Policy Brief: Analysis of Protest Dynamics and Democracy Scores in Europe and Central Asia (2021–2023)

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Introduction

This policy brief examines the relationship between democratic performance and protest dynamics—both peaceful and violent—in selected countries across Europe and Central Asia from 2021 to 2023. The analysis leverages country-specific data to assess how democratic attributes correlate with the frequency of peaceful and violent protests, providing insights to inform policy recommendations for enhancing democratic resilience and reducing political unrest.

Data Sources

- **Global State of Democracy Indices (GSoD Indices)** - *Source*: International Institute for Democracy and Electoral Assistance (International IDEA), accessed via https://www.idea.int/data-tools/tools/global-state-democracy-indices. - *Description*: The GSoD Indices measure democratic trends across 174 countries using over 100 indicators from more than 20 source datasets, including the Varieties of Democracy (V-Dem) project. Scores range from 0 to 1 (0 being the lowest and 1 the highest).

  - *Attributes Used*: `representation_est`, `free_express_est`, `civil_lib_est`, and `rule_law_est`.

  - *Processing*: Data was filtered for 2021–2023, selecting `country_name`, `year`, and the four attributes. An aggregated `DEMOCRACY_SCORE` was calculated by averaging these attributes per country per year.

- **Armed Conflict Location & Event Data Project (ACLED)** - *Source File*: `europe-central-asia_aggregated_data_up_to-2025-07-19.csv`. - *Raw Data*: 105,187 rows and 13 columns, covering political violence and protest events in Europe and Central Asia.

  - *Selected Countries*:

  - *European Countries*: Belgium, France, Germany, Netherlands, Poland, Italy.

  - *Central Asian Countries*: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

- *Processing*: The dataset was filtered to include only these countries, recording the number of `PEACEFUL_PROTESTS` and `VIOLENT_PROTESTS`. The `VIOLENT_FREQ_PERCENT` was calculated as (`VIOLENT_PROTESTS` / (`PEACEFUL_PROTESTS` + `VIOLENT_PROTESTS`)) × 100. Additional metrics include `TOTAL_FATALITIES`, `POPULATION_EXPOSURE`, and a country-specific `CORRELATION` (Pearson correlation coefficient between `DEMOCRACY_SCORE` and `VIOLENT_FREQ_PERCENT` over the three years).

The processed data from GSoD Indices and ACLED were merged into a single dataset using `country_name` and `year` as joining keys for further analysis.

Methodology

1. *Data Filtering and Aggregation*:

   - GSoD Indices data was filtered for 2021–2023, selecting `country_name`, `year`, and the four democratic attributes. The `DEMOCRACY_SCORE` was computed by averaging these attributes per country per year.

   - ACLED data was processed to calculate the number of `PEACEFUL_PROTESTS`, `VIOLENT_PROTESTS`, and `VIOLENT_FREQ_PERCENT` for each country and year.

2. *Data Merging*: - The two datasets were combined into a single file using `country_name` and `year` as the joining keys.

3. *Correlation Analysis*:

   - The `Pearson correlation coefficient` (`CORRELATION`) was calculated for each country across the three years (2021–2023) to assess the relationship between `DEMOCRACY_SCORE` and `VIOLENT_FREQ_PERCENT`.

4. *Visualization*: - A scatter plot titled "Violent Protest Frequency vs. Democracy Score" was generated, with `DEMOCRACY_SCORE` on the x-axis and `VIOLENT_FREQ_PERCENT` on the y-axis. Each country is represented by its data points over the years. - Time series graphs were created to show trends in the number of `PEACEFUL_PROTESTS` and `VIOLENT_PROTESTS` over the years for each country. - Choropleth maps visualized the spatial distribution of `DEMOCRACY_SCORE`, the number of `PEACEFUL_PROTESTS`, and `VIOLENT_FREQ_PERCENT`, with hover details including `PEACEFUL_PROTESTS`, `VIOLENT_PROTESTS`, `TOTAL_FATALITIES`, and `POPULATION_EXPOSURE`.

5. *Tools and Languages*: - *Programming Language*: Python. - *Libraries*: - `Pandas`: For data manipulation and merging. - `NumPy`: For numerical computations. - `Matplotlib` and `Seaborn`: For data visualization (scatter plots, time series). - `Plotly`: For interactive visualizations (e.g., scatter plots, choropleth maps). - `Streamlit`: For building the interactive web application.

Findings

Following are the key insights into the relationship between democratic performance and protest dynamics based on the provided data:

Scatter Plot Analysis

The scatter plot "Violent Protest Frequency vs. Democracy Score" visualizes the data for 2021–2023:

- **European Countries:** - *Belgium*: - 2021: (0.8229, 6.98%), 2022: (0.8375, 11.25%), 2023: (0.8338, 12.15%). - *Trend*: Increasing `VIOLENT_FREQ_PERCENT` with stable high democracy scores. - *France*: - 2021: (0.7916, 23.18%), 2022: (0.8016, 20.81%), 2023: (0.7992, 21.83%). - *Trend*: High and variable `VIOLENT_FREQ_PERCENT` despite strong democracy. - *Germany*: - 2021: (0.8739, 17.32%), 2022: (0.8717, 11.25%), 2023: (0.8703, 9.02%). - *Trend*: Decreasing `VIOLENT_FREQ_PERCENT` with consistently high democracy. - *Italy*: - 2021: (0.7831, 12.99%), 2022: (0.7857, 9.81%), 2023: (0.7664, 8.82%). - *Trend*: Decreasing `VIOLENT_FREQ_PERCENT` with slightly declining democracy. - *Netherlands*: - 2021: (0.7963, 10.53%), 2022: (0.8170, 5.50%), 2023: (0.7972, 4.47%). - *Trend*: Decreasing `VIOLENT_FREQ_PERCENT` with stable high democracy. - *Poland*: - 2021: (0.5986, 4.88%), 2022: (0.6029, 5.15%), 2023: (0.5990, 7.14%). - *Trend*: Stable low `VIOLENT_FREQ_PERCENT` with moderate democracy.

