

Senate Resources Committee

**State Tax Policy
and Oil Production**

Dr. Shelby Gerking

University of Central Florida and Tilburg University

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Introduction

- **Nominal (legislated) severance tax rates**
- **Effective tax rates**
 - **(dollars collected)/(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)**

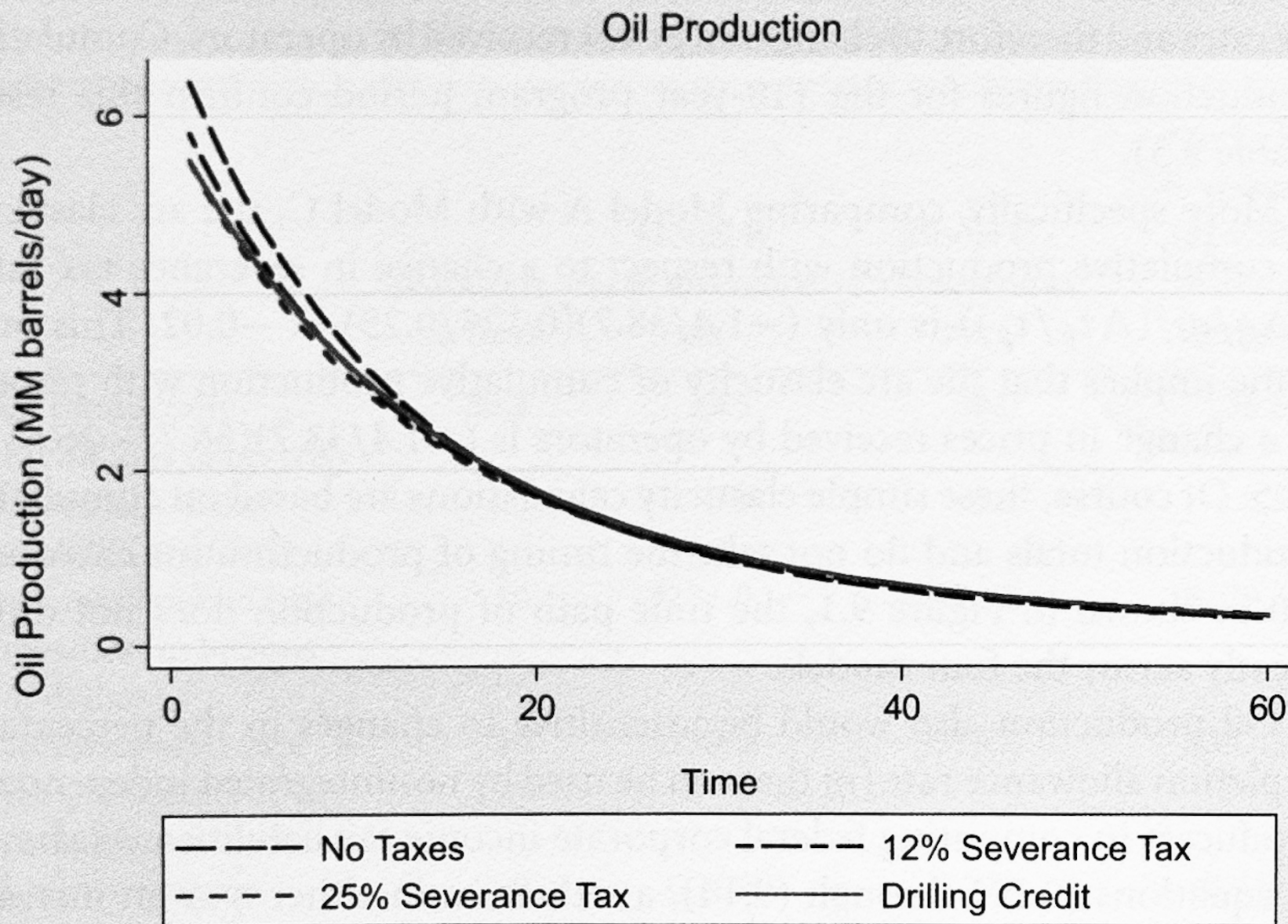
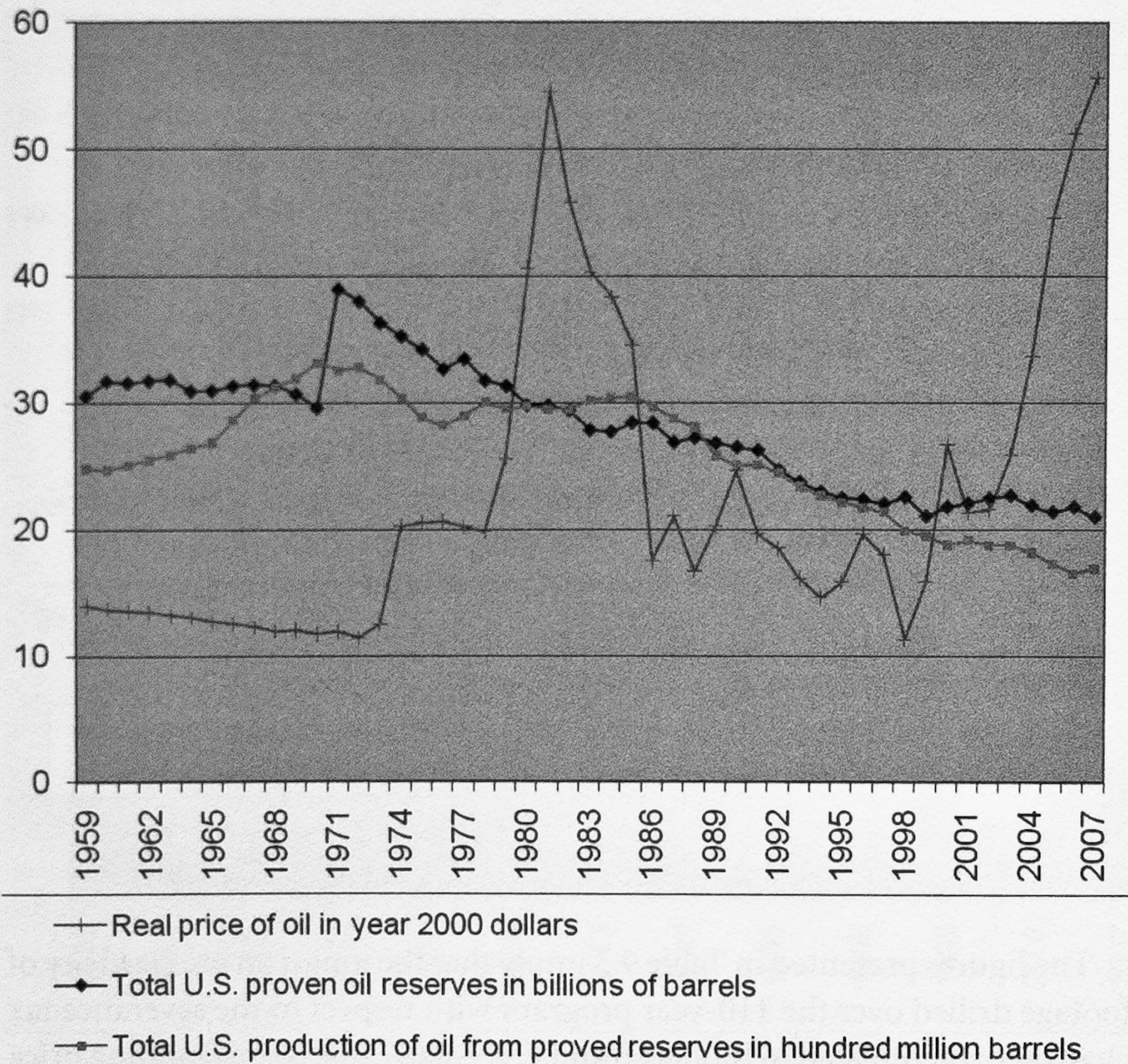


Figure 9.1. Oil production is quite insensitive to the tax structure in the U.S. case.



