Local Governance and Public Finance Challenges of the Fracking Boom
Lessons for the US & Canada
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The Four Mismatches of Fracking

1. Expenditure Risks and Public Perception
2. Governmental Responsibilities and Revenue Streams
3. Spatial Differentiation between Industry and Expenditure Needs
4. Timing between Costs and Revenues
Presentation Topics

1. The Rise of Fracking in US & Canada
2. Boom-Bust Cycle Framework & the Fracking Curve
3. Governmental Responsibilities & Expenditure Risks
4. Revenue Streams & Regulatory Timelines
5. Policy Recommendations & Future Research
Image from:
CleanTechnica, 2015
THOUSANDS OF BARRELS PER DAY

Domestic Production
US Imports

Data from:
Energy Information Administration, 2016
Study fortifies link between fracking and earthquakes in British Columbia

By SUNNY DHILLON
Globe and Mail Update

The study published this month found the earthquakes typically occurred above the area where fracking was taking place.

A new study examining earthquakes in northeastern British Columbia strengthens the link between hydraulic fracturing – or fracking – and increased seismic activity, a research scientist says.

The study, published in this month’s Bulletin of the Seismological Society of America¹, analyzed 676 earthquakes that occurred between October, 2014, and December, 2015.
Boom-Bust Resource Cycles
“The Fracking Curve”
# Overlapping Governmental Responsibilities

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<thead>
<tr>
<th></th>
<th>Federal</th>
<th>State</th>
<th>Local</th>
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<tbody>
<tr>
<td>Environmental Protection</td>
<td>x</td>
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<td>Oil and Gas Administration</td>
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<td>Socio-economic Impacts</td>
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PADEP Sues Townships Over Fracking Bans: Pennsylvania Department of Environmental Protection

Monday, April 10, 2017

On the same day it issued permits authorizing two energy companies to dispose of oil and gas wastewater in underground injection wells, the Pennsylvania Department of Environmental Protection (PADEP) filed a petition for review in Commonwealth Court challenging two townships for attempting to restrict unconventional gas operations. In asking the court to enjoin the townships from enforcing their home rule charters and seeking declaratory relief, PADEP asserts that state law preempts townships from regulating oil and gas well activities that are within PADEP’s regulatory province.
Perception vs. Expenditure Risks
"Right now there's not a dedicated revenue source," said John Barton, the Texas Department of Transportation deputy executive director. "We need $2 billion dollars.... and the shortfall is $2 billion dollars."
Who got what from a litre of oil in 2015, ($/litre)

- UK: $0.34 (19.9%) and $1.15 (67.2%)
- Italy: $0.33 (20.8%) and $0.98 (62.3%)
- Germany: $0.33 (23.9%) and $0.77 (55.4%)
- France: $0.33 (25.8%) and $0.76 (58.7%)
- Japan: $0.34 (34.1%) and $0.40 (39.7%)
- Canada: $0.34 (39.6%) and $0.29 (34.1%)
- USA: $0.29 (43.3%) and $0.14 (21.1%)

Chart from: The Economist, 2016
## Revenue Streams

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<th>Federal</th>
<th>State / Province</th>
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<tbody>
<tr>
<td><strong>USA</strong></td>
<td>Income:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Corporate</td>
<td>Income,</td>
<td>Property,</td>
</tr>
<tr>
<td></td>
<td>• Individual</td>
<td>Extraction (Severance)</td>
<td>Retail Sales,</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Impact Fees</td>
</tr>
<tr>
<td><strong>CANADA</strong></td>
<td>Income, GST, Royalties</td>
<td>Carbon Tax, HST, Royalties</td>
<td>Property, Impact Fees*</td>
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* Impact Fees are called Development Charges in Canada
## Local Authority to Regulate Fracking

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<thead>
<tr>
<th></th>
<th>C A N A D A</th>
<th>UNITED STATES</th>
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<tbody>
<tr>
<td></td>
<td>ND</td>
<td>CO</td>
</tr>
<tr>
<td>&quot;home rule&quot;</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>local ability to ban fracking</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>local authority for zoning, setbacks, and location permits</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>mineral rights assessment</td>
<td>mixed</td>
<td>mixed</td>
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Typical Regulatory Timeline

- Fracking Begins
- Local Urban Areas Ban Fracking
- State Courts Overturn
- Local Areas Pass Setback and Zoning Ordinances
Expanded Regulatory Timeline

- **Fracking Begins**
  - Poland: Not Viable

- **Local Urban Areas Ban Fracking**
  - New York: State Ban

- **State Courts Overturn**
  - Pennsylvania: Courts Uphold

- **Local Areas Pass Setback and Zoning Ordinances**
  - North Dakota, Colorado, Ohio

Texas
Policy Recommendations

(1) Slow down fracking to mitigate the boom & bust cycle
   • Extended mineral rights leases
   • Limit the number of well permits per month per area

(2) Allow lower-tier municipalities the power to regulate/ban fracking
   • Zoning, setbacks, and impact fees
   • Mechanisms to ban fracking

(3) Regional governance structures
   • Revenue and cost sharing across multiple jurisdictions
   • Focus social and housing infrastructure into a limited geographic area (e.g. Fort McMurray)

(4) Negotiate intergovernmental revenue-sharing & build a reserve fund
Future Research

(1) Property Assessment & Taxation Comparison (USA)
How well are municipalities capturing value from fracking?
- Data: Property Assessment Data purchased from CoreLogic
- Counties in Ohio vs. Pennsylvania

(2) Impacts on Fiscal Health Indicators (USA & CA)
How is fracking affecting the fiscal health of cities?
- Data: Budgetary Line Item Data from FiSC database & Census of Governments, FIR data from Ontario & Alberta
- Develop set of indicators grounded in previous literature
- Compare cities by well count within 30 miles
- Develop regression model
Questions? Comments?

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