PROPERTY TAXES AND LAND VALUE TAXES

BY POLLY ROBERTS

IN 1869, A STRUGGLING YOUNG San Francisco journalist, Henry George, visited New York City. As he wandered the streets from the mansions to the slums, a paradox struck him: why "amid the greatest accumulations of wealth, do men die of starvation, and puny infants suckle dry breasts?" In 1879, George published *Progress and Poverty, An Inquiry into the Cause of Industrial Depressions and of Increase of Want with Increase of Wealth . . . The Remedy*.

George explained the paradox roughly as follows: A relatively small proportion of the population owns most of the land. Consequently, much of the benefit of progress falls to them as increases in land values.

While wealth increases, the distribution of wealth grows more unequal. At the same time, through indolence, hope of speculative gain, or deliberate monopoly, many landowners hold valuable land idle or underused. This reduces production, limits employment, and aggravates the unequal distribution of wealth. George also described how idle land disrupted the development of San Francisco — "urban sprawl" a hundred years ago!

To remedy these ills, said George, abolish all taxes save a tax on land values. He argued that this tax, later known as "the single tax," would redistribute wealth, and capture for public use values created by public investments and the general progress of society. It would also release idle land for production by forcing holdouts to use it or sell it. Thus, all who wanted to work could find full employment.

George attacked many of the same evils as did his European contemporary, Karl Marx. But George's analysis, unlike Marx's, was essentially conservative, very much in the classical tradition of Adam Smith and John Stuart Mill — a tradition whose purest modern believers seem to inhabit the University of Chicago. Smith denounced the "great proprietors" who neglected or mismanaged their land. Mill loved to write how landlords "grow richer, as it were, in their sleep." Both considered land taxes superior to other taxes.

George's solution, while radical, was also peculiarly American. Marx proclaimed religion "the opiate of the masses." But George founded his remedy on the moral proposition that all men had an equal, God-Given right to the land. Marx's followers inclined towards state control of the economy, and sharp limits on individual freedom. But George sought to enhance the virtues of free enterprise by retaining private control of property and sharing it among more people — encouraging competition. Reliance on a land tax, he hoped, would keep government within bounds.

Progress and Poverty became an instant worldwide bestseller. George toured the English-speaking world, his eloquence everywhere drawing a huge following. He died in 1897, while running a probably successful campaign for Mayor of New York.

The "single tax" movement flourished in the late 19th and early 20th centuries. Among its many illustrious supporters were the American educator John Dewey, and Lloyd George and Winston Churchill in England. As a legacy of the movement, many countries around the world notably Australia, New Zealand, the Union of South Africa, Kenya, Taiwan, and Denmark, tax land for certain limited purposes. Jamaica is currently introducing a land tax. Western Canadian provinces and certain US cities, like Pittsburg, theoretically tax land at twice the rate of improvements. All California irrigation districts tax land only.

In the last decade, the decay and sprawl of American cities have revived interest in a much more modest proposal: to shift the general property tax to land values only. In practice this would mean higher taxes on property with less than average improvements, and lower taxes on property with more than average. Many economists believe this shift would make urban land use more efficient. A minority group of the National Commission on Urban Problems, including [former] Senator Paul Douglas, endorsed land taxes. Members of Ralph Nader's tax Reform Research Group favor land taxes. So does the US Chamber of Commerce.

Last year, California State Senator Albert Rodda introduced legislation for a constitutional amendment to shift property taxes to land taxes in California. I have adapted the following from testimony I presented to the California Senate Revenue and Finance Committee in support of the amendment.

Richard Nixon and George McGovern agreed on one point: the need to cut the most unjust and most unpopular tax—the general property tax. So before discussing the reasons for changing a general property tax to a land tax, let me clear up some confusions about the general property tax.

1. The property tax unfairly burdens poor and moderate income persons.

As a number of economists have recognized in recent years, the property tax is pretty much what it purports to be, that is a tax on property. Consequently, it is tax paid mostly by those well off enough to own property. These are a much smaller number than those who earn income, and therefore pay income taxes, and an even smaller number than those who purchase goods, and therefore pay sales taxes.

As income is usually reported, the top ten percent of income receivers get about 30 percent. As the table on the next page shows, the top 10 percent of owners of wealth have, conservatively, 60 percent to 70 percent. These figures are underestimates for a variety of reasons, including the fact that they do not even count the 50 percent or so of the population who own no wealth to speak of. Yet most of these people do earn income.

One would think, therefore, that a tax on the value of property would be progressive. That is, a tax on property would take proportionately more from the rich than from the poor. In fact, one would expect a tax on property to be more progressive than a tax at the same rate on income.

Once upon a time, Americans regarded the property tax as a tax which poor and average citizens imposed on the rich. The Founding Fathers called it "confiscatory." Right-minded property owners therefore imposed property qualifications on the vote — lest the poor vote to tax the property of the rich. Property qualifications have been reduced over the years. But, as in California, property owners alone still elect officers of most special improvement districts. In fact in some California irrigation districts, the vote is proportional to value of property owned.

Arizona had property qualifications for bond issues until the US Supreme Court ruled them unconstitutional in 1970. Many taxing jurisdictions still require better than 50 percent majorities to pass bond issues, or otherwise limit the amount of debt to be paid from property taxes. Such restrictions would seem unnecessary were property taxes such a burden on the poor or average majority.

The Old South, which remains in many areas a semi-feudal society of rich landowners and poor sharecroppers, relies heavily on regressive sales taxes, including taxes on food. There are no property taxes on the old plantation. The timber companies of nothern Maine have managed to keep their holdings unincorporated — lest more people move in and tax them. Small settlers in the Central Valley of California used the property tax to break up the great land monopolies of cattle barons like Henry Miller. Around the turn of the century, Australians applied property taxes in a deliberate national strategy to break up large landholdings.

Why then, do many people regard the property tax as a tax on the poor?

I think it's partly because we have come to assume the "progressive" income tax is the best of all possible taxes. Therefore, any other tax must be worse. Many statistical studies that purport to show the property tax worse than the income tax assume their conclusion in the way they select and treat their data. Several recent studies which correct only partially for these biases find the property tax quite progressive.[1]

Let me try to straighten out further common misconceptions about the property tax.

2. The property tax is irrelevant, because most wealth today is held in the form of "intangible" property like stocks and bonds.

