

Estimating Public Opinion in the States: Gay Rights and Policy Responsiveness

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Introduction

- **Substantive question:** What is the relationship between gay rights policies in the states and public opinion?
 - Responsiveness (correlation)
 - Congruence (opinion majorities)
 - Policy-specific opinion vs. general ideology
- **Methodological question:** How can we estimate policy-specific opinion at the state level?
 - State surveys
 - Disaggregation
 - Multilevel Regression and Poststratification (MRP)

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Alternative 1

- State Surveys
 - Usually not an option
 - Rare and not comprehensive
 - Often not comparable (wording, timing, method)

Alternative 2

- Disaggregation
 - Erikson, Wright, & McIver (1993)
 - Pools large numbers of national surveys
 - Disaggregates by state
 - No pooling of respondents/information across states
 - Advantages
 - Easily implemented
 - Used successfully by numerous scholars
 - Respects differences across states
 - Disadvantages
 - Must pool surveys over numerous years (10 to 25)
 - Does not correct for sampling artifacts

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Alternative 3

- Multilevel Regression and Poststratification (MRP)
 - Park, Gelman, & Bafumi (2006)
 - National level surveys
 - Individual survey responses are modeled
 - Demographic & geographic factors used
 - Estimated with a hierarchical linear model
 - Respondents are partially pooled (endogenous)
 - State level effects are also modeled
 - Create estimates for each demographic-geographic respondent type
 - Poststratification: weight these estimates by frequencies within state

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- MRP Continued...
 - Advantages
 - Potentially more accurate
 - Corrects for sampling artifacts
 - Potentially requires fewer surveys
 - Disadvantages
 - Statistically more complex
 - More data of a different type (census)

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The Status Quo

- What we know
 - Disaggregation solid successes when N is large
 - Older simulation techniques relatively inaccurate
- What we don't know
 - Are estimates from MRP as good as those from disaggregation?
 - How good are they?
 - How many surveys do we need to generate "good" estimates using MRP?
 - How complicated a model of individual response is necessary?

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Research Design

- Compare each method
 - Use random samples of pooled national poll data
 - Use disaggregation as the baseline
 - Vary sample sizes
 - Compare the predictive success
- Then see how far one can push MRP
 - Compare sparse and complex models of opinion
 - Assess MRP from a single national poll

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Comparing methods

- Randomly split data
 - 1/2 used to define “truth”
 - Truth measured using disaggregation
 - Some portion of the remaining data is used to estimate opinion
 - Once using each technique
 - We do this 200 times
- Vary sample sizes
 - 5% ($n = 1,400$) (roughly a national poll)
 - 10% ($n = 2,800$)
 - 25% ($n = 7,000$)
 - 50% ($n = 14,000$)

Data

- 26 national polls from 1996 through 2005
 - Approximately 28,000 respondents
- Ask respondents about support for same-sex marriage
- Re-code for internal consistency
 - Male or female
 - Black, Hispanic, or White
 - Age (4 levels)
 - Education (4 levels: <HS, HS, some college, college)
- State level data
 - % Evangelical Protestants & Mormons
 - Region
- 1% Public Use Microdata Sample from the 2000 Census
 - Used in poststratification

Applying MRP

- Estimating Individual Opinion
(LMER function in R)

$$\Pr(y_i = 1) = \text{logit}^{-1}(\beta^0 + \alpha_{j[i]}^{\text{race,gender}} + \alpha_{k[i]}^{\text{age}} + \alpha_{l[i]}^{\text{edu}} + \alpha_{s[i]}^{\text{state}} + \alpha_{p[i]}^{\text{year}})$$

$$\alpha_j^{\text{race,gender}} \sim N(0, \sigma_{\text{race,gender}}^2), \text{ for } j = 1, \dots, 6$$

$$\alpha_k^{\text{age}} \sim N(0, \sigma_{\text{age}}^2), \text{ for } k = 1, \dots, 4$$

$$\alpha_l^{\text{edu}} \sim N(0, \sigma_{\text{edu}}^2), \text{ for } l = 1, \dots, 4$$

$$\alpha_p^{\text{year}} \sim N(0, \sigma_{\text{poll}}^2), \text{ for } p = 1, \dots, 7$$

$$\alpha_s^{\text{state}} \sim N(\alpha_{m[s]}^{\text{region}} + \beta^{\text{relig}} \cdot \text{relig}_s, \sigma_{\text{state}}^2), \text{ for } s = 1, \dots, 49$$

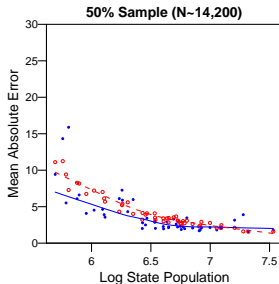
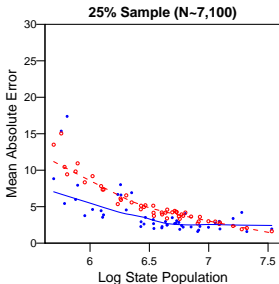
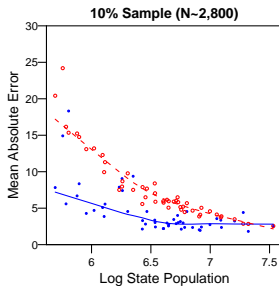
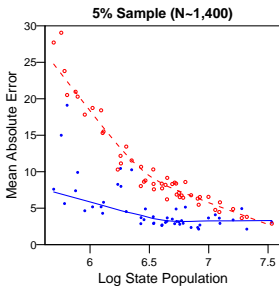
$$\alpha_m^{\text{region}} \sim N(0, \sigma_{\text{region}}^2), \text{ for } m = 1, \dots, 5$$

