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COAL TAXATION IN THE WESTERN STATES: THE NEED FOR A REGIONAL TAX POLICY

Coal is the most abundant and potentially the most valuable mineral energy resource of the United States. The decline in domestic crude oil production, growing shortages of natural gas, and rising prices and reduced availability of foreign oil all point to an increased reliance on coal as an energy source.¹

More than half of the estimated identified coal resources remaining in the ground in the United States as of January 1, 1972, were located in the ten states of the Western Governors' Energy Conference.² The coal in this region is the only low-sulfur strippable coal in the United States.³ The purpose of this Comment is to encourage these states to cooperate in the formation and implementation of a regional tax policy for coal extraction. The goals of resource taxation as they relate to coal and the theory of the taxation of coal will be examined. Then a survey will be made of the taxes imposed on the coal industry in these states. Last, a proposal will be made for a regional coal taxation scheme which could result in *Pareto optimality*⁴—the optimum condition for a comparative tax structure.

GOALS OF RESOURCE TAXATION

The most important goal of a regional tax policy should be to assist each state in realizing its state tax goals. This will be a relatively simple task if state tax goals are uniform. The search for uniform tax

1. Leistriz & Voelker, *Coal Resource Ownership: Patterns, Problems, and Suggested Solutions*, 15 Nat. Res. J. 643 (1975). See also Habicht, *The Northern Plains Coal Resource—Case Study in Public Nonpolicy*, in *Energy: Demand, Conservation, and Institutional Problems* 249 (M. Macrakis ed. 1974).

2. Averitt, *Coal*, in *United States Mineral Resources* 133, 135, 137 (1973) (hereinafter cited as Averitt). The ten states in the conference are Arizona, Colorado, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Utah and Wyoming. There are no coal resources located in Nebraska or Nevada. South Dakota's resources are negligible, and there is no major mining. Therefore, those states will not be considered in this note.

3. *Id.* "Sulfur is an undesirable element in coal. It lowers the quality of coke and of the resulting iron and steel products. It contributes to corrosion, to the formation of boiler deposits, and to air pollution. Its presence in spoil banks inhibits the growth of vegetation. As sulfuric acid, it is the main deleterious compound in acid mine waters, which contribute to stream pollution." *Id.* at 135.

4. Pareto optimality is a criterion of welfare economics, named after Vilfredo Pareto (1848-1923), the Italian scientist who pioneered in developing the concept of economic efficiency. Pareto optimality is more fully discussed under the Heading Optimum Tax.

goals that would be acceptable to all states in the region is the purpose of this section.

It seems fundamental that the most important goal of an extractive resources tax policy for any state should be to establish a tax which will return maximum revenues to the state while not harming the competitive position of its extractive industries.⁵ Closely related to this goal is the proper role of taxes in determining a proper rate of depletion in relation to the mining company's profitability.⁶

A second important goal is providing for the general economic development of the state.⁷ The most important contribution of mining firms (or any other firms) to the state's economy is not taxes but jobs. One study in New Mexico indicated that every payroll dollar spent in the state generated up to an additional five dollars in sales in the local economy.⁸ The state income and gross receipts taxes thereby generated provide far more state tax revenues than would a higher tax rate on a given taxpayer or industry.⁹ The mining firm also creates jobs in support industries and businesses with its other operating expenditures and capital investments.¹⁰ This is so important that it has even been suggested that there be a reduced tax rate for firms which have low or negative net income.¹¹ This would also encourage the continued operation of firms which are encountering marginal ore,¹² that is, ore which is increasingly more costly to extract. It would, of course, subsidize all marginal firms, thus including those that are simply not operated efficiently. At the least, the state should not impose a tax which has the effect of making a previously profitable (but marginal) firm unprofitable.¹³

Some underlying considerations concerning these goals and the taxation of extractive industries cannot be ignored. One is whether

5. Jones, *The Struggle for Equitable Taxation of Mines—The New Mexico Example*, 16 Rocky Mt. Min. Law Inst. 463, 478-79 (1971).

6. Vickrey, *Economic Criteria for Optimum Rates of Depletion*, in *Extractive Resources and Taxation* 315, 322 (M. Gaffney ed. 1967).

7. Jones, *supra* note 5, at 480-81.

8. Blumenfeld, *A Preview of the Input-Output Study*, 18 N.M. Bus. 18 (1965).

9. Bingaman, *New Mexico's Effort at Rational Taxation of Hard Minerals Extraction*, 10 Nat. Res. J. 415, 421 (1970).

10. New Mexico Mining Association, *Position Statement*, in Supp. No. 1 N.M. Legislative Council Service, *A Program for Tax Revision in New Mexico* 291, 401 (1968).

11. Jones, *supra* note 5, at 481.

12. "The terms . . . *paramarginal*, and *submarginal* designate successively lower degrees of economic recoverability; paramarginal resources are defined as low-grade resources that are recoverable at prices as much as 1.5 times those prevailing now, and submarginal resources are those of still lower grade." Brobts & Pratt, *Introduction*, in *United States Mineral Resources* 3 (1973).

13. Comment, *Approaches to State Taxation of the Mining Industry*, 10 Nat. Res. J. 156, 169 (1970).

mineral resources should be subjected to a heavier burden of taxation than other real estate. A subsidiary question, for the purposes of this note, is whether coal should bear a different burden of taxation than other minerals. There are three principal theories for heavier taxation: (1) mineral resources are a natural heritage for the depletion of which the state should be compensated;¹⁴ (2) since mineral resources do not reproduce themselves, and thus diminish in value, their extraction should be taxed more heavily;¹⁵ and (3) the tax base of the state is depleted as the resource is depleted and the extractive industries should pay for this.¹⁶ Upon analysis, the arguments for imposing heavier taxes on mineral resources are not altogether convincing. There may be some reasons, however, for imposing a different tax on coal than other mineral resources.

Certainly, mineral resources are a natural heritage but no more so than surface land or, in a sense, human resources.¹⁷ A tax should have a neutral effect on the allocation of resources;¹⁸ that is, it should not encourage the depletion of mineral resources at the expense of surface or any other resources. However, coal, as an energy resource, may be sufficiently different from other non-energy mineral resources to justify a different tax. A tax on coal must be economically neutral with respect to other energy resources. It should not encourage the conservation of coal at the expense of oil or other energy resources. A simple illustration may help make the point. Suppose that given the existing tax structure and an economy with only two energy resources, coal and oil, the national annual consumption of oil is 1,000 barrels, and of coal, 1,000 tons. If a tax is imposed on oil extraction such that it is cheaper to extract less oil than coal, resulting in the consumption of 800 barrels of oil and 1,500 tons of coal annually, the tax is non-neutral. One reason this might occur is that it is more profitable to use coal gasification than to pay the added tax on oil. The tax in this example causes a distortion of what would presumably be the optimum allocation.

It is also true that minerals are a wasting asset, that is, they do not reproduce themselves. Conservationists formerly believed that present consumption should be reduced to preserve a stock of minerals to be consumed in the future. High taxes are one method of dis-

14. Allen, *Ad Valorem Versus Severance Taxation of Minerals*, in Proceedings of the Forty-Fifth Annual Conference on Taxation of the National Tax Association 574, 576 (1952).

15. *Id.*

16. Jones, *supra* note 5, at 466.

17. Allen, *supra* note 14.

18. Steele, *Natural Resource Taxation: Resource Allocation and Distribution Implications*, in *Extractive Resources and Taxation* 233 (M. Gaffney ed. 1967).

couraging present consumption. Present thought, however, is that because of the accelerated rate of technological advance in finding non-wasting substitute resources, there is increasingly less reason for conserving resources merely for the sake of having more minerals underground at any given future date.¹⁹ This would seem especially true for energy resources such as coal because of the tremendous amount of research being conducted in the utilization of non-wasting energy resources. Contrary to the idea of taxing extractive firms more heavily, it has even been suggested that some allowance be made for them; since the quantity of unrecovered resources diminishes with extraction, profitability may also diminish.²⁰

The state's tax base is depleted as its mineral resources are depleted. This is not of primary concern, however, for two reasons. First, a conversion will probably have been made to non-wasting energy resources long before coal resources are depleted. Second, the revenues which are no longer being derived from the extraction of coal can be derived from taxation of the production of the energy resources which replace it.

