# Coercion, Capacity, and Coordination: A Risk Assessment Model of the Determinants of Political Violence

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## Research Question

1. **What factors make domestic political violence more likely and can we forecast it?**

   1. domestic political violence: actions from organized anti-government violence that occurs within a state by a domestic population against their own government or agents of their government
   2. Recent examples of violence: Ireland, Egypt, Tunisia, U.K.
   3. Compared to other forecasting models, this is especially useful in the European context.

      1. We are examining violence of any type, not just large scale mass casualty violence.

## Argument in a Nutshell

- **Three *C's* Matter for Predicting Political Violence:**
    - coercion:human rights abuses
    - coordination: ability for population to come together against state
    - capacity: ability of state to project itself throughout its territory

- Using this theoretical framework provides a model for assessing risk of future political violence

## Argument in a Nutshell

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# Why take to the street violently?

- Desire - "grievances"
- Opportunity - "mobilization"

## Desire for Political Violence

- "Relative Deprivation" & *Coercion* (Human Rights Abuses) -
  leads to "micro-mobilization" (rallying cries)

  - most research doesn't distinguish between human rights abuses

    - **Hypothesis 1: The use of (highly visible tactics) of coercion
      will lead to increases in domestic political violence**

## Opportunity for Political Violence

- Even if have grievances, still have to **coordinate** to get to the street
  - a government's practices for freedom of assembly and association make this coordination less costly
  - resources matter for coordination: NGOs, mobile phones, Internet
    - **Hypothesis 2: The availability of coordination resources, either in the form of respect for citizen rights to freedom of assembly and association or in the form of mobile phone/Internet technologies, will lead to increases in domestic political violence.**

## Opportunity for Political Violence

- A *capable* state makes for less opportunities for violence

  - raises costs of protest without coercion, serves as signal that violence will not be successful

    - **Hypothesis 3: State capacity will lead to decreases in domestic political violence.**

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## Dependent Variable: Measuring Domestic Political Violence

- **New measure of all events and intensity of these events of domestic political violence in Reuters Global News Service in a country-year**
    - Integrated Data for Events Analysis (IDEA) project - 1990-2009
    - Virtual Research Associates augmented Goldstein (1992) scores of the intensity of each event

    - example:
        - groups in Nepal threaten blockade of government - 6.8135
        - suicide bombing of government office in Chechnya - 10.8125

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## Independent Variables: Coercion

- **Cingranelli and Richards (CIRI) dataset**
  - Torture, Political Killings, Disappearances, and Political Prisoners
  - 0-2 on each variable (higher values = more respect)

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## Independent Variables: Coordination

- **Cingranelli and Richards (CIRI)** - Freedom of Association
- **Mobile Phone Subscribers**
- **Internet Users**
- **Aid to NGOs**

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# Independent Variables: Capacity

- GDP per Capita
- Military Personnel[2]
- Electric Power Consumption
- Aid to Security System Management

- Controls: Ethno-Linguistic Fractionalization, Regime Type, Non-Violent Protest, Media Coverage (ln)
- GLS Model with Random Effects and Robust Standard Errors, lag all i-vars one year

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- **GDP per Capita**
- **Military Personnel**[2]
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## Model Specifications

- **Model 1** - all measures of coercion, capacity, and communication, except aid based measures (all lagged 1 year), Non-violent protest measured in same year
- **Model 2** - same as Model 1 but Non-Violent protest lagged one year
- **Model 3** - alternative coding of dependent variable - include country-years with no violent/non-violent protest in Reuters as zeros, same specification as Model 1
- **Model 4** - same coding of dependent variable as Model 3, same specification as Model 2
- **Model 5** - same as Model 1 but without a lagged d-var
- **Model 6** - same as Model 1 but with the addition of the aid based measures

