

Direct Property Tax Relief

Report Prepared for the Connecticut Tax Panel

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Executive Summary

This report on direct forms of property tax relief has been prepared for the Connecticut Tax Panel to consider as it conducts a comprehensive review of state tax policies. The purpose of the report is to provide an overview of Connecticut's current reliance on property tax financing and its relief programs and their effectiveness, followed by recommendations based on the analysis of the current programs. Highlights of the report are as follows:

- Property Tax Reliance--Connecticut is among the states most reliant on local property taxes.
 - Local property taxes as a share of own-source general revenue is the highest in the country.
 - Residential property accounts for 70 percent of the total property tax base, with commercial, industrial and public utility property accounting for 17 percent, and personal property (including automobiles) accounting for 11 percent.
- Current property tax relief mechanisms
 - CT currently has thirteen programs to reduce property tax burdens, including two circuit breakers, numerous exemptions, freezes, and a deferral program.
 - The net effect of these programs is to reduce property tax burdens by a modest amount. The total tax savings from property tax exemptions and credits as a percent of total property tax revenues in Connecticut has been estimated to be less than 0.5 percent in 2012.
 - In addition, Connecticut has a use-value assessment program (PA490) to provide reduced property taxes for rural properties which results in substantial tax relief and lost revenue for local government units.
- Options for Policy Reform:
 - Consider replacing the current complex set of property tax exemptions and circuit breakers with a single unified circuit breaker mechanism that provides property tax relief to homeowners and renters whose property taxes are high relative to their household resources.
 - Implement a single threshold type circuit-breaker credit on the Connecticut income tax to provide targeted relief (modification of the current CT property tax credit).
 - Fund that property tax relief with general revenues generated by state income and sales taxes, as well as with increased revenues from the elimination of other relief mechanisms (e.g. State-funded exemptions, and increased revenue from tightening PA490 provisions).
 - Consider tightening PA490 provisions to target tax relief more specifically.
 - Implement an objective test for agricultural use (e.g. *de minimus* level of net income from agricultural production).

- Rationalize use-value assessment (UVA) computation methods used—a more accurate income measure and a more realistic capitalization rate.
- Ideally, move away from general tax relief for agriculture and move toward strategic use of UVA to protect and preserve land that provides ecosystem services that are a form of public good or generates positive externalities.
- The Tax Expenditure Report should provide an estimate of the foregone revenue due to PA490.
- Consider modifications to the current property tax deferral program.
 - Reduce the threshold level of tax relative to income from eight percent to, perhaps, five percent.
 - Hold local governments harmless by having the State provide a low interest loan secured by a lien on the property that pays the property tax to the local government units.

Connecticut Property Tax Overview

The purpose of this chapter is to review the various forms of direct property tax relief provided in Connecticut and to make recommendations for changes or additional forms of direct relief.

The context for this study is a high degree of reliance on property tax funding for local public goods and services in Connecticut. The 169 cities and towns in Connecticut rely heavily on property taxes to fund the local public goods and services they provide to their citizens. Chief among those goods and services are public education, police and fire protection, and road maintenance. CT law authorizes use of local property taxes on an *ad valorem* basis to be applied to the following:

- Real estate
- Motor vehicles
- Business personal property
- Individual personal property

Properties in Connecticut are generally assessed at 70 percent of “present true and actual value,” or “fair market value.”¹ State statutes proscribe procedures for assessments of property subject to the property tax. Municipalities are required to revalue properties every five years. Generally accepted mass appraisal methods are required, employing market comparison, income capitalization, or cost approaches. Local tax assessors carry out the assessment, collections, and appeals functions.² Heavy reliance on the local property tax has not limited the number of ways in which the property tax base has been narrowed, however. State statutes provide for selective exemptions and abatements in addition to credits.

The 2014 CT tax incidence report estimates that 23 percent of property taxes are paid by out-of-state owners of CT property thereby exporting nearly a quarter of the property tax burden.³ That leaves 77 percent of the property tax burden to be borne by CT residents—a total of \$7.3 billion in tax burden or 40 percent of the total tax burden. That report also estimates a Suits Index of -0.39 for the property tax which indicates that the tax is regressive, falling harder on low income households than high income households.⁴

That report provides a table on page 20 titled Property Tax: Income Deciles in which property tax burdens for each income decile are reported. In addition, the table reports tax rates which is derived by computing the ratio of total property tax paid by households in the income decile to the total CT adjusted gross income (AGI) of households in the decile. The tax rates reported

¹ Source: Rappa (2008). <https://www.cga.ct.gov/2008/rpt/2008-r-0358.htm>

² Connecticut laws regarding property assessment and taxation are found in Chapter 201 which covers state and local revenue services, Chapter 203 which covers property tax assessment, Chapter 204 which covers local levy and tax collection, and Chapter 204a which covers property tax relief for elderly homeowners, renters, and the disabled.

³ Source: Department of Revenue Services (2104).

⁴ This estimate is based on the traditional view of property tax incidence (partial equilibrium) and does not take into account general equilibrium effects which would indicate the tax is more progressive.

range from a high of 12.52 percent in the first decile to a low of 0.92 percent in the top decile. The tax rate pattern with respect to AGI indicates that as AGI rises the tax rates fall.⁵

The tax incidence report estimates that two-thirds of the property tax burden is borne by owners of residential property.⁶ Owners of motor vehicles bear about 7 percent of the tax burden. The incidence of the property tax is estimated to be shifted partially to labor, with 17.4 percent of the tax borne by workers.

Motor vehicles are taxed on an *ad valorem* basis in CT, as a form of personal property (rather than real property). Local assessors are responsible for valuation of vehicles. For most vehicles, the assessors are able to use NADA value estimates provided to them by OPM. For the remaining vehicles, the assessor must estimate values. The property tax base is 70 percent of the average retail value of the vehicle. October 15 is the uniform assessment date.⁷

Connecticut Property Tax Reliance

Connecticut local governments rely heavily on the property tax to fund the provision of local public goods and services. Evidence of the high degree of property tax reliance is provided in Figures 1-3.

