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THE DEPLETION ALLOWANCE REVISITED

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The scholarly defenders of the depletion allowance¹ have based their exoneration of this special tax privilege primarily on two economic points: (1) percentage depletion is an offset to the non-neutrality of the corporate income tax; and (2) the tax handling of the oil and gas industry is an important stimulus to exploration of new domestic oil fields; *i.e.*, in the absence of the depletion allowance, exploration of many wildcat fields in time period t_0 would be negligible because at existing market prices in period t_0 (and expected prices in the near future) the prospects of future revenues are not sufficient to encourage profit maximizing entrepreneurs to explore these fields with existing technology. Implicit in this view is the belief that the commitment of additional resources in exploration and development of new fields in time period t_0 is in the public interest.

Critics of the existing depletion allowance, on the other hand, have stressed the importance of economic rents, the cartelization of the industry, and the existence of other public policies such as rationing and import controls which dissipate most of the alleged benefits of percentage depletion while encouraging a flagrant waste of resources in providing the current output of the petroleum industry. Comments on the income redistributive effects of the depletion allowance, however, are often segregated to footnotes in these scholarly discussions.

In the following pages I will attempt to comment on these issues.

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1. When I was an employee of the oil industry I was advised by management never use the term "allowance" in the same sentence with the word "depletion," for this would conjure up the concept of "special privilege" in the public mind. Identifying the tax benefit as "percentage depletion," on the other hand, it was believed, suggested a warranted and inviolable tax-free return resulting from an impairment of capital.

I

NON-NEUTRALITY AND THE PRODUCTION OF OIL AND GAS
FROM EXISTING FACILITIES

A neutral tax is defined as one that is levied in such a manner as to leave unaltered the pre-tax, free market allocation of resources. Thus, if the proportionate corporate income tax is shifted forward, defenders of the depletion allowance argue, it will produce a disproportionately greater increase in the supply price (at any given level of output) of those industries where the ratio of profits to dollars of sales—the rate of return on turnover—is higher than the average. This higher rate of return on turnover will occur, it is claimed, in those industries with high risks and low capital turnover. To the extent that supply prices do increase, then, depending on the price elasticity of demand, the quantity demanded will decline. Hence, it is claimed that resources are reallocated away from the oil industry as the quantity demanded of oil and gas products, because of the forward shifting of the corporate income tax, is reduced significantly relative to the quantities demanded of other products. If this chain of reasoning is correct, it therefore follows that as a result of the imposition of the federal corporate income tax, resources are, *ceteris paribus*, misallocated (reallocated ?) out of the petroleum industry and into those industries with lower rates of return on turnover.

The depletion allowance, on the other hand, is essentially a negative *ad valorem* tax.² Hence, to the extent that this preferential tax treatment is passed forward, it will, in turn, reduce the supply price of the industry and therefore, should reallocate resources into the petroleum industry and out of industries which do not receive such favorable tax treatment. Accordingly, the defenders of the depletion allowance maintain that percentage depletion is merely an offset to the non-neutral effects of the corporate income tax; and consequently, the resources in the industry are close to what would prevail in the pre-corporate income tax market. Implicit in this contentious view is the belief that the pre-tax allocation of resources—whatever it might be—is socially desirable.

This non-neutrality argument can be investigated on two levels: (1) is the allocative effect of the corporate income tax on resource reallocation significant? and (2) would the allocation of resources in the absence of a corporate income tax be, in some sense, more socially desirable than the post-income tax situation?

2. Davidson, *Public Policy Problems of Domestic Crude Oil Industry*, 53 Am. Econ. Rev. 101 (1963).

A. *The Size of the Non-neutrality Effect*

The magnitude of the reallocative effect of the corporate income tax depends upon a number of factors including (a) how much forward shifting occurs, (b) the relative demand elasticities for petroleum products *vis-à-vis* the demand elasticities for products from industries with lower rates of return on turnover, (c) the extent that the income tax is passed backwards, rather than forwards, to recipients of economic rents in the industry, and (d) the changes in relative demands for goods resulting from the governmental spending of the revenues derived from the corporate income tax.³ Given the noncompetitive structure of the petroleum industry and the large component of cost in the form of lease and royalty payments, it would appear that backward rather than forward shifting is more likely for the petroleum industry than for most other industries (where economic rents are proportionately smaller). Nevertheless more empirical investigations are needed in order to estimate the importance of economic rents in this land intensive industry. If Kahn, via casual empiricism, could demonstrate that at least one-third of value added in the petroleum industry is economic rents,⁴ is it not reasonable to expect that more intensive studies of the remaining two-thirds of the value added may yield additional rent components? For example, to the extent that there is an organized market for the purchase and sale of already-producing oil properties, then the expected future rents of the original property owners will be capitalized into the market price of these producing properties. Thus, some portion of cost depletion deductions by the second-hand buyers of already producing oil properties reflect the capitalized economic rents of the original owners. (This component of cost depletion has not been included in Kahn's one-third estimate.)

