Uniformity in Assessment: High on the List of Property Tax Reforms

By Nonna A. Noto *

In recent years, dramatic increases in property values and higher costs for local government services, including education, have driven property tax bills sharply upward. As the dollar amounts claimed by taxes have grown, many property owners around the country have come to question whether they are paying more than their fair share.

Most states have laws on the books that require all properties to be assessed for tax purposes at the *same percentage* of their market value, at least within the same taxing jurisdiction. But these laws often are not accompanied by procedures for attaining the legislated goal. And many states have legislated exemptions that offer preferential tax treatment to individuals in certain groups. The consequence of not living up to one of the basic tenets of "good" taxation—uniformity—is a patchwork of uneven tax liabilities.

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The results are inequity (equals are not treated equally) and inefficiency (property costs do not accurately reflect underlying demand and supply considerations). While a move toward greater uniformity would produce hardship in some cases, many tax experts favor dealing with such cases by direct aid rather than by imposing the costs of nonuniformity of the assessment system on property taxpayers as a whole. But the precise costs and benefits of both direct aid and exemptions remain to be determined.

The mechanisms for achieving greater uniformity are available. Legislatures can use methods other than nonuniform assessments to respond to different groups. And modern computer technology can improve the administration and efficiency of America's property tax system.

ASSESSMENT RATIOS ARE NOT UNIFORM

Uniformity is a long-recognized principle of public finance and is embodied in many

states' legislation on assessments. Yet almost any sample of properties is likely to reveal a considerable range of assessed-to-market-value ratios rather than uniformity.

Clear Evidence. The factual evidence for nonuniformity is clear both at the local and at the state level.

Most states, for example, have legislated partial exemptions for homeowners, senior citizens, the disabled, and veterans.[1] And many organizations have a long history of total exemption from the property tax. Churches, private schools, and nonprofit hospitals and cultural institutions, along with Federal, state, and local governments, have been declared exempt from property taxes under time-honored legal precedents.

Further, some land use classifications are assessed at lower ratios than others. Vacant or agricultural land, for example, often is assessed at a lower ratio than developed land. And single-family residential property frequently is assessed at a lower rate than multifamily residential, commercial, or industrial property. In a few cases, these preferential assessment policies have been articulated in state laws. But in many instances, they represent local assessment customs.[2]

Even within one land use classification, there may be a systematic bias in assessment ratios corresponding to such features as the age or value of property. Older commercial and industrial properties, for example, may

be assessed at a higher ratio than new ones.[3] And lower value houses may be assessed at a larger fraction of market value than higher value ones.

Evidence of identifiable patterns of inequality in assessment ratios has turned up in Philadelphia and other cities, but the patterns vary from city to city.[4] The overall picture of the Philadelphia situation is illustrated by the accompanying map. According to calculations by the Philadelphia City Finance Director's Office, the 1975 citywide average assessment ratio (on all types of property) was 40 percent. Average assessment ratios

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[1] Preferential tax treatment can take the form of a reduction in the assessed value of the residence (an exemption in the traditional sense), a deduction from the tax payment otherwise due, or a tax rebate check. All three approaches accomplish the same result of lowering the effective property tax rate paid by certain property owners.

[2] Apart from the now widespread agricultural and open space exemptions, only eight states have made legal provisions for different land use categories to be assessed or taxed at different rates. Tennessee law, for example, provides that farm and residential property is to be assessed at 25 percent of market value, industrial and commercial property at 40 percent, and public utilities at 55 percent. Both New Jersey and Pennsylvania

