

Senate Resources Committee

**State Tax Policy
and Oil Production**

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Introduction

- **Nominal (legislated) severance tax rates**
- **Effective tax rates**
 - $(\text{dollars collected}) / (\text{value of production})$

Table 9.1. *Oil production (in Mbbl) and tax rates for selected U.S. states, 2007*

State	Production	Severance tax		Corporate income tax rate ^o
		Nominal rate	Effective rate	
Alaska	263,595	12.25–15% ^a	12%	1.0–9.4%
California	216,778	None	None	8.84%
Colorado	23,237	2–5% ^b	0.7%	4.63%
Kansas	36,490	4.33% ^c	3.0% ^l	4.0–7.35%
Louisiana	76,651	3.125–12.50% ^d	9.4%	4.0–8.0%
Montana	34,829	15.1% ^e	8.6%	6.75%
New Mexico	58,831	7.1% ^f	7.5% ^m	4.8–7.6%
North Dakota	45,058	5.0–11.5% ^g	– ⁿ	2.6–7.05%
Oklahoma	60,952	7.0% ^h	6.9%	6.0%
Texas	396,894	4.6% ⁱ	3.1%	1.0% ^p
Utah	19,520	3.0–5.0% ^j	2.4%	5.0%
Wyoming	54,130	4.0–6.0% ^k	5.3%	None

What is the effect of a change in the severance tax rate or a change in incentives to find new reserves?

- Oil Production
- Drilling Activity
- Severance Tax Collections

Simulation Model

- Based on Hotelling (1931) and Pindyck (1978)
- Profit maximization over time
 - Revenues earned by
 - Production from existing reserves
 - Exploration for new reserves
 - Costs
 - Drilling costs
 - Operating costs

Simulation Model (cont.)

- **Key features**
 - Compares costs to the amount produced
 - Accounts for interaction between state and federal tax collections
- **Uses U.S. data on production, costs, proven reserves, federal and state corporate tax rates, etc. and discount rate of 4%**
 - Not a model of a particular state
 - Not a model of Alaska

Four Scenarios

- **Severance Tax Rate = 0% (Model A)**
- **Severance Tax Rate = 12% (Model B)**
- **Severance Tax Rate = 25% (Model C)**
- **Severance Tax Rate = 25% with credit of 22% of drilling costs against severance tax liabilities (Model D)**