Complete economic neutrality should be maintained at this time between coal and other energy resources because of the present energy crunch. Society, at this time, simply cannot afford the waste associated with non-neutrality.

Thus, the tax imposed on coal should not be heavier than on any other mineral resource unless this is necessary to maintain economic neutrality between coal and other energy resources.

Another consideration is that state and municipal governments have usually issued bonds on the basis of the revenues expected from taxes.²¹ The contracts clause of the federal constitution²² prohibits a state from passing any law which will impair the obligation of contracts. Statutes relating to raising revenue to pay state or municipal bonds which exist at the time the bonds are issued enter into and become a part of the bond contract.²³ Thus, any state statute or constitutional amendment which reduces the tax rate²⁴ or changes the basis or manner of assessment²⁵ so as to result in a revenue yield

19. *Id.* at 248.

20. Allen, *supra* note 14.

21. Jones, *supra* note 5, at 483.

22. U.S. Const. art. I, § 10.

23. *United States ex rel. Von Hoffman v. Quincy*, 71 U.S. (4 Wall.) 535 (1867). See cases cited in Annot., 156 A.L.R. 1264, 1265 (1945).

24. *United States ex rel. Gaines v. New Orleans*, 17 F. 483 (CC 1883), *rev'd on other grounds*, 131 U.S. 220 (1889). See cases cited in Annot., 156 A.L.R. 1264, 1272-73 (1945).

25. See cases cited in Annot., 156 A.L.R. 1264, 1275-77 (1945).

that would be insufficient to pay the outstanding bonds is unconstitutional because it impairs the obligation of contracts.

Thus goals that would be best for any state are (1) to maximize revenues without harming the competitive position of state industry; (2) to promote the general economic development of the state; (3) to ensure the economic neutrality of taxes between coal and all other energy resources; and (4) to ensure that any change in the scheme of taxes would not unconstitutionally impair the obligation of contracts.

The only realistic hope for all states in the region to optimize conditions under these goals (and thereby achieve Pareto optimality) is to cooperate in establishing comparative tax structures. This concept seems to have already been grasped by the Western Governors' Energy Conference. A policy statement noted "It has become obvious to our ten western states that we must move in concert to protect our citizens and our environment as we seek to provide our share of energy for the nation in a situation where comprehensive national energy policy is not fully stated or clearly defined."²⁶

Taxes in any one state that are substantially greater than those of other states will cause valuable industries to move to states with comparatively lower tax structures. Conversely, tax rates that are lower than those of other states will create an unnecessary loss of available revenues and will also result in earlier extraction than would otherwise occur.²⁷

The most efficient economy is one in which a state of Pareto optimality exists.²⁸ Pareto optimality will be examined later in this Comment. The important thing to note at this point is that Pareto optimality can be achieved by either perfect competition or central planning.²⁹ Since perfect competition is an unrealistic assumption in the coal industry,³⁰ achieving Pareto optimality will depend on cooperative planning among the states.

There is also an important environmental reason for cooperation.

26. Western Governors' Regional Energy Policy Office, *Policies and Positions*, July 29, 1975, at 2.

27. Jones, *supra* note 5, at 480.

28. R. Leftwich, *The Price System and Resource Allocation* 382 (5th ed. 1973); W. Nicholson, *Intermediate Microeconomics and Its Application* 481 (1975); O. Herfindahl & A. Kneese, *Economic Theory of Natural Resources* 40 (1974).

29. Leftwich, *supra* note 28, at 393; Herfindahl & Kneese, *supra* note 28, at 45.

30. There are only a few sellers [See U.S. Dep't of Interior, 2 *Minerals Yearbook* 1972 at 92, 169, 437, 492, 532, 723, 804 (1974)]; absence of perfect knowledge; and significant barriers to entry and exit in the industry because of high capitalization costs; See also Habicht, *The Northern Plains Coal Resource—Case Study in Public Nonpolicy*, in *Energy: Demand, Conservation, and Institutional Problems* 249 (M. Macrakis ed. 1974).

Suppose that given the existing development of coal resources, one state decides to impose an additional tax for the sole purpose of environmental repair. This will have the same effect as any other increase in taxes, penalizing the state that is environmentally responsible to the advantage of the states that are environmentally irresponsible. This could not happen if all the states acted in concert, however, because the only source of low-sulfur, strippable coal lies within this region. Coal mining operations may be induced to move if the tax burden becomes too onerous. But they are limited by the constraint that they can only move to another location with coal.³¹

It should be noted that there may be some reasons for not creating a regional tax policy. First, each state has its own taxing goals and these may be totally irreconcilable—especially if they are non-economic goals. Second, optimum efficiency might be better achieved through competition among the states in the region rather than through combination—essentially an oligopsony. Lastly, even if a regional tax policy was deemed important, the mechanics of making it work are tremendously complicated. Initially, it would require cooperation among seven governors and seven state legislatures. Enormous amounts of capital would be needed to fund a regional agency to research the problem and develop the sophisticated computer program that would be required to attain general equilibrium. This writer, however, believes that the benefits outweigh the disadvantages.

THE THEORY OF THE TAXATION OF COAL

The title of this section should be qualified by noting that, regretably, there is no such thing as *the* theory of the taxation of coal. There is, in fact, no single, comprehensive statement of the theory or theories of the taxation of natural resources in general or coal in particular.³² Nevertheless, there has been an abundance of work on various aspects of the problem.³³ This section speaks in terms of extraction and taxation of coal even though the concepts apply equally to extraction and taxation of all mineral resources.

31. In the long run, of course, capital could leave coal mining entirely and move to another endeavor. This seems totally unrealistic given the demand for coal resources today. The market price of coal would surely be responsive enough to obviate the necessity of abandoning coal mining all together; and as Lord Keynes said, in the long run we're all dead.

32. Extractive Resources and Taxation xvii (M. Gaffney ed. 1967); 4 N.M. Legislative Council Service, A Program for Tax Revision in New Mexico 9 (1968); Jones, *supra* note 5, at 466. The field is ripe for a treatise on the subject.

33. See Extractive Resources and Taxation, *supra* note 32, and the references following each essay.

Federal taxes will not be considered because it is assumed that these taxes will fall equally on all operations regardless of location.³⁴ Coal mining operations are subject to many of the state taxes to which other business activity is subject, for example, the corporate income tax, franchise taxes, sales and use taxes, unemployment insurance taxes and privilege or license taxes. Another section of this Comment will survey these taxes in the states of this region. The main emphasis of this section, however, will be on taxes peculiar to coal or other mineral resources—either by their nature or application. These taxes are property taxes, based upon the value of real and personal property; and severance taxes, based upon either physical units or value of production. There will also be a brief discussion of three taxes that have been proposed for coal mining but are not generally used—the net-income tax, the value-added tax, and the royalty tax. In addition, brief mention will be made of the corporate income tax because of its importance in some states. This section is not intended to be a thorough economic analysis of the various taxes but a survey of the literature.

Taxes affect the profitability of the mine and consequently the rate of depletion. Because of this relationship it is necessary to have some understanding of the theory of the mine.

*The Theory of the Mine*³⁵

It may generally be said that a mining company will extract only those resources³⁶ which it can profitably remove. The resources which a company cannot profitably remove are said to be economically depleted or exhausted. In other words, the cost of extraction has risen to the point at which none of the mineral product is demanded.³⁷ Those resources will not be extracted until they become

34. This is a simplifying assumption which may or may not be realistic depending upon the tax skill of the firms under consideration.

35. This section is taken, except as otherwise noted, from Scott, *The Theory of the Mine Under Conditions of Certainty*, in *Extractive Resources and Taxation* 25 (M. Gaffney ed. 1967).