law require that all types of property be assessed uniformly. Nonetheless, a statewide sample of 1976 property sales in New Jersey found vacant and residential land assessed, on average, at 68 percent of sales price while business property was assessed at 86 percent. A similar calculation of average assessment ratios in Philadelphia based on 1975 property sales found private residential property assessed at 37 percent of sales price compared to 41 percent for industrial property, 42 percent for vacant property, 45 percent for multifamily units, and 52 percent for commercial property. See U. S. Department of Commerce, Bureau of the Census, *Property Values Subject to Local General Property Taxation in the United States:1973*, State and Local Government Special Studies No. 69 (Washington: Government Printing Office, 1974), pp. 4-9; State of New Jersey, Department of the Treasury, Division of Taxation, *Average Assessment/Sales Ratio in New Jersey by Taxing District—by Property Class* (Trenton:1977), p. III; City of Philadelphia, Office of the Controller, *Real Estate Tax*, August 31, 1976, Exhibit IV.
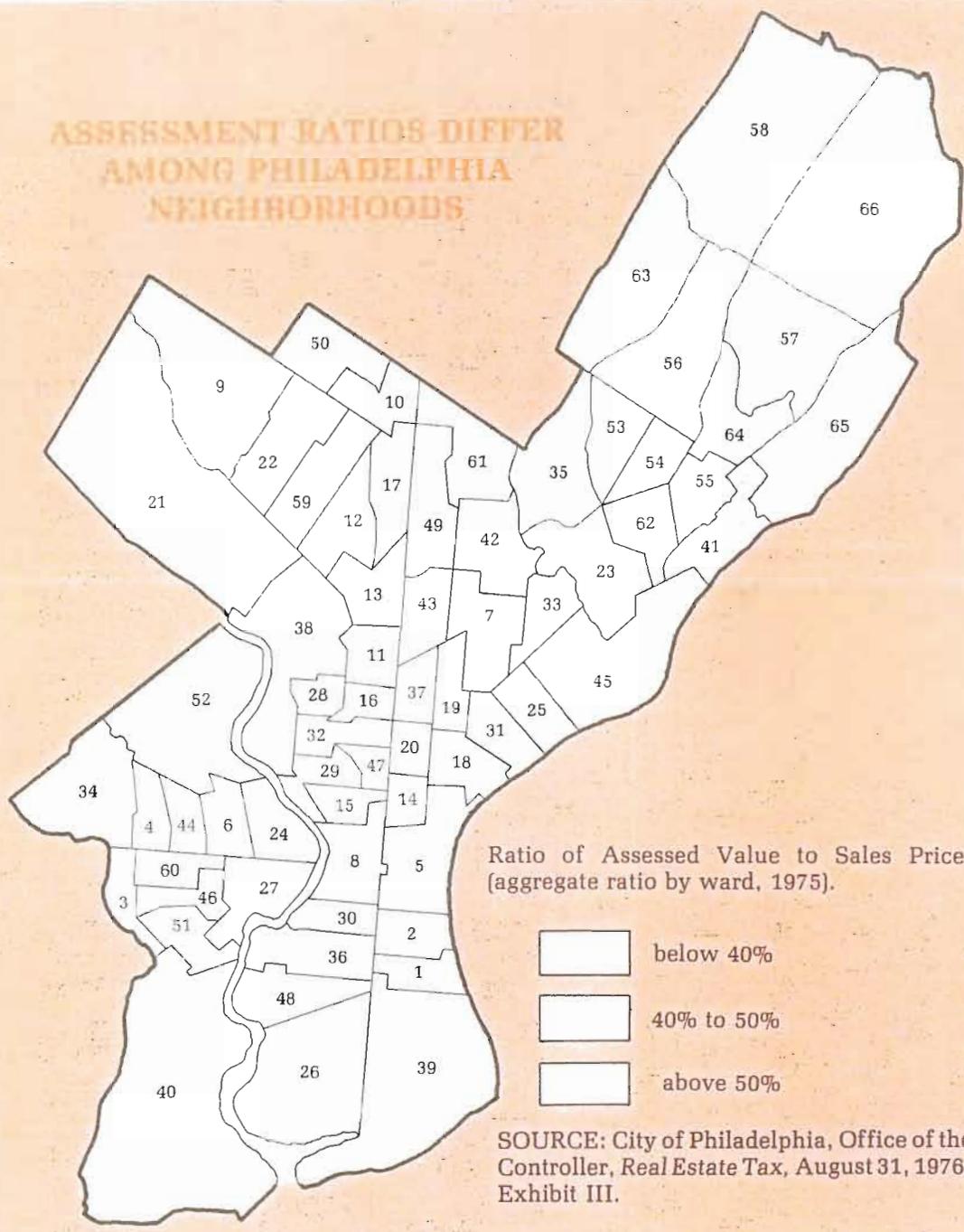
[3] Investigating assessments in Boston in the early 1970s, Andrew Hamer learned from the Boston Assessor's Office that while recently constructed office property was assessed on average at 30 percent of market value, older office structures were assessed at 50 percent; for industrial properties, recently constructed space was assessed at 35 percent, remodeled space at 45 percent, and older space at 50 percent. See his *Industrial Exodus from Central City* (Lexington, Mass.: D.C. Heath and Company, 1973), p. 46.