This is perhaps the silliest misconception. Stocks and

---

1. See M. Mason Gaffney, "The Property Tax is a Progressive Tax," Proceedings of the Sixty-Fourth Annual Conference on Taxation, sponsored by the National Tax Association, 1971, pp. 408-426, and references cited therein. Also see, Stephen F. LeRoy and Peggy Brockschmidt, "Who Pays the School Property Tax?" in *Monthly Review*, Nov. 1972. Research Dep't Federal Reserve Bank of Kansas City.

TABLE 1
Share of Wealth Held by Top Wealthholders

Investigator	Kind of Wealth	% of Holders in Top Group (s)	% of Wealth in Top Group (s)
	U.S. Estates, 1926	0.1	8.5
FTC [a]	U.S. Estates, 1926	2.5	46
Smith and Calvert [b]	U.S. Wealth, 1958	1	24
Lampman [c]	U.S. Wealth, 1961	1	28
U.S. Census [d]	U.S. Farm Acreage, 1949	2.3	43
R. Nader *et al.* [e]	Calif. Acreage, 1971	(.01	13.5
M. Gaffney [f]	Milwaukee, CBD, east side, assessed value, 1968	10	60
M. Gaffney [g]	Milwaukee Industrial Real	10	89
	Estate, assessed value, 1960	1	59
	Same land area	10	75
TNEC [h]	U.S. Corporate Shares	3	50
Crockett and Friend [i]	U.S. Corporate	0.1	20
	Shares, 1960	1	50
Judiciary Comm., U.S. Senate [j]	Shares of GM, 1956	(.01	33
Lydall and Lansing [k]	U.S. Net Worth, 1953	10	56
U.S.D.I.[l]	Federal Coal Leases, 773,000 acres, 1970	10 holders	49

[a] U.S. Federal Trade Commission, *National Wealth and Income*, Senate Doc. No. 126, 1926, p. 59.
[b] James Smith and Staunton Calvert, "Estimating the Wealth of Top Wealth-holders from Estate Tax Returns," American Statistical Association, 1965 Proceedings of the Business and Economic Statistical Section, Table 5, p. 258.
[c] Robert Lampman, *The Share of the Top Wealth Holders in National Wealth* (Princeton: Princeton University Press, 1962), updated to 1961 by Lampman in *Business Week*, "Rich Get Richer — but not for Long," January 27, 1962, p. 31.
[d] 1950 U.S. Census of Agriculture, Vol. 2, Ch. 10, p. 775.
[e] Robert Fellmeth (ed.), "Power and Land in California" (Washington: Center for Study of Responsive Law (1971), Preliminary Draft (mimeo), Vol. I, p. I-17.
[f] Data taken from City of Milwaukee assessment rolls and ranked by Patricia Bevic, research assistant.
[g] I ranked 626 City of Milwaukee industrial firms by assessed value, using data collected by Norbert Stefaniak.
[h] Temporary National Economic Committee, Monograph 29, *Distribution of Ownership of the Largest 200 Non-financial Corps.* (Washington: GPO, 1940), pp. 37 ff. and Monograph 30, *Survey of Shareholders in 1710 Corps.*, p. 50.
[i] James Crockett and Erwin Friend, "Characteristics of Stock Ownership," American Statistical Association, 1963 Proceedings, reported in Milwaukee *Sentinel*, September 18, 1963.
[j] *Bigness and Concentration of Economic Power – a Case Study of General Motors*, Staff Report, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, 84th Cong., 1st Sess. (Washington: GPO, 1956), p. 7.
[k] Harold Lydall and John Lansing, "A Comparison of the Distribution of Personal Income and Wealth in the U.S. and Gt. Britain," *AER* 49 (1): 43-67 (March 1959), (using data from University of Michigan Survey of Consumer Finance).
[l] U.S. Department of the Interior, "Working Paper" (unpublished), cited in Milwaukee *Journal*, August 29, 1971.

From M. Mason Gaffney, "The Property Tax is a Progressive Tax," Proceedings of the Sixty-Fourth Annual Conference on Taxation sponsored by the National Tax Association, 1971.

bonds are merely claims on income from corporate property, which is quite tangible and taxable.

What is Standard Oil, after all, but a collection of valuable oil fields, oil refineries, gas stations on "hot" corners, and plush corporate office buildings in the center of big cities? What is Safeway but a collection of stores, parking lots, and warehouses? Even the Bank of America owns a lot of eminently taxable property: the Bank of America building and other downtown real estate in San Francisco, and innumerable branch offices on valuable commerical property all over the state. It's perfectly true that if I live in San Francisco, and own stock in General Motors, the city can't tax my stock. However it *can* tax the GM dealerships on Van Ness Avenue.

In 1974, 55 percent of California's property taxes came from commercial, industrial, and other non-residential property. Single-family residences paid 31.8 percent and multiple-family residences paid 13.2 percent.[2] Around a quarter of single-family residences are rented, so the legendary homeowner pays well under a third of property taxes.

3. The property tax is Balkanized.

In 1971, in *Serrano v. Priest,* the California Supreme Court found that financing education with local property taxes "invidiously discriminates against the poor." The Court ruled that "Education may not be a function of wealth, except the wealth of the state as a whole." And it does seem unfair that Beverly Hills can offer good education at low tax rates while nearby Baldwin Park offers poor education at higher tax rates.

Many people took *Serrano v. Priest* to sound the death knell for the property tax. But in fact the decision says nothing about property taxes, but only about *local* taxes. It would be just as unfair to finance education from a local income tax, or a local sales tax, or, if you will, a local tax on dog licenses. We should finance education and other social services by a statewide tax.[3]. I think it should be a statewide property tax, or better yet, a statewide land tax.

A statewide tax would extract a fair share for public education from tax havens like the Cities of Commerce and Industry in Southern California, wealthy residential areas like Beverly Hills, and huge rural landholders like Southern Pacific, Standard Oil, and Boise Cascade. And if Standard Oil tells us that "oil fields don't go to school," so why should they support public education, we can reply that their holdings would be worthless unless we the public respected and defended their title to the land. They can at least support public education in return.

4. The property tax is poorly administered.

Theoretically, assessors appraise the true market value of all property, land and improvements alike, by looking at selling prices of similar property and extrapolating. The actual tax will be a percentage, usually from 1 percent to 5 percent of market value, though some cities like Newark apply rates over 9 percent.