36. "A fundamental concept in the evaluation of mineral resources is the distinction between resources and reserves. . . . [T]he principal distinction is based on current economic availability: reserves are known, identified deposits of mineral-bearing rock from which the mineral or minerals can be extracted profitably with existing technology and under present economic conditions; whereas resources include not only reserves but also other mineral deposits that may eventually become available—either known deposits that are not economically or technologically recoverable at present, or unknown deposits, rich or lean, that may be inferred to exist but have not yet been discovered." D. Brobst & W. Pratt, *supra* note 12, at 1-2 (1973).

37. Herfindahl & Kneese, *supra* note 28, at 115.

reserves,³⁸ that is, until changes in market price, technology or other factors make extraction economically feasible.³⁹

The theory of the mine starts with some simplifying assumptions, some of which could later be relaxed. This section will not cover the relaxation of the assumptions, since it is not necessary to a general understanding of the theory of the mine.

The initial assumptions are (1) The coal reserves in the mine are completely known; (2) The owner invests, borrows and lends at the same rate of interest; (3) The owner's objective is to maximize the present value of the coal mine in every period;⁴⁰ (4) Profit can be maximized in the short run only by adjusting the rate of extraction (depletion), and in the long run by adjusting the capacity of the mine [this note will not examine the long run effects of taxes]; and (5) Conditions are constant through time. This latter assumption has three aspects: the reserves are of a uniform grade throughout their known total volume;⁴¹ supply prices of all inputs, except the coal itself, delivered to the mine and the selling price of all products f.o.b. at the mine are given, fixed and unchanging through time, since the mining company is always a price-taker; and the firm knows these costs and prices with complete certainty.

Given these assumptions, a typical cost structure of a mining firm is represented in Figure 1. If an owner were only given one period of time within which to operate a mine, after which he would lose it without scrap value or compensation, he would maximize his profits by operating at point B, that is, where marginal cost (MC) equals price (P). More realistically, since the owner knows the capacity of his plant, the total amount of reserves, and the present and future prices of his inputs and output, he will maximize profits by producing (extracting) at that rate at which his mining cost per ton

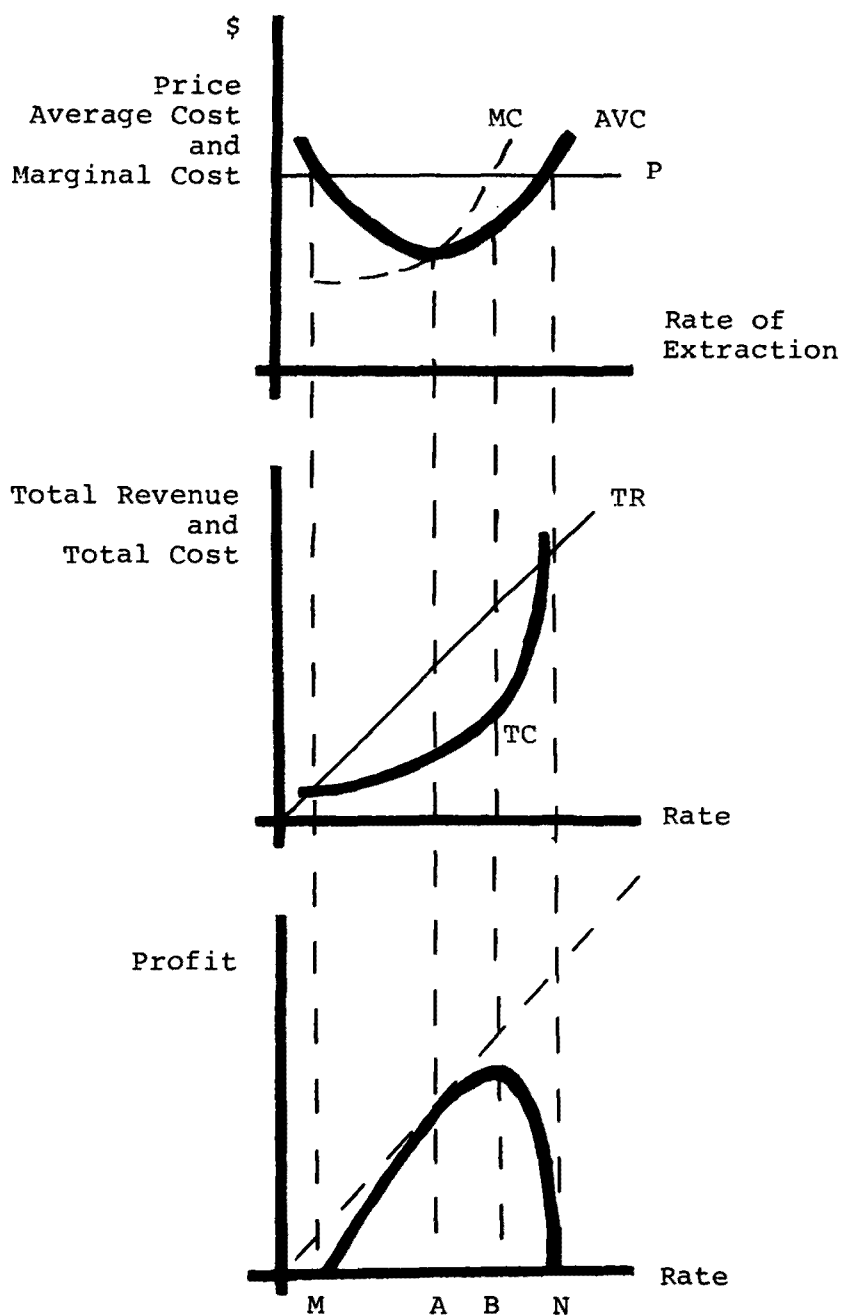
38. See footnote 36 *supra*.

39. D. Brobst & W. Pratt, *supra* note 12, at 2 (1973).

40. "Under conditions of perfect competition an owner of an exhaustible resource wishing to maximize the present value of profit per unit of his product will view price as a function of time of the form $p_t = p_0 e^{rt}$ where e^{-rt} represents the discount factor which determines present value of an amount to be obtained after time t assuming an interest rate r . This indicates an indifference between receiving p_0 now or $p_0 e^{rt}$ after time t ; that is, all units of the mineral are assumed to be equally valuable at any time except for the changing cost of placing them on the market." Hogan, *Resource Exploitation and Optimum Tax Policies: A Control Model Approach*, in *Extractive Resources and Taxation* 91, 95 (M. Gaffney ed. 1967).

41. "Coal is classified by rank according to the percentage of fixed carbon and heat content, calculated on a mineral-matter-free-basis. . . . It is quite independent of grade, which is a way of expressing quality. . . . Coal is classified by grade largely according to the content of ash, sulfur, and other deleterious constituents." Averitt, *supra* note 2, at 134.

FIGURE 1



extracted (AVC) is a minimum and his profit per ton is maximized at point A.

Since the owner's objective is to maximize the present value of the coal mine, all future profits must be discounted by the rate of interest. Thus, any rate of interest above zero will induce the owner to shorten the life of the mine by increasing the rate of extraction per period toward point B, the point of maximum profit per period. Therefore, the rate of extraction chosen for all periods will lie between points A and B. Two general observations can be made: The greater the rate of interest, the less attractive are remote profits, thus the life of the mine will tend to be shorter, the annual rate of extraction higher, and the mining costs per ton (AVC) higher; The rate of extraction cannot exceed B, but if the interest rate is very high, or the remaining life very long, it will come close to B. The point chosen between points A and B may be designated the tentatively chosen rate of production, or t.c.r. The life of the mine is equal to the total reserves divided by the t.c.r.

Any tax which affects the cost structure of the mine will have an effect on the rate of extraction.⁴² Refinements which can be made to this model include relaxing the assumption of constant conditions and introducing into the model the concept of the opportunity cost of future foregone profit. The model can also be varied to account for changes in wages, prices and costs and adjustments made for long-run analysis.