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# Baseline Model Results

Figure 1: Substantive Effects with 95% Confidence Intervals

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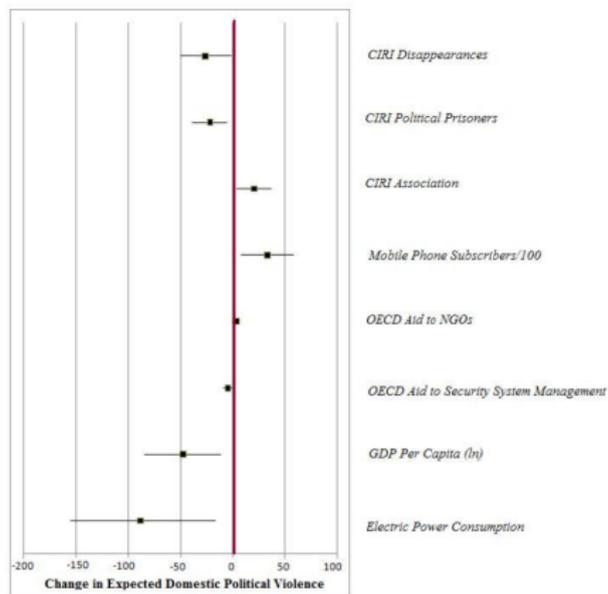
# Military Personnel Squared

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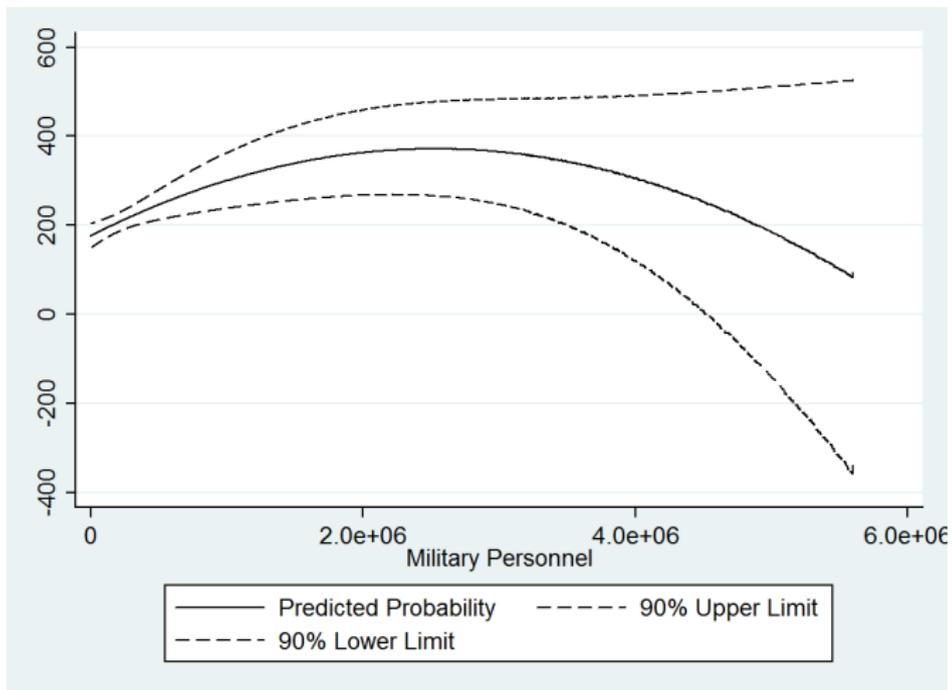
## Risk Assessment Metrics

- Risk Assessment generated through method implemented by Gurr and Moore (1997)

- 3 metrics used to assess the quality of both in-sample and out-of-sample predictions (O'Brien 2002, 2010):

    - **Accuracy = # of correct predictions / # of predictions made**
    - **Recall = # of correctly predicted increases / # of increases occurred**
    - **Precision = # of correctly predicted increases / # of increases predicted to occur**

- Guidelines: 80% Accuracy, 80% Recall, 70% Precision

    - when O'Brien (2010) focuses only on domestic crises - performance less than 50% on recall and precision (& only in Pacific Command)

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# In Sample Performance Metrics