In practice, most assessors appraise property at a fraction of market value. That wouldn't be too bad if it were the same fraction (California requires 25 percent), but assessors tend to be erratic in their practices, and systematically biased in favor of the rich. After all, the rich can finance the assessor's campaign, and send their lawyers in to pound the assessor's desk. Nader's Tax Reform Research Group has collected hundreds of cases of grossly underassessed property belonging to rich influentials, like the Mellon family, or big corporations, like the coal companies in Appalachia.

At the same time, assessors tend to overassess poor property. George Sternleib's study of residential abandonment in Newark found property taxed at effective rates over 100 percent of market value.[4] However, blame maladministration on the administrators, not the property tax. Given the same quality of staff and resources, assessors could outperform the IRS. Property appraisal requires far less information than does estimation of income other than payrolls, and requires fewer

2. Statistical Research and Consulting Division, California State Board of Equalization, "Estimated Distribution of State and Locally Assessed Property Tax Base and Taxes for 1973-74 by Property Type." Aug. 30, 1974.

3. See George E. Peterson and Arthur P. Solomon, "Property Taxes and Populist Reform," *The Public Interest*, no. 30, Winter 1973, pp. 62-75. The impact of statewide financing of public schools depends critically on the approach. If the money went to pay school costs at present levels, then the prosperous suburban schools and taxpayers would benefit most. It would be fairer for the state to give per child educational vouchers, say $1,000 each. Localities that wanted to spend more would be free to raise additional money.

4. George Sternleib and Robert W. Burchell, *Residential Abandonment: The Tenement Landlord Revisited,* Center for Urban Policy Research, Rutgers University, The State University of New Jersey, New Brunswick, New Jersey. Sternleib never actually says that Newark slum properties are overassessed, but he supplies abundant data. For example, p. 77, he describes a property yielding gross rents of $12,000, assessed at $51,700. Minimum operating and maintenance costs, not including the owner's labor, come to over $5,400. Taxes are over $4,600. That leaves a net cash flow of at most $2,000. At a generous capitalization rate of .20, the property is worth $20,000, making the tax rate 23 percent. But the property is unsalable, so the effective tax rate probably exceeds 100 percent.

difficult judgments, e.g., whether to capitalize or expense a cost, or when to deduct depreciation. And, property taxes require less policing. It's awfully hard to hide an acre of land or an office building. With the advent of the computer, assessment practices have improved enormously in many parts of the country, especially California.

Also, why compare a poorly administered property tax with an idealized income tax? The supposedly "progressive" federal income tax is probably administered worse than the property tax for the same reason — the rich can bend the law in their favor. Adjusted gross income on which we pay taxes, is income after loopholes. In fact, loopholes permit many rich persons and corporations to avoid income taxes altogether. Also, as the saga of Nixon's taxes suggested, the IRS may be almost as biased in administering what's left of the income tax as your average assessor in administering the property tax.

Ironically, the abysmal administration of the income tax has led many economists to call the property tax regressive. Witness the "Reagan Effect." In at least two years, the former Governor of California reported zero income for tax purposes. In the same years, he paid heavy property taxes on his ranch. Like many rich people, Ronald Reagan avoids income taxes by keeping tax shelter cattle operations.

Think what happens when your average near-sighted economist cranks that information into his statistics; he finds many people with no income paying heavy property taxes. He then concludes that the property tax is a groaning burden on the poor!

In fact, property is the paramount tax shelter — think about capital gains, expensing of intangibles, multiple depreciation, mineral depletion, etc. etc. The more property the rich own, the lower the income they are likely to report. It is a sad day when we call the property tax regressive, because it is the only tax many rich persons pay.

5. The property tax is unfair to the elderly and disabled.

One often reads moving editorials about the property tax's "heavy impact on the old or disabled with property but very low incomes." The injustice seems obvious, but let's be careful. Special interests regularly trot out widows and orphans.

Consider the Reagan-Moretti property tax refund bill, enacted in 1971 in California. Senior citizens with less than $10,000 per year income can get up to 96 percent of their property taxes back on up to $37,000 of the value of their homes.

A typical case that might fall under this provision: A retired executive with a $200,000 ranch and an income of about $25,000 from stocks and cattle. He shelters this income by writing off "losses" on his cattle operations. So he reports about $5000 income. Obviously the law wasn't meant to apply to him — or was it?

Another typical case: A retired couple has a $50,000 house too large for them, and $600 a month from pensions and Social Security. They keep the house, instead of moving to smaller quarters, because on their death their son will inherit it, without having to pay capital gains taxes. Shouldn't the son, the future beneficiary, help them with their property taxes?

But what about the real hardship case: The elderly widow in her $15,000 house with her $250 a month pension, and no children to help her-or inherit the house. Should we forgive this poor widow her $600 a year in property taxes? Remember, a tax break is the same as an expenditure, so we effectively give her $600 a year in welfare. Remember also, she could sell her house, put the money in a trust fund, and live on $350 a month,and keep her capital. Or, she could buy an annuity and live on perhaps $400 a month.

If we give this widow $600 a year in welfare, but don't give the same to a widow with $250 a month and *no* property, we are giving welfare in proportion to property ownership. Now welfare in proportion to property is a great American tradition — look at Lockheed — but hardly one to encourage . The poor deserve assistance, but let's not give the rich a dollar in order to give the poor a penny.

6. Owners "pass on" the property tax, so everyone pays it, not just property owners.

The most damning argument one hears against property taxes, one that would render other advantages moot, is that businesses will simply raise their prices and pass the tax on to consumers. Likewise, landlords will raise rents and pass property taxes on to their tenants. This is a favorite argument of the National Association of Manufacturers and the like. Don't tax us, they say, because we will just increase our prices and make you pay anyway. If that were really the case, why do they lobby so hard for lower taxes?

Let me explain when and how businessmen can "pass on" a tax. A rational profit-maximizing businessman chooses the combination of price and volume that gives him the largest return. As any accountant knows, fixed costs like rental payments (overhead) do not affect the optimum price-volume combination. However, the higher the variable costs, that is, costs proportional to output, the lower the volume and the higher the price that give the businessman maximum profits.

Consequently, a fixed tax like a license fee just goes into a businessman's overhead. It reduces profit, but does not lead him to sell less. But a tax of the same amount, proportional to quantity produced, leads the rational businessman to sell less at a higher price. In other words, he avoids part of the tax by selling less, and makes up some of the loss from the higher price. We then say he "passes on" the tax. Actually, he can pass on only part of the tax; the stronger his monopoly position, the more he can pass on. Appendix 1 gives a

So even if landlords ~~did~~ raise rents

simple numerical example of tax shifting. Readers who still have difficulty with this argument can find a fuller explanation in any basic text on cost accounting.