There are, to be sure, other factors than the rate of extraction to be considered in evaluating a tax. These include the sensitivity of the tax to fluctuations in the business cycle, the ease of administration of the tax, and the extent to which the tax can be exported from the state or region.⁴³ Very little has been published concerning these factors.⁴⁴ They will be mentioned, however, in the discussion of the various taxes.

Property Taxes

The property tax is usually imposed on the value of real and personal property. Surface rights, improvements and mining equipment are relatively easy to value and are not substantially different from other types of property upon which the tax is imposed. The problem is in the valuation of coal reserves. Experts can seldom agree

42. Jones, *supra* note 5, at 468.

43. Church & Folsom, *Optimum Taxation of Natural Resources by the State of New Mexico* (unpublished article on file with the Natural Resources Journal).

44. *Id.*

on the value of coal reserves. Adding to the complexity is the requirement, found in most states, that these taxes be imposed with uniformity and equality upon each class of property.⁴⁵ This problem is avoided in some states by either arbitrarily equating the value of reserves to the value of minerals extracted in a calendar year or substituting a net value of production in lieu of the value of reserves in place.⁴⁶ These are not true property taxes, however. The first is a severance (production) tax and the second is a net income tax. A closely related problem is that a tax based on the estimated value of reserves may tend to distort the estimates of reserves which are needed for national defense. Some mines "produce at capacity for years from deposits that are continually reported to be nearly exhausted."⁴⁷

A property tax should tax the present discounted value of future net receipts from the property.⁴⁸ Once a property tax based on the present discounted value has been imposed, it will be to the mining company's advantage to try to increase the present value over that which was estimated in fixing the tax. This can be done by increasing the rate of extraction.⁴⁹ The property tax will not change the shape of the curves in Figure 1, but the process mentioned above would work through the opportunity cost of future foregone profit, the refinement mentioned above in connection with the description of the model. Thus, the property tax tends to induce more rapid depletion of coal reserves.⁵⁰

Property tax revenues are the least sensitive of all tax revenues to fluctuations in the business cycle. This is because tax rates are determined by state and local needs and the tax base is established by appraisals which are reestimated infrequently.⁵¹

The property tax is difficult and costly to administer. Albert Church and Roger Folsom studied many of the characteristics of

45. See, e.g., N.M. Const. art. 8, § 1.

46. Jones, *supra* note 5, at 471.

47. D. Brobst & W. Pratt, *supra* note 12, at 6 (1973).

48. Jones, *supra* note 5, at 470-71; Steele, *supra* note 18, at 245. The Hoskold formula is a device frequently used to find the present value of future income from a given mine. It also includes an allowance for repayment of the capital investment. One derivation of the Hoskold formula is $PV = \frac{A}{\frac{r}{R^t - 1}} + r^1$ where r = to the amount of interest to be earned on a

sinking fund which will be used to repay the investor his original capital outlay when the mine is exhausted; r^1 = speculative rate to purchases on the capital investment; n = life of the mine in years; A = future net income; and $R = 1 + r$. Note, however, that the variables of this formula are arbitrary and do not reduce the negotiating required between the parties.

49. Jones, *supra* note 5, at 470; Steele, *supra* note 18, at 245.

50. Jones, *supra* note 5, at 470; Steele, *supra* note 18, at 265.

51. Church & Folsom, *supra* note 43, at 13.

taxes, including the property tax on natural resources.⁵² They rank the property tax behind all but the royalty tax for difficulty of administration.⁵³ Most costly are making appraisals and the cost of errors in appraisals. The recently revised New Mexico property tax code⁵⁴ is a good example of the administrative burden this tax imposes.

The extent to which a tax can be exported from the state or region is, as mentioned, an important factor. No matter how inefficient a given tax may be (for example, in the way it distorts consumption, investment or employment), it is of no concern to the state or region if it is exported.⁵⁵ Exportability refers only to the ability of a state or region to increase the price of coal (or other resource) to the consumers. If most of the users are nonresidents, the tax has been exported.⁵⁶ In this regard, Church and Folsom rank the property tax as likely to be on par with most other taxes, second after severance taxes and better than a royalty tax.⁵⁷ A tax will also be exported to the extent it falls on the resource owner and that resource owner is a nonresident.⁵⁸ The manner in which a tax falls on a person is called the "incidence" of the tax. The study of the incidence of these taxes is beyond the scope of this note.

Severance (Production) Taxes

Severance taxes are usually imposed on the basis of units of production or on the gross value of production. This type of tax has also been termed a privilege, excise, occupation or license tax.⁵⁹ The tax is usually imposed on the privilege of extracting or severing coal. There are two types of severance taxes, specific and ad valorem.⁶⁰ Specific severance taxes impose a given dollar amount on each unit extracted (usually tons). Ad valorem severance taxes are based on the value of the resource extracted, usually expressed as a certain percentage of assessed value. Value may be measured by gross value,

52. Church & Folsom, *supra* note 43.

53. *Id.* at 12.

54. N.M. Stat. Ann. §§ 72-28-1 et seq.; §§ 72-29-1 et seq.; §§ 72-30-1 et seq.; §§ 72-31-1 et seq. (Supp. 1975). Article 28 established the property tax department. Article 29 established procedures for the valuation of property. Article 30 established the tax rates and exemptions. Article 31 made provisions for the administration and enforcement of the property tax. These four articles are almost 100 pages in length.

55. Church & Folsom, *supra* note 43, at 6.

56. *Id.* at 23.

57. *Id.* at 12, 23.

58. *Id.* at 23.

59. Jones, *supra* note 5, at 471.

60. Allen, *supra* note 14, at 575.

market value, gross yield, gross receipts or net proceeds.⁶¹ The ad valorem severance tax differs from the ad valorem property tax in that the property tax is usually an annual levy based on the assessed valuation of unrecovered coal whereas the severance tax is based on the value of the coal actually extracted from the ground during a specified period.

A specific severance tax will provide a small incentive to slow the rate of extraction.⁶² An ad valorem severance tax also provides an incentive to slow the rate of extraction and perhaps lower the total level of recovery.⁶³ Under certain conditions, however, the severance tax may become neutral with respect to the rate of extraction. If the price of the resource increases over time at the rate of interest, and the marginal cost of extraction also increases at this rate, the severance tax is neutral.⁶⁴ If the tax rate increases at a slower rate, it slows the rate of extraction and vice versa.⁶⁵

A specific severance tax may also induce more rapid depletion of high grade ores with a concomitant abandonment of lower grade ores⁶⁶ because the profit margin is reduced or wiped out by the tax. It would also discriminate against ores with relatively higher mining costs (even though of the same grade) by inducing more intensive mining of ores with lower extraction costs.⁶⁷ Thus, the specific severance tax could make a higher grade (or lower cost) ore economically exhausted or depleted.⁶⁸ An ad valorem severance tax will not discriminate against lower grade ores although it will tend to encourage mining ores which, quality held constant, have lower mining costs and will concomitantly discourage the mining of higher cost ores.⁶⁹

A specific severance tax will tend to diminish the rate of extraction when market prices are down because the tax, fixed per ton of coal, is relatively greater. The ad valorem tax will not have this effect⁷⁰ because the valuation will vary with the market price. However, since ad valorem taxes reduce net income per unit of sales, they will, like specific taxes, reduce output and raise prices when shifted.⁷¹

61. *Id.*

62. Church & Folsom, *supra* note 43, at 18.

63. *Id.*

64. *Id.* at 19.

65. *Id.*

66. Steele, *supra* note 18, at 246.

67. *Id.* at 246-47.

68. Jones, *supra* note 5, at 472.

69. Steele, *supra* note 18, at 246.

70. *Id.*

71. *Id.*

The effect of a severance tax on rates of depletion or extraction also depends on the anticipated future rates of the tax.

