Does Foreign Aid Work? Evidence from a Natural Experiment in International Relations

Shom Mazumder      James Vreeland

Harvard University
Georgetown University

November 8, 2016
Motivation

- Does foreign aid “work”?  
- Sachs view: Foreign aid works  
- Easterly view: Or it doesn’t...  
- Core empirical problem: Donors don’t randomly give aid
Motivation

- Does foreign aid “work”?
- Sachs view: Foreign aid works
- Easterly view: Or it doesn’t...
- Core empirical problem: Donors don’t randomly give aid
Motivation

Does foreign aid “work”?  

**Sachs view:** Foreign aid works

**Easterly view:** Or it doesn’t...

**Core empirical problem:** Donors don’t randomly give aid
Motivation

- Does foreign aid “work”? 

- Sachs view: Foreign aid works

- Easterly view: Or it doesn’t...

- Core empirical problem: Donors don’t randomly give aid
Our Contribution

- Exploit exogenous changes in donor preferences using the EU’s Rotating Presidency
- Estimate effect of EU aid on policy-relevant outcomes in an IV setup
- Positive effects on growth, health, and governance
- Highlight the role of selection effects in aid-giving
Our Contribution

- Exploit exogenous changes in donor preferences using the EU’s Rotating Presidency
- Estimate effect of EU aid on policy-relevant outcomes in an IV setup
- Positive effects on growth, health, and governance
- Highlight the role of selection effects in aid-giving
Our Contribution

- Exploit exogenous changes in donor preferences using the EU’s Rotating Presidency
- Estimate effect of EU aid on policy-relevant outcomes in an IV setup
- Positive effects on growth, health, and governance
- Highlight the role of selection effects in aid-giving
Our Contribution

- Exploit exogenous changes in donor preferences using the EU’s Rotating Presidency
- Estimate effect of EU aid on policy-relevant outcomes in an IV setup
- Positive effects on growth, health, and governance
- Highlight the role of selection effects in aid-giving
Outline of Talk

- Theory
- Identification and Empirics
- Conclusion
Why do donors give aid?

- Promote economic development
- Geopolitics and “international bribery”
- Economic interests
- Role of multilateral institutions
Why do donors give aid?

- Promote economic development
- Geopolitics and “international bribery”
- Economic interests
- Role of multilateral institutions
Why do donors give aid?

- Promote economic development
- Geopolitics and “international bribery”
- Economic interests
- Role of multilateral institutions
Why do donors give aid?

- Promote economic development
- Geopolitics and “international bribery”
- Economic interests
- Role of multilateral institutions
A Theory of Selection Effects

- If donors are development-seeking, we should see targeting of aid toward “hard” cases

- If donors are policy-seeking, then targeting toward “easy” cases

- Recipients tradeoff material benefits of aid with political costs of adjustment
A Theory of Selection Effects

- If donors are development-seeking, we should see targeting of aid toward “hard” cases

- If donors are policy-seeking, then targeting toward “easy” cases

- Recipients tradeoff material benefits of aid with political costs of adjustment
A Theory of Selection Effects

- If donors are development-seeking, we should see targeting of aid toward “hard” cases

- If donors are policy-seeking, then targeting toward “easy” cases

- Recipients tradeoff material benefits of aid with political costs of adjustment
Economic Hypotheses

Economic Effects

Increases in foreign aid should cause positive changes in the economic environment.

- Growth\(^1\)
- Health\(^2\)
- Trade\(^3\)

---

\(^1\) Burnside and Dollar (2000) vs Rajan and Subramanian (2008)
\(^2\) Kosack and Tobin (2006)
\(^3\) Baccini and Urpelainen (2012)
Political Hypotheses

Political Effects

Increases in foreign aid should cause positive changes in the political environment.

