



## **Alternative Ways of Taxing Forests**

By Dr. Mason Gaffney

Article citation:

Gaffney, Mason. "Alternative Ways of Taxing Forests." No date. Working Paper.

### **Fair Use Disclaimer**

The Robert Schalkenbach Foundation, a non profit private foundation, is publishing this article, at no cost, pursuant to the Fair Use provisions of Section 107 of the Copyright Act which states that under certain circumstances, the fair use of a copyrighted material for purposes of criticism, comment, teaching, scholarship and research is not an infringement of copyright. If you have any concerns about the publication of this article, please contact us at [info@schalkenbach.org](mailto:info@schalkenbach.org).

---

The Robert Schalkenbach Foundation's Digital Collections and Archives is an extension of the Robert Schalkenbach Foundation's Engel Georgist Library. It collects, organizes, preserves, and provides free online access to researchers and the general public of Georgist literature including books, newspapers, pamphlets, scholarly articles and archival materials.

RSF is particularly proud to offer free online access to the works of the late Georgist scholar Mason Gaffney, made possible through the generosity of the Danica Foundation and with the consent of the Mason and Letitia Gaffney Trust.

Robert Schalkenbach Foundation: <https://schalkenbach.org/>

Engel Georgist Library: <https://www.librarycat.org/lib/EngelGeorgistLibrary>

RSF Digital Collections and Archives: <https://schalkenbach.starter1ua.preservica.com/>

Class Copy

2

ALTERNATIVE WAYS OF TAXING FORESTS

By

Mason Gaffney

Who Pays the Property Tax, a book by Henry Aaron of the Brookings Institution, published in 1976, and Dick Netzer's earlier book on the same subject from the same publisher would appear to constitute definitive works on the subject, considering the establishmentarian auspices. Yet neither book has a word to say about property taxes on forests. This fact underscores a growing compartmentalization of thought. Earlier authorities, like Harold Groves or Jens Jensen or Richard T. Ely, would never have excluded forest taxation from the field of public finance. While this says something about the Brookings Institution, it may also warn forest people about our own separatist tendencies. Forest economists and forest businessmen, like others, may live too much in their own particularistic world, thinking their problems are different from others', and their industry unique. The purpose of my remarks is to survey forest taxation from the viewpoint of a general tax economist. I speak neither as an enemy nor as a special partisan, but as a citizen and an economist who is interested in overall efficiency and equity in our society.

How should the forests be taxed? All agree they should be taxed on the basis of parity and equity with other industries and resources. But, with parity in respect to what? There is no substance to "parity" until we define the base. And unfortunately almost everyone, ourselves included, tends to define the base in the manner most advantageous to himself. Let us, however, without prejudice survey alternative bases for taxation and simply tick off the arguments pro and con. I will begin with arguments which forestry people are likely to have heard the more; and move on to newer territory.

## THE PROPERTY TAX

On Standing Timber (but not site value, which is treated separately)

### Arguments Con

This tax is said to weigh with differential severity on forestry because it is levied annually on a crop which ripens only periodically. The annual cash outflow cumulates with compound interest to a high percentage of the value of stumpage at harvest. It has been alleged that if immature timber were actually assessed on the ad valorem basis, no one could make a profit by restocking cutover land.

Even if some might afford the long cash drain, it drives less wealthy people out of forestry since the tax must be paid over decades before stumpage is ripe for harvest.

Property tax liability actuates premature cutting. Some jurisdictions offset part of this pressure by allowing a wholesale discount for large owners with slow cutting programs, but several states and provinces have lost court cases over this. A forest owner subject to property taxation could never afford to hold timber long enough to realize the culmination of mean annual increment.

Since property taxation is local the rates vary among taxing jurisdictions, forcing non-uniformity of forest management practices.

Cruising timber for assessment purposes is costly relative to the tax revenues raised and is likely to be inaccurate.

Intensive forest management is discouraged, especially in the early stages of the growth cycle. (Capital invested early is taxed many times en route to harvest.) Full stocking is penalized by heavier taxes; and early stocking is

penalized. The tax tells the owner to treat capital as an extra expensive input: to substitute land and labor for capital.

