td>
<td>7</td>
<td>3</td>
<td>641</td>
</tr>
<tr>
<td>Urozgan</td>
<td>5</td>
<td>3</td>
<td>514</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>21</td>
<td>4,431</td>
</tr>
<tr>
<td>8 nonsampled Pashtun provinces</td>
<td>112</td>
<td>0</td>
<td>10,383</td>
</tr>
<tr>
<td>Other 21 provinces</td>
<td>233</td>
<td>0</td>
<td>20,786</td>
</tr>
</tbody>
</table>
Violence Data

- Declassified data from ISAF: Geocoded, time stamped
- ISAF: Cache Found, Direct Fire, Escalation of Force, Search/Attack
- Violence in numbers: one year prior to the survey

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Violence initiated by Taliban</th>
<th>Violence initiated by ISAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helmand</td>
<td>11,806</td>
<td>2,074</td>
</tr>
<tr>
<td>Khost</td>
<td>779</td>
<td>257</td>
</tr>
<tr>
<td>Kunar</td>
<td>1,015</td>
<td>166</td>
</tr>
<tr>
<td>Logar</td>
<td>681</td>
<td>137</td>
</tr>
<tr>
<td>Uruzgan</td>
<td>849</td>
<td>314</td>
</tr>
<tr>
<td>Total</td>
<td>15,130</td>
<td>2,948</td>
</tr>
</tbody>
</table>
Script for the control group:

A recent proposal calls for the sweeping reform of the Afghan prison system, including the construction of new prisons in every district to help alleviate overcrowding in existing facilities. Though expensive, new programs for inmates would also be offered, and new judges and prosecutors would be trained. How do you feel about this proposal?

Strongly agree; Agree; Indifferent; Disagree; Strongly disagree; Don’t Know; Refuse to answer
Script for the treatment group:

A recent proposal by ISAF calls for the sweeping reform of the Afghan prison system, including the construction of new prisons in every district to help alleviate overcrowding in existing facilities. Though expensive, new programs for inmates would also be offered, and new judges and prosecutors would be trained. How do you feel about this proposal?

Strongly agree; Agree; Indifferent; Disagree; Strongly disagree; Don’t Know; Refuse to answer
Endorsement Experiments

- Indirect questioning technique
- Ask respondents to rate their support for a set of policies endorsed by randomly assigned political actors
- Compare with the “control” group which has no endorsement

Selected policies should be:
1. related to each other so that responses can be combined
2. well known so that DK is minimized and no learning occurs
3. actually endorsed by actors so that endorsements are credible and no deception occurs
4. supported by some and opposed by others so that ceiling and floor effects can be avoided

Carefully selected four “reform” policies: Direct elections, Prison reform, Independent election commission, Anti-corruption reform
Data from the Endorsement Experiments

Overall (N = 2754)
Helmand (N = 855)
Khost (N = 630)
Kunar (N = 396)
Logar (N = 486)
Urozgan (N = 387)

Direct Elections
Prison Reform
Independent Election Commission
Anti-Corruption Reform

Control
ISAF
Taliban

Strongly agree
Agree
Indifferent
Disagree
Strongly disagree
Don't Know
Refused

Kosuke Imai (Princeton)
Attitudes and Violence
January 6, 2014
Item response theory to combine questions:

\[
\Pr(Y_{ij} = 1 \mid T_i = k) = \Phi(\alpha_j + \beta_j(x_i + s_{ijk}))
\]

- \(\alpha_j\): average popularity of policy \(j\)
- \(\beta_j\): how much policy \(j\) differentiates pro- and anti-reform respondents
- \(x_i\): “ideal point” = how pro-reform respondent \(i\) is
- \(s_{ijk}\): support level for combatant \(k\) in policy \(j\)

Quantities of interest: \(\mathbb{E}(s_{ijk}/SD_x)\)