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**

State Tax Policy and Oil Production

| | 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 |

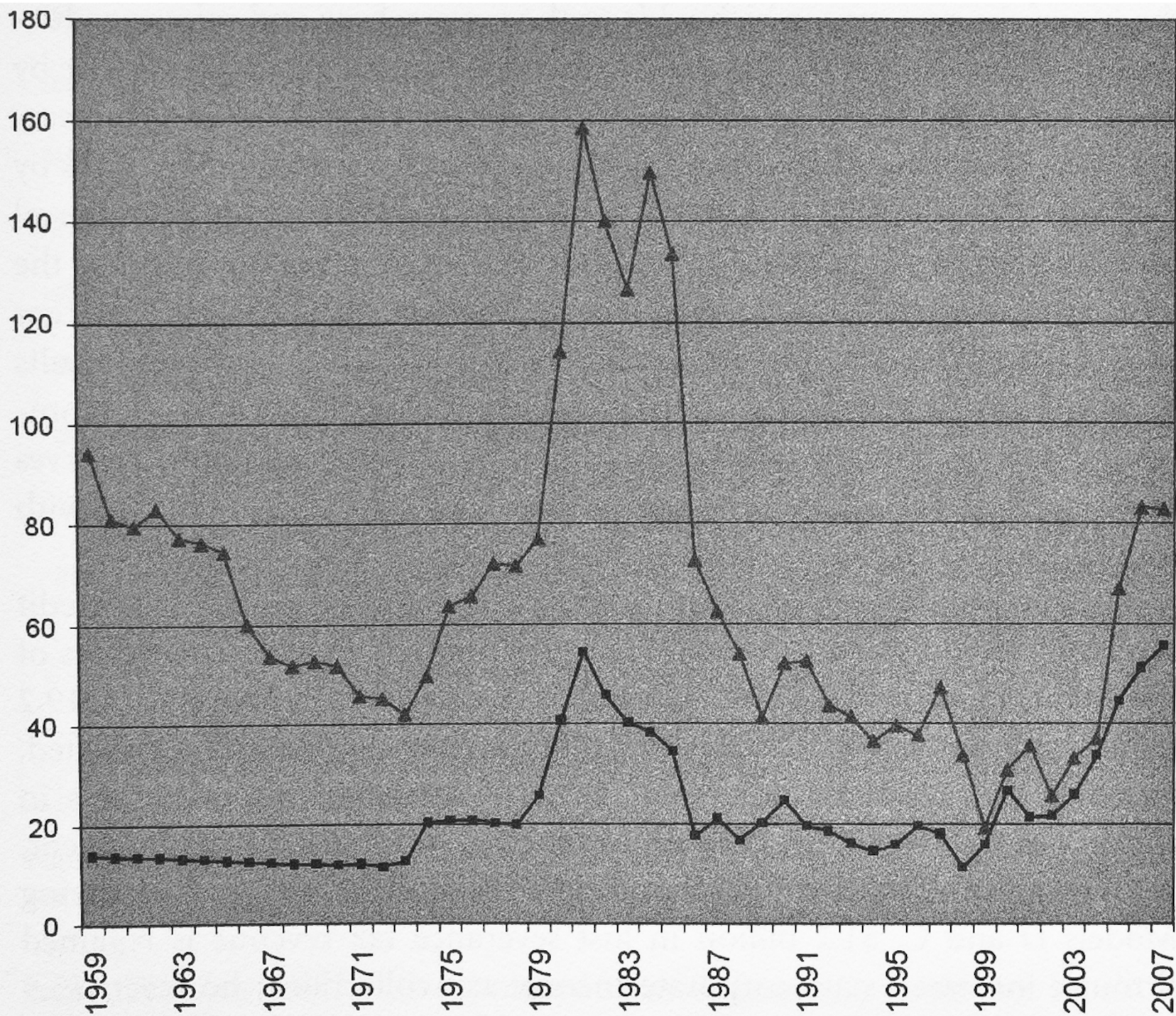


Figure 4. Price movements coincide with changes in footage of wells drilled.