Property Taxes as a Share of State Personal Income

Figure 1 illustrates local property taxes as a share of state personal income for the fifty states and the District of Columbia.⁸ Connecticut is illustrated in the red bar, with property taxes taking more than four percent of state personal income. Green bars illustrate the other New England states, using the Census regional definition. Among the other New England states it is evident that Maine and New Hampshire have similarly high property taxes relative to personal income.⁹ Rhode Island property taxes are even higher, accounting for nearly five percent of personal income. Massachusetts is somewhat lower at just under four percent. Vermont is the lowest with property taxes accounting for less than two percent of personal income. The neighboring states of New Jersey and New York, shown in yellow, have property taxes as a share of personal income that are at higher than those in Connecticut.

⁵ ETRs computed in this way are subject to several flaws. First, CT AGI (form CT-1040 line 5) is a narrow measure of income because it is based on federal AGI, which is itself a narrow measure of income, and permits further subtractions (form CT-1040 line 4). Furthermore, these ETRs are average tax rates, not marginal tax rates.

⁶ It is noteworthy that the incidence of the tax on land is particularly small, only 0.3 percent.

⁷ Source: <http://www.ct.gov/dmv/cwp/view.asp?a=814&q=245268>

⁸ Some states such as New Hampshire also have a state property tax which is not taken into account in this figure.

⁹ New Hampshire's share would be higher if its state property tax were included, but that is not reflected in this figure.

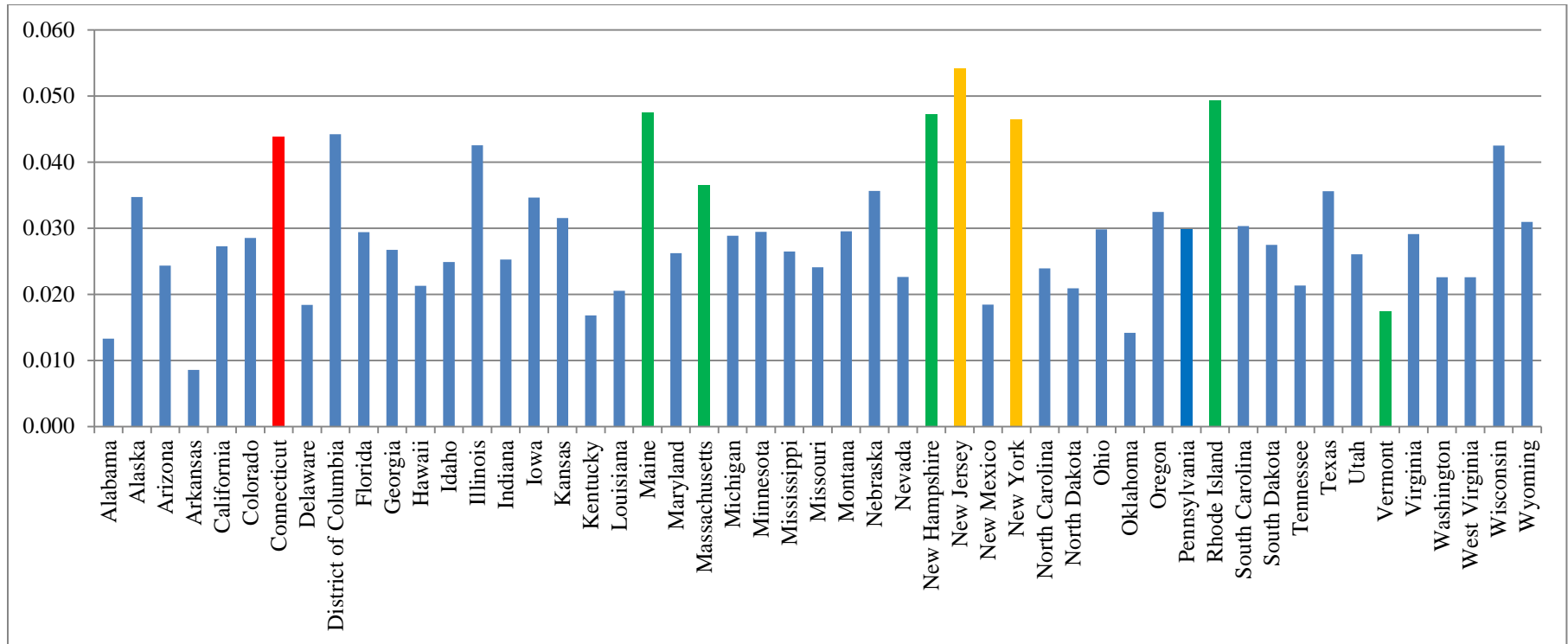
Property Taxes as a Share of Own-Source General Revenue

Figure 2 illustrates local property taxes as a share of own-source general revenue. This measure reflects the extent to which property taxes play a role relative to all revenue generated by local governments, not including transfers from state or federal government. By this measure, Connecticut is more reliant on property taxes than all of the other states and the District of Columbia. Local property taxes account for 86 percent of own-source general revenues. Most of the other New England states are also highly reliant on property taxes by this measure. Maine, Massachusetts, New Hampshire, and Rhode Island are all in the range of 80 percent. Vermont is less reliant on local property taxes at 59 percent. The neighboring state of New Jersey is also high at 79 percent, but New York is less reliant on property taxes at 44 percent.

Property Taxes as a Share of Own-Source Taxes

Figure 3 illustrates local property taxes as a share of own-source taxes. This measure indicates the extent to which property taxes account for local tax revenues. Connecticut is among the highest states by this measure, very highly reliant on property taxes (99 percent). Property taxes account for virtually all local government taxes in Connecticut. The other New England states are similarly highly reliant on property taxes. Neighboring New Jersey (98 percent) is also highly reliant on property taxes by this measure, but New York (58 percent) has other tax revenue sources resulting in lower property tax reliance.

