

PROPERTY TAX CLASSIFICATION  
IN MASSACHUSETTS

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(A.B. Oberlin College 1977)

Submitted to the Department of  
Urban Studies and Planning  
in Partial Fulfillment of the  
Requirements of the Degree of  
Master of City Planning  
at the  
Massachusetts Institute of Technology

May 1983

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Abstract

Inequities in property taxation result when property valuations are not kept up to date. The independence and unrestricted taxing powers of local governments in Massachusetts have in the past allowed wide variations to occur in valuation and tax rates within and among jurisdictions. The desire for greater interjurisdictional comparability led to the passage of the 1978 classification constitutional amendment and implementing legislation. This legislation requires regular valuations and permits shifts in the tax burden between classes of property.

Most communities have not taken advantage of the options available under the classification legislation and have allowed tax shifts to occur, usually from business onto residential property owners. Based on interviews with the assessors of 18 communities and a detailed evaluation of revenue data on 211 municipalities, it is clear that a community's decision on whether to adopt different tax rates for different classes of property depends primarily on the attitudes of local officials toward the need to promote economic growth, and pressure from the public with regard to the issue of fairness. The current classification legislation is seriously flawed. It doesn't do enough to prevent the unfair shift of the tax burden caused by revaluation from business to residential property owners. Dramatic improvements could be made by adopting a system of more numerous tax rates, one for each of the five classes of property.

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## ACKNOWLEDGMENTS

I would like to thank the following people who were especially helpful in the process of bringing this thesis to completion: Larry Susskind, who provided inspiration, guidance, and editorial comments. Edward Collins, Deputy Commissioner of Revenue, for permission to use the tax revenue data. Rosemarie Cody, Dept. of Revenue Information Office, for providing the data. Lane Klein, The Beacon Companies Management Information Systems Group, for use of computing and wordprocessing equipment. My colleagues on the Impact: 2 1/2 project and the staff of the MIT Laboratory of Architecture and Planning for assistance, advice, and a good working environment. All of the people who were interviewed, for being so generous with their time and expertise. Any misinterpretations of what they said are my own errors.

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## I INTRODUCTION

Local governments can generate various kinds of revenue to pay for the services they provide to their residents: property taxes, excise taxes, sales taxes, payroll or income taxes. They can also seek grants-in-aid from the state or federal government, and impose service fees or charges. In Massachusetts the property tax is the primary source of municipal income. The property tax is also seen as especially unfair by many landowners who have to pay it. In the late 1970s, a "taxpayer revolt," triggered by the passage of Proposition 13 in California, swept across the U.S. This taxpayer revolt was directed at limiting or reducing property tax burdens. In Massachusetts, residents passed the most dramatic tax limitation law in the United States, Proposition 2 1/2. Proposition 2 1/2 limits the amount of property tax revenue that can be raised to 2.5% of the total value of the property in a locality. It also limits the annual increases in local spending to 2.5%.

The voters of Massachusetts also passed a constitutional amendment that allows local governments to tax different classes of property at different rates. Classification doesn't change the total amount a community can collect through the property tax. It does affect how much is paid by each taxpayer. For the most part, classification divides taxpayers into two groups, homeowners and business owners. The classification law controls how much of the tax burden of one group can be shifted onto the other group. This shift may occur only after a locality has determined the full-and-fair cash valuation of all of its property.

This thesis seeks to describe: the experience to date of local

governments in Massachusetts of valuing and classifying property, how much of the tax burden has been shifted between business and residential property owners because of revaluation and classification, and what the influences have been on the decisions of local governments in setting their tax rates. We will start out with some basic definitions.

### The Tax Rate

The tax payment on any one property (L) is the product of the property's value (V) and the tax rate (TR).

$$L = V \times TR$$

All of the taxable properties in a taxing jurisdiction are collectively referred to as the tax base. The sum of the values of all of the properties in the tax base of a jurisdiction is the total value (TV). The sum of the tax payments made in the jurisdiction is the total revenue, or, as it is called in Massachusetts, the total levy (TL). The tax rate is the ratio of the levy to the value.

$$TR = TL / TV$$

Where the tax rate is fixed by law, the levy is the computed variable.

$$TL = TR \times TV$$

The tax rate is usually measured as dollars of tax paid per 1000 dollars of property value. This may also be expressed as mills per dollar of value; the tax rate is then called the millage rate. (A mill is 1/1000 of a dollar or 1/10 of a cent.)

$$\$25.00/\$1000 = 25 \text{ mills/dollar} = \$2.50/\$100 = 2.5 \text{ cents/dollar} = 2.5\%$$

The terms "mill" and "millage" are not generally used in Massachusetts.

### Assessors, Assessment, Property

The tricky part of collecting property taxes is determining the value of each property. This process is called valuation or assessment,



and is performed by local government officials called assessors, or in the private sector by appraisers. In Massachusetts, assessment is the responsibility of Boards of Assessors that may be elected or appointed in each municipality. Assessors are expected to:

have a working knowledge of title examination, surveying, architecture, cost estimating, general accounting, public relations, mapping... A sound knowledge of computer applications and general statistical techniques is quickly becoming an essential... yet it is a qualification that is largely unmet at the present time and is most often provided by private contractors (Franklin, Jankowski, and Torto 1983).

### Methods of Valuation

There are different methods for determining the market value of property. The International Association of Assessing Officers defines market value as: "the highest price in terms of money that a property will bring in a competitive and open market; assuming that the buyer and seller are acting prudently and knowledgeably, allowing sufficient time for the sale, and assuming that the price is not affected by undue stimulus" (Franklin, Jankowski, and Torto 1983).

Under the cost method of valuation, the costs for replacing or reproducing a structure are calculated as a function of construction costs, and the building's size and materials. The depreciated value of the structure, a function of its age, is subtracted from construction costs to get the current value. The cost method produces uniform values based on structural attributes, even for properties that are infrequently sold, such as schools or factories, but the method may be inaccurate for properties that are sold on the basis of the income they generate, such as apartments or offices. New buildings are easy to cost, but calculating the depreciation for old buildings is an imprecise art.

Under the market method of valuation, prices of properties that have sold recently are applied to properties that haven't been sold but are comparable to those that have (with regard to size, age, neighborhood, style, number of rooms, condition, and other attributes). With the use of computers, data describing many properties can be collected and compared. Multiple regression analysis can be used to estimate adjustments to price attributable to the characteristics of recently sold properties. These price adjustments can then be applied to the characteristics of unsold properties and summed to determine estimated market value. This method works best when there are enough recent sale prices for comparable properties to produce statistically significant estimates (such as is usually the case with single-family houses).

Under the income method of valuation, market value is a function of the income produced by the property and the capitalization rate. The latter depends on the financial situation of likely potential investors in the property. This method is especially appropriate for properties that are sold on the basis of their income-generating capabilities, such as stores, office buildings, apartment buildings, hotels, industries, and agricultural land.

All three methods may be used for any parcel of real property. The final assessed value can be an average of the three estimates, weighted towards the method that is most appropriate for each parcel or for which more data are available.

For more detail on assessment methods, see Franklin, Jankowski, and Torto (1983).

### Equity Considerations in Property Taxation

Those who can afford to buy more goods pay more sales tax; those who earn more pay more income tax; and those who own more possessions pay more property tax. Taxes are said to be proportional if the tax rate is the same for all taxpayers regardless of their personal income. Taxes are progressive if the tax rate increases as income increases; and regressive if a higher percentage of income is taxed as income drops.

Property taxes have generally been considered regressive (Netzer 1966; Aaron 1975). They are based on wealth, on the value of the things one owns, rather than on a stream of money in or out of one's hands. There may be little correlation between one's wealth and income. Housing has tended to increase in value faster than income has inflated. Thus, retired people on reduced incomes often own homes that they could not afford to buy if they were not already paid for. For these reasons, it often appears as if higher property taxes are paid by those with lower incomes, and vice versa.

Property is also an investment, and, as such, its value is probably a good indicator of income or the potential for earnings. Some economists hold the view that the property tax is not very regressive, that it is more or less proportional (Aaron 1975; Mieszkowski 1972).

### The Assessment Ratio

The studies by Aaron (1975) and Peterson (1972) showing that the property tax is not regressive are qualified by the assumption that the tax must be administered uniformly. Black (1977) shows that widespread intra-jurisdictional assessment bias in favor of high-valued properties makes the property tax regressive. This study employed data on residential property taxes in the city of Boston in 1960, since which

assessment practices hadn't changed.

Let us call the estimate of market value of a building the equalized value (E). The market value may change over time, as the building ages, the economy picks up or slows down, the neighborhood runs down or revives, or the value of money inflates. The official value of a building, for tax purposes, we will call the assessed value (A). A building may be reassessed only when first built, when alterations are made, or when it changes hands. Buildings change hands at intervals of several years, and therefore they may be assessed only at irregular intervals. Generally, the assessed value of a property is less than the equalized or market value. Their difference is measured by the assessed-to-sales value ratio, or, more briefly, the assessment ratio (AR).

$$AR = A / E$$

The average assessment ratio for all properties in a municipality is the total assessed value (TA) divided by the total equalized value (TE). If assessed values are equal to market values then the assessment ratio will be 100%. If it were less than 100%, taxes could still be distributed proportionately, as long as all properties had individual assessment ratios equal to the average assessment ratio. Chances are that market values will go up and down unevenly; so, the assessment ratios for each property will probably be unequal, and taxes will therefore be inequitable.

The nominal tax rate on a property (ATR) is a function of the assessed value.

$$ATR = L / A$$

or, on average:

$$ATR = TL / TA$$

The effective tax rate (ETR) is a function of the equalized market value.

$$ETR = L / E = L / (A / AR)$$

or, on average:

$$ETR = TL / TE = TL / (TA / AR)$$

#### The Coefficient of Dispersion

The accuracy or proportionality of local assessments can be tested statistically by comparing the variation across parcels between assessed values and sale prices. The state Department of Revenue (DOR) in Massachusetts does this for residential properties. The assessment-sales ratio for each recently sold property is the assessed value divided by the sales price. A median assessment ratio may be found for all of the properties of each type in each community. This median ratio must be within 10% of 100%, i.e., the assessed value for typical properties of each type should not vary from the market value by more than 10%. Many properties of a type could, however, have assessment ratios very far from 100%, or whatever the median ratio is. This variation is measured by the coefficient of dispersion (COD), which, for single-family residences, must be less than 10%. The COD is the sum of the absolute values of the differences between the assessment ratios of each property and the median ratio, divided by the number of properties, divided by the median ratio. The smaller the COD, the less the variation in assessment ratios from the median ratio. The median ratio, as said above, must be between 90% and 110%. The assessed value of some properties of a type could vary drastically from the market value, but the average variation must meet these constraints in order for a locality's property valuation to be certified by the DOR.

The Lincoln Institute of Land Policy (Cook 1976) analyzed the relationship between the assessment ratio and the coefficient of dispersion using DOR data on assessed and equalized property value in 1976. A strong negative correlation was found. This means that the further the average assessment level is below market value, the greater inequities there are in assessments, within each class of property. (Between classes, it was found that differences in assessment levels can occur with or without a low average level.)

In jurisdictions where assessed values are not well correlated with market values, i.e., the dispersion of assessment ratios is high, it usually is because assessments are out of date. Those property owners with ratios above the average pay more than their proportionate share of the the total tax levy. Those with ratios below the average pay less than their share. This is the case in Boston, where different neighborhoods have increased or decreased unevenly in value, on average. Wealthy neighborhoods may increase in value but infrequent assessments for tax purposes will not reflect this, so the taxes there will be too low. Meanwhile, poor neighborhoods may decline relative to the rest of the city, or absolutely, but since their assessments are not reduced to reflect this decline, their taxes are too high. This makes the property tax regressive, because of the way it is administered. Similar homes in different neighborhoods may be valued differently. Sometimes excessive property taxes can contribute to neighborhood deterioration, by making rental apartments unprofitable to operate, as described by Little (1973) and by Sternlieb (1976).

To make tax payments proportional to market value again, a general revaluation or reassessment of all property in the community is usually

required. This is the situation in most municipalities in Massachusetts.

### The Sudbury Decision

In the decision of *Town of Sudbury v. Commissioner of Corporations and Taxation* (321 N.E. 2d 641, 1974), the Supreme Judicial Court of Massachusetts found that the highly uncoordinated, inconsistent, and illegal local assessing practices (local assessment ratios in 1972 varied from 19% to 100%) caused the state's estimates of equalized valuation to be non-uniform. Equalized valuations were seriously underestimated in places where property was assessed only when it turned over. Since equalized valuations are the basis on which local aid is distributed from the state government, and equalized values are based on assessed values, towns that revalued regularly, such as Sudbury, were losing out on state aid to towns that had less than full and fair cash valuation. While assessors are not subject to control by the state Commissioner of Revenue, the court ruled that the state should take a more active role in ensuring that uniform valuation practices are used by all the towns and cities.

The Sudbury decision was preceded in 1961 by *Bettigole v. Assessors of Springfield*, in which the Court stated that while full value assessment was the law, enforcement was in the hands of local officials. The Sudbury decision stimulated a multi-year effort on the part of the state, through the Department of Revenue, to implement the revaluation of all property at 100% of market value. Revaluation was pursued without enthusiasm, however, until the passage of Proposition 2 1/2.

### Inter-Class Disparity

In many jurisdictions, different types of property are assessed at different average ratios. Often businesses are assessed at a higher ratio than residences. Some of the reasons often given for this are: (1) businesses may not have the political power that residents have; (2) taxes on businesses are passed on to consumers of their products; (3) businesses use more municipal services and pay for them through higher taxes; (4) or there is a tendency for the estimates of market value of businesses to be low, so the assessments are raised to even things out. Each of these causes may be real or only imagined by public officials and politicians.

The causes of non-uniform assessment were explored by Engle (1975). Some of the differences in base assessment levels between communities may be due to the benefit principle, that is, to assessors taxing more heavily structures that receive more public services. But for the most part, Engle's study found that, in Boston, inequities in assessments, and therefore de facto discrimination in taxation, are the result of the failure to change assessments frequently enough in neighborhoods with slow rates of increase in property values.

With a general revaluation, business assessments and taxes generally drop relative to residences. This causes a shift in the tax burden, other things being equal, from business to residential property. To prevent such shifts, a state government can adopt a system of classification, i.e., in which types or classes of property are treated differently for property tax purposes. This can involve different official tax rates or assessment ratios for business and residential property, thus legitimizing the biases that were formerly built into the pre-revaluation assessed values. In November 1978 the voters of



Massachusetts overwhelmingly approved a constitutional amendment allowing classification of real property into four classes.

Often the intra-class dispersion in assessment ratios is greater than the inter-class dispersion, so the shifts, caused by revaluation, between certain homeowners will be greater than the shift between homeowners and business owners. Businesses or homeowners that were formerly overassessed may receive big tax reduction windfalls that must be made up by increases in the taxes of those that were formerly underassessed. Classification only prevents the tax decrease from the average business from being turned into a tax increase for the average homeowner.

Avault, Ganz, and Holland (1979) show that the intra-class dispersion is much greater than the inter-class variations in assessments in Massachusetts. They show that revaluation in Boston will cause widely ranging tax increases and decreases for many houses of every type (one-, two-, and three-family) and for commercial and industrial properties, although the average inter-class shifts may be much smaller.

#### Organization of the Thesis

This thesis is concerned with the implementation of the 1978 classification amendment. This chapter has introduced some basic terms regarding property taxes, disparities in the property tax, why these disparities occur in general, and how revaluation may cause tax burden shifts between different classes of property. Chapter II outlines the use of classification in the U.S. and the legal basis for it. Chapter III explains why disparities in property taxes became the established pattern in Massachusetts. Chapter IV describes how classification is to

be implemented in Massachusetts, and the background to the implementing legislation. Chapter V discusses the difficult issues around the valuation of property, the major organizations concerned with classification and their positions, and recent legislative proposals for modifying the classification law. Chapter VI explains how the tax burden shift between classes caused by revaluation may be analyzed, describes this shift with a variety of measures, and outlines possible reasons why communities may have tried to modify that shift or not. Chapter VII is a case study examination of how and why the decisions on tax rates were made in eighteen communities. The case studies are summarized in Chapter VIII. Chapter IX recommends ways in which the classification legislation should be improved.

## II THE GENERAL CONCEPT OF CLASSIFICATION

It is often assumed that taxes should be proportional to market value, i.e., the "full and fair cash" assessed valuation. Unequal treatment of different classes of property, however, is practiced throughout the U.S. in a variety of ways. Some of these include: homestead exemptions given to homeowners, special exemptions given to the elderly, "circuit breakers" that allow deductions of a portion of property taxes from income taxes, varying assessment ratios, and use-value rather than market-value assessments. This chapter will briefly outline how classification has been used in the U.S. to legally permit the differential treatment of classes of property.

### Legal Basis

One might think that unequal treatment of property tax payers would be disallowed by the U.S. constitution, but classification has been upheld by the U.S. Supreme Court: "A state tax law is not arbitrary although it discriminates in favor of a certain class ... if the discrimination is founded upon a reasonable distinction, or difference in state policy" (*Allied Stores v. Bowers*, 358 U.S. 522, 1959). "Equal protection does not require identity of treatment. It only requires that the classification rest on real and not feigned differences" (*Walters v. City of St. Louis*, 347 U.S. 231, 1954).

All of the properties within each class must be assessed uniformly to conform to the constitutional guarantees of equal protection. If state constitutions have clauses that require uniformity in taxation, and some do, then they can enact classification only by amending their constitutions, as Massachusetts did. Other states that had to adopt

such amendments are: Alabama, Illinois, Louisiana, Minnesota, South Carolina, and Tennessee.

Several states, like Massachusetts, instituted classification in response to court rulings against discriminatory assessment. These include Arizona and Tennessee.

#### Classification in the U.S.

The twelve states or districts that have comprehensive classification systems are shown below with the dates of implementation. There are a variety of different schemes in use. Most states have uniform assessment ratios in all jurisdictions for each class of property. Alabama allows counties to vary the ratios, but to no less than 5% or more than 135%. Massachusetts, as shall be explained below, effectively allows local municipalities to vary the ratios. Montana allows certain municipalities to assess vacant commercial land at up to 150%. Most states allow for use-value rather than market-value assessments on certain classes, usually agricultural land. West Virginia applies uniform tax rates rather than assessment ratios. The variations are complex, and are greatly simplified in the table below (International Association of Assessing Officers 1979):

<u>State or District</u>	<u>Year of Implemen- tation</u>	<u>Number of Different Assessment Ratios</u>	<u>Highest Ratio</u>	<u>Lowest Ratio</u>
Minnesota	1913	14	50.0%	5.0%
Montana	1917	18	100.0	2.4
West Virginia	1934	4	\$2/\$100	\$ .50/\$100
Hawaii	1961	2		
Arizona	1968	7	60.0%	8.0%
Alabama	1972	5	30.0	10.0
Tennessee	1973	6	55.0	5.0
Cook County (Chicago), Illinois	1973	6	40.0	16.0
South Carolina	1976	5	10.5	4.0
Louisiana	1978	3		
District of Columbia	1979	3		
Massachusetts	1980	4	150.0	49.0

States that have only some partial system of classifying real property, and which classify personal property, include: California, Colorado, Florida, Illinois, Kentucky, Maine, Missouri, North Carolina, Ohio, Oregon, Rhode Island, South Dakota, Virginia, and Wisconsin (Pomeranz 1979).

In Illinois, the 1970 state constitution allowed classification in counties with a population of more than 200,000 (this was designed for Chicago in particular). The state has also enacted farmland use-value assessment and other special classes: airports, condominiums, solar-energy-heated buildings, open space, and land with pollution-control facilities (Pomeranz 1979).

New York State has been considering classification systems. One proposal has nine classes; another has 25 classes (Willis 1981). Less than full value assessment had been the general practice in New York until the Court of Appeals there prohibited it in 1975 in the case of *Hellerstein v. Assessor, Town of Islip* (37 N.Y. 2d 1).

The federal government restricts classification in one way. The Railroad Revitalization and Regulatory Reform Act of 1976 forbids

railroad property from being taxed or assessed at higher levels than other commercial or industrial property, in states with classification (IAAO 1979).

#### Open Space/Agricultural Classification

The most common form of classification gives tax breaks to farmland or open space, to help protect it from development. Coughlin, Berry, and Plant (1978) have categorized state legislation to provide incentives for open space and farmland retention into three types: (1) pure preferential assessment on the basis of current use value instead of market value, generally using the farm income capitalization method (14 states use this); (2) deferred taxation, requiring deferred taxes and interest to be paid back if and when the land is converted to a non-eligible use (21 states); and (3) restrictive agreements or contracts keeping the land in an eligible use for a period of time, with current use value assessments and perhaps rollback of deferred taxes (10 states). Seven states do not have preferential assessment of agricultural land. (See also Malone and Ayesh 1979). Differential assessment may help keep land in open uses if other measures are also taken, such as strict land use controls or zoning. However, the productivity of and demand for land as well as personal factors (e.g., farmers approaching retirement) probably have a greater effect on land use preservation than differential taxation.

A study by Currier (1978) of fractional assessment or differential taxation programs aimed at encouraging the preservation of agricultural land demonstrated that these programs generally do not achieve their objective, either because they are not restrictive enough; they are too restrictive and discourage participation by landowners; or landowners

can always be bought out at some price, despite the tax incentives.

In Massachusetts, agricultural, recreational, and forest land are each taxed at fractional assessments. Land used for the production of forest products, for example, may be classified and taxed under chapter 61 of the Massachusetts General Laws, enacted in 1981. Parcels must be at least ten acres and classification must be approved by the State Forester, with the cooperation of local assessors. The State Forester must determine the value of the wood removed in each year (by counting tree stumps), called the stumpage value, on which an 8% products tax is paid. The landowner must also annually pay a land tax equal to the local commercial tax rate times 5% of the fair cash valuation, but a minimum of \$10 per acre. If the forest land is declassified, rollback taxes plus interest must be paid. A woodland tract in Adams got a chapter 61 classification in 1982 and a tax reduction of over 98% (Costa 1982).

Recreational use land, such as golf courses and country clubs, are taxed at less than market value under chapter 61B.

This chapter has briefly outlined the use of classification in the U.S. Most states allow tax breaks to help preserve agricultural or open space land, with limited success. Twelve states discriminate in taxation between many classes of real and personal property. The design of property tax and classification systems is a matter for each state to decide and is not restricted by the U.S. constitution.

### III THE PATTERN OF VALUATION DISPARITY IN MASSACHUSETTS

The governmental and geographic structure of Massachusetts causes inter-jurisdictional and intra-jurisdictional disparities in property valuation.

#### Geography and Governmental Powers

Massachusetts is divided into 351 independent, non-overlapping political jurisdictions, called municipalities (or cities and towns). They each have the same basic power and independence with regard to local legislation, taxation, and responsibility for local services. There are no second-class jurisdictions or unincorporated areas such as villages or townships. All local services are provided by municipal governments, including road construction and repair, garbage collection, snow plowing, police and fire protection, recreation, libraries, planning, health regulation, building code enforcement, weights and measures regulation, and--the largest expense--schools. Some communities provide hospitals, human services, economic development, cemeteries, water, and sewers. Counties in Massachusetts are generally responsible only for the registration of deeds and certain court functions. There are a few overlapping regional jurisdictions, such as transportation authorities, and water, sewer, or park districts. In Massachusetts, 95% of all local expenditures by jurisdictions below the state level is spent by municipalities. This may be contrasted to a state with a more complex system of local jurisdictions, such as California, where 30% of all local expenditures is spent by municipalities, 25% is spent by counties, 30% by school districts, and 15% by special districts.



Only municipalities raise property taxes in Massachusetts. Regional authorities and counties receive all their revenue from the state (which collects fees and charges for the authorities). Fees (or "assessments") are determined by formulae based on population, equalized valuation per capita, transit ridership, or whatever measure is appropriate.

The primary source of revenue for municipalities is the property tax. Other sources are user fees, federal and state aid, and reimbursements from the state to pay for state-mandated services. Massachusetts municipalities do not collect sales taxes or income taxes, but they do receive revenue from an annual excise tax on automobiles owned by their residents.

Massachusetts municipalities differ in their form of government. In towns (there are 312 of these), legislation and the annual budget are determined by town meeting. In smaller towns, town meetings are open to all registered voters. Larger towns have elected town meetings. Annual meetings are held in the late spring to determine the annual town budget. Special meetings may be held at other times. Ongoing administration in towns is controlled by an elected Board of Selectmen of three to five members. Some towns have appointed professional managers.

Cities (39 of these) have elected Councils or Boards of Aldermen and Mayors, who hold all budgetary, legislative, and administrative authority. A few cities have appointed city managers.

All municipalities have elected School Committees with full policy control over the public schools. Under Proposition 2 1/2, however, school expenditures are subject to the approval of the municipal

government--the town meeting or city council.

Prior to Proposition 2 1/2, local budgets were "expenditure driven." The town meeting or city council decided what services to provide, what capital investments to make, and how much to spend. Fixed charges (e.g., pensions, debt service, insurance) and payments to regional authorities were added to total expenditures. Revenue from fees and state aid were then subtracted from total expenditures to determine the total amount to be raised in property taxes. This amount is called the total levy. The levy is divided by the total property value to determine the tax rate. There were no limits on the tax rate or levy. Assessed property values rarely changed. Revaluation is an expensive process. Moreover, it is politically and administratively easier to leave things as they are than to readjust property values on a regular basis. There was no incentive to revalue property, since local governments could always raise as much revenue as they needed or wanted by adjusting the tax rate.

This governmental structure gave each locality great freedom to determine the type, quality, and frequency of services to provide its residents. (See Greiner and Hatry (1982) for a description of the range of services in seventeen representative municipalities.) The state government often steps in to help out the needy or disenfranchised, primarily in the education area, by providing local aid grants. For some programs, the localities have a choice of accepting state aid or not. The levy per capita varies depending on the needs, desires, and resources of each town.

The general lack of interdependence between local governments meant that the tax collections and assessment methods could vary widely between communities. In fiscal 1981 for example, measures of tax and

assessment varied among the 351 municipalities as shown below  
(Massachusetts Taxpayers Foundation 1981).

	Minimum	Mean	Maximum
Equalized tax rates	\$5.45	\$37.44	\$91.88
Actual tax rates	\$7.80	\$62.47	\$311.00
Assessment Ratios	9%	60%	100%
Equalized value per capita	\$3,877	\$15,387	\$392,559

Communities with higher equalized tax rates generally are those that have chosen to spend more on a wider variety of services, such as the large, urbanized, industrialized cities; while the lowest tax rates are in the small rural towns.

We may contrast the governmental structure of the Commonwealth with a more complicated system that is in force in other states. Different governmental entities--municipalities, counties, school districts, recreation and transportation authorities, water, sewer, and fire districts, regional school systems--all may have different, non-contiguous, overlapping service area jurisdictions, and the power to raise taxes for their own needs. The tax rate on a property is the sum of the tax rates for each of the government authorities with jurisdiction over the locality. When one crosses the boundary of any of these jurisdictions, the total tax rate differs. Property values are assessed by the local municipality, which also collects the tax and distributes the revenue to itself and the other governments in amounts proportional to their portion of the total tax rate raised in the municipality. Cities may increase their tax base and revenues by moving their boundaries to annex land in second-class political jurisdictions or unincorporated areas (subject, of course, to restrictions such as

referenda or agreement of landowners).

Since a school district, for example, may be collecting taxes from landowners in two or more towns, each town might be paying a disproportionate, and unfair, share of the school district's total levy, for a proportionate share of the education, if different assessment ratios were employed in each town. Therefore, to prevent this, a system of assessment equalization is required, in which the assessed property values in each town are adjusted up or down until the ratios are the same for all towns in some larger jurisdiction, such as the county or the whole state. Alternatively, uniform assessment ratios would be guaranteed if all assessment is conducted by the county or the state. It doesn't matter whether the assessment ratio is 100% or something less; the tax burden will be properly distributed according to property market value as long as the assessment ratios in each locality are the same.

In states with overlapping service boundaries and the power to tax given to several different levels of government, there should be a uniform assessment ratio. In Massachusetts there is no such motivation for a uniform ratio, since only the municipalities levy property taxes, and when services are (rarely) shared by municipalities, they are paid for by intergovernmental transfers of costs and revenues rather than by direct tax collections.

#### Lack of Tax Rate Restrictions

In some other states there has always been a maximum tax rate or other restrictions. Local governments can not raise tax rates except by asking voters to approve a specified rate increase for a specified period of time (such as two mills for five years to pay for increased

police patrols). Revenue is guaranteed for that period, but the tax increase must be reapproved at the end. Various school systems in Ohio have shut down for several months in the middle of the year because the voters have refused to approve or renew needed operating millage.

When there is a limit on the tax rate, tax revenues may be increased only by increasing assessments. Hopefully, the inflation in property values matches the inflation in the cost of government; if it doesn't, then adjustments in the tax rate may be necessary. In some economic periods, such as the latter half of the 1970s, property values inflated faster than costs, but the government did not readjust tax rates downward. This was, in large measure, a cause of the tax revolt in California. As house prices soared, homeowners got fed up with relentless increases in their taxes, while the government was not doing much more work than it had been doing before.

In states with fixed tax rates, property revaluation is done regularly as a means of keeping assessed values and the levy up with inflating market values. While each home may be revalued only once every five years, some homes or neighborhoods are revalued every year, so that on average the assessed values in the town remain close to 100% of market values.

In Massachusetts, before the general revaluations now going on, assessment ratios within a town were not uniform, because many towns revalued property infrequently, if at all, while market values went up or down with the fortunes of each neighborhood and the variations in the economy through time. There was no regular revaluation because revenue could be increased by adjusting tax rates as needed. Assessment skills have not been widely needed or available until now in Massachusetts.

While every municipality in the state has assessors, they are often not professionally trained or equipped with the most modern methodologies, computer-assisted mass appraisal systems. Many of the consulting firms now conducting revaluation in Massachusetts are from other states.

Proposition 2 1/2 has changed this situation. Now tax rates are limited. There is an incentive to revalue property, in order to increase a town's total valuation and its levy limit. For a town that is required to reduce its levy down to its limit, a higher levy limit means that tax revenues will not have to be as reduced so much. Regular revaluation is supposed to keep the levy limit increasing.

Proposition 2 1/2 goes beyond the usual tax rate limitation, however, since it restricts growth in the total levy to a proportion (2.5%) of the levy in the previous year. Thus, even if regular revaluation results in substantial increases in the total town value (and even if the cost of government inflates), property tax revenue is restricted to a growth rate of only 2.5% each year. If the levy is not permitted to grow very much and the levy is far below the upper levy limit of 2.5% of total value, there is no incentive to conduct regular revaluations. Proposition 2 1/2 may not lead (absent other requirements) to reform of assessment procedures in Massachusetts, nor to uniform assessment ratios. The only way 2 1/2 allows growth in the levy beyond 2.5% of the previous year, is through actual growth in the tax base because of construction, rehabilitation, or new use of property that is reassessed because it is new and not because of a general revaluation that inflates assessed value up to current market value. This provision of 2 1/2 will be an incentive for municipalities and their assessors to keep the composition of the tax base up to date, which may not have been the case in the past.

Chances are, however, that the value of additions to the tax base will far exceed the permitted growth in the levy. Thus, as a community grows, but its levy remains relatively level, the effective tax rate on all property will decline, inevitably far below 25.00. Proposition 2 1/2 has two major consequences: (1) Other sources of revenue will have to be substituted for the property tax, such as increased user fees, sales taxes, or income taxes. (2) Communities may decide they would rather not take on the increased expense of servicing new residents or businesses, because the new expenses might be exceeded by the new tax revenue that is brought in. Communities might become more restrictive with their development zoning powers. Thus, indirectly, Proposition 2 1/2 is a disincentive for growth.

#### Other Reasons for Disparity

There are a number of other reasons why a local government might want to maintain less than 100% assessment ratios (Weiss 1980). Variations or errors in assessed values appear to be smaller when values are smaller. They are less likely to be contested by the taxpayer. It is harder for a taxpayer to tell that his assessed value is too high when the average assessment ratio is low and not readily apparent. The effective tax rate could be increased when needed, without raising the actual rate, by raising assessments.

Bowman and Mikesell (1978), in a study of taxing jurisdictions in Virginia, found that most (70%) of the differences in assessment uniformity between jurisdictions, as measured by the coefficient of dispersion, could be attributed to uncontrollable factors such as the town's economic structure, housing market change or growth, and housing quality and price. Other significant factors, controllable by the

government, were the effective rate of taxation, and the employment of full-time tax assessors.

Borland and Lile (1980) show that higher tax rates are associated with more uniformity (lower coefficients of dispersion). This is because with higher effective tax rates, more money is at stake, appeals will be more likely, and more assessment adjustments will be made, reducing disparities. This reasoning is different from that which seems to apply in Massachusetts. Here, it may be argued, places with higher tax rates are better off not upsetting the status quo by altering assessments, otherwise political supporters may have their taxes raised, and state aid may be reduced. Failure to revalue requires raising nominal--and often effective--rates. Therefore, in this state, higher tax rates would be associated with higher dispersion.

Fischel (1975) provides an interesting argument for why tax rates differ because of community characteristics. He offers a model of tax rates, zoning decisionmaking, and industrial location in which suburban communities trade off the negative environmental effects of noxious land uses (pollution, traffic, noise, safety hazards, unsightly structures) for the increased property tax revenue they bring in. Individual towns invite or reject prospective new firms based on their needs, with poorer towns tending to have more industry and wealthier ones tending to have more commercial uses, and with higher tax rates in industrial towns. Differential assessment might have been the old mechanism in Massachusetts through which towns charged industry for its negative externalities, without also charging residents. Classification might be the new mechanism through which governments can make industry pay more for the privilege of locating in towns.



Welch (1976) lists a number of ways in which the property tax system could be modernized: (1) Enlarging primary assessment districts (Hawaii, Maryland, and Montana use the whole state; New England states are said to have the most inefficient districts). (2) Replacing a board at the state level with a single administrator (Massachusetts replaced its State Tax Commission with a Commissioner of Revenue). (3) Independent single function assessment appeals agencies (Massachusetts has a State Appellate Tax Board, but other arrangements have been proposed). (4) Requiring assessors to be certified, to pass exams, and/or to be appointed rather than elected (not yet in Massachusetts). (5) Measurement of assessment levels by the state (this has been done in Massachusetts since the 1960s, but it has not produced uniformity). (6) The use of computers (in some Massachusetts communities; statewide systems are being proposed).

Some observers feel that a cause of assessment disparity in Massachusetts is the fact that assessors are often part-time employees and receive only nominal salaries. They may be elected or given political appointments. The turnover among the non-professional assessors in the smaller towns is rapid. Towns may be unwilling to pay a full-time assessor, or to send its assessors to classes. The Department of Revenue requires that assessors take a certain amount of training, but its courses were thought by one expert to be too easy.

The Lincoln Institute of Land Policy in Cambridge, Massachusetts teaches assessors the latest in computer-assisted mass appraisal (CAMA) methods. Most small towns in the state use consulting firms to do this type of statistical analysis. Larger communities may do this analysis in-house. CAMA methods are used more in other states such as California, Arizona, and New York, but tax assessment there is often

administered at the state or county level. In the northeastern U.S. the modeling techniques are often more sophisticated, because the housing stock is more heterogenous.

In this chapter we have shown how, in contrast to other states, local municipalities in Massachusetts are independent and have been unrestricted in their taxing powers. This system has provided no incentive for regular valuations, resulting in wide disparities in assessment ratios. Proposition 2 1/2 now provides an incentive to revalue. Local governments are quickly having to learn how to revalue more conscientiously than they have in the past.

#### IV EXISTING REVALUATION AND CLASSIFICATION LEGISLATION

This chapter describes how revaluation and classification are to be implemented by local governments in Massachusetts, as controlled by the 1978 constitutional amendment and by the implementing legislation, chapter 797 of the acts of 1979, and its amendments.

The definition of taxable property is in chapter 59 section 5 of the state laws. All property is taxable, but exceptions are provided for: the U.S. and Massachusetts governments; charitable organizations; horticultural societies; veterans organizations; volunteer militia; fraternal lodges; religious groups; cemeteries; water companies; credit unions; widows; personal belongings; veterans; state and municipal bonds; blind persons; airports; bomb shelters; persons over 70 years old; widows and children of policemen or firemen killed in the line of duty; and industrial waste disposal.