A tax that is on its face discriminatory and which singles out a particular activity for special burdens is particularly likely to give rise to fears of an increase, as distinct from broader taxes that if increased will bear more or less evenly on a large body of tax payers, and which accordingly will be increased only in terms of actual needs for revenues . . . *Ex ante*, the fear of an increase seems likely to outweigh the hope of a decrease in discriminatory or specific taxes.⁷²

If the tax rate is expected to remain constant in the foreseeable future, a specific severance tax will tend to induce a lower rate of depletion because the present value of the tax declines as output is deferred.⁷³ An ad valorem severance tax based on a value including some of the costs of extraction would have a similar effect.⁷⁴

As mentioned above, severance taxes may be neutral with respect to the rate of extraction. However, it should be noted that severance taxes are naturally non-neutral with respect to the allocation of resources because the taxes discriminate against the taxed mineral by raising its price relative to the prices of other minerals to the extent that the tax can be passed on to the buyer in the form of a higher price (which in turn depends on the elasticity of demand for coal).⁷⁵ Thus, if a severance tax were imposed on coal, the same tax should be imposed on all energy resources to maintain allocational neutrality.

Church and Folsom rank the specific severance tax third and the ad valorem severance tax fourth in terms of sensitivity to business cycles.⁷⁶ They rate the specific severance tax first and the ad valorem severance tax second in terms of administrative ease.⁷⁷ They rank both severance taxes first in terms of exportability.⁷⁸ It should also be noted that the exportability of the taxes increases as the monopoly power of the mines increases. The entire region working together might be able to export the entire tax—especially since so much of the nation's coal resources are located in the region.⁷⁹

72. Vickrey, *supra* note 6, at 323.

73. *Id.* at 322.

74. *Id.*

75. Steele, *supra* note 18, at 247.

76. Church & Folsom, *supra* note 43, at 12, 13.

77. *Id.* at 12, 14.

78. *Id.* at 12, 23.

79. Would exporting these taxes violate the commerce clause of the federal Constitution if they were exported solely by means of an increase in the price of the resource? The State taxation area of the commerce clause is a particularly esoteric field. A statement made by Mr. Justice Frankfurter may be appropriate to this issue: "The power of the State to tax

Net Income Taxes

Another type of tax usually levied in addition to any corporate or personal income tax is based on the net value the mine company receives for the extracted resources. Certain deductions are allowed in order to derive a figure approaching net income. Deductions usually include depreciation, depletion, and amortization costs.⁸⁰ This type of tax usually has the least effect on the rate of extraction because taxes approach zero when a company approaches its break-even point. The net income tax does not discourage development of marginal ores.⁸¹

The greatest disadvantage of this tax is its sensitivity to fluctuations in the business cycle. Any tax based on business profits will be very sensitive to fluctuations in the business cycle because business profits are a function of businessmen's expectations and investment decisions, which in turn are based on income trends.⁸² Accordingly, Church and Folsom rank it behind severance taxes and ahead of property taxes and royalty taxes.⁸³ Church and Folsom rank the exportability of net income taxes equal to property taxes for the same reasons.⁸⁴

Value-Added Taxes (VAT)

There has been some interest in using the value-added tax to tax coal and other natural resources. There are two types of value-added taxes, an income type and a consumption type. A value-added tax of the income type uses as the tax base total revenue less cost of materials and depreciation. A value-added tax of the consumption type uses as the tax base total revenue less cost of materials and purchases of new depreciable assets (but not depreciation).⁸⁵

The interest generated by the VAT stems from the belief that it is economically neutral. According to a study done by Steele, however, the neutrality of either type of VAT will depend on the extent to which it can be passed on to the consumer. Thus, while the VAT is

and the limitations upon that power imposed by the Commerce Clause have necessitated a long, continuous process of judicial adjustment. The history of this problem is spread over hundreds of volumes of our Reports. To attempt to harmonize all that has been said in the past would neither clarify what has gone before nor guide the future. Suffice it to say that especially in this field opinions must be read in the setting of the particular cases and as the product of preoccupation with their special facts." *Freeman v. Hewit*, 329 U.S. 249 (1946).

80. Jones, *supra* note 5, at 472.

81. *Id.*

82. Church & Folsom, *supra* note 43, at 13.

83. *Id.* at 12, 14.

84. *Id.* at 12, 13.

85. Steele, *supra* note 18, at 255.

initially neutral, the process of shifting causes it to become non-neutral.⁸⁶

Concerning sensitivity to business cycle fluctuations, Church and Folsom rank the VAT and severance taxes third for the same reasons.⁸⁷ They consider only the property tax and the royalty tax more difficult to administer.⁸⁸ The VAT and severance taxes are both ranked first in exportability for the same reasons.⁸⁹

The Royalty Tax

Very little has been written about taxes on royalties paid to the owners of property rights in natural resources. A royalty tax falling on resource owners would be neutral with respect to the rate of extraction.⁹⁰

Royalty taxes are ranked second in sensitivity to business cycle fluctuations.⁹¹ Church and Folsom consider the royalty tax the most difficult tax to administer.⁹² While taxes on royalties paid to private owners would be relatively simple to administer, taxes on royalties paid to the firms who actually do the extracting would be difficult to administer because an estimate would have to be made of the amount of royalty that the mining firm as extractor is paying to itself as owner. The royalty tax is ranked last in terms of exportability.⁹³ This tax can be exported only to the extent the recipients of royalties are non-residents.

Another difficulty would seem to be in those situations in which the resource owner is the local, state or federal government or an Indian tribe. Can the state "pay" taxes on royalties to itself? Does the state have authority to tax royalties paid to the federal government or Indians?⁹⁴

Income Taxes

Income taxes are in no way peculiar to the taxation of coal, but it

86. *Id.* at 256-64.

87. Church & Folsom, *supra* note 43, at 12, 13.

88. *Id.* at 12, 14.

89. *Id.* at 12, 23.

90. *Id.* at 17.

91. *Id.* at 12, 13.

92. *Id.* at 12, 14.

93. *Id.* at 12, 23.

94. The federal constitution implies that all properties, functions, and instrumentalities of the federal government are immune from state and local taxation. *Smith v. Davis* 323 U.S. 111 (1944). Concerning the taxation of Indian lands, *See Oklahoma Tax Comm'n v. Texas Co.*, 336 U.S. 342 (1949), *Shaw v. Gibson-Zahniser Oil Corp.*, 276 U.S. 575 (1928); *Indian Territory Illuminating Oil Co. v. Board of Equalization of Tulsa County*, 288 U.S. 325 (1933).

seems necessary to treat them here because of increased reliance on the income tax at the state level.

Flat rate corporation income taxes, by far the most common type, discriminate against unusually risky and capital intensive industries, which includes most of the coal mining industry.⁹⁵

If a flat rate corporation income tax is passed on to the consumer in full, the riskier and more capital intensive industries will be forced to raise their prices relatively more than other industries because their tax base is a larger percentage of their sales price. This will cause a reallocation of resources to the other industries.⁹⁶ This disadvantage can be partly overcome by granting mineral industries special deductions, such as the depletion allowance, but it will not approach true neutrality unless each case is handled separately.⁹⁷

The Optimum Tax

The purpose of this section, up to this point, has been to survey the many taxes that can be imposed on the extraction of coal. Many advantages and disadvantages have been discussed. But the question remains, which tax is best? One tax might be favored over another because it more nearly accomplishes a particular goal that has been considered important, or a particular tax might be favored because it has a tendency to fall on someone else.

The selection of an optimum tax comes under the particular branch of economics referred to as "welfare economics." Welfare economics is concerned with achieving optimum welfare for the economy as a whole. Welfare economics can be used to determine whether a given exchange should take place or whether a certain tax is good or bad.⁹⁸

The theory of welfare economics is not only a positive theory which describes the working of an economy, but also a normative⁹⁹ theory which can be used for policy considerations. Whether a thing is good or bad depends on value judgments. Thus, welfare economics deals implicitly with value judgments.

The concept of Pareto optimality is one tool used by welfare economics to achieve efficiency. While Pareto optimality and its uses

95. Steele, *supra* note 18, at 256.

96. *Id.* at 253.

97. *Id.* at 254.