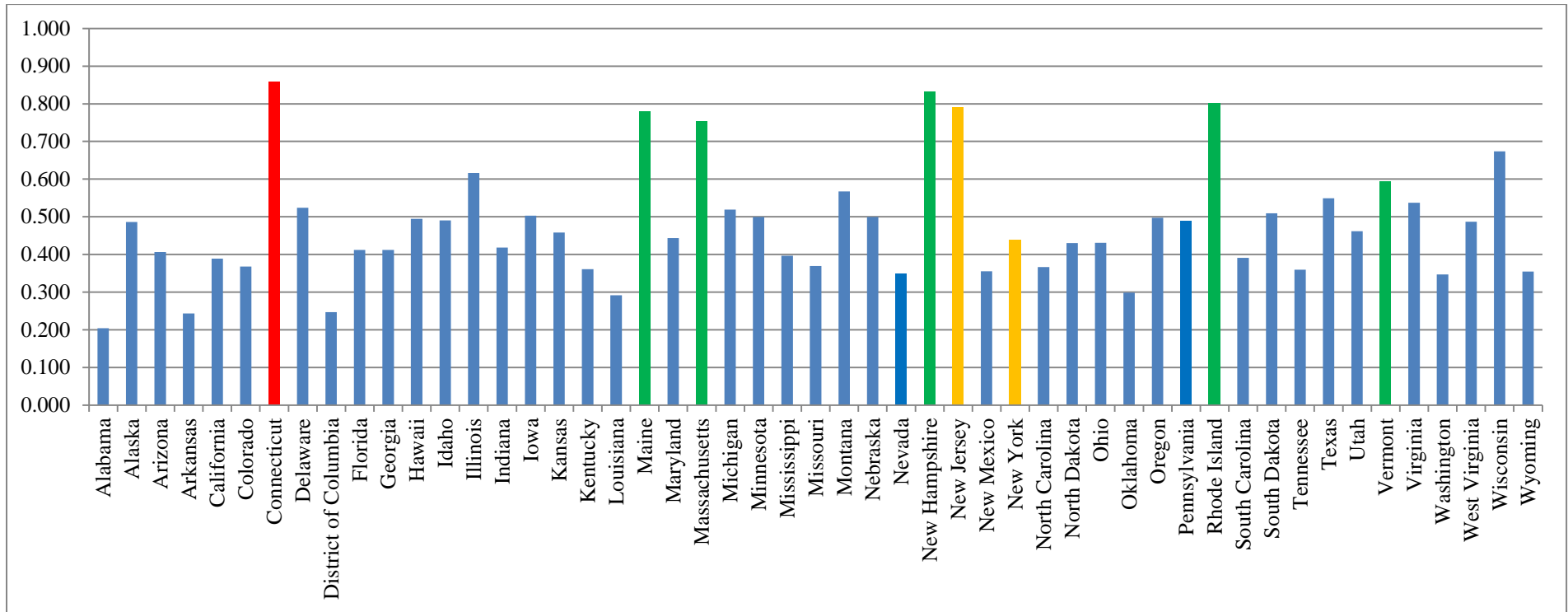
Figure 1: Local Property Taxes as a Share of State Personal Income, 2013



Note: States in the New England Census region are colored green and other states near CT are colored in yellow.

Source: Census Bureau.

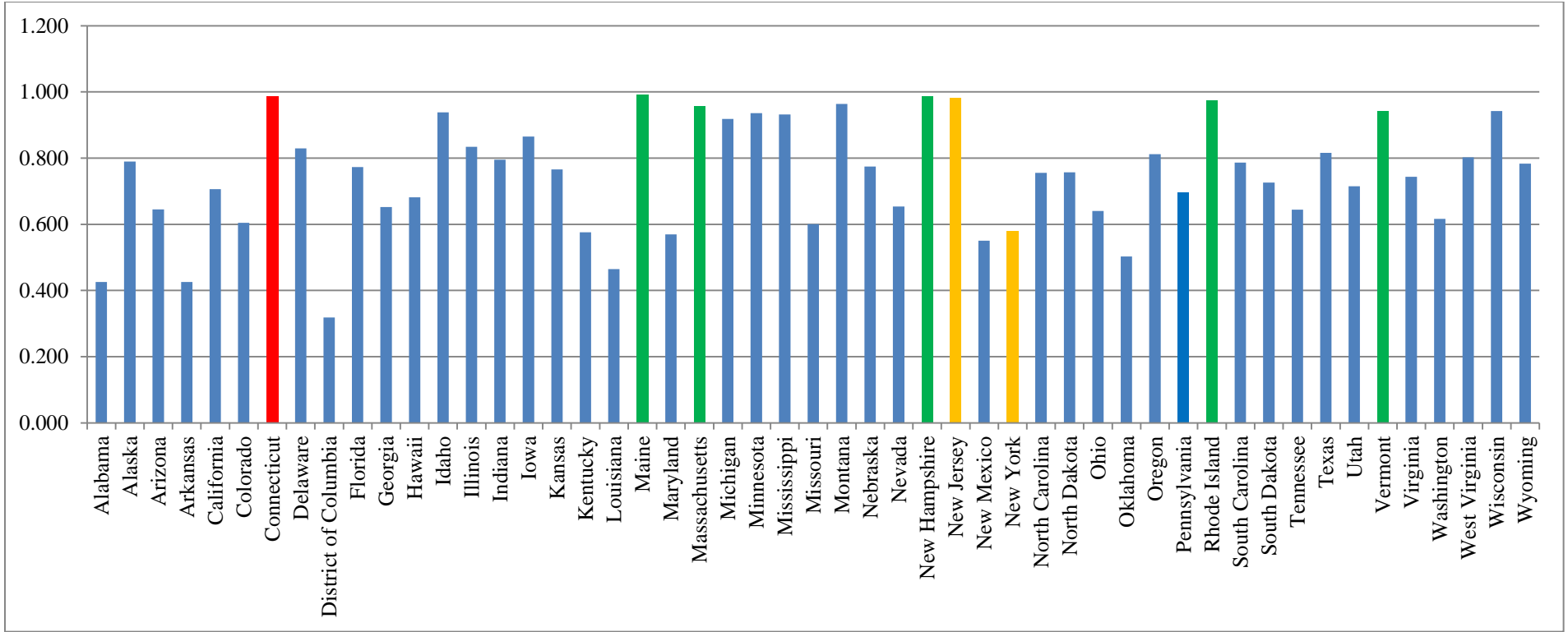
Figure 2: Local Property Tax as a Share of Own-Source General Revenue, 2013



Note: States in the New England Census region are colored green and other states near CT are colored in yellow.

