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Taxation of Oil and Gas in the United States 1970-1997

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ABSTRACT

This article provides an extensive examination of all major types of taxes and royalties levied on the oil and gas industry by federal, state, and local governments in the United States during the 1970-1997 period. Important taxes levied on the oil and gas industry can be grouped into three broad categories based on their effects on resource extraction: (1) production, (2) property, and (3) income. Reliance on these three types of taxes differs substantially among the eight key states responsible for about 73 percent of U.S. oil and 83 percent of U.S. gas production (Alaska, California, Kansas, Louisiana, New Mexico, Oklahoma, Texas, and Wyoming). A detailed comparison of differences in institutional structure and effective tax rates for the eight major oil and gas producing states is presented.

I. OVERVIEW OF TAXATION CATEGORIES AND IMPACTS

Important taxes levied on the oil and gas industry in the United States from 1970-1997 can be grouped into three broad categories based on their effects on resource extraction—production, property, and

income. Production taxes are levied on the value (or volume) of the oil and gas as it is extracted from the ground or at the point of first sale.[1] These taxes are also referred to as severance taxes.[2] Certain production and/or transportation costs may be allowable as deductions in determining the taxable value. A simple comparative static analysis suggests that an increase in a production tax increases marginal costs and shifts the producer's marginal cost curve to the left, thereby reducing the rate of production. Conversely, a change in a property tax rate levied on reserves in the ground, or equipment, will tend to increase the rate of production as producers have an incentive to "mine out from under the tax." Finally, a state or federal corporation income tax levied on the accounting profits of the oil and gas firm (the difference between total revenue and total costs) would be predicted to have little or no effect on current production. However, unlike the concept of economic profit, accounting profit does not recognize the opportunity cost of capital. These ideas are elaborated below.

Taxes have what are called non-neutral effects[3] in that they distort the choices made by firms, including oil and gas firms, which are required to pay them. One reason distortions occur is because, once levied, a tax does not necessarily stay put.[4] When a tax is imposed on firms, their behavior is altered so that all or part of the tax burden may be shifted to other firms or individuals. In particular, effects of taxes on oil and gas extend beyond the producers and consumers of energy products. Therefore, oil and gas taxes have differential effects on a broad range of industries and consumers because energy is an important cost of production of many non-energy industries.

Analysis of the tax shifting, incidence (the ultimate burden of the tax), and interstate exporting of energy taxes has been the focus of considerable analysis.[5] Our focus here is the effects of state and local taxes on oil and gas firms in terms of their decisions to explore, develop, and produce. The product markets for oil and gas are competitive, so it can be expected that energy taxes in the short run, where capital is fixed in supply, will fall on the oil and gas producing firms. This situation will result in short-run effects on energy production from existing facilities

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1. *See* Mitch Kunce, *Effectiveness of Severance Tax Incentives in the U.S. Oil Industry*, 10 INT'L TAX & PUB. FIN. 565, 577-78 (2003) (providing a more detailed description of production taxes).

2. *See id.* at 565-67.

3. *See* ANTHONY B. ATKINSON & JOSEPH E. STIGLITZ, LECTURES ON PUBLIC ECONOMICS, 128-49 (1980).

4. *Id.* at 160-65.

5. For a comprehensive summary, see William E. Morgan & John H. Mutti, *Inter-regional Energy Tax Exportation: An Interpretative Survey*, 6 ENERGY J. 203 (1985).

and long-run effects on expenditures on exploration and investment in new facilities. All three categories of taxes alter decisions of the firm from the situation of no taxation. Since the purpose of taxation is to raise government revenue and since the three categories of state and local taxes all distort decisions, comparison of the effects of a particular type of tax with a situation where no tax is levied is not particularly useful. A better comparison is between one tax and another of equal revenue yield, referred to as "differential incidence."[6] Taxes distort economic decisions made by consumers and business, creating inefficiencies in the allocation of resources, and result in a loss in economic welfare above and beyond the tax revenue collected.[7] These economic losses are referred to as welfare effects, excess burden, or deadweight losses.

In the short run, with fixed capacity and assuming constant prices, a state severance tax relative to an equal yield state corporation income tax will reduce production from existing wells because the severance tax increases the marginal and average costs of production while the state corporate income tax does not. The increase in incremental costs will cause the producer to reduce output in any particular time period (perhaps by shutting in marginal wells) and may affect the level of extraction from the oil or gas reservoir. As the reservoir is being depleted, extraction or pumping costs increase. A severance tax increases these costs and thereby can reduce the fraction of oil or gas in place that is ultimately recovered, referred to as "high grading."[8]

An equal-yield corporation income tax will not have many deleterious short-run effects of a severance tax. Corporate income taxes are levied on accounting profits (total revenue minus total costs) and will not directly add to production costs. Additionally, independent producers may benefit from percentage depletion in the calculation of income tax liabilities. The short-run rate of production and fraction of oil or gas recovered should not be directly affected assuming the capital equipment is not mobile in the short run (*i.e.*, cannot be moved from one field to another).

A property tax on oil and gas reserves will tend to increase the rate of production in the early years of an extraction program relative to a corporate income tax.[9] A property tax can also affect the fraction of gas

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6.   *See* ATKINSON & STIGLITZ, *supra* note 3, at 178–80.

7.   *Id.* at 367–68.

8.   For a discussion on high grading, see Robert F. Conrad & Bryce Hool, *Resource Taxation with Heterogeneous Quality and Endogenous Reserves*, 16 J. PUB. ECON. 17, 22–31 (1981).

9.   Robert T. Deacon, *Taxation, Depletion, and Welfare: A Simulation Study of the U.S. Petroleum Resource*, 24 J. ENVTL. ECON. & MGMT. 159, 172–77 (1993).

or oil in place that is ultimately recovered. The tax is levied on the value of property per time period and therefore enters the decision as to whether or not to continue production in the final stages of depletion of the reservoir.

In the long run (allowing for adjustments in the quantity of capital equipment employed), the key issue with respect to these taxes is their effects on investment decisions in new capacity.[10] Investment in new capacity in mineral production has several interrelated components that are sequential—exploration for new deposits, investment in develop-ment facilities, extraction, and investment in transportation and refining/processing facilities in the case of integrated oil and gas firms. The general effect of any of the three taxes is to reduce the expected present value of net revenue accruing to the oil or gas firm and thereby reduce the level of investment. However, the severity of the investment dampening effects of taxation is not the same for each type of tax. The sequential nature of the exploration, development, extraction, and transportation/refining process allows the oil and gas firm to focus on one decision at a time. The level and form of taxation will affect decisions at each stage of the process. Therefore, the cumulative effects on investment may be substantial from taxes on the earlier stages in the sequence. Additionally, taxes on energy must be evaluated recognizing the long time interval from initial exploration to extraction, processing, and final sale. The long time horizon highlights the importance of risk and uncertainty in investment decisions.