Applying MRP

- Estimating state opinion

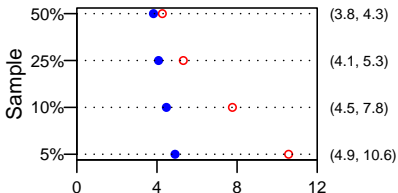
$$y_{\text{state } s}^{\text{MRP}} = \frac{\sum_{c \in S} N_c \theta_c}{\sum_{c \in S} N_c}$$

Cross Validation: Mean errors by state and method

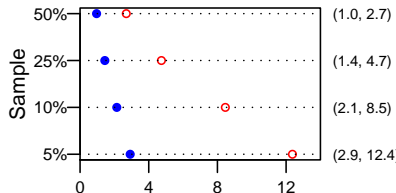


Cross Validation: Summary performance measures

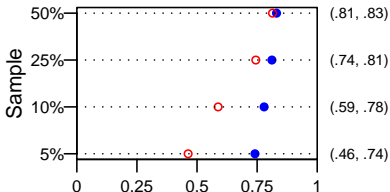
Mean Absolute Error



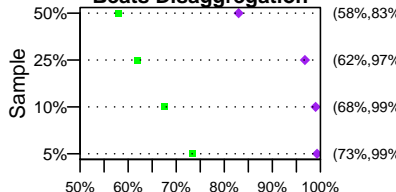
Standard Deviation



Correlation



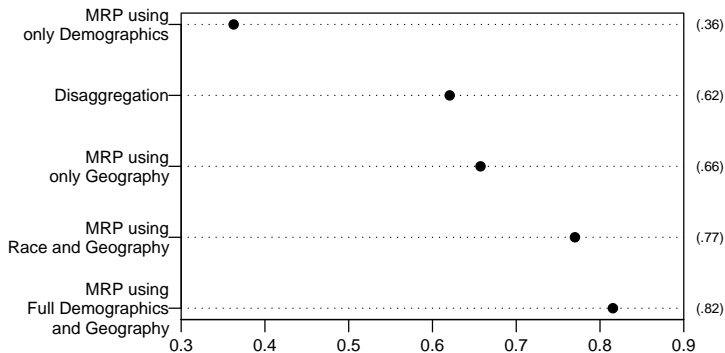
How Often MRP Beats Disaggregation



Pushing MRP further (the response model)

- How complicated a response model do you need?
 - Compare sparse and complex demographic models
 - Assess contributions of demographic and geographic predictors
- Create five sets of estimates
 - Use 10% samples for estimates
 - Use 90% samples and disaggregation to define the baseline (repeat 200 times)

Correlation by Model Complexity



- Geography vs. Demography?
 - Methodological message
 - Substantive message

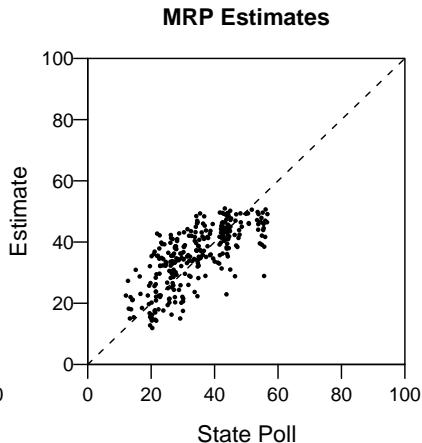
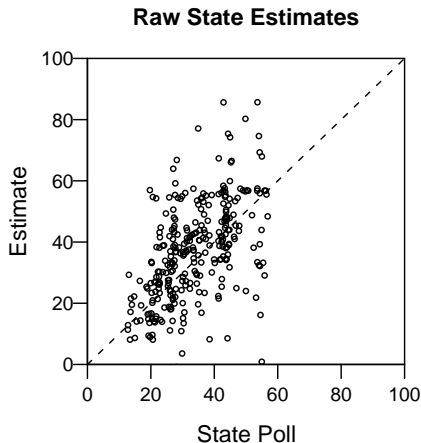
MRP Using A Single National Poll

- Results suggest that imputation only needs a single large national poll... is that true?
- Face validity
 - Use four national polls to generate four different estimates (by state) of support for same sex marriage
 - Do these results look reasonable?
- Compare to actual state-level polls
 - Gathered 75 polls—cover all but 13 states and Washington D.C.
 - Use a national poll taken during the same year to generate a prediction
 - How close do we get?