The tax is unrelated to benefits received from local government. Trees do not go to school, and forestry is capital intensive. Logging makes heavy use of migratory workers whose children are not schooled in the jurisdiction where the tax base is located, and for whom, some owners believe, they should not be responsible.

The owner has to pay taxes each year with no guarantee that towards the end of life other taxes may not be added. Thus, pay-as-you-go is no guarantee you won't have to pay more taxes later.

#### Arguments Pro

Persuasive as those arguments may be they do not entirely close the case. There is, surprisingly, much to say in favor of standing timber as a base for property taxation.

Uniformity is one principle. Capital in other forms is subject to property taxation. Timber itself, after conversion to lumber in houses, is subject to property taxation. The uniformity argument says that capital in trees should earn the same return as other capital has to earn to justify its keep -- to wit, enough to pay interest on the investment plus property taxes on the base of value. Not to tax trees would be a subsidy, therefore, a "tax subsidy." It would be a subsidy to a capital-intensive industry, specifically for being capital-intensive. This is socially unwise because capital is scarce, and has many highly productive other uses. As to jobs, capital in timber has a lower employment multiplier than capital in most other forms. Capital combines with and employs labor basically when it turns over, and capital in standing timber turns over about as slowly as any capital you can think of. Likewise, the land under it employs labor mainly at harvest.

As to deferred yield and the cash flow problem, the annual accrual in value of growing timber should be regarded as current income, even though not converted to cash flow. This is the familiar doctrine of Haig and Simons, accepted by most economists. Value is added year by year, not all in a rush at harvest. It is also the accepted criterion for success in business, that is to maximize the wealth (which is discounted cash flow) of the enterprise, as opposed to its current cash flow.

Owners with severe cash flow problems probably should not be in forestry to begin with. It is not the responsibility of government to solve the problem of people who get or stay in the wrong business. Some of them can solve their problem by borrowing on the increased value of their standing timber, (deducting both their interest payments and property taxes from other income). In a perfect capital market, they all could. Imperfect capital markets are a fact of life, true, but hold on, that doesn't make us all insolvent. It means many people are super-solvent. So the insolvent owner can sell to those many people whose cash flow problem is how to dispose of surpluses rather than how to scramble for cash. Forest investments are not for welfare cases. The woods are full of professionals in their peak earning years who need and actively seek just such outlets. There is also the sale and leaseback technique. In addition, many forest owners have the capability of normalizing their operations to steady out the cash flow. This is something that building owners normally cannot do -- building owners who are frequently assumed to suffer less than forest owners from cash flow problems.

Exemption from property taxes would not help solve cash flow problems much anyway, in the "long run," which means for the new buyer of forest land and timber. It would increase the capital value of immature forests and forest land, and increase acquisition costs. The exception is that it would give a

one-time capital gain to the present owners, but you can argue that with respect to any land use. That is, it is easy for anyone to say he would be better off if his taxes were abated, but so what. Here, we are discussing relative tax burdens among different land uses, and whether there is a special case for forests.

There is a long historical record of landowner behavior under property taxation, and it is not as catastrophic as its critics' forecasts for the future. Small private owners subject to material property taxation have paid these taxes by practicing leaner, more economical forest management. They have not, it is true, approached the culmination of mean annual increment in their rotation lengths. But, no economist recommends doing that anyway, any more than he recommends building a 200-story building to bring every site to its highest and best use.

Culmination of mean annual increment, CMAI, is applying capital to forest land well beyond the optimal point where marginal cost of capital equals marginal gains. Indeed, we can show mathematically that CMAI is optimal only when the rate of interest equals zero, a rate well below today's prime. The CMAI doctrine results from ignoring the cost of capital, or more likely rejecting it as an unwelcome intruder that has no right to be measured in the same balance with something as splendid as a tree, and a product as good as wood. No doubt other capital uses would like the same privilege of access to free capital. But then demand would far exceed supply, and someone would have to ration credit on some arbitrary standards, and who wants to look far down that path to perdition?

As an object lesson, consider public agencies holding timber exempt from property taxes. They have responded to this freedom from economic pressure by institutionalizing obsolescence in their doctrines and dogmas. Their thinking

is sawlog bound, insisting on long rotations, and concepts of quality based on demand patterns of the past. They have ignored the marketing end of the business, the rapid advance of pulping and chipping technology with its new premium on shorter rotations. They have forgotten that growing timber is a means to consumer satisfaction and let it become an end in itself. It is from this highly particularistic point of view that the strongest attacks are leveled against property taxation. But now, Forest Service indulgence of lazy capital is itself under attack.