One key difference between production and property taxes relative to the corporation income tax is due to the tax treatment of exploration costs. Income taxes are less depressing on exploration than property taxes.[11] Usually, in the case of an income tax exploration, costs are recognized in establishing taxable income either through amortization or expensing.[12] Such costs are not recognized in the case of production or property taxes. In consequence, a firm that has incurred substantial exploration costs will incur lower income tax liabilities than other oil and gas firms with comparable production but lower exploration costs. This differential effect is important in the case of the oil and gas industry where reserves are a smaller multiple of current

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10. For a more complete discussion of the long run effects of taxes on investment decisions of energy producing firms, see generally Terry Heaps, *The Taxation of Nonreplenishable Natural Resources Revisited,* 12 J. ENVTL. ECON. & MGMT. 14 (1985); Jeffrey A. Krautkraemer, *Nonrenewable Resource Scarcity,* 36 J. ECON. LITERATURE 2065 (1998).

11. Deacon, *supra* note 9, at 172-74.

12. *See generally* ALEXANDER JAY BRUEN ET AL., FEDERAL INCOME TAXATION OF OIL AND GAS INVESTMENTS (2d ed. Supp. 1996).

production than for other energy resources such as coal. Other things equal, income taxes would be expected to generate higher levels of exploration than a property tax of equal revenue yield. Further, a property tax on reserves would be expected to reduce exploration relative to a production tax. Production tax liabilities are not incurred until the oil or gas is extracted, but the property tax liability is based on the estimated value of the reserves in place, whether developed or not.[13] Property taxes tend to slow exploration and accelerate extraction in order to reduce taxable reserves.

All three types of taxes will reduce investment in development of oil and gas. Production and property taxes more adversely affect investments compared to a corporate income tax. Investment in higher quality oil and gas reservoirs will be reduced and some lower quality reservoirs may never be developed.[14] However, production and property taxes tend to increase risks associated with development faced by the firm relative to an income tax. With production and property taxes, additional output made possible by the development investment will create tax liabilities irrespective of profitability. Again, in the case of property taxes on reserves, a tax will be incurred before the development investment has taken place, thereby increasing the cost of owning the reserves. However, in the case of income taxation, tax liabilities are incurred only if accounting profits are generated. To the extent that new reserves are located in deeper and less accessible formations, development costs will be greater. Use of production and property taxes will be less favorable to development than income taxation.

To the extent that production and property taxes differentially reduce exploration and development relative to an income tax, lower investment in extraction will occur. However, once the investment decision reaches the extraction stage, the differential effects on the investment decision from alternative taxes may not be as great. Stated differently, the effects of taxation downstream in the exploration-development-extraction process may not be as important as taxes levied earlier. For example, Robert Deacon concludes from his intertemporal simulation model of the U.S. oil industry that property taxes cause the highest deadweight losses or excess burden, followed by production taxes, and that a corporation income tax from extraction imposes a very small deadweight loss.[15]

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13. Deacon, *supra* note 9, at 169.
14. *See* Conrad & Hool, *supra* note 8, at 21–22.
15. Deacon, *supra* note 9, at 176.

II. DESCRIPTION OF TAXES AND MEASUREMENT OF TAX RATES

This section more specifically describes the application of the types of taxes just discussed at the federal, state, and local levels. Taxes here are treated broadly to include aspects of special features such as deductions for depletion and treatment of royalties from production on public land. Tax rate measurement and data collection procedures for rate calculations also are emphasized. In order to provide key analytical points, tax structures and effective tax rates of eight major energy producing states (Wyoming, Texas, Oklahoma, Louisiana, New Mexico, Kansas, Alaska, and California) are compared. Alaska and California are included because they are major oil producers; however, they produce relatively small amounts of natural gas. Together, these states accounted for 73 percent of oil production and 83 percent of natural gas production in the United States in 1997.[16] Texas and Alaska are the major oil producing states, and Texas and Louisiana are the major gas producers.[17]

Federal Taxation

At the federal level, three main aspects of the U.S. tax code are included: the federal corporate income tax, the treatment of depletion, and the Windfall Profit Tax.[18] The federal corporate income tax is the most important business tax levied by the federal government. Annual information regarding federal corporate income tax rates is available from the Tax Foundation.[19] Depletion, which is unique to natural resource extraction, and the Windfall Profit Tax, which is unique to oil production, are singled out for an extended discussion because of interesting complexities.[20]

An important aspect of taxation of oil and gas is the treatment of depletion, particularly as it relates to the federal corporate income tax.

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16. U.S. CENSUS BUREAU, 1997 ECONOMIC CENSUS, MINING-INDUSTRY SERIES, *Crude Petroleum and Natural Gas Extraction* (1999), *at* www.census.gov/prod/ec97/97n2111a.pdf. (last visited Jan. 22, 2005). (Percentages computed from production data on table 2, at 7). For Alaska production, see U.S. DEP'T OF COMMERCE, ALASKA 1997 ECONOMIC CENSUS: MINING 7, 8 (Apr. 2000), *available at* http://www.census.gov/prod/ec97/97n21-ak.pdf (last visited May 19, 2005).
17. U.S. CENSUS BUREAU, *supra* note 16, at 10. U.S. DEP'T OF COMMERCE, *supra* note 16.
18. *See* Crude Oil Windfall Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229 (1980).
19. THE TAX FOUNDATION, FACTS & FIGURES ON GOVERNMENT FINANCE (Patrick Flennor ed., 31st ed. 1997). The Tax Foundation is a nonprofit, nonpartisan educational organization that monitors fiscal policies at the federal, state, and local levels.
20. BRUEN ET AL., *supra* note 12, at 7-1, 10-1.

Since the beginning of 1975, integrated oil and gas producers (those affiliated with refining and retailing) have been required to use cost depletion, but independent producers (considered non-integrated) have been able to continue to use percentage depletion, although at lower rates.[21]

Congress, in the Tax Reform Act of 1969,[22] reduced percentage depletion allowance from twenty-seven and one-half percent of gross income from the property to twenty-two percent.[23] In the Tax Reduction Act of 1975,[24] Congress

> eliminated percentage depletion altogether for oil and gas properties of the larger oil companies (*i.e.*, those affiliated with retailing or refining more than certain limited volumes)...restricted the availability of percentage depletion for oil and gas properties of other taxpayers to properties located in the United States and to certain quantities of production; and provided a phasing down both in quantities of production eligible for percentage depletion and in the rate of percentage depletion.[25]

The Windfall Profit Tax was levied by the federal government during the period of March 1980 through 1985 following price decontrol of oil at the wellhead.[26] It was a production tax on the difference between the market price of oil and the former regulated price adjusted for inflation. The tax was authorized by the Windfall Profit Tax Act of 1980[27] and was repealed by the Omnibus Trade and Competitiveness Act of 1988.[28] The Windfall Profit Tax was a form of production tax levied on domestic production of crude oil and was imposed to capture a significant portion of the price increases expected to result from price decontrol of crude oil. The tax is subject to deduction of the state severance tax. In turn, the Windfall Profit Tax is deductible in computing corporate income tax liabilities. There are three different categories into which taxable oil is classified, called tiers. The tax rates applied to the so-called windfall profit differ by Tier and also by whether or not the tax is applied to independent producer oil or other oil, which includes oil