- Democracy\(^4\)
- Human rights\(^5\)
- State capacity\(^6\)
- Gender\(^7\)

---


\(^5\) Carnegie and Marinov (Forthcoming) vs Bueno de Mesquita and Smith (2009)

\(^6\) Goldsmith 2001

\(^7\) Beath et al (2013)
EU as a Major Aid Donor

Aid Giving over Time

Shom Mazumder, James Vreeland
EU Rotating Presidency as a Natural Experiment

- Member state governments hold the Rotating Presidency

- President has an enhanced ability to shape budget

- Rotating President prefers to give aid to its clients

- Alphabetical rotation $\implies$ plausibly exogenous variation in aid
EU Rotating Presidency as a Natural Experiment

- Member state governments hold the Rotating Presidency
- President has an enhanced ability to shape budget
- Rotating President prefers to give aid to its clients
- Alphabetical rotation $\implies$ plausibly exogenous variation in aid

Shom Mazumder, James Vreeland
Member state governments hold the Rotating Presidency

President has an enhanced ability to shape budget

Rotating President prefers to give aid to its clients

Alphabetical rotation $\implies$ *plausibly exogenous variation in aid*
EU Rotating Presidency as a Natural Experiment

- Member state governments hold the Rotating Presidency
- President has an enhanced ability to shape budget
- Rotating President prefers to give aid to its clients
- Alphabetical rotation $\implies$ *plausibly exogenous variation in aid*
Cross-sectional time series for up to 123 recipient countries over 51 years

Dependent variables:
- Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
- Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

Independent variable: $\log(ODA), t - 1$ disbursed by EU

Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t - 2$

Controls $t - 2$: GDP per Capita, Population, Polity, $\log(\text{EU ODA})$
Data

- Cross-sectional time series for up to 123 recipient countries over 51 years

- Dependent variables:
  - Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
  - Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

- Independent variable: $\log(ODA)$, $t-1$ disbursed by EU

- Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t-2$

- Controls $t-2$: GDP per Capita, Population, Polity, $\log(EU ODA)$
Data

- Cross-sectional time series for up to 123 recipient countries over 51 years

- Dependent variables:
  - Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
  - Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

- Independent variable: $\log(ODA), t - 1$ disbursed by EU

- Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t - 2$

- Controls $t - 2$: GDP per Capita, Population, Polity, $\log(EU ODA)$
Data

- Cross-sectional time series for up to 123 recipient countries over 51 years

- Dependent variables:
  - Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
  - Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

- Independent variable: $\log(ODA), t - 1$ disbursed by EU

- Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t - 2$

- Controls $t - 2$: GDP per Capita, Population, Polity, $\log(\text{EU ODA})$
Cross-sectional time series for up to 123 recipient countries over 51 years

Dependent variables:
- Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
- Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

Independent variable: $\log(ODA), t - 1$ disbursed by EU

Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t - 2$

Controls $t - 2$: GDP per Capita, Population, Polity, $\log(ODA)$
Data

- Cross-sectional time series for up to 123 recipient countries over 51 years

- Dependent variables:
  - Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
  - Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

- Independent variable: \( \log(ODA), t - 1 \) disbursed by EU

- Instrument: Log bilateral aid to recipient \( r \) from donor \( d \) who holds the Presidency in \( t - 2 \)

- Controls \( t - 2 \): GDP per Capita, Population, Polity, \( \log(\text{EU ODA}) \)
Data

- Cross-sectional time series for up to 123 recipient countries over 51 years

- Dependent variables:
  - Economic: Growth rate, Log(Life expectancy), Log(Infant mortality), Trade (% of GDP)
  - Political: Polity 2, State Capacity Index, CIRI Empowerment Index, V-DEM Gender Index, V-DEM Political Liberties Index

- Independent variable: $\log(ODA)_t = 1$ disbursed by EU

- Instrument: Log bilateral aid to recipient $r$ from donor $d$ who holds the Presidency in $t - 2$

- Controls $t - 2$: GDP per Capita, Population, Polity, Log(EU ODA)
Instrumental Variables Strategy

\[ \log(ODA)_{r,t-1} = \lambda \ast \text{Rotating Presidency}_{t-2} + \gamma \ast X_{r,t-2} + \epsilon_{r,t-1} \]

\[ \text{Outcome}_{r,t} = \beta \ast \log(ODA)_{r,t-1} + \gamma \ast X_{r,t-2} + \eta_{r,t} \]

Identification Assumptions

1. Exogeneity
2. Exclusion
3. Relevance
4. Monotonicity
First Stage

Log (Bilateral Aid from President), Lagged
Log (EU ODA)

Shom Mazumder, James Vreeland
Causal Effect of Aid on Economic Indicators

Shom Mazumder, James Vreeland
Causal Effect of Aid on Political Indicators

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRI Empowerment</td>
<td>−0.25</td>
</tr>
<tr>
<td>Polity</td>
<td>0.00</td>
</tr>
<tr>
<td>State Capacity</td>
<td>0.25</td>
</tr>
<tr>
<td>VDEM Gender</td>
<td>0.50</td>
</tr>
<tr>
<td>VDEM Pol. Lib.</td>
<td></td>
</tr>
</tbody>
</table>

Shom Mazumder, James Vreeland
Conclusion

Does foreign aid work?