Real property, or realty, is defined as the tangible and intangible qualities of land and the improvements attached to the land. Personal property, or personalty, includes movable physical items such as business and professional furnishings, household furnishings other than those in the principle domicile, and the equipment of public utilities and gas companies.

##### Class Definitions

According to the law (M.G.L. chapter 59, section 2A), real property is classified according to its use into four classes. Class One, Residential, property is "used or held for human habitation containing one or more dwelling units including rooming houses with facilities designed and used for living, sleeping, cooking and eating on a non-

transient basis." It includes accessory structures used by residents such as garages, swimming pools, and tennis courts, but not attached structures that are not "incidental to such habitation" such as a variety store or machine shop. Hotels and motels are not included. Rented apartments are included, since the distinction between classes relates to the permanency of the residential use, but not to ownership status or income-generating potential. Vacant lots in residentially zoned areas are included, however, in the residential class. (Bureau of Local Assessment 1982.)

Class Two, Open Space, is land "not held for the production of income but is maintained in an open or natural condition and contributes significantly to the benefit and enjoyment of the public." It does not include agricultural/horticultural, forest, or recreational lands, which are valued and taxed according to other legislation, and are included under class three--commercial for the purposes of allocating the tax burden under this law. Open space land could be in areas zoned for other uses, but is undeveloped and not likely to be developed, is underwater, or is non-productive. Designation of open space land is up to the local assessors, as are the other classifications, and presumably this designation could change if the open land were developed for another use.

Communities with strong a conservation or anti-development ethic might want to help the owners of open space, which is not already protected by other means, maintain their ownership by giving them a tax break, by setting differential tax rates. These communities would probably be more precise and inclusive in their designations of open space land than those communities that don't make the distinction in

their tax policy.

Class Three, Commercial, includes business, retail, trade, service, recreational, agricultural, artistic, sporting, fraternal, governmental, educational, medical, religious, and non-profit uses; also: hotels, motels, mobile home parks with leased spaces, nursing homes, hospitals, storage facilities, bus and trucking terminals, piers, parking lots, museums, fairgrounds, golf courses, beaches or pools, campgrounds, and accessory vacant land.

Class Four, Industrial, includes property "for manufacturing, milling, converting, producing, processing, or fabricating materials unserviceable in their natural state to create commercial products or materials" for profit or not, including warehouses, accessory offices, research and development, mining and quarrying, public utility tanks, electric transmission and generation, gas pipeline rights of way, telephone and television transmission, and accessory vacant land.

Personal Property, the fifth class, includes the equipment and furniture used in commercial businesses, for laundering, refrigeration, air conditioning, and underground or aboveground pipes and wires. There are two types of personal property: that valued by local assessors, and that which is valued on a statewide basis by the Commissioner of Revenue, regardless of where it is located. The latter type includes machinery, poles, wires, and conduits of phone companies and of natural gas and petroleum suppliers.

Personal property is assessed by three methods. Items may be listed and priced according to standard price lists of furniture, fixtures, and equipment; analysis may be made of personalty owners' asset ledgers or tax records; and comparisons may be made with the personalty values of similar businesses. Utility property has accounted

for close to 80% of all personal property value in Massachusetts. Personal property is the most difficult to assess, since there are very complex rules on what is and is not taxable, and it is difficult to maintain accurate lists of property holdings.

In some cases there may be problems assigning classifications. Rooming houses or summer cottages could be either residential or commercial, depending on how long a period of time they are rented out to each occupant. They may be occupied as permanent domiciles, like houses, or by transient vacationers, like hotels. Another interesting legal question is, does open land have to be accessible to the public in order to contribute significantly to their benefit and enjoyment? (Goren 1980). Probably not, but this issue has not been resolved in everyone's mind.

#### Formulae

The original or "shelf" classification law (chapter 580 of the acts of 1978) called for setting uniform statewide assessment ratios on each class of property:

Residential	40%
Open Space	25%
Commercial	50%
Industrial	55%
Personal	100%

Also, in addition to the 40% assessment ratio, every home got an \$5000 exemption off of the assessed value. This further shifted the tax burden onto non-residential property.

#### The Residential Factor

The current classification law allows different tax rates to be adopted in each community. The law does not specify assessment ratios

or tax rates, however. Instead, it allows part of the levy that would normally be borne by one group of classes to be shifted onto another. Tax rates are then computed as the ratio of the levy borne by a class to the value of the class. Although there are five classes, there may be only one, two, or three tax rates. In order for classification to work properly, and therefore as a requirement for its implementation, all property must be revalued at 100% of its full and fair cash value (or close enough so that the average assessment ratio is within 10% of 100% and the coefficient of dispersion is no greater than 10%).

Each city or town must decide how much of the total levy is to be borne by the residential and open space group of classes (RO) on the one hand, and the commercial, industrial, and personal class group on the other (CIP). If the government takes no action to adopt classified tax rates, then the shares of the levy borne by each group will equal the share of the total value in each group.

$$ROL_p = ROV_p \quad \text{and} \quad CIPL_p = CIPV_p$$

where:

$ROL_p, CIPL_p$  = share of the total levy borne by RO and CIP groups

$ROV_p, CIPV_p$  = share of the total value in RO and CIP groups

and:

$$ROL_p = ROL / TL$$

$$CIPL_p = CIPL / TL$$

$$ROV_p = ROV / TV$$

$$CIPV_p = CIPV / TV$$

where:

$ROL, CIPL$  = levy collected from RO and CIP groups, in dollars

$TL$  = total levy collected by the municipality, in dollars

$ROV, CIPV$  = value of RO and CIP groups, in dollars

TV = total valuation of property in municipality, in dollars

If the local government wishes to shift from the default tax burden distribution, such as from residential onto business, then:

$$ROLp < ROVp \quad \text{and} \quad CIPLp > CIPVp$$

The ratio of the RO share of the tax levy to the RO share of the value is the residential factor (RF).

$$RF = ROLp / ROVp$$

In the default situation, the residential levy is proportionate to the residential value, and the RF is equal to 100%. Once the ROLp and RF are decided upon, the RO and CIP levies may be computed:

$$ROL = ROLp \times TL$$

$$CIPL = TL - ROL$$

Then the tax rates are found:

$$ROTR = ROL / ROV \times 1000$$

$$CIPTR = CIPL / CIPV \times 1000$$

where:

ROTR, CIPTR = RO and CIP tax rates, in dollars of tax per 1000 dollars of property value

#### The Minimum Residential Factor

The legislation provides, of course, for limits on how much of the tax burden can be shifted. Without limits, a community could possibly decide to have its factories (or housing) pay all of its taxes. The limits are a function of the share of the total value in each group of classes. There are two limits. The "upper" limit says that the CIP group (and each of the C, I, and P classes individually) may not bear more than 150% of its proportionate share of the levy. In other words, the CIP share of the levy may not be more than 1.5 times the CIP share



of the total value.

$$\text{CIPLp} \leq \text{CIPVp} \times 1.5 \quad \text{or:} \quad \text{CIPLp} / \text{CIPVp} \leq 1.5$$

(The ratio of the CIP levy share to value share, CIPLp/CIPVp, could be called the "commercial factor.")

The "lower" limit says that the RO group must bear at least 65% of its proportionate share. In other words, the RO share of the levy may not be less than .65 times the RO share of the total value.

$$\text{ROLp} \leq \text{ROVp} \times .65$$

Both of these limits may be translated into a minimum residential factor (MRF), which is the lowest RF that may be chosen.

$$\begin{aligned} \text{MRF} &= (1 - (\text{CIPVp} \times 1.5)) / \text{ROVp} \\ &= (1 - ((1 - \text{ROVp}) \times 1.5)) / \text{ROVp} \end{aligned}$$

or MRF = .65, whichever is higher

An MRF is calculated for every community, given the values of each class. Then an RF may be chosen that is at least the MRF.

For a community to have the lowest allowed MRF of 65%, it must have an ROVp of at most 58.8%. A higher RO share of the total value will result in a higher MRF.

The MRF need not be higher than 100%, i.e., the residential class need not be required to pay more than its proportionate share of the tax burden; but a community could pick an RF greater than 100% if it wished to shift the tax burden onto the residential class. None of the 211 Massachusetts municipalities analyzed in this study has an MRF higher than 98.6%.

#### The Open Space Factor

The R and O classes need not have the same tax rate, however. Part of the proportionate share of the open space tax burden may be shifted

onto the residential class, by discounting the value of the open space property. This might be done by a community wishing to help preserve open space. Lower taxes would mean less incentive for the owner to sell the land for development. Starting with fiscal year 1983, the maximum open space discount (OD) that a town may choose is 25%. Prior to this the maximum was 15%. The open space factor (OF) is the ratio of the open space share of the value after discounting to the share of the value before discounting.

$$OF = 100\% - OD$$

OF must be between 75% and 100%.

The complete formula for the residential factor (RF) includes the open space factor:

$$RF = ROLp / (RVp + (OVp \times OF))$$

where:

RVp, OVp = share of total value in residential and open space classes individually

If an open space discount is used (OF < 100%), then RF will be larger than it would be otherwise, thereby shifting part of the open space tax burden onto the residential class.

$$OLp = OVp \times RF \times OF$$

$$RLp = RVp \times RF$$

where:

OLp, RLp = share of the levy borne by open and residential classes

$$OL = OLp \times TL$$

$$RL = RLp \times TL$$

$$OTR = OL / OV \times 1000$$

$$RTR = RL / RV \times 1000$$

where:

OL, RL = levy collected from open and residential classes

OTR, RTR = open and residential class tax rates

### The Residential Exemption

Another feature of the law allows for a shifting of the tax burden among properties within the residential class. A community may desire to tax higher-valued houses at a higher effective rate than lower-valued homes. This is done through the mechanism of the residential exemption. The residential exemption value may be less than or equal to 10% of the mean value of all residential properties. This is subtracted from the assessed value of parcels that are the principal domicile of the taxpayer. Thus, no tax break is given to summer homes, accessory land incidental to residential use (an adjacent vacant lot), or rental apartments. The residential exemption will be a larger portion of the value of lower-valued homes and a smaller portion of the value of expensive homes, thereby giving the lower-valued homes a bigger tax break. In order to compensate for the reduced assessed value of the entire residential class, the residential tax rate must be increased, in order to raise the same levy from the class as would be raised were there no residential exemption. Thus if the residential exemption were 10% of the mean value of residential property, the total assessed value of the class would be reduced by 10%, and the residential tax rate would have to be increased by 10%. This results in a graduated tax rate, with higher-valued homes picking up the tax that would be paid by lower-valued homes under a proportionate tax rate. Parcels valued above the mean residential value would pay higher effective rates, while parcels below the mean would pay less.

A community would probably not want to use the residential exemption unless many more homeowners would be paying less than would pay more. This would be the case where the mean residential property value is much higher than the median principle domicile value, i.e., a few large properties are so expensive that they pull the mean way up above the value of the typical single family home.

Very few communities have chosen to use the residential exemption, generally because there would be not net benefit to the whole residential class. Those that have are usually urbanized places with many apartment buildings that may have formerly been overassessed. The residential exemption prevents the share of the taxes formerly borne by apartments from being pushed onto single family homes because of revaluation. It has also been adopted in Nantucket, an island resort with many expensive summer homes. The year-round homeowners are relatively poorer than the summer people, who don't get to vote on the tax rate.

In the tables that follow, the figures are based on the residential value without the residential exemption. This was done to prevent the RO-CIP shift comparisons from being obscured by the shift within the residential class. The residential tax rates shown are 10% below the official rates adopted in the communities with residential exemptions.

All of the computations described in this section are summarized for local assessors on worksheets and forms provided by the Department of Revenue. The Massachusetts Association of Assessing Officers has provided its members some guidance on how to make a useful presentation at public hearings, using charts showing the levy percentages, tax rates, and tax bills on residential and commercial property for a few possible values of the residential factor (Carney 1983).

### Establishing Tax Rates

The procedure that a municipality generally follows to set its tax rates is as follows. The local assessors, or a firm that they hire, determine the valuation of each taxable property and its use classification. This set of values is submitted to the Department of Revenue (DOR) for certification. The assessed value is assigned to all properties as of January 1 for the taxes collected in the fiscal year that begins on the following July 1. The DOR conducts a field investigation in the community, checking the records and methods of the assessors, and comparing the sale prices of sample properties to their assessed values. If the values are found to be reasonable, the assessors may then send out impact notices to all of the local property owners/taxpayers. These notices show the new assessed value on the property and the tax, given the probable tax rate for the community. The taxpayers then have a certain period of time in which to protest or appeal their assessments. Once values have been adjusted, the final valuations are drawn up. After these valuations are given final certification by the DOR, the process of setting the tax rate may begin.

The procedure of choosing the residential factor and the percentages of the levy to be borne by each class is controlled by Mass. General Laws chapter 40 section 56. Along with submission of the final valuations, the assessors calculate the aggregate values of all of the property in each class, and the percentage shares in each class of the total value of the community. These figures may then be used in calculating the minimum residential factor (MRF), which sets the limit on how much the shares of the total levy borne by each class may diverge from the shares of the total value in each class. The MRF is officially

calculated by the DOR, which also determines that the total levy is at or below the levy limit for the community.

The levy limit is a function of the rules set up by Proposition 2 1/2 and the total valuation of the community. For those communities that had not completed revaluation during 1981, there had to be some measure of the total full and fair valuation to be used in determining the Proposition 2 1/2 levy limit for fiscal year 1982. The total 1980 equalized valuation as reported by the DOR (Hampers 1981) was used, inflated by a uniform 13% for every community. This factor was approved by the Supreme Judicial Court in *City of Newton v. Commissioner of Revenue* (Mass. Adv. Sh. 1981, 1659).

New local aid was provided by the state in FY 1982 and 1983 to help offset the required reductions in the levies. Research by the Massachusetts Taxpayers Foundation showed that towns' levies were often not increased up to the allowable limit, perhaps because of the availability of increased aid, or perhaps because they were really in a tax reduction mood. Towns could have raised a total of \$80 million more than they did.

Local elected officials must make policy decisions about the tax rates and the shares of the levy to be borne by each class of property. The chosen levy shares are then submitted to the DOR, which checks the calculations and certifies the tax rates. Only then can taxes be collected using the new rates.

For the 1981 and 1982 fiscal years, the residential factor and class shares of the levy were to be decided on jointly by the boards of assessors and the elected local officials--town selectmen or council, or city mayor and council. If they could not agree then the default RF of

100% was to be used. For 1983 and subsequent years, the decision is up to the elected officials only. Also, a public hearing must be held before the decision is made, at which the assessors must provide information and data on the fiscal effect of available alternatives (chapter 369 of 1982).

Formerly, the law allowed for setting the levy percentages only every two years. This meant that if the values of some classes were changed in the interim year, because of certified additions to the tax base, then the tax rates--the ratios of levy to value--would change and the individual C, I, and P tax rates might become unequal. This means that a shift in the tax burden between the C, I, and P classes would occur, just because of the timing of the tax rate decisions. This anomaly in the law was corrected by an amendment, introduced by the assessors association and the DOR, that called for adjusting the levy shares and residential factor every year, to keep the levy shares in accordance with the value shares for each class. The communities that were certified in 1981 and have unequal C, I, and P tax rates in fiscal year 1982, because they set their tax rates before the change in the law, are: Belmont, Lenox, North Adams, Watertown, and Whitman.

The entire process--assessment, classification, valuation certification, tax rate selection, and tax rate certification--can take several months. The first step, assessment of individual parcels, can take several years. The process is often not generally understood by the public.

### Tax Collection

Tax bills are sent out and collections made twice in each fiscal year, in the fall and the spring. (The fiscal year runs from July 1 to

June 30.) Many communities have not completed the revaluation and tax-rate-certification process in time for the first (fall) billing to reflect the new assessments. But tax revenues must be collected so the government can pay for its operations without having to continually borrow money. The local tax collectors are allowed, therefore, to send out bills based on the previous year's assessments. Since only half of the total due is collected in the fall, the spring bill can be adjusted to make up for the difference between the new assessments and the old. The spring bill will be higher than the fall bill if the new assessment is higher than the old, and vice versa. Hopefully, for those responsible for the local budget, the tax certification process is not delayed beyond the spring billing period.

Local tax collectors have also been allowed to send out fall tax bills based on the new assessments, before the new assessments are certified, but taxpayers are not required to pay these "voluntary" bills. It is often to the advantage of the taxpayer to pay a voluntary bill in the fall, however, so that the tax can be deducted from their federal income tax for the calendar year in the first half of the fiscal year. Voluntary tax bills were sent out in Boston in 1982.

#### The Revaluation Certification Schedule

Certification of values is to take place every two years. Initially, 106 communities are to be revalued in every even-numbered fiscal year, and 245 are to be revalued in odd-numbered years. Tax-rate certification occurs every year for each community.

Ninety-eight communities were revalued and certified by the DOR in fiscal year 1981, and 100 in 1982. (One of the 100, the town of Gosnold, chose to levy no taxes for 1982.) During the current--1983--



fiscal year, 147 communities are scheduled to be certified for the first time, and the 98 first done in 1981 are to be recertified. As of mid-January 1983, halfway through the fiscal year and past the fall tax billing period, only fourteen of the 147 new communities had been certified, five of the 98 had been recertified, and 84 of the 100 had established new tax rates (this latter group was not required to have their values recertified).

Much of this delay is due to of the difficulty of completing a general revaluation when it hasn't been done for a long time. The assessors' property description databases need extensive updating, through field visits to every property and examination of property deeds and building permits. With so many communities trying to get certified at the same time, the DOR has a big backlog. Much of the backlog in the spring of 1983 can be attributed to the time and effort that must be put into certifying the revaluation of Boston. The commonwealth's largest city has 114,300 taxable parcels worth between \$12.5 and \$13 billion (Durning and Tyler 1982). Boston's revaluation effort has taken four years and cost \$11.5 million. A complete revaluation of the city has not been done since the 1950s.

#### The Use of Classification So Far

Every municipality that has a certified revaluation also has classified its property according to use. Not every community will choose to set differential tax rates by class of property, however. In this report, for the sake of brevity, "classifying" will often be used to mean "setting differential tax rates."

Of the 211 communities with certified tax rates analyzed in this report, 50 have chosen to adopt classified tax rates. Chapter VI will

describe the residential factors that were used.

In 1982, nine communities used the open space discount. One town used a 10% discount: Boxborough. Eight use a 15% discount: Bedford, Burlington, Concord, Dighton, Gloucester, Nantucket, Shrewsbury, and Watertown. Most of these are suburbs. Three (Bedford, Burlington, and Concord) are adjacent to each other.

For 1983, Bedford adopted the 25% open space discount. Burlington, Gloucester, and Watertown, however, stopped using the open space discount in 1983.

In 1982, Concord and Shrewsbury used the open space discount, but did not shift the tax burden onto the CIP classes, only onto residential. Therefore their residential factors were slightly higher than 100%. For 1983, Concord shifted the open space tax burden onto all of the other classes, but the residential burden was not shifted onto other classes. This resulted in an RF slightly smaller than 100%.

The five communities that have adopted the residential exemption are Brookline, Nantucket, Somerset, Watertown, and Weymouth. The exemption percentages they used are at or near 10%.

#### History of Legislation

How did the classification amendment and legislation come about? A similar measure to the 1978 classification amendment was defeated in a referendum in 1970. One of the lessons learned by the coalition supporting the 1978 amendment from the failure of the 1970 amendment referendum was that people were not willing to vote for something when they didn't know what it was actually going to do. Therefore, implementing legislation was formulated by the legislature along with the amendment, which could go into effect if the referendum

succeeded. This law-in-waiting (chapter 580 of 1978) or "shelf legislation" allowed a point of departure for debate on the issue, to let people know what they were voting for. This strategy succeeded in allowing a clean fight.

The campaign to approve the 1978 amendment was successful because it was well organized and financed. Many diverse groups were in the coalition supporting the amendment, including labor, churches, homeowners, consumers, and the mayors. The campaign outspent the opposition. Boston mayor Kevin White's political organization was largely responsible for financing the campaign. Massachusetts Fair Share was largely responsible for putting together the coalition.

The shelf legislation was designed with assessment ratios assigned to each class rather than tax rates, because there was some question as to whether the courts would agree that mandated rates were constitutional. The ratios were designed to fit the assessment ratios of the larger cities. This was a political compromise.

Open space was added to the set of classes so as to appeal to the suburbs. Owner and rental property was lumped together into one residential class so as to avoid complicating conflicts. The residential exemption was required in the shelf legislation, to relieve the shifts from revaluation within the residential class. Supposedly it took the opposition a while to figure out that this produced a graduated tax. In order to get passage of the shelf bill, an amendment was made that held the personal-utility property at the same share of the levy as before.

After the amendment was passed, it was recognized that the shelf bill was unworkable. This was because the uniform assessment ratios were designed to hold the average shares constant, but there is no

average community, and enormous but different shifts would result in each town.

Avault, Ganz, and Holland (1978) show what effect the shelf legislation would have had on tax bills and tax rates. For residential property, effective tax rates would decrease, and non-residential rates would increase. These shifts would be greater outside of Boston, unless some sort of tax reduction were to be enacted (this analysis anticipated Proposition 2 1/2).

Lots of meetings were held at the State House, led by Representative Gerald Cohen, who was then chairman of the Ways and Means Committee. Boston, assessors, and the business community were represented. The formulas in the legislation were dreamed up by a member of Cohen's staff. While these meetings were going on, the Tregor decision was handed down in March 1979. This would have an enormous effect on the budget of the city of Boston.

In the Tregor case (1979 Mass. Adv. Sh. 770) the Massachusetts Supreme Judicial Court ruled that property-taxpayers who had been disproportionately over-assessed should get an abatement in taxes. Their taxes had to be recomputed as if their assessment ratio were the same as that of the class of property with the lowest ratio, single-family residential. This would have cost the city of Boston millions of dollars in refunded taxes.

Part of the classification law, which was worked out under Representative Cohen's leadership, changed the Tregor remedy so that the taxes subject to abatement were to be figured using the average assessment ratio in the previous tax year of all property in the city, rather than the ratio for the most-favored class of property. This

provision of the law was challenged in court by those who would have benefitted from the larger abatements provided by the Tregor remedy, but they were defeated in *Keniston v. Assessors of Boston* (Mass. Adv. Sh. 1980, 1485). The court ruled that the municipal-average ratio remedy was valid because it was temporary, and limited its use to fiscal years 1980-1983 (Goren 1980). After this time abatements must be based on the most-favored class ratio; but by that time revaluation should be completed and there should be very little disproportionate assessment. The assessment ratios used as the basis for arguing for abatements in these cases are the ratios reported in the Department of Revenue's biennial equalization study (Hampers 1981).

Boston agreed to the current bill (chapter 797 of 1979) in return for the provision that allowed the alternative remedy for Tregor abatements. This was a political move. The classification amendment coalition, led by Boston, had the power to say that the shelf legislation should not be changed, because of the overwhelming vote in favor of the amendment which it accompanied. The opposition could get the current legislation only if Boston and the other cities under the Tregor threat got what they wanted. The coalition agreed to this deal.

When this compromise was worked out, the bill was pushed through the legislature by the leadership in a few minutes, with no debate. The abatement lawyers missed the new abatement remedy at first because it was buried in the middle of the bill, but when they discovered it they were upset, because they lost a big source of fees. Governor King was heavily lobbied on both sides, but he did sign the bill at the last minute.

### Summary

Property is divided into five classes. The "shelf" implementing legislation, which originally accompanied the constitutional amendment, was very simple in that it applied uniform assessment ratios to each class. But this was not workable because it would have caused different and often disruptive shifts in each municipality, which didn't have uniform assessment ratios before revaluation. New legislation was therefore designed. It is more complicated, in the way it controls how much of the levy can be shifted among classes, as a function of the share of the total value in each class. But it is simpler in the way it divides the levy amongst only two groups of classes, residential-open, and commercial-industrial-personal. The new law was substituted for the shelf law because certain provisions were beneficial to the city of Boston, which held the upper hand as the leader of the coalition to gain approval of the constitutional amendment.

## V WHO SHOULD BEAR THE TAX BURDEN?

This chapter outlines the controversies surrounding classification, including problems associated with valuation, arguments for and against shifting a greater portion of the tax burden onto businesses, the views of the organizations with a major interest in these issues, proposals currently under consideration for amending the classification legislation, and the positions of the organizations on these proposals.

### Problems of Assessment

Commercial properties are often assessed according to the income capitalization method. To find the assessed value of a property, the annual income from it is capitalized (divided by) a reasonable rate of return, which is usually the interest rate currently available on alternate investments of capital. In recent years interest rates have gone up higher and faster than commercial rents, so capitalized property values have fallen. These low capitalized values must be used as assessed values, even though sale prices of existing commercial properties have risen dramatically due to the difficulty of new construction. Tax assessment abatement lawyers representing big business landowners have convinced the courts that the income capitalization method is reasonable (Kuttner 1982).

Part of the reason why commercial assessments are considered too low is that assessors apply the capitalized income method in an oversimplified, however standard, manner. If interest rates used to capitalize income are high because of expectations of future inflation, then future income should also be inflated. Building value is often depreciated out to infinity rather than with recognition that buildings

are sold after some holding period, after which depreciation starts over at full value for the new owner. The return on investment when the building is sold in the future should be accounted as increasing its value in the present. These and other tricks of accounting are used by investors to determine the appropriate rate of return and prices for investment property. Assessors and the appellate tax board, however, have generally not yet recognized that their methods are generating estimates of market value that are unrealistically low.

In using the income approach to value property, assessors are often not allowed to consider the U.S. income tax deductions allowed for investment real estate in determining what the rate of return should be. This makes the return and the value appear lower than it might under the cost approach to valuation (Costa 1982).

Wheaton (1981) calculated the effective tax rates on commercial office space in the Boston metropolitan area and the impact on rental rates. He concludes that inter-jurisdictional differences in taxes are not passed on to consumers or to labor, but are borne by the owners of capital (buildings) or of land. There is little effect on rental rates, because the rather small differences in the tax rates between towns are absorbed by building owners. Towns seem to try to minimize the differences in their commercial tax rates, however, so as to prevent disinvestment. Commercial property is underassessed to encourage builders to invest in a town. Commercial space effective tax rates were found to be consistently less than the average tax rates for non-residential property. If this is the case, then revaluation may increase the tax burden on commercial property as it reduces the burden on industrial and personal property. Classification might further



increase the burden on commercial.

The valuation of utilities is rather theoretical and subjective. An economic forecast has to be made to determine the rate of return and likely appropriate value for a facility, and many conclusions are possible given the assumptions made. There is no market for power plants that would allow sale price comparisons to be made. This is in contrast to house valuations, which are empirically based on sales prices. Power plants are usually valued according to their present net book value, which is their construction cost depreciated for their age. This doesn't account for the income they generate or for what it would cost to replace the plant at today's construction costs. Should a productive power plant get a tax break just because it is old? A utility would never sell at its net book value, if it were ever to be sold at all.

There may not be much awareness of the utility valuation problem yet, since many of the larger places with utility plants have not yet been revalued. The city of Salem is struggling with this issue. It has a huge electric power plant, which is expected to shift much of its tax bill onto the rest of the taxpayers in the city. Proposals for legislation to allow the use of different methods of assessing utility property are being considered at the State House.

#### Why Business Should Get the Tax Burden

Massachusetts Fair Share is a statewide citizens action organization that works on behalf of lower and middle income people on such issues as taxes, utility bills, fuel prices, insurance rates, city services, industrial pollution, jobs, and housing (Fair Share 1980).

Fair Share goes beyond asking that the traditional bias in favor of

residential property should be preserved. They argue that residences should be taxed lower and businesses higher than before as an overt economic policy. The remainder of this section is a restatement of the views of Fair Share.

Those with the greater ability to pay should pay a larger share of the taxes. Homes are for shelter, a necessity, while investment is made in business for a profit. Property taxes amount to from two to ten percent of homeowner or individual income, but less than two percent of business income. The people wanted tax relief, which is why they voted for Proposition 2 1/2, so the tax relief should go to those who wanted and needed it the most, which is residents. According to Fair Share, the property-tax revolt may not be over. If people's taxes will still go up, because of revaluation, even after Proposition 2 1/2, then they will get mad again and may pass a law that is even more drastic. The average homeowner should get at least a 15% decrease in property taxes, since 2 1/2 requires a 15% decrease in the total levy, otherwise he is paying someone else's taxes. The property tax is regressive, but could be made less so if shifted off of individuals.

It is often argued that higher business property taxes may cause firms to relocate where taxes are lower, taking their jobs and income with them out of town. Fair Share's counter argument to this is that business location decisions are never based on tax rates, according to several studies. Property taxes amount to only 1% of business operating expenses, so an increase or decrease doesn't matter in location decisions. Politicians, who may be making the decisions on tax rates, are too likely to believe the argument that lower business taxes are necessary for a good business climate. This is because they often depend on political support from the business sector, in various forms

ranging from advice and endorsements to contributions and payoffs.

Business taxes are actually falling, Fair Share points out, because the federal corporate income taxes, which make up the bulk of business taxes, have been going down over the past two decades.

Homes are generally assessed at market value, but business property is assessed at something less, therefore businesses are never really paying their fair share of taxes based on property value. This is because valuation of homes is relatively precise: there are many sales of homes with which to make comparisons and assign values. Businesses, on the other hand, turn over in the open market rather infrequently, and there is too much variation (size, materials, age, location, use) to allow for statistically significant comparisons between properties. Assessments of businesses tend to be subjective. Businesses have the resources (high-priced lawyers) and motivation (reduced operating costs) to try to get assessments reduced. Since there is too little scientific and legal evidence for setting business assessments, they are often negotiated by the assessors and representatives of the businesses. Therefore, there is a tendency to underestimate business property value. Therefore, they should be hit with a higher tax rate.

It is argued that residents, as consumers, pay the higher business taxes anyway, through the higher prices on products produced by these businesses. The Fair Share counter arguments to this are: Products are sold outside of the taxing jurisdiction, so some of the taxes are "exported," so residents are not fully affected by their taxing decision. Consumers choose what products they buy, so one cannot argue that the taxes are always directly passed back to residents. Some of the taxes are passed onto stockholders, who can well afford it. The

initial incidence of taxes matters more than the secondary impacts. If resident taxes were higher relative to business taxes, then, as laborers, residents would demand (and get) relatively higher wages from their local employers.

Public sector services should be paid for by business because they are used by business and the employment they provide is the reason for a community's, and the public sector's, existence.

It doesn't make economic sense to reduce business taxes to stimulate growth and investment, because that is supply-side economics, which is not valid. Perhaps in the long run the economy is stimulated by reduced business taxes, but in the meantime householders must pay the taxes, and they may become disinclined to support their local government.

Property taxes are meant to be based on wealth, not income. Since houses of equal value have the same taxes, regardless of the income of their occupants, businesses should be taxed on the basis of their physical attributes rather than their operating profit or loss. Since business properties are of more substantial value, they are where the wealth is in the community.

And finally, Fair Share offers a rhetorical argument. If businesses are able to pass on taxes in the form of higher prices, then why do they fight higher taxes? They can't have it both ways, so therefore all they really want from lower taxes is reduced costs and increased profits.

The scientific answer to this, of course, is that they do have it both ways: part of the cost of increased property taxes is passed on in higher prices, and part is absorbed by the firm. Which part is greater depends on the elasticity of supply and demand for the product and the

relative proportion of land versus other factors used in the production of the product. Also, increased taxes will mean a reduction in the amount of business conducted.

Fair Share points out that big business will get tax breaks no matter what happens. The group's campaigns are aimed at keeping those breaks and the homeowner tax increases at a minimum (Zimmerman 1982).

#### Why Business Shouldn't Get the Tax Burden

Welch (1976) criticizes classification because it allows law to conform to practice rather than the other way around; prevents shifting of tax burdens between property owners while allowing the shift between persons with different consumption patterns (because of the shift onto businesses and utilities who may pass the tax onto consumers); and it subjects legislators to pressure from special interests.

Citizens for Limited Taxation (CLT) is the group that led the campaign to pass Proposition 2 1/2. They opposed the 1978 classification amendment, and still oppose classification, but prefer the local option allowed in the current legislation to the shelf legislation. CLT believes the amendment was passed because it was fought on the basis of people being told they might lose their homes through taxation, rather than on philosophical grounds.

CLT would like to see classification put on the ballot again someday to see if the voters would repeal it, perhaps after revaluation is completed throughout the state.

CLT argues that business is not the enemy. Its taxes get passed along to consumers. Even taxes exported to other states travel through the business chain in those states and eventually get imported through products sold in Massachusetts, generally driving up the cost of living

(Mohl 1982). CLT reports hearing about a business that moved from Stoughton to Easton because classified tax rates were enacted in Stoughton.

CLT has not been involved in the classification issue at the local level. They feel that classifying is not a good policy, but that these decisions are best left to local people. CLT dislikes the residential exemption because it is a graduated property tax.

The Associated Industries of Massachusetts (AIM) is basically opposed to classification, but is satisfied with the way it is currently implemented. This group spearheaded the drive to defeat the 1978 amendment. They lost on this issue because people were told that supposedly their tax bills would go up without it. But that is because assessing practices were disproportionate and illegal in the first place.

AIM particularly disapproved of the shelf legislation, because it would have had such bizarre effects as uniform assessment ratios were applied to the varying conditions in each town. The solution to this problem was to allow local home rule, to let each community design its own scheme. AIM worked with Representative Cohen in designing the current legislation, and is still very supportive of it. Its flexibility has allowed revaluation to be implemented and assessment practices to be improved, which would not have been likely if towns were forced to go to 100% valuation with only a single tax rate, or were forced to use the uniform assessment ratios of the shelf legislation.

AIM argues that in 1978 the people voted to prevent their own property taxes from being raised. They also voted for decreasing their taxes in 1980 by voting for Proposition 2 1/2. But they did not ever

vote with the intention of approving the maximum discrimination against businesses and their capacity to generate employment.

If a community is hostile to development than it has the option of classifying. But the anti-abuse feature of the law, the 150% upper limit on the disproportionality of business taxes, should help to protect local business from being excessively overtaxed. AIM also says that the threats of businesses to move out of town are not idle. Many stores could easily close down at the expiration of their leases and move to another town. It is not as easy for manufacturers to move, however, so they need some protection. A town might also be cautious about adopting classified tax rates, because this will increase the revaluation-caused shift of taxes from personal property onto commercial and industrial property. Classifying at the MRF is bad, but even using the status quo tax burden distribution serves to legitimize the historic discrimination against business. Using the status quo doesn't hurt anyone, but it doesn't necessarily make economic sense, if there is an interest in encouraging industrial development in the cities that need it. Overtaxation of businesses may contribute to the decline of urban downtowns.

AIM points out that residents making decisions about where to live will make comparisons of house values within and among nearby towns. Manufacturers, however, make comparisons of taxes and property values in a larger market. Comparisons must be made with other competitive states when valuing factories and shopping for locations. Industrial land values tend to be the same wherever the location is, because these values are a function of expenses, interest, and other national-level market variables. In California, a plant's taxes are limited to 1% of value. In Massachusetts a comparable plant with a similar value could

pay up to 3.75% in property taxes on that value (with a 2.5% long-term tax rate times a maximum 150% commercial factor). This would make a big difference to a prospective manufacturer. There is less of a difference in residential taxes, because houses are valued much higher in California than they are here, so the tax bill on a house with a 1% tax rate in that state may be equal to or higher than the tax bill with a 2.5% rate in Massachusetts. Thus, for industrial and commercial concerns, increased CI tax rates because of classification would make a difference in location choice between towns. These differences between towns are on top of the generally higher taxes in the state, which affects location choices from a national perspective.

On the other hand, we might argue that the concerns about competition for locations also affect the residential class. Shifting taxes onto residential properties may contribute to the exodus of upper and middle income residents from the cities. Residents could also be influenced by local taxes on their decisions about where to reside. Given that a person probably has to travel to his job from wherever he lives, he may have several municipalities to choose from to live in. His choice may be a function of many variables (house quality and price, compatibility of neighbors, quality of local schools, etc.), including local tax rates. Towns may think about competing for residents by adjusting their tax rates. This competition could potentially be more active than the competition for businesses in some towns, since there are more potential residents to attract and businesses are limited. Actually, a town might try to improve its fiscal picture by discouraging new immigrants that would cost more in services than they bring in in new tax revenues (such as if they have many school age children). This



practice is called fiscal zoning when zoning and building ordinances are used to regulate the size and quality of housing in the community. Setting higher tax rates could be used to attract residents willing to pay higher taxes and with a taste for higher quality services, while discouraging the immigration of low-income people. In the long run, however, higher tax rates are capitalized into the price of housing, reducing the house prices relative to those in towns with comparable housing but with lower tax rates.