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21. *Id.* at 7-2 to 7-5.
22. Tax Reform Act of 1969, Pub. L. No. 91-172, § 501, 83 Stat. 487, 629.
23. BRUEN ET AL., *supra* note 12, at 7-4 to 7-5.
24. Tax Reduction Act of 1975, Pub. L. No. 94-12, 89 Stat. 26.
25. BRUEN ET AL., *supra* note 12, at 7-4.
26. *Id.* at 10-5.
27. Crude Oil Windfall Profit Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229.
28. Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, § 1941, 102 Stat. 1107, 1322.

produced by integrated oil companies. With certain minor exceptions, the term "integrated producer," as applied to the Windfall Profit Tax, is the same as used in the application of depletion allowances.

Because information regarding the Windfall Profit Tax is not available on a state-by-state basis, the average effective Windfall Profit Tax per barrel was calculated (by the present authors) for each state on an annual basis for the period of March 1980–1985. Bruen et al. assumed that all oil subject to tax was Tier 1 oil, which consists of all taxable oil that is not classified as Tier 2 or Tier 3.[29] It includes all nonexempt domestic oil other than newly discovered oil, heavy oil, incremental tertiary oil, oil from stripper well property, and oil from a Naval Petroleum Reserve.[30]

The authors calculated the Windfall Profit Tax per barrel using the following procedure. The windfall profit per barrel equals the average annual market price in state *j* minus the base price minus the "severance tax adjustment."[31] The windfall profit tax per barrel equals the windfall profit per barrel times the windfall profit tax rate. For Tier 1 oil, the tax rate used in this study for each state is the weighted sum of the tax rate applied to production by integrated producers (0.7) and the tax rate applied to production by independent producers (0.5). For example, in the case of Wyoming for 1984, the average effective windfall tax rate equals the share of production by integrated producers (0.67) times the tax rate for integrated producers (0.7) plus the share of production by independent producers (0.33) times the tax rate for independent producers (0.5), or a weighted windfall profit tax rate of about 0.63. The base price mentioned above is the May 1979 upper Tier ceiling price under federal March 1979 energy regulations,[32] about $13 per barrel minus 21 cents. Adjustments to the base price were made each quarter for inflation occurring after June 30, 1979, by applying the gross national product deflator factor with a lag of two quarters.[33] Also, the severance tax rate referred to in the formula above applies to severance taxes levied at the state level. Local production taxes are not included.

The calculated value of the Windfall Profit Tax per barrel was adjusted to roughly account for three features of the Windfall Profit Tax Act. First, the tax per barrel was reduced by five sixths in 1980 to account for the fact that the tax applied to oil produced after February 29, 1980.

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29. BRUEN ET AL., *supra* note 12, at 10-6 to10-7.
30. *Id.* at 10-28.
31. Where "severance tax adjustment" equals severance tax rate in state *j* multiplied by the market price in state *j* minus the regulated price.
32. BRUEN ET AL., *supra* note 12, at 10-7.
33. For a listing of inflation factors by quarter, see *id.* at 10-41.

Second, the tax for Alaska was adjusted to account for the fact that the tax applied only to production at Prudhoe Bay. Third, the average effective weighted tax per barrel was adjusted downward in states with production from Indian lands to account for the fact that such production was exempt from the tax.

Finally, information on production by integrated and independent producers was required to calculate federal depletion allowances and Windfall Profit Tax liabilities. Annual data on production by firm were obtained directly from state oil and gas authorities for Alaska, California, Kansas, Oklahoma, and Wyoming[34] and from the Oil and Gas Directory and Production Survey published annually by R.W. Byram and Company for Louisiana, New Mexico, and Texas.[35] Information from these sources was used to identify the volume of production by integrated producers and independent producers and, in turn, their shares of total production. The number and names of integrated oil and gas companies has changed over time because of mergers and acquisitions. The percentages for years for which data were not available were calculated by interpolation. The percentages from one year to the next are quite stable, although there are trends in the share over time. For example, the relative importance of oil production in Wyoming by independent producers has increased steadily since the 1970s. The most difficult and time consuming data collection task, aside from obtaining the tax information from the states, was identifying the integrated producers and obtaining the volume of production of oil and gas for each integrated producer, by state and year.

State and Local Taxation

This subsection provides an overview of state and local taxation of oil and gas in the eight states listed at the beginning of this section as well as an explanation of steps required to collect data. Much of the data needed for this study required directly contacting the agencies in the respective jurisdictions by telephone because the data are not published

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34. All firm production data (along with the majority of state and local data described below) was solicited by telephone from state authorities in the summer of 1999. Each responding official (listed in the cover page acknowledgement) was asked to provide a Microsoft Excel file containing requested data. The authors retain merged Excel documents of all data collected for each of the eight states.

35. R.W. BYRAM & CO. SPECIALIZED OIL PUBLICATIONS, OIL & GAS DIRECTORY & PRODUCTION SURVEY OF LOUISIANA, 1997 ANNUAL PUBLICATION; R.W. BYRAM & CO. SPECIALIZED OIL PUBLICATIONS, OIL & GAS DIRECTORY & PRODUCTION SURVEY OF NEW MEXICO, 1982 ANNUAL PUBLICATION; R.W. BYRAM & CO. SPECIALIZED OIL PUBLICATIONS, OIL & GAS DIRECTORY & PRODUCTION SURVEY OF TEXAS, 1990 ANNUAL PUBLICATION.

or compiled in a common format. Each authority contacted was asked to provide a Microsoft Excel file containing all data requested.[36] Moreover, due to the state-specific and county-specific complexity of tax code, the institutional features of each state discussed below rely on telephone conversations with local officials.[37] Most other information required for the analysis was available from published sources. Annual data on state corporate income tax rates were obtained from the Tax Foundation[38] as well as information on whether or not federal corporate income tax liabilities are deductible from state corporate taxable income.[39] The American Petroleum Institute[40] and the Department of Energy[41] publish annual data on the average wellhead price of oil and gas and production in each state. The data used exclude oil and gas produced in the Outer Continental Shelf (OCS), which is not subject to taxation by the states. The data on wellhead price and volume of production of oil and gas in each state were used to calculate the value of oil and gas production. These data were then used to calculate the annual effective rates of taxation for state production and property taxes and effective royalty rates, the ratio of tax or royalty collections to the value of production.