**Takeway**: EU aid does positively impact
- Growth
- Health
- Governance

Contributes to mounting evidence on positive causal effect of aid from multilateralists\(^8\)

Contrasts with evidence from US\(^9\)

Need to ask what type of aid works

---

\(^8\) Carnegie and Marinov (Forthcoming), Galiani et al (2016)
\(^9\) Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

- **Takeway**: EU aid does positively impact
  - Growth
  - Health
  - Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals\(^8\)

- Contrasts with evidence from US\(^9\)

- Need to ask *what type* of aid works

---

\(^8\) Carnegie and Marinov (Forthcoming), Galiani et al (2016)

\(^9\) Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

**Takeaway**: EU aid does positively impact
  - Growth
  - Health
  - Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals

- Contrasts with evidence from US

- Need to ask what type of aid works

---

8 Carnegie and Marinov (Forthcoming), Galiani et al (2016)
9 Nunn and Qian (2014), Ahmed (2016)
Does foreign aid work?

**Takeway**: EU aid does positively impact
- Growth
- Health
- Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals

- Contrasts with evidence from US

- Need to ask what type of aid works

---

8 Carnegie and Marinov (Forthcoming), Galiani et al (2016)
9 Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

- **Takeway**: EU aid does positively impact
  - Growth
  - Health
  - Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals\(^8\)

- Contrasts with evidence from US\(^9\)

- Need to ask **what type** of aid works

---

\(^8\) Carnegie and Marinov (Forthcoming), Galiani et al (2016)

\(^9\) Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

  **Takeway**: EU aid does positively impact
  - Growth
  - Health
  - Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals

  - Contrasts with evidence from US

  - Need to ask what type of aid works

---

8 Carnegie and Marinov (Forthcoming), Galiani et al (2016)
9 Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

**Takeaway:** EU aid does positively impact
- Growth
- Health
- Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals\(^8\)

- Contrasts with evidence from US\(^9\)

- Need to ask what type of aid works

---

\(^8\) Carnegie and Marinov (Forthcoming), Galiani et al (2016)

\(^9\) Nunn and Qian (2014), Ahmed (2016)
Conclusion

- Does foreign aid work?

- **Takeway**: EU aid does positively impact
  - Growth
  - Health
  - Governance

- Contributes to mounting evidence on positive causal effect of aid from multilaterals

- Contrasts with evidence from US

- Need to ask **what type** of aid works

---

8 Carnegie and Marinov (Forthcoming), Galiani et al (2016)
9 Nunn and Qian (2014), Ahmed (2016)
Thanks for your feedback!

Shom Mazumder  
smazumder@g.harvard.edu  
http://smazumder.me  

James Vreeland  
james.raymond.vreeland@gmail.com  
http://faculty.georgetown.edu/jrv24/
Data Description

- **State capacity**: Bayesian latent variable analysis of extractive, coercive, and administrative capacity (Hanson and Sigman 2013). Higher values indicate more state capacity.


- **CIRI Worker Rights**: “A score of 0 indicates that workers rights were severely restricted; a score of 1 indicates that workers rights were somewhat restricted; and a score of 2 indicates that workers rights were fully protected during the year in question.” (Cingranelli, Richards, and Clay 2013)
Summary Statistics on Covariates

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log (EU Aid)</td>
<td>2,539</td>
<td>16.297</td>
<td>1.917</td>
<td>9.210</td>
<td>20.820</td>
</tr>
<tr>
<td>Log (Real GDP per Capita), lagged</td>
<td>2,539</td>
<td>6.984</td>
<td>1.094</td>
<td>3.972</td>
<td>10.073</td>
</tr>
<tr>
<td>Log (Population), lagged</td>
<td>2,539</td>
<td>16.079</td>
<td>1.495</td>
<td>12.506</td>
<td>21.004</td>
</tr>
<tr>
<td>Polity 2, lagged</td>
<td>2,539</td>
<td>0.159</td>
<td>6.727</td>
<td>−10</td>
<td>10</td>
</tr>
</tbody>
</table>
Correlation Matrix of Covariates