[4] In some cities, high-value properties appear to be targeted for higher-than-average assessment ratios. But Philadelphia and Baltimore have been singled out by two separate studies as cities which impose noticeably higher assessment ratios on properties of lower value and properties in blighted or declining neighborhoods. See George Peterson, ed., *Property Tax Reform* (Washington: The Urban Institute, 1973), pp. 29-31, 110-111.

ASSESSMENT RATIOS DIFFER
AMONG PHILADELPHIA
NEIGHBORHOODS

Ratio of Assessed Value to Sales Price (aggregate ratio by ward, 1975).

below 40%

40% to 50%

above 50%

SOURCE: City of Philadelphia, Office of the Controller, *Real Estate Tax*, August 31, 1976, Exhibit III.

for city wards, however, ranged from 29 percent to 66 percent. Based on these figures, it appears that wards with assessment ratios higher than the official target of 50 percent are located mainly in the predominantly black neighborhoods of North and West Philadelphia, which have low and declining property values. Further, the wards with below-average assessments appear to be clustered in the growing Northeast and the stable neighborhoods of Northwest and South Philadelphia. Independent research on assessment inequality in Philadelphia shows similar results.[5]

Not all differences in official assessment ratios impose uneven burdens on taxpayers. The fact, for example, that the Philadelphia assessor aims for a 50-percent assessment ratio while the assessor in neighboring Montgomery County strives for a 17-percent ratio is not necessarily evidence of nonuniformity. As long as all property owners in a taxing jurisdiction are assessed in the same way, they all will be paying taxes in proportion to market value.[6] But when properties within the same taxing jurisdiction are assessed at different fractions of their market value, then they are subject to different

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[5] A detailed analysis of assessment inequality in Philadelphia found strong statistical evidence that assessment ratios tend to be larger for lower value houses than for higher value ones and higher for houses located in black and low-income neighborhoods than elsewhere in the city. See Robert H. Edelstein, "The Equity of the Real Estate Property Tax: An Empirical Examination of the City of Philadelphia" (Philadelphia: Rodney L. White Center for Financial Research, The Wharton School, University of Pennsylvania, 1976).

[6] But local variations in assessment ratios would interfere with efforts to levy a uniform countywide or statewide property tax. And discrepancies in assessment ratios across cities and school districts have complicated the task of constructing state revenue-sharing formulas based on local property tax effort or property wealth factors. Pennsylvania and New Jersey, along with many other states outside the Third District, calculate assessment-to-sales ratios for all jurisdictions in the state on the basis of individual property transactions and assessment records. The state estimated assessment ratio is used to convert locally reported assessed value into a

effective rates, even though the same millage rate shows up on their tax bills (see MILLAGE VERSUS EFFECTIVE RATE).

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MILLAGE VERSUS EFFECTIVE RATE

In comparing property tax burdens, many taxpayers think first of the millage rate—the amount levied per thousand dollars of a property's assessed value. If every property were assessed at its full market value, the millage would tell the whole story. But although most states require full-value assessment, many taxing jurisdictions actually use a certain percentage of full value for computing tax bills. With different assessment ratios, the same millage rates may translate into widely disparate tax bills. Thus if two houses with market values of $50,000 both are situated in districts that tax at 20 mills but one is assessed at full value while the other is assessed at 50 percent, their annual tax bills—at $1,000 and $500 respectively—will differ by $500. So to get a standard for comparison, the right thing to do is to divide the market value into the total tax bill. This gives the *effective tax rate*. In the example, these rates are 2 percent and 1 percent. Looking at official millage rates alone would not have revealed this difference in tax burdens.