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External Validity: predicting state polls



Correlation between MRP estimates & actual state polls = .73

Methodological Conclusion

- Findings
 - MRP is superior to disaggregation when samples are small to medium sized
 - For large samples, the methods converge (but MRP still has the edge)
 - MRP performs nearly as well on small and large samples
 - Does “sufficiently” well even using a “single” national poll
- Implications
 - Many more issues, finer-grained geographic areas, narrow time periods
 - Should greatly enhance research into responsiveness
 - Speaking of which... what *can* you do with policy-specific state-level opinion?

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Gay Rights in the States

- Approach
 - Gay rights policies
 - Estimate state-level policy-specific opinion
 - Compare to actual state policies
- Implications
 - Democratic control of government
 - Federalism
 - Tyranny of the majority
 - Special interest (pro-gay bias?)
 - Methodological (specific opinion?)

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Gay Rights Data

- 39 national polls (approximately 70,000 respondents)
- 1994-2005
- race, gender, age, education, age \times education
- state, region, religion
- policies:
 - same-sex marriage
 - civil unions
 - sodomy laws
 - second-parent adoption
 - health benefits for domestic partners
 - housing anti-discrimination laws
 - employment anti-discrimination laws
 - hate crime laws

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Theoretical Expectations

- High responsiveness
 - Non-complex policies
 - Salient (some highly)
 - Consistently on state legislative agendas
- But...
 - Gays rights policies determined by the interaction of legislatures, courts, direct democracy, state and federal constitutional law
 - Courts highly involved in some (adoption, sodomy); less in jobs, housing, hate; others split
 - Varying intensity of preferences, salience, information



Mean Difference

Pro-Gay Policy	Mean Opinion		
	States with Policy	States without Policy	Difference
Same-Sex Marriage	46	32	14(NA)
Civil Unions	51	40	11**
Second-Parent Adoption	49	39	10**
Employment Protection	75	69	6**
Housing Protection	78	73	6**
Health Care Benefits for Domestic Partners	65	59	6**
Hate Crimes Law includes Sexual Orientation	72	67	5**
No Sodomy Prohibition	50	40	10**

Responsiveness

- policy-specific opinion, voter ideology, government ideology, % religious conservatives
- separate models, full model

	Model 1: Policy Fixed Effects		Model 2: State Fixed Effects	
	Unstandardized Coefficients	Standardized Coefficients	Unstandardized Coefficients	Standardized Coefficients
Policy-Specific Opinion	.11** (.06)	3.76** (2.15)	.07** (.01)	2.23** (.38)
Government Ideology	.03** (.01)	1.16** (.39)	—	—
Voter Ideology	.13** (.04)	1.90** (.54)	—	—
Share Relig. Conservatives	-.05 (.04)	-1.27 (.94)	—	—

Causality? Two Responses

- Demographics vs. State Effects
 - Demographics are fixed – can't respond to policy except in aggregate correlations
 - State effects which “correct” for this do not vary systematically with policy adoption
- Limit analysis to polls prior to policy adoption – civil unions and hate crimes laws
 - Robust, statistically significant, substantively similar

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Responsiveness: What have we learned?

- Strong positive relationship between policy-specific opinion and state policy
- Even after controlling for other possible influences
- Bigger role shaping outcomes than other influences
- Strength varies by policy
- Evidence of causality
- Next: congruence. Do opinion majorities prevail?

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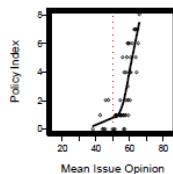
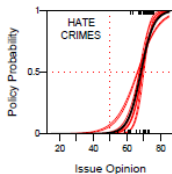
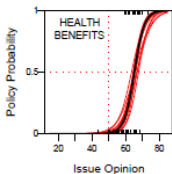
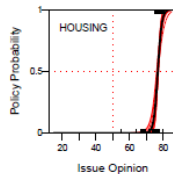
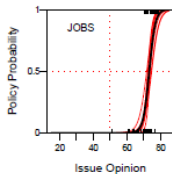
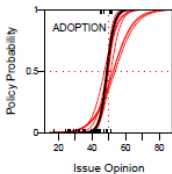
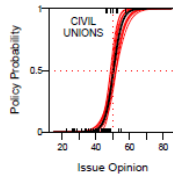
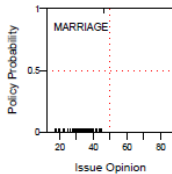
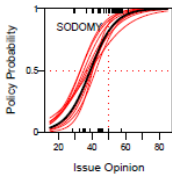
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Congruence

Pro-Gay Policy	Number of States with Opinion-Policy Congruence
Same-Sex Marriage	49
Civil Unions	45
Second-Parent Adoption	44
No Sodomy Prohibition	34
Hate Crimes Law includes Sexual Orientation	31
Employment Protection	20
Housing Protection	20
Health Care Benefits for Domestic Partners	15

Congruence Graphs



Congruence: What have we learned?

- **Opinion majorities often do not prevail**
- Policies pertaining to economic fairness least congruent
- Policies regulating personal relationships most congruent
- Courts not counter-majoritarian (civil unions, adoption, marriage most congruent)
- Non-congruence usually occurs in the form of policy that is too conservative
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