National Security Implications of Unconventional Oil and Gas Production Technologies

The University of Texas System Office

Lyndon B. Johnson School of Public Affairs

April 30, 2015
Consensus View about Oil and National Security

1973 Oil Embargo’s Domestic Impact

2003 Protests in Washington
"[O]il dependence creates political realignments that constrain the ability of the United States to form partnerships to achieve common objectives."

-Council on Foreign Relations, 2006
Impact of the Shale Revolution
U.S. Domestic Production of Crude Oil and Petroleum Products

Source: U.S. Energy Information Administration
Impact of the Shale Revolution

U.S. Net Imports of Crude Oil Decreasing Drastically

Source: U.S. Energy Information Administration
U.S. Energy Independence Isn’t the Issue
The Global Oil Bathtub

Russia

Saudi Arabia

U.S.A.

China
Changes in Oil Trade Flows
United States Importing Less Crude, Asia Purchasing More
Changes in Oil Trade Flows
Reduction in Bilateral Oil Trade With Africa, South America, Middle East
Petro Partners Hypothesis:
Links to U.S. National Security via Changing Trade Patterns

- New Production Technologies
  - Reduced U.S. Imports from producer country
  - Increased Imports by Other Partner
    - Erosion of U.S. Mil./Diplo. Relationships
    - Formation of Substitute Mil./Diplo. Relationships
  - Harm to U.S. Interests
Reduced Revenues Hypothesis:
Links to U.S. National Security via Declining Energy Rents

New Production Technologies → Reduced Oil & Gas Revenue → Social or Political Instability → Reduced Capability to Cooperate Militarily → Harm to U.S. Interests
Case Study Methodology

Finding Strong Tests for the Mechanisms

- Case studies provide *inference* to answer the broader questions
- “Most likely” cases are those in which we would *most expect* to observe the theories at work if they are valid
- Four case studies selected:
  - Angola
  - Gabon
  - Nigeria
  - Trinidad & Tobago
Case Selection: Petro Partners

- New Production Technologies
- Reduced U.S. Imports from producer country
- Increased Imports by Other Partner
- Erosion of U.S. Mil./Diplo. Relationships
- Formation of Substitute Mil./Diplo. Relationships
- Harm to U.S. Interests
Case Selection: Petro Partners

Largest Declines in Crude and Petroleum Product Exports to the U.S.

<table>
<thead>
<tr>
<th>Country</th>
<th>Peak Year*</th>
<th>Decline to 2014 (kbpd)</th>
<th>Percent Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2002</td>
<td>55</td>
<td>96.5%</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
<td>2009</td>
<td>89</td>
<td>95.5%</td>
</tr>
<tr>
<td>Gabon</td>
<td>1997</td>
<td>212</td>
<td>92.2%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>2005</td>
<td>1074</td>
<td>92.1%</td>
</tr>
<tr>
<td>Norway</td>
<td>2002</td>
<td>348</td>
<td>88.6%</td>
</tr>
<tr>
<td>Algeria</td>
<td>2007</td>
<td>561</td>
<td>83.7%</td>
</tr>
<tr>
<td>Argentina</td>
<td>2002</td>
<td>90**</td>
<td>78.3%</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>2006</td>
<td>91</td>
<td>77.8%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2002</td>
<td>362</td>
<td>75.7%</td>
</tr>
<tr>
<td>Angola</td>
<td>2006</td>
<td>383</td>
<td>71.7%</td>
</tr>
</tbody>
</table>

Source: EIA

*Since 1995 **Until 2013
Case Selection: Reduced Revenues

New Production Technologies → Reduced Oil & Gas Revenue → Social or Political Instability → Reduced Capability to Cooperate Militarily → Harm to U.S. Interests

X

High Level of Dependence
Case Selection: Reduced Revenues

2008-09 Oil Price Crash Brought Reduced Revenues for all Exporters

<table>
<thead>
<tr>
<th>Country</th>
<th>Oil as Percent of Total Revenues</th>
<th>Percent Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>~ 60%</td>
<td>40%</td>
</tr>
<tr>
<td>Angola</td>
<td>&gt; 75%</td>
<td>39%</td>
</tr>
<tr>
<td>Gabon</td>
<td>&gt; 50%</td>
<td>38%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>&gt; 90%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Source: EIA production data 2008-2009, Brent crude spot prices.
Observed Changes

- **2007 to present**: leveling off and subsequent decline in U.S. imports.
- **2001 to present**: continuous growth in Chinese imports.
- **2009-2010**: significant drop in net oil export revenue from peak levels.

**Angola's Net Oil Export Revenues (bn 2013$)**

**Quantity of Petroleum Imports From Angola (bn kg)**

- Red line: China
- Blue line: USA
Angola

Petro Partners: ~

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola resistant to sign bilateral agreements with U.S.</td>
<td>SPD signed in 2010, despite reduced oil trade with the U.S. ✗</td>
</tr>
</tbody>
</table>

Reduced Revenues: ✗

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in social and political instability.</td>
<td>Protests and government reshuffles, but not due to loss of oil revenues. ✗</td>
</tr>
</tbody>
</table>
Gabon

Observed Changes

- **2006 to present**: sudden decline in U.S. imports.
- **1997-2003**: drop in oil production.
- **2008-2009**: drop in oil revenue.
Gabon

Petro Partners: ☒

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabon resistant to participate in bilateral military exercises.</td>
<td>2009 Gabon hosted AFRICOM’s Africa Endeavor Exercise. ☒</td>
</tr>
</tbody>
</table>

Reduced Revenues: ☒

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in social and political instability.</td>
<td>Protests increase, but not due to loss of oil revenues. ☒</td>
</tr>
</tbody>
</table>
Nigeria

Observed Changes

- **2010 to present**: steady decline in U.S. imports.
- **2008-2009**: drop in oil revenue, but almost full recovery within one year.
### Nigeria

**Petro Partners:** ✗

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigerian resistant to U.S. military cooperation.</td>
<td>Nigeria participates in Obangame Express and IMET program. ✗</td>
</tr>
</tbody>
</table>

**Reduced Revenues:** ✗

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in social and political instability.</td>
<td>No oil-related instability, because of use of rainy day fund. ✗</td>
</tr>
</tbody>
</table>
Trinidad & Tobago

Observed Changes

- **2006 to present**: steady decline in U.S. energy imports.
- **2008-2010**: drop in oil revenue.

![U.S. LNG Imports from T&T (tcf)](image1)

![T&T Total Oil Production (kbpd)](image2)
## Trinidad & Tobago

### Petro Partners: ❌

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;T resistant to bilateral drug interdiction and military agreements.</td>
<td>Shiprider Agreement and SOFA indicate positive relations. ❌</td>
</tr>
</tbody>
</table>

### Reduced Revenues: ❌

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in social and political instability.</td>
<td>No oil-related instability, because of use of export diversification. ❌</td>
</tr>
</tbody>
</table>
What Have We Learned?

Petro Partners:
- No case offered clear support
- Should not be overly concerned about erosion of diplomatic/military ties

Reduced Revenues:
- Case countries were able to “break the chain”
  - Sovereign wealth funds, foreign financing, etc
- Low risk of instability
Implications

Russia:
- Fear of Europe’s dependence on Russia
- Other factors overwhelm Petro Partnership

Saudi Arabia:
- Fear of Saudi instability due to loss of revenue
- Reduced Revenues theory not valid
Don’t panic.
Final Project Notes

Web Resource:
- Information on an array of topics relevant to energy and national security
- https://strausscenter.org/energy-and-security/

Contact information:
- Eugene Gholz, egholz@austin.utexas.edu