#### Legislative Proposals

The legislature's Joint Taxation Committee, chaired by Senator John Olver, is responsible for considering amendments to the classification legislation. Some changes have already been made.

Allowing the local option in setting the tax rate, it may be argued, puts homeowners at a disadvantage compared to local businessmen. If local officials consider adopting classified tax rates, they may be deterred by the threats of owners to move their businesses to nearby towns with lower commercial tax rates. These are probably not realistic threats most of the time, but many officials will be averse to risking the loss of part of their community's economic base. Homeowners will thereby suffer, although perhaps only a small amount individually. Homeowners also would have less ability to pick up and move in search of lower tax rates, and cannot make a collective threat to do so. If all communities by default had classified tax rates, then there would be little reason for businesses to move, nor could they threaten to move. Politicians could then put more weight on the sentiments of homeowners.

This line of reasoning is followed by Senator Olver and his staff. In their view, the protection from taxes that homeowners thought they

were getting when they voted for classification in 1978 was taken away from them by the 1979 legislation. The current law took away the automatic assessment ratios and required that the assessors and elected officials agree to differential rates before they could be adopted. These decisions were made behind closed doors, which is what the business community prefers. The Associated Industries of Massachusetts (AIM) may be held responsible for this feature of the law, through their lobbying efforts. Last year Senator Olver began a campaign for incremental modification of the law. The first step was to put the tax rate decision in the hands of the selectmen or council only. By making it a political decision, it was thought that it would be more likely to be influenced by the general public. Also, a public hearing was required, to open the decision to public participation. The public hearing amendment was seen as a reasonable good government measure and was opposed only by the utility companies.

The second step will be to require the use of the minimum residential factor (MRF) in setting tax rates, so the best tax reduction for residential property would be automatic. At local option, by a decision of the elected politicians, another higher RF could be used. Having the MRF as the default RF is supposed to encourage debate and dialogue, leading to whatever choice is right for the community, such as the status quo RF. This amendment was introduced in 1982 (house bill 5531), but was not pushed too far because it would have been vetoed by then-Governor Edward King. It has been reintroduced in the 1983 legislative session, and if it passes, it is believed that Governor Michael Dukakis will sign it.

Mass. Fair Share has introduced a more radical amendment. The MRF would be required, without the local option. Olver's strategy is to

hold up his amendment as a moderate alternative to the Fair Share proposal. Another argument that could be used says that taxpayers thought 2 1/2 would limit their taxes, and although it has done that, it has also induced municipalities to impose new or higher fees for services. Homeowners may be worse off, much less saving anything, if their community doesn't classify. They may feel that they voted for Proposition 2 1/2 and classification, but have been thwarted by the politicians, and might want to try for some more drastic tax-reduction measure. Ironically, if such a campaign were to again arise, it would be big business that would finance it, since they have a lot to gain from further tax reduction, as they gained from 2 1/2.

The Massachusetts Taxpayers Foundation (MTF) is a statewide research, lobbying, and consulting organization. It is supported by business interests, but takes a civic-minded or good-government perspective. MTF was opposed to the 1978 amendment. It particularly objected to the shelf legislation, because of the rigid assessment ratios required for each class in all towns, regardless of local variations or desires. MTF was involved in writing the current legislation, and is satisfied with the flexibility that is now allowed to each community. MTF was also in favor of the additional requirement of the public hearing, because it increases the public's awareness. MTF would prefer that towns choose to maintain the status quo tax burden, and therefore opposed the amendment to require implementation of the MRF. MTF's research has found, however, that local assessors often do not know what the status quo tax burden is. Requiring the MRF would put local officials into the position of having to vote against the interests of homeowners if they wish to do what they feel is best for

the economic health of the community. Requiring the MRF would be a disruptive change in the rules and imposes the will of the state at the expense of home rule in the municipalities. The option of allowing local residents to vote to increase the taxes on their homes would obviously not be taken. Thus the mostly residential communities that were supposed to be accommodated by the classification law would end up applying the maximum tax to non-residential property (MTF 1982).

The default-MRF amendment was also opposed by the Selectmen of Buckland, who argued that majority residential taxpayers deciding to force the extra tax load onto minority industrial taxpayers was taxation without representation (Shippe, Smith, and Truesdell 1982). Buckland is a small town in Franklin County that underassessed business property relative to residential prior to revaluation.

The Associated Industries of Massachusetts (AIM) is against the required MRF because it "would destroy the economic base of home rule," i.e., the legislature's judgment would be substituted for the power and authority of local officials to determine the manner in which property taxes will be levied in their city or town to meet its own circumstances and policy requirements. AIM claims that classification as adopted in the 1978 amendment was not supposed to be mandatory. A mandatory MRF would impede the growth of business since there would be uncertainty about a community's tax policy from year to year, which has an effect on decisions to relocate or expand (AIM 1982). A mandatory MRF would stack the deck against the business community and wouldn't be good for the economic health of the state.

In May 1982 the Massachusetts Federation of Teachers (MFT) and the AFSCME Council 93 representing over 50,000 Massachusetts public employees both endorsed passage of the mandatory MRF bill (the Olver

amendment) (Walsh and Robinson 1982; Wright 1982). The teachers union is interested in the issue because it fits in with their platform of limiting taxes only for residential homeowners, which they advocated during the campaign to pass Proposition 2 1/2. As public-sector employees, they would prefer to shift the tax burden away from those who resent it rather than to limit taxes absolutely.

From the Fair Share point of view, the shelf legislation was preferable, because it would have been simpler to administer and would have guaranteed a bigger tax break to most residential owners. The substitution of the current legislation was therefore a victory for the business community. The local option allows a big tax break to be given to business where they can exert their influence. The shelf legislation would have increased business taxes, but with the current legislation, the tables are turned.

In addition to filing an amendment to require the adoption of the MRF, Fair Share has filed legislation that would change the parameters that limit the MRF, from a lower limit of 65% and a maximum CIP share of the levy of 150% of CIP value, to 50% and 195%. These parameters were chosen so as to allow Revere and Lowell to set tax rates for the status quo tax burden, which they are not allowed to do under the present limits. Tables 1-8 in Chapter VI compare the MRF under the current parameters and what it would be with the wider limits (widerMRF). Fair Share calls the MRF with the wider parameters "better than best" classification (Zimmerman 1982).

Another proposed amendment to the classification law, also endorsed by Fair Share, has been introduced this year. It would provide tax relief to small businesses. An assessed value exemption could be

adopted for the commercial class, at local option. The would work just like the residential exemption. Up to 10% of the value of the average commercial property could be taken off of the assessed value of every commercial property, with a raise in the commercial tax rate to compensate, thereby shifting the commercial class levy burden from small to large businesses.

The commercial exemption proposal has been endorsed by the National Federation of Independent Businesses and the Small Business Service Bureau.

AIM doesn't like the commercial exemption proposal. The reasoning behind it makes less sense when it is closely examined. The exemption would apply to parcels, and there may be little correlation between the size or value of a parcel and the size of the business or its profitability or its ability to pay. Large businesses could be located on a small parcel or on several small ones rather than on a large parcel; thus, it would get a larger tax break than it deserves. Or, large stores could be hit with higher taxes while smaller stores are helped out, even when the smaller stores could be relatively more profitable. If this exemption were applied to all business properties, not just the commercial class, then large manufacturing properties would be hit with higher taxes, which AIM would be opposed to.

AIM also had doubts about the constitutionality of the residential exemption, since it goes against the requirement of proportionality within classes. An earlier proposal for the residential exemption would have subtracted \$12,500 from the value of every house. This would have almost destroyed the residential tax base, and was challenged by AIM in court. The current rules, allowing a local option for a percentage of the average home value to be exempted, is felt to be satisfactory.

Summary

This chapter discussed the problems with comparing the values of property when different methods are used to find valuations. The views were reviewed of Massachusetts Fair Share, which would like to see the tax burden shifted from residential to business property owners, and of Citizens for Limited Taxation and the Associated Industries of Massachusetts, who would like to see the business tax burden maintained or reduced, in order to promote economic growth. In between, are state legislators, who are concerned that the existing classification legislation doesn't do enough to prevent the revaluation-caused tax burden shift from business to residential property.

## VI ANALYSIS OF THE TAX BURDEN SHIFT

In this chapter we measure how much of the tax levy has been shifted between classes because of revaluation in each of 211 communities. The shift is measured by the percentage change in the residential-open share of the levy, and by the effect on tax rates. The changes are compared to the before-revaluation or "status quo" distribution of the levy among the classes. The effects of Proposition 2 1/2 on the total levy and of classification on the inter-class shifts are also accounted for. An attempt is made to explain the choice about classification by characteristics of the communities.

### Data Sources

To start with, we discuss the sources of data. The analysis of the tax shift is accomplished by comparing the taxes collected from each class before revaluation, and after revaluation--with and without classification. The after-revaluation data source is the "Tax Rate Recapitulation" sheets (state tax form 31c) used by the Department of Revenue to certify the determination of tax rates by each municipality. An example form is shown in Figure 1. This version of the form is prepared only by those places that have revalued and given a class designation to every parcel under the new classification scheme. It shows the levy raised from each of the five classes, and the aggregate value of the property in each class. From these figures, we determined the tax rates, class shares of the total levy and value, and the residential and open space factors.



FIGURE 1

THE COMMONWEALTH OF MASSACHUSETTS

Department of Revenue

TAX RATE OF RECAPITULATION  
OF

TOWN OF ADAMS  
City or Town

Dept. of Revenue  
Dir. 11/20/81  
A. P. GROSSO  
1982

TAX RATE SUMMARY

- A. Total Amount to be Raised (from Part II Item E).....\$ 5,322,049.77 ✓
- B. Total Estimated Receipts and Revenue from Other Sources (from Part III Item E) 1,943,161.39 ✓
- C. Net Amount to be Raised by Taxation (subtract B from A)..... 3,378,888.38 ✓
- D. Classified Tax Levies and Rates.

(A) Class.	(B) Levy Percentage	(C) Levy by Class	(D) Valuation Class	(E) Tax Rates (C) ÷ (D) × 1000
I Residential	.740152 <del>227</del>	2,500,89 <del>2.10</del> <sup>0.99</sup>	105,079,500	\$23.80
II Open Space	.01391 <del>4549</del> <sup>5149</sup>	47,015 <del>.71</del> <sup>7.23</sup>	1,975,450	"
III Commercial	.104122 <del>278</del>	351,817 <del>.55</del> <sup>6.62</sup>	14,782,250	"
IV Industrial	.086592 <del>176</del>	292,585 <del>.30</del> <sup>4.70</sup>	12,293,500	"
V Pers. Prop.	.05521 <del>8559</del> <sup>9</sup>	186,577 <del>.22</del> <sup>8.84</sup>	7,839,400	"
TOTAL	100%	\$ 3,378,888.38	\$ 141,970,100	

- Real Property Tax (add Column (C) Class I II III IV) 3,192,310~~.66~~<sup>09.54</sup>
- Personal Property Tax (Column (C) Class V) 186,578.82
- Total Taxes Levied on Property (E + F) \$ 3,378,888.38 ✓

Board of Assessors of Town of Adams

Nov. 23, 1981

1.) Frank N. Costa City or Town

Date

2.) Anthony P. Grosso

Do Not Write Below This Line — For D.O.R. Use 3,384,314 L.L. *ok*

The calculation checked	<u>CMA 11/30/81</u>
The substantiating documents reviewed	<u>CMA 11/20/81</u>
The free cash certified by the Director of Accounts	<u>JAR 11-30-81</u>
The amount of estimated receipts approved	<u>JAR 11-30-81</u>
The overlay account approved	
FINAL REVIEW:	<u>Anthony P. Grosso 12/3/81</u>
Chief, Bureau of Local Taxation	

The before-revaluation data source is the 1980 DOR equalized valuation study. The distribution of aid to municipal governments and schools from the state each year is determined by various formulae that take into account the needs and resources of each locality. Aid is weighted on the basis of population, school pupil enrollment, and property value. Property value is a measure of wealth, or the ability to pay for local services. Property-poor communities cannot raise enough in taxes to provide quality schools, but all children should be given the same educational opportunities, so more state school aid is given to those places. Since, as explained above, there has been no uniformity in the measurement of property value among the different municipalities, a state aid equalization formula could not work without a uniform statewide estimate of equalized property value. The DOR is charged with preparing a study every even-numbered year, in which a total equalized property value, an estimate of market value, is calculated for every city and town. The 1980 equalized values, as of January 1 of that year, and reported by Hampers (1981) about a year later, are used to determine state aid for fiscal years 1982 and 1983 (July 1, 1981 through June 30, 1983).

The biennial equalization study is conducted generally as follows. Local assessors report on a regular basis, to the DOR Bureau of Local Assessment, information on recent property sales transactions. They report the date of sale, property description, property type or class, sales price, assessed value, and whether the sale may have been a non-arms-length transaction. Given the reported assessed and sales values, an assessment ratio can be calculated for each sold parcel. Then an average ratio can be calculated for each type of property in each community. The properties are grouped into different types, as shown in

the table below, because the average assessment ratios for each type are likely to be quite different, and an average ratio for all property in a town would be misleading and imprecise. (If the ratios for each type were not so different, there would be no reason for us to be going on and on about this subject as we have been.)

N	Estimation of tax base growth projected from 1/1/79 to 1/1/80
R1	Single-family dwellings
CD	Condominium units
R2	Two-family dwellings
R3	Three-family dwellings
R4	Residential, four to eight dwelling units
A	Apartments, more than eight units
RC	Mixed use, residential and commercial
C	Commercial
I	Industrial
AH	Classified Agricultural/Horticultural land
L	Land, vacant without improvements
CP	Personal property, valued and certified by the Commissioner of Revenue
OP	Personal property, valued by local assessors

For some property types in some towns there may be too few sales transactions to calculate a statistically significant assessment ratio. In these places, the DOR will do some property appraisals to estimate the ratios. Sales that are not conducted at "arms length," such as those between family members, would not have sale prices that truly represent market value, and so these are not included in the calculations.

The local assessors also report to the DOR the number of parcels and total assessed valuation of the parcels, of each property type, as of January 1 (1979 for the 1980 study). The total equalized value for each property type is the assessed value divided by the average assessment ratio for the type. The total equalized value of the locality is the sum of the equalized values of each type. To account for changes in the tax base between January 1, 1979 when assessed values

are reported, and January 1, 1980, for which the final equalized values are established, an estimation of tax base growth (due to construction usually) is added in to the total.

A typical page from the 1980 equalization report is shown in Figure 2. The report shows the assessed value, equalized value, parcel count, and assessment ratio, for eleven real and two personal property types, the estimated growth, and the total, for all 351 municipalities. The report also shows the equalized values with the tax-affected values added in of Chapter 121A tax-agreement property (property subject to in-lieu-of-tax payments rather than normal tax), and the assessed values after various abatements and adjustments have been added in. These final adjusted assessed and equalized values do not change the values and assessment ratios of the individual property types.

MASSACHUSETTS MUNICIPAL DATA BASE  
1980 FINAL - REAL PROPERTY DATA (X \$1000)

FIGURE 2

ADINGTON		TOTAL	EST. INCR.	R1	CD	R2	R3	R4	A
1	AV	\$154,417	\$1,500	\$101,918	\$0	\$8,682	\$2,006	\$8,230	\$0
	EV	\$166,600	\$1,625	\$111,752	\$0	\$9,843	\$2,118	\$8,690	\$0
	PC	4,286	0	2,884	0	233	50	74	0
	AV/EV RATIO	.927	.923	.912	0.000	.882	.947	.947	0.000
			RC	C	I	AH	L	CP	OP
	AV		\$3,018	\$13,613	\$3,165	\$112	\$5,290	\$677	\$6,206
	EV		\$3,079	\$13,890	\$3,165	\$112	\$5,431	\$677	\$6,206
	PC		58	130	15	2	840	0	0
	AV/EV RATIO		.980	.980	1.000	1.000	.974	1.000	1.000

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ACTON		TOTAL	EST. INCR.	R1	CD	R2	R3	R4	A
2	AV	\$364,191	\$5,000	\$245,213	\$0	\$5,539	\$1,195	\$28,198	\$0
	EV	\$428,400	\$5,903	\$295,081	\$0	\$6,403	\$1,438	\$31,192	\$0
	PC	5,811	0	4,042	0	105	17	66	0
	AV/EV RATIO	.850	.847	.831	0.000	.865	.831	.904	0.000
			RC	C	I	AH	L	CP	OP
	AV		\$2,191	\$28,734	\$19,871	\$1,187	\$18,093	\$2,182	\$6,788
	EV		\$2,348	\$30,797	\$20,634	\$1,187	\$24,417	\$2,182	\$6,788
	PC		18	143	53	52	1,315	0	0
	AV/EV RATIO		.933	.933	.963	1.000	.741	1.000	1.000

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ACUSHNET		TOTAL	EST. INCR.	R1	CD	R2	R3	R4	A
3	AV	\$96,236	\$1,500	\$67,673	\$0	\$6,195	\$963	\$358	\$0
	EV	\$102,700	\$1,604	\$73,638	\$0	\$6,195	\$963	\$358	\$0
	PC	3,476	0	2,176	0	184	23	8	0
	AV/EV RATIO	.937	.935	.919	0.000	1.000	1.000	1.000	0.000
			RC	C	I	AH	L	CP	OP
	AV		\$4,051	\$3,459	\$6,239	\$0	\$3,188	\$164	\$2,446
	EV		\$4,051	\$3,459	\$6,239	\$0	\$3,627	\$164	\$2,446
	PC		84	64	7	0	930	0	0
	AV/EV RATIO		1.000	1.000	1.000	0.000	.879	1.000	1.000

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ADAMS		TOTAL	EST. INCR.	R1	CD	R2	R3	R4	A
4	AV	\$54,639	\$500	\$25,612	\$0	\$6,529	\$1,278	\$2,166	\$0
	EV	\$120,600	\$5,629	\$59,841	\$0	\$13,006	\$2,546	\$4,315	\$0
	PC	3,749	0	1,903	0	486	89	128	0
	AV/EV RATIO	.458	.089	.428	0.000	.502	.502	.502	0.000
			RC	C	I	AH	L	CP	OP
	AV		\$1,888	\$6,284	\$4,429	\$0	\$1,402	\$661	\$3,890
	EV		\$3,244	\$10,797	\$6,931	\$0	\$4,567	\$661	\$7,780
	PC		97	135	15	0	896	0	0
	AV/EV RATIO		.582	.582	.639	0.000	.307	1.000	.500

We may compare the shift in the tax burden between property types or classes by using the 1980 equalization study and the 1982 tax recapitulation sheets. The 1980 study is the appropriate "before" data source because it shows assessed and equalized valuations before revaluation and classification began in earnest in 1980 for fiscal year 1981; but it is the most recent data source comparable to fiscal year 1982. The 1980 equalized values, although estimates, are the legal basis on which state aid is distributed and disproportionate assessment (Tregor) abatments may be judged for 1982. The 1982 equalization study might be more compatible with the 1982 tax recapitulation forms as far as the time period covered, but the 1982 study shows the after-revaluation new uniform assessment ratios and nearly 100% assessed values, so it does not provide a clear picture of the before-revaluation situation. Also, the 1982 equalization study was not completed in time to be used for this study.

One problem with using the 1980 data is that they do not reveal the before-revaluation assessed value class shares in communities that revalued prior to 1980. Granville, for instance, revalued in 1978 or 1979, causing a dramatic shift in the tax burden that could not be relieved by classification, which was not yet available. Classified tax rates have still not been adopted there.

1982 was chosen over 1981 as the most appropriate after-revaluation and classification data source, because it provided the larger sample of cities and towns, and is the most recent year for which tax rates have been determined for most municipalities in the state. To make this study even more up-to-date, 1983 data are included on the fourteen communities that hadn't been revalued in fiscal 1982, but had certified tax rates by January 1983.

The two data sources are incompatible, unfortunately, in one very important way. The property types of the 1980 equalization study do not match the classes of the tax forms and the classification law. The former system is defined on the basis of structure type, while the new system is based on land use. It is difficult to be very precise in making comparisons between the shares of the property tax base and levy coming from different classes of property, when the definitions of the classes are inconsistent. Nevertheless, we have done this.

#### Assigning Classes and Types to Groups

Classification may be applied inconsistently from town to town, therefore inaccuracies may result when the same rules of analysis are used for all towns. For instance, part of a residential, commercial, or industrial parcel should be classified as open space if it is undeveloped and its natural state is considered a public amenity. But another assessor might classify it as a residential (or commercial or industrial), although vacant, parcel. Under the old property typing system, Land (L) type property could be accessory to any other type, but it is grouped separately because it is vacant (and is therefore likely to be valued differently). Land (L) under the old system could be classified as vacant commercial, industrial, or residential under the new system, or as open space.

Residential/Commercial (RC) under the old system was for parcels with mixed uses, such as apartment buildings with stores on the first floor or shops with living units in the back. Under the new system, a portion of the mixed parcel is to be assigned to each of the residential and commercial classes. There are probably some differences between towns in how mixed-used parcels are subdivided and classified. If there

were these differences, could not landowners bring lawsuits charging unequal treatment? Perhaps not, if consistent methods were used within each town.

A further inconsistency between the data sources comes from the possibility that they measure different tax bases. There could be new construction in the intervening period, which could be within the classes in unequal proportions. But, we note that the tax base for the 1980 study is supposed to be current as of January 1, 1980, while the tax base for fiscal year 1982 is as of January 1, 1981. It is probably safe to assume that in most towns new construction in the intervening year would not significantly shift the class shares of the total valuation. Furthermore, half of the communities represented in the 1982 sample completed their revaluation for fiscal 1981, and did not make substantial adjustments for fiscal 1982, so their tax bases are really current as of January 1, 1980, and the only discrepancies should be in the measurement of the tax bases by the the DOR equalization study and the local revaluation.

This brings us to another kind of inconsistency. In the process of revaluation, which includes mapping and inventorying all of the taxable parcels, properties may be discovered that had previously been overlooked and not subjected to taxation. Chelsea, for example, had to have its property remapped, since its last tax map was made in 1914 (Smith 1982). The after-revaluation tax base could be larger. But there is no way of knowing which classes the newly taxed parcels belong to in one town or another, so we shall assume that all additions to the tax base are divided among the classes in the same proportion that the value of each class bears to the total.



Finally, the 1980 equalized values may be different from the 1982 revalued values because they are measured in 1979 and 1981 dollars, respectively. We get around the problem of trying to inflate or deflate dollars by comparing the proportions of the respective totals in each class between years, rather than comparing values.

Because of all of the possible discrepancies in the property type and class definitions, it would be futile to try to compare, say, the commercial type with the commercial class and worry about what portion of the land type should be included in the commercial class and what part of the commercial type was put into the open space class. The comparison problem is simplified, and the discrepancies should tend to wash out, if everything is aggregated into two groups, residential and open space (RO) on the one hand, and commercial-industrial-personal (CIP) on the other. At present the law provides for only three tax rates, but few communities have chosen to have a separate open space tax rate, so we may lump residential and open space together and analyze an average residential-open tax rate (ROTR) as opposed to the single commercial-industrial-personal (or more simply "non-residential" or "business") tax rate (CIPTR).

Therefore, the old equalization-study property types were aggregated as follows to correspond to the new classes.

<u>RO</u>	<u>CIP</u>
R1	C
CD	I
R2	AH
R3	CP
R4	OP
A	

Under the classification law, agricultural/horticultural land (AH) belongs to the commercial class.

This leaves three property types that cannot be readily assigned:

residential/commercial (RC), land (L), and the estimated increase in the tax base between 1979 and 1980 (N).

We assigned the sum of these three types (RC+L+N) to the two groups (RO, CIP) so that the share of the total equalized-value in each group (ROEp, CIPEp) would equal the share of the total revalued-value in each group (ROVp, CIPVp). For example, if a town had 80% of its total 1982 revalued-value in RO, and 20% in CIP; 75% of the total 1980 equalized-value in the residential types, 10% in the non-residential types, and 15% in RC+L+N; then two-thirds of the RC+L+N is added to the non-residential 1980 equalized values for a total CIP equalized value share of 20%, and one-third of the RC+L+N is added to the residential equalized values for a total RO equalized share of 80%. Then two-thirds of the RC+L+N 1980 assessed value is added to the non-residential assessed values, and one-third to the residential. The final 1980 assessed value shares in RO and CIP will sum to 100%, but won't be equal to the equalized value shares, because of the different assessed-to-equalized value ratios for RO and CIP.

This method of assigning the equalized and assessed values depends on two assumptions: (1) The share of the value in each group does not change between 1979 and 1981, because there are no significant and lopsided additions to the tax base, either due to new construction or taxation of parcels not previously taxed. (2) The 1980 equalized values are accurate measurements of the market value of the tax base.

The second assumption may be tested by looking at the variation between municipalities in the differences between the equalized and revalued values. The growth in the total 1982 values (TV) over the 1980 values (TE) ranges from a low of -19.95% to a high of +81.46%, with a

mean of 26.26% and a standard deviation of 19.28%. This wide variation is partly a result of the imprecision of the equalized value estimates, and partly a result of the uneven inflation of values among towns.

This 26% average increase, compared with the uniform 13% increase in the 1980 values applied by the DOR to figure the 2 1/2 levy limit, indicates that most communities found significant and real expansions in their tax bases and levy potential because of revaluation. The 26% increase may also be compared to the average 42.3% increase, for all communities in the state, in the 1982 equalization study valuations over the 1980 equalized valuations, as reported by the DOR (Jackson 1983).

The first assumption, that the shares of the total tax base as measured by the equalized and revalued values are comparable, may be tested by making this comparison for certain classes.

<u>Class/Type</u>	<u>Mean Percentage Share of Total</u>	
	<u>Equalized Value</u>	<u>Revalued Value</u>
R	73.4%	75.3%
C+AH	6.7	11.2
I	4.6	5.8
P	4.9	4.4
RC+L+N	10.3	
O		3.5
Total	100.0	100.0

As we can see, the two measurements are quite comparable for the residential, industrial, and personal classes, on average across 211 towns and cities. The difficult-to-assign share of the total equalized value, for RC+L+N, amounts to 10% on average, half of which gets assigned to the RO group and half to the CIP group. The Massachusetts Taxpayers Foundation (MTF) surveyed local assessors and asked them to report the before-revaluation assessed valuation of each class. For the 26 responses, the reported figures were always within 3% and often within 1% of our estimates of the before-revaluation class shares for those communities. We conclude that our method of resolving the

inconsistencies between the two data sources is reasonable.

#### How to Analyze the Local Tax Shift

While the assumptions we have made may be reasonable on average across all communities, it is only a first cut, and probably does not account for the considerable variation between towns. The analysis done in this study could be done with much greater precision (indeed perfect precision) by the local assessors in each community. Using the 1980 equalization study grouping of values by property type can only provide an estimate of the grouping of assessed values by the new classes. In order to see what were the prior-to-revaluation assessed values of each new class, it would be necessary to start with data disaggregated down to the level of each individual parcel. This could only be done by looking at the local tax records, as explained below.

The objective is to find out how the general revaluation shifted the tax burden between classes. The post-revaluation burden of each class is the class share of the total revalued valuations--before the burden is re-shifted by the adoption of classified tax rates. The prior-to-revaluation burden of each class is the class share of the total assessed valuation. (Here "assessed value" is before revaluation, and "revalued value" is the full and fair value after revaluation.)

To find the prior-to-revaluation assessed value of each class: First, identify all the parcels in each class. Second, go back to the fiscal 1980 tax rolls (or whichever year is the one prior to revaluation) and get the assessed value of the property. Third, add this to the assessed value total for the class of the parcel. Do this for every parcel. Some parcels may not have been on the earlier tax roll. Keeping these parcels in the analysis will correctly show how the

tax burden on everyone else in that class has been reduced because of their addition to the tax rolls. Fourth, calculate the percentage share of the total assessed value in each of the five classes (including personal) and compare to the percentage shares of the total revalued value of the classes. Then proceed with further analysis as described in the following sections.

This calculation of the pre-revaluation assessed shares by class may sound as though it is a laborious task, but it isn't when compared with the detailed data compilation tasks normally expected of an assessing office. It could be done without the help of a computer, as long as tax records are in reasonable order and cross-references can be made between the data applying to different fiscal years on a parcel-by-parcel basis.

The Status Quo Tax Burden Distribution

As explained above, revaluation generally causes the assessment ratios of residential and vacant property to be increased more than the assessment ratios of business property. Another way to look at this, is to compare the residential share of the total assessed value before revaluation (ROAp) with the residential share of the total revalued-valuation (ROVp). Generally,

$$ROVp > ROAp \quad \text{and} \quad CIPVp < CIPAp$$

where:

ROVp = RO share of total revalued value

ROAp = RO share of total pre-revaluation assessed value

CIPVp = CIP share of total revalued value

CIPAp = CIP share of total pre-revaluation assessed value

With the same tax rate for each group of classes, the share of the

levy borne by the RO group will increase.

$$ROLp = ROVp > ROAp$$

$$CIPLp = CIPVp < CIPAp$$

where:

ROLp = RO share of total tax levy after revaluation

CIPLp = CIP share of total tax levy after revaluation

The residential factor (RF) may be set less than 100%, so that the RO share of the levy will be less than the RO share of the value.

$$ROLp < ROVp \quad \text{and} \quad CIPLp > CIPVp$$

An RF could be set so that the RO group will bear the same share of the levy as it did before revaluation. This would maintain the status quo (before-revaluation) tax burden distribution, so we shall call it the status-quo residential factor (sqRF).

$$RF = ROLp / ROVp$$

$$ROLp = ROAp \quad \text{to maintain the status quo}$$

$$sqRF = ROAp / ROVp$$

#### Various Measures of the Tax Burden Shift

##### The Offset

The sqRF has been calculated for all of the revalued municipalities. It is shown in Tables 1-8 alongside the chosen RF and the MRF. If classification is supposed to relieve the inter-class effects of revaluation, then we would expect the RF would be set to equal the sqRF. The column in Tables 1-8 labeled "Offset" is the difference between the chosen RF and sqRF.

$$\text{Offset} = RF - sqRF = (ROLp - ROAp) / ROVp$$

The Offset is a measure of the percentage change in the RO levy caused by revaluation and classification. The Offset varies from a

minimum of -16.00 to a maximum of +53.13, with a median of +2.32. Half of the Offsets are in the range from +0.56 to +5.03. This means that three-quarters of the towns have increased the residential share of the levy. One quarter of the towns have increased the residential share of the levy over 5%.

For 106 communities, shown in Table 1, the Offset is small and positive. This means that the sqRF is quite close to 100.0 (within 5.0 percentage points), because revaluation had little effect to begin with, and so a single tax rate was deemed suitable (RF = 100%).

Table 1  
Communities with -5.0 < Offset < 5.0 and Single Tax Rates

	Offset	RF	sqRF	MRF	widerMRF
Abington	1.250	100.000	98.750	90.202	81.384
Agawam	4.948	100.000	95.052	86.742	74.811
Amesbury	0.769	100.000	99.231	82.788	67.298
Amherst	1.286	100.000	98.714	89.610	80.258
Ashfield	0.434	100.000	99.566	95.586	91.614
Ashland	3.402	100.000	96.598	84.726	70.979
Belchertown	0.573	100.000	99.427	89.357	79.779
Belmont	2.370	99.739	97.369	95.665	91.764
Berkley	0.050	100.000	99.950	96.083	92.558
Bolton	1.802	100.000	98.198	88.179	77.540
Bourne	0.998	100.000	99.002	86.782	74.885
Boxford	3.980	100.000	96.020	98.680	97.492
Boylston	0.457	100.000	99.543	94.076	88.744
Brimfield	2.342	100.000	97.658	82.926	67.560
Cheshire	1.243	100.000	98.757	90.736	82.398
Chester	4.629	100.000	95.371	89.770	80.563
Chilmark	1.500	100.000	98.500	97.982	96.166
Concord	2.601	100.710	98.109	89.710	80.448
Cummington	1.163	100.000	98.836	88.003	77.205
Danvers	4.215	100.000	95.785	75.700	53.829
Dudley	1.558	100.000	98.442	89.268	79.610
Duxbury	0.482	100.000	99.518	94.536	89.619
Easthampton	2.248	100.000	97.752	86.487	74.326
Edgartown	3.298	100.000	96.702	88.489	78.129
Essex	2.461	100.000	97.539	91.177	83.236
Falmouth	1.122	100.000	98.878	85.882	73.175
Franklin	0.945	100.000	99.055	88.029	77.255
GARDNER	1.614	100.000	98.386	77.654	57.543
Georgetown	0.738	100.000	99.262	93.233	87.143
Grafton	2.723	100.000	97.277	92.084	84.959
Granville	1.704	100.000	98.296	89.660	80.354
Hadley	1.660	100.000	98.340	65.000	50.000
Halifax	0.024	100.000	99.976	91.006	82.911
Hancock	3.330	100.000	96.670	81.241	64.358
Hardwick	4.862	100.000	95.138	91.224	83.325
Harvard	0.396	100.000	99.604	96.667	93.667
Harwich	0.416	100.000	99.584	93.267	87.207
Hatfield	0.045	100.000	99.955	79.240	60.556
Hingham	2.856	100.000	97.144	90.334	81.634
Ipswich	3.188	100.000	96.812	90.068	81.130
Kingston	2.232	100.000	97.768	82.688	67.107
Lakeville	1.648	100.000	98.352	93.539	87.724
Lancaster	3.066	100.000	96.934	92.075	84.943
Lenox	0.508	99.464	98.956	79.986	61.973
Lincoln	0.732	100.000	99.268	97.230	94.737
Littleton	0.070	100.000	99.930	77.771	57.766
Longmeadow	0.700	100.000	99.300	97.361	94.987
Marion	3.168	100.000	96.832	88.936	78.979
Marshfield	2.960	100.000	97.040	93.918	88.443
Mattapoissett	3.758	100.000	96.242	93.512	87.673
Medfield	1.516	100.000	98.484	95.047	90.589
Merrimac	1.196	100.000	98.804	93.854	88.323
Middlefield	3.175	100.000	96.825	83.001	67.701



Table 1 continued

	Offset	RF	sqRF	MRF	widerMRF
Monson	1.025	100.000	98.975	87.927	77.062
Monterey	1.367	100.000	98.633	89.121	79.330
Nahant	4.724	100.000	95.276	96.882	94.075
Newbury	1.252	100.000	98.747	94.914	90.337
Norfolk	3.826	100.000	96.174	94.708	89.946
North_Brookfield	0.487	100.020	99.533	83.087	67.865
North_Reading	3.254	100.000	96.746	86.459	74.273
NORTHAMPTON	2.469	100.000	97.531	79.710	61.449
Northborough	1.908	100.000	98.092	81.289	64.449
Norton	1.154	100.000	98.846	92.201	85.181
Norwell	3.224	100.000	96.776	90.762	82.449
Paxton	0.309	100.000	99.691	95.565	91.573
Pelham	0.297	100.003	99.706	95.592	91.625
Pembroke	0.158	100.000	99.842	89.467	79.987
Petersham	4.918	100.000	95.082	93.987	88.575
Plymouth	2.206	100.000	97.794	65.000	50.000
Randolph	3.151	100.000	96.849	86.929	75.166
Reading	1.800	100.000	98.200	92.509	85.768
Rockland	1.825	100.000	98.175	85.104	71.697
Rockport	0.786	100.000	99.214	93.678	87.989
Rowley	2.187	100.000	97.813	87.109	75.506
Russel	3.561	100.000	96.439	65.000	50.000
Rutland	0.743	100.000	99.257	94.237	89.050
Savoy	3.478	100.000	96.522	96.908	94.126
Scituate	1.669	100.000	98.331	94.122	88.831
Seekonk	2.750	100.000	97.250	78.490	59.130
Sharon	1.842	100.000	98.158	93.498	87.645
Sherborn	1.154	100.000	98.846	94.103	88.795
Shrewsbury	1.987	100.503	98.516	88.733	78.593
Shutesbury	3.596	100.000	96.404	97.463	95.179
Southborough	2.388	100.000	97.612	81.626	65.089
Stoneham	2.321	100.000	97.679	89.628	80.294
Sturbridge	3.768	100.000	96.232	76.291	54.953
Swampscott	2.846	100.000	97.154	93.943	88.492
Swansea	1.883	100.000	98.117	84.820	71.158
Tisbury	3.195	100.000	96.805	88.733	78.592
Upton	0.071	100.000	99.929	95.506	91.461
Wayland	0.575	100.000	99.425	93.906	88.421
Wellesley	2.316	100.000	97.684	90.220	81.419
Wenham	0.452	100.000	99.548	96.906	94.122
West_Newbury	2.054	100.000	97.946	96.833	93.982
West_Stockbridge	2.598	100.000	97.402	89.228	79.533
Westford	2.797	100.000	97.203	92.972	86.647
Westport	0.095	100.000	99.905	93.586	87.814
Whitman	0.551	100.077	99.526	86.937	75.180
Williamstown	0.874	100.000	99.126	87.487	76.225
Winthrop	1.028	100.000	98.972	95.652	91.740
Worthington	1.059	100.000	98.940	94.500	89.550
Arlington	2.340	100.000	97.659	95.195	90.871
Bellingham	3.599	100.000	96.401	90.665	82.264
Carlisle	1.288	100.000	98.712	98.404	96.967
Lunenburg	1.317	100.000	98.683	93.134	86.955
Raynham	3.034	100.000	96.966	85.867	73.148

The 25 communities shown in Table 2 also have small Offsets, but because the community adopted classified tax rates (RF < 100%), so as to almost compensate for the effects of revaluation. These communities have used classification the way in which it was intended, to restore the status quo tax burden.