**TABLE 2: Summary Model Performance Metrics, Using O'Brien (2002, 2010)**

| Model Name | Accuracy | Recall | Precision |
|---|---|---|---|
| Baseline Data and Model Specification | .68 | .58 | .68 |
| Baseline Data with Lagged Nonviolent Protest Model | .68 | .67 | .71 |
| Expanded Data, Baseline Model | .63 | .57 | .67 |
| Expanded Data with Lagged Nonviolent Protest Model | .64 | .65 | .69 |
| No Lagged DVAR | .64 | .66 | .65 |
| Aid Categories Specification | .68 | .57 | .67 |

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# Regional Performance Metrics

TABLE 3: Regional Variation in Performance Metrics, Using O'Brien (2002, 2010)

| Region | Accuracy | Recall | Precision |
|---|---|---|---|
| O'Brien Countries (Pacific Command) | .72 | .72 | .75 |
| North & South America | .68 | .65 | .71 |
| Middle East | .70 | .60 | .71 |
| Africa | .65 | .67 | .65 |
| Asia | .70 | .68 | .69 |
| Europe | .70 | .59 | .69 |

*all calculated using baseline model

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# Out of Sample Performance Metrics, Baseline Model

**TABLE 4: Out of Sample Model Performance Metrics, Using O'Brien (2002, 2010)**

| Model Name | Accuracy | Recall | Precision |
|------------|----------|--------|-----------|
| 1998 | .82 | .71 | .85 |
| 1999 | .81 | .68 | .85 |
| 2000 | .79 | .69 | .78 |
| 2001 | .77 | .73 | .75 |
| 2002 | .69 | .55 | .71 |
| 2003 | .79 | .45 | .79 |
| 2004 | .70 | .49 | .53 |
| 2005 | .67 | .53 | .63 |

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# 2009: Predictions for Increases in Political Violence 2010-2014



Domestic Political Violence Forecast 2010-2014

residual
low — high

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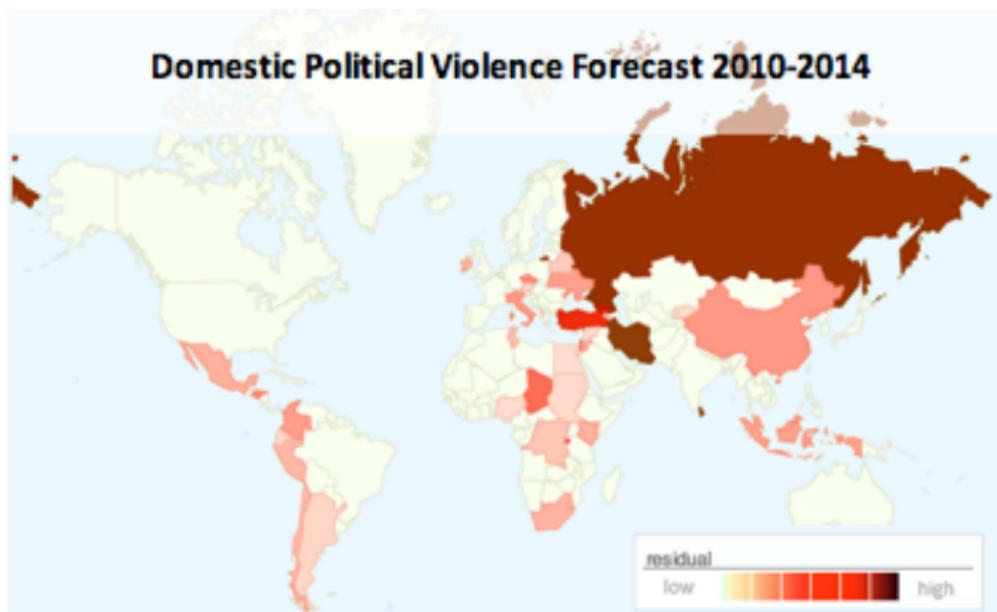
# 2010: Predictions for Increases in Political Violence 2011-2015

| Very High Risk | High Risk | High Risk |
|---|---|---|
| *U.K.* | China | UAE |
| Israel | Gambia | *Moldova* |
| Sri Lanka | Brazil | Japan |
| Iran | Indonesia | CAR |
| Colombia | *Italy* | Congo Kinshasa |
| Zimbabwe | Eritrea | Angola |
| South Africa | Saudi Arabia | *Romania* |
| Haiti | Ecuador | Ghana |
| Egypt | *Estonia* | Zambia |
| Philippines | Libya | *Bulgaria* |
| Guinea-Bissau | Canada | *Spain* |
| Venezuela | | Lebanon |
| Chile | | Honduras |
| Syria | | |
| Chad | | |
| *Belarus* | | |
| Guinea | | |
| Kyrgyzstan | | |
| *Greece* | | |

