Econ 366

Fall 2012

Resource Ownership and Taxation in Alberta (and Elsewhere)

Useful Resources

Alberta Energy:
http://www.energy.gov.ab.ca/OurBusiness.asp

Busby, Dachis and Dahlby (2011)
http://www.cdhowe.org/pdf/commentary_333.pdf

Mintz and Chen (2012)
http://www.policyschool.ucalgary.ca/sites/default/files/research/mintz-chen-economic-rents-final.pdf

Natural Resource Ownership in Canada

- Constitution: provinces own natural resources within their borders (exceptions include First Nations lands, federal lands such as national parks)
- Sometimes referred to as “crown” ownership
- Rights to explore / extract are granted to private firms
- In Alberta (and elsewhere) these rights are granted via auctions (bonus bidding)

Alberta's Bonus Bidding System

- Firms request that available parcels be put on auction (posting request)
- Public Offerings for future (bi-weekly) auctions are announced. Example:
  - http://www.energy.alberta.ca/FTPPNG/2011/20111102PON.pdf
- Firms (or their agents) make a sealed bid
  - minimum bonus: $2.50 per hectare for a lease; $1.25 per hectare for a licence.; bid also must include $625.00 application fee and first year rental of $3.50 per hectare.
- Auction results publicly disclosed. Example:
  - http://www.energy.alberta.ca/FTPPNG/2011/20111102PSR.pdf

Licences and Leases

- Licence: grants the right to explore for oil and gas;
  - Licence period: 2 years in the Plains region, 4 years in the Northern region, 5 years in the Foothills, 5 years for Oil Sands
  - Can be converted to a lease if economically viable deposit is found;
  - Reverts to the Crown if no activity within initial licence period

- Lease: grants the right to produce
  - For the development of already discovered deposits
  - Leases up for auction (as opposed to those converted from a licence), are initially good for 5 years (15 years for Oil Sands) and can be extended as long as there is active production

  See also **Box 2** in Busby, Dachis and Dahlby

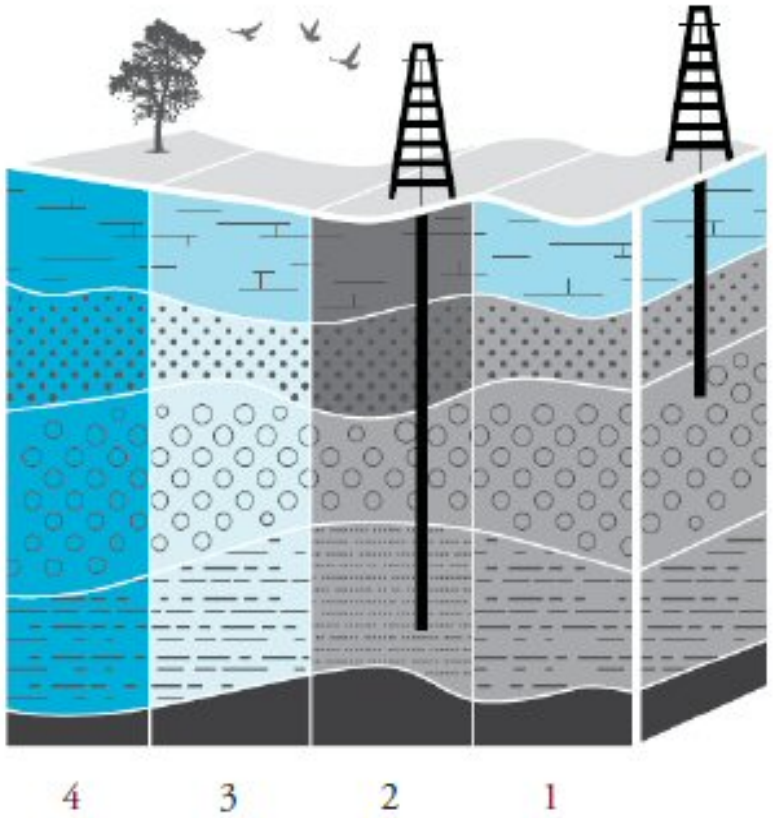
Box 2: A Summary of Tenure Rights

A lease or licence provides the owner of the rights exclusive access to a geological zone of a specified depth underneath a specified plot of land. The geological rights can range from the surface to the lowest possible depth that oil and gas might exist (this is known as the basement). Lease owners then have a specified period of time to produce oil or gas from the geological zone to which they have rights. Although details differ by province, areas that owners do not produce from in a specified period of time, or cease producing from, are returned to provincial ownership and can be auctioned again. However, owners retain tenure rights indefinitely if they continue to produce. As technology or other factors change, other developers might then choose to develop leases that were returned to the province, starting the cycle again. This results in multiple leases or licences in the same land area but often owned by different companies and for different geological zones (see figure below for a visual illustration).