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Where do differences in assessment ratios come from? Some are traceable to the inadequacy of current assessment systems to standardized measure of taxable property value. Market value per pupil (in Pennsylvania) or equalized assessed value per pupil (in New Jersey) is used in the formula which determines the amount of state aid to local school districts. New Jersey also uses this assessment ratio in the formula which allocates property tax relief to individual property owners from state income tax revenues. In the homestead exemption formula, the assessment or equalization ratio is used to convert the assessed value of an individual residence into an equalized house value (similar to market value) and the millage rate into an equalized (or effective) tax rate. If state aid were distributed on the basis of unadjusted measures, more aid would go to school districts and property owners in places with lower-than-average assessment ratios than would be justified by a standardized comparison.

appraise property accurately and to keep up with changing patterns of market value. And some reflect policy decisions to tax certain kinds of property more heavily than others.

One Cause: Assessment Procedures. While discretionary policies reflect the collective wisdom of the voters, procedural defects result in unwanted distortions of their equity and efficiency preferences. One important weakness is in property appraisal, including the initial appraisal of the parcel and its subsequent reappraisal in light of real estate market trends and physical condition. Poor appraisal and infrequent reassessment are serious impediments to uniformity in assessment (see APPRAISING MARKET VALUE).

APPRAISING MARKET VALUE

Appraising property accurately requires a great deal of informed professional judgment. The local or county assessor frequently calls upon more than one of the following popular appraisal methods for assistance in estimating a property's fair market value.

The simplest method of appraising the market value of a property is to use its most recent *selling price* as a guide. But the assessor must be alert to conditions that may make the selling price an inaccurate indicator of fair market value. For example, the assessor may have to adjust the observed selling price to reflect what price the property would bring in an arm's length transaction rather than an exchange on especially favorable terms such as a sale between relatives or business partners or a forced liquidation. He may have to discount the selling price to allow for the inclusion of personal property such as residential appliances or business equipment in the transaction. Or he may need to increase the selling price to correct for special financing arrangements, such as the assumption of a mortgage.

Estimating the value of a property which has not sold recently is accomplished most easily via *market comparison.* The assessor can take an observed selling price as a standard and estimate the market value of similar properties by adjusting the price upward to reflect, say, the presence of an extra bedroom or bathroom or downward to reflect a deteriorated physical condition or a smaller-than-average lot.

The task of assigning a fair market value is more complicated for unusual properties or those that change hands infrequently. Mansions, apartment houses, industrial plants, and office buildings all are likely to possess the troublesome characteristics of being unique and seldom sold. Appraisers rely on two main techniques for setting a value on such properties. One, known as the *income-multiplier* approach, converts the rental income generated by a property (net of operating expenses) into an estimated market value for the property. The net property income is multiplied by a factor which is based on the capitalization rate. The other approach estimates the *replacement cost* of a property by using tables of building costs plus an estimate of land value.

The income-multiplier and replacement-cost approaches have difficulty accounting for physical depreciation and calculating the impact of changes in demand or supply on the price of property. Further, the capitalization and cost factors used in these methods can become outdated quickly in an inflationary environment. Still, the replacement-cost approach is the basic technique used by the private mass appraisal firms which are hired by small assessment jurisdictions to conduct reappraisals. Evidence of the inadequacy of the estimates made by these firms in the past has focused attention on the need for local assessors to validate the property value estimates made by mass appraisal firms and even for the states to regulate and certify those firms.*

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* New Jersey has established procedures whereby the Director of the State Division of Taxation sets standards and qualifications for private appraisal firms and must approve all contracts for reappraisals made with such firms by local assessors. The state also must certify all local assessors.

Pennsylvania's State Tax Equalization Board (STEB) currently is prohibited from monitoring county real estate assessments. Legislation is being considered, however, which would permit STEB to provide technical assistance to local assessors and to set uniformity standards for public assessments and private appraisals.

Two trends have made the already difficult task of achieving accurate appraisals and equal assessment ratios even harder. One is the overall inflation in the real estate market. The other is the tendency of some property values, most notably in certain central city neighborhoods, to rise less rapidly than others—or even to decline.

As inflation in property values during the 1970s has far outrun increases in assessed valuation, average assessment ratios have declined. Even when all property values are rising at the same rate, more recently reassessed properties tend to have higher assessed-to-market-value ratios and higher effective tax rates. This inequality is compounded when some properties increase in value more rapidly than others. With infrequent reassessments (or an unwillingness to reassess downward), average assessment ratios in declining neighborhoods tend to rise in comparison to those in the rest of the jurisdiction.