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## Quarterly Forecast: First Cut

- Need to identify quarterly level variables to make quarterly level predictions.
    - We can go back to events data to capture both government repression and accommodation as independent variables.
        - Political Killings, Beatings, Arrests, Censorship.
    - We also include some yearly indicators.

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## Quarterly Results

- When looking at specific types of repression, political killings seem to lead to increased violent protest.

- Also, when we look government repression and accommodation in general, repression increases the amount of violent protest, while accommodation decreases the level of political protest.

- The quarterly analysis also allows us to assess the effects of the government actions in the short-term and long-term.

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## Quarterly Forecast-Five Quarter Predictions

| Accuracy | Recall | Precision |
|----------|--------|-----------|
| **.8266** | **.6449** | **.8549** |

- *Venezuela, Peru, Argentina, United Kingdom, Ireland, Belgium, France, Greece, Niger, Nigeria, Chad, South Africa, Sudan, Turkey, Israel, Kazakhstan, India, Sri Lanka, Nepal, Malaysia, Singapore, Philippines, Indonesia*

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## Conclusion

- Three C's matter: Coercion, Capacity, and Coordination
- Built risk assessment model that is better than existing published work coming from government agencies (O'Brien 2010)
- List of predictions from 2009: **so far, so** *bad: Ireland, Ecuador, Tunisia, Egypt, Russia, Albania, Ukraine, Honduras, Italy, Libya, Bahrain*
- Starting to assess more short-term forecasts and incorporating environmental and third-party variables.

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# We look forward to your questions and suggestions