Source: Census Bureau.

Figure 3: Local Property Tax as a Share of Own-Source Taxes, 2013



Note: States in the New England Census region are colored green and other states near CT are colored in yellow.

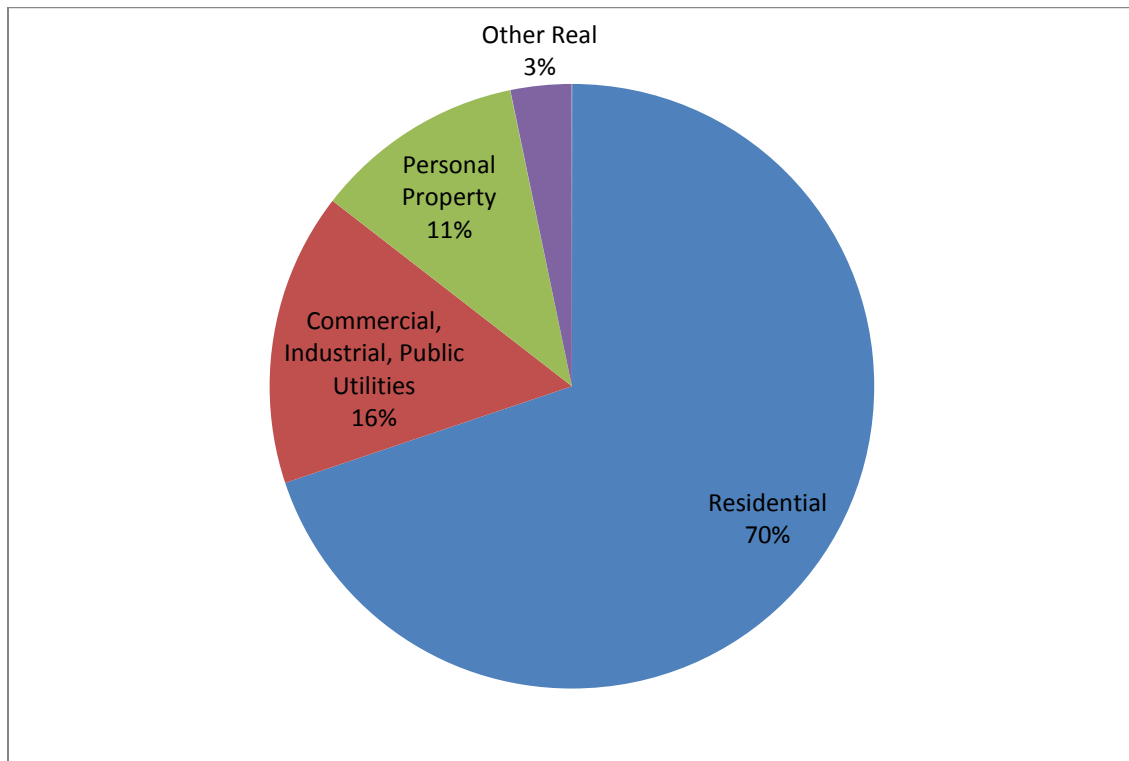
Source: Census Bureau.

Connecticut Property Tax Base and Assessment Practices

Property Tax Base

Figure 4 illustrates the composition of the property tax base in Connecticut. Residential property comprises a full 70 percent of the total property value in the state. The second most important class of property is commercial and industrial or public utilities, comprising 16 percent of the total. Personal property accounts for 11 percent of the total tax base, including motor vehicles.

Figure 4: Connecticut Property Tax Base, FY 2013



[Source: Connecticut Equalized Grand List 2013 GLY.](http://www.ct.gov/opm/cwp/view.asp?a=2987&q=385970&opmNav_GID=1807)
http://www.ct.gov/opm/cwp/view.asp?a=2987&q=385970&opmNav_GID=1807

Assessment Practices¹⁰

A total of 169 cities and towns in Connecticut conduct property assessments. Municipalities assess real property on the basis of market value for tax purposes each year on October 1. Assessments are based on 70 percent of market value for all classes of property, with the exception of those properties eligible for use-value assessment under Connecticut's use-value assessment law (PA490).

Assessors are required to revalue property at least once every five years. Reappraisal cycles are staggered among cities so that municipalities are completing their reappraisals in different years from one another. Physical re-inspections of properties are required by the State but there is no fixed schedule of rotation proscribed. An assessor has the ability to inspect a parcel of improved property at any time. The State requires that inspections be conducted at least once every ten years.

Revaluation does not necessarily produce higher tax liabilities, depending on the corresponding changes in the mill rates applied. When revaluation has an impact on tax liabilities, however, State statutes allow municipalities to phase in the higher values over a five-year period. In some limited cases, State statutes permit shifting of the tax burden from residential to non-residential property classes. In addition, the legislature has permitted delays in revaluation implementation on a case-by-case basis.

Revaluation methods used by assessors include the traditional triad: market comparison, cost approach, and income capitalization. Assessors are allowed to use computer aided mass appraisal (CAMA) methods, and most assessors use the services of private vendors for this purpose.