Remember that the general property tax is two taxes: a tax on land and a tax on improvements.

Economists since Adam Smith have agreed that owners cannot pass on a tax on land. For a tax on land is a fixed cost. It depends on the value of the land, not what the owner does with it. The value in turn depends on the quality of the location, and other factors beyond the owner's control. In fact, when an owner pays a tax on land, he effectively pays a fraction (depending on tax rate) of the lease he would have to pay if someone else owned the land. So the entire burden of the tax falls on the owner, lowering the value of his land. For example, at a 5 percent discount rate, an annual tax of $100 will lower the land value by $100/.05, or $2,000.

In the short run, owners cannot pass on property taxes on improvements either. Like any other profit-maximizing businessman, the apartment owner picks the optimum price-volume combination. He logically charges "what the traffic will bear" — the highest rents possible that won't cause a lot of vacancies. Taxes on buildings go right into overhead with other fixed costs. They do not affect the level of rents that give maximum profits. Hence, rents in a desirable area may rise faster than property taxes, while they may drop faster than property taxes in a declining area. Income methods of appraisal assume the owner bears the entire tax.

To be sure, some landlords, through ignorance or desire to be "fair," may set rents below the most profitable level. If their taxes go up, they can raise the rents by that amount without losing tenants. Many profit-maximizing landlords in a rising market may make a small tax increase the occasion for a large rent hike — though they would have raised rents anyway. Then they grumble loudly about skyrocketing taxes, lest their tenants consider them "greedy."

In the long run
~~Consequently~~, owners do pass on some of the property tax on buildings. Although the tax does not affect rent levels in existing buildings, it does raise the cost of constructing new buildings and maintaining old ones. Owners respond by building fewer new buildings, and neglecting and abandoning old ones. The reduction in supply sends up prices and rents. Low density zoning and restrictive building codes have the same effect.

In short, property owners do not pass on the tax on land. They do pass on some of the tax on buildings, not directly by raising the rent, but indirectly by supplying less and poorer quality housing.

Many studies purporting to show the regressivity of property taxes, falsely assume that owners pass them on in whole or in part, that property taxes are proportional to rents. They are not. They are proportional to property values. The value of buildings is much higher in proportion to rents for new, high quality buildings (a high gross rent multiplier) than for old, low quality buildings. If landlords would raise rents with the property taxes, high income tenants would pay several times the effective rate of low income tenants.[5]

And they commit a further fallacy: They assume

Altogether then, the ordinary property tax falls mostly on wealth. That makes it the most progressive tax we have. Better administration, and a shift to statewide taxation for schools and other social services will make it even more progressive.

Not by coincidence, the greatest effort to do away with the tax comes at a time when assessment practices are better than ever. Currently, legislatures nationwide are passing laws requiring assessors to do what they formerly did illegally: underassess farmland, or estates, or vacant but valuable commerical property. According to a study by George Peterson and Arthur Solomon, "in state after state, the principal leaders of the property tax 'revolt' prove to be substantial homeowners and realtors [Sic] rather than the proverbial 'little men' . . . We believe that it is these relatively well-to-do people who would be the true beneficiaries of currently popular proposals for effecting massive property tax reductions." [6]

Reasons for Shifting to a Tax on Land Only

A shift to taxing land will cure the unpleasant side effects of building taxes. And higher land taxes will administer a dose of Geritol to tired cities.

Building taxes induce profit-maximizing owners to supply less and poorer quality construction, especially in heavily-taxed central cities. An annual tax rate of 5 percent capitalized over the life of a building may be the equivalent of a sales tax over 50 percent of the building when new.[7] A tax like that can stop new construction in its tracks. Some cities consequently grant explicit or covert tax exemptions to selected new buildings, like the Prudential tower in Boston. But exemptions chew holes in the tax base, and provoke understandable howls from owners not so favored. In slum areas that banks and insurance companies have "red-lined," building taxes drain away the only cash owners can obtain for maintenance.[8] Building taxes smother central cities, sending developers fleeing to lightly taxed fringe areas.

Like lease payments or other fixed costs, land taxes do not affect the behavior of the average profit-minded

---

5. Peterson and Solomon cite a study in San Francisco after the Petris-Knox bill mandated 25 percent assessment ratios for all property that "well over half the increases in effective property tax rates that resulted was absorbed by the owners of these properties, rather than passed on to tenants." op. cit. p. 73. I suspect that the natural market increase in rents accounts for the part of the property tax that allegedly was passed on.

6. Peterson and Solomon, op. cit., p. 61.

7. The Present Worth of One over 40 years at 8 percent is 11.92. 11.92 x 5% is 59.6%. So 5 percent a year on non-deteriorating building equals 59.6 percent now. Of course the building will deteriorate reducing the effective tax.

owner. They do however, affect that familiar fly in the developer's ointment, the "holdout." The typical holdout is a wealthy, elderly or absentee person, an estate or trust, or big, slothful corporation like a railroad. Holdouts do not put property to the "highest and best" use that the location suggests. They leave a trail of parking lots and crumbling two-story lofts downtown, seedy old houses in apartment neighborhoods, and weedy lots in suburbia. Yet holdouts refuse to sell at a price that would leave a more industrious owner a profit. Sometimes "holdout" turns to "hold-up" when a developer tries to assemble several small parcels. Holdouts send developers "leapfrogging" into less suitable, peripheral territory in quest of more compliant sellers.

Land values reflect a property's most profitable use, not its actual use. So land taxes squeeze cash from holdouts. Like lease payments, land taxes press holdouts to take advantage of their location's potential, or sell to someone who will. Building taxes, however, confirm holdouts in their ways. Why bother to develop or maintain if the taxes will just go up?

Vacant lots or decaying buildings cover over 50 percent of the area of many cities. A shift to taxing land will spur development and redevelopment of this land, and discourage further development of fringe land.

Let me draw an analogy. Think of present urban land use as a river clogged with silt and debris. The river flows slowly and spreads over its banks. But if we dredge the river channel, the river will run faster and deeper in the middle, and not spread so far onto land on the sides. Similarly, a shift to taxing land will clear obstacles to building and rebuilding on the best central sites. In so doing, it will also drain off pressure for building on outlaying sites. Central property owners will build at higher densities, maintain better, and replace buildings more frequently.