- **Central Asian Countries:** - *Kazakhstan*: - 2021: (0.3739, 9.93%), 2022: (0.3792, 16.51%), 2023: (0.3841, 15.54%). - *Trend*: Increasing `VIOLENT_FREQ_PERCENT` with slight democracy improvement. - *Kyrgyzstan*: - 2021: (0.4572, 22.14%), 2022: (0.4536, 16.81%), 2023: (0.4399, 27.50%). - *Trend*: Variable `VIOLENT_FREQ_PERCENT` with declining democracy. - *Tajikistan*: - 2021: (0.2107, 76.92%), 2022: (0.1773, 64.29%), 2023: (0.1845, 50.00%). - *Trend*: Decreasing `VIOLENT_FREQ_PERCENT` with very low democracy. - *Turkmenistan*: - 2022: (0.1671, 0.00%), 2023: (0.1729, 66.67%). - *Trend*: Extreme variation from 0% to 66.67% with low democracy. - *Uzbekistan*: - 2021: (0.3416, 18.37%), 2022: (0.3377, 30.58%), 2023: (0.3327, 37.37%). - *Trend*: Increasing `VIOLENT_FREQ_PERCENT` with declining democracy.

Correlation Insights

The `Pearson correlation coefficient` (`CORRELATION`) for each country over 2021–2023 reflects the relationship between `DEMOCRACY_SCORE` and `VIOLENT_FREQ_PERCENT`:

- *Belgium*: 0.4224 (weak positive).

- *France*: 0.6951 (moderate positive).

- *Germany*: 0.5841 (moderate positive).

- *Italy*: 0.7487 (strong positive).

- *Netherlands*: 0.2469 (weak positive).

- *Poland*: -0.1352 (weak negative).

- *Kazakhstan*: 0.1767 (weak positive).

- *Kyrgyzstan*: -0.0520 (very weak negative).

- *Tajikistan*: 0.7965 (strong positive).

- *Turkmenistan*: 0.8060 (strong positive, based on 2 years).

- *Uzbekistan*: 0.0009 (negligible).

- *Interpretation*: European countries show mixed correlations: positive correlations (e.g., France, Italy) suggest that higher democracy scores may coincide with higher violent protest percentages, possibly due to increased civic activity. Poland's negative correlation indicates a slight decrease in violence with stable democracy. Central Asian countries exhibit varied correlations: Tajikistan and Turkmenistan show strong positive correlations, reflecting high violence at low democracy, while Uzbekistan's near-zero correlation suggests no clear trend.

Time Series Analysis of Peaceful and Violent Protests

- *European Countries*:
  - France shows high `PEACEFUL_PROTESTS` (734–759) and `VIOLENT_PROTESTS` (191–229), with stable trends. Germany and Netherlands have high peaceful protests (385–898) and lower violent ones (18–173), decreasing over time. - *Central Asian Countries*:
  - Kazakhstan and Kyrgyzstan show moderate `PEACEFUL_PROTESTS` (116–499) with variable `VIOLENT_PROTESTS` (38–89). Tajikistan has very low `PEACEFUL_PROTESTS` (2–5) and low `VIOLENT_PROTESTS` (2–10). Turkmenistan and Uzbekistan have minimal `PEACEFUL_PROTESTS` (1–160) with increasing `VIOLENT_PROTESTS` (0–37).

Map-Based Trends

- *Choropleth Maps*:
  - Europe shows higher `DEMOCRACY_SCORE` (0.6–0.87) with significant `PEACEFUL_PROTESTS` (442–1011) and variable `VIOLENT_FREQ_PERCENT` (4.47–23.18%).
  - Central Asia shows low `DEMOCRACY_SCORE` (0.17–0.46) with few `PEACEFUL_PROTESTS` (1–499) and higher `VIOLENT_FREQ_PERCENT` (0–76.92%).
  - *Hover Details*: Include `PEACEFUL_PROTESTS`, `VIOLENT_PROTESTS`, `TOTAL_FATALITIES`, and `POPULATION_EXPOSURE`, highlighting France's high exposure (61.8M) and Tajikistan's low exposure (58K).

Key Insights

- *Democratic Resilience*: High `DEMOCRACY_SCORE` (e.g., Germany, Netherlands) correlates with high `PEACEFUL_PROTESTS` and lower `VIOLENT_FREQ_PERCENT`, suggesting open civic spaces reduce violence.
  - *Authoritarian Suppression*: Low `DEMOCRACY_SCORE` (e.g., Tajikistan, Turkmenistan) aligns with few `PEACEFUL_PROTESTS` and high `VIOLENT_FREQ_PERCENT` in some years, indicating repression.
  - *Country-Specific Trends*: France and Italy show positive correlations, reflecting active dissent, while Poland and Kyrgyzstan show mixed or negative trends.

Conclusion

Data reveals diverse protest dynamics linked to democracy. Strong democracies foster peaceful protests but may face violence (e.g., France). Authoritarian regimes suppress

peaceful activity, leading to sporadic violence (e.g., Tajikistan). Country-specific correlations guide tailored policies.

Recommendations

1. *For European Countries*: - Enhance dialogue to manage violent protests (e.g., France). - Support peaceful protest channels (e.g., Germany, Netherlands).

2. *For Central Asian Countries*: - Promote freedom of expression for peaceful dissent (e.g., Kazakhstan, Kyrgyzstan). - Address repression's long-term risks (e.g., Tajikistan, Turkmenistan).