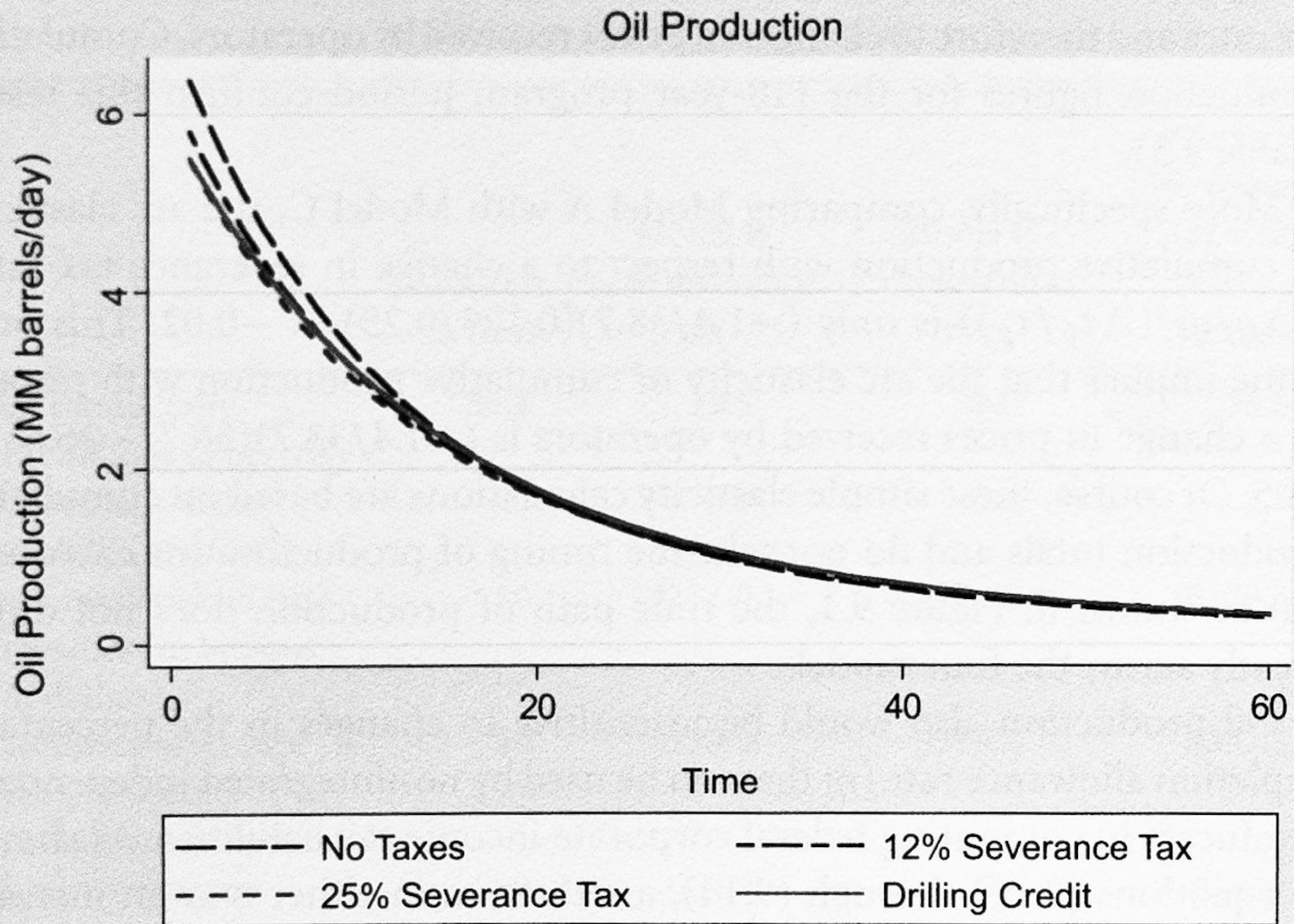
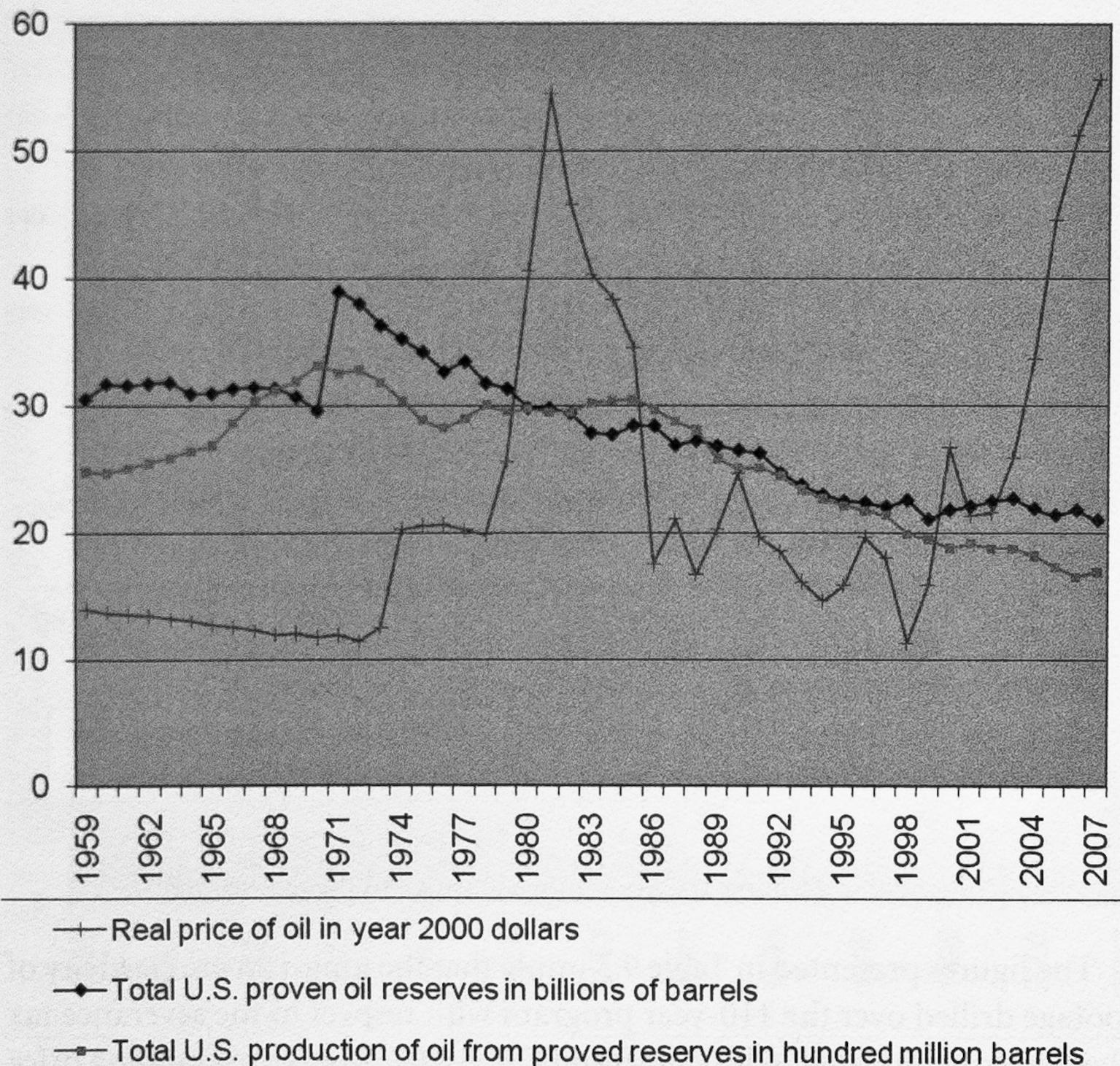