One aspect of data collection of state and local taxes was to ensure that the production year was matched to the year of valuation of tax liabilities or collection of tax revenue. In the case of Wyoming, local (county) ad valorem tax collections are based on the previous year's production. For other taxes and states, the year of production and valuation were the same. This is due in part to the fact that the tax data were reported by many of the states in the form of tax liabilities rather than collections. For Texas and Louisiana, adjustments were made to the tax revenue data to account for several large tax protests or appeals. In these states tax revenue is reported in the year of the legal settlement rather than adjusting revenue for the year in which the tax liability was generated. Accordingly, the data were adjusted to reflect the latter

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36. The authors retain merged Excel files of all data collected for each of the eight states.

37. By doing so, the authors avoided the insurmountable task of tracing through the myriad of state and local tax codes.

38. *See supra* note 19 and accompanying text.

39. *See supra* note 19 and accompanying text.

40. *See* AM. PETROLEUM INST., BASIC PETROLEUM DATA BOOK (1970–1997).

41. *See* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, PETROLEUM SUPPLY ANNUAL (1970–1997), *available at* http://tonto.eia.doe.gov/bookshelf/XsearchResults.asp?fueltype=petroleum&title=&start=160 (1995) (last visited Jan. 20, 2005), http://tonto.eia.doe.gov/bookshelf/XsearchResults.asp?fueltype=petroleum&title=&start=170 (1995–1997) (last visited Jan. 20, 2005).

concept. In the case of Wyoming, tax revenue from tax protest and appeal settlements is assigned to the year the tax liability was created.

Tax administration procedures created problems in several states with respect to being able to obtain tax data, particularly information on local property tax liabilities. Property taxes are administered at the local (county) government level, but in most states, at least in recent years, the state government has a certain amount of oversight. The oversight takes various forms, from establishing property tax assessment procedures or assessing the property directly to collecting information and reporting statewide values of assessed property by category, including oil and gas extraction equipment and average state-wide mill levies for non-municipal property. In the case of Texas, oversight at the state level did not begin until 1981 with respect to school property taxes, which account for the majority of property taxes on the oil and gas industry. In consequence, the property taxes levied by over 250 counties plus special districts are not available prior to 1981. A similar problem exists with respect to the property tax on oil reserves in California prior to 1984 and royalties from production on school lands in Texas prior to 1974.

In summary, Alaska, New Mexico, Texas, Oklahoma, Louisiana, Kansas, and Wyoming levy production taxes on oil and gas, while California does not. Moreover, Wyoming has a production tax levied by local governments. Conservation taxes, levied by virtually all energy producing states, are excluded from this analysis because revenues generated usually are distributed to an oil and gas reclamation fund rather than a general revenue fund. Additionally, the tax rate is quite small, a fraction of one percent of the value of production. All of the eight states levy a corporate income tax except Wyoming and Texas. In some states, the federal corporate income tax liability is deductible in computing state corporation income taxes and in others it is not. While most of the states utilize some form of a property tax on oil and gas extraction equipment, only Texas and California levy property taxes on oil and gas reserves. In addition to these taxes, royalties from production of oil and gas on federal and state lands are included in the analysis. In most states, these royalties are deductible in computing severance tax liabilities. All states grant numerous tax incentives for special situations faced by operators. A more detailed state-by-state discussion is provided below.

Tax Rate Measurement

The myriad of exemptions, incentives, tax bases, special features, and frequent changes in tax laws, both at the state and federal government levels, create considerable complexity when tracking tax

law over time. Fortunately, there is a simpler way of dealing with taxes that does not require a detailed understanding of each state's tax law or an itemization of specific tax incentives. "Effective tax rate" analysis is an expression of the ratio of taxes (or royalties) collected from a particular tax to the value of production.[42] Thus, the calculation of effective tax rates fully accounts for all tax incentives granted against all types of taxes faced by industry.

Given the complexity of the federal, state, and local tax laws, particularly as they apply to oil and gas operations, it was necessary to make certain simplifying assumptions in order to estimate the average effective federal and state corporation income taxes. First, it was assumed that all oil and gas companies are incorporated and subject to the federal and state (if applicable) corporate income tax, since the majority of oil and natural gas is produced, refined, and sold by incorporated firms. Second, all state corporate tax rates were applied at the highest marginal rate if more than one rate exists. The average effective federal corporate income tax rate, by year, for oil and gas extraction was calculated using data from the U.S. Treasury (various years) for returns with net income.[43]

The historical financial analysis of the oil and gas industry presented here is focused on net operating income and costs.[44] The highest nominal federal corporation income tax rate in 1997 was 38 percent,[45] but the average effective rate calculated using the formula discussed above[46] was 10 percent. The same reasoning was applied in the calculation of average effective state corporation income tax rates for oil and gas extraction. The nominal or legal state corporation income tax rate was reduced to account for deductions that we could not calculate or estimate.[47]

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42. ATKINSON & STIGLITZ, *supra* note 3, at 29-30.
43. *See* INTERNAL REVENUE SERV., U.S. DEP'T OF THE TREASURY, STATISTICS OF INCOME, CORPORATION INCOME TAX RETURNS (1970-1997). Here, the federal tax rate equals federal corporate income tax receipts from oil and gas extraction divided by business receipts minus deductions (the sum of costs of sales and operations, taxes paid, amortization, and depletion).
44. Using legal federal corporation income tax rates would vastly overstate the tax liability because we cannot account for a number of the costs, particularly fixed costs that are deductible, such as interest paid, depreciation, compensation of officers, and the category "other deductions."
45. *See* Table 1 in INTERNAL REVENUE SERV., U.S. DEP'T OF TREASURY, I.R.S. PUB. 542 (1997), *available at* http://www.irs.gov/pub/irs-97/p542.pdf (last visited Jan. 20, 2005).
46. *See supra* text accompanying note 43.
47. This was accomplished using INTERNAL REVENUE SERV., U.S. DEP'T OF TREASURY, STATISTICS OF INCOME (SOI), CORPORATION INCOME TAX RETURNS, (1970-1997). Costs we could account for (the sum of costs of sales and operations, taxes paid, amortization, and

State Tax Structures

     The general aspects of the tax institutions for each of the eight major producing states as applied to oil and gas are outlined below. The tax structures differ by state depending on the particular taxes employed and the base for each tax. In addition, the taxes relevant to oil and gas and selected additional data collection issues for each state are discussed below.

     Wyoming. The state of Wyoming levies a severance tax on oil and gas production.[48] In addition, a production tax, known as the ad valorem tax, is levied at the local (county) level.[49] In Wyoming, royalty payments from production on state and federal lands are deductible in computing production tax liabilities.[50] Additionally, a county government property tax is levied on oil and gas equipment, including drilling rigs, oil and gas well equipment, gathering lines, and tank batteries.

     Total property tax liabilities were estimated on an annual basis by multiplying the total statewide assessed valuation for oil and gas equipment combined by the average statewide mill levy for all purposes (not including municipality levies). The total estimated property tax liability for oil and gas equipment was portioned between oil and gas based on the annual volume of oil production and natural gas production in Wyoming (where oil and gas are converted to equivalent barrels of oil, expressed in British Thermal Units or BTUs).[51] The average effective property tax rate on equipment is expressed as the ratio of the estimated tax liability for oil (or gas) equipment to the value of oil (or gas) production. Wyoming does not levy a state corporation income tax. Data for Wyoming was provided by the Department of Revenue.