It would appear therefore that although the oil and gas industry may have a higher than average rate of return on turnover and therefore the supply price *may* be disproportionately affected by the corporate income tax (to the extent it is passed forward), this industry also has an extremely high ratio of economic rents to sales revenue as compared to most other industries. Gaffney has presented several pieces of evidence which suggest that economic rents are a higher proportion of sales in the oil and gas industry than in most

3. Kahn, *The Depletion Allowance in the Context of Cartelization*, 54 Am. Econ. Rev. 296-97 (1964).

4. Gaffney suggests that because of the time disruption of leasehold and royalty payments, the one-third estimate is an undervaluation of the importance of economic rents in the petroleum industry. M. Gaffney, *Extractive Resources and Taxation* 410 (1967).

other industries—even other industries (such as urban real estate) where rents are considered to be significant,⁵ and he has concluded that “rent simply looms so large in oil and other minerals that an economist cannot overlook it.”⁶ Such a high ratio of economic rents to sales should encourage backward rather than forward passing of taxes. As a consequence, the present evidence, though fragmentary, tends to support the conclusion that both the corporate income tax (to the extent it can be shifted) as well as the depletion allowance have their major impacts on the size of the after-tax economic rents received in the industry, and a minor if not insignificant impact per dollar of tax involved on resource allocation.

B. Is Neutrality in the Social Interest?

The burden of the previous section has been to suggest that the resource reallocation effects of the corporate income tax (and the depletion allowance) in the petroleum industry is likely to be very small. For the sake of discussion, however, let us assume that the corporate income tax does alter the allocation of resources from what they would be in the pre-tax market. To the extent reallocation occurs because of the income tax, can it be claimed that the resultant distribution of resources is less socially desirable than the pre-tax arrangement?

It is my contention that there is no reason to believe that existing markets with their inequitable distribution of income, wealth, and market power are ideal allocations of resources, in the sense of providing outcomes which are “socially optimal.” Indeed, despite the plethora of writings in “welfare economics,” and the normative policies which have been advanced by so many economists, the social welfare function cannot be defined in a rigorous readily measurable and unambiguous manner, except when it is developed under such a multitude of unrealistic and heroic assumptions as to make it operationally meaningless. This is, to me, the fundamental message underlying Lipsey and Lancaster’s “The Theory of the Second Best.”⁷

Accordingly, perhaps the greatest contribution economists can make to promoting human welfare is not via platitudinous statements about the “optimum time distribution of use” of resources.⁸ To make decisions which would provide for a truly socially optimum time distribution of resources would require information which

5. *Id.* at 411-12.

6. *Id.* at 411.

7. K. Lancaster & R. Lipsey, *The General Theory of Second Best*, 24 Rev. Econ. Stud. 11 (1958).

8. S. McDonald, *Percentage Depletion, Expensing of Intangibles, and Petroleum Conservation*, Extractive Resources and Taxation 269 (M. Gaffney ed. 1967).

it is impossible for the economist to obtain in a world where the future is uncertain. As Boulding cogently noted, in a world of uncertainty "he who hesitates is frequently saved; and an important aspect of decision-making consists of the capacity not to preempt the future."⁹ Hence, economists should be particularly wary of recommending any favorable tax treatment of specific industries under the argument that such tax treatment will provide an incentive to develop a socially desirable specific time pattern for the depletion of natural resources. Even if it can be demonstrated that the depletion allowance *significantly* alters the time distribution of use of oil resources in the United States, it is not possible, in the present state of the economic arts, to show that the new distribution is *per se* socially desirable.

Economists should abdicate their self-proclaimed role of the scientific overseer of the commonweal and stop foisting normative judgments onto society in the guise of scientific objectivity. Instead, economists should merely provide others with the understanding of how the economic system actually operates in a world of uncertainty and incomplete information. These insights would then form the basis on which all informed citizens could make value judgments about such questions as what rate of time use of mineral resources is in the public interest. There is no acceptable substitute for informed value judgments. In fact, the only substitute is uninformed value judgments. Economists should not deceive policymakers into believing that economic analysis relieves them of the responsibility of making such judgments.