Classification and Hartford Assessments

Generally speaking, Connecticut does not permit classification in the property tax system. All classes of property are assessed at 70 percent of market value. There are several exceptions to this general rule, however.

First, following revaluation, State statutes permit phase-in of increases in property assessed value by classes of property. Municipalities may phase in all or a portion of increased assessed value over a five-year period. The phase-in rates are permitted to differ by class of property.

For residential property, in particular, the Legislature authorized several alternative phase-in methods to deal with sudden increases in valuations, starting in 1989.¹¹ Municipalities were enabled to give tax credits to residential owners and impose surcharges on non-residential owners so long as the post-revaluation tax rate on residential property exceeded 1.5 percent. While this provision was made available to all municipalities, only Hartford implemented this

¹⁰ Sources: Significant Features of the Property Tax, Rappa (2012).

¹¹ Source: Rappa (2012).

phase-in method. The Legislature repealed the tax cap starting in 2010, but provided a new cap limiting annual residential tax increases to 3.5 percent per year for a period of five years. This limitation took the form of an assessment limit. The law also required any adopting municipality to reduce its non-residential surcharge to a maximum of 7.5 percent starting in 2010.

The City of Hartford has been permitted to assess residential real estate and apartments at lower rates than commercial and industrial properties. In 2013 the assessment ratio applied to commercial properties was 70 percent of market value while that for residential properties was 29.93 percent. Apartments and mixed-use properties were assessed at 60 percent.

Starting in 2011, the City of Hartford has been required to alter its assessment ratio for residential property in such a way that the average annual tax increase falls below specified limits.¹² Hartford was also required to adjust assessments for apartments. The previously applied lower rate for apartments then began phasing out in 2012. The apartment assessment ratio rose from 37.602 percent in 2011 to 50 percent in 2012 and has risen 5 percent each year since in order to reach the target of 70 percent by the year 2015.¹³ Appendix Table A1 provides a tax rate history by class of property for Hartford.

Second, agricultural and rural property is assessed according to use value rather than market value, as discussed later in this report.

As a matter of general tax policy, classification is usually considered an undesirable feature of tax systems because it fundamentally violates the principle of uniformity of taxation. Coe (2009) indicates that uniformity is a commonly stated principle of taxation—such an important characteristic of tax systems that thirty-nine of the fifty states have constitutional requirements for uniform taxation. Connecticut is not among them. Uniformity requires that taxation be applied in an identical way to all similarly situated taxpayers.

Despite the policy view on the undesirable properties of classification, Sexton (2014) reports that 27 states and the District of Columbia have classified tax systems in some respect; this despite the fact that many of these states have uniformity requirements in their constitutions. Clearly, some of the uniformity requirements provide limited forms of uniformity, e.g. within specific classes of taxpayers, or in other ways limit the scope of the uniformity requirements.

¹² The limits are determined as follows. The residential assessment ratio adjustment must be calculated annually and is based on the difference between the taxes levied in the current year minus taxes levied in the previous year. An adjustment for inflation is made using the CPI-U in the Northeast region. The adjustment was first applied in the 2012 assessment year for taxes due in FY2013-14. Sources: Rappa (2012) and Significant Features of the Property Tax, https://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_State_Summaries.aspx#assessment-administration

¹³ Source: Significant Features of the Property Tax, https://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_State_Summaries.aspx#assessment-administration

Table A2 in the Appendix provides a list of states with uniformity requirements. It is notable that only two of the Northeast states, using the Census regional definition, have uniformity requirements: Pennsylvania and New Jersey.

Connecticut Current Property Tax Relief Mechanisms

Connecticut has a variety of existing programs, both State and local, which provide direct property tax relief. Significant Features of the Property Tax reports thirteen residential property tax relief programs in Connecticut, including two types of circuit breakers, numerous exemptions, and a tax deferral program.¹⁴ This section provides an overview of the main programs, starting with the major state-funded programs.¹⁵

State-Funded Property Tax Relief Programs

Circuit Breaker for the Elderly and Disabled

Connecticut currently has a circuit breaker program of property tax relief for the elderly and disabled. Tax relief is provided in the form of a credit applied to a homeowner's property tax bill. Homeowners at least 65 years of age, or Social Security disability eligible if younger than 65, apply for a property tax credit with the local assessor. Credit amounts vary inversely with income, making this a sliding-scale circuit breaker. For 2014, the income qualification limits were \$34,600 for a single person and \$42,200 for a married couple. Income qualification brackets are indexed for inflation using the Social Security inflation adjustment. The maximum credit is \$1,000 for unmarried homeowners and \$1,250 for married homeowners.

Credit amounts begin at 50 percent of property tax for homeowners in the lowest income category and decline in increments of 10 percent for each of the five successive income categories, phasing out entirely at the income maximum.

Applicants for the credit must file their application forms (Form M-35H) with the local tax assessor's office between February 1 and May 15th. Homeowners must apply biennially. The state reimburses municipalities from its general fund for the revenue loss due to the tax credits provided. A total of 169 municipalities and 6 boroughs are eligible for state reimbursement. In FY2015 total credits amounted to \$20.5 million given to 39,374 individuals.¹⁶

¹⁴ Source: Significant Features of the Property Tax, http://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_State_Summaries.aspx#residential-property-tax-relief-programs

¹⁵ Sources: De Boer (2012), and Connecticut's Legislative Commission on Aging (2015).

¹⁶ Source: correspondence with Patrick Sullivan, Office of Policy and Management.

The total state appropriate for this program in FY2015 was \$20.5 million, but the total reimbursements requested by local governments were \$22.5 million. The difference indicates that State appropriations for this program do not fully cover the cost of the program. Local government units do not receive full reimbursement. In recent history, State appropriations have generally covered from 88 to 95 percent of the cost of the program.¹⁷

Income Tax Credit for Property Taxes Paid

The CT income tax provides a credit for property taxes paid on residents' primary residence, motor vehicle, or both, on line 11 of Form CT-1040. While not specifically named a circuit breaker, this tax credit is rightfully considered as such.