Table 2  
Communities with -5.0 < Offset < 5.0 and Classified Tax Rates

	Offset	RF	sqRF	MRF	widerMRF
ATTLEBORO	-4.065	84.181	88.246	80.226	62.430
Avon	1.194	88.207	87.013	65.000	50.000
Bedford	-1.410	94.874	96.284	65.000	50.000
BEVERLY	0.795	92.825	92.030	85.649	72.734
Boxborough	3.433	95.538	92.105	87.915	77.039
Brookline	-0.507	95.583	96.090	92.624	85.986
Dighton	4.444	82.214	77.771	81.613	65.065
Framingham	-0.915	91.727	92.642	78.902	59.915
Lexington	1.114	91.171	90.057	86.752	74.828
MARLBOROUGH	-1.991	81.000	82.991	78.548	59.241
Maynard	-4.621	89.520	94.141	78.818	59.755
Nantucket	2.148	92.474	90.326	90.249	81.474
NORTH ADAMS	2.906	89.899	86.993	77.232	56.741
PITTSFIELD	1.200	88.100	86.900	76.584	55.509
Saugus	-0.275	91.724	91.999	79.311	60.690
Stoughton	-0.409	97.112	97.521	84.982	71.466
Sudbury	-2.131	92.481	94.612	90.271	81.516
Watertown	4.826	83.065	78.239	82.318	66.404
Webster	3.646	91.054	87.408	82.108	66.005
West_Springfield	-4.973	85.326	90.299	70.962	50.000
Westwood	-2.569	91.385	93.954	80.769	63.461
Winchester	0.892	98.452	97.559	94.839	90.194
FALL_RIVER	2.869	83.837	80.967	73.061	50.000
MELROSE	0.596	97.160	96.564	94.795	90.111
Wilmington	1.250	92.595	91.344	65.000	50.000

A large positive Offset means that the community has allowed revaluation to shift the tax burden onto the residential class. This may be the case if they adopted classified tax rates, but did not choose an RF low enough, as with the six communities shown in Table 3.

Table 3  
Communities with Offset > 5.0 and Classified Tax Rates

	Offset	RF	sqRF	MRF	widerMRF
Carver	8.762	90.244	81.482	85.653	72.741
GLOUCESTER	10.868	96.468	85.600	87.220	75.718
Hopedale	10.710	95.000	84.290	86.467	74.287
LAWRENCE	29.153	86.380	57.227	72.760	50.000
Norwood	5.973	96.807	90.834	75.741	53.907
Canton	7.432	97.459	90.027	74.586	51.713

In a few cases, the four communities shown in Table 4, the RF could not be set low enough to meet the sqRF, because they were constrained by the MRF.

Table 4  
Communities with Offset > 0.0 and Classified Tax Rates with RF = MRF

	Offset	RF	sqRF	MRF	widerMRF
Clinton	2.617	80.063	77.447	80.063	62.120
Erving	29.773	65.000	35.227	65.000	50.000
Freetown	14.152	83.440	69.287	83.439	68.535
NEWTON	4.055	90.448	86.392	90.451	81.856

Most places with large positive Offsets, the 46 shown in Table 5, however, have single tax rates. They have allowed higher residential tax rates to be imposed because of their own policy choice.

Table 5  
Communities with Offset > 5.0 and Single Tax Rates

	Offset	RF	sqRF	MRF	widerMRF
Adams	6.822	100.000	93.178	83.693	69.016
Andover	5.819	100.000	94.181	81.507	64.863
Billerica	7.239	100.000	92.761	83.448	68.551
Blackstone	6.277	100.000	93.723	92.153	85.091
Charlton	13.145	100.000	86.855	94.495	89.541
Chesterfield	30.077	100.000	69.923	81.883	65.578
Conway	7.051	100.000	92.949	93.014	86.726
Dracut	6.276	100.000	93.724	93.983	88.568
Dunstable	8.383	100.000	91.617	96.695	93.720
East_Bridgewater	7.985	100.000	92.015	85.082	71.656
East_Longmeadow	5.779	100.000	94.221	73.108	50.000
Egremont	6.492	100.000	93.508	88.408	77.975
Fairhaven	20.464	100.000	79.536	82.418	66.594
Foxborough	6.546	100.000	93.454	86.919	75.145
Gay_Head	11.600	100.000	88.401	97.992	96.185
Great_Barrington	15.673	100.000	84.327	72.366	50.000
HAVERHILL	17.831	100.000	82.169	75.986	54.374
Hinsdale	6.188	100.000	93.812	80.894	63.699
LEOMINSTER	5.151	100.000	94.849	74.698	51.927
Leverett	5.623	100.000	94.377	95.157	90.799
Mansfield	19.153	100.000	80.847	65.000	50.000
Mendon	8.120	100.000	91.880	91.913	84.634
Methuen	9.409	100.000	90.591	87.631	76.500
Millbury	18.052	100.000	81.948	86.210	73.800
Milton	7.272	100.000	92.727	95.269	91.010
Monroe	53.132	100.000	46.868	65.000	50.000
Natick	7.750	100.000	92.250	80.216	62.410
Needham	9.235	100.000	90.765	86.204	73.787
New_Salem	40.527	100.000	59.473	93.314	87.296
NEWBURYPORT	10.155	100.000	89.845	84.797	71.115
Plympton	13.831	100.000	86.169	79.537	61.121
Rochester	8.542	100.000	91.458	90.641	82.218
Rowe	17.281	99.999	82.718	65.000	50.000
Stockbridge	5.586	100.000	94.414	86.985	75.272
Sutton	9.194	100.000	90.807	86.946	75.198
Tolland	30.718	100.000	69.282	77.307	56.884
Uxbridge	18.173	100.000	81.827	86.150	73.685
Wakefield	10.613	100.000	89.387	86.399	74.159
Walpole	10.811	100.000	89.189	83.677	68.986
Ware	15.071	100.000	84.929	83.254	68.182
West_Boylston	5.212	100.000	94.788	82.931	67.569
West_Tisbury	5.220	100.000	94.780	84.908	71.324
Winchendon	5.035	100.000	94.965	85.173	71.829
Auburn	6.038	100.000	93.962	73.680	50.000
Ludlow	6.581	100.000	93.419	88.874	78.860
Tewksbury	5.033	100.000	94.967	80.421	62.799

A negative Offset usually means that classified tax rates have been adopted so as to lower residential taxes and shift the tax burden onto business. When:

Offset < 0 then RF < sqRF and ROLp < ROAp

and classification is being used to overcompensate for the effects of revaluation. This policy was adopted by the five communities in Table 6 and the four in Table 7. Those in Table 7 shifted the tax burden onto business the maximum that was allowed, by choosing the MRF as the RF.

Table 6  
Communities with Offset < -5.0 and Classified Tax Rates

	Offset	RF	sqRF	MRF	widerMRF
Burlington	-6.453	80.199	86.651	65.000	50.000
FITCHBURG	-16.004	80.978	96.982	76.216	54.810
Somerset	-7.518	76.951	84.469	65.000	50.000
Weymouth	-6.129	91.926	98.055	89.234	79.545
Montague	-8.530	90.000	98.530	70.759	50.000

Table 7  
Communities with Offset < -5.0 and Classified Tax Rates with RF = MRF

	Offset	RF	sqRF	MRF	widerMRF
Acushnet	-6.633	92.433	99.067	92.433	85.624
MEDFORD	-6.692	88.884	95.576	88.880	78.872
Milford	-10.550	87.532	98.082	87.532	76.310
TAUNTON	-13.039	86.387	99.426	86.388	74.136

There are fifteen communities, shown in Table 8, that have negative Offsets even though they have single tax rates, because before revaluation they underassessed business property--the opposite of the usual practice--and now have an sqRF greater than 100%.

Table 8  
Communities with Offset < 0.0 and Single Tax Rate with sqRF > 100.0

	Offset	RF	sqRF	MRF	widerMRF
Alford	-7.434	100.000	107.434	88.795	78.710
Buckland	-1.764	100.000	101.764	89.220	79.518
Greenfield	-0.545	100.000	100.545	77.166	56.615
Groveland	-0.586	100.000	100.586	93.604	87.848
Hawley	-0.734	100.000	100.734	95.499	91.448
New_Braintree	-5.562	100.000	105.562	79.097	60.284
Peru	-0.894	100.000	100.894	67.318	50.000
Princeton	-1.227	100.000	101.227	93.267	87.208
Sterling	-2.526	100.000	102.526	80.720	63.368
Townsend	-0.686	100.000	100.686	87.450	76.155
Tyringham	-2.850	100.000	102.851	81.863	65.539
Weston	-0.538	100.000	100.538	97.333	94.934
Whately	-0.593	100.000	100.593	77.887	57.984
Windsor	-5.621	100.000	105.622	79.322	60.712
Oak_Bluffs	-0.132	100.000	100.132	95.205	90.890

Four places did not classify in 1982, as shown in the tables above, but changed their decision for fiscal 1983. They are shown below with their 1983 Offset statistics.

Haverhill	9.173
Randolph	1.151
Seekonk	-4.218
Swampscott	-0.218

Randolph picked an RF of exactly 98.0. Apparently this is one of those in the cluster of Norfolk County towns that thought it would be good to give a little tax break to residents. Seekonk is perhaps following the trend set by Attleboro and most of the other Bristol County communities.

Table 9  
Changes in Effective Tax Rates Caused by Proposition 2 1/2 (2), Revaluation (r), and Classification (c)

	TR2	ROTRr	ROTR2r	ROTR2rc	CIPTRr	CIPTR2r	CIPTR2rc	TR2rSpread	TR2rcSpread
Abington	-4.73	0.34	-4.34	-4.34	-1.71	-6.74	-6.74	2.41	2.41
Acushnet	0.60	0.23	0.83	-1.04	-1.52	-0.88	11.45	1.71	-12.49
Adams	0.58	1.62	2.16	2.16	-4.98	-4.28	-4.28	6.44	6.44
Agawam	0.61	1.24	1.82	1.82	-4.67	-3.94	-3.94	5.76	5.76
Alford	0.26	-0.80	-0.52	-0.52	3.58	3.76	3.76	-4.28	-4.28
Amesbury	-4.41	0.19	-4.19	-4.19	-0.56	-5.07	-5.07	0.88	0.88
Amherst	0.57	0.30	0.86	0.86	-1.44	-0.83	-0.83	1.69	1.69
Andover	0.48	1.13	1.58	1.58	-3.07	-2.52	-2.52	4.10	4.10
Ashfield	0.40	0.07	0.46	0.46	-0.80	-0.38	-0.38	0.85	0.85
Ashland	0.53	0.74	1.26	1.26	-2.43	-1.84	-1.84	3.09	3.09
ATTLEBORO	-4.52	3.01	-0.98	-5.03	-7.61	-13.48	-3.23	12.50	-1.80
Avon	0.55	2.94	3.43	0.75	-3.66	-3.02	0.31	6.45	0.45
Bedford	0.54	0.82	1.33	0.15	-1.14	-0.57	1.07	1.91	-0.92
Belchertown	0.46	0.11	0.56	0.56	-0.50	-0.04	-0.04	0.60	0.60
Belmont	0.57	0.62	1.17	1.11	-7.12	-6.37	-5.67	7.55	6.78
Berkley	0.56	0.01	0.57	0.57	-0.15	0.41	0.41	0.15	0.15
BEVERLY	0.60	1.96	2.51	0.75	-6.84	-6.07	0.09	8.58	0.66
Billerica	0.61	1.81	2.38	2.38	-5.47	-4.72	-4.72	7.10	7.10
Blackstone	0.54	1.40	1.91	1.91	-8.92	-8.16	-8.16	10.07	10.07
Bolton	0.52	0.38	0.89	0.89	-1.61	-1.06	-1.06	1.95	1.95
Bourne	0.49	0.20	0.68	0.68	-0.76	-0.25	-0.25	0.93	0.93
Boxborough	0.38	1.24	1.60	0.65	-5.14	-4.63	-0.70	6.23	1.34
Boxford	0.38	0.62	0.99	0.99	-23.60	-22.64	-22.64	23.63	23.63
Boylston	0.52	0.10	0.61	0.61	-0.82	-0.28	-0.28	0.89	0.89
Brimfield	0.45	0.43	0.87	0.87	-1.26	-0.78	-0.78	1.64	1.64
Brookline	0.57	0.92	1.47	0.43	-6.23	-5.50	1.53	6.97	-1.10
Buckland	0.60	-0.43	0.18	0.18	2.00	2.54	2.54	-2.37	-2.37
Burlington	0.57	3.13	3.62	-1.02	-3.48	-2.82	2.34	6.44	-3.36
Carver	0.58	4.43	4.90	2.57	-15.43	-14.47	-6.34	19.37	8.91
Charlton	0.31	1.69	1.96	1.96	-15.32	-14.63	-14.63	16.59	16.59
Cheshire	0.36	0.18	0.53	0.53	-0.98	-0.60	-0.60	1.13	1.13
Chester	0.42	0.80	1.21	1.21	-3.93	-3.41	-3.41	4.62	4.62
Chesterfield	0.56	6.92	7.31	7.31	-19.09	-18.07	-18.07	25.38	25.38
Chilmark	0.07	0.04	0.12	0.12	-1.11	-1.01	-1.01	1.13	1.13
Clinton	0.55	5.06	5.48	1.01	-12.69	-11.83	-0.62	17.32	1.63
Concord	0.57	0.44	1.00	1.00	-2.15	-1.53	-1.53	2.53	2.53
Conway	0.60	1.74	2.30	2.30	-12.47	-11.56	-11.56	13.86	13.86
Cummington	0.61	0.29	0.89	0.89	-1.21	-0.57	-0.57	1.47	1.47
Danvers	0.59	1.02	1.59	1.59	-2.10	-1.46	-1.46	3.04	3.04
Dighton	0.61	5.52	5.99	1.43	-15.02	-14.04	-1.62	20.04	3.05
Dracut	0.55	1.41	1.92	1.92	-11.71	-10.88	-10.88	12.80	12.80
Dudley	0.39	0.25	0.63	0.63	-1.16	-0.74	-0.74	1.37	1.37
Dunstable	0.38	1.32	1.67	1.67	-19.92	-19.05	-19.05	20.72	20.72
Duxbury	0.58	0.11	0.69	0.69	-1.05	-0.44	-0.44	1.14	1.14
East_Bridgewater	-4.59	2.08	-2.15	-2.15	-6.96	-12.77	-12.77	10.63	10.63
East_Longmeadow	0.57	1.35	1.89	1.89	-2.51	-1.88	-1.88	3.77	3.77
Easthampton	-4.41	0.56	-3.75	-3.75	-2.08	-6.86	-6.86	3.11	3.11
Edgartown	0.21	0.29	0.49	0.49	-1.25	-1.00	-1.00	1.50	1.50
Egremont	0.31	0.83	1.12	1.12	-3.57	-3.17	-3.17	4.29	4.29
Erving	0.23	6.10	6.18	2.89	-1.01	-0.76	-0.21	6.94	3.10
Essex	0.50	0.50	0.99	0.99	-2.86	-2.29	-2.29	3.28	3.28

Table 9 continued

	TR2	ROTRr	ROTR2r	ROTR2rc	CIPTRr	CIPTR2r	CIPTR2rc	TR2rSpread	TR2rcSpread
Fairhaven	0.59	4.91	5.38	5.38	-13.97	-13.04	-13.04	18.42	18.42
Falmouth	0.45	0.21	0.65	0.65	-0.73	-0.26	-0.26	0.91	0.91
FITCHBURG	-6.99	1.19	-5.58	-13.11	-2.51	-9.94	5.89	4.36	-19.00
Foxborough	0.61	1.64	2.21	2.21	-6.25	-5.49	-5.49	7.70	7.70
Framingham	0.61	1.84	2.40	0.34	-4.35	-3.64	1.26	6.04	-0.92
Franklin	-5.09	0.27	-4.77	-4.77	-1.14	-6.43	-6.43	1.66	1.66
Freetown	0.56	7.03	7.42	3.63	-21.23	-20.15	-8.71	27.57	12.33
GARDNER	0.60	0.40	0.99	0.99	-0.89	-0.27	-0.27	1.25	1.25
Gay_Head	0.20	0.97	1.15	1.15	-24.21	-23.41	-23.41	24.56	24.56
Georgetown	-4.41	0.18	-4.19	-4.19	-1.36	-6.02	-6.02	1.82	1.82
GLOUCESTER	0.61	3.57	4.09	3.06	-13.98	-13.03	-9.01	17.13	12.07
Grafton	0.60	0.67	1.26	1.26	-4.26	-3.55	-3.55	4.81	4.81
Granville	0.51	0.36	0.86	0.86	-1.73	-1.18	-1.18	2.04	2.04
Great_Barrington	0.61	3.92	4.43	4.43	-7.09	-6.31	-6.31	10.74	10.74
Greenfield	-6.66	-0.21	-6.90	-6.90	0.45	-6.13	-6.13	-0.77	-0.77
Groveland	0.61	-0.15	0.47	0.47	1.14	1.73	1.73	-1.26	-1.26
Hadley	0.36	0.25	0.60	0.60	-0.30	0.07	0.07	0.53	0.53
Halifax	0.59	0.01	0.60	0.60	-0.03	0.56	0.56	0.04	0.04
Hancock	0.31	0.42	0.72	0.72	-1.13	-0.79	-0.79	1.51	1.51
Hardwick	0.54	1.07	1.58	1.58	-6.09	-5.41	-5.41	6.99	6.99
Harvard	0.48	0.08	0.55	0.55	-1.16	-0.66	-0.66	1.21	1.21
Harwich	0.34	0.06	0.40	0.40	-0.43	-0.08	-0.08	0.48	0.48
Hatfield	0.58	0.01	0.59	0.59	-0.03	0.55	0.55	0.04	0.04
HAVERHILL	0.61	4.46	4.96	4.96	-9.28	-8.45	-8.45	13.40	13.40
Hawley	0.30	-0.09	0.22	0.22	1.02	1.30	1.30	-1.08	-1.08
Hingham	0.57	0.66	1.21	1.21	-3.43	-2.78	-2.78	3.99	3.99
Hinsdale	0.44	1.11	1.53	1.53	-2.91	-2.40	-2.40	3.93	3.93
Hopedale	-4.46	3.97	0.21	-1.05	-14.68	-21.74	-17.06	21.95	16.01
Ipswich	0.57	0.75	1.30	1.30	-3.76	-3.09	-3.09	4.39	4.39
Kingston	0.58	0.53	1.09	1.09	-1.52	-0.91	-0.91	2.00	2.00
Lakeville	0.43	0.29	0.71	0.71	-2.24	-1.76	-1.76	2.47	2.47
Lancaster	0.49	0.61	1.09	1.09	-3.87	-3.29	-3.29	4.37	4.37
LAWRENCE	-4.75	11.50	8.79	5.12	-21.12	-29.59	-22.87	38.38	27.99
Lenox	-4.57	0.27	-4.25	-4.39	-0.68	-5.36	-5.01	1.11	0.63
LEOMINSTER	0.56	1.18	1.72	1.72	-2.34	-1.72	-1.72	3.44	3.44
Leverett	0.42	0.97	1.37	1.37	-10.04	-9.38	-9.38	10.75	10.75
Lexington	0.51	2.07	2.53	0.69	-7.81	-7.11	-0.18	9.64	0.87
Lincoln	0.40	0.12	0.52	0.52	-2.19	-1.73	-1.73	2.26	2.26
Littleton	0.50	0.01	0.52	0.52	-0.03	0.47	0.47	0.05	0.05
Longmeadow	0.53	0.15	0.68	0.68	-2.88	-2.28	-2.28	2.96	2.96
Mansfield	0.41	3.26	3.59	3.59	-3.78	-3.27	-3.27	6.86	6.86
Marion	0.42	0.54	0.95	0.95	-2.46	-1.98	-1.98	2.93	2.93
MARLBOROUGH	0.61	4.25	4.76	0.01	-9.91	-9.06	2.01	13.82	-2.00
Marshfield	0.61	0.74	1.33	1.33	-6.08	-5.32	-5.32	6.66	6.66
Mattapoisett	0.59	0.91	1.47	1.47	-6.99	-6.23	-6.23	7.71	7.71
Maynard	-4.49	1.49	-2.73	-5.40	-3.52	-8.62	-2.33	5.89	-3.06
Medfield	0.60	0.37	0.97	0.97	-3.78	-3.08	-3.08	4.05	4.05
MEDFORD	-5.74	1.44	-4.05	-7.67	-6.47	-13.36	2.91	9.31	-10.57
Mendon	0.46	1.52	1.93	1.93	-9.37	-8.68	-8.68	10.62	10.62
Merrimac	-4.57	0.31	-4.21	-4.21	-2.52	-7.53	-7.53	3.33	3.33
Methuen	0.55	2.11	2.60	2.60	-8.52	-7.77	-7.77	10.37	10.37
Middlefield	0.39	0.51	0.89	0.89	-1.50	-1.07	-1.07	1.97	1.97



Table 9 continued

	TR2	ROTRr	ROTR2r	ROTR2rc	CIPTRr	CIPTR2r	CIPTR2rc	TR2rSpread	TR2rcSpread
Milford	-5.36	0.58	-4.67	-8.46	-2.34	-8.10	7.07	3.43	-15.53
Millbury	0.60	4.48	4.97	4.97	-16.23	-15.23	-15.23	20.21	20.21
Milton	0.59	1.76	2.31	2.31	-18.64	-17.59	-17.59	19.90	19.90
Monroe	0.61	13.28	13.57	13.57	-10.19	-9.34	-9.34	22.90	22.90
Monson	-4.52	0.26	-4.21	-4.21	-1.09	-5.80	-5.80	1.59	1.59
Monterey	0.27	0.15	0.42	0.42	-0.70	-0.41	-0.41	0.84	0.84
Nahant	0.58	1.12	1.66	1.66	-17.89	-16.88	-16.88	18.54	18.54
Nantucket	0.21	0.84	1.04	0.19	-4.32	-4.01	0.31	5.04	-0.12
Natick	0.55	1.75	2.26	2.26	-4.43	-3.77	-3.77	6.03	6.03
Needham	0.51	1.94	2.40	2.40	-7.03	-6.34	-6.34	8.75	8.75
New_Braintree	0.61	-1.39	-0.75	-0.75	3.33	3.85	3.85	-4.60	-4.60
New_Salem	0.41	6.89	7.14	7.14	-51.52	-49.85	-49.85	56.98	56.98
Newbury	0.54	0.28	0.81	0.81	-2.71	-2.11	-2.11	2.91	2.91
NEWBURYPORT	0.58	2.43	2.95	2.95	-7.98	-7.20	-7.20	10.16	10.16
NEWTON	0.59	3.29	3.80	1.49	-17.24	-16.23	-4.13	20.03	5.62
Norfolk	0.52	0.81	1.31	1.31	-7.65	-6.94	-6.94	8.25	8.25
NORTH_ADAMS	0.60	3.23	3.75	1.26	-7.08	-6.31	-0.83	10.06	2.08
North_Brookfield	0.51	0.10	0.61	0.61	-0.29	0.23	0.23	0.38	0.37
North_Reading	0.61	0.81	1.40	1.40	-3.00	-2.32	-2.32	3.72	3.72
NORTHHAMPTON	-4.41	0.62	-3.69	-3.69	-1.52	-6.20	-6.20	2.52	2.52
Northborough	0.60	0.47	1.07	1.07	-1.26	-0.63	-0.63	1.70	1.70
Norton	-6.12	0.40	-5.65	-5.65	-2.57	-9.14	-9.14	3.49	3.49
Norwell	0.58	0.77	1.33	1.33	-4.15	-3.47	-3.47	4.80	4.80
Norwood	0.52	1.97	2.45	1.76	-4.06	-3.44	-2.02	5.88	3.78
Paxton	0.53	0.07	0.60	0.60	-0.76	-0.21	-0.21	0.80	0.80
Pelham	-4.41	0.07	-4.33	-4.33	-0.83	-5.39	-5.40	1.07	1.07
Pembroke	-4.82	0.04	-4.77	-4.77	-0.20	-5.06	-5.06	0.29	0.29
Peru	0.56	-0.21	0.36	0.36	0.31	0.87	0.87	-0.51	-0.51
Petersham	0.49	0.98	1.44	1.44	-8.13	-7.45	-7.45	8.89	8.89
PITTSFIELD	-6.08	4.51	-0.77	-4.87	-9.64	-17.42	-8.66	16.65	3.79
Plymouth	0.52	0.47	0.97	0.97	-0.53	0.00	0.00	0.97	0.97
Plympton	0.56	3.18	3.66	3.66	-7.77	-7.02	-7.02	10.69	10.69
Princeton	0.50	-0.25	0.26	0.26	1.88	2.33	2.33	-2.08	-2.08
Randolph	0.60	0.77	1.35	1.35	-2.94	-2.27	-2.27	3.62	3.62
Reading	0.56	0.41	0.96	0.96	-2.76	-2.14	-2.14	3.10	3.10
Rochester	0.52	1.83	2.31	2.31	-9.79	-9.03	-9.03	11.34	11.34
Rockland	-5.01	0.52	-4.40	-4.40	-1.74	-7.06	-7.06	2.66	2.66
Rockport	0.47	0.15	0.62	0.62	-1.19	-0.70	-0.70	1.31	1.31
Rowe	0.14	1.00	1.12	1.12	-0.07	0.07	0.07	1.05	1.05
Rowley	0.40	0.36	0.75	0.75	-1.40	-0.96	-0.96	1.72	1.72
Russet	0.55	0.80	1.33	1.33	-0.83	-0.26	-0.26	1.59	1.59
Rutland	-4.41	0.19	-4.19	-4.19	-1.61	-6.31	-6.31	2.11	2.11
Saugus	0.61	2.00	2.56	0.49	-4.83	-4.11	0.89	6.67	-0.40
Savoy	0.44	0.63	1.06	1.06	-10.18	-9.49	-9.49	10.55	10.55
Scituate	0.61	0.42	1.02	1.02	-3.55	-2.85	-2.85	3.87	3.87
Seekonk	0.53	0.60	1.11	1.11	-1.39	-0.83	-0.83	1.94	1.94
Sharon	-4.46	0.47	-3.92	-3.92	-3.58	-8.68	-8.68	4.76	4.76
Sherborn	0.50	0.24	0.74	0.74	-2.02	-1.47	-1.47	2.20	2.20
Shrewsbury	0.53	0.32	0.85	0.82	-1.44	-0.87	-0.76	1.72	1.59
Shutesbury	0.46	0.67	1.11	1.11	-13.22	-12.44	-12.44	13.55	13.55
Somerset	0.56	3.58	4.05	-1.26	-2.64	-2.02	1.91	6.07	-3.16
Southborough	0.61	0.60	1.19	1.19	-1.62	-0.97	-0.97	2.17	2.17
Sterling	0.57	-0.59	-0.01	-0.01	1.54	2.08	2.08	-2.08	-2.08
Stockbridge	0.42	0.97	1.36	1.36	-3.71	-3.20	-3.20	4.56	4.56

Table 9 continued

	TR2	ROTRr	ROTR2r	ROTR2rc	CIPTRr	CIPTR2r	CIPTR2rc	TR2rSpread	TR2rcSpread
Stoneham	0.60	0.58	1.17	1.17	-2.77	-2.10	-2.10	3.27	3.27
Stoughton	0.56	0.57	1.11	0.45	-1.88	-1.28	0.91	2.39	-0.46
Sturbridge	0.55	0.85	1.38	1.38	-1.79	-1.20	-1.20	2.57	2.57
Sudbury	0.61	1.35	1.92	0.04	-6.92	-6.14	3.52	8.07	-3.47
Sutton	0.41	1.54	1.91	1.91	-5.89	-5.34	-5.34	7.24	7.24
Swampscott	0.61	0.71	1.30	1.30	-5.87	-5.12	-5.12	6.42	6.42
Swansea	0.51	0.40	0.90	0.90	-1.30	-0.76	-0.76	1.66	1.66
TAUNTON	-5.23	0.17	-5.03	-9.06	-0.62	-5.96	8.85	0.94	-17.92
Tisbury	0.31	0.41	0.72	0.72	-1.83	-1.47	-1.47	2.19	2.19
Tolland	0.12	1.51	1.59	1.59	-3.32	-3.12	-3.12	4.70	4.70
Townsend	0.49	-0.14	0.35	0.35	0.55	1.02	1.02	-0.67	-0.67
Tyringham	0.29	-0.34	-0.04	-0.04	0.94	1.21	1.21	-1.25	-1.25
Upton	0.59	0.02	0.61	0.61	-0.19	0.41	0.41	0.20	0.20
Uxbridge	0.60	4.45	4.94	4.94	-16.07	-15.08	-15.08	20.03	20.03
Wakefield	0.60	2.60	3.13	3.13	-9.56	-8.73	-8.73	11.86	11.86
Walpole	0.55	2.42	2.91	2.91	-7.42	-6.69	-6.69	9.60	9.60
Ware	0.51	3.15	3.58	3.58	-9.40	-8.67	-8.67	12.25	12.25
Watertown	-5.93	7.31	2.67	-3.03	-20.68	-30.27	-14.15	32.94	11.12
Wayland	0.55	0.13	0.67	0.67	-1.06	-0.49	-0.49	1.16	1.16
Webster	0.44	2.27	2.65	1.04	-6.33	-5.74	-1.24	8.39	2.28
Wellesley	0.55	0.53	1.07	1.07	-2.69	-2.07	-2.07	3.14	3.14
Wenham	0.60	0.11	0.71	0.71	-1.79	-1.15	-1.15	1.86	1.86
West_Boylston	0.52	1.10	1.60	1.60	-3.24	-2.64	-2.64	4.24	4.24
West_Newbury	0.56	0.47	1.02	1.02	-7.46	-6.71	-6.71	7.74	7.74
West_Springfield	0.61	2.42	2.97	-0.69	-4.17	-3.46	2.85	6.44	-3.54
West_Stockbridge	0.47	0.50	0.95	0.95	-2.32	-1.79	-1.79	2.75	2.75
West_Tisbury	0.11	0.23	0.34	0.34	-0.78	-0.65	-0.65	0.99	0.99
Westford	0.56	0.64	1.18	1.18	-4.54	-3.87	-3.87	5.05	5.05
Weston	0.42	-0.09	0.33	0.33	1.75	2.13	2.13	-1.80	-1.80
Westport	0.52	0.02	0.54	0.54	-0.16	0.37	0.37	0.17	0.17
Westwood	-4.41	1.51	-2.63	-4.79	-3.93	-9.03	-3.44	6.40	-1.35
Weymouth	-4.58	0.50	-3.98	-6.08	-2.34	-7.34	2.39	3.35	-8.47
Whately	0.50	-0.12	0.38	0.38	0.27	0.77	0.77	-0.39	-0.39
Whitman	-5.70	0.15	-5.52	-5.48	-0.59	-6.38	-6.53	0.87	1.06
Williamstown	0.59	0.21	0.80	0.80	-0.85	-0.24	-0.24	1.04	1.04
Winchendon	0.55	1.13	1.65	1.65	-3.80	-3.16	-3.16	4.81	4.81
Winchester	0.57	0.57	1.13	0.77	-5.53	-4.83	-1.32	5.96	2.08
Windsor	0.25	-0.57	-0.31	-0.31	1.38	1.59	1.59	-1.90	-1.90
Winthrop	0.58	0.24	0.81	0.81	-2.79	-2.15	-2.15	2.96	2.96
Worthington	0.37	0.16	0.52	0.52	-1.44	-1.04	-1.04	1.56	1.56
Arlington	0.55	0.53	1.07	1.07	-5.53	-4.84	-4.84	5.91	5.91
Auburn	0.48	1.18	1.62	1.62	-2.24	-1.71	-1.71	3.33	3.33
Bellingham	0.49	0.73	1.20	1.20	-3.89	-3.30	-3.30	4.51	4.51
Canton	0.44	1.82	2.22	1.75	-3.57	-3.04	-2.13	5.26	3.88
Carlisle	0.41	0.22	0.62	0.62	-6.74	-6.16	-6.16	6.78	6.78
FALL_RIVER	0.61	4.76	5.25	1.21	-8.83	-8.01	-0.51	13.26	1.72
Ludlow	0.54	1.46	1.96	1.96	-6.54	-5.84	-5.84	7.81	7.81
Lunenburg	0.47	0.26	0.72	0.72	-1.86	-1.34	-1.34	2.07	2.07
MELROSE	-4.41	0.86	-3.40	-4.11	-8.25	-14.12	-7.30	10.72	3.19
Montague	0.61	0.37	0.97	-1.53	-0.63	0.00	4.27	0.97	-5.80
Oak_Bluffs	0.29	-0.02	0.27	0.27	0.16	0.45	0.45	-0.17	-0.17
Raynham	0.51	0.63	1.13	1.13	-2.24	-1.68	-1.68	2.81	2.81
Tewksbury	0.51	1.05	1.54	1.54	-2.69	-2.11	-2.11	3.65	3.65
Wilmington	0.53	1.86	2.34	0.75	-2.52	-1.93	0.22	4.28	0.53

Tax Rate Changes

The Offset statistic is a rather abstract way of measuring the combined impact of revaluation and classification, so some other statistics have been developed that show the impact on the tax rates. These are shown in Table 9.

The Effect of 2 1/2

In looking at tax rates for fiscal year 1982, the impact of Proposition 2 1/2, which first went into effect that year, must be accounted for. It is possible that the effects of 2 1/2 may obscure or confuse the perceived affects of revaluation. Proposition 2 1/2 mandates that the long-term tax rate in every community shall be \$25.00. In the meantime, those places with rates now below that level may only raise their levy by 2.5% each year. Thus the tax rate would increase 2.5% if the total value were to remain constant. Places with tax rates above \$25.00 must lower their levy each year by 15% until they reach that level. Thus, their tax rates would decline by 15%, if their value remained constant. The values, of course, have not remained constant, because these places have all been revalued. But if we assume that the 1982 values were held constant for comparison with the previous year, we could isolate the effect of Proposition 2 1/2 on the tax levy and rate from the effect of revaluation. To do this, we need the previous year's total levy (oldTL):

$$\begin{aligned} \text{oldTL} &= \text{TL} / 1.025 && \text{if } \text{TR} < 25.00 \\ \text{oldTL} &= \text{TL} / 0.85 && \text{if } \text{TR} \geq 25.00 \end{aligned}$$

The assumptions made in the above calculations could be wrong for those places with a TR of exactly 25.00 and that were able to lower their old levy by less than 15% in order to reach that level, or were

allowed to raise their old levy by less than 2.5% before reaching 25.00.