At the same time, the pattern of land values will shift. The revival of construction in central areas will raise land values. Rural land values, so long inflated by hopes of urbanization, will collapse to near their agricultural levels.

A shift to taxing land will permit a higher density development pattern. (Permit, not coerce, were that possible.) I detail the advantages of higher density elsewhere,[9] but in brief:

a) Higher density saves resources. It reduces air pollution and traffic congestion by making mass transportation more feasible and by reducing travel distances for cars.[10]

b) It saves scenic and remote rural areas.

c) It permits cheaper housing.

d) It provides more employment, both by reducing commuting distances, and by stimulating more building and more rapid replacement of buildings.

e) It fosters the variety and excitement of cities, and reduces economic and racial segregation.

Objections to permitting higher density fall into three general categories:

a) Confusion of density with crowding. Density means people per acre. Crowding means people per room or per dwelling unit. Some nice neighborhoods like Russian Hill in San Francisco have high density but low crowding. Some slums like Watts in Los Angeles have low density but high crowding.

b) Confusion of administrative failure with physical limits. If a sewage line is overloaded, we have not reached the carrying capacity of the environment. We have merely reached the carrying capacity of the pipe, and it's time to lay a larger one. Failure to do so is bad planning, not eco-catastrophe.

c) Exclusionary policies. Local governments frequently use low density zoning and related policies to price housing out of the reach of lower income persons. There are further good reasons for taxing land only:

1. The relatively small minority who hold most of the land will pay the tax. Unlike the tax on buildings, no economist will seriously argue that owners can pass on the tax on land. Furthermore, richer property owners tend to hold more expensive land, but to improve it relatively less than do poorer property owners. One need only compare a mansion on a ten acre estate, with a ten acre, hundred house blue collar subdivision to confirm this point. A study of the District of Columbia found that residential improvements rise with the 1.3 power of income; land values rise with the 1.8 power.[11] The largest mineral companies also have the highest proportion of untapped reserves.[12] So a tax on land will be even more progressive than the general property tax.

---

8. George Peterson, "The Property Tax and Low Income Housing Markets," in *Property Tax Reform*, George Peterson, ed., The Urban Institute, 1973, pp. 107-124.

9. Polly and Keith Roberts, "Low Density Policies: the Price Communities Pay," *The Real Estate Appraiser*, March-April, 1975.

10. See *The Costs of Sprawl*, by the Real Estate Research Corporation, prepared for the Council of Environmental Quality, the Department of Housing andUrban Development, and the Environmental Protection Agency, US Gov't Printing Office, Washington, DC, 1974.

11. Harold Brodsky, "Residential Land and Improvement Values in a Central City," *Land Economics*, 46(3), pp. 229-47, Aug. 1970, p. 239.

12. David D. Martin, "Resource Control and Market Power," in *Extractive Resources and Taxation*, M. Mason Gaffney, ed., Committee on Taxation, Resources, and Economic Development, The University of Wisconsin Press, Madison, 1967, pp. 119-137.

~~be even more progressive than the general property tax~~.

2. Property owners do not earn land values. Rather, land values are a kind of "windfall" income. They derive from public and private investments on land near an individual holding, and the general prosperity of the economy. Thus it is eminently fair to tax these values and return them to the community. In fact it is fairer than to tax earned income. There's a difference between $10,000 earned on an assembly line, and $10,000 from property plus a life of ease.

3. A tax on land will help plug loopholes in the income tax. A variety of gimmicks make land the supreme income tax shelter. In particular, owners do not pay income taxes on capital gains — which are income in the eyes of everyone but the IRS — until they sell property, and then they pay only the much lighter capital gains rate. A tax on land reaches this income as it accrues.

4. A tax on land may be crucial to the success of public works projects. It also makes the principal beneficiaries pay for them. Most irrigation projects in the west have a dismal history. While they are being planned or under construction, wealthy absentee "speculators" move in and buy up much of the land. Instead of irrigating and cultivating the land, they hold it while its value rises. The irrigation project then flops as it can't sell its water. The Wright Act irrigation districts in the Central Valley of California solved this problem in the early 20th century by financing water projects with a tax on land values in the area receiving water.[13] The State legislature authorized the San Francisco Bay Area Rapid Transit to levy taxes on land near the stations, thus making the largest beneficiaries help pay for it. But instead, everyone near and far, user and non-user pays for BART with a sales tax.

5. The component of property taxes on improvements tends to defeat the objectives of the local government imposing it. For example, if a local government installs a sewage system, and then taxes houses, it discourages the private investment needed to make the system pay for itself. Local governments regularly jockey for new business that will add to the tax base. Then they slap a heavy tax on it that drives it away, or give it a tax exemption which defeats the purpose of getting the business in the first place.

From the point of view of local government, a tax on land only is ideal, as it does not drive away the activities that bring revenues into the area. A tax on buildings discourages building. A tax on sales induces the shopping center to locate across the border in a jurisdiction with lower sales taxes. A tax on incomes leads people to live across the border, or to conceal their incomes (much easier for higher than lower incomes). Corporations faced with a local income tax suddenly discover that the branch in that jurisdiction loses money. But tax land as hard as you will, even to the point its value drops to zero, ~~it does not~~ and not one square foot of it will get up and walk across the border.

6. It is often argued in favor of shifting property taxes to land only that this will lower land values. In fact, if tax collections remain the same, land values may go up. For while increasing the tax on land lowers land values, the fact that one can now build an untaxed building raises land values. In heavily taxed central areas, where building taxes and holdouts keep construction well below what "the market" would otherwise dictate, not taxing buildings will raise land values more than increasing land taxes lowers them. I show this algebraically in Appendix 2. This is just another way to approach the point I made earlier: that shifting property taxes to land will increase land values in the center and decrease them elsewhere.

However, where shifting property taxes to land does lower land values, it gives an advantage to smaller buyers at the expense of larger buyers. This happens because banks discriminate in granting credit. They give cheap loans to those with large collateral, and expensive loans or no loans to those with small collateral — even though the latter might be more productive managers of property. In other words, small buyers pay higher interest costs for property than do large buyers. But unlike interest, taxes on land do not depend on the collateral of the owner, but only on the land value. So where taxes on land lower land values, a small buyer ends up paying less in taxes than he would have to pay in mortgage interest — if indeed he could get a mortgage at all. A tax on land enables a more productive small buyer to outbid a less productive large buyer, even though the latter can get cheaper credit than the former.[14]

Some Questions About Land Value Taxation

1. Is it possible to achieve accurate and economical land assessment? Since land and buildings are usually sold together, how can one separate the land?