The taxpayer must complete Schedule 3 on page 4 of CT-1040, reporting property tax paid and income. The amount of the credit is reduced for single filers with incomes in excess of \$62,500 and for married-joint filers with incomes in excess of \$100,500. A Property Tax Credit Table on p. 31 of the CT income tax instruction booklet provides the phase-out parameters. The maximum credit allowed has been \$300 until recently when the legislature voted to reduce the maximum credit to \$200. The credit is not fully refundable.¹⁸

Elderly and Disabled Freeze Programs

Connecticut has both a current and previous tax freeze program for the elderly and disabled. The previous program froze property taxes for the elderly and disabled. That program provided State reimbursement to municipalities for lost revenue. That program has been closed to new enrollments since 1979. Total State appropriation for this program in FY 2015 was \$235,000. Total reimbursements requested and paid were \$120,870.80. Payments were made to 34 towns plus 3 boroughs/districts containing 63 individual applicants.¹⁹

The current freeze program, which began in 2006, permits municipalities the option to freeze property taxes for qualifying older taxpayers. The program is strictly optional for municipalities and it does not provide State reimbursement for lost revenues. This program freezes the property tax liability at the level of the year prior to application for the program.²⁰

Qualifications require: (1) that the taxpayer be at least 70 years of age (living with a spouse at least 70; or at least 62 years of age and a surviving spouse of a person who at the time of death was eligible for the program, provided the surviving spouse was living with the recipient at the

¹⁷ Source: conversation with Patrick Sullivan, Office of Policy and Management.

¹⁸ Source: Form CT-1040 and *2014 Form CT-1040 Connecticut Resident Income Tax Return and Instructions*.

¹⁹ Source: correspondence with Patrick Sullivan, Office of Policy and Management. Mr. Sullivan reports that there are currently 51 individuals remaining in this program.

²⁰ Chapter 204a, Property Tax Relief for Elderly Homeowners and Renters and Persons with Permanent Total Disability, Sec. 12-170v, paragraph (b).

time of death), (2) that the taxpayer has resided in CT for any one year prior to filing the claim and be currently residing in CT when filing the claim, (3) be occupying the property as the primary place of residence, and (4) have qualifying annual income as defined by the Circuit Breaker program.²¹ Municipalities are given the flexibility to establish their own asset limits for this program as well.

Disability Programs

The State disability program has a \$400,000 appropriation to provide property tax relief to totally disabled persons. Eligibility follows Social Security disability guidelines. There are no income qualification requirements. Eligible disabled persons receive a \$1,000 exemption reducing their assessment.

In FY 2015 total reimbursements requested by local governments amounted to \$470,678, of which \$400,000 was paid by the State. Payments were made to 169 towns plus 24 boroughs/districts containing 13,763 individual applicants.

Additional Veterans Exemption Program

Qualifying veterans may receive both a basic exemption, which is not reimbursed by the State to the local government unit. In addition, there is a State program that provides exemptions, with reimbursements to local units for the foregone revenue. Income qualification requirements for the State program are the same as those for the circuit breaker program.

In FY 2015 total reimbursements from the State requested were \$3.11 million, whereas the State appropriation for this program was \$2.97 million. State reimbursements were provided to 169 towns plus 4 boroughs/districts containing 17,937 individual applicants.

State Grants to Renters

A separate program of State grants is provided for renters who are required to apply for the credit annually. Income qualification requirements are the same as those for the homeowner program. State payment is the lesser of: (1) the maximum amount listed in statute, and (2) 35 percent of the sum of all charges for rents, electricity, gas, water, and fuel actually paid during the preceding year, less 5 percent of the qualifying income received in the previous year. The maximum credit provided is \$900 for a married couple and \$700 for a single renter.²²

²¹ Source: Connecticut's Legislative Commission on Aging (2015).

²² Source: Chapter 204a, Property Tax Relief for Elderly Homeowners and Renters and Persons with Permanent Total Disability, Sec. 12-170e.

In addition to the above state-funded programs, there are a wide range of local option property tax relief programs for the disabled, blind, and veterans, most of which are provided in the form of exemptions.²³ Qualifying homeowners are given exemptions, thereby reducing their assessed values and their property tax liabilities. Revenue losses to the local government units are not reimbursed by the State.

Municipal Exemptions

Exemption for the Disabled

Municipalities are required to provide qualified disabled homeowners a \$1,000 property tax exemption. Municipalities have the option to provide an additional exemption of up to \$1,000.

Exemption for the Blind

Municipalities are required to provide qualified blind homeowners a \$3,000 property tax exemption. Municipalities have the option to provide an additional exemption of up to \$2,000.

Standard Exemption for Veterans

Municipalities are required to provide qualified veterans or their survivors a \$1,000 property tax exemption. Municipalities have the option to provide an additional exemption of up to \$10,000, or 10 percent of the property value, subject to statutory income limits.

Additional Exemption for Veterans

Municipalities are required to provide eligible veterans who receive the standard exemption an additional exemption based on qualifying income.

Exemption for Disabled Veterans

Municipalities are required to provide disabled veterans or their surviving spouses a \$3,000 property tax exemption.

Exemption for Severely Disabled Veterans

Municipalities are required to provide severely disabled veterans or their surviving spouses a \$10,000 property tax exemption and an additional exemption based on their qualifying income.

²³ A total of 38 state-provided relief options are available to local governments in Connecticut. An informal survey conducted by the Connecticut Conference of Municipalities (CCM) in 2015 indicates that most of these relief programs are used by very few local governments. No one option is used by a majority of municipalities.

Property Tax Deferral Program²⁴

Connecticut gives municipalities the option to defer property taxes for a homeowner's principal residence. Municipalities that adopt deferral programs may defer taxes that exceed 8 percent of income. The deferred tax plus 6 percent interest is secured by a lien on the property.