Given last years's levy, we may calculate last year's tax rate, calibrated to this year's value (oldTR).

$$\text{oldTR} = \text{oldTL} / \text{TV} \times 1000$$

The effect of Proposition 2 1/2 on this year's average tax rate, holding values constant, is TR2.

$$\text{TR2} = \text{TR} - \text{oldTR}$$

TR2 is positive and less than a dollar for most places. It is negative and over four dollars for the places required by 2 1/2 to lower their levies.

#### The Effect of Revaluation

Let us also assume that the tax base has not changed significantly and the position of typical properties relative to typical properties in other classes has not changed. We may then isolate the effects of the shifting share of the values in each class from the change in the total size of the valuation. This allows us to calculate two forms of a hypothetical residential tax rate, sqROTR and oldROTR.

The status quo residential and open tax rate (sqROTR) is that which would be in effect if there were no revaluation-caused class shift but the total revalued-valuation and the total levy are held constant--if the RO share of the levy were the same as the RO share of the pre-revaluation assessed value. It is analagous to the sqRF.

$$\text{sqROTR} = (\text{ROAp}/100 \times \text{TL}) / \text{ROV} \times 1000$$

If the sqRF were adopted as the residential factor, the residential and open tax rate would be sqROTR. If a single tax rate were adopted, it would be TR, the average tax rate for all classes. Therefore, the effect of revaluation alone on the residential and open tax rate (ROTRr)

is the difference between TR and sqROTR.

$$\text{ROTRr} = \text{TR} - \text{sqROTR}$$

Likewise, the status quo CIP tax rate (sqCIPTR) is that which preserves the pre-revaluation CIP assessed value share, holding values and the levy constant.

$$\text{sqCIPTR} = (\text{CIPAp}/100 \times \text{TL}) / \text{CIPV} \times 1000$$

The effect of revaluation alone on the non-residential tax rate (CIPTRr) is:

$$\text{CIPTRr} = \text{TR} - \text{sqCIPTR}$$

ROTRr is usually positive, because revaluation forces residential taxes up, and CIPTRr is usually negative. The absolute value of CIPTRr is generally much larger than ROTRr, because large tax savings on a few businesses cause small tax increases on many homes. The median ROTRr is \$+0.63. The ROTRr for half the communities is from +0.25 to +1.53. The median CIPTRr is \$-2.76. The CIPTRr for half the communities is from -6.79 to -1.15.

#### The Combined Effect of 2 1/2 and Revaluation

It may be argued that the increases in residential taxes caused by revaluation are cancelled out by the tax reduction brought about by Proposition 2 1/2, therefore there is little motivation for classification. We may explore these combined effects by calculating what the effective residential-open tax rate was in the prior year, before revaluation and the levy change from 2 1/2, holding values constant (oldROTR).

$$\text{oldROTR} = (\text{ROAp}/100 \times \text{oldTL}) / \text{ROV} \times 1000$$

Also:

$$\text{oldCIPTR} = (\text{CIPAp}/100 \times \text{oldTL}) / \text{CIPV} \times 1000$$

The effect on the tax rates of both 2 1/2 and revaluation (ROTR2r, CIPTR2r) may be found:

$$\text{ROTR2r} = \text{TR} - \text{oldROTR}$$

$$\text{CIPTR2r} = \text{TR} - \text{oldCIPTR}$$

Since the effect of 2 1/2 most often is to raise the tax rate, the combined effects on residential taxes (ROTR2r) will be higher than the revaluation-only effects (ROTRr). ROTR2r will be negative in those few places with a 2 1/2 reduction greater than the revaluation increase.

In most places the combined effect on non-residential tax rates (CIPTR2r) is large and negative. The CIPTR2r is slightly less negative than the CIPTRr because 2 1/2 raises the tax rate slightly in most places. In places with 2 1/2 levy reductions, the 2 1/2 and revaluation effects are cumulative, so the non-residential tax rate is pushed lower: CIPTR2r is more negative than CIPTRr.

To summarize this finding, in most of the communities the combined effects of Proposition 1/2 and revaluation are a modest increase in residential taxes and a much larger decrease in business taxes. The median increase in the effective residential tax rate (ROTR2r) is \$+1.07. The minimum and maximum are -6.90 and +13.57, respectively, with the increases for half of the communities between +0.54 and +1.91.

The median decrease in the effective business tax rate (CIPTR2r) is \$-3.20. The minimum and maximum are -49.85 and +3.86, respectively, with the decreases for half of the communities between -6.98 and -0.88.

The combined effects in each place may also be measured by looking at the spread between how much one tax rate was raised and the other lowered (TR2rSpread).

$$\text{TR2rSpread} = \text{ROTR2r} - \text{CIPTR2r} = \text{oldCIPTR} - \text{oldROTR}$$

This value tells us how much of the tax rate is being shifted because of revaluation and 2 1/2, when a single tax rate is chosen. TR2rSpread is most often between +1.50 and +7.80.

#### The Effect of Classification

Now we shall look at how these shifts have been modified by classified tax rates. The effect of classification on residential tax rates (ROTRc) is the difference between the chosen tax rate and the single tax rate.

$$\text{ROTRc} = \text{ROTR} - \text{TR}$$

This value is most often zero, but it is negative in those places with classified tax rates. Its counterpart, CIPTRc, is the classification effect on non-residential rates; it is usually zero and sometimes positive.

$$\text{CIPTRc} = \text{CIPTR} - \text{TR}$$

#### The Combined Effects of 2 1/2, Revaluation, and Classification

The combination of all three, 2 1/2, revaluation, and classification, produces an effect on each rate, ROTR2rc and CIPTR2rc.

$$\text{ROTR2rc} = \text{ROTR} - \text{oldROTR}$$

$$\text{CIPTR2rc} = \text{CIPTR} - \text{oldCIPTR}$$

Since classification is used in few communities, there are few differences between ROTR2rc and ROTR2r, and between CIPTR2rc and CIPTR2r.

The median total change in the effective residential tax rate (ROTR2rc) is \$+0.87. Half of the communities have a ROTR2rc from +0.36 to +1.43. The median total change in the effective commercial tax rate (CIPTR2rc) is \$-2.02. Half of the communities have a CIPTR2rc from -6.15 to -0.26.

The spread between the changes in the tax rates, including the effects of classification, may be measured by TR2rcSpread.

$$\text{TR2rcSpread} = \text{ROTR2rc} - \text{CIPTR2rc}$$

This value is between +0.84 and +5.84 for half of the communities. If we divide this spread in the tax rate change by the total tax rate then we find that the percentage change is typically 3% to 30%. The direction of this tax shift is from business onto residential, despite the use of classified tax rates.

There are 29 communities in which the downward impact of 2 1/2 on residential tax rates is greater than the upward impact of revaluation. Six of these chose to reduce the residential tax rate even further through classification. Two communities had larger increases due to revaluation than had 2 1/2 decreases: Lawrence, which ended up with higher residential taxes; and Watertown, which ended up with reduced residential taxes, but not as reduced as would be from the effects of 2 1/2 alone. There are five communities in which the decrease caused by 2 1/2 can be said to have obscured the increase caused by revaluation, resulting in no proportional decrease in residential taxes through classification.

#### Effects on Tax Bills

We may make these effects of even more explicit by looking at the changes in the typical tax bill. The change in the tax bill of the average residential property (avRup) is the product of the total change in the tax rate (ROTR2rc) and the value of the average property. Likewise, the value of the average commercial and industrial properties and the change in the CIP tax rate (CIPTR2rc) gives us the change in the average tax bills (avCup, avIup). The average of all residential



commercial, and industrial properties are assumed to be \$45,958, \$150,458, and \$416,953, respectively. We got these figures by dividing the sum of all equalized values for property in each class in the entire state by the number of all parcels in that class in the state (Hampers 1981). Using one statewide average property value for each class allows us to make comparisons across towns on the same basis. The precise average value is not as important as the relative size of the average of one class compared to another class. Table 10 shows how much the tax bills have changed in each place, in dollars.

Half of the typical residential tax bills have gone up (avRup) because of 2 1/2, revaluation, and classification by from \$+16.41 to \$+65.84, with a median increase of \$+39.77. Half of the commercial bills went down (avCup) by from \$-39.24 to \$-924.89. Industrial bills went down (avIup) by from \$-108.74 to \$-2563.09.

We conclude from all of these measures that revaluation is the overriding effect of the three (2 1/2, revaluation, and classification). It has caused modest increases in residential tax bills, apparently not enough to get most people very excited. Businesses have received great windfalls at the same time. It appears that in most communities these windfalls have been overlooked; classification has not been used to recover them for homeowners.

Table 10  
Changes in Tax Bills

	avRup	avCup	avlup	Pup
Abington	-199.24	-1014.27	-2810.77	-23703.15
Acushnet	-47.79	1722.32	4772.94	-6797.08
Adams	99.48	-643.42	-1783.07	-27270.48
Agawam	83.49	-593.11	-1643.64	-70931.86
Alford	-23.89	565.49	1567.10	-697.72
Amesbury	-192.36	-762.66	-2113.49	-32895.83
Amherst	39.38	-125.60	-348.06	-27851.61
Andover	72.74	-378.80	-1049.74	-76321.91
Ashfield	21.31	-57.56	-159.50	-3800.89
Ashland	57.69	-276.40	-765.95	-17745.29
ATTLEBORO	-231.17	-486.11	-1347.13	-97114.60
Avon	34.56	45.95	127.35	-19895.40
Bedford	6.93	161.49	447.51	-62087.96
Belchertown	25.77	-5.32	-14.75	-8163.37
Belmont	51.16	-852.76	-2363.20	-34026.27
Berkley	26.07	62.35	172.77	-2038.79
BEVERLY	34.39	12.89	35.72	-103469.45
Billerica	109.16	-710.70	-1969.51	-169319.71
Blackstone	87.76	-1227.39	-3401.37	-13964.04
Bolton	40.87	-159.26	-441.35	-4223.89
Bourne	31.37	-37.43	-103.74	-29320.79
Boxborough	29.66	-104.95	-290.83	-4492.35
Boxford	45.47	-3406.41	-9439.92	-16162.90
Boylston	28.19	-42.29	-117.21	-3453.95
Brimfield	39.77	-117.20	-324.79	-10869.04
Brookline	19.83	230.72	639.38	-196202.74
Buckland	8.05	382.65	1060.42	-10251.63
Burlington	-46.87	351.98	975.41	-87823.24
Carver	118.12	-954.17	-2644.21	-38468.25
Charlton	90.00	-2201.42	-6100.62	-27702.69
Cheshire	24.50	-90.21	-249.99	-2668.84
Chester	55.55	-513.39	-1422.73	-1562.15
Chesterfield	335.95	-2718.08	-7532.42	-8470.96
Chilmark	5.38	-152.59	-422.87	-2008.62
Clinton	46.45	-92.62	-256.67	-45963.48
Concord	46.14	-230.07	-637.59	-21579.53
Conway	105.78	-1739.17	-4819.62	-6892.03
Cumington	41.07	-86.20	-238.89	-2454.59
Danvers	72.86	-219.24	-607.55	-43568.13
Dighton	65.53	-244.31	-677.05	-31795.81
Dracut	88.38	-1637.06	-4536.66	-65534.02
Dudley	28.99	-111.29	-308.41	-5170.12
Dunstable	76.66	-2866.91	-7944.86	-8548.45
Duxbury	31.82	-66.68	-184.78	-20100.35
East_Bridgewater	-98.61	-1922.04	-5326.40	-33424.53
East_Longmeadow	86.86	-283.21	-784.84	-19104.32
Easthampton	-172.37	-1031.93	-2859.72	-28774.05
Edgartown	22.62	-151.04	-418.57	-12113.13
Egremont	51.40	-477.27	-1322.63	-3050.39
Erving	132.66	-31.73	-87.93	-99111.92
Essex	45.60	-344.48	-954.62	-7224.98

Table 10 continued

	avRup	avCup	avlup	Pup
Fairhaven	247.12	-1962.13	-5437.49	-64955.88
Falmouth	29.72	-39.54	-109.56	-66781.03
FITCHBURG	-602.49	886.07	2455.49	-158504.94
Foxborough	101.40	-826.43	-2290.23	-31591.55
Framingham	15.43	189.04	523.88	-217320.64
Franklin	-219.32	-967.89	-2682.23	-57079.25
Freetown	166.68	-1309.86	-3629.93	-76024.36
GARDNER	45.37	-40.11	-111.16	-31308.30
Gay_Head	52.98	-3522.54	-9761.74	-3439.11
Georgetown	-192.78	-905.02	-2508.03	-6778.62
GLOUCESTER	140.78	-1355.79	-3757.21	-97544.90
Grafton	57.96	-534.01	-1479.86	-20188.51
Granville	39.59	-176.97	-490.41	-6390.18
Great_Barrington	203.71	-948.91	-2629.63	-26197.57
Greenfield	-317.21	-922.29	-2555.86	-60091.05
Groveland	21.46	259.75	719.81	-4024.99
Hadley	27.79	10.51	29.13	-4345.38
Halifax	27.50	84.35	233.75	-13385.30
Hancock	33.20	-118.83	-329.31	-3016.49
Hardwick	72.62	-813.76	-2255.12	-4610.84
Harvard	25.45	-99.00	-274.36	-4433.53
Harwich	18.18	-12.08	-33.46	-32361.99
Hatfield	27.04	83.20	230.56	-4869.81
HAVERHILL	227.90	-1270.73	-3521.48	-184503.01
Hawley	9.90	195.41	541.52	-438.09
Hingham	55.71	-417.89	-1158.07	-61721.80
Hinsdale	70.12	-361.81	-1002.67	-12217.60
Hopedale	-48.42	-2567.52	-7115.19	-6126.39
Ipswich	59.68	-465.41	-1289.75	-12092.06
Kingston	50.07	-136.67	-378.75	-13477.98
Lakeville	32.68	-264.51	-733.02	-5525.32
Lancaster	49.92	-494.58	-1370.58	-11788.98
LAWRENCE	235.53	-3440.36	-9534.02	-324001.17
Lenox	-201.66	-754.51	-2090.92	-17478.22
LEOMINSTER	78.90	-259.24	-718.40	-61158.60
Leverett	63.01	-1410.84	-3909.75	-7169.14
Lexington	31.66	-26.63	-73.80	-139850.77
Lincoln	24.05	-260.98	-723.23	-15571.61
Littleton	23.69	70.68	195.87	-12116.78
Longmeadow	31.15	-342.82	-950.03	-32105.94
Mansfield	165.05	-491.84	-1362.99	-25460.52
Marion	43.64	-297.85	-825.42	-17642.82
MARLBOROUGH	0.38	302.70	838.84	-127902.72
Marshfield	61.20	-801.05	-2219.88	-56802.29
Mattapoisett	67.74	-937.68	-2598.52	-20655.24
Maynard	-248.10	-351.13	-973.05	-43683.69
Medfield	44.47	-464.06	-1286.01	-14166.97
MEDFORD	-352.28	437.30	1211.85	-272236.11
Mendon	88.85	-1306.60	-3620.89	-13898.44
Merrimac	-193.31	-1133.69	-3141.71	-2562.00
Methuen	119.61	-1168.44	-3238.00	-118010.19
Middlefield	40.96	-161.60	-447.83	-1227.06

	Table 10 avRup	continued avCup	aviup	Pup
Milford	-388.65	1064.29	2949.39	-52574.18
Millbury	228.54	-2291.84	-6351.21	-75337.21
Milton	106.26	-2646.66	-7334.49	-147677.55
Monroe	623.59	-1404.63	-3892.54	-620.29
Monson	-193.44	-872.04	-2416.63	-12629.55
Monterey	19.42	-62.17	-172.29	-2158.53
Nahant	76.50	-2539.44	-7037.37	-12584.05
Nantucket	8.89	46.67	129.33	-79396.59
Natick	103.86	-566.81	-1570.76	-77473.14
Needham	110.49	-954.63	-2645.49	-81924.85
New_Braintree	-34.33	579.99	1607.28	-1977.56
New_Salem	327.96	-7500.14	-20784.57	-10424.33
Newbury	37.02	-316.92	-878.25	-9257.03
NEWBURYPORT	135.61	-1084.01	-3004.04	-49849.90
NEWTON	68.51	-620.85	-1720.51	-632592.36
Norfolk	59.99	-1044.76	-2895.28	-19856.73
NORTH_ADAMS	57.77	-124.54	-345.13	-33233.78
North_Brookfield	27.88	35.10	97.28	-5312.73
North_Reading	64.50	-349.19	-967.67	-23921.98
NORTHAMPTON	-169.39	-932.98	-2585.49	-57638.27
Northborough	49.02	-94.60	-262.17	-23274.59
Norton	-259.78	-1375.70	-3812.36	-29592.72
Norwell	61.08	-522.31	-1447.45	-18214.49
Norwood	80.85	-304.21	-843.02	-31061.88
Paxton	27.39	-31.29	-86.72	-1382.78
Pelham	-198.78	-811.98	-2250.18	-432.50
Pembroke	-219.08	-761.06	-2109.07	-31940.66
Peru	16.56	130.60	361.93	-1489.91
Petersham	66.15	-1120.93	-3106.35	-5870.14
PITTSFIELD	-223.80	-1303.29	-3611.72	-278206.70
Plymouth	44.62	0.07	0.20	-49761.42
Plympton	168.41	-1056.59	-2928.04	-11538.13
Princeton	11.74	350.85	972.29	-3961.67
Randolph	61.82	-342.17	-948.23	-63318.41
Reading	44.35	-321.33	-890.47	-20359.66
Rochester	106.25	-1358.79	-3765.53	-17814.78
Rockland	-202.31	-1061.95	-2942.89	-40264.36
Rockport	28.29	-104.73	-290.22	-8893.63
Rowe	51.35	10.60	29.36	-43219.64
Rowley	34.68	-144.90	-401.54	-3532.07
Russel	61.15	-38.94	-107.92	-1311.99
Rutland	-192.71	-949.00	-2629.88	-2979.27
Saugus	22.62	134.45	372.60	-55200.29
Savoy	48.51	-1428.03	-3957.40	-1421.62
Scituate	46.73	-429.12	-1189.18	-49155.04
Seekonk	51.22	-124.32	-344.51	-30751.29
Sharon	-179.99	-1306.00	-3619.23	-39288.31
Sherborn	33.80	-220.58	-611.28	-14988.27
Shrewsbury	37.90	-114.51	-317.34	-30272.46
Shutesbury	51.00	-1872.25	-5188.43	-4546.63
Somerset	-57.78	286.67	794.42	-660153.39
Southborough	54.73	-146.58	-406.21	-21335.88
Sterling	-0.27	312.21	865.20	-22546.08
Stockbridge	62.65	-480.95	-1332.83	-19010.68

Table 10 continued  
avRup avCup

	avRup	avCup	avlup	Pup
Stoneham	53.61	-316.28	-876.49	-28327.35
Stoughton	20.64	137.25	380.34	-51316.86
Sturbridge	63.23	-179.85	-498.40	-13095.96
Sudbury	2.03	529.09	1466.24	-56401.61
Sutton	87.66	-802.89	-2224.99	-22203.49
Swampscott	59.92	-770.32	-2134.74	-27514.99
Swansea	41.27	-114.15	-316.34	-34609.95
TAUNTON	-416.53	1331.95	3691.13	-28089.90
Tisbury	32.94	-221.13	-612.81	-11732.11
Tolland	72.98	-468.84	-1299.26	-4477.27
Townsend	16.27	153.62	425.73	-9468.19
Tyringham	-1.89	182.45	505.61	-1561.22
Upton	27.95	61.06	169.20	-4419.63
Uxbridge	227.09	-2269.47	-6289.21	-79808.87
Wakefield	144.05	-1313.27	-3639.36	-62336.70
Walpole	133.69	-1006.65	-2789.65	-85039.72
Ware	164.66	-1303.78	-3613.06	-19465.90
Watertown	-139.08	-2128.74	-5899.23	-313434.91
Wayland	30.98	-73.05	-202.43	-22864.18
Webster	47.80	-186.66	-517.27	-26109.47
Wellesley	49.02	-311.31	-862.70	-22723.43
Wenham	32.48	-173.10	-479.69	-3174.36
West_Boylston	73.31	-397.32	-1101.07	-10489.64
West_Newbury	46.96	-1010.17	-2799.40	-4726.27
West_Springfield	-31.82	428.93	1188.66	-164700.02
West_Stockbridge	43.89	-269.42	-746.61	-2857.88
West_Tisbury	15.58	-97.71	-270.78	-7095.25
Westford	54.15	-582.30	-1613.70	-36915.33
Weston	15.27	320.93	889.37	-22052.73
Westport	24.90	55.28	153.19	-10496.04
Westwood	-220.02	-516.84	-1432.28	-51331.89
Weymouth	-279.40	360.15	998.04	-159298.75
Whately	17.53	115.55	320.21	-4517.00
Whitman	-251.71	-982.82	-2723.62	-46851.37
Williamstown	36.89	-35.54	-98.50	-14689.28
Winchendon	75.68	-476.14	-1319.49	-11396.84
Winchester	35.19	-198.12	-549.04	-57725.00
Windsor	-14.19	239.53	663.80	-1484.88
Winthrop	37.33	-322.91	-894.87	-14639.07
Worthington	23.94	-157.03	-435.16	-1449.16
Arlington	49.27	-728.27	-2018.19	-103975.33
Auburn	74.65	-256.76	-711.53	-17395.63
Bellingham	55.21	-497.24	-1377.97	-27067.79
Canton	80.58	-320.69	-888.72	-58720.23
Carlisle	28.36	-927.50	-2570.32	-7942.46
FALL_RIVER	55.65	-76.15	-211.03	-263546.67
Ludlow	90.10	-879.42	-2437.07	-95548.61
Lunenburg	33.21	-202.03	-559.87	-16232.95
MELROSE	-188.94	-1098.20	-3043.35	-58519.58
Montague	-70.32	642.02	1779.18	-46406.48
Oak_Bluffs	12.60	67.43	186.85	-11424.32
Raynham	51.86	-252.58	-699.95	-7591.54
Tewksbury	70.59	-317.63	-880.21	-60318.05
Wilmington	34.44	33.59	93.08	-39385.97

### Utility Tax Shifts

Utility property often receives the biggest tax break from revaluation. This is because it was always assessed at or near full value and assessments did not increase when assessments on all other types of property did. Phone and gas company personal property has always been assessed by the DOR, at full value, rather than by local assessors, although it is taxed locally. Perhaps this was done in fairness to these companies that have property all over the state and ought not to be subject to radically different assessment methods in every municipality. Relative to other property, one could say that the utilities were formerly drastically overtaxed. Or one could say that the greatest irony of revaluation is that those who were so uniformly assessed before now get the biggest windfalls.

The biggest windfalls will go to the biggest property owners, who are the utilities. It was estimated that for fiscal 1982 over \$1 million in taxes in Brookline would be shifted from Boston Edison and New England Telephone onto homeowners (Kuttner 1982). In Fall River, the top ten taxpayers, mostly utility, oil, and gas companies, were to pay \$4,271,335 less in 1982 because of Proposition 2 1/2 (Sullivan 1980). Another source reports that the tax bills of utilities in Fall River went from \$1.5 million to \$380,000. In Adams, the New England Power Company got a tax reduction of \$30,000 for fiscal 1982, while the average homeowner got a tax increase of from \$100 to \$200 (Costa 1982).

We may get an idea of the average shift in the tax burden off of utilities from the following numbers. Much of the utility property is included in the personal class. Before revaluation the median personal class share of the levy was 4.96%. After revaluation the median

personal share of the value was only 3.31%. Through classification, the personal share of the levy was increased to 3.54%. This means that the percentage decrease in the total personal class levy was 28%. In certain communities with more than the typical amount of personal property, i.e., utility property, this portion of the levy must be borne by the other classes.

Table 10 shows the total change in the personal class levy (Pup).

$$\text{Pup} = \text{PL} - (\text{PAp} \times \text{oldTL})$$

where:

PAp = personal class share of before-revaluation assessed value

The personal levy went down in every community. The median decrease is \$-21,336.

#### Classification and Community Characteristics

The purpose of this section is to explain why a community would choose to classify. We often hear that classification was designed for Boston or is meant to be useful only for the big cities of the commonwealth. This is rather too simple a view. Several of the larger cities will probably adopt classified tax rates, but since they have not yet been certified, we can't test this. Enough other places, including smaller and larger communities, have been certified, however, so that we may test their use or non-use of classification against some explanatory variables.

The table below shows the correlation between the chosen response variable (CIPTRc) and several possible explainers. CIPTRc is the increase in the business tax rate caused by classification. Its value is zero for most places, because they adopted single tax rates, and it has a positive value for the 50 places in the sample with multiple

rates. It was used as the response variable because it seemed to have a higher correlation with the likely explanatory variables than other possible response variables. (The correlation statistic indicates that some portion of the variation in the response variable is explained by the variation in the other variable, through a linear relationship.) The higher is CIPTRc, the more taxes have been shifted onto business through classification.

Correlation of Explanatory Variables with CIPTRc

PerCapitaIncome	-0.023
RentalUnitssp	0.329
VperCapita	-0.078
Population	0.501
ARdiff	0.152
Yesp	0.407
CIPVp	0.142
IVp	0.141
CVp	0.032
PVp	-0.007
oldCIPTR	0.471
VGrowthp	-0.055
BaseGrowp	-0.032

PerCapitaIncome. Poorer people, it may be theorized, would be more interested in lowering their taxes, thereby pushing the tax burden onto business. The correlation statistic, -0.032, indicates that there is a negative relationship between income and higher business taxes, but it is too small to prove anything.

RentalUnitssp. Rental units as a percentage of total occupied units in the community. Since renters do not pay property taxes directly, they would not care about residential tax rates, and so where there are more renters there would be less of a tendency to adopt classification. This hypothesis is shown to be wrong. We might make a new hypothesis to fit this result: Apartments tended to be overassessed, so revaluation causes a tax shift onto other properties, which must be corrected by classification. Therefore, communities with more rental units would be



more likely to classify.

VperCapita. Property value per capita. Property-poor communities ought to want to shift the tax burden onto businesses, which have the ability to export the taxes out of town. This is only minimally confirmed by the data. Although the correlation statistic has the right sign, it is rather small.

Population. Larger communities are likely to have more business property on which to shift the tax burden; they are somewhat more likely to have had differential assessment; and there are more voters with more political clout than there are business owners. Smaller places are more likely to be influenced by the fear of losing the few businesses they have. Only 25% of the increase in business tax rates are explained by population, indicating that by no means is classification limited to big cities, nor are all cities using it. Other community characteristics have just as much influence as community size.

ARdiff. The difference between the pre-revaluation assessment ratios for business and residential property. This measures the disparity in assessing practices within the jurisdiction. The more disparity, the more need there should be for classification. As we can see, ARdiff only partly explains CIPTRc; several places do not classify when they had been practicing differential assessment, and some do classify when it hardly seems necessary. Interestingly, there is no correlation between tax rates and the difference between the assessment ratios of classes. This means that communities with higher effective tax rates are may either have had disproportionate assessment ratios or not before revaluation.

Yesp. The plurality of the Yes votes for the 1978 amendment in the

community. (The Yes votes as a percentage of the total minus 50%.) As shown, the more votes in favor of classification, the more likely that classified tax rates were enacted. This variable explains more than we might have projected, since the total vote in favor of the 1978 amendment was overwhelming. This was because of the huge plurality in the larger cities. At the level of each community in our sample, the pluralities are smaller and often negative (the amendment failed there). The cities with overwhelming Yes votes generally have a need to classify, while some places voting no have taken that advice and not classified. But most places have not classified even though they voted for the amendment, so there is a divergence for most places.

CIPVp. Business property as a portion of the total value. The more business property, the more taxes can be shifted. This is confirmed somewhat by the data.

IVp. Industrial property as a share of the total value. There are two possible hypotheses: (1) Industry is not taxed more because it might be induced to leave the community, since its capital is mobile. (2) Industry sells its products in the national market, so its increased taxes can be passed outside the community. The first hypothesis is disproved here, and the second is marginally true for this sample of communities.

CVp. Commercial property as a share of the total value. (1) Big shopping centers and office structures are patronized by more out-of-towners, so taxes may be exported. (2) Local businesses could not survive if they moved away from their established customers, so they could be taxed more without fear of inducing them to move. (3) Local businesses commonly pass their taxes onto local residents, or they must absorb the increases themselves. Also, they tend to have more political

clout, so higher taxes on them are unlikely. Each of these hypotheses conflicts, depending on the makeup of the local commercial tax base. The results from our data are, accordingly, inconclusive.

PVp. Personal property as a share of total value. Since much of the shift in the tax burden has been shown to be from the personal onto the other classes, we might expect communities with more personal property value to be more likely to classify. But we find no such correlation.

oldCIPTR. Last year's business tax rate. The higher the pre-revaluation taxes, the higher the taxes must be raised to counteract the impact of revaluation. As we can see, this rule was followed partially.

VGrowthp. The percentage growth in the 1982 total valuation over the 1980 equalized valuation. (1) Those communities with more growth can afford to pass their taxes onto business. (2) Those wanting more growth than they now have won't want to increase business taxes, or they have growth because of their benevolence to the business sector. The results show that the second effect is slightly greater than the first. More likely, there is no relationship, looking across all communities.

BaseGrowp. The DOR-estimated increase in the tax base for 1979-1980 (N) as a percentage of total 1980 equalized value. Another way of measuring community growth, with similar hypotheses and results as with VGrowthp.

The individual explanatory power of these variables is rather disappointing. Multiple regression can be used to estimate their cumulative impact on whether a community chose to classify or not.

One equation specification that performed better than others is:

$$\begin{aligned} \text{CIPTRc} = & -2.624 + 0.048 (\text{Yesp}) + 0.104 (\text{oldCIPTR}) \\ & (0.802) \quad (0.017) \quad (0.024) \\ & + 0.080 (\text{Pop.1000}) - 0.029 (\text{VGrwthp}) + 0.035 (\text{CIPVp}) \\ & (0.016) \quad (0.011) \quad (0.016) \end{aligned}$$

R-squared = 0.395                      F-ratio = 26.765

where standard errors are in parentheses, and

Pop.1000 = 1980 population of municipality in thousands

and the other variables are defined above.

While all of the variables in this equation are significant, less than 40% of the variation in increased business taxes because of the classification decision is explained by them. (This may not be as bad as it seems, given the use of cross-section data.) Clearly, there may be other influences that have not been measured here, and which are beyond the scope of this study. Further research may be more productive. In the next chapter, we will investigate some influences that are particular to towns or to the personalities or land uses in them.

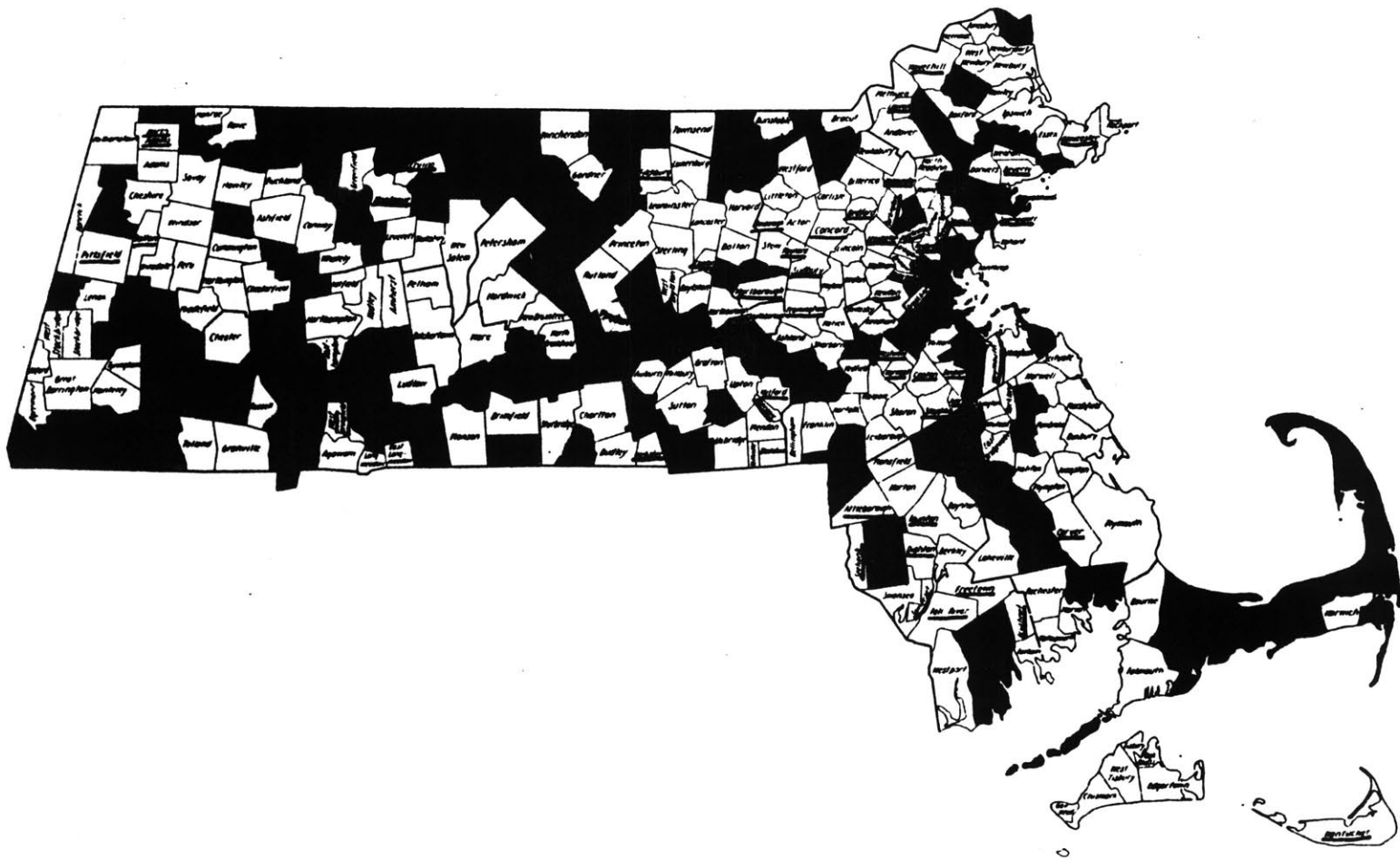
#### Geography of Classification

It may be helpful to look at the geography of revaluation and classification. Figure 3 shows all of the communities in the sample that had completed certified revaluations--these are not blacked out. The communities with their names underlined have classified tax rates. This map reveals some regional attitudes towards classification. (1) It is unpopular in the southeast: Barnstable County (Cape Cod), Dukes County (Martha's Vineyard), and Plymouth County. In Barnstable County voters consistently rejected the 1978 amendment. (2) Classification is being used in Bristol County, bordering Rhode Island.

(3) Classification seems to occur in clusters of communities: around Canton in eastern Norfolk County, adjacent to Boston, and around Pittsfield in Berkshire County. Another cluster will develop around West Springfield (see the next chapter). (4) Classification is unpopular in the middle of the state, especially in Worcester and Hampshire counties. (5) Essex County, in the northeast, has few classifying communities.

We might expect local officials to be wary of competition from neighboring towns for the locations of new businesses. Those places that have classified, as shown on the map, would be less concerned with this. This hypothesis seems to be confirmed by the case studies in the next chapter.

Figure 3  
 Communities with Certified Revaluations  
 (Classified Tax Rates Where Name is Underlined)



### Key Findings

- Three quarters of the communities allowed the residential tax burden to increase, half by up to 5%.
- 105 places did not have significant revaluation-caused shifts.
- 26 places classified to get the status quo tax distribution.
- 46 did not classify and have large shifts.
- The impact of Proposition 2 1/2 and revaluation is to raise the effective residential tax rate between \$0.50 and \$2.00, and to lower the effective business tax rate between \$7.00 and \$0.80.
- The combined impact of Proposition 2 1/2, revaluation, and classification is to raise the effective residential tax rate between \$0.36 and \$1.43 and to lower the effective business tax rate between \$0.26 and \$6.15.
- Revaluation, classification, and 2 1/2 have caused most typical residential tax bills to go up \$16 to \$66, commercial tax bills to go down \$39 to \$925, and industrial bills to go down \$109 to \$2563.
- Small increases in residential taxes correspond to large decreases in business taxes.
- Some of the largest tax windfalls are received by utility companies.
- Personal property taxes, 80% of which are paid by utilities, went down in every community. The total personal class levy went down more than \$20,000 in half the communities.
- The decision to classify has some limited correlation with population, the vote on the 1978 amendment, previous tax rates, the size of the business tax base, and the growth of the tax base.
- Many communities that classify are geographically clustered.