Multi-stage sampling \(\Rightarrow\) Multi-level modeling

\[
\begin{align*}
S_{ijk} & \sim \text{iid} \mathcal{N}(\lambda_k,\text{village}[i] + Z_i^T \lambda_k^Z, \omega_k^2,\text{village}) \\
\lambda_k,\text{village}[i] & \sim \text{iid} \mathcal{N}(\lambda_k,\text{district}[i] + V_{\text{village}[i]}^T \lambda_k^V, \omega_k^2,\text{district}) \\
\lambda_k,\text{district}[i] & \sim \text{iid} \mathcal{N}(\lambda_k,\text{province}[i] + W_{\text{district}[i]}^T \lambda_k^W, \omega_k^2,\text{province})
\end{align*}
\]

Same multi-level structure for ideal points \(x_i\)
Village-Level Relative Support for ISAF (vs. Taliban)

Relative Level of ISAF Support:
- $0.4 <$ red
- $[0, 0.4]$ orange
- $[-0.4, 0]$ yellow
- $[-0.8, -0.4]$ green
- $[-1.2, -0.8]$ light blue
- $[-1.6, -1.2]$ dark blue
- $[-2.0, -1.6]$ light blue
- $< -2.0$ dark blue

Logar, Khost, Kunar, Uruzgan, Helmand

Kosuke Imai (Princeton)

Attitudes and Violence

January 6, 2014

20 km

40 km
Do Attitudes Predict Behavior?

- Much of public opinion research assumes direct link between attitudes and behavior
- Policy makers rely on the same assumption:
  - “winning hearts and minds” as a counterinsurgency strategy
  - billions of dollars for providing services and economic assistance

- Skepticisms:
  - survey measures are not reliable
  - only reflect civilians’ desire to ensure their safety and attract continued economic assistance and services
  - attitudes are driven entirely by battlefield dynamics

- Existing studies predict future violence using prior violence and ignore civilian attitudes
- Can civilian attitudes predict civil war violence?
Strong Association Between Attitudes and Violence

- Unit of analysis: village
- Linear regression model (robust to non-linearity):
  \[
  (\text{# of future attacks}) = \alpha + \beta(\text{# of past attacks}) + \gamma(\text{support}) + \epsilon
  \]
- Two types of attacks: IED and other attacks
- Distance window: 15km from each village center
- Time window: 5 months before and after the survey

Kosuke Imai (Princeton)
Robust Association between Attitudes and Violence

IED Attacks

Non-IED Attacks

Distance window (km)

Time window (months)

Distance window (km)
Test based on the Out-of-Sample Forecasting

- Is this association between attitudes and future violence real?

- Out-of-sample forecast:
  1. Obtain “forecasting equation” using surveyed villages as before
  2. Obtain “support equation” by regressing support on village characteristics using surveyed villages
  3. Use “support equation” to estimate support for non-surveyed (out-of-sample) villages based on their characteristics
  4. Forecasting future violence using “forecasting equation” and estimated support for non-surveyed villages
  5. Compare these forecasts with actual violence level

- Compare the forecasting performance with that of
  1. the model with prior violence alone
  2. the model with prior violence plus village characteristics

- Random sampling enables scaling up from 204 to 14,606 villages
- Performance measures: mean absolute error, mean squared error
Support Estimates Improve Forecasting by 20 – 30%

Prediction Improvement due to Support Measure

IED Attacks

Non-IED Attacks

Kosuke Imai (Princeton)  Attitudes and Violence  January 6, 2014
Covariates by Themselves Don’t Improve Forecasting

Prediction Improvement due to Covariates

IED Attacks

Non-IED Attacks

Kosuke Imai (Princeton)  January 6, 2014  21 / 23
Concluding Remarks

- Challenges of eliciting truthful responses to sensitive questions
- Endorsement experiments: indirect questioning method
- Open-source R package *endorse*

- Civilian attitudes are powerful predictor of civil war violence
- Future research agenda:
  - From association to causality in dynamics of civil war
  - 4 wave panel survey underway
  - Causal effects of aid and territorial control on violence and attitudes
The project website for papers and software:

http://imai.princeton.edu/projects/sensitive.html

Email for comments and suggestions:

kimai@princeton.edu