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# Results Table

**Table 1: Predicting Domestic Violence Through 2009, RE GLS Regression**

| VARIABLES | (1) Baseline Data and Model Specification | (2) Baseline Data with Lagged Nonviolent Protest Model | (3) Expanded Data, Baseline Model | (4) Expanded Data with Lagged Nonviolent Protest Model | (5) No Lagged Dependent Variable Model | (6) Aid Specification Model |
|---|---|---|---|---|---|---|
| Lagged DVAR$_{t-1}$ | 0.48119*** | 0.59898*** | 0.39088*** | 0.51746*** | -- | 0.47090*** |
|  | (0.085) | (0.043) | (0.087) | (0.054) |  | (0.085) |
| CIRI Torture$_{t-1}$ | -18.33126 | -23.68687* | -13.00912* | -14.44185* | -15.66322 | -15.97275 |
|  | (11.753) | (12.530) | (7.836) | (8.487) | (10.060) | (11.022) |
| CIRI Kill$_{t-1}$ | -16.49818 | -22.40203* | -13.94877 | -17.46907* | -38.10539*** | -20.08616 |
|  | (11.485) | (12.150) | (8.627) | (8.960) | (12.110) | (12.372) |
| CIRI Disappearances$_{t-1}$ | -40.49785* | -28.08799 | -36.55120** | -30.07804** | -58.93379*** | -39.70719 |
|  | (23.675) | (17.480) | (15.932) | (13.230) | (17.072) | (24.481) |
| CIRI Political Prisoners$_{t-2}$ | -26.47926*** | -16.44115 | -14.05563** | -10.72119 | -19.05540* | -25.49245*** |
|  | (9.473) | (11.614) | (6.010) | (6.944) | (10.323) | (9.641) |
| CIRI Association$_{t-1}$ | 25.33802* | 13.69280 | 16.12004* | 11.53461 | 20.09285 | 26.26752* |
|  | (12.932) | (10.259) | (8.587) | (7.968) | (13.993) | (13.500) |
| Ethnic Linguistic Fractionalization$_{t-1}$ | 42.70459 | 36.89173 | 50.41765 | 50.95170* | 74.96971 | 40.33563 |
|  | (30.989) | (26.296) | (31.956) | (28.426) | (62.029) | (30.897) |
| GDP per Capita (ln)$_{t-1}$ | -25.69476** | -29.75316** | -24.41396** | -24.37068** | -27.24240 | -28.24492** |
|  | (10.620) | (12.001) | (10.763) | (11.208) | (18.864) | (11.086) |
| Electric Power Consumption$_{t-1}$ | -0.00000* | -0.00000 | -0.00000* | -0.00000* | -0.00000** | -0.00000* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Mobile Phone Subscribers/100$_{t-1}$ | 0.92415*** | 0.78281** | 0.71568** | 0.60467** | 0.77927* | 1.05162*** |
|  | (0.348) | (0.320) | (0.296) | (0.283) | (0.440) | (0.365) |
| Internet Users/100$_{t-1}$ | 0.00000 | -0.00000 | 0.00000* | -0.00000 | 0.00000* | 0.00000 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Military Personnel$_{t-2}$ | 0.00016*** | 0.00020*** | 0.00013* | 0.00022*** | 0.00014 | 0.00016** |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Military Personnel$^2_{t-1}$ | -0.00000* | -0.00000** | -0.00000 | -0.00000** | -0.00000 | -0.00000* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Population (ln)$_{t-1}$ | -54.21807*** | -53.47934*** | -40.43182*** | -39.86961** | -43.56529** | -55.26262*** |
|  | (18.355) | (20.163) | (14.102) | (15.717) | (17.894) | (18.985) |
| Polity (ln)$_{t-1}$ | 0.22979 | -0.07915 | 0.67048 | 0.24064 | 1.79650 | -0.24367 |
|  | (2.281) | (2.509) | (1.464) | (1.735) | (1.976) | (2.401) |
| Coverage (ln)$_{t-1}$ | 35.73271*** | 71.50373*** | 25.19235*** | 53.56487*** | 43.12404*** | 36.76025*** |
|  | (10.274) | (23.578) | (7.582) | (16.762) | (12.080) | (10.647) |
| Non Violent Protest | 4.72602** | -- | 5.20230** | -- | 6.05177** | 4.79288** |
|  | (2.148) |  | (2.333) |  | (2.370) | (2.201) |
| Non Violent Protest$_{t-1}$ | -- | 0.76950** | -- | 0.81469** | -- | -- |
|  |  | (0.332) |  | (0.341) |  |  |
| OECD Aid to NGOs$_{t-1}$ |  |  |  |  |  | 3.06178** |
|  |  |  |  |  |  | (1.556) |
| OECD Aid to Security Manage. & Reform$_{t-2}$ |  |  |  |  |  | -1.46423** |
|  |  |  |  |  |  | (0.622) |
| Constant | 874.11800*** | 700.50147*** | 706.36411*** | 560.04454** | 756.75748** | 902.10636*** |
|  | (320.829) | (269.990) | (270.768) | (228.362) | (331.291) | (333.739) |
| Observations | 2,024 | 2,024 | 2,686 | 2,686 | 2,219 | 1,925 |
| Number of Countries | 150 | 150 | 155 | 155 | 150 | 149 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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# List of Countries Predicted "At Risk", 1 of 3