## VII CASE STUDIES

To get a better idea of what the local issues and motivations are, telephone interviews were conducted with the assessors of 18 communities. Their stories are told in this section. The case studies may be somewhat biased towards the assessors' point of view, but assessors are likely to be better informed than other municipal officials on the mechanics of revaluation and classification. All but one of the assessors contacted were cooperative and informative. Each was asked how and why the decision about classification was made, whether the status quo tax burden was analyzed, about the make-up of the tax base of the community, about consideration of the open space discount and the residential exemption, and about applications for abatements and how well the revaluation process went. We were interested in finding out how the classification decision depended on the characteristics of the community and the dynamics of the decisionmaking process, i.e., the role of assessors, elected officials, and interest groups.

We shall start with a city that we may say has gone to the extreme in the use of classification.

### Fitchburg

Revaluation and classification in the city of Fitchburg (1980 population 39,580) have been very controversial. The city revalued in 1972, at which time there were horrendous shifts in assessments. The city was revalued again in 1979, but the shifts then were not quite so bad. The mayor in the late 1970s had campaigned against revaluation and higher tax rates, but revaluation was done anyway, because the city had



gone through a number of changes and the DOR insisted on it. Because of the 1972 and 1979 revaluations, residential taxes went up and business taxes went down. Starting in 1981 this could be reversed by classification. Rather than doing a completely new revaluation as would normally be required, the DOR allowed Fitchburg to factor-up its 1979 values to 1981 levels. The city is now doing a complete revaluation for 1983, which will be finished late.

In choosing tax rates, the Fitchburg assessors were well aware of the burdens on the classes and how they had changed with each successive revaluation. For 1981 and 1982, residential was 68% of the total value, but classification brings the levy share down to 55%. Originally, the board of assessors recommended that the MRF be used, but after a series of meetings with the city council, the negotiated decision was to increase the burden on the business classes only 40% instead of the full 50%. The council held meetings in the public library to accomodate the (rather loud) homeowners asking for classification. Private talks were also held. The final decision was designed to return the tax burden to the pre-1972 status quo, thus raising the non-residential taxes to levels far above what they had been for ten years. (The sqRF shown above for Fitchburg was based on the 1979 revaluation. Therefore there is a large negative Offset. If the pre-1972 data could have been used in calculating the sqRF, the Offset would be near zero.)

The business interests in Fitchburg, supported by the Chamber of Commerce, have attacked the decision through a series of lawsuits, but have not been successful, so far. They are led by one of the major industries in town, Litton Business Systems, employing 3-400 people making paper products. In the case of Beatrice Macioci & Others v.

Commissioner of Revenue & the City of Fitchburg (386 Mass. 752, 1982), the Supreme Judicial Court found that there were problems with the methods used by the DOR and Fitchburg to certify the 1981 and 1982 valuations. Questions were raised about the DOR's guidelines on permissible variations in assessments, about the sloppiness of the 1980 equalized value study for the city, about whether other residential types of property besides single family should have had a tested COD, and about the methods used for factoring-up the values. The plaintiffs hoped that by showing that multiple-family housing was valued too low, and therefore their commercial-industrial values were too high, the certification and therefore the classified tax rates were invalid. The court ruled, however, that despite the problems, once the assessments had been committed to the tax collector, the tax bills were due and no relief could be granted.

The appellate tax board and lower courts have backed the city, which has been forced to spend \$150,000 so far in legal fees. Litton, whose arguments are viewed by the city as "nitpicking," has spent from \$1 to \$1.5 million on sometimes sloppy work by big Boston law firms who are "leading them by the nose"--far more than the taxes in question. The city, while admitting that perhaps the 81-82 certification wasn't perfect, feel persecuted because the amounts in question don't seem worth making a federal case about, but it appears that the issue is headed for federal court. Fitchburg is the regional headquarters for Litton and the vice president in charge seems to be very aggressive about the principles involved, but is perhaps also somewhat vindictive. It seems that his poor relations with the city stem from an earlier battle over how much was to be contributed for a large wastewater treatment plant built for the paper companies in the city. The city

cannot really afford the legal fees it is having to pay, but they will not give in, because they feel they are in the right. In the future, Fitchburg will probably continue to classify at the same levels as at present. The city council is very attentive to residential voters on this issue.

Businesses had predicted dire consequences from classification, but since it has been implemented none have left because of taxes, and the downtown has experienced an expansion in values. The economy of the city has been greatly improved. The two industrial parks in town are now filling up. The tax base increased by \$5-10 million in recent years. The main street has been renovated. These changes may be attributed to the city's very aggressive economic development director, and the city's strategic location for industries along Route 2 and the new Interstate 190. Downtown businesses with poor merchandising practices are said to have been replaced by savvy new developers, including some chain stores, that know how to attract customers. Five years ago the downtown was shabby and mostly empty, but now developers have been rehabilitating vacant stores. Formerly the assessors allowed for high vacancies in valuing commercial properties, but soon they will start using the income approach with higher economic rents. Fitchburg has one big shopping center, somewhat patronized by residents of nearby towns, and another that is half in the neighboring city of Leominster. There have been some losses to the tax base recently because of fires in old buildings.

Private appraisal firms have been employed, in 1972 and at present, but in 1979 and 1981 the revaluations were done in-house. In 1979 5% of the property owners applied for abatements. Many of these were thought

to be frivolous applications, having been encouraged by a mayor who was then inexperienced and looking to make political points.

The next two towns we examine are both close-in suburbs of Boston. They both classified, with full understanding of what they were doing. They both also chose to use the residential exemption. The classification decision was not very controversial in Brookline. Its assessors are probably the most highly-trained that we encountered.

### Brookline

The town of Brookline (population 55,062) revalued for 1982. It had last revalued in 1968. The same type of value shifts occurred both times. The 1982 assessment shift was analyzed and the classified tax rates were designed to achieve the status quo distribution. The selectmen asked for classified tax rates, and two of the three assessors agreed. The other is not enthusiastic about this policy, but is willing to carry it out. There were proponents of both larger and smaller class shifts, but the factor chosen was felt to be a good compromise since it was shown to nearly maintain the status quo.

The politicians in Brookline apparently feel that the classification shift was necessary. One of the assessors feels that it was too small to be worth it, since the town is mostly residential and there isn't much business property to shift taxes onto. At the public hearings the Chamber of Commerce spoke up against classification, but they were not very unhappy with the result. No residential groups spoke up. There was not a big controversy, only a respectful disagreement among the assessors and selectmen.

Brookline has no industry to speak of. Most of the commercial value is in neighborhood shopping areas. The bulk of the personal

property is owned by utilities. Boston Edison has \$17 million of value and New England Telephone has \$7-8 million worth in Brookline. The latter value was determined by the DOR. Since their method of valuing utility property hasn't changed, but the value of everything else has gone way up, the utility tax payments are way down. One way of thinking says that this is just, since the utilities were grossly overtaxed in the past.

Owners of rent-controlled property sued the town, charging that their assessments had allowed them a lower rate of return than for non-controlled property, and that they were therefore overassessed, even though the town will be collecting less taxes from them this year. Their suit held up the town from sending out the fiscal 1983 property tax bills until they lost the case in April 1983 (Globe 1983).

Brookline had a small problem getting state certification of their revaluation, because their formula for calculating the coefficient of dispersion was challenged. Eventually it was agreed that the DOR and Brookline formulas were essentially the same. Brookline's valuation models and software were designed by an assistant assessor who has a doctorate in housing economics. He was the one who calculated the status quo residential factor. After the revaluation Brookline got abatement applications for 20% of its parcels, mostly on single-family homes, where the values had increased the most.

Watertown, in contrast to Brookline, has a growing tax base. It had somewhat more difficulty appeasing some of its taxpayers.

#### Watertown

Watertown revalued in 1981 and again for 1983. It had never had a

general revaluation before. The revaluation was delayed for two years while they waited for classification to be allowed. Watertown picked the minimum residential factor in an effort to try to get close to the status quo tax burden, which was analyzed. The choice of residential factor was made by the assessors to prevent a shift of \$3 million in taxes onto residences, which would be an increase of 25%. They would have liked to use a lower factor, but were prevented by the MRF from reaching the status quo. The town selectmen went along with this decision because they understood what the assessors were trying to do. In July 1981 Watertown adopted the town council/manager form of government. The council continued the policy.

Watertown is one of the places that kept the same levy percentages in 1982 that they had in 1981, while the class valuations changed, so the 1982 tax rates for commercial, industrial, and personal are unequal.

The general public didn't have much to say at public hearings. The Chamber of Commerce attempted to stop classification, but eventually gave up. Several smaller commercial parcels got increased taxes, but these were relieved by 2 1/2 and by the town's policy of phasing-in the tax increase over two years by granting abatements. Making these adjustments was thought to be wiser than trying to justify commercial assessments in court.

Watertown has a healthy industrial sector, making electrical equipment, food products, chemicals, instruments, and airplane parts. There are also shipping companies, and large apartment and condominium projects. There has been growth in the past few years. Boston Edison built a new \$6 million maintenance depot and United Electric Controls built a \$2 million building. Former manufacturing sites are being recycled. The future development of the old Watertown Arsenal is

expected to increase the tax base by \$10-15 million. The town is convenient to Boston.

The assessors reported that the biggest problem completing revaluation was in getting to do interior inspections of houses. Incomplete property descriptions caused 90% of the problems. It seems that people were very curious about the process, and to make sure it was fair, would often inform the assessors about the furnishings in their neighbors' homes. Appeals were said to mostly come from people curious about how they measured up against other people on their street. Another problem was that the rapid inflation in house prices made the values outdated before the process was really complete. The Watertown assessors were not completely satisfied with the service they got from their property listing and appraising firm. They are now computerizing their property listings, but are frustrated that there is no generally available software, so that they and other towns have to build their own.

There are now 25 cases pending before the appellate tax board. In the assessors' opinion, these are mostly improperly motivated by lawyers interested in the 30% fee for their services.

The next city is the largest in our sample. Here the classification decision was influenced by citizens groups.

#### Fall River

The city of Fall River (population 92,574) was revalued for fiscal 1983. The city had never had a full-scale revaluation before, although individual neighborhoods had been done. The assessors did know what the status quo tax burden was. In fact, the assessors association used Fall

River as an example when giving seminars on classification. The assessors had made a concerted effort to educate the public. Meetings were held with neighborhood groups, Fair Share, and the local taxpayers association. The public was well enough informed so that by the time the public hearing occurred there was no opposition to the proposed tax rates. These rates had been recommended by the mayor to the city council, from the options and recommendations of the assessors. In the future the consensus about the classification factor should continue. The assessors and the city council are in agreement.

Fair Share in Fall River had originally advocated use of the MRF, but after meeting with city officials, came out in support of the 30% shift onto business that was chosen. Fair Share felt that the situation in Fall River was rather unusual, in that revaluation shifted the tax burden onto business. The value of business property was increased six times, but single-family residential property was increased only five times. The city assessor did not actually confirm this view, but did report that the values of old downtown commercial buildings went up slightly, although their taxes went down because of 2 1/2.

The assessor reported that the break-even value increase was 4.2 times the old value. The older industrial mill structures only increased 3.5 times, so they received tax decreases. Larger, newer industries got higher taxes, and smaller industries came out even. Newer one-story homes had increases. Apartment buildings usually came out even or had slightly lower taxes. Fall River's commercial and industrial sectors had long been depressed and in decline, and were possibly assessed at low ratios in recognition of this. In recent years there have been some downtown improvements and rehabilitation, which has increased market values.



The primary factor that made revaluation easy to take in Fall River, however, was the Proposition 2 1/2 levy reduction. The levy was reduced 40% over two years. Before that, the levy had reached a peak in 1977. The decline in the average tax rate helped to offset the increase in the business tax rate. If there had been no levy limitation, revaluation would have caused drastic increases in tax bills and would have been impossible to implement. On the other hand, 2 1/2 has made it more difficult to operate the city. Fall River has an active citizen/business task force working with the city on budgeting priorities. Water fees have been increased and a new sewer fee has been instituted to help pay for a \$40 million water and sanitary facility construction project. There are also new incinerator fees. A 2 1/2 override vote would not pass in the city.

While Fall River has 11 million square feet of vacant multi-story mill structures (10% vacancy), industrial concerns are developing new properties in the city's industrial parks. The city makes lighting fixtures, cables and wires for computers, garments, and imports caustic soda.

The assessors had no problems with getting revaluation done on schedule. As evidence of how well-prepared they were, we may present the following figures. There are 26,000 parcels in the city, but only 21,000 tax bills are sent out because vacant lots are combined with adjacent houses. When impact notices were sent out, 1700 people called for meetings with the assessors and 1400 showed up. 150 adjustments were made, mostly because property inspections weren't made until homeowners became more cooperative after being overvalued. After the final bills were sent out, there were 512 applications for abatement on

real property, or 2.4%. 122 abatements have been granted so far. Fall River now has its own computer, with which it can keep track of property values on a continuing basis. The appraisal consulting firm's software and files will be taken over by the city. The assessors office lost some staff because of 2 1/2.

Newton is the next largest city in our sample. It is also one of the wealthiest. Citizens groups had an influence on the classification decision.

### Newton

The city of Newton (population 83,622) revalued in 1982. It had last revalued thirty years before. The city earned some notice because of news reports that residents were especially irate about their new assessments. The assessor reports, however, that there really was not a unique situation. They had no trouble getting DOR certification, although the process was completed five months behind schedule.

The shift because of revaluation would have been rather extreme, but the city chose to use the MRF. There was still some shift, but it was not as dramatic. Personal property owners and utilities such as the electric and gas companies still got substantial tax reductions. The largest tax shifts were within classes. The levy is under the 25.00 limit, so there was almost no increase for 1982.

The assessors made their report about the effects on average tax bills of various residential factors, but the decision about classification was entirely the mayor's and aldermen's. They will probably continue to use the MRF in the future, but this is not entirely certain. The politicians will probably continue to listen to the majority of taxpayers. There was some debate by the aldermen, and some

thought was given to reducing business taxes, but the overwhelming majority were in favor of the MRF. Two factions spoke at the public hearing, represented mostly by groups rather than by individuals. The business sector, led by the Chamber of Commerce, wanted some factor other than the MRF to be used. Residence taxpayer groups, the Newton Taxpayers Association and Save Our Homes, were satisfied with the decision.

Newton has a small business tax base, mostly in the commercial sector. There are some very small light industry installations and some research and development companies. There are 8-10 large commercial taxpayers, such as the Chestnut Hill Mall, the Marriot Hotel, and some large office buildings. Most of the commercial value, however, is in small neighborhood retail areas. Most of these did not get tax increases. The city is not expanding, since it is already built up. Most of the value growth is in residential renovations. Newton is a desirable location, but there is little land available. The biggest development going on at present is the conversion of stores at Newton Corner into class-A office space.

The city has three full-time appointed assessors. Before revaluation most abatement applications came from commercial owners. The same number of commercial owners applied after revaluation, but there were also big increases in the number of residential applications, because of the shift to 100% assessments. 5000 of these were received, or 20% of the residential parcels. About 600 of these went on to the appellate tax board. 3500 abatments were granted, but these amounted to only 1% of the total levy. Smith (1982) reports that Newton got 8000 abatement applications in 1982, four times as many as were expected.

Since the first year, the number of applications has declined, because those who needed abatements have gotten them. The reason so many more abatement applications were received than in other communities, is that the city encouraged it. Residents were told how to apply. This created more work for the assessors, but they believe in taxpayers rights. It also allowed them the opportunity to review and correct the errors in their database, which had not been updated for thirty years.

The next city also classified near the status quo. Its assessor was the least opinionated of any we encountered.

### Pittsfield

The city of Pittsfield (population 51,974) revalued for 1982. It had last been done in 1966. No problems with the process were reported. Something near the status quo tax rates were chosen. The assessors calculated what the status quo would be, and presented seven options to the mayor and city council, with illustrations of the consequences on the average home and on the city's biggest employer. There were proponents for each option, but the assessors claim to have maintained a purely objective stance and did not participate in the decision. For the second year, 1983, the council voted to alleviate the commercial tax burden by 2.5%, by shifting it onto the residential class.

The largest employer and taxpayer in Pittsfield is the General Electric plant, which comprises 7-8% of the tax base.

Pittsfield has a computer and will do its 1984 revaluation in-house. The assessors reported an average number of abatement requests in 1982, a minor number of adjustments made, and few appeals.

The next two towns are small but heavily industrialized. The

industrial sectors seem to be well able to handle their share of the tax burden. They differ, however, in the amount of conflict that occurred between assessors and selectmen over the classification decision.

### Avon

The town of Avon (population 5026) had revaluation implemented in fiscal 1982. It was previously revalued in 1969, at which time most of the disparities in values were leveled out, with older homes getting enormous value increases. In 1982 the value of residential property increased about 150%, while business values increased only 100%. The Avon assessors attempted to maintain the status quo tax burden distribution. Their appraisal firm tried out several possibilities for the residential factor until one was found that kept tax bills as close as possible to the previous year. The first year (1982) the assessors and town selectmen agreed on the tax rates without controversy. In the second year (1983), town officials had to explain to the public why taxes were not going down, while services were being cut: because the minimal levy increase allowed by Proposition 2 1/2 (Avon is under the 25.00 limit) is not enough to keep up with inflation. There were new selectmen in the second year who wanted to continue to shift the tax onto business, which had increased in value by \$5 million over the year. The assessors wanted to maintain the same levy percentages as in the first year, and this led to a two hour public argument over a seven cent difference in the CIP tax rate. One selectman and some of the public at the hearing wanted to increase the CIP rate; while the assessors argued against putting the extra burden on the small businesses and against having to change all their figures. The assessors prevailed.

Avon is only about four square miles, but has lots of industry,

including warehousing, manufacturing, trucking, and offices. Business makes up 46% of the town's value but pays 52% of the taxes. There are 65 buildings in the industrial park. Eight new buildings were put up in 1982, but there was no new residential construction.

Avon's big problem in the future will be managing under the constraints of 2 1/2. The town cannot make use of the value they have to raise more levy, while the increase in the value threatens to reduce their state aid. To make matters worse, in the first year of 2 1/2 a misunderstanding over the DOR's rules about the use of free cash in the total budget led to a permanent decrease in the total levy, which they can never recover. A decline in services and the schools may provoke an exodus of residents, it is feared.

The Avon assessors feel that it was wrong to give the tax rate decision to the selectmen. It is the assessors that have the knowledge and education, while politicians and the public are often ignorant of tax and fiscal matters. Conflicts over budgetary and tax decisions are making it difficult for town employees to do their jobs, and may be the reason for resignations by assessors in some places.

The Avon assessing office suffered from cutbacks in personnel because of 2 1/2. Otherwise, the revaluation process went smoothly. For the recertification required for fiscal 1984, house sale prices need to be carefully examined, because of a suspicion that the prices recorded on deeds do not reflect actual selling prices.

Very few applications for abatement (about 1%) of the parcels were received. Most of these were the results of mistakes made because there are too few staff people in the assessing office. One abatement will cost the town \$20,000 that isn't in the budget.

## West Springfield

The town of West Springfield (population 27,042) revalued for fiscal 1982. It had last revalued in 1971, after which the value of some parcels had never been changed.

West Springfield tried to adopt the status quo tax burden distribution, which the assessors analyzed. The assessors made this decision with the selectmen's approval the first year. The selectmen continued the policy the second year, feeling that it was fair. There were no objections from commercial or industrial owners. Some homeowners said they should receive a bigger tax break than they got, but others felt that business was paying its fair portion of the levy. No change will be made in this policy, unless there are big new developments in the town.

The town is 90% developed and growth is limited by the land available. There are a few prospects for filling up the remaining vacant industrial sites in town. There are now a large number of diverse business properties, making up half of the total value. Manufacturers produce paper and electronic products. There are also a number of small machine and tool shops. There is a large apparel manufacturers' retail outlet. Several motels are located at the highway junctions. Northeast Utilities has some installations. A \$20 million project is being built on the last remaining large vacant land parcel. Because the town is already well developed, the tax rates are not thought to have much effect on its future growth.

West Springfield has an elected three-member part-time board of assessors. They did the 1982 revaluation themselves. This took three years. For the 1984 revaluation they have hired a private firm, which will also take care of computerizing their property records. They had

some difficulty getting state certification in 1982, because the DOR wasn't satisfied with the methodology they used. They made some corrections to satisfy the changes that were made in the DOR's rules.

The city of Springfield nearby has also chosen to use the status quo residential factor. The assessors of West Springfield feel that they set the precedent and that Springfield is attempting to remain competitive with them. The neighboring city of Holyoke will use the MRF, which may put them at a competitive disadvantage with businesses making location decisions.

The next two towns had some of the largest revaluation-caused shifts of any communities in the state. Both of them minimized these shifts by classifying with the minimum residential factor.

#### Clinton

The town of Clinton (population 12,771) was revalued in 1981 for fiscal 1982. It had last been revalued in 1922. The townspeople were against having a revaluation and the assessors had to put up a fight at town meeting to get the appropriation to pay for the job.

A private appraisal consultant did the assessment work and the assigning of parcels to classes. No attempt was made to figure out the status quo factor, but the assessors and the consultant analyzed the impact on tax bills of having two tax rates. The decision to adopt the MRF, jointly made by the assessors, the selectmen, and the consultant, was designed to help the residential taxpayers. At the public hearing, representatives of local industries wanted to know why their tax rate was to be so high. It was explained that their taxes were actually going to go down a few percent on average, and that if they were getting



increased taxes then it was because their taxes were too low before. This seemed to satisfy them. For 1983 the MRF was again adopted without any problems. This policy will continue in the future, to avoid overburdening residents. The town doesn't ever want to be in the position of having to own and maintain houses because of tax foreclosures.

One of the odd features of the tax laws gives elderly homeowners a tax break equal to four times the tax rate. This really cut into the levy since the before-revaluation tax rate was so high. Now that the tax rate is down to a normal level, the maximum break given to the elderly is only \$500, which has relieved the strain on the town.

Clinton has a rather diversified economic base. Manufacturers engage in producing cable and plastics, and milling. Electronics is a growing area, taking over the old renovated textile mills. Ray-o-vac used to make batteries in Clinton, but they moved out because of labor troubles. Currently there is high unemployment in the town. The tax rate is thought to not affect industry, since the rate is not very high. In the commercial sector, the town has one small shopping center and a main street with small shops.

The assessors received fewer applications for abatements than they expected. This may be because many people came to hearings after the impact notices came out, at which the new values were explained. Before revaluation the assessments were very inequitable, but now because it appears to people that they are all paying their fair share compared to their neighbors, they are not complaining. Ray-o-vac has applied for an abatement on property that they are not now using, but it will not be granted.

Clinton has three full-time elected assessors. Computer work is

contracted out. They are now revaluing for 1984, but certification may be held up because the DOR hasn't finished with 1983 yet. The revaluation consultant is doing most of the work. They have found that they cannot always trust overblown sale prices as good indicators of fair market value, such as when prefabricated homes sell for \$35,000. These assessments were set at \$29,000 as sort of an estimate. The DOR field inspectors were going to challenge this, until they saw what these houses were like.

### Erving

The town of Erving (population 1326) was revalued for fiscal 1982. It had never been revalued before. Erving has the most unusual tax base makeup of any municipality in the commonwealth. 80% of the total value is in personal property, and 94% of that is in the equipment of Northeast Utilities' Northfield Mountain Project. This is a hydro-electric generating facility in which water is pumped from the river up the mountain at night and is then used to generate power during the day. 80% of the project lies in Erving with the rest in Northfield. Before revaluation, the residents carried 5% of the levy and the utility carried about 90%. Revaluation caused an increase in residential values of 8-10 times while the utility increased only three times. This caused a very great initial shock to residential tax bills, while the utility's bill dropped. The taxes of other industrial and commercial property owners stayed about the same.

The MRF was adopted. This took 35% of the burden off of the residents and added a 5% increase on the non-residential property. Erving is one of only ten communities in our sample of 211 that has the minimum MRF of 65%. It is one of only two places (the other is Monroe)

that has an sqRF lower than 65%. The tax rates were recommended by the board of assessors, and the selectmen agreed. The public hearing was advertised in two local papers, but not a soul showed up. This was disappointing to the assessors, who had wanted the opportunity to educate the public about the situation. Even with the shift, the average tax bill in the town is only \$300 per year. This is much less than in neighboring towns. Erving is fortunate to have all that utility property because of this. It seems that the town is satisfied with the MRF, even though it doesn't completely relieve the shift onto residents. No one has thought about asking for legislation to make the MRF even lower. The assessors don't want to add to the tax burden of the other small businesses in town.

Erving has two paper mills and a mail-order catalog business. A small motel and trucking firm recently closed down, but not because of taxes.

Erving has a part-time elected board of assessors. Revaluation was handled by an outside firm. Thirty residents appealed their tax increases, but after the tax bills went out there were no applications for abatement. This was rather a shock to the DOR field team. The town is small enough that everyone knows everyone else and there is no problem maintaining communication through personal discussion rather than on paper.

Now we shall go on to communities that did not classify. Both of the following two were aware of the tax burden shift and the status quo residential factors, but chose to have single tax rates.

## Belmont

The town of Belmont (population 26,100) revalued in 1981 and again in 1983. It was revalued before in 1968. It is a mostly residential town, and is almost completely built up. Values of newer homes declined relative to older ones, with the largest increases going to pre-WWI homes.

In 1981 the assessors analyzed the status quo tax burden and found that residential was 90% of the value before revaluation and 92% after. They felt that classified tax rates would not be beneficial and would hurt the businesses in town. The selectmen disagreed but the decision was then in the hands of the assessors, so a 100% residential factor was used. In 1982 Belmont had to use the same class levy percentages as in 1981, even though values had changed slightly, so the town ended up with slightly unequal tax rates and an effective RF less than 100%. For 1983 it was the selectmen's decision, and they were convinced by the business community to use the 100% RF again.

The Belmont assessors are against classification because it could destabilize property values. It is said to be a law useful only for Boston. Belmont also doesn't feel it needs Proposition 2 1/2. Because there is no room for development in the town, the levy cannot grow and in a few years cutbacks in town services will be necessary. The town may vote for a levy limit override (allowed by the 1981 amendments to 2 1/2). The auto excise tax revenue in Belmont dropped from \$2 million each year to \$700,000 because of 2 1/2. There are some expensive cars in town, and this was a big loss.

Residents in Belmont didn't argue for classification, it is reported. Many elderly people who don't drive backed up the assessors because they did not want to lose their local barber and shoe shops and

be forced to shop outside of town. It is probable that the no-classification policy will continue. The selectman who advocated classification did not run for reelection.

Industry in Belmont consists of one foundry, one warehouse, and one equipment construction firm. There are small neighborhood shops in older buildings. Only fifteen houses have been built in the last ten years. The only buildable area left is up on Belmont Hill, and one cannot buy in up there unless one is of the right social class.

The property tax in Belmont is considered regressive. Many of the expensive homes in town are occupied by people who are not as wealthy as they appear. These are called the "threadbare aristocracy." They bought large houses back in the 1930s and can no longer really afford to keep up the maintenance. The average age of Belmont residents keeps rising since younger people cannot afford to move into town.

Belmont has an elected three-man board and a full-time appointed assessor. The 1981 revaluation was done in-house, and there were some problems getting certification because they hadn't held onto all of their old records. For 1983 an outside firm was hired to do the neighborhood analysis. The contract with the appraisal firm gives the town the software after the firm leaves.

In 1981 the assessors got 600 abatement applications out of 7000 parcels. 300 abatments had to be granted, most because back in 1968 the assessors couldn't get entry to inspect homes and so their estimates continued to be high, but no one had minded until they got their 1981 100% valuations. In 1982 there were only 100 valuation appeals.

### Newburyport

The city of Newburyport (population 15,900) was revalued for 1982.

It had been revalued before that in 1970, 1955, and 1948. Since 1970 there have been massive changes in the city. Its previous condition was described as a disaster. Much of the downtown was boarded up. The redevelopment authority has since conveyed property to new owners, brought in federal money, rebuilt sidewalks, and renewed the waterfront. Much of this was the work of the former mayor, Byron Matthews, who later served as director of the state department of communities and development. A local corporation set up an industrial park in an old pasture. Services such as roads, sewer, and water were put in, and 35 manufacturing plants were attracted. Land in the industrial park is being sold for only \$7500 per acre and 150 acres are being added to accomodate continued growth.

New, wealthier people have moved into town since 1975. They are willing to pay higher house prices. Federalist period-houses are selling for \$165-230 thousand; 1920s-vintage for \$65-70 thousand; and duplexes that sold for \$85-90 thousand are being split into two halves that sell for \$60 thousand each. Condominimums sell for \$55-60 thousand. Most house values went up 7-8 times. The assessments on refurbished homes might go from \$7000 to \$75,000. These prices have made it harder for the older natives to stay in their homes. 50% of the population has turned over in the last 15 years. The total valuation of the city went from \$94 million to \$346 million after revaluation. The 69% increase in the total equalized value from 1980 to 1982 may mean a decrease in state aid for the city.

Newburyport chose to have a single tax rate. The decision not to classify was made by the assessors in 1982 and in 1983 the city council decided to continue that policy. Very few people spoke at the public

hearing. Two of the eleven city councillors have argued in favor of classified tax rates. The assessors are aware of the levy shift between classes. \$400,000 of the total \$8.5 million levy was shifted from business onto residential owners. If there had been status quo tax rates they would have been \$22 on residential and \$33 on businesses, instead of the current \$23.90 for all classes. Business taxes went down, it is recognized, but they are said to have been too high before. The assessor believes that classification only legalizes the previous non-uniformity, which is not being fair to all. The 1970 revaluation was fair, but in the intervening years lots of homes were sold while businesses were not.

The assessor feels that to have two rates would be insanity, because the people need the employment provided by the business sector, which accounts for only 23% of the tax base. Two tax rates would be wrong until the business sector grows to at least 30% of the base. Fifteen years ago there was no shopping or industry in the city and it has taken that long to build up to what they have now. They are near the New Hampshire border, across which the tax rates are lower. The assessor says that "taxation is the power to destroy." The homeowner will have to pick up the tab if industry is forced to leave. It is foolish to stick it to business because ultimately it will come full circle. The Epicure company makes speakers and employs 250-300 people in Newburyport. They lost their lease and were going to move to New Hampshire, but were convinced to stay in the city and put up their own building.

The city has one shopping center, patronized mostly by city residents. New mixed-use developments are planned for the waterfront area. Some of the small industries in Newburyport are in tool and die,

chemicals, and electronics.

The city is now finishing its 1984 revaluation, but its certification will be held up at the DOR. They would rather not have to send out estimated bills because of the cost and hassle. For fiscal 1984 the total value will increase at least \$15 million, which will allow the levy to be increased the full 2.5% without running into the 25.00 limit.

The assessors got only 125 abatement applications out of 6000 parcels. Abatements were granted in cases where the records showed an incorrect number of fireplaces in the Federalist houses, each of which adds about \$1500-2600 to the house value. The Federalist-period houses were the most difficult to value. They seemed to sell for widely varying prices, which did not correlate well with their structural condition. Sales prices couldn't be predicted well, in contrast to 20-year-old homes or those from the early 1900s, which follow fairly consistent patterns.

The next two communities did classify, but they still allowed significant shifts to residential from business. This is partly because of policy, but mostly because the debates on the classification decision were not well informed.

### Gloucester

The city of Gloucester (population 11,238) was revalued for fiscal 1982. It had been revalued in 1966, at which time similar value shifts had taken place, but these were more pronounced in 1982. Properties along the waterfront greatly increased in value. These have been purchased by wealthier people from out of town willing to pay premium



prices and taxes. The city formerly had residential assessment ratios of 27-33%. Revaluation increased the total valuation from \$81 million to \$722 million.

The city council of Gloucester adopted classified tax rates against the recommendation of the assessors and the protests of commercial property owners. The assessors presented the council with minimum and maximum and several in-between options for tax rates and levy percentages. The council picked a compromise option that they felt was the fairest for all taxpayers, with the commercial levy at 119% of commercial values. Because of the outcry of the merchants, for fiscal 1983 the commercial factor was reduced to 116%.

The council would have liked to use the status quo tax rates, but the assessors didn't want to figure out what they should be. The council was interested in fairness and the moral obligation to residents. But the assessors firmly believe in 100% fair market valuation and proportional taxation without discrimination, recognizing that formerly values were just too low or too high. After much discussion, the compromise was worked out. There was no input from residential groups, but businesses did speak up.

According to the calculations done in the previous chapter, Gloucester reduced its CIP tax rate substantially, even with classification. The assessors report that at present commercial properties on the main street are selling at much higher prices than they had been assessed for. It could be that there is a connection, that the reduced taxes are being capitalized into higher prices. It is also possible that the assessment methods used underestimated the market value.

There are 20 major industrial parcels in Gloucester, making up 10%

of the tax base. They include fishing, glue manufacturing, engineering firms, and various small machine shops. An outside appraisal firm was hired to do the industrial assessments. Commercial property in the city is mostly in small downtown structures.

Gloucester had no problems getting certified. This is attributed to a good database built up through continuous site visits over the years, careful attention to abatement applications, and up-to-date maps, pictures, and measurements. The city has three full-time appointed assessors, assisted by a private firm. They got 1800 abatement applications, or 12% of the total number of parcels. Commercial owners submitted a number of abatement requests, but industrial owners did not. While they are conscientiously trying to correct errors in the database, they have asked the legislature for an extension on the time to respond to the 1982 abatement requests.

#### Canton

The town of Canton (population 18,182) was revalued for 1983. It had previously been revalued in 1969-70. Then there had been large shifts in values, but because assessments had been kept up-to-date in the interim, for 1983 the values increased pretty much proportionately. The total value rose from \$212 million to \$626 million.

Canton selectmen chose to classify with a residential factor close to 100%, after being presented with some five different options by the assessors. The assessors thought that the residential-business split of the value before and after revaluation is 70-30, but our calculations show that this is wrong. The selectmen wanted to classify, but the assessors had voted 2-1 against it. The assessors felt that the selectmen were playing games by telling residents they would get

something and telling businesses that they wouldn't get hurt. At the public hearing all sides were heard from, including the Canton Industrial Association, and some residents. The business owners were not happy with the decision and may continue to press the issue in the future. According to the calculations in the previous chapter, even with classification, there has been a shift onto residential taxpayers from businesses.

The growth of housing in Canton dropped off sharply about three years ago, but new industries and shopping are continuing to move into the town. Kodak is building a new \$30 million campus. Other industries make shoes, rubber, and plastics. Canton has two large shopping malls.

Canton has three elected assessors. They feel classification and tax rates should be their decision rather than the selectmen's, since they are the ones who are educated on the subject.

The next city did not classify in 1982. For 1983 there was a change in personnel and they did classify, but not at the status quo. They don't seem to be too sure of the implications of their decision, but they are willing to experiment.

### Haverhill

The city of Haverhill (population 46,865) revalued for 1982. It had last had a revaluation in the 1950s, which had no effect on how values changed this time. Haverhill did not classify in 1982. This was probably because the city is trying to attract business and there is a fear that commercial operations might be tempted to slip across the border into New Hampshire. For 1983, Haverhill did classify. The city council investigated after getting calls from homeowners and found that

business taxes had gone down. The council voted 7-2 for classification; the mayor vetoed it; but this was overridden. The council's feeling was that the business sector is better able to handle the tax burden than the residents. The fiscal 1984 decision will probably not be made until January 1984, and the assessor would not hazard a guess as to what will happen then.

It was decided to use a commercial factor of 120%, rather than the full 150%. The feeling of the council was to try out this factor and see how it worked. The assessors were not asked to figure out the status quo factors. They did analyze what some companies were paying before and after revaluation, and tried to test out the effects of various options. At the public hearing, businesses called for a single tax rate. None of them have left town yet. City hall will wait and see what happens. The figures shown in the previous chapter for Haverhill are for 1982. Our calculations show that for 1983, Haverhill's Offset is 9.17, indicating that business taxes are still lower than before revaluation.

Businesses in Haverhill produce chemicals, skis, leather goods, attache cases and belts, and computer equipment. There are no big shopping centers, but lots of supermarkets. There has been an exodus of business from the downtown, many to the Methuen mall on the city's border. Federal and state funds are now being put into downtown redevelopment. The city needs to grow, because the tax levy is at the 25.00 limit. A few new companies are expected to build soon. A new access road has been built to the industrial park. Many new subdivisions, apartments, and condominiums have been built. The city's location on the Merrimac river is seen as an attraction.