     Texas. The state of Texas levies a state severance tax on oil and gas production,[52] and a property tax is levied at the local level on the estimated present value of minerals in the ground as well as structures

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depletion) were divided by total deductions for oil and gas extraction. Then, the average effective state corporation income tax rate used in the analysis was calculated by multiplying the highest state nominal corporation income tax rate by this percentage. For example, for Oklahoma in 1995, the nominal corporation income tax rate was six percent. Based on SOI data, this tax rate was multiplied by 0.66, the share of total deductions represented in our state data set, to arrive at an average effective tax rate of four percent.

    48.   WYO. STAT. ANN. §§ 39-14-202 to 39-14-204 (Michie 1999).

    49.   *Id.* § 39-13-104 (Michie 1999).

    50.   Federal royalty data for each state was provided directly by officials in the U.S. Department of the Interior, Minerals Management Service (July 1999).

    51.   In this calculation, 5626 cubic feet of gas equals one barrel of oil expressed in BTUs.

    52.   TEX. TAX CODE ANN. § 202.051 (Vernon 2002); TEX. TAX CODE ANN. § 201.051 (Vernon 2002).

and equipment. The taxation of oil and gas at the state level is similar to that of Wyoming. The state does not levy a corporate income tax. Royalties from public lands are deductible in computing severance tax liabilities. Information on property taxes for oil and gas are not available from a central source. In addition to a school property tax, both counties and special districts levy property taxes. School property tax revenue is available for oil and gas combined on an annual basis.[53]

Royalties from production on state lands are allocated to The Permanent School Fund,[54] which was established to provide investment income to support public education for students in grades kindergarten through twelfth, and the Permanent University Fund,[55] which has a similar purpose for public higher education in Texas. In the case of the University Fund, royalties from oil and gas production were provided separately for the period 1990–1997 and, for earlier years, royalties were provided for oil and gas combined. The latter were portioned between oil and gas based on the total annual value of oil production and natural gas production in Texas. Similarly, School Fund royalties were provided separately for oil and gas from 1986–1997. For the earlier years they were reported as an aggregate and were separated based on the total annual value of Texas oil and natural gas production.

Louisiana. The state of Louisiana levies a severance tax[56] on the value of oil and gas production and a corporation income tax.[57] Royalties from production on public lands are not deducted in computing severance tax liabilities. The federal income tax is deductible in computing state corporate income tax liabilities. The property tax is levied on oil and gas wells and surface equipment and is administered at the parish (county) level. Officials from the State Department of Revenue, Severance Tax Division[58] provided the severance tax information. Property tax information, which consists of a time series on the assessed value of oil and gas wells and surface equipment and the

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53. Telephone interview with John Kennedy, Texas Taxpayer Research Association, (July 1999). School tax revenue was grossed up by five eighths to approximate total oil and natural gas property tax revenue statewide. This total was allocated between oil and gas based on the estimated gross value of oil reserves relative to gas reserves (price of oil, or gas, times the estimated volume of reserves, by year).

54. TEX. PERMANENT SCHOOL FUND, TEX. EDUCATION AGENCY, TEXAS PERMANENT SCHOOL FUND, *at* http://www.tea.state.tx.us/psf/ (last visited Jan. 24, 2005).

55. Red River Authority of Tex., *The Permanent University Fund, in* THE HANDBOOK OF TEXAS   ONLINE,   *at*   http://www.rra.dst.tx.us/c_t/Government/PERMANENT%20 UNIVERSITY%20FUND.cfm (last visited Jan. 24, 2005).

56. LA. REV. STAT. ANN. § 47:631 (West 1990).

57. *Id.* § 47:31(3).

58. LA. DEP'T OF REVENUE, *available at* http://www.rev.state.la.us/sections/business /severance.asp (last visited Jan. 24, 2005).

statewide average weighted mill rate was provided by the Louisiana Tax Commission.[59] These data were used to calculate property tax liabilities for oil and gas combined. Totals were portioned between oil and gas property tax revenue based on the total annual value of oil production and natural gas production. Information on royalties and production of oil and gas on state lands was provided by officials of the State of Louisiana, Department of Natural Resources, Technology Assessment Division.[60]

 Oklahoma. The state of Oklahoma levies a severance tax[61] on oil and gas production, and a corporate income tax[62] is employed. Royalties from production on public lands are deductible in computing severance tax liabilities, but federal corporate taxes are not deductible in the computation of state corporate income tax liabilities. There is no tax on oil and gas properties. Severance tax revenue data were obtained from the Oklahoma Tax Commission.[63] The data for the period 1988–1997 were available in directly useable form, while the data for the earlier years were compiled for oil and gas revenue combined. The latter were portioned between oil revenue and gas tax revenue based on the total annual value of oil production and natural gas production in Oklahoma. The Oklahoma Tax Commission[64] provided the information to calculate the value of production from public lands, and the Commissioner of the Land Office[65] provided the data on oil and gas royalty from production on school lands in directly useable form.

 Kansas. In Kansas, the key taxes at the state level are a severance tax[66] on oil and gas production and a corporation income tax.[67] The severance tax was implemented beginning May 1983.[68] Royalties from production on public lands are not deductible in computing severance tax liabilities. Royalties from production on state lands are unimportant, amounting to less than $80 thousand annually. Federal corporate tax liabilities were deductible in computing state corporate tax liabilities in

 59. *See* La. Tax Comm'n, *at* http://www.latax.state.la.us/ (last visited Jan. 25, 2005).

 60. TECH. ASSESSMENT DIV., LA. DEP'T OF NAT. RES., OIL AND GAS PRODUCTION, *at* http://www.dnr.state.la.us/SEC/EXECDIV/TECHASMT/data/index_oil_gas.htm (last visited Jan. 19, 2005).

 61. OKLA. STAT. tit. 68, § 1001 (2004).

 62. *Id.* § 1203.

 63. OKLA. TAX COMM'N, *at http://www.oktax.state.ok.us/* (last visited Jan. 19, 2005).

 64. *Id.*

 65. COMM'RS OF THE LAND OFFICE, *at* http://www.state.ok.us/~clo/ (last visited Jan. 19, 2005).

 66. KAN. STAT. ANN. § 79-4217(a) (2003).

 67. *Id.* § 79-32,110(c).

 68. *See* KAN. DEP'T OF REVENUE, *at* http://www.ksrevenue.org/index.htm (last visited Jan. 19, 2005).

1970 but not thereafter.[69] A local government property tax is levied on royalty and working interest and itemized equipment that is not part of the production equipment as of the first day of January for the tax year.