The optional property tax relief provided through the deferral program is in addition to the tax relief required of municipalities, described above.

Summary of Relief Provided

The vast array of relief programs provided in Connecticut actually provides very modest relief for property tax payers. Significant Features of the Property Tax lists 13 distinct property tax relief programs in Connecticut, including various exemptions, circuit breakers, deferrals, and other programs.²⁵ Despite this range of tax relief programs, the amount of tax relief provided is quite limited.

Bell (2015) provides an overview of property taxes in Connecticut prepared for the CT Tax Panel and indicates that the relief programs reduce effective tax rates by a very modest amount. For example, in a large city like Bridgeport, the effective tax rate for residential properties, without any relief programs taken into account, is 2.95 percent. Relief programs reduce that rate to 2.90 percent. In a smaller city such as Manchester, the rate without relief is 2.76 percent, and with relief programs it is 2.64 percent.

Langley (2015) estimates that the total tax savings from property tax exemptions and credits as a percent of total property tax revenues in Connecticut was under 0.5 percent in 2012. Overall, the evidence is that the wide variety of relief programs does little to reduce the effective property tax rates in Connecticut.

Connecticut Use-Value Assessment of Rural Property

Connecticut's land use-value assessment law is known as Public Act 490 (PA490). Under the provisions of this law, landowners pay tax based on the current use value of the property rather than based on the "highest and best use," or market value of the property. The Tax Expenditure Report (2014) provides no estimate of the foregone revenues due to PA490, so there is no comprehensive estimate of the foregone revenues involved with this policy. Examples of the assessment effects of PA490 in two communities are provided later in this section.

By taxing rural land based on its current use rather than on the basis of its market value, use-value assessment (UVA) confers substantial tax reductions for some properties, but may have little impact for others. We would expect that near urban areas where there are competing land

²⁴ Source: Pinho (2012).

²⁵ Source: http://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_Residential_Property_Tax_Relief_Programs.aspx

uses, the difference between market value and use value is large. But, in more remote rural areas lacking competing land uses, the difference may be non-existent.

This form of tax treatment was developed in the 1960s and by the 1990s it had become pervasive in the United States. Anderson and England (2014) provides a history and review of state UVA programs. Anderson, Giertz and Shimul (2015) provides analysis of the spread of this tax policy across the states.

As a form of preferential tax treatment for the agricultural, forest, marine trust, and other rural land uses, UVA has the potential to alter land use in some cases. The stated purposes of Connecticut's PA490, for example, are (a) that it is in the public interest to encourage the preservation of farmland, forest land and open space land in order to maintain a readily available source of food and farm products close to the metropolitan areas of the state, to conserve the state's natural resources and to provide for the welfare and happiness of the inhabitants of the state, and (b) it is in the public interest to prevent the forced conversion of farmland, forest land and open space land to more intensive uses as the result of economic pressures caused by the assessment thereof for purposes of property taxation at values incompatible with their preservation as such farmland, forest land and open space land.²⁶

There are no minimum acreage requirements or specific income requirements for farmland to qualify for PA490 preferential tax treatment. While evidence of *bona fide* agribusiness and farming activity is required, guidelines regarding such evidence provide a wide degree of latitude for the assessor to consider.²⁷

A conveyance tax is applied to landowners who sell land enrolled in PA490 for development purposes within ten years of initial enrollment of the land. The tax is 10 percent for land withdrawn in the first year after enrollment, declining to one percent in the tenth year. There is no conveyance tax after the tenth year.²⁸

Table 1 reports the recommended land values applied under PA490 for various types of land. Tillable types of land of with declining qualities are listed as types A through D, followed by orchard land, pasture land, swamp, and forest land. The table makes a distinction between statewide values and values in the River Valley which is generally more fertile. The values listed in this table are notably low, indicating that PA490 reduces property taxes substantially.

²⁶ Connecticut Farm Bureau (2010, p.1)

²⁷ Connecticut Farm Bureau (2010, p. 11)

²⁸ Connecticut Farm Bureau (2010, p. 21)

Table 1: Recommended Land Use Values in Connecticut, 2010

Category	Statewide	River Valley
Tillable A	\$2,400	\$2,800
Tillable B	\$1,600	\$2,000
Tillable C	\$400	\$1,100
Tillable D	\$225	\$600
Orchard E	\$750	\$750
Pasture F	\$90	\$90
Swamp, Ledge Scrub G	\$40	\$40
Woodland/Forest Land	\$130	\$130

Source: Connecticut Farm Bureau (2010) Appendix D: 2010 PA 490 Land Use Values.

The income capitalization method is used to estimate use-value assessments in Connecticut, as is done in most states. As described in the PA490 manual published by the Connecticut Farm Bureau, income estimates are obtained from a survey of rental values. The average rental value for each type of land is then capitalized using capitalization rates based on several methods. The PA490 Summary Grid provided on p. 6 of that manual indicates that a capitalization rate of 12.5 percent is used to compute use value. For example, Tillable A land with average rent of \$291/acre is capitalized at a 12.5 percent rate to obtain use value of \$2,328 ($\$291/.125$).

There are two difficulties with this method of estimating use value. First, by relying on a survey of rental values, there may be a systematic downward bias in the use-value estimation. Rental values for land may be systematically lower than net incomes generated by owner-operators. Second, the capitalization rate used is biased upward which has the effect of reducing the estimate of use value. A capitalization rate of 12.5 percent in 2010 bears no direct resemblance to the actual opportunity cost of capital in that market circumstance.

The effect of these estimation methods is to produce use values that are very low, reducing the property tax base and shifting the property tax burden to other classes of property.

For perspective, the land values in Table 1 can be converted into the assumed net incomes using the traditional perpetuity formula. Using the perpetuity formula, the value of land is the annual net income generated by the land divided by the discount rate. Assuming a five percent discount rate, Table 2 converts the land values into the implied net incomes generated by each category of land. Clearly, the net incomes vary with the quality of the land and its productive capacity, but they are very low across the board.