Through 1982, when the decision was not to classify, there was only one chief assessor and an assistant. Because of the strain of

conducting the revaluation, the assessor retired on the advice of his doctor. Subsequently the mayor decided to appoint three full-time assessors. An outside firm did the revaluation in 1982. The revaluation of residential properties for 1984 will be done by the assessors and a consultant will do the business valuations. 800 applications for abatement (5% of the 16,500 parcels) were received in 1982. The previous assessor denied them all, and 500 went to the appellate tax board; many are still there. The current assessors have held open meetings and gone out to inspect the properties in question. Some adjustments were made. It has taken a while to educate taxpayers to the new situation, such as those who think paying \$10 in tax on thirteen acres of land is too much.

This next town is in an economic depression. A major loss to the tax base has caused the tax burden to be shifted onto the rest of the community. Here the classification legislation and Proposition 2 1/2 work against the fiscal health of the municipal government.

#### Hopedale

The town of Hopedale (population 3905) revalued in 1982. It had last been revalued in 1951. The 1982 revaluation caused tremendous shifts from business to residential property. To prevent this impact from occurring all at once, an RF of 95% was adopted. The long-range plan is to eventually go to a factor of 100%.

Hopedale didn't want its local small businesses to be cleaned out or forced out of town. A greater shift may have done this. The town is desperate to attract new industry. The Draper Corporation, a textile firm dating back to the mid-1800s, formerly employed 4000 people, which

was most of the town. The firm paid 56% of the taxes, because the Draper family liked being able to dominate town affairs by footing the bill. In the 1970s the firm was sold to Rockwell International, which did mind being overvalued and asked the town for a series of abatements. Operations at the plant were gradually diminished so that now only a few of the employees and 250,000 of its 1.3 million square feet are in use. After revaluation the Draper plant only accounts for 5% of the town's tax base. Therefore the tax burden has to be taken up by the residents. If the town were to classify to the full extent with the MRF, the taxes on the remaining businesses would be too high, but residential taxes would still go up.

Homeowners apparently don't really understand the situation and have had little input. There have been some complaints from small businesses. The average homeowner is paying 35-40% more in taxes than three years ago. Why are residents not complaining about this? Perhaps they are used to being told what to do, after having been ruled by the Drapers for so long. They tend to be rather complacent at town meetings. Another explanation might be that their taxes actually went down slightly in 1982 because of Proposition 2 1/2, and they didn't take note of the fact that business taxes went down much more on average; although because there is less business than before, the typical small business may have had an increase.

For 1983 the RF was lowered to 93%. This was done to prevent residential taxes from going up even more, because their values had gone up 8% while business taxes had not risen. This was contrary to the original plan to get to an RF of 100%, but it is still hoped that this will come about, although it may not be for 5 to 15 years.

Hopedale is in big fiscal trouble. 2 1/2 caused the levy to go

down, and it can only be increased by growth in the tax base. An annual growth rate of 15-20% is needed. A major condominium project is being built, which will increase the tax base by \$15-17 million over three years, but more is needed. A few firms have expressed interest in locating in the town.

Hopedale's revaluation was delayed because its appraisal firm was slow. Because of the start-up costs necessary to go to another firm, the town must continue with its present firm. Abatement applications were received on 10% of the town's parcels, which was rather a headache. 40% of the commercial properties applied, claiming their values were too high. The assessors don't feel really qualified to value commercial properties. The appraisal firm is working on the readjustments.

This next city is somewhat surprising in that it shifted the tax burden onto business owners, without caring what this would do at first. Here the interests of residents were catered to.

### Medford

The city of Medford (population 58,076) revalued for fiscal 1981. It had last been revalued in 1972, but not to 100% of market value. The new values in 1981 were a big shock to most people. Houses assessed at \$8000 in 1972 are now assessed at \$50,000.

The city council wanted the best tax rate for residents, because they considered it a mostly residential community. The assessors feel that business properties were victimized somewhat, in that the minimum residential factor was used, in each year 1981-1983. Different factors were examined by the assessors and council, but no attempt was made to figure out the status quo tax burden. In 1981 businesses were warned

about classification, but they had no representation at meetings with city council, which was interested only in what it could do for the residential voters.

The higher taxes have made business owners much more cooperative about providing the assessors with data on leases and expenses needed for assessments, rather than taking their chances with the assessors' estimates. Two years ago the business owners had ignored the revaluation, but then they filed abatement applications. Now there are fewer applications, which has made the abatement lawyers unhappy. In the past year commercial values did not increase as fast as residential values. The assessors attribute this to the greater communication with the business owners about their property, resulting in more realistic valuations. We wonder if this may not also be due to the increased business taxes being capitalized into values. Likewise, the reduced residential taxes have contributed to the rapidly rising house values.

For 1983, because business values have not risen as much as residential, businesses will get a tax decrease and the average single-family home will get a \$25 tax increase, even with the MRF. Taxes on two-family homes will go down somewhat.

Medford has a fairly strong commercial sector, paying 16% of the levy. The Meadow Glen Mall is worth \$14-16 million. Medford Square has been spruced up in recent years. A lot of commercial and industrial development is planned, for the Wellington transit station and the Mystic Avenue corridor. Cabot, Cabot, and Forbes has invested \$3.5 million in a few acres of land at the former Wellington Twin drive-in where they will build an office park. Anheuser-Busch plans to build an \$11 million distribution warehouse in a former clay pit. The high business taxes of the last two years have not deterred developers, who are well aware



of what they are getting into. Medford is experiencing this growth because it has land available for redevelopment and it is accessible to Boston.

Medford has three appointed assessors. An outside firm was used to do the 1981 revaluation, but the 1983 revaluation has been done in-house. In 1981 they received 1200 abatement applications, many from curiosity seekers. In the following year there were only 100.

This last town is problematic, in that they would have liked to classify to relieve the residential tax burden, but their analysis showed that many property owners would not really benefit. Here the weaknesses of the classification legislation are revealed.

#### Adams

The town of Adams (population 10,381) was revalued in 1982. A single tax rate was adopted, by a joint decision of the assessors and selectmen. The use of classified tax rates would have caused levy shares of small and independently owned businesses to be over 150% of their value shares, while the tax decrease for the big businesses in the town would not have been eliminated. The assessor did an analysis on a sample of 80 parcels. Revaluation caused 72 of them to have higher relative values, while four properties got very big savings. With two tax rates, only about half of the parcels would get tax increases, but these were often 180% of their previous tax bills.

#### Open Space

Most of these case study communities did not place much importance on open space. Several assessors reported a small problem with the classification of vacant lots. In 1981 and 1982 the DOR's rules required

that all vacant lots be classified as commercial, even if they were in residential areas. The reasoning was that vacant lots were considered a commodity that could be held for speculation of a return from future development. This caused dramatic tax increases for the owners, because vacant land was often previously underassessed, and where there are classified tax rates, the vacant lot would pay the higher CIP rate. For 1983 and after, the rules were changed to allow lots in residential areas to be classified as residential. This change was initiated by the assessors association and the DOR. If lots are judged to be unbuildable, then they may be classified as open space, although there may be no difference in the open and residential tax rates. This problem with classifying was mentioned by assessors in Avon, Fall River, Gloucester, Newton, and West Springfield.

The following summarizes why each of the case study towns did not use the open space factor to reduce open space taxes.

Avon has no open space to speak of.

There is no open space left in Belmont on which to build. Open land there is already protected by other conservation measures.

Brookline didn't seem to have any vacant land that fit the open space definition or that wasn't already protected from development.

Vacant land in Canton was thought to be too valuable to be treated as open space. There is some thought of giving a tax break to golf courses there, probably by moving them from the commercial class to the chapter 60B recreational class.

The open space discount was not considered in Clinton, since the town is so small and there isn't much vacant land. About 60-70 years ago the town lost a considerable part of its area to the Wachusett

Reservoir.

The open space discount was also not considered in Erving, also because there isn't much classified open space. Vacant land was classified as commercial, unless it was undevelopable, unsalable, or landlocked. At first the DOR thought more vacant land should have been classified as open, but then these definite guidelines were agreed on.

Fall River is only 50% developed. A state forest in the northeast part of the city encompasses 40 square miles. A six-square-mile tract of land held by one firm is the proposed site of a major synthetic fuel-energy plant. Although taxes on this land tripled, and the energy plant has been put off for the time being, there was no attempt to classify this tract as open space or forest land, since it is hoped that it will still be developed. The open space discount option was analyzed, but there did not seem to be much need or interest.

In Fitchburg, although there is a lot of rural land, no land was classified as open space, partly because it was administratively easier. Much of the vacant land is accessory to residences, and it didn't seem necessary to have a special open space tax rate since the residential rate was low enough.

In 1982 Gloucester used an open space discount of 15%. For fiscal 1983 they decided to put all of the open space under the same tax rate as residential, to make it simpler for potential land buyers who might be confused by multiple tax rates. In Gloucester, the open space definition was interpreted to mean that the vacant land had to be open to the public, which was not popular with land owners, so their vacant land was usually classified as something else. In 1982, when vacant land had to be classified as commercial, land owners protested and filed abatement applications. Now these problems are resolved.

Haverhill has so little open space that giving it a discount would only have meant a one-cent reduction in its tax rate. The open space discount was presented to the city council, which elected not to use it. No land was classified as open in 1983. The city has more farms, classified under chapter 61A and commercial, than other places in that part of the state. They make use of the agricultural preservation laws, under which the state buys the rights to the land after the farmer dies.

Vacant land in Hopedale is classified as commercial. The town is not trying to preserve open space, but wants it to be developed, so the town's tax base can grow. Putting this land in a higher-taxed class may force it onto the market.

Medford classifies no open space land.

Newburyport is not concerned about the small amount of real open space it has. Land is either classified as farmland under chapter 61A, or it is to be developed. The biggest open tract is the 468-acre Mosely estate on the river, which will be taken over by the state for a passive recreation area.

Newton did not use the open space discount. Most open space in the city is under use restrictions such as conservation easements and already has reduced valuations. No one requested that their vacant land be classified as open.

The Pittsfield assessors recommended against using the open space discount, since little land in the city was classified as open and it didn't seem worth it.

There is little vacant land in Watertown. Most empty parcels are counted as being adjacent to houses or commercial structures. The 15% open space discount was used in 1982. Since there is no interest in

having a separate open space tax rate, for fiscal 1983 no land was classified as open; it was all put into other classes to make it administratively easier.

At first, no open space was to be classified in West Springfield, given their reading of the class definition, but then the DOR clarified this. Very little open land is left in the town, except along the river. This land is in the flood plain and doesn't need any more protection.

Fair Share has not concerned itself with the open space discount option in any of its local campaigns.

No effort was made in choosing case study communities to include some that had used and continue to use the open space discount, so this is not really a representative sample. But we may conclude from the foregoing, that unless a community really wants to preserve some land that is not already protected, and few do, then no assessor would want to try to shift the tax burden of open land onto others on his own initiative. The motivation of assessors is to get the most that they can out of every parcel, not to make things more complicated when there is no net benefit to be gained.

#### Residential Exemption

This section covers what each community did about the residential exemption option.

Apartment houses in Adams were found to have appreciated less than other residences because of the high interest rates used in the income method of valuation, and would have received even bigger tax windfalls if classification had been adopted. The residential exemption was analyzed, but it would not have helped. The average residence value in

the town was \$39,000, while most apartment blocks were valued at \$30-50,000, so half the apartment buildings would get lower rather than higher taxes. This was before the rule that rental properties do not get the exemption if they are not occupied as the primary domicile of the owner.

The Avon assessors thought the residential exemption was a bookkeeping nightmare, because of the need to determine which houses are primary domiciles and which are not. The assessor is rather overworked and didn't want to put in the extra time to try to explain the option to people, since no one understood it. No one asked any questions about it.

Belmont assessors didn't think that the graduated real estate tax was a good policy. House values in that town are evenly spaced over a range from very poor to highly exclusive. There is only one very big apartment project, but lots of subsidized rental units.

The impacts of the residential exemption were presented to and discussed by the selectmen of Canton, but they chose not to use it.

The residential exemption was not considered in Clinton. The revaluation consultant analyzed it and suggested that it wasn't feasible for the town.

The residential exemption was discussed in Erving but not really considered. The tax rate is considered low enough.

In Fall River it was not considered necessary since the residential tax rate was already lower and only lower-valued homes would gain by it. The assessors reported on the effects of the residential exemption, but there was little interest in it.

In Fitchburg the residential exemption was not given much consideration. It didn't seem fair to make homeowners pay more or less

tax because of their position relative to the median home value.

It was given little consideration in Gloucester, because the assessors don't believe in it. Graduated taxes could have an effect on property values.

The assessors of Haverhill analyzed the residential exemption. The average home value there is \$47-48,000. They showed the city council examples of what would happen to houses valued at \$40,000 and \$50,000, but thought that it would not make a significant difference in the tax rate. The council decided not to use it. Some thought it was like robbing Peter to pay Paul. The assessors also considered the residential exemption to be an administrative nightmare, because of the need to identify the principal residence, which for multi-unit parcels meant asking each owner to apply for the exemption. Those who need tax breaks--widows, the elderly, and minors--are thought to be already taken care of by the other tax exemptions provided for in the law.

The Hopedale assessor found no major advantages of the residential exemption, and could not really remember what it might have been good for. There are only a handful of expensive homes in the town on which the tax burden could be shifted.

Medford's appraisal firm did an analysis of the residential exemption. The city council wasn't interested in adopting it. People were aware of what it would do from a detailed explanation in the newspaper, and were not supportive of it.

The residential exemption has been discussed in Newburyport, but not seriously. The assessor thought that it might be a useful way of helping out homeowners hurt by higher taxes, if it could be implemented without the other classification provisions that shift the tax burden

onto business.

The Pittsfield assessors recommended against using the residential exemption, since it would cause disproportional taxation.

The residential exemption was discussed within the West Springfield town hall, but not much outside. It was felt that the tax break already provided for homeowners was enough.

Brookline adopted the residential exemption. The mean home value was \$138,000 in 1982. There was a desire to protect lower-income taxpayers. This was considered a social issue. Through 1982, the residential exemption applied to all residences, including rental apartments. For 1983 the rules were changed so that only primary domiciles of the taxpayer got the tax break. This means that rental units, where lower income people may live, will get higher taxes; while condominiums below the average value will get the tax break, even though their owners are likely to have less need for it. This situation is complicated because Brookline has rent control and condominium conversion control, so some rental property owners will be squeezed.

Watertown did adopt the residential exemption. This was done to prevent the large apartment buildings from getting a tax reduction windfall. But the assessors are not completely convinced that graduating the tax rate is a good idea.

The assessors of Newton presented an analysis of the residential exemption to the aldermen, who debated it quite heavily. It was found to give benefits to some homeowners, but it doesn't really seem to address their problems. Owners of higher-valued homes may have the financial need for the exemption, while condominiums, which are generally below the average value, may not. The residential exemption may still be adopted in the future in Newton. The assessors will



continue to make status reports on the subject to the aldermen.

Fair Share has not campaigned for adoption of the residential exemption in any of the cities in which it has chapters, since it is supposed to represent all homeowners, and it wouldn't make sense to try to divide its constituency.

#### Other Problems with Valuation and Classification

Rent control, used in Boston, Cambridge, Brookline, and Somerville, has the effect of reducing rental property income--up to 30% in Brookline. This reduces the values of these properties and has the effect of shifting the tax burden to other residents, or onto commercial property when classification is adopted. Therefore, when there is rent control, a community would be more likely to adopt classification to reduce the shifted tax burden on residents, and to adopt the residential exemption to try to shift the burden back onto the rental properties.

Watertown assessors reported a problem with classifying mixed-use residential/commercial properties, especially funeral parlors. Their taxes went way up, and fifteen funeral operators who are politically involved organized to fight the assessments. Based on the income method, 70% of the building value would be in the commercial class (the part earning income from the funeral parlor business), and 30% of the value would be in the residence upstairs. The assessors were forced to compromise with a 50-50 division of the value, based on the area devoted to each use, after various battles over points like how much of the garage should be taxed under the commercial or residential rate based on whether it is used for storing the hearse or the personal vehicles.

In Brookline funeral homes were valued according to income and put into the commercial class, unless the structure was residential, then

they were valued as a high-priced home.

In Medford the assessors had a lot of mixed-use parcels to divide up into residential and commercial, such as two-family homes with a shop or small apartments with a food mart, but there were few problems with determining values. These landowners didn't like paying two tax rates, and the assessors felt that there was little gained in revenues over classifying the whole structure as residential.

Personalty tax is charged on the furnishings of second homes, of which there are many in Gloucester. The assessment of this personal property is apparently mostly guesstimation. Since it is impossible to get in and inspect everyone's house, most people are charged some going rate, and there are no protests.

The Gloucester assessors office also has the job of assessing pleasure boats, of which there are many docked in that seaside community. Boats are taxed 1% of their value, under chapter 60B. Assessing boats is a thankless task, since they are often hard to track down, and the revenue generated almost doesn't seem worth the effort.

Fall River had some minor problems when they revalued with the guide for classifying property. It originally lacked a code for chapter 121A non-taxable properties. Apartment buildings in this category are not supposed to be included in the residential class.

Owners of golf courses in Newton thought they should get a residential classification, but this wasn't a valid option.

#### The Frequency of Recertification

The assessor in Belmont is the president of the association of assessing officers. He supports the bill that group has introduced in the legislature to require certification only every five years, or more

often at local option. This will make it easier on the DOR, which at present cannot cope with all of the revaluations it has to certify.

The assessor in Gloucester would prefer to have recertification every five years. This would allow a larger volume of sales to occur for use in valuing the rest of the city, making the assessed values easier to justify.

The Haverhill assessor is also on the legislative committee of the assessors association, which is supporting the bill to have certification only every five years. The DOR is not yet ready to handle the workload that it has made for itself. The city also dislikes having to send out estimated bills, as it will probably have to do in fiscal 1984.

The Hopedale assessor would prefer a revaluation every two years because they would like to take advantage of the possible increased revenue. The town is now considering a contract for a system to computerize its property records and get a revaluation every two years.

The Medford assessors are nearly finished with their second certified valuation, for 1983. They feel that having a revaluation every two years is too frequent to allow all of the work to get done on time. They also feel that rather than requiring a complete revaluation every two years, it would be much easier to do it every three or four years; or to be allowed to factor up values every year, while updating the database incrementally, rather than all at once.

The Newburyport assessor would prefer to have revaluation every four to five years because people like to have some stability in their house values for a period of time. This would also allow the DOR time to certify everyone on time.

The Newton assessor feels that the more often the city revalues the

better. There is more work, but it produces a more equitable product. He feels the recertification should be every two years.

The West Springfield assessors feel that it is too hard on their budget to recertify every two years. They feel every five years would be more realistic. They expressed some exasperation at trying to comply with all of the new rules that the DOR keeps coming out with.

The following sections bring together what may be known about classification in other communities.

#### Fair Share Activities

Fair Share has been involved in the classification issue in nine large cities in which it has chapters. In each city it has conducted campaigns aimed at getting a promise, in the form of an official resolution, from the council or board of aldermen, that the minimum residential factor will be adopted when revaluation is completed and new tax rates are to be calculated. In some communities, the elected officials took a while to be convinced that the proper choice was to favor homeowners rather than favoring business or even maintaining the status quo in distributing the tax burden. Fair Share compiled briefing reports describing revaluation, assessment practices; and business tax savings, abatements, and exemptions, for the cities of Lynn, Boston, and Springfield.

Fall River is the only one of the nine cities which has completed revaluation and adopted new tax rates. Fair Share was successful in getting a tax break for homeowners, although the city did not use the minimum residential factor, as was described above.

Fair Share got the Lynn city council to pass a resolution promising

that the lowest homeowner rates would be implemented when revaluation is completed (Daily Evening News 1982). A campaign of eight months was needed to convince the council.

In Revere, on the other hand, there was no difficulty in getting approval of the MRF. Revere's revaluation will not be ready for certification until fiscal 1984. Because of the the enormous spread that existed between the residential and business assessment ratios in Revere, the adopted minimum residential factor will still be above the status quo RF, and the residential tax rates will still rise.

In Chelsea, Fair Share campaigned for a few months before getting the mayor and aldermen to agree to the MRF.

In three cities (Worcester, Springfield, and Lowell) Fair Share had non-binding referenda questions put on the November 1982 ballot, in each of which best classification for residential property was overwhelmingly approved.

In Worcester, it took several months to convince the city council, even with the referendum results, but they finally voted 8-1 for using the MRF.

In Springfield, the city council adopted the status quo RF, despite the referendum results. Over the past few years, the city of Springfield and the business community have been partners in the revitalization of the downtown. In keeping with the spirit of public-private cooperation, including the granting of 121A tax agreements and the desire to help improve and expand the business atmosphere, the mayor did not want to shift taxes through classification onto business. It is expected that the taxes of 1/3 of Springfield homeowners will increase because of this decision, despite Proposition 2 1/2. Fair Share had a confrontation with the Springfield Chamber of Commerce and accused them

of using scare tactics in opposing classification (Malley 1982).

In Lowell, Fair Share has not yet been able to get a commitment from the mayor and council for the best classification for homeowners, despite the referendum results. In Lowell, like Revere, the MRF will be above the status quo RF, thus homeowner taxes will rise even if the MRF is adopted, because of the legal limits on the MRF.

Somerville elected officials have agreed to use the MRF. A reform campaign has been underway in that city to replace the elected board of assessors, who may be prone to trading reduced assessments for political favors, with appointed assessors.

In Boston it was not necessary for Fair Share to conduct a campaign, since there has been a longstanding agreement with the mayor on the classification issue, going back to the mayor's financial and logistical support in the 1978 campaign to approve the classification amendment. Boston's mayor has not actually made a formal promise to use the MRF when revaluation is certified, but this seems to be the intention, as evidenced by the impact notices that have been sent out to taxpayers. Fair Share has been involved in trying to protect the rights of homeowners in Boston to see the records on their property to insure their accuracy (Zimmerman 1982).

#### Other Communities

Rumour has it that the assessors of Stoughton all resigned because they disagreed with the selectmen's decision to classify.

Marblehead is said to have had difficulty getting state certification because it has part-time assessors who have not been able to keep up the detail required in the database.

Somerset classified. It has big power plants that would get big

windfalls if it hadn't.

Swansea was not classifying in 1982, but it may decide to for fiscal 1983. It has a large shopping center that could be taxed higher.

Mohl (1982) reports that interest in trying to build up the business sector was the reason behind not classifying in Haverhill, Mansfield, Swampscott, and Walpole, even though voters there favored the 1978 amendment. Norwood, on the other hand, voted against it, but found it necessary to adopt classified tax rates to prevent a shift of \$1.2 million in taxes onto residential property. The Norwood selectmen wanted classification but the assessors did not.

The Cambridge city council intends to classify using the MRF when revaluation is complete. They have had a considerable amount of trouble getting certification. The DOR has rejected their assessments twice already.

Salem has not yet completed revaluation, but city officials have indicated that they will adopt the sqRF when it is complete.

The town of Framingham completed revaluation and adopted the status quo tax burden for fiscal 1982. This reportedly was not controversial.

In Danvers, the selectmen chose not to classify in 1982, although the assessors had recommended it. The GTE-Sylvania plant there got a \$210,000 reduction in taxes (Phoenix 1982).

#### MTF Study

Research staff at the Massachusetts Taxpayers Foundation (MTF) also attempted to monitor the implementation of revaluation and classification by local officials. Questionnaires were sent out in 1981 and 1982 to communities that had completed revaluation, but the response was thought to be disappointing. Assessors were asked about how much

public involvement and interest there was in the tax rate decisionmaking process, if there was disagreement among assessors or elected officials, and what problems they had in completing their work. The yes or no answers were only moderately informative. Assessors were also asked to report the before-revaluation assessed value of each class, so the tax burden shift could be analyzed. Useful data were provided by only 26 out of 197 places. This was taken to mean that either most of the questionnaire respondents did not understand what was asked for, or hadn't done the necessary calculations. MTF staff have doubts about the ability of many assessors to inform and respond to the public on all of the complex issues involved in classification. The results of this survey have not been published.



## VIII SUMMARY OF CASE STUDY FINDINGS

### Knowing the Status Quo and Classifying

Most of the communities studied did choose to classify. The places that chose to classify at or near the status quo are Avon, Brookline, Clinton, Fall River, Newton, Pittsfield, and West Springfield. The assessors in each of these places had done their analysis and were aware of the status quo class levy shares. Two other places, Erving and Watertown, had also done this analysis, but were restricted from classifying at the status quo by the MRF. Fitchburg classified at a status quo that went back ten years prior to the current revaluation. These places all used the classification legislation the way in which we would expect.

Four places were aware of their status quo, but chose not to classify, or to classify but not at the status quo: Adams, Belmont, Hopedale, and Newburyport. Belmont didn't classify because it almost didn't really need to, and the assessors don't believe in it. Adams and Hopedale didn't classify because using the current legislation would not have been helpful in their situations. Newburyport didn't classify because the assessors there don't believe in it. In each of these places, the assessors seemed to be able to exert a great deal of influence over the political officials. The assessor of Hopedale, in fact, has recently been elected to the board of selectmen.

Four places did not properly analyze the status quo: Canton, Gloucester, Haverhill, and Medford. In our opinion, the assessors there did not really do their jobs properly. The law requires the assessors to report "on the fiscal effect of available alternatives." While this

is not very specific, we would expect that they should at least identify which one of several alternative sets of tax rates and factors would result in the status quo. The Canton, Gloucester, and Haverhill governments are reported to have had debates on classification. We must conclude that those were ill-informed debates, and are the reason for each of these places becoming "halfway classifiers," that is, they adopted classification but not at the status quo and thereby did not relieve the revaluation-caused inter-class shift. Medford, on the other hand, merely took full advantage of the residential tax break allowed by the law, by adopting the MRF, without recognition of how much this over-relieved the tax shift.

#### Power of Assessors

In towns there is a tendency for political power to be fragmented. We might expect assessors who are elected, therefore having their own constituency, might be more assertive vis-a-vis other elected officials when it comes to making tax rate decisions. Avon and Canton are two towns with elected assessors that had conflicts with the selectmen over the classification decision. In both places the assessors thought that the decision should be theirs, and some annoyance with the attitudes of selectmen (caving-in to residential voters) was expressed. Canton is one town that would not have classified if it were not for the change in the law that gave the decision to the selectmen instead of the assessors. The Avon assessor expressed frustration at the direction the town was heading in.

Belmont, Clinton, Erving, Hopedale, and West Springfield also have elected assessors. In each of these places the assessors seemed to be more powerful because they determined the course of events with little

opposition from the selectmen.

#### Time Since Last Revaluation

There may be some correlation between the frequency of revaluation and classification. Most of the case-study communities had gone 10-15 years since their last revaluation. Those that had not revalued for over thirty years did classify. Those that did not classify were revalued within the last twelve years. The places that have allowed their values to get more out of date will have a greater need for classification.

#### Growth and Classification

There may also be some relationship between tax base growth and the decisions about classification. Some towns have taken the position that since the business tax base is growing, they can afford to tax the business sector at higher rates than residential. These include Avon, Canton, Fall River, Fitchburg, Medford, and Watertown. Other places took the position that since the tax base of the community needs to grow, they ought to be cautious about having higher business taxes; these were Gloucester, Hopedale, Haverhill, and Newburyport. Some places felt that since they were already built-up, differences in tax rates would not make any difference to the businesses already located there: Brookline, Newton, and West Springfield. Belmont, on the other hand, is already built-up and therefore higher business taxes were to be avoided so they wouldn't run the risk of losing businesses. Pittsfield, Clinton, and Erving are not growing or are growing slowly. Concern about growth in these places did not seem to be a factor.

Some of the cities wary of classification because of the possible effects on growth are in the northeast: Gloucester, Haverhill,

and Newburyport. They all were concerned about businesses moving across the border to New Hampshire where taxes are lower. Fall River and its neighbors in Bristol County do not seem to be concerned about businesses moving to nearby Rhode Island, which does not have advantageous tax conditions.

An interesting contrast in attitudes about growth is provided by Fitchburg and Newburyport. Both are old industrial cities that were down on their luck and are near New Hampshire. Both are in the midst of a resurgence. Fitchburg went the farthest of any community in the commonwealth, by restoring business taxes to levels they had not been at for ten years, and carrying on a legal battle with its business sector. Newburyport, at the other extreme, has knowingly lowered its business taxes. Fitchburg has more industry and population and may be farther along in its resurgence than Newburyport. The difference in the responses of the two cities may have more to do with political attitudes than conditions, however. The Newburyport assessor is unequivocally pro-business, while the population makeup is changing to a wealthier, more fashionable class of people attracted to the seaside location. Fitchburg is still a working-class community in the rural Yankee heartland of the state.

Formerly, taxes in the cities were much higher than in the suburbs. Now the this situation is turning around. Proposition 2 1/2 is lowering the tax rate in the cities, and classification lowers the residential rate even more, eventually below 25.00. In the suburbs revaluation raises the residential assessments and taxes, and without classification the rate will be 25.00 in the long run. Fall River, for example, is now in a better competitive position relative to neighboring towns. This

should help increase home values there.

### Tax Base Diversity

A community may feel more secure about classifying if its tax base is more diverse. Belmont is an example of an almost entirely residential town that was afraid of driving out the few local shops it has. Pittsfield and Hopedale have been dominated by one employer. Both classified, but with caution.

A few small communities are dominated by big utility plants. Erving's utility would have gotten an enormous tax break if the town had not classified. A smaller town, Rowe, is the location of a nuclear power plant, which makes up a larger part of the property value than the utility in Erving. But the assessment ratio disparity was not so great in Rowe, so even though the town did not classify at all, the tax shift is not as great as that in Erving, which classified to the maximum extent possible. The people of Rowe voted against classification in 1978. Still, we would expect the town to classify. It is not logical to fear that a hydroelectric or nuclear power plant could be encouraged to move because their taxes are not lowered.

### The Role of Assessors

Assessors usually reported that there were few or no problems completing the revaluations. Most of them were very experienced and had been in their jobs for several years.

We have doubts about the quality of the analysis done by assessors on the revaluation tax shift in support of local decisionmaking. The correct method for finding the tax shift was described in Chapter VI. Several assessors reported that they did something like that, used the 1980 equalization study as we did in chapter VI, or depended on their

outside consulting firm to determine the before and after class shares of the value. We would estimate that over 20% of the towns did not do any such analysis and don't know the extent of the tax shift.

Several assessors reported that they tested the effects of different residential factors on a sample of properties. This will give an idea of what the possible alternatives are, but it really cannot substitute for calculating the sqRF. Trial and error calculations aren't necessary, although they may be easier, because an exact answer is possible. Presenting the effects of a few different factors on a few representative properties to the selectmen or councillors will give them an idea of what the choices are, but it can be misleading. To eliminate the inter-class shifts, one must look at the total effect on each class, or at the effect on the average property of each class, even if such a property doesn't really exist. The effects on a selection of actual parcels may not exactly reflect the average effects on the whole of each class. Decisions are likely to be swayed by the impact on some known parcel, which is not what a system of grouping parcels into classes is supposed to address. The Department of Revenue should provide some more specific guidelines to assessors on what they are expected to tell decisionmakers.

The Massachusetts Association of Assessing Officers has had some influence on the actions of its members. They advise their members to test the effect on tax bills of various classification schemes for a random sampling of properties. They also suggest using the DOR equalization study. The association advises its members to use a residential factor of 100% (no classification) when the MRF for the community is in the 90s or high 80s. Giving a four or five percent

break to residents in a basically residential town doesn't seem to make much sense, they say, when you could have proportional taxation with very little pain.

The association also feels that giving the decision to the selectmen alone was wrong. Now more towns are classifying than ought to. The decision has become too political, since the discretion allowed to selectmen allows them to give a break to residents even when it is too small to matter.

If asked, the assessors association officers would advise its members not to use the residential exemption. It is seen as an "administrative nightmare" (where have we heard this phrase before?) because of the need to identify the owner-occupied units, besides the fact that it creates a disproportionate tax.

Assessors generally prefer to see proportional taxation, that is, a single tax rate applied to all properties assessed at 100% of value. Full valuation and uniform taxation is thought to be fair. Why then have Massachusetts assessors facilitated the pattern of fractional and disproportional assessment all these years? What this attitude really represents, we suspect, is primarily a compulsion to follow the currently accepted methods and rules. Before assessors only revalued property when they had to, when a parcel changed hands or when structural modifications were made. This is doing the minimal amount of work necessary, which is a traditional bureaucratic practice. In the 1960s after the Bettigole decision many towns had general revaluations because there seemed to be a judicial demand for it. Now the state has taken over the direction of assessment practices and has required all towns to revalue on a regular basis. Assessors may grumble, but they are complying with the DOR's directives and are revaluing to 100%

according to the traditional, standard methods.

What the attitude of most assessors fails to account for is that the standard methods do not necessarily generate a "fair" valuation. Different methods are employed for different classes. Disproportionate assessment ratios were formerly applied to the valuations of each class to make each class bear the share of the tax burden that the public thought was appropriate, or that cleared the local market for land, employment, and tax rates. Fair taxation in Massachusetts hasn't meant proportional taxation in the past. Some assessors recognize this and therefore have no qualms about classification. These include the assessors of Adams, Clinton, Erving, Fall River, Fitchburg, Medford, Newton, Watertown, West Springfield, and two of three assessors in Brookline. These assessors reported that they were in agreement with the selectmen or councillors in their communities. The assessors in the other communities favor proportional-to-value taxation, or have no public opinions.

To summarize, the decisions about classification depend on an array of variables: size of the community, wealth, how disproportionate assessments were before, political attitudes, growth potential, tax base makeup, tax rates in the past, attitudes of local officials, and influence of neighboring communities. But each of these may be weighted differently in each community, resulting in little overall pattern of decisionmaking. Much of the differences in the decisions of communities may be attributed to the role played by assessors: how well they inform decisionmakers, how much power they have in local affairs, and whether they feel proportional or status-quo taxation is fair.



## IX CONCLUSIONS AND RECOMMENDATIONS

### Improving the Revaluation Process

Clearly, the Department of Revenue is finding it difficult to handle the crush of communities needing certification at this time, and this is a source of much concern to local officials. Requiring certification only every five years, as has been proposed, would deal with this problem, but so would a larger budget for the DOR. Certification every five years may create other problems. Without state coercion, towns and cities would tend to fall back into their old pattern of infrequent revaluation. Because of the delays that they are likely to run into, there would probably be more than five years between each revaluation, during which average home values could nearly double, as they did in the 1970s. This would continue the assessment disparities that were supposed to be corrected.

Assessors don't like frequent revaluations because of the cost and effort they require. Proposition 2 1/2 limits the payoff. Why should towns want to go to the trouble, when it is a state-imposed mandate, and their constituents have been living with disproportional assessments without complaining? One solution to this dilemma is to make revaluation less costly. Legislation has been passed which allows neighboring municipalities to share the task of assessing. None have yet taken advantage of this law.

We would suggest that the state could help reduce the cost of a system of valuation by modifying its requirements and providing shared services to towns that need them. (1) Decentralized DOR assessment offices located around the state could provide towns in a region or

county with the computer services they need to maintain property records and model the valuation factors. (2) Require property inspections only every five years, but on a rotating basis, so that only 20% of the parcels in a jurisdiction would need to be inspected and have their property records updated each year. (3) Keep track of sales on a continuing basis, from which the data would be used to update the computer models every year. (4) Produce new valuations of all properties automatically every year with the models. With this system, all parcels in every jurisdiction would always be at 100% of market value, based on the most recent sales data. Some set of the parcels would have outdated and inaccurate descriptions, but the set would change every year, which is better than having all of the parcels subject to inaccuracies for a whole five-year period. The incentives for using this system would be that local assessors would still be responsible for data collection, but the more expensive, technical tasks like database maintenance and statistical modeling would be shared and subsidized by the state. Uniform implementation of guidelines would be ensured if the state ran the system, but separate models could be accommodated for each locality. The DOR's equalization study would be an automatic byproduct of this system.

