

Political Science 15
Introduction to Research in Political Science
Lecture 7a: Multivariate OLS in Research: Research Design

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Recap

- Need to use more variables in our model in order to fight endogeneity and omitted variable bias.
- So we use multivariate regression to bring these variables out of our error term and into the model.
- In practice, it is hard to know **how to correctly specify the model**. Our model may not be **robust** to alternate model specifications.
- For this reason, we usually need some kind of random assignment to correctly identify causal effects (more later).
- But, in some circumstances, multivariate regression can identify causal effects! Today, we are going to look at an example of research with multivariate regression that is **robust**.

Crime Victimization and Political Participation

REGINA BATESON *Yale University*

C rime victimization is an important cause of political participation. Analysis of survey data from five continents shows that individuals who report recent crime victimization participate in politics more than comparable nonvictims. Rather than becoming withdrawn or disempowered, crime victims tend to become more engaged in civic and political life. The effect of crime victimization is roughly equivalent to an additional five to ten years of education, meaning that crime victimization ranks among the most influential predictors of political participation. Prior research has shown that exposure to violence during some civil wars can result in increased political participation, but this article demonstrates that the effect of victimization extends to peacetime, to nonviolent as well as violent crimes, and across most of the world. At the same time, however, crime victimization is sometimes associated with dissatisfaction with democracy and support for authoritarianism, vigilantism, and harsh policing tactics, especially in Latin America.

O n March 28, 2011, Juan Francisco Sicilia was murdered, a bystander fatally drawn into Mexico's bloody drug war. Juan Francisco was a 24-year-old student and the son of renowned poet Javier Sicilia. Upon learning of his son's death, the elder Sicilia published a heartfelt open letter in the news magazine *Proceso* (Sicilia 2011). Linking Juan Francisco's case to the tens of thousands of other senseless killings in Mexico each year, the letter was at once a searing indictment of Mexico's criminals and politicians and an eloquent call to action. Sicilia urged his fellow citizens

Sicilia's story is clearly unique, but it raises a provocative question: When people are the victims of crimes, can this motivate them to become more active in politics? Education, socioeconomic status, age, gender, family history, and personality are all known to influence whether, and to what degree, individuals participate in politics.¹ Yet even the most comprehensive studies of political participation have never considered crime victimization as a potential cause of participation,² perhaps because prior research suggests that crime victims should be less politically ac-

Finding a research question

- Often research begins with an observation about the world. What was the story that Bateson opens with?
- In 2011, a poet's son is killed as a bystander in the Mexican drug war. As a victim, he writes a story about it, and quickly becomes a national activist.
- Bateson, a professor and researcher, sees this phenomenon. What is the research question she comes up with as a result?
- “When people are the victims of crimes, can this motivate them to become more active in politics?” (p. 570)

Operationalizing our ideas as variables

- What is our independent variable?
- What is our dependent variable?
- What are our hypotheses?

- IV: Crime victimization
- DV: Political participation
- H_0 : Victims of crime participate politically at the same rate as non-victims.
- H_A : Victims of crime participate more (or less!) than non-victims.

Control variables

- There might be other factors that affect participation. What should we do with these factors? **Add them to our regression as control variables.**
- How would we figure out what other variables to control for? **Read other research.**
- She notes there are other factors from other research on variables that can affect political participation. What are some of these variables? **Education, socioeconomic status, age, gender, family history, and personality.**

Measurement

- So we have our IV, DV, control variables and hypotheses. Empirically, how are we going to go about measuring these concepts? **We need data.**
- What kind of data could we get?
 - Records on victimization and political participation – could come from the government or from surveys.
 - Sometimes you can use existing data (“off-the-shelf”); other times you need to make your own data.

Measurement by Bateson

TABLE 1. Surveys

Survey	Countries Surveyed	Year Surveyed	Survey Method
LAPOP 2010 (Latin America and Caribbean)	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti,* Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Venezuela	2010	Face to face
LAPOP 2010 (United States and Canada)	United States, Canada	2010	Telephone
Afrobarometer Round 4	Benin, Botswana, Burkina Faso, Cape Verde, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe	2008–2009	Face to face
Eurobarometer 54.1	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom	2000	Face to face
Asian Barometer Wave II	Cambodia, China, Hong Kong,* Indonesia, Japan, Malaysia, Mongolia, the Philippines, Singapore,* South Korea,* Taiwan, Thailand, and Vietnam	2006–2008	Face to face

* Indicates that the country was surveyed, but is not included in the article because key variables were not recorded.