13. See, Albert T. Henley, "Land Value Taxation by California Irrigation Districts," in *Land and Building Taxes*, Arthur P. Becker, ed. Committee on Taxation, Resources, and Economic Development, The University of Wisconsin Press, Madison, 1969, pp. 137-145.

14. As a simple example, consider Mr. 8%, who can get money at 8%, and Mr. 15%, who can only get it at 15%. Both consider buying a parcel of land. Mr. 8% can earn $100 a year from it, so he can offer up to $100/.08 for it, or $1,250. Mr. 15% can earn $150 a year, so he can offer up to $150/.15 for it, or $1,000. So guess who gets the land. Now impose $50 a year land tax. Mr. 8% now can offer up to ($100-$50)/.08 for it, or $625. But Mr. 15% now can offer up to ($150-$50)/.15 for it, or $667. So now the land goes to the more productive bidder.

Countries like Australia which use land value taxes of course assess land values separately. Assessment officials familiar with land assessment consider it easier and cheaper than general property assessment, not to mention estimation of income for tax purposes.

One can measure land values as accurately as one can measure the depth of a river by taking soundings here and there — that is, quite accurately for all practical purposes. Like water levels in a river, land values tend to vary continuously with location, reaching great "depth" in desirable central city areas, and "shallows" in remote rural areas. To measure land values, one first collects sales of vacant land, or land with worthless buildings. One then fills these in on a map, and extrapolates to land values of neighboring properties. A computer can plot out the values in seconds.

I personally have made a land value map of a 45 block area of the San Francisco Central Business District. It took me about two or three weeks work, including collecting the data, processing it, writing and running a computer program. I would judge that my predicted land values would not be off more than, say, plus or minus 25 percent. More work would make the predictions more accurate. But even plus or minus 25 percent looks pretty good next to inaccuracies in income appraisal whereby "generally accepted accounting practices" the near-bankrupt Penn Central could report a healthy income, while multi-millionaires can report near zero income from rapid write-offs of investments in subsidized housing.

It would surely have taken me at least a year to appraiser all the different commercial properties in varying states of decay within the same 45 degree area. And given the difficulty of commercial appraisal, the results would not be as accurate.

2. Would land alone provide an adequate tax base?

The base has proved quite adequate in parts of the world that levy land taxes in lieu of general property taxes.

In a report prepared for the National Commission on Urban Problems in 1960, Allen Manvel estimated US land values at \$523 billion.[15] Mason Gaffney has presented a large body of evidence that even Manvel's estimate is way low.[16]

But we are not considering imposing a new tax on land, but shifting an old tax off buildings onto land. Land values reflect income that is "left over" after costs, including taxes. So if buildings no longer pay taxes land values rise. As I argued above, a shift to taxing land only will cause an increase in central land values, and a decline elsewhere. The tax *rate* will rise in most places. For example, consider an intermediate area where land values don't change much with the shift. If B is the value of buildings, and L of land, the new tax rate to collect the same amount of taxes must be $\frac{L+B}{L}$ times the old tax rate. Property with greater than average improvements will pay lower taxes, and property with lower than average improvements will pay higher taxes.

In the event we wanted to shift sales and income taxes to land, land would still provide an abundant tax base. For people would then spend more money on housing and consumer goods, driving up the price of land.

3. Mightn't taxing land encourage premature development of land, and thus worsen urban sprawl?

Taxing land will discourage "postmature" development, that is, it will penalize landowners who wait too long after their land has become ripe for development. But it won't make them build too soon.

For suppose that rising land taxes panic a fringe landowner into building a subdivision before the housing market reaches his area. He will either have to sell the houses at a loss, or endure heavy carrying costs until demand builds up. Like lease payments, land taxes leave the greatest returns with those who pay closest attention to all factors affecting profit, including the proper timing of development.

4. Given that inner cities often show a higher ratio of land to improvements than built-up suburban areas, mightn't a shift to land taxes put a greater burden on low income housing?

How much taxes would shift where, depends on a variety of factors, notably the kinds of property included within a given taxing jurisdiction, and the rates different jurisdictions impose. But, there should be no increased burden on low income housing.

To begin with, remember that owners cannot pass on taxes on land. So rents would not rise, even if landlord's property taxes rose with a shift to land taxes. Yet recent evidence, like Sternleib's study of Newark, show land in slums to be practically worthless. So a shift to land taxes, coupled with good assessment practices, would practically eliminate taxes from run-down areas. Then the typical small slum property owners could begin to rehabilitate the area without assistance. (Sternleib finds big rich slumlords to be a "myth.")

However the highest residential land values occur in high income city areas like Nob Hill and Pacific Heights in San Francisco. These areas can well afford higher land taxes.

Within a given taxing jurisdiction, the tax burden will decline on highly improved property, and rise on lightly

15. Allen Manvel, "Trends in the Value of Real Estate and Land, 1956 to 1966," U.S. National Commission on Urban Problems, Research Report No. 12, Washington, DC, 1968.

16. M. Mason Gaffney, "The Adequacy of Land as a Tax Base," in *The Assessment of Land Value,*" Daniel M. Holland, ed., Committee on Taxation, Resources, and Economic Development, University of Wisconsin Press, Madison, Wisconsin, 1970, pp. 157-212.

To be sure, the poor do not usually live in new housing. Neither do many other people.

improved or unimproved property. Poor people own no land. *Poorer* people live at higher densities than richer people on cheaper land. Therefore, taxing land will normally reduce the burden on lower income housing.

5. How will land value taxation affect the supply of low income housing? Mightn't it reduce the supply by encouraging demolition of old buildings and replacement by new, higher rent buildings?

Undeniably the poor as well as others do not usually live in new housing. But carried to its logical conclusion, this argument implies the poor would be housed best were no housing built, and old housing allowed to rot.

In fact, supply and demand determine the price, quantity, and quality of housing. The faster the supply of new or renovated housing increases in an area, especially if density also increases, the greater the supply of older housing available to the poor, and the lower the rent. Due to the faster rate of replacement and renovation, this housing will not be as old as present old housing. Competition will also make landlords maintain their property better. So taxing land will increase the supply, lower the rent, and improve the quality of housing for the poor.