**TABLE 5: List of Countries Predicted "At Risk" For Increases in Political Violence**

| Country | Baseline Data and Model Specification | Baseline Data with Lagged Nonviolent Protest Model | Expanded Data, Baseline Model | Expanded Data with Lagged Nonviolent Protest Model | Mean of Residual Size Across All Models |
|---|---|---|---|---|---|
| Russia | -324.3577 | -462.4163 | -275.8882 | -451.0105 | -378.3182 |
| Sri Lanka | -346.4661 | -380.2827 | -297.9517 | -342.1942 | -341.7237 |
| Georgia | -215.882 | -249.497 | -170.5903 | -230.5962 | -216.6414 |
| Iran | -348.1688 | -57.93234 | -382.7345 | -74.42905 | -215.8162 |
| Turkey | -180.9042 | -177.1222 | -171.685 | -165.1552 | -173.7167 |
| Eritrea | | | -139.5406 | -122.5177 | -131.0292 |
| Bahrain | | | -140.1455 | -118.034 | -129.0898 |
| Burundi | -138.6562 | -78.74313 | -136.0989 | -95.40971 | -112.227 |
| Indonesia | -65.36892 | -130.6523 | -83.59263 | -167.7971 | -111.8528 |
| Chad | -117.3807 | -78.83936 | -135.3075 | -113.4527 | -111.245 |
| South Africa | -49.02115 | -148.514 | -54.47628 | -152.87 | -101.2203 |
| Kenya | -51.39542 | -122.3273 | -70.05183 | -137.3986 | -95.29327 |
| Colombia | -68.20012 | -110.481 | -58.88278 | -137.5263 | -93.77256 |
| Mexico | -51.95572 | -100.5864 | -70.80586 | -105.8861 | -82.30853 |
| Israel | -200.7762 | -4.520111 | -170.6665 | 47.16153 | -82.20033 |
| Cyprus | | | -88.57542 | -72.01964 | -80.29753 |
| Ukraine | -66.71009 | -70.80141 | -81.30573 | -92.82246 | -77.90993 |
| Estonia | | | -127.9995 | -27.50226 | -77.75085 |
| China | -74.67465 | -56.62302 | -140.8531 | -37.46716 | -77.4045 |
| Egypt | -5.501236 | -144.0039 | 16.42726 | -155.5395 | -72.15434 |
| Malaysia | -63.87215 | -51.51488 | -75.54803 | -72.68024 | -65.90382 |
| Bulgaria | | | -83.02445 | -42.65302 | -62.83873 |
| Peru | -42.4762 | -57.28321 | -54.81584 | -94.01176 | -62.14675 |
| Italy | -72.95956 | -18.53414 | -101.3983 | -49.58896 | -60.62023 |
| Democratic Republic of the Congo | -29.85177 | -49.66229 | -58.12022 | -100.8627 | -59.62424 |
| Honduras | -87.34245 | -18.72708 | -94.04539 | -30.67479 | -57.69743 |
| Gambia | | | -84.96844 | -30.35446 | -57.66145 |
| Bhutan | | | -101.0558 | -10.73494 | -55.89536 |
| Chile | -39.44547 | -56.50108 | -36.86127 | -69.49214 | -50.57499 |
| Syria | -7.583909 | -71.39603 | -13.19892 | -109.2049 | -50.34595 |
| Sudan | -11.34547 | -98.45276 | 11.2074 | -94.69229 | -48.32078 |
| Jordan | -58.35277 | -28.80015 | -56.23174 | -47.97966 | -47.84108 |
| Czech Republic | -85.25447 | 44.57085 | -114.2381 | 14.86582 | -35.01397 |
| Brazil | 15.55396 | -38.71767 | -32.40176 | -72.72609 | -32.07289 |
| Macedonia | | | -56.479 | -5.303418 | -30.89121 |
| Comoros | | | -70.14388 | 11.24872 | -29.44758 |
| Latvia | | | -48.87636 | -7.696138 | -28.28625 |