The cash flow problem of paying timber property taxes at the front end of a long investment cycle is not (as Mark Twain said of Wagner's music) really as bad as it sounds. In the early years the tax base is extremely low because of the low investment value of immature timber. This refutes the allegation that the property tax treats buildings better than it does trees. The property tax on buildings is front-end loaded, and frequently produces serious, even fatal, cash flow crises at the beginning of life. The impact of early property taxes is further reduced by their being expensable for income tax purposes, even though the income they generate is not to be taxed until harvest time.

The property tax on a pay-as-you-go basis gives the owner full equity in standing timber. This is in contrast with yield taxes, which are deferred to harvest and which let the government build up an equity in standing timber. On the pay-as-you-go basis, there is at harvest time no distortion of owner incentives, no clash of interest between the owner and the government. There is no "locked-in effect" as with an income tax or a yield tax. From the public view, the property tax also therefore supplies a more steady and reliable revenue.

The old Fairchild report, once thought to have shot down the property tax on standing timber, has itself been pretty well demolished for its faulty methodology.

The property tax bears relatively heavier on low site land than high site land because of the naturally shorter optimal cycles on high site land. Besides, the naturally low values of many marginal sites will be totally wiped out by any substantial tax, thus precluding any forestry. While this is a complex topic, there is a case for retiring much marginal land, because the hidden public costs and subsidies of using it are very high, due to long hauls, steep slopes, and fragile environments.

#### The Property Tax on Land (excluding timber)

Many forest economists have touted a property tax based on the capacity of forest sites, exempting standing timber. Ellis Williams is the latest of these. As Williams points out, the movement for using site productivity as the forest tax base is substantially independent from the analogous one for using site value as the exclusive tax base in urban and other land uses. Many of the arguments, however, are kindred.

Where site productivity is the exclusive tax base there is no tax penalty on full stocking, nor yet on early stocking. On the contrary, the tax falling on bare land right after harvest exerts a great leverage to restock cutover land immediately. Here is a unique tax: it promotes land improvement, rather than suppressing it.

This tax base applies more pressure to the better sites; and no pressure to marginal ones, because there is no site productivity to serve as the tax base. We are talking about a pressure for stocking, not against use. Yet, these marginal sites are often ones that should remain unused, because of heavy public costs they require. Thus the tax would act to curb "forestry sprawl," to keep down roading costs and hauling costs. Heinrich von Thünen, the classical father of location theory, would presumably have loved this tax

because of its emphasis on forcing higher sites to their highest use. In von Thünen's scheme of land use he had forests close to the city because of high hauling costs. More recently William Hyde, at Resources for the Future, and Ledyard and Moses at Northwestern, have given us profound analyses of the importance of encouraging intensive forest management on better sites and discouraging the overuse of remote marginal sites. Again, the Federal Forest Service, exempt from any land tax pressure to economize on high sites, supplies the horrible object lesson. District Rangers are one big family. Why should good old Jake get less action, just because his district covers the high Rockies? So there is a little bit of everything, everywhere; no concentration of money and management on better land; and constant pressure to log fragile land at high cost in money, amenities and erosion.

Nonuniformity of property tax rates among local jurisdictions becomes less of an issue under this tax because it contains no bias against forests in the counties of better location, where normally tax rates are higher. To the extent that there is a bias in this, it is in the right direction, that is, of encouraging more intensive management of the better located sites.

There is no pressure to premature cutting. As timber stands approach maturity the value of standing timber becomes much higher than site value, so that land tax pressure is negligible. The pressure is all at the front end when there is nothing there but site value, and the pressure causes rapid restocking. (Like the tax on trees, the land tax is deductible for income tax purposes, moderating its effects.)

There is no inherent bias against capital intensive land use. There is a psychological pressure generated against long rotations because the opportunity cost of land is made explicit, but this is not a bias so much as it is clarification of market signals. Let me elaborate.

Like other taxes, this one is capitalized into lower site values. But in this case site value is itself the tax base, so that capitalization lowers the base. Thus, the pressure on owners is offset by a lower imputed interest on equity. The bottom line is that the tax converts an implicit opportunity cost into an explicit cash outlay.