98. Herfindahl & Kneese, *supra* note 28, at 41.

99. "Positive economics seeks to determine how resources are *in fact* allocated in an economy. A somewhat different use of economic theory is for *normative* analysis. Such analysis takes a definite moral position on what *should be* done. Under the heading of normative analysis, economists have a great deal to say about how resources *should be* allocated." Nicholson, *supra* note 28, at 7.

can become very complex, the underlying value judgments are simple and will provide an adequate foundation in the concept. One value judgment implicit in all welfare economics, and which lies behind the purpose of using Pareto optimality, is that "sheer waste and malfunctioning must damage everyone and can be to nobody's advantage."¹⁰⁰ Society searches for a concept such as Pareto optimality because it does not want to waste anything. Additionally, there are two basic value judgments on which welfare economics and Pareto optimality are based:¹⁰¹ (1) The individual's preferences are important so that a person is better or worse off only if he feels that way; and (2) A change that makes everybody better off means an increase in the total social welfare. A situation in which no one can be made better off without at least one person being made worse off is called a Pareto optimum. In the context of this note, Pareto optimality means finding a regional tax policy which will result in a tax to be used by all the states such that no change could occur to make one state better off without hurting the other states.

The use of Pareto optimality in the search for the optimum tax will be touched upon again later in this discussion. Before leaving the theory portion of this note, however, it may be useful to look at what Pareto optimality cannot do. Pareto optimality, although it states a necessary condition that must be met in any state of a society if that state is to be considered optimal, offers no one criterion for judging among an infinite set of different positions among the members of society.¹⁰² There are a number of different end results which can be obtained from any given economic state, all of which could be Pareto optimal.¹⁰³ Thus, the Pareto optimality criterion is useful in generating policy recommendations only if it can be combined with some policy device which reduces the number of possible Pareto positions.¹⁰⁴

STATE TAXES IMPOSED ON COAL

The tax laws of the various states with large extractive industries are a welter of complicated, inconsistent and overlapping provisions.¹⁰⁵

It is important to be able to predict the influence of taxes on the behavior of the coal mining company and, consequently, on such

100. V. Walsh, *Introduction to Contemporary Microeconomics* 107 (1970).

101. Herfindahl & Kneese, *supra* note 28, at 41.

102. Walsh, *supra* note 101, at 111.

103. Economists call this "the contract curve."

104. Walsh, *supra* note 101, at 111.

105. 4 N.M. Legislative Council Service, *A Program for Tax Revision in New Mexico* 9 (1968).

things as the rate of depletion and ultimately state revenues. There is, unfortunately, no means of predicting the influence of taxes on the behavior of the coal mining company by examining the statutes of any state. This is partly because there are so many taxes to which coal mining companies are subject. (Schedule "A" summarizes the many taxes imposed by states which affect coal mining). Another cause is that there is not a given statutory rate for some taxes nor a uniform system of valuation among the states. For example, in New Mexico, the property tax is assessed at different rates from one taxing district to another, depending on need¹⁰⁶ and subject to the constitutional maximum of 20 mills on each dollar of assessed valuation.¹⁰⁷ The valuation problem is demonstrated by New Mexico and Arizona. Arizona values property at percentages ranging from 15 to 60 per cent, depending on class, whereas New Mexico values all property at 33 1/3 per cent of market value. One effort to penetrate this quagmire is the work of Professors Gerald Boyle and Albert Church of the University of New Mexico. When completed next year, this project will detail an optimal tax policy and present a survey of taxes actually imposed on minerals in New Mexico, Arizona, Colorado and Utah.

An examination of Schedule B and Figure 2 shows that the states are not dependent on the same type of taxes. For example, 48 per cent of all Montana revenues are derived from income taxes while Wyoming does not impose any tax on income.

Even a cursory examination of Schedules A and B and Figure 2 should indicate that no one can be sure what effect current taxes have on coal mining or whether any given state is even approaching an optimum tax policy. It is, in fact, indicative that none of these states has a tax policy pertaining to coal.

SCHEDULE "A"

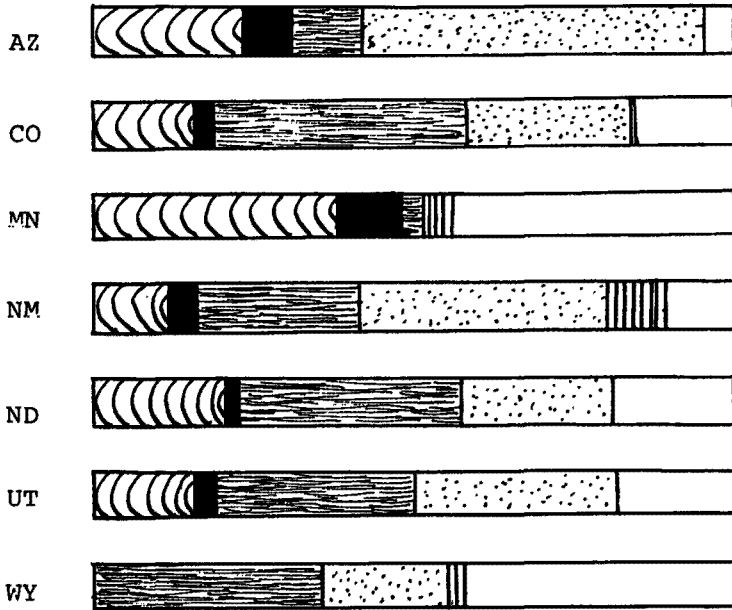
ARIZONA

1. Corporate organization, qualification & annual registration fees—Ariz. Rev. Stat. Ann. §§ 10-104, -481, -211 (Supp. 1975).
2. Corporate Income Tax—§ 43-102(b) (1956, Supp. 1975-76).
3. Property Tax—§ 42-201 et seq. (1956, Supp. 1975-76).
4. Fuel Use Tax—§ 28-1552 et seq. (Supp. 1975-76).
5. Motor Vehicle Registration Fees—§§ 28-205, -206, -1591 (Supp. 1975-76).
6. Occupation (Privilege) Tax—§§ 42-1309 et seq. (Supp. 1975-76).

106. N.M. Stat. Ann. §§ 72-30-6, -7; § 72-31-33 (Supp. 1975). All of the states in the region have similar provisions.

107. N.M. Const. art. 8, § 2.

FIGURE 2
Composition of State Revenues



KEY



Individual Income Tax



Corporate Income Tax



Property Tax



Sales and Use Tax



Direct Taxes on Mining



Other Revenues

7. Use Tax—§§ 42-1401 et seq. (1956, Supp. 1975-76).
8. Special Education Excise Tax—§§ 42-1371 et seq. (1956, Supp. 1975-76).
9. Unemployment Insurance Contributions—§§ 23-721 et seq. (1956, Supp. 1975-76).

COLORADO

1. Corporate organization and qualification fees—Colo. Rev. Stat. Ann. §§ 7-10-101 et seq. (1973).
2. Corporate Franchise Tax—§ 7-10-106 (1973).
3. Corporate Income Tax—§§ 39-22-301 (1973, Supp. 1975).
4. Property Tax—§§ 39-1-101 et seq. (1973, Supp. 1975).
5. Motor Fuel Tax—§§ 39-27-102 (1973, Supp. 1975).
6. Coal Tonnage Tax—§§ 34-23-101, -102 (1973).
7. Motor Vehicle Registration Fees—§§ 42-3-123(4), -(5), & -(13); §§ 42-3-105, -106 & -108 (1973, Supp. 1975).
8. Sales and Use Tax—§§ 39-26-101 et seq. (Supp. 1975).
9. Unemployment Insurance Contributions—§§ 8-76-101 et seq. (1973).