- IV: crime victimization, measured as victim of a crime in the past 12 months (coded as a “dummy” or dichotomous variable)
- DV: political participation, measured as participation in community meetings, protests, level of interest in politics, frequency of conversations about politics, etc. (p. 574)

Descriptive statistics

- Just like you do in the problem sets, researchers start out by summarizing and exploring their data. We call this **descriptive statistics**.
- Goal is to summarize data in a meaningful way to allow patterns to emerge, including potential confounders.
(Also helpful for finding errors.)

TABLE 2. Characteristics of Victims by Region

Region	As Compared to Nonvictims, Victims Are . . .					
Latin America and Caribbean	Younger	More likely to be male	More urban	More educated	Slightly wealthier or equally wealthy	Less likely to be married
United States and Canada	Younger	More likely to be male	N/A	Equally well educated	Poorer	Less likely to be married
Africa	Slightly younger	More likely to be male	More urban	More educated	Equally wealthy	N/A (not measured)
Europe	Younger	More likely to be male	More urban	More educated	Equally wealthy	Less likely to be married
Asia	Younger	Less likely to be male	More urban	More educated	Poorer	Less likely to be married

Model specification

$$\begin{aligned} DV_i = & \alpha + \beta \text{Victim}_i + \beta \text{Male}_i + \beta \text{Age}_i + \beta \text{Age}_i^2 \\ & + \beta \text{Econ}_i + \beta \text{Educ}_i + \beta \text{Urban}_i \\ & + \beta [\text{CountryDummies}]_i + \varepsilon_i, \end{aligned} \quad \mathbf{(1)}$$

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Lecture 7b: Multivariate OLS in Research: Results

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Recap

Bateson asks whether crime victimization causes greater political participation. She estimates the following model:

$$\begin{aligned} DV_i = & \alpha + \beta \text{Victim}_i + \beta \text{Male}_i + \beta \text{Age}_i + \beta \text{Age}_i^2 \\ & + \beta \text{Econ}_i + \beta \text{Educ}_i + \beta \text{Urban}_i \\ & + \beta [\text{CountryDummies}]_i + \varepsilon_i, \end{aligned} \quad \mathbf{(1)}$$

TABLE 4. Crime Victimization Coefficients from the Main OLS Regressions by Region and Dependent Variable

	Community Action	Community Meetings	Protest ^d	Political Interest	Town Meetings ^d	Political Meetings	Political Persuasion	Political Conversations	Group Leadership
Latin America and Caribbean (LAPOP 2010)	0.0334*** (0.00317)	0.0165*** (0.00279)	0.0424*** (0.00456)	0.0204*** (0.00327)	0.0294*** (0.00443)	0.0143*** (0.00221)	0.0172*** (0.00344)	N/A	N/A
United States and Canada (LAPOP 2010)	0.0695*** (0.0138)	0.0586*** (0.0111)	0.0564*** (0.0139)	0.0402*** (0.0105)	0.147*** (0.0244)	0.0435*** (0.0111)	0.0465* (0.0182)	N/A	N/A
Africa (Afrobarometer Round 4)	0.0230*** (0.00367)	0.0211*** (0.00362)	0.0298*** (0.00277)	0.0191*** (0.00413)	N/A	N/A	N/A	0.0230*** (0.00355)	0.0246*** (0.00338)
Europe (Eurobarometer 54.1)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0189** (0.00727)	N/A
Asia (Asian Barometer Wave II)	N/A	N/A	N/A	0.0215** (0.00473)	N/A	N/A	N/A	0.0255*** (0.00396)	N/A

Notes: Robust standard errors in parentheses; regressions estimated in Stata 10. All regressions include country fixed effects. Standard errors are clustered by municipality (Latin American and Caribbean), state/province (United States and Canada), district (Africa), region (Europe), and country (Asia). All models include key control variables: *Male*, *Age*, *Age2*, *Econ*, and *Educ*. All regressions except those with the U.S. and Canadian data also include the *Urban* control variable. The dependent variables have been rescaled so that 0 represents their minimum value and 1 represents their maximum value. Data from Lesotho are excluded because district was not recorded there. Data from Indonesia are excluded because *Urban* was not recorded there.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

^d Indicates dummy variable. *Protest* is a dummy variable in the LAPOP 2010 datasets. It is an ordinal variable with three values in the Afrobarometer Round 4 dataset.