Nonuniform assessment patterns are found not only in homogeneous jurisdictions but also in counties that cover both urban and suburban districts. Such nonuniformity has been alleged in a class action suit against the Board of Assessment Appeals in Berks County, Pennsylvania. Homeowners in a predominantly nonwhite neighborhood of the old central city of Reading charge that they are being discriminated against because their assessment ratios are higher than those for properties located in the predominantly white areas of the county. The suit claims that, because the Board does not reassess all properties in the county annually, current assessments fail to reflect the decline in property values in the nonwhite areas of the county and the increase in values in the white neighborhoods.[7]

Thus much of the observed difference in assessment ratios stems from inadequacies in the assessment system which keep it from

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[7] Garrett v. Bamford 538 F.2d 63 (3rd Cir. 1976).

responding to changes in market value. In essence, procedural defects are inadvertently—and unnecessarily—distorting the allocation of the property tax burden.

Another Cause: Preferential Tax Treatment. Some nonuniformity in assessment ratios, however, is a direct reflection of society's preferences. There are many who, though they favor uniformity in principle, would permit some nonuniformity in order to achieve certain outcomes—for example, preserving open space or providing financial relief to senior citizens. But to those who favor strict application of the uniformity principle, it isn't clear that these aims are best achieved by a system of tax preferences.

Cases of preferential tax treatment are common, and they often correspond to patterns of property ownership or property use. One such tax preference is the *exemption for agricultural land and open space*. It has been argued that taxing open space or farm land at the full value of its most productive alternative use would force current owners to sell or develop the land in order to generate sufficient income to pay the tax. This argument has been used successfully in many areas of the country, and now 37 states have established property tax relief provisions for undeveloped land.

Exemptions for elderly and low-income homeowners have been defended by similar arguments. People are likely to have purchased property in the past on the assumption that their property taxes, like their mortgage payments, would remain stable. With rapidly rising real estate values and the growth of public service costs, this expectation has been disappointed. And proponents of exemptions argue that homeowners whose incomes now are low or fixed shouldn't be pressured into selling their property as they might be if it were taxed at its market value.

Both the open space exemption and the homeowner exemption act as tax shelters for capital gains produced by increases in the value of property. The upshot is that the

costs associated with land or housing may not be borne fully by the owners. Thus opponents of exemptions have argued that individuals who can't afford the liabilities on their property may need to admit that they are overhoused or that their property investments aren't paying their keep. If society's aim is to help property owners maintain their holdings, they say, then methods other than tax exemptions may be preferable. Resolving the debate in a rational way requires an appreciation of the costs and benefits of these other methods, such as land use regulation and direct subsidies to the poor and elderly. But more needs to be known about the costs and benefits of these other methods.

Exemptions have been extended to businesses as well as to individuals. Communities that are trying to attract nonresidential property users sometimes offer *assessment exemptions as a form of economic development subsidy.* They may use tax abatements running for as long as ten years to encourage the rehabilitation and redevelopment of deteriorated neighborhoods. The city of Wilmington, Delaware, for example, offers abatements both for new construction and for improvements to existing buildings. These policies apply to residential, industrial, and commercial development anywhere within the city limits. And a 1971 Pennsylvania law permits local jurisdictions to enact exemptions for increases in assessed value which are attributable to improvements made on residential property in deteriorated neighborhoods.[8]

This subsidy technique reflects the belief that the tax revenue forgone in the short run, and the attendant public service costs imposed by the new occupants, will be more than offset in the long run by revenue from higher property values and a broadened income tax base. Some have argued, however, that because of tax capitalization (a more highly taxed property brings a lower price, and a

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[8] 72 P. S. § § 4711 to 4716.

less highly taxed property a higher price), most of the subsidy effect of exemptions may be lost as property values are bid up in response to favorable tax treatment.[9] Also, because the property tax abatement represents only a small part of the total costs of a project, the tax concession may not have much influence at all on private investment decisions. If property tax abatement programs in fact do little to encourage economic development, they may turn out to be a net drain on the public treasury, according to opponents of this approach.