Figure 9.1. Oil production is quite insensitive to the tax structure in the U.S. case.



State Tax Policy and Oil Production

TABLE 9.3.

**TOTAL DRILLING, PRODUCTION,
TAX COLLECTIONS, PROFITS,
AND RESERVES FOR FOUR MODELS
OVER THE 110-YEAR PROGRAM**

	Model A no taxes	Model B 12% severance tax	Model C 25% severance tax	Model D 25% severance tax with drilling subsidy
Total production (in billions of barrels)	39.4	38.5	38.0	38.6
Total footage drilled (in billions of feet)	4.5	3.9	3.6	3.9
Discounted public land royalties (in billions of dollars)	\$0	\$131.0	\$126.3	\$129.3
Discounted severance tax Collections (in billions of dollars)	\$0	\$159.0	\$319.2	\$307.5
Effective severance tax Rate	0	0.109	0.228	0.212
Discounted state corporate income tax revenue (in billions of dollars)	\$0	\$60.9	\$49.6	\$50.8
Discounted federal corporate income tax revenue (in billions of dollars)	\$0	\$230.0	\$182.5	\$188.4
Discounted depletion allowance deductions (in billions of dollars)	\$0	\$119.2	\$114.9	\$117.7
Discounted pre-tax total revenue (in billions of dollars)	\$1,544	\$1,456	\$1,403	\$1,437
Discounted extraction costs (in billions of dollars)	\$186.3	\$151.8	\$130.1	\$133.0
Discounted drilling costs (in billions of dollars)	\$125.6	\$84.4	\$68.3	\$88.3
Discounted firm profits (in billions of dollars)	\$1,231	\$638	\$527	\$539
Beginning reserves (in billions of barrels)	20	20	20	20