Rental fees are associated with tenure, although revenues from these fees are trivial compared with those from bonus bids and royalties. Bonus bids are delineated geographically by sections (1 square mile) and sometimes by smaller units such as legal subdivisions (one-sixteenth of a section). Sections are grouped together to form a "tract" that is put up for auction. Interested firms submit sealed bids to the ministry and the parcel of land goes to the highest bidder. Resource firms often bid as a package on nearby tracts that hold different geological rights.

Firms must also negotiate access rights with the owners of the surface of the land. However, these expenses are usually trivial compared with the costs of purchasing tenure rights from governments, as the majority of land in the western provinces (94 percent in British Columbia, for example; see British Columbia 2010) is unoccupied Crown land.

An Example of Tenure Rights



Source: Alberta Energy (2009a).

How much will a firm bid for a licence?

- Depends on the expected profit from exploring and (if exploration is successful) then producing and selling oil and gas
- This depends on:
  - Probability of finding something (odds are probably better in areas with previous nearby discoveries)
  - Expected prices of oil and gas
  - Expected tax rates
- The more competitive the auction, the higher the bid … up to the point where any 'excess' profits are bid away
- How much will a firm bid for a lease?

Sept 21, 2011 Auction Results: Licences

Licence Totals			
Region	**Bonus**	**Hectares**	**$/Ha**
Plains	0.00	0.00	0.00
Northern	279,576,059.98	163,968.00	1,705.06
Foothills	0.00	0.00	0.00
Total	**279,576,059.98**	**163,968.00**	**1,705.06**

Sept 21, 2011 Auction Results: Leases

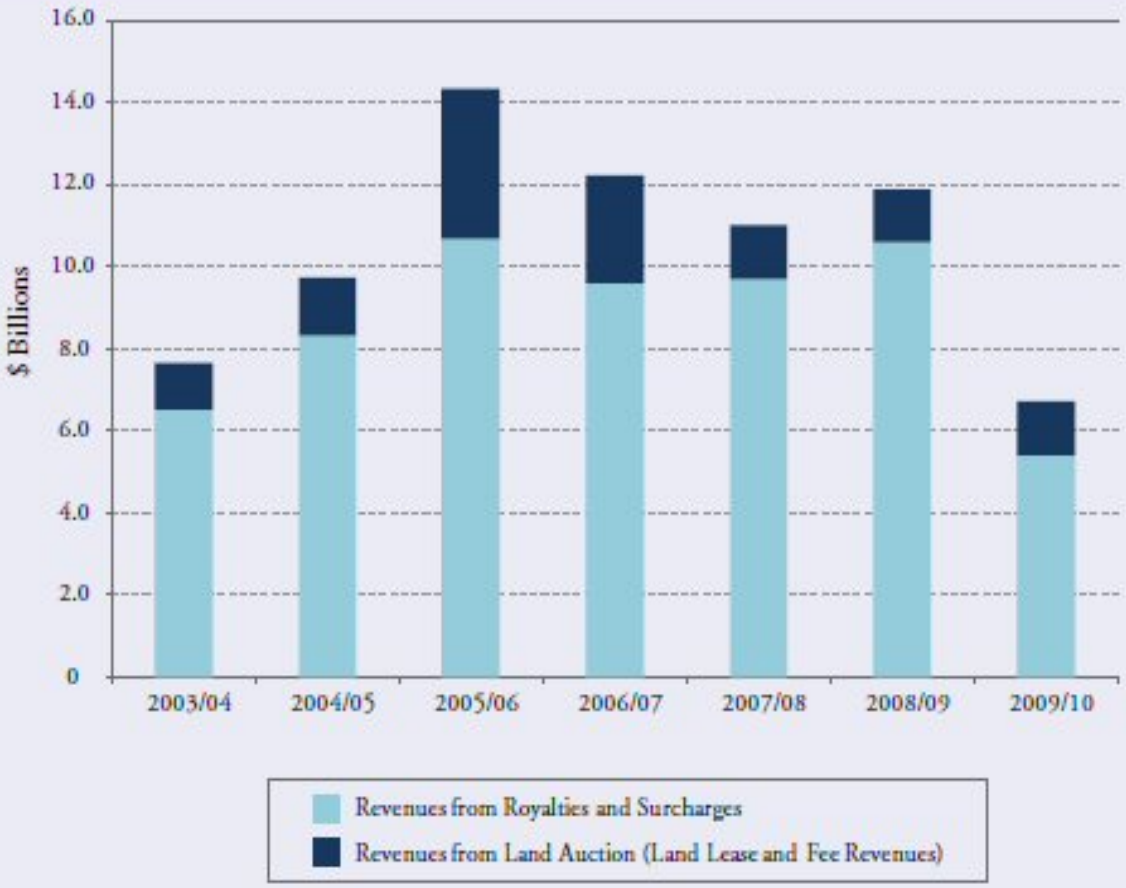
Lease Totals			
Region	**Bonus**	**Hectares**	**$/Ha**
Plains	6,753,000.24	28,946.34	233.29
Northern	11,255,414.40	13,120.00	857.88
Foothills	689,241.60	4,608.00	149.58
Total	**18,697,656.24**	**46,674.34**	**400.60**