Like the tax on trees, this tax is pay-as-you-go with no buildup of government equity in mature timber. This eliminates conflicts between the public and private interest in time and intensity of harvest of mature timber. The revenues generated for local government are steady as a rock under this tax. Not only are they independent of harvest timing, they are independent of stocking levels.

A growing and vexing problem of forest taxation is the proper treatment of lands whose highest and best use is evolving into something other than commercial forestry: recreation, homesites, pasture, etc. Ad valorem land valuations give the owner of cutover land advance warning against restocking for commercial timber purposes, where the value is too high for forest use. Land assessments based on unconventional land uses have been regarded by foresters as an enemy, and in some sylvan counties no doubt they are, viewed in the small. But consider the whole interlocking system of land use from a God's-eye view over the whole region. Market value assessments on land best suited for recreation hasten its conversion, thus meeting the demand and relieving pressure elsewhere. Other than outlawing recreation, this seems the only feasible way to contain "resort sprawl," and all the conflicts between amenities and logging. Let the market work; don't make a cult of obsolescence. Easier said than done, in one county at a time. But statewide policies, applied uniformly over wide areas should look to rationalizing the whole system.

Another alternative is legislation which bases land valuations on forest productivity only. This, however, raises a host of difficulties which I discuss on the con side.

Sometimes mature timber becomes part of the recreational resource. Site productivity taxes with exemption of standing trees remove the major fiscal pressure to cut mature timber, leaving owners the option of holding it to integrate with the recreational enterprise if that is their judgment of what the market wants. Yield taxes also remove pressure to cut, but look what else they do: they totally exempt the recreation owner who never cuts. This greatly increases his bidding power compared to timber culture, and defeats the aim of those who would protect commercial forests from resort users. Only the site tax is unbiased between competing land uses.

If the site productivity concept is carried a step further, it removes from the tax base recreational buildings as well as all the capital used in the forest: private forest roads, log decks, camps, portable mills, fences, and all kinds of miscellaneous capital which is very hard to assess and is now treated nonuniformly.

If the policy is carried one step further yet and made general for all land uses, it would mean the exemption from property tax of the best customers of the forest products industry. Forest interests have generally lined up against proposals to exempt urban buildings from property taxation. But, the reasons for this are not clear to me. The sellers of saw logs would seem to be the greatest beneficiaries from the building boom that would ensue. I wonder if they have thought this one through. Presumably they have been moved by the jeopardy that lower county taxes on urban buildings might imply higher tax demands on forests. But even if that be so, I would rather enjoy strong demand than low taxes, as a rule, if I have to choose.

Arguments Con the site productivity base for property taxes

The tax is front end loaded compared with any other tax alternative. It bears the same on freshly cutover land as on land under mature timber.

A much higher tax rate would be required to raise the same revenue as the present property tax which includes standing timber. It must be admitted that one attraction of this tax base to foresters has been the unspoken thought that it would, in fact, raise less revenue from forestry and constitute preferential tax treatment. This rather stacks the cards in its favor unfairly from the viewpoint of a general economist concerned with uniform and equitable tax treatment. From the latter viewpoint, it is approximately correct to say that the site value tax rate would have to be about ten times higher than the present ad valorem rate in order to raise the same revenue. The number ten should not be memorized and cited as the correct figure because the correct figure varies over a wide range with the standard rotation in an area, the level of site productivity, and so on. In the southeastern states where rotations are shorter and timber culture, therefore, is less capital intensive, a much lower rate would suffice. At any rate, I have an unpublished manuscript called, "Taxes on Yield, Property, Income and Site," which develops the mathematical formula for finding tax rates that would raise equal revenues (DCF basis) from different bases. One may plug into these formulas different interest rates, different rotation lengths, and so on.

Because of the higher rates, the accuracy of assessed values becomes more critical and a much higher standard of assessment professionalism would be necessary. But this is not a bad thing, in my opinion. I agree with William the Conqueror, and many other noted state-builders, that a well-researched cadaster is central to the success of the kingdom.