Another variety of preferential treatment —one alternative to direct regulation of land use—is the *graded tax,* which is designed to favor certain forms of land development. Most jurisdictions levy the same property tax rate on the assessed value of both land and improvements. Taxing them at different rates can affect the patterns of development by altering the incentives for investment.

Raising or lowering the tax rate on improvements can influence not only the total price to the buyer, because of tax capitalization, but also the supply of improvements. If the tax on improvements is relatively low, for example, more improvements will be built and higher density construction will be

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[9] Buying a property is buying a tax bill. The prospective buyer who has to look forward to a higher tax bill won't be willing to pay as high a purchase price for a given property. And the savings associated with a lower tax bill will tend to be capitalized into a higher purchase price.

The assumption that tax differences are capitalized has been used to argue against an abrupt change to uniform assessment: the argument goes that such a change is unnecessary on equity grounds, since the combination of tax and purchase price balances out for everybody. It's not clear, however, that full capitalization ever occurs. The evidence suggests that differences in average effective tax rates from one jurisdiction to another are capitalized into property values—for example, in neighboring suburban jurisdictions. But little evidence is available that different assessment ratios within a single jurisdiction produce such capitalization. Thus the tax-capitalization argument against uniform assessment doesn't appear to hold for the city situation.

encouraged. But if the improvements tax is relatively high, owners will be discouraged from developing or redeveloping their land. Changing the tax rate on land can't have any effect on its supply, but, through tax capitalization, it certainly can cause a change in its price. The old Pennsylvania cities of Harrisburg, Pittsburgh, and Scranton have enacted a graded tax in an effort to spur both construction of new buildings and rehabilitation of older structures.[10]

In summary, these preferential tax techniques—exemptions, subsidies, and graded levies—can provide tax relief in certain cases and can encourage voter-favored land uses. Some students of public finance argue, however, that there may be more effective ways to achieve these aims without sacrificing the principle of uniformity.

ACHIEVING
MORE UNIFORM ASSESSMENT

Settling on policies to reverse established assessment practices is no simple task. Any attempt to make assessment procedures more accurate and responsive won't be easy or inexpensive. And any attempt to eliminate exemptions and other forms of preferential tax treatment will touch on the economic interests of many concerned groups.

Introducing Computer Aided Assessment Procedures. Where variations in assessment ratios are traceable primarily to inade-

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[10] Pennsylvania's third-class cities may set different tax rates for land and buildings as long as the rate is uniform within each classification. Pittsburgh and Scranton limit the city tax on buildings to one-half the rate on land. Thus in 1976, Pittsburgh levied a 49.5-mill tax on land but only a 24.75-mill tax on buildings; in Scranton the rates were 42 mills on land and 21 mills on improvements. Harrisburg taxed land at 23 mills and improvements at 17 mills. The Pennsylvania legislature is considering making the graded tax a local option for all jurisdictions. See Carrie Vang, *Local Tax Manual* (Harrisburg: Pennsylvania League of Cities, 1977), p.5; and Pennsylvania Senate Bills 1014 through 1020 (Session of 1977).

quacies of the appraisal system, procedural changes are in order. Increased pressure from citizens outraged by their higher-than-average assessments has resulted in the demands of many states to have equalized, if not full-value, assessment for all property. Some states have insisted on annual reassessments, and some state legislatures are endorsing state supervision of assessment practices through personnel training and procedural guidelines.

Computer technology combined with statistical analysis has proven to be a valuable assessor's tool. It offers the property appraiser greater accuracy, standardization, and speed than can be achieved when assessments are done by hand. Automated mass appraisal using advanced statistical techniques has been applied with notable success in several California counties. The greatest breakthroughs in computerized assessments have been made with single-family dwellings, which represent the largest part of most assessors' loads. But recently, progress has been made in applying computer techniques to the appraisal of apartment properties as well. In three Pennsylvania counties—Montgomery, Centre, and Union—the computer helps the assessor appraise a house's current value by comparing it to similar houses that recently have changed hands (see COMPUTER AIDED ASSESSMENT).

The laws of many states require property appraisals and assessments to be updated annually. But this annual reassessment provision has been enforced only rarely because, under traditional assessment procedures, the cost of conducting an annual reassessment would have been prohibitive, especially in large jurisdictions.