#### The Success of Classification

If the purpose of classification is only to allow Boston and the other big cities to legitimize their historic pattern of uneven assessment ratios among classes, then the program will probably be successful. Revaluation, however, is affecting every community statewide; communities of every size had disproportionate taxation. Classification is not just a big-city issue.

If the purpose of classification is to facilitate shifting of the tax burden onto businesses from residential taxpayers, as Fair Share would like, then it has not been a success, since only about ten communities have chosen to do this. About three others have shifted the tax burden onto business by default, because they didn't classify and they have an sqRF greater than 100%.

If the purpose of revaluation and classification is to allow communities to shift the tax burden from business, as AIM and the assessor of Newburyport would advocate, then it has been a success, because this has been done in 56 communities.

We would tend to agree with those who argue that businesses should not get tax breaks at the expense of residents. Business taxes do seem to be going down relative to residential. There are real differences in valuation methods for the different classes, and it can be argued that the distribution of the tax burden does not need to be proportional to the "full and fair cash valuation," whatever that is. But there are communities in which the best policy is to reduce the business tax burden; Hopedale might be an example. Both sides on this issue have self-interest at stake as well as ideology. Faced with both sides, the best or fairest policy would be to maintain the status quo tax burden distribution. There generally are good reasons for historical precedents. Economic decisions made until now were based on the existing tax rates. To rearrange things now would be unfair to almost everyone, and there may be significant effects on the distribution of resources, income, and wealth in many areas of the economy. This redistribution of the tax burden should not be justified by arguing that revaluation is causing even larger shifts between owners of similar types of property. Those intra-class disparities (differences in

effective tax rates for similar buildings) are a matter of equity, or equal treatment of equals under the law. Inter-class disparities (different methods of taxation for different kinds of property) are acceptable and often necessary.

The purpose of classification, we believe, should be to maintain the status quo, with allowances for other community desires. In meeting this purpose, the program has had only limited success. Only twenty-five out of 105 communities that needed to classify used the law properly. Twenty-two communities are prevented from reaching their status quo by the law (their MRF is higher than their sqRF). Forty-six communities didn't use classification at all when they should have, and six did not try to minimize the shift in order to at least partly reach the status quo. While the current legislation usually allows communities to reach their status quo, it does nothing to ensure that they will know how to or will try to, and sometimes it prevents them.

The formulas in the current law don't match up with local needs very well, nor do they provide much guidance to satisfying those needs. The minimum residential factor (MRF) is a function of the share of the total value in each class group, which has nothing to do with the disparities in the pre-revaluation assessment ratios between the groups. (The correlation between MRF and ARdiff is  $-.044$ .) The MRF has a weak correlation with the sqRF ( $r = .401$ ). Fixing the MRF, as has been proposed, by widening its parameters to 50-195 will not help communities in general to get to the sqRF ( $r = .375$ ), although it will help a few.

In the view of one legislator and former assessor, the current legislation is flawed. It doesn't address the real problem, which is the different methods by which different types of property are assessed.

The old shelf legislation did at least treat each class differently, but the current law only splits the levy into two parts. Two parts are not enough to deal with the differences between the five classes. Revaluation generally causes value increases for small local shops, and decreases for larger industrial and commercial facilities. Thus, within the CIP group, there will be a shift of the tax burden, which most communities would rather not have. Classification just exacerbates the extra burden shift onto small businesses, while the big ticket industries still get a savings. If factories are assessed at 65% of market value and mom-and-pop stores are assessed at 50%, then there will be a shift in taxes between them. Pittsfield, with its General Electric plant, is an example of this phenomenon.

This becomes a disincentive to classify, since those with something to lose, the local commercial interests, speak up louder in the political arena. If a town doesn't classify, industrial properties often get reduced taxes. Whether a town classifies or not, the personal property owners (the utilities) make out well.

The town of Adams didn't classify because it would have hurt small businessmen. In Hopedale, the effects on small businesses limited the extent to which the town classified. In Gloucester, local merchants made a big fuss even though they may have been gaining. In Watertown, special adjustments were made to phase in the increased taxes on small businesses.

We might say, that in designing the current law, the proponents of big-business interests were rather clever in getting small businesses to fight the battles against classification on behalf of big business. But by winning these battles, residents become the losers.

One response to the problem of the tax burden shift from large to

small businesses is the proposed bill submitted to the legislature to provide for a commercial exemption. This would shift taxes only within the commercial class, from smaller shops to larger stores or offices, similar to the way in which the residential exemption now works. The commercial exemption would do nothing about the industrial/commercial or personal/commercial shifts in the tax burden caused by revaluation. It would serve only to legitimize the intra-commercial-class disparities, which really ought not to be legitimized, because that undoes the revaluation. If the experience with the residential exemption is any guide, the commercial exemption will be little used. Whether it makes economic sense or not, on a practical level, we will find few public officials who will implement a graduated property tax.

#### Providing Greater Flexibility in the Law

The former assessor of Adams feels that the historic practice of the alleged progressivity of assessment by classes was not really wrong. Since appraisal practices differ for each class of property there really cannot be uniform valuation, so progressive or disproportional assessment ratios for each class are fair.

We would argue that the old assessment practices, even with their negotiated values and compromises, was a mechanism, or something like a market, for valuations and tax payments, through which communities could find an equilibrium between the demands of their residents and businesses. Revaluation revolutionizes this balance in three ways: (1) It corrects the injustices and resource allocation problems of intra-class disparities, which we cannot argue with. (2) It corrects the inter-jurisdictional disparities in equalized valuation and state aid distribution, which also was a serious problem that we cannot argue

with. This problem was the object of the Sudbury decision. (3) It upsets the land/tax market by overburdening some classes and giving windfalls to others. This is because of the clumsy way in which classification has been implemented. We suggest that this problem would be rectified by allowing separate tax rates for each of the five classes.

On the face of it, it doesn't seem to make much sense that there are five classes, but (usually) only two tax rates are allowed. Other states with classification usually have more classes than does Massachusetts. The experience of implementing classification proves that this feature of the law doesn't make sense. Having a separate tax rate for each of the classes, which had been the intention of the original classification proposals, would allow each community to make the adjustments in the tax burden distribution appropriate to its desires or historical practices.

We would propose to amend the legislation as follows. The status quo tax rates would be adopted by default, unless the local government chooses to modify them in either direction. Some would argue that setting the status quo rates by state mandate would erode local home rule powers. This is a spurious argument, because the locals would have just as much authority to diverge from the default status quo as they would from the default 100% RF. Both are merely standards, which provide a starting point for local decisions. The status quo standard is superior because it is closely attuned to local conditions, while the 100% RF standard causes widely divergent tax shifts in every community.

Under this proposed system, each municipal government would choose each year the shares of the levy to be paid by each class. By default,

the levy shares would be the same as the status quo class shares of the pre-1981 assessed valuation. The levy shares could be modified, as long as each class share of the levy is no more than 150% of the class share of the current total value or the status quo share, whichever is larger; and that the class share of the levy is no less than 65% of the class share of the value or the status quo share, whichever is less. (Other parameters than 65 and 150 could be used.)

For example, the table below shows percentage shares by class for the town of Adams.  $V_p$  is the value share in fiscal 1982.  $A_p$  is the estimated assessed value share in 1980. Since Adams chose to have levy shares equal to value shares in 1982, the residential (R), open (O), and industrial (I) classes paid more of the levy than before revaluation, while the commercial (C) and personal (P) classes paid less. If Adams had classified under the existing law, with only two tax rates, the levy shares would have been as shown under  $L_p$  Existing. Industrial would have gotten a large tax increase over the status quo, while commercial and personal would have gotten tax breaks.  $F$  is the factor relating levy share to value share.  $F = L_p / V_p$ .

If Adams were allowed to tailor its class levy shares individually, it might pick the shares shown under  $L_p$  Proposed. Note that the personal levy share ( $PL_p$ ) was limited by the maximum factor ( $PF = 150\%$ ). Open and industrial are taxed proportionately to value ( $OF = IF = 100\%$ ). The class levy shares are much closer to their status-quo shares than the proportional-to-value shares or the existing-classification-law shares. There are insignificant decreases or increases for each class from the status quo shares. The resulting 1982 tax rates for this proposed scheme are shown under TR. These compare to a single average tax rate (actually adopted for 1982) of 23.80. These five different



rates are not inequitable, because they should be the same as the effective tax rates on each class before revaluation.

Class	Vp	Ap	Existing		Proposed		TR
			Lp	F	Lp	F	
R	74.02%	68.97%	68.97%	93.17%	68.87%	93.04%	\$22.15
O	1.39	1.29	1.29	93.17	1.39	100.00	23.78
C	10.41	13.30	12.59	120.94	12.80	122.96	29.26
I	8.66	8.11	10.47	120.94	8.66	100.00	23.80
P	5.52	8.33	6.68	120.94	8.28	150.00	35.69

To summarize, we conclude: (1) The local revaluation process should be improved through a state-assisted system of automation, with adjustments made in the revaluation certification schedule. (2) Classification ought to facilitate maintaining the status quo tax burden distribution, but it has not successfully done this. (3) The existing law prevents a community from achieving the status quo because it allows for only two tax rates when there should be five. (4) The commercial exemption will not solve this problem. (5) The law should be modified to require the use of status quo levy shares for each of the five classes, with allowance for deviations in accordance with community desires, subject to some reasonable anti-abuse provisions.

## APPENDIX

### Notes on Tables

In all of the tables shown in this report, the following conventions apply:

Names of towns are shown in upper-and-lower-case print. Names of cities are shown in ALL-CAPITALS.

In variable names at the heads of columns: R = residential, O = open space, C = commercial, I = industrial, P = personal, L = levy, V = value after revaluation, T = total, p = percentage of total, A = assessed value before revaluation, E = equalized value before revaluation, TR = tax rate, F = factor, sq = status quo, 2 = as affected by Proposition 2 1/2, r = as affected by revaluation, c = as affected by classification.

Amounts (L or V) are shown in thousands of dollars.

Amounts (up) are shown in dollars.

Proportions or shares (p) and factors (F) are shown in percentages.

Tax rates (TR) are shown in dollars of tax per thousand dollars of value (mills).

The first 197 cities and towns shown (Abington through Worthington) have values presented for the 1982 fiscal year. The final fourteen (Arlington through Wilmington) have 1983 values shown.

Community Characteristics

Table 11 below displays the following information for each of the 211 communities analyzed in this study.

Population	From the 1980 U.S. Census
TV	Total valuation, after revaluation, in thousands of dollars
TR	Average tax rate
ROVp	Residential-open percentage share of the total value after revaluation
ROAp	Residential-open estimated percentage share of the total assessed value before revaluation
ROLp	Residential-open percentage share of the total levy after revaluation and classified taxation
ROAR	Residential-open assessment ratio before revaluation
CIPAR	Commercial-industrial-personal assessment ratio before revaluation
Yesp	Plurality of Yes vote for 1978 classification constitutional amendment

Table 11  
Community Characteristics

	Population	TV	TR	ROVp	ROLp	ROAp	ROAR	CIPAR	Yesp
Abington	13517.00	169959.65	26.80	83.61	83.61	82.57	91.53	98.60	-6.29
Acushnet	8704.00	105848.04	24.66	86.86	80.28	86.05	92.83	99.48	25.07
Adams	10381.00	141970.10	23.80	75.41	75.41	70.26	42.22	54.78	6.63
Agawam	26271.00	450702.06	25.00	79.04	79.04	75.13	54.03	67.45	14.09
Alford	394.00	15488.20	10.80	81.69	81.69	87.77	68.65	42.70	-12.76
Amesbury	13971.00	223813.55	25.00	74.39	74.39	73.82	53.29	54.90	8.19
Amherst	33229.00	334953.77	23.20	82.79	82.79	81.73	90.54	97.40	13.94
Andover	26370.00	987586.09	19.50	73.00	73.00	68.75	41.14	50.56	11.54
Ashfield	1458.00	37322.40	16.20	91.89	91.89	91.49	94.80	99.89	-4.42
Ashland	9165.00	249183.62	21.80	76.60	76.60	73.99	76.18	87.65	-5.26
ATTLEBORO	34196.00	587163.96	25.61	71.66	60.32	63.24	42.60	62.62	11.89
Avon	5026.00	124161.00	22.67	55.44	48.90	48.24	49.17	65.64	14.13
Bedford	13067.00	490055.30	21.98	58.24	55.11	56.07	26.06	28.47	14.10
Belchertown	8339.00	129905.56	18.70	82.45	82.45	81.98	81.81	84.49	-9.36
Belmont	26100.00	792755.99	23.46	92.02	91.78	89.60	43.10	57.70	8.98
Berkley	2731.00	39145.99	22.80	92.74	92.74	92.69	99.10	99.79	14.11
BEVERLY	37655.00	884810.59	24.62	77.70	72.12	71.51	39.76	55.20	12.21
Billerica	36727.00	766794.55	25.00	75.13	75.13	69.69	11.49	15.09	28.21
Blackstone	6570.00	87020.62	22.30	86.43	86.43	81.01	50.16	74.93	17.74
Bolton	2530.00	73235.74	21.19	80.88	80.88	79.42	90.52	99.21	2.05
Bourne	13874.00	352166.09	20.00	79.09	79.09	78.30	90.98	95.37	-15.44
Boxborough	3126.00	101230.93	15.74	80.54	75.67	74.18	48.19	69.41	9.35
Boxford	5374.00	203041.84	15.65	97.43	97.43	93.55	14.05	36.70	-2.04
Boylston	3470.00	77355.61	21.26	89.41	89.41	89.00	55.70	58.11	3.57
Brimfield	2318.00	52918.50	18.32	74.54	74.54	72.80	19.61	21.45	4.34
Brookline	55062.00	1733718.50	23.50	87.14	83.30	83.74	45.60	60.03	26.48
Buckland	1864.00	31870.32	24.40	82.26	82.26	83.72	45.62	41.16	6.54
Burlington	23486.00	876659.55	23.44	52.62	42.20	45.60	41.35	54.80	22.19
Carver	6988.00	127253.37	23.91	77.70	70.12	63.31	9.82	19.83	8.21
Charlton	6719.00	121503.78	12.83	90.08	90.08	78.24	13.40	33.85	17.23
Cheshire	3124.00	46866.65	14.60	84.37	84.37	83.32	91.51	98.88	3.26
Chester	1123.00	22676.39	17.38	83.02	83.02	79.17	65.80	84.60	2.10
Chesterfield	1000.00	19716.61	23.00	73.40	73.40	51.33	25.71	67.29	1.49
Chilmark	489.00	182761.13	3.00	96.12	96.12	94.68	18.32	25.51	28.16
Clinton	12771.00	191155.90	22.43	71.49	57.24	55.37	10.50	21.23	20.62
Concord	16293.00	644119.23	23.43	82.93	82.93	81.36	78.00	86.80	1.55
Conway	1213.00	23721.88	24.70	87.74	87.74	81.55	21.67	35.07	12.58
Cumington	657.00	13391.62	25.00	80.65	80.65	79.71	92.67	98.31	1.06
Danvers	24100.00	624920.70	24.20	67.29	67.29	64.46	40.14	45.54	12.50
Dighton	5352.00	104162.00	24.84	73.11	59.67	56.86	12.46	25.70	14.98
Dracut	21249.00	376771.29	22.46	89.26	89.26	83.66	13.57	22.03	31.00
Dudley	8717.00	114806.17	15.93	82.33	82.33	81.05	92.69	100.99	7.69
Dunstable	1671.00	45877.16	15.71	93.80	93.80	85.94	8.84	21.89	7.73
Duxbury	11807.00	416749.14	23.80	90.15	90.15	89.71	85.89	90.11	-15.68
East_Bridgewater	9945.00	161553.62	26.00	77.02	77.02	70.87	54.17	74.63	-9.39
East_Longmeadow	12905.00	308182.56	23.40	65.03	65.03	61.27	70.02	82.30	-2.85
Easthampton	15580.00	180089.70	25.00	78.72	78.72	76.95	86.23	95.55	-2.71
Edgartown	2204.00	288810.84	8.70	81.29	81.29	78.60	29.99	35.45	16.37
Egremont	1311.00	51561.57	12.75	81.18	81.18	75.91	38.77	53.07	-21.76
Erving	1326.00	118316.07	9.42	14.23	9.25	5.01	16.23	51.04	2.89
Essex	2998.00	73332.34	20.50	85.00	85.00	82.91	43.61	50.95	5.91

Table 11 continued

	Population	TV	TR	ROVp	ROlp	ROAp	ROAR	CIPAR	Yesp
Fairhaven	15759.00	271452.06	24.00	73.98	73.98	58.84	11.77	23.41	23.87
Falmouth	23640.00	920103.90	18.30	77.98	77.98	77.11	90.60	95.26	-0.84
FITCHBURG	39580.00	365079.20	39.58	67.77	54.88	65.72	91.60	100.44	6.86
Foxborough	14148.00	293439.06	25.00	79.26	79.26	74.07	38.49	51.49	1.85
Framingham	65113.00	1622272.78	24.97	70.33	64.51	65.15	47.25	59.89	9.89
Franklin	18217.00	287947.62	28.86	80.68	80.68	79.92	44.96	47.18	-0.32
Freetown	7058.00	151237.51	22.89	75.12	62.68	52.05	8.93	24.83	25.62
GARDNER	17900.00	239631.68	24.60	69.11	69.11	68.00	57.96	61.03	0.94
Gay_Head	5687.00	30480.30	8.38	96.14	96.14	84.99	8.28	36.42	31.44
Georgetown	27768.00	97571.99	25.00	88.08	88.08	87.43	90.58	96.23	4.44
GLOUCESTER	11238.00	722464.70	24.82	79.64	76.34	68.17	29.47	53.82	15.19
Grafton	1204.00	173593.00	24.75	86.33	86.33	83.98	62.24	74.98	-0.35
Granville	7405.00	25667.00	21.00	82.86	82.86	81.45	89.66	98.73	6.87
Great_Barrington	18436.00	153674.67	25.00	64.40	64.40	54.31	40.11	61.05	-11.54
Greenfield	5040.00	224379.88	37.74	68.65	68.65	69.02	98.15	96.45	4.49
Groveland	220.00	78637.04	25.00	88.66	88.66	89.18	85.92	81.51	21.66
Hadley	4125.00	112881.18	14.90	54.88	54.88	53.97	97.84	101.50	3.93
Halifax	5513.00	78645.40	24.30	84.75	84.75	84.73	79.56	79.69	-10.59
Hancock	643.00	18845.34	12.70	72.72	72.72	70.30	85.22	95.97	3.19
Hardwick	2272.00	30298.65	22.00	85.07	85.07	80.93	58.60	78.65	-23.24
Harvard	12170.00	144088.00	19.60	93.75	93.75	93.38	90.52	96.28	-5.80
Harwich	8971.00	475884.84	13.90	88.13	88.13	87.76	35.40	36.65	-7.41
Hatfield	3045.00	51469.91	23.70	70.66	70.66	70.63	99.52	99.68	-1.67
HAVERHILL	46865.00	692796.40	25.00	67.56	67.56	55.51	19.00	31.71	29.82
Hawley	280.00	8270.43	12.50	91.74	91.74	92.41	75.14	68.51	12.96
Hingham	20339.00	655235.00	23.20	83.80	83.80	81.41	38.90	45.96	2.47
Hinsdale	1707.00	39003.83	18.00	72.35	72.35	67.88	37.27	46.16	6.50
Hopedale	3905.00	70304.84	25.30	78.70	74.76	66.34	45.06	84.48	6.02
Ipswich	11158.00	237519.47	23.40	83.43	83.43	80.77	38.37	46.00	11.58
Kingston	7362.00	150131.81	23.60	74.28	74.28	72.62	89.16	97.07	-7.82
Lakeville	5931.00	137431.10	17.57	88.56	88.56	87.10	46.80	53.66	-2.81
Lancaster	6334.00	107752.50	20.00	86.32	86.32	83.67	39.12	48.17	-1.11
LAWRENCE	63175.00	689673.23	26.90	64.73	55.92	37.04	12.93	40.34	38.66
Lenox	6523.00	116961.32	25.88	71.41	71.03	70.67	65.85	68.28	-7.75
LEOMINSTER	34508.00	584857.02	23.00	66.40	66.40	62.98	50.19	58.30	5.89
Leverett	1471.00	36759.44	17.30	91.17	91.17	86.04	20.73	34.72	20.67
Lexington	29479.00	1241951.89	20.81	79.05	72.07	71.19	27.03	41.28	14.76
Lincoln	7098.00	242898.27	16.60	94.75	94.75	94.06	83.72	95.48	2.32
Littleton	6970.00	193329.87	20.56	69.22	69.22	69.18	77.31	77.49	5.22
Longmeadow	16301.00	479099.55	21.71	94.99	94.99	94.32	60.15	68.61	-8.83
Mansfield	13453.00	399829.20	17.00	53.70	53.70	43.41	26.14	39.51	4.09
Marion	3932.00	155630.76	17.17	81.88	81.88	79.29	29.95	35.36	-1.33
MARLBOROUGH	30617.00	645023.30	25.00	69.98	56.68	58.07	13.29	22.36	27.29
Marshfield	20916.00	497683.38	25.00	89.15	89.15	86.52	36.40	46.63	8.54
Mattapoisett	5597.00	133610.87	24.14	88.51	88.51	85.19	35.31	47.31	5.35
Maynard	9590.00	209039.13	25.42	70.24	62.88	66.13	34.03	41.14	14.21
Medfield	10220.00	241676.70	24.70	90.99	90.99	89.61	41.60	48.70	-5.09
MEDFORD	58076.00	879921.16	32.54	81.81	72.71	78.19	15.45	19.39	34.97
Mendon	3108.00	75197.30	18.66	86.08	86.08	79.09	34.14	55.81	-10.41
Merrimac	4451.00	56955.04	25.90	89.05	89.05	87.99	73.83	82.00	6.11
Methuen	36701.00	694383.13	22.40	80.17	80.17	72.63	11.91	18.15	35.06
Middlefield	385.00	9547.01	16.10	74.63	74.63	72.26	48.40	54.65	-1.96

Table 11 continued

	Population	TV	TR	ROVp	ROlp	ROAp	ROAR	CIPAR	Yesp
Milford	23390.00	318477.91	30.36	80.04	70.06	78.51	88.94	97.66	17.86
Millbury	11808.00	183478.97	24.80	78.38	78.38	64.23	11.16	22.54	24.44
Milton	25860.00	668236.14	24.25	91.36	91.36	84.71	16.41	31.30	16.89
Monroe	179.00	5597.54	25.00	43.42	43.42	20.35	13.46	40.43	7.63
Monson	7315.00	86223.69	25.60	80.55	80.55	79.73	85.01	89.54	1.76
Monterey	818.00	34766.80	11.20	82.13	82.13	81.01	82.95	89.38	-20.50
Nahant	3947.00	102481.20	23.62	94.13	94.13	89.68	18.73	34.56	25.21
Nantucket	5087.00	686004.18	8.72	83.68	75.60	75.59	6.43	10.65	10.56
Natick	29461.00	796901.25	22.60	71.65	71.65	66.10	31.36	40.66	12.38
Needham	27901.00	1030540.06	21.00	78.37	78.37	71.14	40.29	59.24	0.09
New_Braintree	671.00	11782.22	25.00	70.52	70.52	74.44	39.65	32.57	-19.70
New_Salem	688.00	13636.37	17.00	88.20	88.20	52.46	6.20	42.05	3.31
Newbury	4529.00	100149.93	22.00	90.77	90.77	89.63	85.99	97.80	3.84
NEWBURYPORT	15900.00	346396.46	23.90	76.68	76.68	68.90	39.06	58.00	12.61
NEWTON	83622.00	3106626.69	24.19	83.96	75.94	72.54	18.17	36.02	27.01
Norfolk	6363.00	138554.80	21.15	90.43	90.43	86.97	47.02	66.56	1.71
NORTH_ADAMS	18063.00	177375.76	24.80	68.71	61.80	59.77	48.59	71.80	16.41
North_Brookfield	4150.00	50319.05	21.00	74.72	74.72	74.37	88.26	89.90	-16.40
NORTH_Reading	11455.00	271241.04	25.00	78.69	78.69	76.13	33.59	38.89	1.81
NORTHHAMPTON	29286.00	413796.99	25.00	71.13	71.13	69.38	89.15	96.96	6.57
Northborough	10568.00	256467.19	24.80	72.77	72.77	71.38	38.61	41.37	3.39
Norton	12690.00	153728.70	34.70	86.51	86.51	85.51	86.69	94.20	7.79
Norwell	9182.00	285559.04	23.80	84.41	84.41	81.68	59.80	72.58	-2.50
Norwood	29711.00	741994.80	21.49	67.33	65.18	61.16	56.38	73.79	-3.42
Paxton	3762.00	71828.94	21.75	91.85	91.85	91.57	92.49	96.00	-0.62
Pelham	1112.00	23543.51	25.00	91.90	91.90	91.63	94.45	97.88	0.34
Pembroke	13487.00	230308.89	27.30	82.60	82.60	82.47	87.01	87.80	5.07
Peru	633.00	11744.61	23.00	60.47	60.47	61.01	47.07	46.02	4.55
Petersham	1024.00	25234.72	19.89	89.27	89.27	84.88	36.75	54.46	-1.94
PITTSFIELD	51974.00	740337.98	34.45	68.10	60.00	59.18	44.18	65.06	8.28
Plymouth	35913.00	1005654.93	21.15	53.10	53.10	51.93	94.87	99.44	-3.60
Plympton	1974.00	47426.95	23.00	70.96	70.96	61.15	41.82	64.94	-13.64
Princeton	2425.00	60510.79	20.58	88.13	88.13	89.21	53.86	48.35	-14.58
Randolph	28218.00	564313.13	24.40	79.28	79.28	76.78	40.45	46.80	20.29
Reading	22678.00	599483.89	23.00	86.97	86.97	85.40	71.30	81.33	1.98
Rochester	3205.00	71600.76	21.46	84.23	84.23	77.04	27.15	43.23	10.98
Rockland	15695.00	225539.76	28.40	77.05	77.05	75.64	45.05	48.70	13.54
Rockport	6345.00	222872.71	19.20	88.78	88.78	88.08	88.03	94.25	0.76
Rowe	336.00	181737.49	5.79	6.76	6.76	5.59	80.18	98.14	-33.92
Rowley	3867.00	89568.40	16.50	79.50	79.50	77.76	44.17	48.99	-2.58
Russet	1570.00	28419.88	22.50	50.81	50.81	49.00	90.38	97.17	25.92
Rutland	4334.00	55281.91	25.00	89.66	89.66	89.00	90.49	97.05	-8.30
Saugus	24746.00	571598.65	25.00	70.73	64.88	65.07	47.81	62.02	26.04
Savoy	644.00	9749.59	18.10	94.18	94.18	90.90	26.44	42.81	3.57
Scituate	17317.00	464007.95	25.00	89.48	89.48	87.99	37.91	44.03	6.97
Seekonk	12269.00	317527.69	21.76	69.92	69.92	68.00	54.45	59.57	5.81
Sharon	13601.00	328462.90	25.30	88.49	88.49	86.86	60.12	69.92	11.88
Sherborn	4049.00	183612.95	20.63	89.45	89.45	88.42	69.36	77.04	-21.37
Shrewsbury	22674.00	447433.75	21.86	81.61	81.52	80.40	50.50	54.63	15.44
Shutesbury	1049.00	28773.97	18.66	95.17	95.17	91.75	40.81	72.33	23.80
Somerset	18813.00	619796.94	23.04	42.48	32.69	35.88	74.91	98.85	-7.18
Southborough	6193.00	174525.10	24.97	73.13	73.13	71.38	80.86	88.22	-5.60
Sterling	5440.00	110149.76	23.50	72.17	72.17	73.99	66.31	60.44	-7.36
Stockbridge	2328.00	96880.90	17.28	79.35	79.35	74.91	28.31	36.42	-10.60

Table 11 continued

	Population	TV	TR	ROVp	ROLp	ROAp	ROAR	CIPAR	Yesp
Stoneham	21424.00	478000.00	24.80	82.82	82.82	80.90	78.89	89.80	10.79
Stoughton	26710.00	503130.60	22.80	76.90	74.68	75.00	53.64	59.54	7.15
Sturbridge	5976.00	124674.27	22.50	67.83	67.83	65.28	87.45	98.09	-2.16
Sudbury	14027.00	474787.33	25.00	83.71	77.42	79.20	46.72	63.05	-12.61
Sutton	5855.00	131432.18	16.72	79.30	79.30	72.01	14.06	20.93	12.38
Swampscott	13837.00	399699.02	25.00	89.20	89.20	86.66	40.17	51.05	15.15
Swansea	15461.00	297691.93	21.00	76.71	76.71	75.27	48.36	52.35	24.67
TAUNTON	45001.00	435793.82	29.63	78.60	67.90	78.15	92.41	94.91	31.37
Tisbury	2972.00	173066.65	12.90	81.61	81.61	79.00	50.82	59.94	9.47
Tolland	235.00	28878.32	4.90	68.78	68.78	47.65	5.03	12.17	13.64
Townsend	7201.00	138801.88	20.00	79.94	79.94	80.48	72.30	69.84	-0.09
Tyringham	344.00	15232.34	12.00	73.38	73.38	75.47	93.48	83.75	-18.18
Upton	3886.00	61703.94	24.25	91.75	91.75	91.69	83.06	83.77	-3.96
Uxbridge	8374.00	138756.27	24.50	78.31	78.31	64.08	9.47	19.17	18.47
Wakefield	24895.00	618232.09	24.50	78.62	78.62	70.27	18.19	28.30	27.29
Walpole	18859.00	494801.17	22.40	75.39	75.39	67.24	41.36	61.72	2.66
Ware	8953.00	124795.41	20.90	74.91	74.91	63.62	15.28	26.09	6.62
Watertown	34384.00	612066.20	33.61	73.87	61.35	57.80	12.75	26.32	35.65
Wayland	12170.00	473507.44	22.47	89.14	89.14	88.62	65.61	69.10	-4.99
Webster	14480.00	234422.02	18.00	73.65	67.06	64.37	18.70	28.93	20.61
Wellesley	27209.00	955988.66	22.70	83.64	83.64	81.70	81.47	93.27	-0.09
Wenham	3897.00	83968.60	24.54	94.17	94.17	93.75	84.69	91.29	-9.19
West_Boylston	6204.00	153914.21	21.20	74.55	74.55	70.66	38.21	46.47	7.79
West_Newbury	2861.00	69461.93	23.00	94.04	94.04	92.11	71.27	96.35	-14.67
West_Springfield	27042.00	531397.84	24.99	63.26	53.98	57.12	55.10	71.21	6.88
West_Stockbridge	1280.00	29139.70	19.20	82.27	82.27	80.14	75.38	86.72	-19.70
West_Tisbury	1010.00	129569.26	4.50	76.81	76.81	72.80	8.74	10.82	28.01
Westford	13434.00	326532.52	22.80	87.68	87.68	85.22	40.40	49.83	11.04
Weston	11169.00	614555.90	17.36	94.94	94.94	95.45	46.87	41.91	-6.21
Westport	13763.00	262480.16	21.40	88.63	88.63	88.55	97.81	98.63	27.99
Westwood	13212.00	470057.50	25.00	72.22	66.00	67.86	40.21	49.53	7.22
Weymouth	55601.00	963571.84	25.94	82.28	75.64	80.68	50.31	55.94	20.32
Whately	1341.00	28603.50	20.50	69.34	69.34	69.75	85.50	83.86	-0.89
Whitman	13534.00	160337.55	32.28	79.29	79.38	78.91	94.10	96.26	-4.68
Williamstown	8741.00	149628.00	24.38	79.98	79.98	79.28	61.03	63.72	-0.02
Winchendon	20701.00	86428.71	22.40	77.13	77.13	73.24	51.15	63.00	-5.71
Winchester	7019.00	728340.71	23.40	90.64	89.24	88.43	40.66	51.53	0.99
Windsor	598.00	17614.40	10.14	70.74	70.74	74.72	97.50	79.77	-2.78
Winthrop	19294.00	260023.75	23.60	92.00	92.00	91.05	87.15	98.46	18.41
Worthington	932.00	22674.71	15.00	90.09	90.09	89.14	87.87	97.36	-3.16
Arlington	48219.00	1211744.08	22.70	91.23	91.23	89.10	45.14	57.48	11.92
Auburn	14845.00	349245.34	19.50	65.51	65.51	61.56	68.07	80.76	5.79
Bellingham	14300.00	236499.72	20.19	84.27	84.27	81.24	59.77	73.95	-7.27
Canton	18182.00	626378.79	18.21	66.30	64.62	59.69	47.94	63.69	-4.84
Carlisle	3306.00	182001.50	16.70	96.91	96.91	95.66	82.74	117.62	-10.45
FALL_RIVER	92574.00	853241.63	25.00	64.99	54.48	52.62	25.08	41.92	41.30
Ludlow	18150.00	306478.64	22.13	81.80	81.80	76.42	37.87	52.53	12.23
Lunenburg	8405.00	192548.07	19.40	87.93	87.93	86.77	59.67	66.27	-13.16
MELROSE	30055.00	601061.73	25.00	90.57	88.00	87.46	54.98	75.73	7.30
Montague	8011.00	134552.15	24.97	63.10	56.79	62.17	88.36	91.94	1.34
Oak_Bluffs	1984.00	199077.43	11.86	91.25	91.25	91.37	73.28	72.18	9.66
Raynham	9085.00	187349.30	20.90	77.96	77.96	75.60	59.10	67.49	-2.42
Tewksbury	24635.00	558044.95	20.90	71.86	71.86	68.24	62.31	74.05	9.52
Wilmington	17471.00	572038.98	21.55	57.45	53.20	52.48	37.97	46.43	17.37

LIST OF PERSONS INTERVIEWED

Barbara Anderson, executive director of Citizens for Limited Taxation

Mrs. Bayes, staff member DOR Division of Local Services

David Batchelder, assessor of Belmont

John Brouder, staff assistant to Joint Taxation Committee of the legislature

Donald E. Buckholtz, senior research associate of Massachusetts Taxpayers Foundation

Wendell Cardiff, assistant assessor of West Springfield

Anne Carney, assessor of Easton, officer of Massachusetts Association of Assessing Officers

Frank N. Costa, State Representative; former assessor of Adams

Joseph K. Eckert, assistant assessor of Brookline; staff member of Lincoln Institute of Land Policy

Roger Edwards, assistant assessor of Gloucester

Mary L. Flanagan, assessor of Avon

Joseph J. Fraczek, assessor of West Springfield

James J. Griffin Jr., assessor of Newburyport

Edward G. Kavanaugh, assessor of Erving

Mr. MacLeod, assistant assessor of Canton

Jane Malme, chief of DOR Bureau of Local Assessment

Edmund J. Menegus, assessor of Clinton

Albert E. Mercier, assessor of Fall River

Heinz Muhlmann, executive director of Associated Industries of Massachusetts

Helene A. Murphy, assessor of Haverhill

Robert Palmer, assistant assessor of Newton

Daniel J. Pikkarainen, assessor of Fitchburg

Eugene Phillips, assessor of Hopedale



Alfred P. Pompio Jr., assistant assessor of Medford

Michael J. Quigley, assessor of Pittsfield

Francis E. Ryan, assessor of Brookline

Raymond G. Torto, professor of economics at University of Massachusetts-Boston; former chief assessor of Boston

Curt Troutman, research director of Massachusetts Fair Share

J. Malcolm Whitney, assessor of Watertown

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## ABOUT THE AUTHOR

Lawrence Segel is from Ann Arbor, Michigan. He earned the A.B. at Oberlin College in 1977, where he majored in Urban Studies. In the fall of 1975 he attended the City Semester Program at Boston University. He did post-graduate work at The University of Michigan before entering the MIT urban planning program in 1981. At MIT he has concentrated on land use and real estate development processes, financial analysis, and municipal finance.

During 1978-81 Mr. Segel was a research assistant at The University of Michigan, Highway Safety Research Institute, Policy Analysis Division, involved in the collection and evaluation of mathematical models. During 1981-83 he was a research assistant to the Impact: 2 1/2 study at MIT, assessing the impacts of Proposition 2 1/2 on municipal services. During 1983 he worked with The Beacon Companies, Management Information Systems Group.

Mr. Segel is the co-author of An Analysis of the Jack Faucett Associates Automobile Sector Forecasting Model, and An Inventory of Selected Mathematical Models Relating to the Motor Vehicle Transportation System and Associated Literature (also First and Second Supplements).