The Kansas Department of Revenue, Mineral Tax Bureau[70] provided data on severance taxes. Property tax information was obtained from the Kansas Department of Revenue, Mineral Tax Division.[71] Property tax data were provided for the period 1993–1997 for oil and gas separately. For 1989–1992, tax totals were obtained and portioned between oil and gas based on the state volume of production. The data for 1983–1988 were obtained in directly useable form, and for the earlier years back to 1970, the property tax revenue for oil and gas were portioned between oil and gas property based on volume of production.

Alaska. Alaska has a state corporation income tax,[72] a severance tax,[73] and a property tax[74] on capital improvements and equipment. Again, oil in Alaska was the focus of the tax analysis. Alaska is not an important producer of natural gas.[75] The federal income tax is not deductible in computing state corporation income tax liabilities. Royalties from production on public lands are deductible in computing the severance tax. The state has an alternative minimum specific severance tax of $0.80 per barrel of oil.[76] In consequence, when the ad valorem tax falls below $0.80, the specific tax is used. The Reserve Tax, known as the Early Development Incentive Credit,[77] was created for the years 1976 and 1977. Under the Reserve Tax, taxes were prepaid and credits were taken against the petroleum production tax during the years 1978, 1979, and 1980. The purpose of the Reserve Tax was to finance public expenditures associated with the construction of the oil pipeline.[78] Aside from revenue generated by the Reserve Tax, the vast tax revenue and royalty payments associated with oil production in Alaska did not

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69.   Telephone Interview with Larry Newman, Tax Administrator, Kansas Department of Revenue (July 1999).

70.   MINERAL TAX BUREAU, KAN. DEP'T OF REVENUE, *at* http://www.ksrevenue.org/index.htm (last visited Jan. 19, 2005).

71.   *Id.*

72.   ALASKA STAT. § 43.20.011 (Michie 1997).

73.   *Id.* § 43.55.

74.   *Id.* § 43.56.

75.   *See* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, TOP NATURAL GAS PRODUCING STATES, 2003, *at* http://www.eia.doe.gov/neic/experts/natgastop10.htm (last visited Jan. 20, 2005).

76.   ALASKA STAT. § 43.55.011(c) (Michie 1997).

77.   ALASKA ADMIN. CODE tit. 15, § 58.130 (repealed Jan. 1, 2002).

78.   Telephone Interview with Chuck Logsdon, Chief Economist, Alaska Department of Revenue (July 1999); *see* ALASKA STAT. § 43.58 (repealed 1984).

begin until after completion of the Trans-Alaska Pipeline System in
1978.[79]

   California. The focus of the tax analysis for California is oil since
California is not a major gas producing state.[80] At the state level, the key
tax on the oil industry is the corporation income tax[81] and the federal
corporate income tax is not deductible. There is no severance tax in
California. The property tax is administered at the county level and
includes surface property, equipment, and the estimated value of
mineral reserves. Since there are no statewide tax revenue data on oil
property, information from Kern County officials, which accounts for
seventy percent of oil production in California, was used to represent the
statewide average.[82] A time series of the estimated property tax
expressed in cents per barrel of oil produced was obtained from the
Chief Appraiser, Oil and Gas Division of Mineral Rights, Kern County.[83]
Total state property tax revenue was estimated by multiplying the
property tax per barrel times the total number of barrels of oil produced
in California. Royalty information relating to production on public lands
was obtained from the California State Lands Commission.[84] The royalty
rate for production on state lands is about 18 percent, with a floor of one
sixth.[85] However, this floor can be reduced if it can be demonstrated by a
study that it is economically feasible for old wells to continue production
if the royalty rate is reduced.[86]

   New Mexico. The state of New Mexico levies a number of
separate production taxes on oil and gas, referred to as oil and gas
extraction taxes. The taxes consist of the Oil and Gas Severance Tax,[87] Oil
and Gas Emergency School Tax,[88] Oil and Gas Ad Valorem Production
Tax,[89] and Oil and Gas Production Equipment Tax.[90] The revenues
collected are reported for oil and gas combined. The totals were
portioned to oil and gas based on the annual value of oil and natural gas

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   79.   *See* ALASKA DEP'T OF REVENUE, *at* www.revenue.state.ak.us (last visited Jan. 20,
2005).
   80.   *See* ENERGY INFO. ADMIN., *supra* note 75.
   81.   CAL. REV. & TAX. CODE § 23,151 (West 1998).
   82.   Telephone Interview with Brad Dewitt, Chief Appraiser, Oil and Gas Division of
Mineral Rights, Kern County, California (July 1999).
   83.   *Id.*
   84.   CAL. STATE LAND COMM'N, *available at* http://www.slc.ca.gov/ (last visited Jan. 20,
2005).
   85.   *See* Telephone Interview with Brad Dewitt, *supra* note 82.
   86.   *Id.*
   87.   N.M. STAT. ANN. § 7-29-4 (Michie 2001).
   88.   *Id.* § 7-31-4.
   89.   *Id.* § 7-32-4.
   90.   *Id.* § 7-34-4.

production. An additional tax is levied on natural gas, the Natural Gas Processors Tax.[91] For purposes of the analysis here, the separate taxes are combined to form one production tax whose effective tax rate is total tax collections per year divided by the annual value of production.

The New Mexico Taxation and Revenue Department, Oil and Gas Bureau[92] provided information concerning severance taxes. Royalties from production on public lands are deductible when establishing valuation for the production taxes. Information on royalties from production on state lands was obtained for the period 1995–1997 from the State of New Mexico Commissioner of Public Lands.[93] For earlier years, the information was obtained from the Taxation and Revenue Department. There is no separate property tax on oil and gas equipment. Equipment is taxed through the Oil and Gas Production Equipment Tax mentioned above, where the assessed value is nine percent of the sales value of the product of each production unit. Additionally, the state of New Mexico levies a corporation income tax.[94] Federal corporate income tax liabilities are not deductible in computing the state tax liability.

III. COMPARISON OF EFFECTIVE TAX RATES

As discussed above, state tax structures are compared based on effective rates of taxation. These effective rates fully account for all tax incentives that have been granted to oil and gas operators in each state. Thus, the effective rates calculated generally are lower than the nominal rates of tax that would prevail if no incentives had been granted. Effective rates were computed annually for the period 1970–1997 and are shown in Table 1 for oil and Table 2 for natural gas for the years 1970, 1975, 1980, 1985, 1990, and 1997.[95]

In the case of production and property taxes, as well as state and federal royalties, the effective rate is the ratio of tax collections or liabilities to gross value of production. The effective rate for state corporate income taxes is the highest nominal (legal) rate, reduced to account for tax deductions we could not calculate directly by state for the

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91. *Id.* § 7-33-4.
92. *See* OIL & GAS BUREAU, N.M. TAXATION & REVENUE DEP'T, AD VALOREM PRODUCTION TAX RATES AND MATRICES (2004), *available at* http://www.state.nm.us/tax/ogas/oaginter.htm (last visited Jan. 20, 2005).
93. N.M. STATE LAND OFFICE, *at* http://www.nmstatelands.org/Default.aspx (last visited Jan. 20, 2005).
94. N.M. STAT. ANN. § 7-2A-5 (Michie 2001 & Supp. 2004).
95. As noted previously, for certain states some of the tax information was not available for some of the earlier years.

oil and gas industry. Also shown in each table is the Windfall Profit Tax (WPT), expressed in dollars per barrel of oil, by state. The final column in each table indicates the share of production of oil or natural gas accounted for by nonintegrated producers (NI), beginning in 1975.