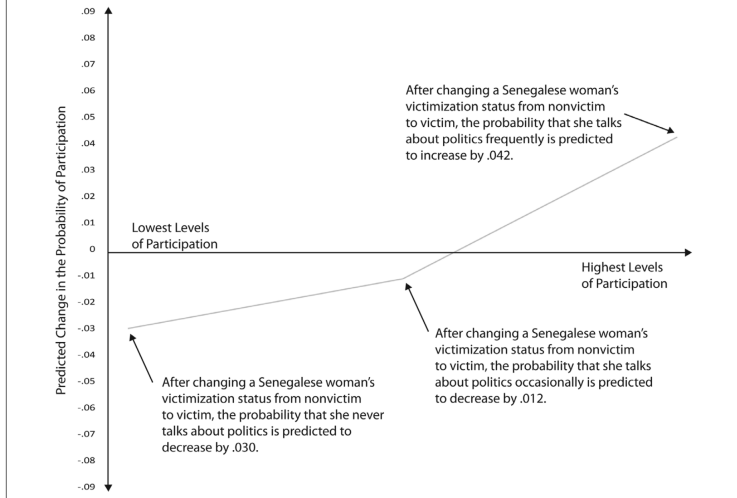
- Interpretation: What does this table tell us overall?
Across all models, regardless of how the dependent variable is measured (political participation), or the geography where the survey took place, crime victimization is associated with a positive and statistically significant ($p < 0.05$) increase in political participation.

Prediction

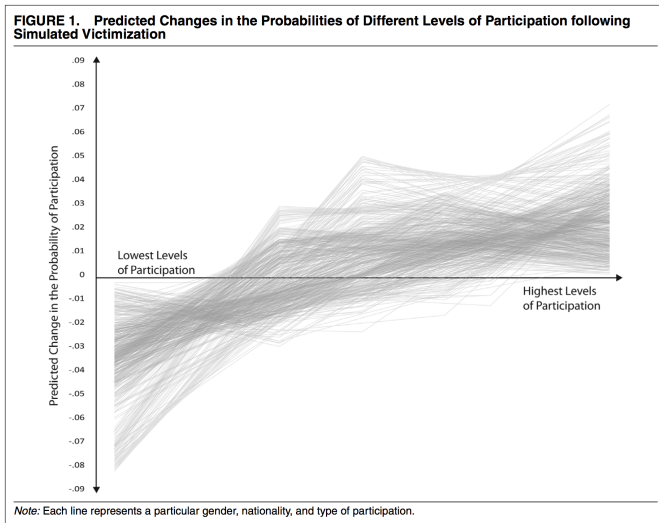
- We might want to know how to interpret these results substantively. How could we do this?
- We could plug into our model a specific type of person – remember our controls include country and gender. What would we expect the participation change to be for a specific type of person?

Prediction for a single hypothetical victim

FIGURE 2. Predicted Changes in Probabilities of Talking about Politics Never, Occasionally, and Frequently for a Senegalese Woman, following Simulated Victimization (Annotated to Facilitate Comprehension of Figure 1)



Prediction across all types of victims



- What does this figure show us? The results are **robust!**

Robustness checks

- Bateson is a responsible researcher, so she is still worried about a few things after finishing her results. What are some concerns?
- **Reverse causation**
 - What if political participation causes victimization? Bateson does a few things.
 - ① controls for prior political participation
 - ② does a placebo test (does victimization at $T = 1$ predict voting at $T = 0$)
 - ③ controls directly for a potential confounder: political violence
 - These don't change her results.

Robustness checks

- **Omitted variables**

- There could still be variables that her model doesn't control for. She addresses sociability, education, etc. She argues they don't change her estimates (results are robust).

- **Measurement error**

- What if people lie on surveys? She says this is an intractable problem but overall she trusts the responses on surveys, especially since the results hold across so many places. This replication of her results is a key part of the paper's robustness.

Conclusion

- Contrary to our null hypothesis, significant evidence across a number of continents shows that crime victims participate in politics at higher rates.
- These results are robust – they don't change if we add more control variables, or if we look in different places.
- This paper shows us that, if we have a well-designed study and we think carefully about risks including omitted variable bias and reverse causation, multivariate regression is very powerful tool. We learned something new about democracy!