MONTANA

1. Corporate organization and qualification fees—Mont. Rev. Codes Ann. §§ 15-22-120 et seq. (1947, Supp. 1975).
2. Annual Report Fee—§§ 15-22-119, -121 (1947, Supp. 1975).
3. Corporation License (Income) Tax—§ 84-1501 (1947, Supp. 1975).
4. Motor Vehicle Taxes—§§ 53-114, -122, -129; §§ 32-3301 et seq. (1947, Supp. 1975).
5. Property Tax—§§ 84-201 et seq. (Supp. 1975).
6. Coal Severance Tax—§§ 84-1312 et seq. (Supp. 1975). Replaces Strip Mining Tax.
7. Coal Strip Mining Tax—(Changed to Coal Severance Tax).
8. Mineral Mining Tax—§§ 84-5401 et seq. (1947, Supp. 1975).
9. Motor Vehicle Registration Fees—§ 53-122 (Supp. 1975).
10. Unemployment Insurance Contributions—§ 87-109 (Supp. 1975).

NEW MEXICO

1. Corporate organization and qualification fees—N.M. Stat. Ann. § 51-12-1 (Supp. 1975).
2. Franchise Tax & Annual Report Filing Fee—§§ 51-13-1 et seq.; §§ 51-21-1 et seq.; §§ 51-12-1 et seq. (Repl. 1962, Supp. 1975).
3. Corporate Income Tax—§§ 72-15A-1 et seq. (Supp. 1975).
4. Property Tax—§§ 72-30-1 et seq. (Supp. 1975).
5. Gasoline Tax; Special Fuel Tax—§ 72-27-3 (Repl. 1961); §§ 64-26-66 et seq. (Repl. 1972, Supp. 1975).
6. Natural Resources Excise Tax—§§ 72-16A-20 et seq. (Supp. 1975).
7. Severance Tax—§§ 72-18-1 et seq. (Repl. 1961, Supp. 1975).
8. Motor Vehicle Registration Fees—§§ 64-3-1 et seq.; § 64-34-14.1 (Repl. 1972, Supp. 1975).
9. Motor Vehicle Excise Tax & Use Fee—§§ 64-11-15 et seq. (Supp. 1975).

10. Gross Receipts & Compensating Tax—§§ 72-16A-1 et seq. (Supp. 1975).
11. Unemployment Insurance Contributions—§ § 59-9-7 et seq. (Repl. 1974, Supp. 1975).

NORTH DAKOTA

1. Corporate organization and qualification fees; annual report fee—N.D. Cent. Code §§ 10-23-02, -04, -05, -06 & -07 (1960, Supp. 1975).
2. Corporate Income Tax—§ § 57-38-11, -30 (Repl. 1972).
3. Property Tax—§ 57-02-03 (Repl. 1972).
4. Gasoline Tax; Special Fuels Tax—§ 57-54-08; § 57-50-01; § 57-52-01 (Repl. 1972).
5. Coal Severance Tax—§ 57-61-01 (Supp. 1975).
6. Motor Vehicle Registration Fees—§ § 39-04-14, -14.1 & -19 (Repl. 1972, Supp. 1975).
7. Motor Vehicle Excise Tax—§ § 57-40.3-02, -03 (Repl. 1972).
8. Sales and Use Tax—§ § 57-39.2-02, -03; § § 57-40.2-02, -03 (Repl. 1972, Supp. 1975).
9. Unemployment Insurance Contributions—§ § 52-04-01 et seq. (Repl. 1974, Supp. 1975).

UTAH

1. Corporate organization and qualification fees—Utah Code Ann. § § 16-10-123 to -127 (Repl. 1972, Supp. 1975).
2. Individual Income Tax—§ § 59-14-1 et seq. (Repl. 1973, Supp. 1975).
3. Corporate Franchise (Income) Tax—§ § 59-13-1 et seq. (Repl. 1973, Supp. 1975).
4. Sales Tax—§ § 59-15-1 et seq. (Repl. 1973, Supp. 1975).
5. Use Tax—§ § 59-16-1 et seq. (Repl. 1973, Supp. 1975).
6. Local Sales & Use Tax—§ § 11-9-1 et seq. (Repl. 1972, Supp. 1975).
7. Property Tax—§ § 59-5-1 et seq. (Repl. 1973, Supp. 1975).
8. Motor Vehicle Registration Fees—§ § 41-1-127 to -130 (Repl. 1970, Supp. 1975).
9. Unemployment Insurance Contributions—§ § 35-4-7 et seq. (Repl. 1974).

WYOMING

1. Corporate organization & qualification fees—Wyo. Stat. Ann. § § 17-36, 114, -115 (1957, Supp. 1975).
2. Property Tax—§ 39-82 (1957, Supp. 1975).
3. Gasoline Tax—§ § 39-183 to 204.8 (1957, Supp. 1975).
4. Mining Excise Tax—§ 39-227.1:1 (Supp. 1975).
5. Coal Severance Tax—§ 39-227.1 (Supp. 1975).
6. Sales Tax—§ § 39-286 et seq. (1957, Supp. 1975).
7. Use Tax—§ § 39-310 et seq. (1957, Supp. 1975).
8. Unemployment Insurance Contributions—§ 27-28 (Supp. 1975).

SCHEDULE B
State Taxes Affecting Mining

ARIZONA—FY 1974-75 (TR \$754,879,497)

1. Individual Income & Withholding	\$172,931,444	22.91%
2. Corporate Income	50,753,043	6.72
3. Property	75,354,418	9.98
4. Sales and Use ¹	397,866,869 ¹	<u>52.71</u>
		92.32

¹ Total of Sales Tax, Education Excise Tax, Special Education Tax, Use Tax, Bingo Tax and Rental Occupancy Tax.

Statistics courtesy of Neal G. Trasente, Director, Arizona Dept. of Revenue (letter on file with NRJ) and Annual Report, Dept. of Revenue, 1974-75.

COLORADO—FY 1975 (TR \$1,573,251,779)¹

1. Individual Income	\$261,762,211	16.64%
2. Corporate Income	48,755,885	3.10
3. Property ²	614,900,000 ²	39.08
4. Sales, Use, Excise & Gross Receipts ³	398,140,677 ³	25.31
5. Severance ⁴	2,314,462 ⁴	<u>0.15</u>
		84.13

¹ FY 1975 Revenues of \$958,351,779 plus property tax collected in 1975 of \$614,900,000.

² Property Taxes are assessed, collected and remain at the local level and are consequently not strictly considered "state" revenues.

³ Coal mines paid \$39,728 in sales taxes while all mines paid \$729,000 in sales taxes.

⁴ The severance tax is collected on oil and gas property valuation.

Statistics courtesy of Tom Dunn, Statistical Analyst, Colorado Dept. of Revenue (letter on file with NRJ).

MONTANA—FY 1974-75¹ (TR \$230,678,002)

1. Individual Income	\$ 88,662,627	38.44%
2. Corporate License (Income)	22,078,645	9.57
3. Property ²	6,974,786 ²	3.02
4. Strip Mines License Tax ³	5,395,415 ³	2.34
5. Metalliferous Mines License Tax	3,099,368	1.34
6. Micaceous Mineral Mines License Tax ⁴	10,124	<u>0.01</u>
		54.72

¹ In addition to the taxes listed, the mining industry pays a substantial amount of local property tax as well as a resource indemnity trust tax. The proceeds from the resource indemnity trust tax go into a trust fund, the interest of which will be used to repair environmental damage caused by mining activity. About \$500,000 was collected from the mining industry for this tax in FY 1974-75.

² The property tax supports the state university system. Nearly 95% of all property tax collected stays at the local level. There is presently no way of knowing precisely how much of the state-wide property tax is paid by the mining industry without a detailed investigation in each of Montana's 56 counties. A reasonable estimate would be that the mining

industry pays 4% to 5% of the tax and that the coal industry pays about half of that. The reason that an accurate estimate cannot be made is because the value of the real and personal property of mining interests is mingled on the tax rolls with the value of the property of all other taxpayers.

³As of July 1, 1975, this was changed to the Coal Severance Tax and the rate was raised considerably. Under the new law it is expected that revenues for the current fiscal year will be about \$20 million.

⁴The total mineral mining tax (strip + metal + micaceous) = \$8,504,907 (3.69%).

Statistics and estimates courtesy of John M. Clark, Administrator, Research Division, Montana Dept. of Revenue (letter on file with NRJ).

