Dictators Under The Weather

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INTRODUCTION

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Bruckner and Ciccone (2011) show, for Sub-Saharan African countries, that a negative shock to GDP caused by a drought gives rise to increased probability of democratic reform/transition.

This paper explores the mechanism by which the ruling elite will have to democratize, and when they can instead use tariffs to maintain the status quo.
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▶ Democratization enables the ruling elite to defuse the threat of revolution by credibly committing to transfers by handing over power to the poor to set redistributive economic policy.

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This paper explores the mechanism by which the ruling elite will have to democratize, and when they can instead use tariffs to maintain the status quo.
Two Contributions

- First contribution is theoretical: we explore, in response to a weather shock, when the elite can seek to maintain the status quo using import tariffs, and when they are forced to extend the franchise.
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- Second contribution is empirical: we show empirically that when this mechanism is taken into account, the tendency of the elite to democratize in response to a weather shock is significantly reduced.
LITERATURE REVIEW

Literature Review


Econometric foundations: Brucker and Ciccone (2011 E’ca) Based on a database of Sub-Saharan African countries, show that drought tends to trigger democratic reform. This paper forms our econometric baseline.
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- The poor consume only food. Adverse weather shock - drought - reduces domestic food production. Can import, subject to tariff set by elite.
- Weather shock also reduces the cost of mounting a revolution.
- Conflict of interest over trade policy: elite want protection while poor want free trade.
The Model cont.

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Weather is assumed to be ‘normal’ next period. Focus on current period.

Elite can offset the effect of an adverse weather shock by lowering the tariff.

But, depending on severity of the shock, this may or may not be enough to defuse the threat of revolution.
Franchise Extension, Revolution, and Elite Rule

Value functions for the poor under franchise extension, revolution, and elite rule respectively.

\[ V^p(D; w_0) \equiv w_0 (1 + a) + \beta (1 + a). \]

\[ V^p(R; w_0) \equiv w_0 (1 + a - c) + \beta (1 + a). \]

\[ V^p(E, \tau_0^e; w_0) = w_0 (1 + a - \tau_0^e) + \beta (1 + a - \hat{\tau}^e). \]
**Characterization of Equilibrium**

\[ \beta(1 + a) \]

\[ \beta(1 + a - \hat{\tau}e) \]

\[ (1 + a) \]

\[ (1 + a - c) \]

\[ (1 + a - \hat{\tau}e) \]

\[ V^p(D; w_0) \]

\[ \tilde{V}^p(E; w_0) \]

\[ V^p(E, \hat{\tau}e; w_0) \]

\[ V^p(R; w_0) \]

Figure 1: Characterization of Equilibrium

Severe weather shock

Mild weather shock

Normal weather

Severe weather shock

Mild weather shock

Normal weather

\[ w_0 \]

\[ 0 \]

\[ \tilde{w}_0 \]

\[ w_0 \]

\[ 1 \]
Empirical Design and Data

We follow the empirical design of Bruckner and Ciccone (2011, henceforth BC), who study the effect of rainfall shocks in a sample of 40 sub-Saharan African countries over 1981-2003.

BC employ the econometric specification

$$\Delta \text{Polity}_{i,t} = \gamma_i + \lambda_t + \eta_{it} + \phi \log(\text{Income})_{i,t-2} + u_{it}. \quad (1)$$

However we make a fundamental break from BC in our instrumental variables strategy, motivated by our theory. The import tariff that the dictator uses to mitigate the effect of a weather shock serves as an additional instrument.
### Table 3. Dependent Variable: $\Delta Polity2_{i,t}$.

<table>
<thead>
<tr>
<th></th>
<th>OLS</th>
<th>2SLS</th>
<th>2SLS</th>
<th>2SLS</th>
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<tbody>
<tr>
<td></td>
<td>$\Delta Polity2_t$</td>
<td>$\Delta Polity2_t$</td>
<td>$\Delta Polity2_t$</td>
<td>$\Delta Polity2_t$</td>
</tr>
<tr>
<td>Log GDP per capita, $t-2$</td>
<td>$-0.410$</td>
<td>$-20.37^{**}$</td>
<td>$-4.192^{***}$</td>
<td>$-2.314$</td>
</tr>
<tr>
<td></td>
<td>$(0.565)$</td>
<td>[0.019]</td>
<td>[0.010]</td>
<td>[0.015]</td>
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<tr>
<td></td>
<td>(robust se)</td>
<td>[A-R $p$-value]</td>
<td>[A-R $p$-value]</td>
<td>[A-R $p$-value]</td>
</tr>
<tr>
<td>Country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Country-trend</td>
<td>Yes</td>
<td>Yes</td>
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**First Stage**

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<td>$\Delta Polity2_t$</td>
<td>$\Delta Polity2_t$</td>
</tr>
<tr>
<td>Log Rainfall, $t-2$</td>
<td>$0.082^{**}$</td>
<td>$0.078^{**}$</td>
<td>$0.083^{***}$</td>
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</tr>
<tr>
<td></td>
<td>$(0.032)$</td>
<td>$(0.032)$</td>
<td>$(0.031)$</td>
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<tr>
<td>NRA$^M$, $t-2$</td>
<td>$-0.043^{**}$</td>
<td>$-0.066^{***}$</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>$(0.018)$</td>
<td>$(0.018)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRA$^X$, $t-2$</td>
<td>$0.139^{***}$</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>$(0.026)$</td>
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<td>Country fixed effect</td>
<td>Yes</td>
<td>Yes</td>
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<td>Year fixed effect</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>815</td>
<td>815</td>
<td>815</td>
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<tr>
<td>Anderson–Rubin p value</td>
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<td>0.010</td>
<td>0.015</td>
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<tr>
<td>Weak Instrument F stat</td>
<td>6.621</td>
<td>6.785</td>
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<td>exact</td>
<td>7.948</td>
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<td>0.005</td>
<td>0.016</td>
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</table>
**Conclusions**

This paper explores the mechanism by which dictators are able to forestall democratization, focusing on import tariffs.

The theoretical model shows when the elite will be able to use tariffs to defuse the threat of revolution, and when they will face a commitment problem and hence have to democratize.

Using Bruckner and Ciccone (2011) as a baseline, our econometric results show that when import tariffs are introduced as an instrument along with rainfall, the tendency for a rainfall shock to lead to democratization is significantly reduced.
Thank you