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## Prediction, Part 2 of 3

| | | | | | |
|---|---|---|---|---|---|
| Ecuador | -11.38089 | -18.11699 | -34.23196 | -46.44695 | -27.5442 |
| Australia | 5.980025 | -59.27469 | 3.866045 | -58.70078 | -27.03235 |
| Mauritius | | | -27.49712 | -22.39296 | -24.94504 |
| Niger | 1.3466 | -11.92773 | -29.74432 | -48.0741 | -22.09989 |
| Gabon | | | -33.69754 | -8.927674 | -21.31261 |
| Libya | | | -4.168441 | -33.57414 | -18.87129 |
| Moldova | | | -16.67138 | -21.02358 | -18.84748 |
| Mongolia | | | -43.8176 | 7.84394 | -17.98683 |
| Singapore | 7.935663 | -38.79159 | 21.14594 | -57.35176 | -16.76544 |
| Ireland | +47.60492 | 14.60489 | -39.59268 | 10.97665 | -15.40401 |
| New Zealand | | | -1.835711 | -25.25901 | -13.54736 |
| Belgium | -0.1620827 | -7.397513 | -9.352086 | -35.91707 | -13.20719 |
| Argentina | -14.33882 | 25.78511 | -42.45795 | -15.19946 | -11.55278 |
| Fiji | | | -43.87447 | 21.95609 | -10.95919 |
| Myanmar | 59.9673 | -37.75277 | 39.41175 | -98.75523 | -9.282239 |
| India | 107.4797 | -98.70868 | 115.7841 | -144.6802 | -5.031288 |
| Spain | 38.08701 | -28.52489 | 25.39676 | -53.19111 | -4.558059 |
| Belarus | -22.75567 | 30.00202 | -22.86417 | 1.952656 | -3.416292 |
| Zambia | | | 1.616804 | -6.627533 | -2.505365 |
| Nigeria | -8.128128 | 7.491318 | -20.82913 | 14.18788 | -1.819515 |
| Kyrgyz Republic | -6.549953 | 29.34303 | -28.26139 | 1.371822 | -1.024123 |
| Nepal | 32.56787 | -6.543861 | 12.0263 | -37.73415 | 0.0790377 |
| Trinidad and Tobago | | | -9.507099 | 10.79222 | 0.6425586 |
| Armenia | -36.33119 | 44.54551 | -28.90515 | 29.48014 | 2.197326 |
| Venezuela | 21.14904 | 9.89748 | -3.559315 | -9.155491 | 4.58293 |
| Cambodia | 40.2865 | -7.989218 | 25.6661 | -35.89238 | 5.517748 |
| Switzerland | | | 32.87271 | -18.15337 | 7.359674 |
| Botswana | | | -5.564039 | 20.33624 | 7.386101 |
| Congo | 2.148792 | 29.38791 | 0.3426285 | -1.403351 | 7.618994 |
| Tunisia | -33.66959 | 61.16664 | -33.97773 | 39.87417 | 8.348371 |
| Bangladesh | 24.62643 | 17.84277 | 7.88913 | -16.29328 | 8.516263 |
| Romania | 24.00501 | 20.73499 | 1.958323 | -11.34125 | 8.839268 |
| Angola | 44.75329 | 9.921322 | 16.24591 | -34.48528 | 9.108812 |
| Equatorial Guinea | | | -24.72332 | 46.05106 | 10.66387 |
| Guinea | 12.52593 | 45.00758 | -18.87946 | 9.500682 | 12.03868 |
| Albania | +12.44811 | 62.10149 | -22.79567 | 31.20946 | 14.51679 |
| Austria | -8.588543 | 65.09354 | -27.71342 | 30.97659 | 14.94204 |
| Slovenia | | | -14.09187 | 52.9136 | 19.41086 |
| Kuwait | 52.33564 | 3.305194 | 64.20415 | -15.56619 | 26.0697 |
| Saudi Arabia | | | 85.2878 | -23.67609 | 30.80585 |
| Guyana | | | -19.77036 | 87.88094 | 34.05529 |
| Kazakhstan | 67.69891 | 24.86557 | 51.00981 | -1.33436 | 35.55998 |
| Ghana | 77.11193 | 42.07012 | 29.41759 | -6.346973 | 35.56317 |

Research Question
Theory
**Empirics**

Dependent Variable
Independent Variables
Results
Risk Assessment

## Prediction, Part 3 of 3

| | | | | | |
|---|---|---|---|---|---|
| Sierra Leone | 39.58367 | 111.8396 | -4.018354 | 47.81608 | 48.80524 |
| South Korea | 113.9766 | 16.44154 | 105.5381 | -6.789619 | 57.29166 |
| Swaziland | 29.58861 | 231.2453 | -6.876611 | 182.3026 | 109.065 |

Research Question
Theory
**Empirics**

Dependent Variable
Independent Variables
Results
Risk Assessment

# Impulse Response - An Exogenous increase in Violence has no discernible impact on Physical Integrity



Impulse-Response Functions based on Panel VAR Model with lags of 5

Response of CIRI Physical Integrity to Domestic Political Violence (Results based on Monte-Carlo with 500 reps)