The comparison of the effective tax rates highlights the substantial differences between the tax structures of the energy producing states and the relative importance of production on public lands. Beginning with oil, Table 1 shows that Wyoming relies on state and local production taxes as major sources of oil revenue. Royalties from production on public lands are a major revenue source for the federal government, as a large share of Wyoming's oil and gas production is on federal land. State production and local property taxes are the major revenue sources in Texas. In the case of Louisiana, state production taxes and royalties from production on state lands are important sources of revenue. Louisiana also levies a state corporation income tax. In Oklahoma, the state production tax is most significant. Oklahoma also levies a state corporate income tax. Property and production taxes are major revenue sources in Kansas, and a corporate income tax is also levied. In Alaska, the state production tax and royalties from production on state lands are the most significant sources of revenue, and a corporate income tax exists. In California, the property tax on reserves is most important and a corporation tax is levied. Royalties from production on state lands have diminished in importance in California during the 1990s. In New Mexico, production taxes and royalties from production on both federal and state lands are significant sources of revenue, and a corporation income tax also exists.

Another useful perspective is to compare each source of revenue across states. Regarding production taxes, the effective taxes are highest in Alaska, Wyoming (state and local combined), and Louisiana, all with effective tax rates in excess of ten percent in 1997. Effective rates are lowest in Kansas and Texas, and California does not levy a production tax. In 1997, effective property taxes were highest in Texas (4.4%), Kansas (4.3%), and California (3.4%). The highest effective tax rates on operating profits of the oil and gas extraction industry, and industry in general, are levied in Alaska and California. Again, Texas and Wyoming do not levy corporation income taxes. The key factor determining effective royalty rates is the volume of production on public lands.[96] In 1997, Alaska (14%) and Louisiana (5.7%) had the highest effective state royalty rates.

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96. Royalty revenues are generated from production on state and federally owned lands. States with higher shares of publicly owned land typically generate higher royalty revenues.

The highest effective federal royalty rate occurs in Wyoming (8.2% in 1997), followed by New Mexico (4.8%).

The Windfall Profit Tax varies across states for any given year primarily because of differences in market prices and the relative importance of production by independent versus integrated producers. The Windfall Profit Tax is much lower in Alaska because of lower market prices, which reflect the high cost of transporting oil to markets in the continental United States. The tax rates, shown in Table 1, for 1980 and 1985, are lower than for the intervening years when market prices of oil were higher, particularly in 1981 and 1982.

As discussed above, the federal corporation income tax rate, used for all states, equals corporation income tax receipts from oil and gas extraction divided by business receipts, minus certain costs we were able to calculate by state. The effective tax rates (not depicted in the state tables) are as follows: 31% in 1970, 42% in 1975, 21% in 1980, 14% in 1985, 10% in 1990, and 10% in 1997. The steady decline in these rates between 1974 and 1986 is due primarily to the decrease in nominal corporation income tax rates during this period[97] and reflects the decrease in reliance on business-type taxes at both the federal and state levels, particularly during the 1980s.

The final column of Table 1 shows the share of oil production accounted for by nonintegrated producers. While the figure is important in calculating accounting profits and the Windfall Profit Tax, it also provides insight into the structure of the oil industry in the major energy producing states. In the states of Wyoming, Texas, Louisiana, Oklahoma, and New Mexico, the share of production accounted for by independent producers has increased steadily since 1975, and, in all of these states, production by independents now accounts for over 50 percent of total production. The association between the major decline in the relative importance of production by integrated producers and their loss of percentage depletion beginning in 1975 is noteworthy. Independent producers have always dominated production in Kansas, a relatively unimportant oil producing state. Conversely, integrated producers have accounted for the vast majority of oil production in Alaska, concentrated at Prudhoe Bay. California is the only major oil producing state in which the share of production by integrated producers has increased significantly since 1975.

The tax structures for natural gas (see Table 2) are quite similar to oil, although nominal production tax rates differ between oil and gas in some states. Notable differences occur in Kansas and New Mexico.

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97.   *See* I.R.C. § 11(b)(1).

Both states are important natural gas producing states, but relatively unimportant oil producers. In Kansas, effective property and production tax rates are higher for natural gas than oil. The pattern is similar for New Mexico, where production tax and royalty rates from public lands are considerably higher for natural gas than oil. In Louisiana, effective tax rates are considerably lower for natural gas than for oil, largely due to lower nominal or legal tax rates. Specifically, the legal tax rate on oil is 12.5% and the rate for natural gas is not less than seven cents per one thousand cubic feet, adjusted annually. State corporate income tax rates, not shown again in Table 2, are the same for natural gas and oil. They are calculated for the oil and gas extraction industry.

A comparison of effective rates by tax across states shows a pattern somewhat similar to oil. In 1997, Wyoming (state and local combined) and New Mexico had the highest effective tax rates on natural gas production, 12.4% and 11%, respectively. Kansas had the highest effective property tax rate. Effective state royalty rates were highest in Louisiana and New Mexico, and federal rates were highest in Wyoming and New Mexico, reflecting the importance of production on public lands in these states.

Finally, the basic organizational structure of the natural gas industry differs somewhat from that of the oil industry in some states, at least in terms of extraction. For example, integrated producers account for the majority of natural gas production in Wyoming, but not oil production. However, in the major oil and gas producing states of Texas, Louisiana, and Oklahoma, independent companies account for the major share of production of both natural gas and oil, and their share of production has been rising steadily.

CONCLUDING COMMENT

Extending the comparisons of taxes among the energy producing states further, to the point of ranking states in terms of their total or cumulative tax burden on the oil and gas extraction industry, is not particularly fruitful here and may be misleading. As noted in the preceding sections, the three types of taxes, production, property, and income, have different effects on production, exploration, and development. Moreover, extraction, exploration, and development costs differ among the energy producing states as well. State and local taxes are but one element affecting decisions to produce, explore, and develop nonrenewable resources and should be considered in tandem with other key factors such as expected price and reserves.