Discussions about the ability to offset the alleged non-neutrality of corporate income taxes with the depletion allowance is not without meaning and interest to the economic logician, but it is inherently unsuitable material for deciding what tax policy is in the social interest. All economists can do is trace out the impacts of these taxes on production and investment decisions in a cartelized market operating under a plethora of governmental policies and then leave it to policy-makers and an informed citizenry to decide which of the possible alternative situations are in the public interest.

Finally, it should be obvious to all except the most oblivious among economists that the pre-tax market in the petroleum industry could not be defended as desirable even on the narrower grounds of economic efficiency.¹⁰ As long as public policies such as prorationing and import controls encourage domestic productions

9. K. Boulding, *The Impact of the Social Sciences* 43 (1966).

10. Narrower in the sense that economic efficiency can be more readily and unambiguously defined than social welfare.

from high real-cost wells, while limiting production and use of oil from low real-cost facilities, it is ludicrous to justify the offset to the alleged non-neutrality of the corporate income tax by an argument for promoting economic efficiency by percentage depletion.

II

THE DEPLETION ALLOWANCE AS AN EFFICACIOUS DEVICE TO STIMULATE ADDITIONAL EXPLORATION

In order to take advantage of the existing tax benefits of the depletion allowance, one must have (1) a producing property, and (2) a market in which to sell the product at a stable, and preferably high, price. Since the period of gestation from the time virgin land is surveyed until a commercially profitable well is brought in may be many years, it should be obvious that the present value of this tax incentive for unexplored, undeveloped properties in the United States should be, merely because of the discounting factor, relatively small. Moreover, whatever potential tax advantage does exist for stimulating exploration on any property depends, in large measure, on the expectation of a stable, high price for the output. Hence, if domestic crude prices were permitted to display more downward flexibility in order to reflect the minimum real costs of resources which could provide petroleum products to society as overseas and Alaskan development expand and technology improves; *i.e.*, if prorationing and import quotas were modified so that market prices reflected only the necessary real costs of providing society with its current levels of oil and gas, then the potentially greater uncertainty about the market price a few years hence (as well as the certain decline in the present price) would further reduce the existing present value of the tax benefits of unexplored lands.

It is evident that whatever present value the depletion allowance has, it is greatest for already producing properties and lowest, *ceteris paribus*, for properties in virgin, "wildcatting" territories. Moreover as Kahn has pointed out, the depletion allowance encourages the production of oil once it is discovered, rather than its retention in underground inventories.¹¹ Consequently, to the extent that the depletion allowance affects resource allocation over time, its main thrust is to encourage the development and depletion of known oil fields, rather than the exploration of virgin territories whose commercial pay-offs are in the more distant future. This does not deny that there can be some extensive margin of oil lands, *i.e.*,

11. Kahn, *supra* note 3, at 305.

some potential oil fields which without the tax allowance would be no-rent submarginal lands whose commercial prospects would not encourage exploration. Ultimately then, the question of the efficacy of exploration incentives via the depletion allowance is driven back to the question I raised a number of years ago—what is the elasticity of supply of oil lands, for “the more inelastic the supply of mineral lands, the greater will be the landowner’s windfall, while the additional exploratory activity will be minor.”¹² If the supply of oil lands is relatively inelastic, then (1) the depletion allowance is primarily a subsidy to mineral rights owners which merely increases the already implicit and explicit economic rents in the industry and (2) the present depletion policy is an exceedingly expensive (for the taxpayers) way of encouraging additional exploratory activity.

In a reply to some attacks on my original position, I attempted to provide some statistics which suggest that huge economic rents are earned on intramarginal oil lands and that, therefore, the supply of nonhomogeneous oil lands is highly inelastic.¹³ Unfortunately despite the substantial amount of study of the industry since my reply, I have been unable to discover any other investigators who have attempted to measure more directly the elasticity of supply of oil lands. Certainly the defenders of such an important tax privilege should be required to demonstrate the benefits in *additional* exploratory activity for such a costly (to the taxpayers) allowance. In other words, if the depletion allowance really does stimulate significant additional exploratory activity, evidence showing the high elasticity should have been presented by its defenders.