Even with computerized mass appraisal techniques, which have increased the feasibility of conducting annual reassessment, assessors' budgets are unlikely to grow enough to support an annual on-site reappraisal of every property in their jurisdictions. An assessor with limited resources thus may wish to consider whether more uniformity

COMPUTER AIDED ASSESSMENT

The application of computers to property assessment has been based on the market comparison approach to appraisal. A property is viewed as possessing a set of characteristics, each of which has a market price. The value of an individual house, for example, is estimated by adjusting the value of the average house in a neighborhood upward or downward according to the presence or absence of certain features. If most houses in the neighborhood have three bedrooms, two baths, a 50 by 100 foot lot, were built in 1955, and on average sell for $35,000, for example, having one less bedroom might reduce the value by $3,000, and having a third bath might raise it by $1,500.

Using a partially computerized approach known as the *sort system*, the assessor in Pennsylvania's Montgomery County describes the basic neighborhood location and structural characteristics of the property in question to the computer. The sort system makes use of the computer's ability to glance rapidly through the computerized records of all parcels in the assessing jurisdiction in order to select a sample of comparable properties which have sold recently. Using observed selling prices as a guideline, the assessor judgmentally estimates the market value of each property by adjusting the average selling price of a house of that type upward to reflect extras in the property in question or downward to reflect the absence of common features.

In the sort system, the value assigned to these optional house features may be estimated on the basis of the assessor's experience. In a more fully computerized system known as *multiple regression analysis*, the computer estimates values for these factors by comparing statistically the recent selling prices and associated features of many similar properties. By pooling information on a large number of transactions, multiple regression analysis is able to make an accurate estimate of the average impact on the price of a house that the presence of a certain feature is expected to have. Then, by adding up these calculated values for a property's characteristics, the computer automatically generates an estimate of the current market value of a house. Later, the assessor can alter the computer-generated appraisal for an individual property if an on-site inspection or additional information so indicates.

Pennsylvania's Centre County and Union County use a simplified multiple regression system in their residential appraisal process. Using information about houses which have sold recently, the computer estimates a market value per square foot of house based on such considerations as age, number of stories, presence of a garage, and neighborhood location. This *square foot multiplier* is used to estimate the current market value of comparable houses which have not changed hands.

for the assessment dollar can be obtained by concentrating efforts on certain neighborhoods or land uses. The results of assessment ratio studies can be used to pinpoint the places that exhibit the greatest divergence from the average assessment ratio (see Appendix).

Some assessment districts may be too small to make economical use of computer technology on their own. These jurisdictions might consider joining together with others to support a modernized system or might tap the technical expertise available at the state tax equalization board or revenue department. Sharing appraisal expertise could prove especially helpful in cases of nonresidential properties, which don't lend themselves easily to standardized mass appraisal techniques.

To the extent that the property tax burden is distributed inequitably and inefficiently as a result of appraisal techniques, procedural improvements can and should be made. Technically induced nonuniformity does not reflect voter preferences; rather it reflects a need for improved assessment methods.

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Reconsidering Preferential Tax Treatment. There's a saying that old laws are good laws. The reasoning behind this maxim is that people and institutions adjust over time to the quirks of the law and that any attempt to iron these quirks out may cause more hardship than leaving them alone.

Still, many tax experts believe that the system of tax preferences has grown so complex and burdensome that at last it must be realigned. And they see fundamental efficiency and equity advantages in uniformity. Proponents of Federal income tax reform have argued, for example, that curtailing exemptions would broaden the tax base so that the same amount of revenue could be collected at a lower average tax rate. They see the net outcome of greater uniformity as tax relief all around. The same argument can be made for the property tax— the greater uniformity that would come from reducing exemptions would bring general tax relief.

If enough people decide that they want an end to tax preferences, uniformity will be imposed through legislation and regulation. But just shifting from tax preferences to uniformity—the mere shift itself—could be a costly and dislocating venture; and any such move would have to be accompanied by new programs, on the assumption that society wishes to continue to assist some of the people who would lose the tax benefits afforded by open space exemptions, senior citizen exemptions, and the like. Thus while there are gains to be made through uniformity, there may be costs as well.