Table 1: Effective Oil Tax Rates, by State[a]

Wyoming

Year	Production State	Production Local	Royalties State	Royalties Federal	Property	WPT	NI[b]
1970	0.009	0.049	0.009	0.076	0.002		
1975	0.036	0.048	0.009	0.076	0.001		.290
1980	0.032	0.052	0.007	0.076	0.001	4.07	.306
1985	0.051	0.061	0.008	0.077	0.002	3.93	.341
1990	0.054	0.061	0.007	0.080	0.001		.432
1997	0.048	0.062	0.008	0.082	0.002		.581

Texas

Year	Production	Royalties State	Royalties Federal	Property	WPT	NI[b]
1970	0.042	0.003	0.00002			
1975	0.043	0.015	0.00001			0.227
1980	0.037	0.015	0.00002		4.21	0.367
1985	0.044	0.011	0.00005	0.024	5.24	0.432
1990	0.033	0.007	0.00012	0.031		0.495
1997	0.043	0.009	0.00058	0.044		0.611

Louisiana

Year	Production	Royalties State	Royalties Federal	Property	Corp. Income	WPT	NI[b]
1970	0.068	0.055	0.001	0.0046	0.030		
1975	0.119	0.046	0.001	0.0033	0.032		0.05
1980	0.153	0.038	0.001	0.0018	0.057	3.20	0.122
1985	0.105	0.040	0.001	0.0033	0.050	5.08	0.406
1990	0.120	0.039	0.001	0.0036	0.050		0.456
1997	0.104	0.057	0.001	0.0040	0.056		0.523

Oklahoma

Year	Production	Royalties State	Royalties Federal	Corp. Income	WPT	NI[b]
1970	0.052		0.004	0.03		
1975	0.080	0.002	0.004	0.03		0.661
1980	0.079	0.002	0.003	0.03	6.91	0.691
1985	0.061	0.002	0.003	0.03	4.10	0.808
1990	0.068	0.002	0.003	0.03		0.716
1997	0.065	0.002	0.004	0.04		0.853

Kansas

Year	Production	Federal Royalties	Property	Corp. Income	WPT	NI[b]
1970	.000	0.001	0.076	0.050		
1975	.000	0.001	0.058	0.055		0.961
1980	.000	0.000	0.044	0.048	8.78	0.968
1985	0.034	0.000	0.056	0.042	3.65	0.955
1990	0.026	0.001	0.029	0.043		0.976
1997	0.025	0.001	0.043	0.051		0.970

Alaska

Year	Production	Royalties		Property	Corp. Income	WPT	NI[b]
		State	Federal				
1970	0.031	0.145	0.0193	0.000	0.07		
1975	0.073	0.182	0.0168	0.018	0.07		0.031
1980	0.076	0.094	0.0005	0.017	0.07	1.52	0.009
1985	0.122	0.121	0.0008	0.011	0.06	0.00	0.002
1990	0.099	0.099	0.0004	0.009	0.06		0.003
1997	0.128	0.140	0.0004	0.007	0.07		0.005

California

Year	Royalties		Property	Corp. Income	WPT	NI[b]
	State	Federal				
1970	0.032	0.008		0.052		
1975	0.052	0.008		0.073		0.474
1980	0.050	0.006		0.064	5.25	0.496
1985	0.041	0.006	0.028	0.060	2.66	0.409
1990	0.025	0.006	0.033	0.059		0.339
1997	0.006	0.003	0.034	0.062		0.360

New Mexico

Year	Production	Royalties		Corp. Income	WPT	NI
		State	Federal			
1977	0.041	0.025	0.042	0.045		0.262
1980	0.033	0.017	0.041	0.043	5.14	0.265
1985	0.060	0.032	0.036	0.045	5.22	0.319
1990	0.056	0.019	0.046	0.048		0.438
1997	0.055	0.019	0.048	0.053		0.654

[a] All effective rates are tax or royalty collections, or liabilities, divided by the gross value of production, except for corporation income and windfall profit taxes (WPT). The former is the highest nominal or legal state marginal tax rate reduced to account for tax deductions not reflected in the state data for the oil and gas extraction industry–the latter is expressed in dollars per barrel of oil. The last column depicts the share of total state oil production attributable to nonintegrated (NI) producers.

[b] The last column depicts the share of total state gas production attributable to nonintegrated (NI) producers.

Table 2: Effective Gas Tax Rates, by State[a]

Wyoming

Year	Production State	Production Local	Royalties State	Royalties Federal	Property	NI[b]
1970	0.008	0.045	0.008	0.071	0.007	
1975	0.033	0.047	0.009	0.071	0.005	.450
1980	0.039	0.062	0.008	0.064	0.001	.422
1985	0.043	0.057	0.009	0.079	0.002	.337
1990	0.056	0.063	0.008	0.085	0.003	.341
1997	0.056	0.068	0.009	0.103	0.004	.431

Texas

Year	Production	Royalties State	Royalties Federal	Property	NI[b]
1970	0.082	0.004	0.00007		
1975	0.067	0.015	0.00003		0.416
1980	0.066	0.015	0.00001		0.428
1985	0.080	0.011	0.00007	0.019	0.548
1990	0.057	0.009	0.00012	0.019	0.667
1997	0.044	0.007	0.00170	0.024	0.713

Louisiana

Year	Production	Royalties State	Royalties Federal	Property	Corp. Income	NI[b]
1970	0.109	0.033	0.0011	0.0065	0.030	
1975	0.142	0.031	0.0010	0.0062	0.032	0.077
1980	0.037	0.030	0.0004	0.0046	0.057	0.175
1985	0.024	0.035	0.0004	0.0089	0.050	0.335
1990	0.050	0.037	0.0013	0.0111	0.050	0.437
1997	0.034	0.041	0.0019	0.0130	0.056	0.579

Oklahoma

Year	Production	Royalties State	Royalties Federal	Corp. Income	NI[b]
1970	0.052	N/A	0.003	0.03	
1975	0.080	0.003	0.003	0.03	0.5847
1980	0.079	0.003	0.003	0.03	0.6142
1985	0.061	0.003	0.004	0.03	0.7287
1990	0.068	0.003	0.004	0.03	0.7509
1997	0.065	0.003	0.003	0.04	0.8113

Kansas

Year	Production	Federal Royalties	Property	Corp. Income	NI[b]
1970	.000	0.002	0.076	0.050	
1975	.000	0.003	0.058	0.055	0.6
1980	.000	0.002	0.044	0.048	0.6
1985	0.065	0.002	0.131	0.042	0.6
1990	0.066	0.003	0.084	0.043	0.6
1997	0.042	0.004	0.064	0.051	0.6

New Mexico

Year	Production	Royalties State	Royalties Federal	Corp. Income	NI[b]
1977	0.085	0.050	0.073	0.045	0.556
1980	0.082	0.041	0.074	0.043	0.559
1985	0.113	0.058	0.075	0.045	0.492
1990	0.134	0.045	0.068	0.048	0.496
1997	0.110	0.037	0.100	0.053	0.628

[a] All effective rates are tax or royalty collections, or liabilities, divided by the gross value of production, except for corporation income taxes. The latter is the highest nominal or legal state marginal tax rate reduced to account for tax deductions not reflected in the state data for the oil and gas extraction industry.

[b] The last column depicts the share of total state gas production attributable to nonintegrated (NI) producers.