If, however, the supply of oil lands is highly elastic, then much of the “rationale” for the necessity of stimulating exploratory activity by methods over and above the usual market forces would be irrelevant. If the supply curve for oil lands was, for example, perfectly elastic, then at any point of time in the absence of the depletion allowance the exploration of land would be limited only by the current extent of the market, and the choice of oil fields which were producing and those which were lying “fallow” would be, except for transportation-to-market costs, determined on some sort of random or chance basis. As one field became exhausted, then a new one would be developed. But if supply was perfectly elastic, the real costs of developing the new field would not be any greater than those incurred in the exhausted oil field. Hence, with a perfectly elastic supply (and therefore no economic rents), there would be no need to stim-

12. Davidson, *supra* note 2, at 102.

13. 54 Am. Econ. Rev. 130-31 (1964).

ulate exploration, for the normal market forces (assuming reasonable foresight by the producers¹⁴) would be sufficient to provide all the producing properties that the market would require at every point of time.¹⁵

Of course, no one believes that the supply of oil lands is anywhere near perfectly elastic. Nevertheless, the more inelastic, the less efficacious the depletion allowance will be in stimulating exploration and the more it would be simply a device for redistributing income from the general taxpayer to the mineral rights owner. Certainly, the taxpayer has a right to know "the trade-off" between dollars of tax rebate and dollars of *additional* exploration implied in the actual elasticity of oil lands. Existing evidence, fragmentary as it is, suggests the taxpayer is not receiving very much value for his dollar of subsidy.

Moreover, Gaffney has analyzed eight other prevailing factors besides the beneficial tax treatment which tend to "overmotivate exploration" compared with what would occur in a competitive free market. Gaffney lists these exploratory stimulating factors as "open access to undiscovered minerals; preclusive acquisition to enhance market power; duplication by vertically integrated firms; artificially high prices; the need to replace the flexibility destroyed by rationing; the leverage of private over public investment; the publicity-promotional value of discovery; and management self-aggrandizement. . . ."¹⁶ With all these factors present, Gaffney concludes that "the motive to explore is not a fragile, precious flower, but rather a lusty weed that wants some constraint."¹⁷

CONCLUSION

In sum, economists should neither be apologists nor critics of the depletion allowance *per se*. They should of course point out any irrationalities in the "economic" arguments presented by one side or the other; and they should, as far as they are able in the present state of knowledge, trace out any effects of alterations in the depletion allowance on income redistribution and resource allocation without making *implicit* value judgments as to the desirability of these changes.

Thus if it is believed that a pushing out of the extensive margin

14. Of course, producers will always make errors of foresight. In a world of uncertainty this is inevitable. Percentage depletion doesn't alter the fact of life.

15. The introduction of a depletion allowance in such a market would, of course, encourage a one-shot increase in exploration, but it would *not* increase the rate of exploration per period after that.

16. Gaffney, *supra* note 4, at 391-99.

17. *Id.* at 399.

of the oil land is in the social interest, then the economists should suggest alternative ways for displacing the margin while explicitly indicating the real costs *and* income redistributive effects of these alternative policies. If, for example, reduction of real costs of exploration and the taxation of economic rents to finance socially desirable projects are social goals concomitant with encouraging the development of the extensive margin of oil lands, then a policy of direct governmental support of geological research may well be less costly to the taxpayer and more beneficial to society than the present tax arrangements. Certainly it should be the function of economists to provide useful information about the effects of all important alternative policies and then permit policy-makers to decide the most beneficial social policy.

Given the many other forces and public policies which stimulate additional exploratory activity and current resource use in the oil industry, the use of a tax device whose main impact is likely to be redistributive rather than allocative, would appear to be a foolish as well as inefficient means (per dollar of tax benefit) of achieving a questionable allocative end. Certainly, until sufficient empirical evidence is presented to show that the elasticity of supply of oil lands is very high and the level of economic rents low, there can be little justification for maintaining this tax treatment except on grounds of equity.¹⁸

18. It might be very difficult to accept equity as a basis for such favorable treatment when approximately \$2.5 billion out of a net operating income of \$5.4 billion for the industry in 1960 was free from taxes. U.S. Treasury Dep't, Internal Revenue Service, Pub. No. 475 (2-66), Statistics of Income 1960 (Supplemental Report—Depletion Allowances for Mineral Production reported on U.S. Tax Returns) 24, 25, 31 (1966). In 1960 alone, for example, there were almost 99,000 *individuals* with gross income of approximately 900 million dollars who paid no income taxes because of this favorable tax treatment. *Id.* at 18.