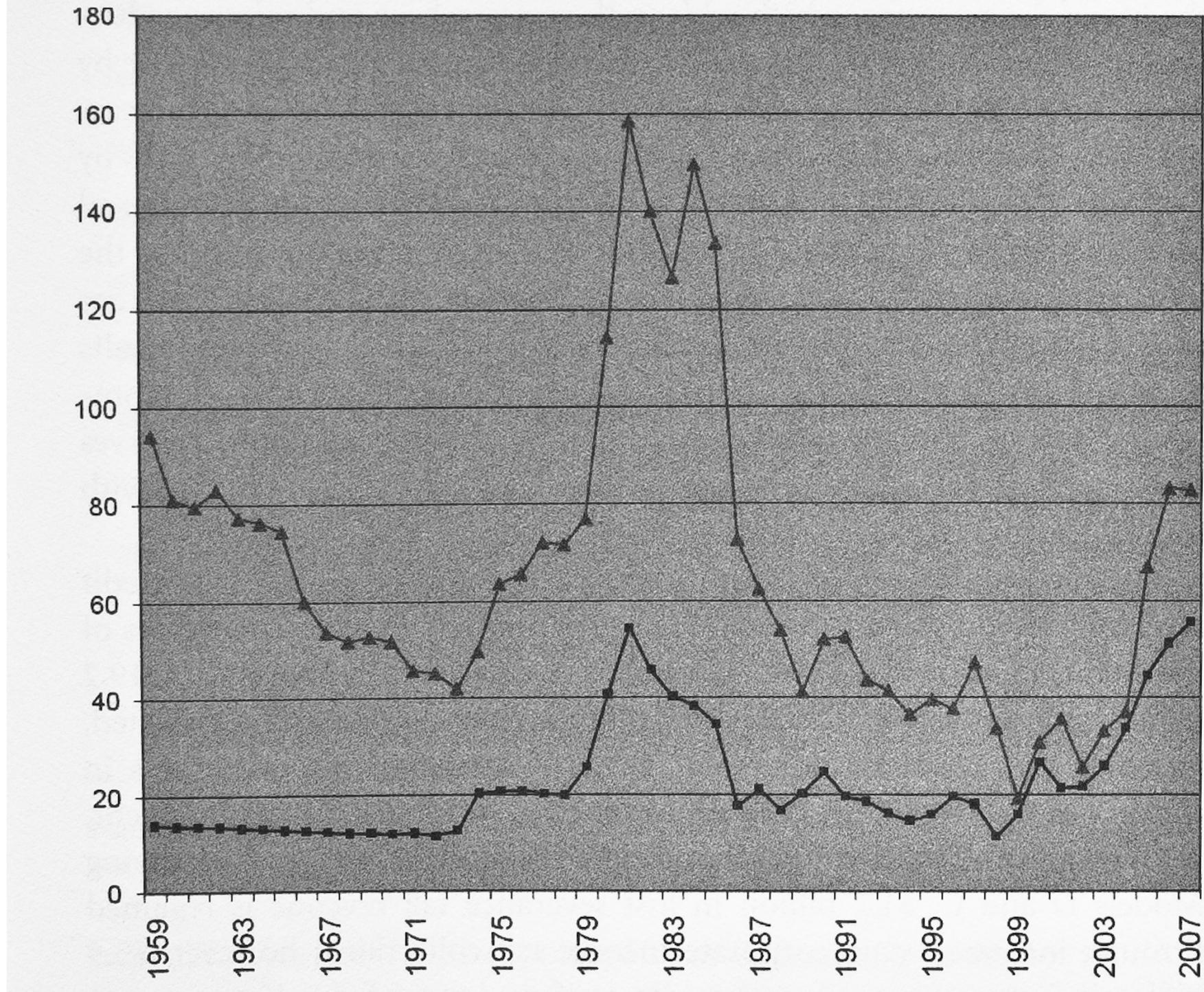


Figure 4. Price movements coincide with changes in footage of wells drilled.