Alberta's Revenue Sources from the Oil and Gas Sector

- Primarily bonus bidding and royalties (also corporate income taxes)

- See **Figure 1b** in Busby, Dachis and Dahlby

Figure 1b: Resource Revenues in Alberta from Auctions and Royalties, fiscal years 2003/04 to 2009/10



Sources: Public Accounts documents

Alberta's Royalty System

- Tax system for conventional oil and gas is an *ad valorem* royalty: depends on the value of the oil or gas sold. Formulas used are complex.
  - http://www.energy.gov.ab.ca/Oil/2344.asp (online royalty calculator)
  - http://www.energy.gov.ab.ca/Org/pdfs/OILFormulas2010.pdf *
  - http://www.energy.gov.ab.ca/Oil/pdfs/currentParPrice.pdf
  - http://www.energy.gov.ab.ca/Org/pdfs/ARFOilGraphs.pdf
  - *Transition Wells: measured depths between 1000m and 3500m, spudded between Jan. 1st, 2009 and Dec. 31st, 2013; may choose transition formulas.
- Royalties are received 'in kind' rather than in cash
- Many 'tweaks' to royalty system in past few years.
  - see **Table 1** in Busby, Dachis and Dahlby

Table 1: Minimum and Maximum Average Royalty Rates on New Wells, British Columbia, Alberta, and Saskatchewan

Energy Type	British Columbia	Alberta			Saskatchewan
		Pre-October 2007 Announcement	October 2007–March 2010	Post-March 2010 Announcement	
			(percent)		
Natural Gas	0–27	5–30	5–50	5–36	0–30
Conventional Oil	0–24	0–35	0–50	0–40	0–30
Oil Sands	N/A	pre-payout: gross revenue: 1	pre-payout: gross revenue: 1–9	pre-payout: gross revenue: 1–9	N/A
		post-payout: greater of gross revenue: 1 or net revenue: 25	post-payout: greater of gross revenue: 1–9 or net revenue: 25–40	post-payout: greater of gross revenue: 1–9 or net revenue: 25–40	
Effective Date (month, day, year):	gas: 6/1/1998 oil: 1/1/2000	7/1/1997	1/1/2009	1/1/2011	10/1/2002

Note: Minimum royalty rates based on low production levels. Rates for Pre-October 2007 announcement in Alberta are for new discoveries, rather than for new wells.
Sources: Alberta (2007c, 2010); Alberta Energy (2006a, 2011).

Alberta's Royalty System

- Tax system for oil sands is a "cash flow" tax that is different for 'pre-payout' and 'post-payout' stages of operation; new BRIK program
- Recognizes the high set-up costs involved in oil sands operations
- Pre-payout period (cumulative revenues less than the initial set-up costs), firms pay a percentage of gross revenues
- Post-payout period: pay the greater of a gross revenue tax (at a low rate) or a net revenue tax (at a higher rate)

See **Table 1** in Busby, Dachis and Dahlby

Empirical Results and Tentative Conclusions from Busby *et al*

- Increases in Royalties lead to decreases in bonus bidding revenues.
- From 2003 to 2007, Alberta bonus bid amounts for conventional oil and gas highly correlated with energy prices; including high bid amounts when ng prices spiked in 05-06
- Post-October 2007, Alberta movements in bid prices no longer as closely related to changes in energy prices (although bids did increase after the royalty change announcement)

Empirical Results and Tentative Conclusions from Busby *et al*

- The change in how closely Alberta bonus bids move with energy prices in late 2007 did not occur in Saskatchewan and BC
- Statistical analysis compares licences and leases for 'geologically' similar tracts along the provincial borders.
- Main finding: "revenues from bonus bids fell by about the projected revenue increase in royalty rates." (Busby *et al*, p.15)

More findings:

"We find that the average value of an exploration licence in Alberta fell by 59 percent due to the royalty increase, likely because licences are geared toward finding highly productive oil and gas reserves and the royalty increase was particularly high for these large deposits, which disproportionately reduced the expected return from exploring for them. The average value of a lease declined by only 21 percent .Leases are geared toward relatively low-yielding deposits, for which the royalty increase likely was negligible in many cases." (Busby *et al*, p.17)

Tax Systems in Various Jurisdictions

- See Table 1 in Mintz and Chen

Mintz and Chen (2012)

http://www.policyschool.ucalgary.ca/sites/default/files/research/mintz-chen-economic-rents-final.pdf