6. Will land taxation shift taxes from commercial and industrial property to owner-occupied houses?

Again, this depends in part on the nature and practices of taxing jurisdictions. A shift to state financing of schools, by general property taxes or land taxes, will put a greater burden on commercial and industrial property, as well as agricultural or mineral-bearing property. For these often fence themselves off from children in remote rural areas, or special enclaves. Better assessment practices would also shift more of the burden from ordinary homeowners to larger commercial and industrial properties, which are typically underassessed.

Within a given jurisdiction, the tax burden will shift from cheaper to more expensive land, and from more-improved to less improved property. Owner occupied houses in the suburbs typically show a high ratio of improvements to land. Commercial and industrial land in the suburbs is usually more valuable than residential land, and more often vacant — in parking lots, land held "for expansion," land "for sale" along highways, and land in empty industrial parks. It follows that the suburbs land taxation will ordinarily shift taxes from owner-occupied homes to commercial and industrial property.

The case is not so clear in the city. Owner-occupied houses may stand on expensive land that has become ripe for apartment development. Old commercial and industrial areas may be declining. A shift to land taxes will increase city land values, but it's anyone's guess where they will increase most.

7. Eliminating the tax on improvements will greatly benefit the providers of utilities, like railroads, water and power. Is this benefit jusitifed? What action can be taken to offset the tax shift?

It is desirable to untax utility improvements, as the taxes undoubtedly discourage good service in some areas. However, utilities own much land; 2.4 million acres make Southern Pacific by far the largest private landholder in California. Utilities hold much land vacant, "in reserve" for future needs. So utilities might end up paying more in a shift to land taxes.

Utilities like power companies deliberately have their property overassessed, to fatten their rate base. Property taxes also go into the formula for computing their rates. If untaxing improvements *does* lower their taxes, regulatory commissions should lower the rates.

8. Wouldn't land value taxation hasten the elimination of historic but obsolete buildings?

In some cases yes, especially where the buildings occupy prime locations. But land taxes would also encourage the kind of top to bottom renovation that the nostalgia craze has made popular. ~~Away from prime location, land taxes buildings. Even in prime locations, public purchase can serve unique bildings.~~

9. Wouldn't land value taxation increase the intensity of land use in scenic areas, such as Lake Tahoe?

By encouraging new development in urbanized areas, land value taxation would reduce development pressures in remote scenic areas.

Land value taxation however would undoubtedly increase pressure for more and denser development in an urbanizing area like Tahoe. But that's not necessarily bad. The old Tahoe families have led the opposition to development at Tahoe. They understandably dislike having their territory invaded by tourists and the variety of tacky and polluting development that attends on them.

If we save Tahoe, we should save it for everyone, including the tourists. To my mind that means not excluding development from a very popular area, but planning it properly so it doesn't pollute the lake or scar the hillsides. The Swiss, after all, have built some very attractive and dense lakeside resorts.

10. Will land value taxation increase taxes on agriculture, and consequently harm the industry? Should we restrict the use of agricultural land, and require land assessments based on these restrictions?

A shift to land value taxation will lower rural land values, and increase urban ones. So where rural and urban land lie in the same taxing jurisdiction, taxes will shift away from farmland and onto urban land. Where only farmland occupies a jurisdiction, rates may rise to compensate for lower land values, though actual tax collections may not change.

Should taxes increase, they will not harm agriculture. The tax will shift from highly improved land like orchards, to lightly or unimproved land and the tax will urge owners of this land to produce more. Furthermore lower land values, with or without higher taxes, make it

Away from prime locations, land taxes would most likely encourage rehabilitation and better maintenance of historic buildings. But even in prime locations, public purchase can save really unique buildings.

easier for small farmers to buy land.

Land value taxes will indeed nudge into development farmland within suburbia. But then subdivisions won't pop up out in the middle of farming country.

Consequently, we do not need special restrictions and assessment reductions to protect agricultural land. Agricultral restrictions, with or without land taxes, may even worsen urban sprawl. By preventing development of land within or on the edge of suburbia, they force development farther out into rural areas. If present urban patterns resemble a choked-up river overflowing its banks, then restricting agricultural land amounts to throwing more garbage into the edge of the river to prevent further spreading. The garbage probably won't halt the floods, and may clog the river even more.

11. What is the relationship between land use planning and land value taxation? Can one reconcile land value taxation with effective master planning and zoning of land?

Land value taxation will assist with what I would call "positive planning." Positive planning means laying out transportation and utility networks, street grids, public buildings, and other public works. To succeed without wasting taxpayers' money, these public investments must go hand in hand with private investments in irrigating farmland, or building houses and shops. Taxing land encourages these necessary private investments; taxing improvements penalizes them.

Land value taxation will conflict with "negative planning" — zoning certain kinds of development out of places. For land values reflect what people want to do with land, not what planners think they ought to. If there's a market for low to moderate income apartment housing in a single family neighborhood, land taxes will encourage apartment development. However, the present occupants of the neighborhood may try to prevent such development with low density zoning. Much zoning is frankly exclusionary — an attempt by higher income people to exclude lower income people from their territory. In fact, exclusionary zoning which "no-growth" has made so popular, may negate many of the potential benefits of land value taxation.

Whether intentionally exclusionary or not, zoning is a clumsy, arbitrary and easily-abused planning tool. I agree with Bernard Siegan that it serves no legitimate purpose which other tools like nuisance laws or public purchase couldn't serve better.[17] In addition, zoning hinders accurate assessments. This is particularly true if zoning changes unpredictably with changes in the "master plan" or variances granted individual property owners. Yet zoning should change to reflect changes in demand for different land uses. Also, large property owners often hide under a blanket of agricultural or large lot zoning to avoid property taxes until their land ripens for development. Good assessors, knowing this, try to assess at "fair market value" anyway, provoking endless disputes.

However, as long as the planners and the public insist on zoning, land taxes might help in some instances.

Consider a typical problem. The county planners have colored in shopping centers and gas stations on their map of an area about to develop. If they zone precisely the right amount of land in what they consider the right spots, what will happen? The value of the land so blessed will soar out of sight. Developers will logically buy different, cheaper land and break the zoning. The planners can solve this problem only by zoning far more land for shopping centers and gas stations than will be needed. But of course then they can no longer pick the exact spots.

