Predicting the future: Forecasting in political science

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Everyday forecasts and conditional behavior

Everyone of us is making predictions and conditions their behavior.
General forecasts and conditional policies
Overview

1. What is prediction in political science?
2. Why is it so hard?
3. The increasing demand for predictions
4. The increasing ability to predict
5. How it is done
Prediction in political science
Given information about yesterday and today: What will happen tomorrow

Two main areas of prediction in political science:

Elections and Conflict
<table>
<thead>
<tr>
<th>Prediction tool</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject matter experts</td>
<td>CIA</td>
</tr>
<tr>
<td>Prediction markets</td>
<td>Iowa Market</td>
</tr>
<tr>
<td>Actor-based/game theoretical models</td>
<td>Bueno de Mesquita</td>
</tr>
<tr>
<td>Statistical models</td>
<td>CRISP</td>
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</tbody>
</table>
The “hard sciences”

Why is prediction so hard in the social sciences?

Dealing with one of the most complex phenomenon:
The “hard sciences”
Why is prediction so hard in the social sciences?

Dealing with one of the most complex phenomenon:

Social Behavior
The increasing demand to predict conflict behavior
The increasing demand to predict conflict behavior
The increasing demand to predict conflict behavior

**WHAT IF THE U.S. WENT OVER THE "FISCAL CLIFF"?**

2013's 'WOULD-BE' SPENDING CUTS MEASURED IN FEET

1454 FT = TOTAL SPENDING

FRED, WATCH OUT FOR THE CLIFF! YOU'LL DIE!!

OH, WOULD YOU GET SERIOUS ALREADY?

<4.5 FT* = SPENDING CUTS

*DRAWING NOT TO SCALE
(RED AREA WOULD BE TOO DAMN SMALL TO SEE)

GOCOMICS.COM/OF-MICE-AND-MUD
The increasing ability to predict conflict behavior

- Increasing information about political behavior ("big data")
- Increasing ability to process information ("super computers")
- New statistical techniques to forecast
Predictions
How are they generated

- **Input data**
  - Big data
  - News wires, newspapers, media
  - Structural indicators (political, economic, geographic, ethnic)

- **Estimation**
  - Statistical models

- **Predictions**
  - In-Sample (Training models)
  - Out-Sample (Testing models)
  - Forecasting (Using models)
Example: Predicting civil conflicts

Input for prediction

- High intensity conflictual events \( t_{-1} \)
- Low intensity conflictual events \( t_{-1} \)
- Excluded population \( t_{-1} \)
- \( \log \text{GDP/capita}_{t-1} \)
- \( \text{Democ}_{t-1} \)
- \( \text{Autoc}_{t-1} \)
- Spatial low intensity conflictual events \( t_{-1} \)
Predictions for 2012
5 Countries With Highest Average Probability of New Conflict

<table>
<thead>
<tr>
<th></th>
<th>01/2012</th>
<th>02/2012</th>
<th>03/2012</th>
<th>04/2012</th>
<th>05/2012</th>
<th>06/2012</th>
<th>07/2012</th>
<th>08/2012</th>
<th>09/2012</th>
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</thead>
<tbody>
<tr>
<td>Chad</td>
<td>0.67</td>
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<td>0.64</td>
<td>0.60</td>
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<tr>
<td>DR Congo</td>
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<tr>
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<td>0.26</td>
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<td>0.86</td>
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<td>0.27</td>
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<tr>
<td>Sri Lanka</td>
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<td>0.13</td>
<td>0.51</td>
<td>0.14</td>
<td>0.56</td>
<td>0.55</td>
<td>0.54</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Forecast
10/2012 - 03/2013

Forecasting
UCL
March 13, 2013
Predictions
Map for CRISP Model Predictions of Civil Conflicts (October 2012-March 2013), with darker colors presenting higher probabilities
Conclusion

Why do I need to know about all of this?

Understanding and implementing prediction-based policies

Making predictions → Preparing policies → Implementing policies

- Analyst
- High
- Staff
- Medium
- Head
- Low