If this tax policy is not general, that is if standing timber is exempt but capital in other forms in other industries is still taxed, it would draw marginal land into forestry. To offset this we would have to raise the rate on a special class of land identified as "forest land." The classification of land would necessarily be bureaucratized and, therefore, somewhat arbitrary at the fringes and intensely irritating to those who do not secure the classification they believe they deserve. It would also pose a large problem of continual reclassification at the margins as the nature of demand for forest land constantly evolves. Judging from the past, reclassification would always lag a generation behind the facts.

In the absence of classification and preferential treatment, this policy would subject forest land to valuations based on recreation, pasture or residential use. Some jurisdictions have addressed this problem by legislating that forest land assessments be based only on capitalized income from commercial forestry, screening out other influences on value. It is easy enough to ride this tiger. British Columbia, for example, has its "tree farm tenures," a classification which owners enter voluntarily and which protects them from assessments based on nonforest demand. On the other hand, it limits their ability to cash in on nonforest demand by selling out at the time of their choosing. With the explosive growth of recreational demand, there are thousands of acres in British Columbia tree farms whose assessed valuation is less than one percent of market value. The provincial government naturally wants a cut of the gain if the owner converts to recreation after having enjoyed the low tax status for several decades. But, the Province doesn't know how to get off the tiger, so nothing is happening.

California, which exempts second-growth timber from the property tax, has recently and quietly passed its Timber Preserve Zone (TPZ) Act basing timber

land assessments on capitalized timber income alone. It has yet to face up to the reentry and recapture questions which will inevitably arise.

Other California interests have evidently yet to awaken to the fact that this complex of measures constitutes preferential tax treatment for forest landowners. It means virtual exemption. Not only do assessors ignore land values based on nonforest use, they also ignore values based on expected inflation of timber prices. Even though this expectation is universal, it is possible to call on tradition and call it "speculative." As other taxpayers gradually awaken to this there will be some reaction, and forest owners riding the tiger will one day also meet a lion rampant.

## THE YIELD TAX

### Arguments Pro

The yield tax is heavily loaded at the back end. Taxation is deferred until liquidation, minimizing cash flow problems.

Tax deferral reduces the present value of taxation, thus reducing the real forest tax load (unless the tax rate is set very high).

The risk of price fluctuations are shared with the Treasury. So are risks of fire, blight, and insects. The tax collector gets nothing until the product has been sold.

The tax adds nothing to annual carrying costs of mature timber and, therefore, permits leisurely harvesting. The tax is claimed to be virtually "neutral" in respect to the timing of harvest because it is a percentage of the stumpage. The after-tax receipts of the owner grow, therefore, at the same percentage rate as the before-tax receipts.

From the Treasury's viewpoint, a one-time yield tax on old growth is very lucrative, and would have no disincentive effects. If old growth took three hundred years to mature in the forest, most of those years being exempt from property taxation, then a yield tax serves to compensate the Treasury. This is not so advantageous, of course, from the viewpoint of the owners of old growth.

#### Arguments Against the Yield Tax

The popularity of the case for yield taxation, like that of site productivity taxation, rests partly on the unspoken assumption that the rate will not be raised enough to compensate for the exemption of standing timber from the property tax. I have calculated that it requires a yield tax rate of 38% on stumpage value to compensate for a decline of 1% in the property tax rate on standing timber. My calculation is made on the assumption that we are comparing otherwise identical jurisdictions one of which relies on property taxation and one of which relies on yield taxation.\*

Some have expressed surprise that the equivalent rate turns out to be as high as 38%. I arrived at this figure using an assumed lifespan of fifty years and an assumed discount rate of 7%. The yield tax rate has to be higher to allow for the fact that it is collected only once every fifty years instead of once each year. It is less than fifty times higher because the tax base in the first three decades is much smaller than in the fiftieth year under the

---

\*David Klemperer has made another calculation regarding the transition from a regime of property taxation to one of yield taxation. He comes up with a substantially lower equivalent rate. However, his rate is based on the assumption that mature timber, which has been paying property taxes for all its life, is also subject to the full rate of yield taxation, thus, in effect, being taxed twice, once under each system. His answer applies to the transition period and my answer applies to the long-run equilibrium.

property tax. A third factor in the equation is the compounding of property tax revenues to the fiftieth year. A fourth factor might be in definition of the property tax base. I assumed a theoretically correct one, based each year on the investment value of immature trees. In practice, immature timber is assessed well below this level, by law or custom or in recognition of power. My calculation is available on request.