NEW MEXICO—FY 1974-75 (TR \$453,564,000)¹

1. Individual Income & Withholding	\$ 56,575,000	12.47%
2. Corporate & Banking	18,344,000	4.04
3. Property	10,966,000	2.42
4. Gross Receipts & Compensating Tax ²	173,260,000 ²	38.20
5. Natural Resources Excise Tax ³	2,964,000 ³	0.65
6. Severance Tax ⁴	37,896,000 ⁴	<u>8.36</u>
		57.86

¹ General Fund total revenue of \$415,668,000 plus severance tax revenues of \$37,896,000.

² Approximately \$1,700,000 was collected from the coal mining industry.

³ Approximately \$348,859 was collected from the coal mining industry.*

⁴ Approximately \$198,320 was collected from the coal mining industry. This is not included in the general fund.*

*Courtesy of William F. Darmitzel, Executive Director of the New Mexico Mining Association.

Statistics courtesy of Janet Atwood, Economist, Dept. of Finance and Administration (letter on file with NRJ).

NORTH DAKOTA—FY 1975 (TR \$353,386,019)

1. Individual Income & Withholding	\$ 70,735,193	20.02%
2. Corporate Income	8,627,145	2.44
3. Property ¹	119,619,804 ¹	33.85
4. Sales & Use ²	82,360,637 ²	<u>23.31</u>
		79.62

¹ Collected by counties.

² The Coal Severance Tax, enacted July 1, 1975, replaces the sales tax on coal. There was an estimated \$518,283 sales tax collected on coal sales in FY 1975. For the first three months of FY 1976 (July, August & September of 1975) there was \$1,165,159 collected on the coal severance tax.

Statistics courtesy of C. William Cudworth, Research Analyst, Office of North Dakota State Tax Commissioner (letter on file with NRJ) and 32d Biennial Report of the Tax Commissioner of North Dakota.

UTAH—FY 1974 (TR \$540,725,207)¹

1. Individual Income Tax	\$ 90,032,358	16.65%
2. Corporation Franchise & Income	20,173,183	3.73
3. Sales & Use Tax	149,442,237	27.64
4. Local Sales & Use Taxes	19,036,945	3.52
5. Property Tax ²	170,641,107	<u>31.56</u>
		51.85

¹ Total State Taxes of \$350,478,291 plus local Sales & Use Taxes of \$19,036,945 plus 1973 property taxes of \$170,641,107 which remain at the local level.

² 1973 Property Taxes, not usually considered a "state" revenue.

Statistics from Twenty-second Biennial Report of the Utah State Tax Commission.

WYOMING—FY 1975 (TR \$374,478,952)¹

1. Property Tax	\$131,082,890	35.00%
2. Mining Excise Tax ²	2,507,550 ²	0.67
3. Sales Tax ³	60,358,091 ³	16.12
4. Coal Severance Tax	2,826,335	0.75
5. Use Tax ⁴	12,870,970 ⁴	<u>3.44</u>
		52.57

¹ State Revenues of \$243,396,062 plus \$131,082,890 in property taxes which normally remain at the local level and are not strictly considered "state" revenues.

² \$764,611 was collected from coal mining.

³ \$84,439 was collected from coal mining.

⁴ \$680,171 was collected from coal mining.

Statistics courtesy of James E. Petry, Director of Revenue (letter on file with NRJ) and Harold DeBolt, Ad Valorem Dept (by phone).

A PROPOSAL FOR A REGIONAL COAL TAX POLICY

The overview of the taxes on coal mining in the various states presented in the foregoing section shows that it is unrealistic to expect to know for certain how taxes affect coal mining in these states. Yet it has been shown that this is an important objective—otherwise revenues may be needlessly foregone or resources inefficiently depleted. The only reasonable solution is to substitute one single tax on coal mining for the maze of taxes in each state.

The first question which might be asked is what type of tax should be imposed? The second section of this Comment detailed the present types of taxes imposed and discussed their advantages and disadvantages. Based on that information, this writer would suggest a type of severance tax based on BTUs per ton extracted.

The Western Governors' Regional Energy Police Office recently said:

Coal, as a source of energy, has a market value based on many factors, including BTUs per pound, water content, distance to market, etc. Tax policy should reflect these and additional factors. WGREPO is directed to investigate these and additional factors. WGREPO is directed to investigate and report on tax programs and policies in western states that are applicable to coal production.¹⁰⁸

One advantage of this type of tax over the conventional severance taxes discussed above is that it forces those who would use coal for other than energy uses to count the opportunity cost of doing so, namely, foregone BTUs represented by the amount of tax paid.

Coal generally ranges from 24 million to 28 million BTUs per ton.¹⁰⁹ A state such as New Mexico, which has a state geologist, could have that office certify the BTUs based on samples sent from the mine. Should there be doubt among experts as to the number of BTUs in a given grade of coal, the legislature could arbitrarily set it for taxation purposes.

The use of this tax as the only tax on coal mining in the region would enable a regional agency to establish a computer program which could define a Pareto optimum for the taxation of coal in the region. Additionally, this vehicle could be used for all energy resources, thus establishing a Pareto optimum in the region among energy resources.

Certainly, it would be easier to establish a Pareto optimum with any one tax rather than with the multitude of taxes now being used. A careful analysis of the needs of the states in the region might show that some other tax than the one proposed here would be better. The program will most assuredly not work, however, unless the multitude of taxes imposed on coal mining now are removed and replaced with one tax.

The tax goals discussed earlier in this Comment would have to be examined by each state and formally adopted. The regional agency proposed by this note would then be charged with responsibility for assigning mathematical values to the goals of each state so that an indifference curve¹¹⁰ can be developed for each state. The regional

108. Western Governors' Regional Energy Policy Office, Tasks and Projects to be undertaken by WGREPO, July 29, 1975.

109. N. McNerney, *Energy Reference Handbook* 253 (1974).

110. Indifference curves are used to determine the Pareto optimum. A person's (or state's) preferences are geometrically illustrated by an indifference curve. The points on the curve show choices between which the person (or state) is indifferent.

agency would then present several Pareto optimums which result from the data and would make recommendations about the various possible optimums. From this process would emerge an optimum tax which would increase the welfare of *all* of the states in the region.

CONCLUSION

The most important goal of a regional tax policy should be to assist each state in realizing its state tax goals. This is a relatively simple task if state tax goals are uniform. The goals which would be best for any state and would thus form the basis of a uniform regional tax policy are (1) to maximize revenues without harming the competitive position of state industry; (2) to promote the general economic development of the state; (3) to ensure economic neutrality of taxes between coal and all other energy resources; and (4) to ensure that any change in the scheme of taxes would not unconstitutionally impair the obligation of contracts.

There is no conceivable way that a state in this region can presently determine the effect its taxes have on coal mining within the state because of the complex of taxes imposed at various administrative and political levels. Because of this a state may be unknowingly foregoing valuable revenues or discouraging development of its resources. The multitude of taxes on coal found in each state is further indicative that no state in this region has a tax policy pertaining to coal.

The only reasonable solution to this problem is to remove all taxes from coal except one. The one tax used to replace the removed taxes should be chosen on the basis of careful analysis made by a regional planning agency of the needs and tax goals of each state in the region.

This Comment suggests a severance tax based on BTUs because coal is assumed to be more important to society at this time as an energy resource than in any of its non-energy uses. A tax on BTUs, among other things, forces those who would use coal for other than energy uses to count the opportunity cost of doing so, namely, foregone BTUs represented by the amount of tax paid. Additionally, that tax would have the other advantages of a severance tax, such as administrative ease, exportability and relative stability in relation to business cycle fluctuations.

Unless all states in the region cooperate, competition among the states may interfere with pursuing an optimum tax policy. Coopera-

tion would give the states in the region—which are relatively politically impotent at the national level—a stronger bargaining power with the larger and more powerful states outside the region.¹¹¹

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111. An area for further research is the extension of this type of tax to other energy resources. All energy resources have a common measure in BTUs. Perhaps through this type of tax economic neutrality can be achieved among all energy resources.