SUMMING UP

The local property tax has been attacked on many grounds. Critics have called for fundamental changes in the tax and even for its abolition. But the property tax remains the single largest local revenue source for municipalities and school districts, and it's likely to be around for a long time to come. Thus there may be much to be gained from making this system as fair and efficient as possible.

Technological developments have made regular and frequent assessment a live option for tax reformers right now. The costs and benefits already are well known. But the issue of preferential tax treatment calls for further examination. Eliminating tax preferences would bring uniformity nearer, but whether the benefits would outweigh the cost remains to be determined.

SUGGESTIONS FOR FURTHER READING

For a concise introduction to current issues in property tax analysis see Henry J. Aaron, *Who Pays the Property Tax? A New View* (Washington: Brookings Institution, 1975).

Jerome Dasso's *Computerized Assessment Administration* (Chicago: International Association of Assessing Officers, 1974) is a manager's guide to computer aided assessments. The technical details of computerized assessment systems are treated by Albert M. Church and Robert H. Gustafson in their *Statistics and Computers in the Appraisal Process* (Chicago: International Association of Assessing Officers, 1976).

The *Assessor's Handbook* published by the State of Pennsylvania's Department of Community Affairs (Harrisburg: 1977) lays out the responsibilities of assessors in Pennsylvania as well as the standard methods of appraisal and assessment. For a detailed discussion of uniformity measures see *Analyzing Assessment Equity: Techniques for Measuring and Improving the Quality of Property Tax Administration* (Chicago: International Association of Assessing Officers, 1976).

For a summary of assessment procedures in individual states see The Advisory Commission on Intergovernmental Relations, *The Property Tax in a Changing Environment: An Information Report* (Washington: ACIR, 1974).

APPENDIX
MEASURING ASSESSMENT UNIFORMITY

A statistic commonly used to measure the relative uniformity of assessment ratios is the coefficient of dispersion (coefficient of deviation). This number expresses the average deviation from the median (mean) assessment ratio as a fraction of the median (mean) ratio for that sample of properties. As an illustration, for the five properties listed in the example below, the median assessment ratio is 0.50 and the coefficient of dispersion is 0.24. Thus in this sample, the average deviation from the median assessment ratio is 24 percent.

There is no universal standard for measuring the quality of assessment practices. Some assessors may be faced with conditions, such as dissimilarity in the properties to be assessed and rapidly changing market values, that make their task unusually difficult. As a rule of thumb for manual appraisal systems, however, a coefficient of dispersion of 20 has been considered a mark of acceptable assessment performance, while a coefficient of 10 or below has been viewed as a mark of excellence. With the application of computerized appraisal using multiple regression analysis, coefficients of dispersion of 5 or less have been obtained. Only computerized assessments, then, seem to be approaching the degree of uniformity that would be expected in income tax and sales tax administration, for example.

A 1971 survey by the U. S. Census of Governments indicates that among the three Third District states only New Jersey achieved a degree of assessment uniformity higher than the national average. Eighty percent of the New Jersey areas sampled had coefficients of dispersion less than 20—compared with 49 percent for the U. S. as a whole. Only 21 percent of the Pennsylvania areas and none of those in Delaware had coefficients of dispersion under 20. In fact, a fifth of the areas sampled in Pennsylvania, and a third of those in Delaware, had coefficients of dispersion of 40 percent or more. This compares with none for New Jersey and 9 percent for the U. S. as a whole.

TO CALCULATE THE COEFFICIENT OF DISPERSION IN A SAMPLE OF PROPERTIES . . .

1. Compute the assessed-to-market-value ratio.
2. Find the absolute difference of each ratio from the median.

Assessed Value (dollars)	÷ Market Value (dollars)	= Assessed-to-Market-Value Ratio (percent)	Absolute Difference of Assessed-to-Market-Value Ratios from Median Ratio (percent)
16,500	22,000	75	25
19,000	27,000	70	20
20,000	40,000	50 (median)	0
29,250	65,000	45	5
28,000	70,000	40	10

3. Sum the absolute differences (25 + 20 + 0 + 5 + 10 = 60).
4. Divide the sum of differences (60) by the number of properties in the sample (5) to get the average difference (12).
5. Divide the average difference (12) by the median ratio (50) to get the coefficient of dispersion (24 percent).

BUSINESS REVIEW

Federal Reserve Bank of Philadelphia

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