As a local tax the yield tax imposes high instability on local government revenues. Sharing risk with local government, so attractive to owners, is equally unattractive to the governments. These are often much smaller than the owners, especially large corporate owners, some with several million acres apiece, others with diversified interests from publishing (Time, Inc.), land development (Boise Cascade), metals (U.S. Steel), or oil and transportation (Southern Pacific). The governments bear more than their share of the risk, because the owners turn the revenues on and off at their convenience. The locals have no voice in when to cut.

As a general economic principle, it is not desirable that a helpless partner share risk with a controlling partner. It weakens the latter's incentive to avoid risk, because he can dump part of it, free to himself. This causes net waste, and weakens owner incentives to reduce risks and instability in real ways, as by normalizing rotations, and choosing investments that turn over faster.

Yield taxes are inherently biased against quick recovery of capital, because costs are not deductible. Any rate high enough to be more than a joke when applied to a long Douglas-fir cycle of say 80 years will also be high enough to wipe out nursery or Christmas tree farming altogether. Say the rate be 20%, the cycle 4 years, and the real (inflation-adjusted) interest rate 4%. In equilibrium, a real gain of 17% over 4 years comes to 4% per year, compounded.

But now clip 20% off \$1.17, and the investor gets back only 96¢ per dollar invested, a negative return. It's really worse than that, too, because value is added not just by capital but by labor, fertilizer, and other inputs, all taxed at 20%, on the gross turnover. Some may share Alben Barkley's quotable contempt for "crickets," his term for Christmas trees (and, by association, for the small businessmen who grow them?). But the bias is not just against small trees, it is against short investment cycles of all kinds. This includes all timber stand improvement (TSI) in midlife or later. Let's say an investment of \$100 in TSI ten years before harvest is expected to increase stumpage revenues by \$200. Doubling your money in ten years works out to an annual return of about 7% compounded. But after a 38% yield tax, \$200 is reduced to \$122 after taxes. This works out to a rate of return of 2% compounded annually, a rate much too low to interest any investor. The way the arithmetic works out, the yield tax contains a strong intertemporal bias against short investment cycles, as in the two examples just given. One can best convince himself of this by taking out his compound interest tables or hand calculator and working out a number of examples.

A yield tax will cause some high-grading in harvest. Theoretically, the deduction of harvest costs from the tax base should prevent this. In practice, however, the yield tax base is the scale at the edge of the woods. The woods are not uniform, they contain some bad logging chances with gullied land and steep slopes. When the log reaches the scale there is no way to determine its individual harvest costs: all are treated the same. A 38% yield tax rate would certainly result in substantial high-grading on nonuniform land.

The pro argument that a yield tax does not reduce the percentage growth rate of the owner's investment is a faulty argument for the neutrality of the tax. This is because property taxes levied on other capital do lower the

rate of return for other capital. A tax on timber in order to be neutral must be uniform, which is to say it must lower the rate of return on timber by the same amount as taxes lower the rate of return on other capital. An investment in urban buildings, for example, must return to the owner both a competitive interest rate and a property tax rate in order to cover its carrying charges. Under the yield tax, growing timber would only have to yield its owner a competitive interest rate. This would result in uneconomical diversion of capital from urban buildings into standing timber. In the lingo of economists, the argument for yield tax neutrality is based on partial equilibrium analysis, when it should be based on general equilibrium analysis.

A yield tax, like all local taxes, is capitalized into lower land values. This, in turn removes the pressure to restock cutover land. That is, if the soil expectation value of bare land has been reduced to zero after taxes, the owner has no economic incentive to restock it, or otherwise economize on it. He has always the alternative of letting nature restock it. This process is much slower, and leaves the land asleep like Rip Van Winkle for twenty years before it gets back to work. This is the price we pay for the otherwise attractive feature of tax deferral or back-end loading. Comparing it with the forest site productivity tax, the latter also is capitalized into lower land values, but compensates by applying an annual tax charge to actuate owners to restock immediately.