Shom Mazumder, James Vreeland
OLS Results: Economic Indicators

OLS Estimates: Economic Indicators

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth</td>
<td>-0.03</td>
</tr>
<tr>
<td>Inf. Mortality</td>
<td>0.00</td>
</tr>
<tr>
<td>Life Expec</td>
<td>0.03</td>
</tr>
<tr>
<td>Trade</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Shom Mazumder, James Vreeland
OLS Results: Political Indicators

- Standardized Coefficient

<table>
<thead>
<tr>
<th>Outcome</th>
<th>CIRI Empowerment</th>
<th>Polity</th>
<th>State Capacity</th>
<th>VDEM Gender</th>
<th>VDEM Pol. Lib.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized Coefficient</td>
<td>−0.25</td>
<td>0.00</td>
<td>0.25</td>
<td>0.50</td>
<td></td>
</tr>
</tbody>
</table>

Shom Mazumder, James Vreeland
**First Stage: Regression**

<table>
<thead>
<tr>
<th></th>
<th>Log (EU ODA), t-1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Log (Presidency Aid), t-2</td>
<td>0.10**</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Log (Presidency Aid), t-2</td>
<td>0.07**</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
</tr>
<tr>
<td>Country Fixed Effects</td>
<td>✓</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>✓</td>
</tr>
<tr>
<td>Time Varying Covariates</td>
<td>✓</td>
</tr>
<tr>
<td>N</td>
<td>2,699</td>
</tr>
<tr>
<td>R²</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>2,538</td>
</tr>
<tr>
<td></td>
<td>0.69</td>
</tr>
</tbody>
</table>

\[ p < .1; \ast p < .05; \ast\ast p < .01 \]
## 2SLS Table: Economic

<table>
<thead>
<tr>
<th></th>
<th>Log (GDP Per Capita)</th>
<th>GDP Growth Rate</th>
<th>Log (Life Expectancy)</th>
<th>Log (Infant Mortality)</th>
<th>Trade (Pct. GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Log (EU ODA), t-1</td>
<td>−0.003</td>
<td>7.70*</td>
<td>0.06*</td>
<td>−0.03</td>
<td>−5.93</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(3.91)</td>
<td>(0.03)</td>
<td>(0.07)</td>
<td>(8.04)</td>
</tr>
<tr>
<td>Country Fixed Effects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Time Varying Covariates</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Observations</td>
<td>2,420</td>
<td>2,289</td>
<td>2,422</td>
<td>2,383</td>
<td>2,296</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.94</td>
<td>−0.64</td>
<td>0.86</td>
<td>0.97</td>
<td>0.82</td>
</tr>
</tbody>
</table>

**Notes:**

* **p < .01; *p < .05; †p < .1

Standard errors clustered by country and year.
## 2SLS Table: Political

<table>
<thead>
<tr>
<th></th>
<th>Polity 2</th>
<th>State Capacity</th>
<th>CIRI Empowerment</th>
<th>CIRI Workers Rights</th>
<th>VDEM Gender Index</th>
<th>VDEM Political Liberties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log (EU ODA), t-1</td>
<td>2.06(^{\dagger})</td>
<td>0.18</td>
<td>0.75</td>
<td>0.25</td>
<td>0.07*</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>(1.09)</td>
<td>(0.11)</td>
<td>(1.03)</td>
<td>(0.32)</td>
<td>(0.03)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Country Fixed Effects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Time Varying Covariates</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Observations</td>
<td>2,426</td>
<td>2,427</td>
<td>1,826</td>
<td>1,830</td>
<td>2,179</td>
<td>2,408</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.70</td>
<td>0.80</td>
<td>0.81</td>
<td>0.44</td>
<td>0.83</td>
<td>0.82</td>
</tr>
</tbody>
</table>

**Notes:**

**p < .01; *p < .05; †p < .1**

Standard errors clustered by country and year.
Nonparametric Identification with DAGs

\[ BilateralAid_{t-2} \]

\[ EUAid_{t-2} \]

\[ Z_{t-2} \]

\[ EUAid_{t-1} \]

\[ Y_t \]
Caveats

- Hard to disentangle mechanisms with macro-data
- EU might be atypical
- Plausibility of SUTVA: budgeting constraint complicates this