Land taxes could possibly help force owners of land designated for shopping centers or gas stations sell to developers at reasonable prices, assuming the planners picked good locations in the first place. Land taxes will encourage development of the best locations without zoning.

12. How have land taxes worked in Australia and other land tax countries, ~~while~~ they haven't worked in Pittsburg.

Some travellers return from Australia or South Africa raving about the lack of slums, and orderly, compact urban development. Others attribute the lack of slums to other factors, and profess to see no effects. In any case foreign cities like Sidney, Australia tax land at rates much lighter than typical property tax rates in US cities. So one wouldn't expect dramatic results. On the other hand, no one questions that the heavy land taxes imposed in Australia around the turn of the century accomplished their intended purpose; forcing the sale of large, poorly managed holdings to smaller, more intensive managers. Land taxes in California's Wright Act irrigation districts did the same.

Land taxes weren't tried in Pittsburg. Pittsburg theoretically taxes land at twice the rate of improvements for municipal purposes other than schools. School districts levy regular property taxes. But poor administration of Pittsburg taxes has obliterated any possible effects.

13. Aren't land taxes unfair, as they tell people what to do with their property?

Any tax tells people what to do. Income taxes tell the well-to-do to invest in land tax shelters. Taxes on improvements tell people to let property run down, or to leave it vacant. Land taxes tell people to use land profitably, or sell to someone who will.

More important, the rights of individuals to use "their" property must come second to public rights, including the right to tax. The public can and should tax in a way that makes private land use decisions conform

---

17. Bernard Siegan, *Land Use Without Zoning*, Lexington Books, D.C. Health and Company, Lexington, Massachusetts, 1972.

to the public interest.

14. Isn't it unfair to shift to land taxes, when many people have bought property in good faith, expecting the present tax system to continue?

A shift to land taxes will inflict captial losses on some, and shower capital gains on others. The heaviest blow will fall on recent purchasers of overinflated farmland, who must now pay off the mortgage on a shrunken asset.

Tax systems change all the time, usually by accreting special exemptions, like barnacles. Invariably, some people benefit and some lose. It is not a sufficient argument against changing a bad system that some people will suffer who counted on its continuing.

Appendix 1
A Simple Numerical Example of Tax Shifting

Crazy Dave's orange juice stand can sell 1250 cups of orange juice at 20¢ a cup, 1000 at 25¢, and 750 at 30¢. The cups of juice cost 9¢ each. Crazy Dave pays himself and his assistants a total salary of $100. If Crazy Dave maximizes his profits, how many cups will he sell: a) if he pays no taxes, b) if he pays a 20 percent sales tax, and c) if he pays a $50 fixed tax on the stand?

Price	No. Cups	Gross Rev.	Costs	Salaries	Pretax profit
20¢	1250	$250	$112.50	$100	$37.50
25¢	1000	$250	$90.00	$100	$60.00
30¢	750	$225	$67.50	$100	$57.50

With Sales Tax, 20 percent of Gross Revenue:

Price	Pretax profit	Tax	After tax Profit
20¢	$37.50	$50	-$12.50
25¢	$60.00	$50	$10.00
30¢	$57.50	$45	$12.50

With $50 fixed tax:

Price	Pretax profit	Tax	After tax Profit
20¢	$37.50	$50	$-12.50
25¢	$60.00	$50	$10.00
30¢	$57.50	$50	$7.50

This example shows that Crazy Dave will sell 1000 cups at 25¢ if he pays no taxes, or if he pays a fixed tax of $50. He will sell only 750 cups, at 30¢, if he pays a 20 percent sales tax. The sales tax is passed on to his customers. The fixed tax is not.

Appendix 2
Effect of a Shift to Land Taxes on Land Values

Let:

a = before tax land income
L = land value
B = building value
i = interest rate
t = tax rate

Say we impose a tax at rate t on land and buildings. We collect revenues:

$$R = t(L + B)$$

Land values after taxes are:

$$L = \frac{a - R}{i} = \frac{a - t(L + B)}{i}$$

or, solving for L,

$$L = \frac{a - tB}{i + t}$$

Now we shift to a land tax at rate t'. The new land value must be:

$$L' = \frac{a - t'L'}{i}$$

or, solving for L',

$$L' = \frac{a}{i + t'} = \frac{(i + t)L + tB}{i + t'}$$

To collect the same revenue:

$$R = t'L' = t(L + B) \text{ or}$$

$$t'\left(\frac{iL + t(L + B)}{i + t'}\right) = t(L + B)$$

Solving for t', the new tax rate,

$$t' = \left(\frac{L + B}{L}\right)t$$

And solving for L', the new land value:

$$L' = L$$

So under these assumptions, while the tax rate increases by $\frac{L + B}{L}$ the land value doesn't change!

But now suppose that while all the land can potentially earn a if built up to B, only $(1 - x)$, $x \leq 1$, is actually built up.

$$L = \frac{a - tB}{i + t}$$ as before.

But revenues:

$$R = t(L + B(1 - x))$$

Now when we shift to a land tax:

$$L' = \frac{a}{i + t'} = \frac{iL + t(L + B)}{i + t'}$$ as before

To collect the same revenue:

$$R = t'L' = t(L + B(1 - x)) \text{ or}$$

$$t'(iL + t(L + B) - t(L + B(1 - x))) = it(L + B(1 - x))$$

Solving for t' the new tax rate,

$$t' = \left(\frac{i(L + B(1 - x))}{iL + tBx}\right)t,$$ which is less than $\left(\frac{L + B}{L}\right)t$

Solving for the new land value

$L' = L + tBx(iL + t(L + B))$, which is greater than L

So the land value will increase, and the tax rate may even decrease! This result depends on the assumption that a, the income to land, will not increase per acre with the increase in building. Such an assumption can hold only in a central area with a large potential market.

Polly Roberts is currently working on a doctorate in agricultural economics at the University of California, Berkeley. During the summer of 1970 she worked for Ralph Nader's Center for the Study of Responsible Law in the investigation of land use in California. She wrote the summary of the Nader Report on *Power and Land in California*. Ms. Roberts is the author of numerous articles including, "Farmland Tax Breaks: How Not to Stop Urban Sprawl," published in the California Homeowner, April, 1973. Ms. Roberts is a member of the Sierra Club and the League of Women Voters and is the 1974-75 president of the Henry George School of Social Science. She is a graduate of Radcliffe and of Harvard graduate school, Cambridge, Mass.

Responsive