The yield tax is biased as among sites of different characteristics. We have demonstrated its built-in bias against shorter investment cycles. It is, therefore, biased against those lands which respond better to intensive management practices, where timber grows faster by nature, or which is adapted to faster growing species. Again lapsing into economists' lingo, there is an extensive margin for the application of capital and management, and there is

an "intensive margin," meaning the marginal increment of management and capital on the better sites. As between these two margins, the yield tax biases management away from the intensive margin. When I say "bias" I mean the impact of the tax is differentially severe on the intensive margin. This is because of the shorter investment cycles involved. The result might be called "invisible high grading" because the abortion of potential TSI results in the absence rather than the presence of something. Or, in the colorful hyperbole of "dear Alben" Barkley, we might say that the tax is harder on "crickets" than on "stallions"; but unlike Vice President Barkley, we would have to allow for the possibility that his crickets might be worth more than some of his stallions.

Capitalization of yield taxes into lower site values at the front end of rotation cycles, coupled with its "locked-in effect" at the end of cycles, creates an unambiguous bias against shorter cutting cycles. Comparing this with the property tax on timber, the latter is also capitalized into lower land values, creating a similar bias against early stocking; but at the end of cycles the property tax actuates earlier cutting. Thus, the intertemporal bias of the property tax is self-tempered, while that of the yield tax is entirely one way and, therefore, more extreme.

The yield tax's "stretch-out effect" on cycles also reduces other taxes which are levied on payrolls at the beginning and the end of rotations when labor is applied. While the owner may say "so what," the Treasury has to make up the revenue some other way. In addition, the less frequent application of labor to forest land contributes its bit to the national unemployment problem, and more specifically to unemployment in sylvan areas. It would be accurate to say the yield tax actuates substituting capital and land for labor, beyond what is economically justified. It is a modern reflex to disregard unemployment as a local issue, kicking it upstairs to the Feds. They, however, combat

it by inflating the currency, a mechanism which has become seriously overloaded, as you may have noticed. The time has come to consider the effects of our institutional structure on employment. Doing so, the yield tax is a bad choice.

The intertemporal bias of yield taxation militates against modern trends towards shorter cutting rotations. It weakens forestry in its uphill battle against obsolescence, a disease which is bound to afflict any industry characterized by long investment cycles.

While the yield tax is deductible for income purposes, the value of deductibility is not to be compared with that of property taxes because the yield tax deduction is synchronized with the receipt of income, while the property tax deduction precedes it by decades.

Yield taxation affords a 100% loophole for owners who never cut their stands, but use them for amenities, recreation, or nothing at all. The last is not so rare, considering all the land locked up in unsettled estates, and other dead hands.

Yield taxation is inherently non-uniform because it is based on a concept (stumpage) that is peculiar to forestry and has no exact counterpart in most other industries. The nearest general concept is gross turnover, but stumpage is net of harvesting costs, costs which often exceed stumpage value. It is not based on value-added, because costs before harvest are not deductible. Going to yield taxation means creating a separate tax system for one industry, treating it and its owners as a separate class, privileged today, perhaps punished tomorrow, but always in a political power struggle. The adversaries will speak different languages, share no common ideas of equity or efficiency, and shoot it out on a dark plain where ignorant armies clash by night.

## THE INCOME TAX

The income tax resembles the yield tax much more than it does the property tax, so the pros and cons are similar. I will not repeat most of them, therefore, here but concentrate on the differences between the income tax and the yield tax.

### Arguments Pro the Income Tax

The income tax differs from the yield tax in that costs are deductible. Timber stand improvement ten years before harvest, for example, would be fully deductible (even though not expensable). This factor removes the worst bite of the bias against short investment cycles and the "invisible high grading" that is caused by a yield tax. When one works out the arithmetic, one discovers that the intertemporal bias is not entirely removed, but it is abated.

Again, the deductibility of harvest costs on the basis of actual outlays eliminates the high-grading effect of a yield tax. The bad logging chance which is marginal before taxes remains marginal after taxes.

The timber owner's risks are more completely shared by an income tax since the Treasury shares in his costs as well as his gains.

The income tax, being levied at the State or Federal level, is uniform over wide areas. The concept of income being common to all industries, the income tax is or can be made uniform and nondiscriminatory among different industries as well, so that allocational bias is a minimum. Of course, those presently enjoying preferential tax treatment are understandably less than ecstatic about the prospect of uniformity, but to the generalist it is a significant value and, to those now paying more so that timber may pay less, why, uniformity offers tax relief.