Research Question
Theory
**Empirics**

Dependent Variable
Independent Variables
Results
Risk Assessment
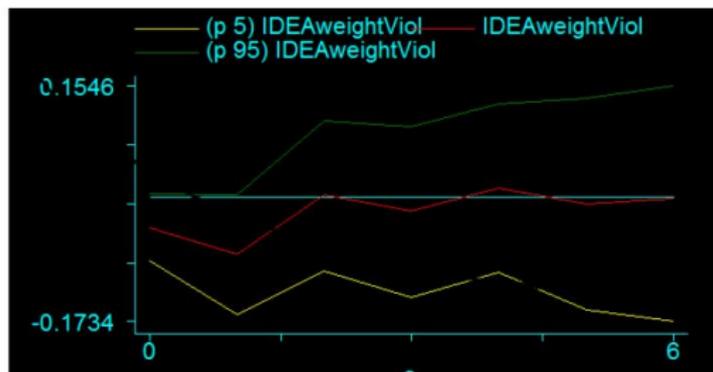
# Impulse Response - An Exogenous increase in Physical Integrity respect has short term negative impact on Violence



Response of Domestic Political Violence to CIRI Physical Integrity (Results based on Monte-Carlo with 500 reps)

Research Question
Theory
**Empirics**

Dependent Variable
Independent Variables
Results
**Risk Assessment**
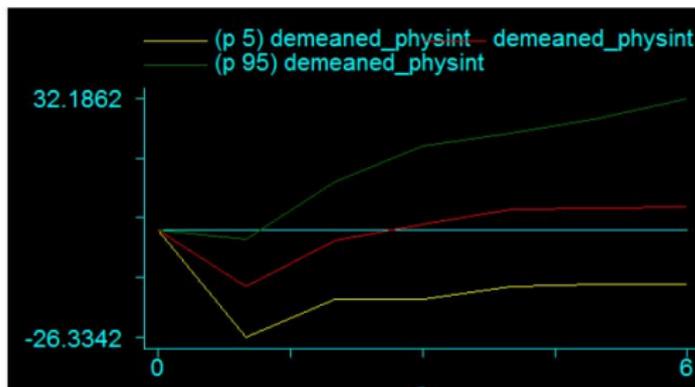
## Quarterly Level Results

| VARIABLES | (1) Baseline Data and Model Specification | (2) Alternate Model |
|---|---|---|
| Lagged DVAR | 0.62088*** | 0.49747*** |
| | (0.07017) | (0.05771) |
| Non Violent Protest $_{t-1}$ | 0.37859* | -0.62160*** |
| | (0.20168) | (0.21554) |
| IDEA Political Killings $_{t-2}$ | 25.83337** | |
| | (13.02210) | |
| IDEA Censorship $_{t-2}$ | 0.75697 | |
| | (2.67062) | |
| IDEA Political Beatings $_{t-2}$ | 10.55989 | |
| | (9.68997) | |
| IDEA Political Arrests $_{t-2}$ | 3.16915 | |
| | (2.20046) | |
| Population (ln) $_{t-4}$ | -0.76068 | -4.11575 |
| | (2.83455) | (3.06185) |
| Coverage (ln) $_{t-4}$ | 8.89493*** | 3.57972* |
| | (2.67493) | (1.88775) |
| Polity | -0.15688 | 0.21228 |
| | (0.41033) | (0.33170) |
| GDP Per Capita (ln) $_{t-4}$ | -4.01438*** | -3.62792*** |
| | (1.31941) | (1.32683) |
| Non Violent Protest | | 3.00130*** |
| | | (0.96879) |
| IDEA Accommodation $_{t-2}$ | | -0.93052** |
| | | (0.38346) |
| IDEA Repression $_{t-2}$ | | 1.93736*** |
| | | (0.42833) |
| Constant | -5.48460 | 71.70176 |
| | (37.42068) | (47.20548) |
| Observations | 7590 | 7590 |
| Number of Countries | 149 | 149 |