### Arguments Con the Income Tax

The income tax rate required to raise the same revenue as a yield tax must be at a substantially higher figure, at least where rotations are medium or short. This high rate leads to strenuous contortions motivated by tax avoidance. The deductibility feature leads easily to padding expenses and goldplating of capital equipment. In the nature of things it is harder for a tax auditor to identify the goldplating on capital than it is for him to identify the consumption elements in payroll, resulting in a capital intensive bias.

The "uniformity" of income taxation is illusory, owing to the personal nature of the tax. Every individual and firm has his own internal income tax circumstances, so that, in effect, everyone's timber investment is treated differently.

While individuals may be treated differently, broad geographical areas are treated substantially the same. This is not as good as it looks because their required public costs are very different. This results in substantial cross-subsidy to the high cost areas.

The income tax as presently written is preferential towards income from timber culture, primarily through capital gains treatment of sales revenue coupled with current expensing of property taxes and interest outlays against ordinary income. The fact that costs are recognized for tax purposes long before the income to which they contribute is inherently preferential; and, in addition, the full costs are deductible whereas only 40% of the income is now recognized. Some other industries like farming and oil and gas exploration receive equally or more preferential treatment, true, but most income is taxed more heavily. This results, of course, in overallocation of the Nation's

limited capital stock to timber culture. There are, in addition, serious questions of interpersonal equity. The poor people do not own all the timber, nor is the industry a welfare case.

Within the timber growing enterprise itself there are serious distortions since "property costs" -- that is, interest and property taxes -- are expensable, while planting costs, mainly labor, have to be capitalized. There is a bias to grow timber with a maximum input of time and a minimum input of labor. That is, if you spend money to restock cutover land right away, you cannot deduct the outlay for many years, and then only 40% of it, so the present value of the deduction is negligible. But if you buy more land, and wait for nature to restock it untouched by human hand, you can deduct interest and taxes as current and ordinary expenses. Thus the tax man tells you to substitute land for labor, seedlings, and other inputs of regeneration.

Vertically integrated firms have an incentive to shift profits from the mills to the woods in order to maximize the amount of income receiving capital gains treatment. The incentive is to let more value be added on the stump and less by processing in the mill. This again misallocates resources and, in addition, makes the timber business more capital intensive on the whole, and gives an invidious advantage to vertically integrated firms. Vertically integrated firms have the additional advantage of being able to use appraised value rather than actual sales value for stumpage valuations. Sellers of timber in the open market are even in jeopardy of being denied the capital gains privilege, although most of them do qualify by use of the "pay-as-cut" contract. Vertically integrated firms are also more certain to have ordinary income available from which to deduct expensable interest and property taxes on timber holdings.

If we must allow preferential tax treatment for timber, for whatever

reason, it would be constructive to have that preference given in the form of expensing the costs of intensive management and timber stand improvement, instead of in the present package which has a heavy capital intensive bias and is only compatible with that one notion of "good forestry" which equates good forestry with long rotation cycles. Industry lobbyists have formed a political judgment that capital gains are easier to get and retain if expensing of TSI is not sought. Maybe so. That is a judgment to be made by those more wily in the ways of legislative bodies than I. As an economist, I can only say that the economic case would be much stronger. And, as a citizen, I can say that the moral case is stronger, too. Industries and public representatives who dismiss moral cases may answer for it some day.

My own preferences among taxes are a matter of ranking. The best base on all counts is site productivity, and I would generalize that case as far beyond forestry as possible. If that be denied me, then I like next an income tax with restocking costs fully expensable, but property costs (interest and taxes) capitalized. This is the reverse of current practice. It would get cutover land restocked right away.

My third choice is a general property tax applied uniformly to all capital and land. Some states exempt "personal property," mainly business inventories, which raises the fascinating question whether timber is real estate, attached to the ground, or an inventory. Timber people have pressed the inventory analogy, of course, but one may ask if they would also then like the same income tax status as other inventories and give up capital gains privileges. The question answers itself, and state legislatures can I think be secure in taxing timber as real estate.

The yield tax, in my opinion is no choice at all. The cumulative weight of the case against it is overwhelming.