Table 2: Recommended Land Use Values in Connecticut, 2010—Implied Net Income

Category	Statewide	River Valley
Tillable A	\$120.00	\$140.00
Tillable B	\$80.00	\$100.00
Tillable C	\$20.00	\$55.00
Tillable D	\$11.25	\$30.00
Orchard E	\$37.50	\$37.50
Pasture F	\$4.50	\$4.50
Swamp, Ledge Scrub G	\$2.00	\$2.00
Woodland/Forest Land	\$6.50	\$6.50

Source: Author's computations based on Connecticut Farm Bureau (2010) Appendix D: 2010 PA 490 Land Use Value, and an assumed capitalization rate of 5 percent.

Comprehensive PA490 data are not readily available at the parcel level to conduct analysis of the impact of that program on tax liabilities, but two municipalities responded to the request to provide such data. The Town of Coventry and the Town of Union provided parcel-level data with both market values and PA490 assessments. In what follows, the data provided are analyzed to judge the impact of PA490 on assessed values in comparison with appraised values. While not representative, this analysis is informative.

Town of Coventry PA490 Property Tax Preference

The town of Coventry provided data for 129 properties in 2014 that benefit from PA 490 preferential tax treatment.²⁹ Analysis of these data indicates that for these properties the average percentage reduction in property tax (assessment without PA490 minus current total assessed parcel value as a percent of the assessment without PA490) is 57.14 percent. The median reduction is 51.28 percent, indicating that half of the parcels receive a reduction of at least that amount. The maximum reduction is 99.77 percent, virtually eliminating all of the property tax on that parcel. The minimum reduction is just 1.39 percent, indicating that PA490 had little impact on the assessment. These descriptive data reveal that PA490 has a highly variable effect on assessments.

In the aggregate, these parcels would have had total assessed value of \$27.9 million without PA490, but with PA490 preferential tax treatment the total assessed value is reduced to \$15.1 million. At a given mill rate, property tax revenues would be reduced accordingly. Of course, with a broader property tax base, the mill rate could be reduced with the effect that all non-PA490 properties would realize a reduction in property burden.

²⁹ Town of Coventry data provided by Tom Elsesser, Town Manager.

Town of Union PA490 Property Tax Preference

The Town of Union also provided data on the assessed and appraised values of 462 PA 490 properties classified as open space, farmland, or forestland.³⁰ The aggregate appraised value of these properties is \$51.6 million whereas the assessed value under PA490 for these properties is \$1.8 million. Most of the properties have PA 490 assessed values that are less than five percent of their appraised values. The maximum reduction in assessed value is a full 100 percent. In the aggregate, the assessed value of these properties is 3.5 percent of the appraised value.

PA 490 tax treatment is responsible for lost revenue amounting to 96.4 percent of the revenue that would otherwise have been collected on these properties. At the 29 mill rate applied in the Town of Union, the foregone revenue is \$1.4 million.

Regression analysis of the Town of Union data reveal that the assessed value per acre of land is unrelated to the appraised value per acre, as we would expect. Regression models also indicate that the assessed value per acre is significantly higher for farmland and open space, relative to forest land.

While the data on PA 490 parcels was only provided for these two towns, they are believed to be illustrative of the wide range of use-value tax preferences provided across the state. Variations from town to town are due to the urbanized nature of the towns and the prevalence of open space, farm, and forest land within their jurisdictions. Table 3 summarizes PA490 tax reductions in the Towns of Coventry and Union.

When viewed across the state geographically, PA490 is more heavily used in the northern part of the state, and is less prevalent along the shoreline (only about two percent of the land).³¹

Lebanon is the town with the highest agricultural land area, in excess of 10,000 acres, half of which is enrolled in PA490.³²

Gnedenko and Heffley (2014) have conducted empirical analysis of open space in Connecticut towns. They find that towns further from New York or Boston have more open space and lower public spending. Distance from New York and Boston also has an impact on property tax rates, with rates higher for towns further from those urban areas. This result is due to the fact that property values are lower with greater distance, so it takes higher mill rates to generate the desired level of public spending in those towns.

³⁰ Town of Union data provided by Mary Huda, Assessor.

³¹ Source: Barnes (2011)

³² Source: Barnes (2011)

Table 3: PA490 Tax Reductions in the Towns of Coventry and Union, 2014

	Town of Coventry	Town of Union
Number of parcels in data set	129	462
Average reduction in property assessment (percent)	57.1	96.4
Median reduction in property assessment (percent)	51.3	95.4
Maximum reduction (percent)	99.8	100.0
Total appraised value without PA490 (\$)	27.9 million	51.6 million
Total assessed value with PA490 (\$)	15.1 million	1.8 million
Aggregate PA490 assessments as a percent of aggregate appraised value without PA490 (percent)	54.1	3.5

Sources: Town of Coventry data provided by Tom Elsesser, Town Manager. Town of Union data provided by Mary Huda, Assessor.

Alternate Forms of Tax Relief

Confronted with high property tax burdens, other states have implemented various measures in an attempt to reduce the tax burdens. In this section three alternative forms of tax relief are briefly considered.

Classification

Some states use classification as a means to reduce the property tax for a specific class of properties. For example, Nebraska has a classified system where the assessment ratio is 100 percent for all classes of property except agriculture to which it applies a 75 percent assessment ratio. In this way, the class of agricultural properties is provided a 25 percent discount. In the New England region, Massachusetts permits classification in the sense that the average property tax rate cannot exceed 2.5 percent, but commercial and industrial properties can be taxed at higher rates with residential properties taxed at lower rates.

The effect of classification is to shift the property tax burden among classes of property owners, but it does not reduce the overall burden of property taxes. Analysis of the ultimate effect of the tax burden shifts involved is complex because it is determined by the economic conditions in all of the real estate markets affected.

Assessment Limitations

Ever since the California Proposition 13 and Massachusetts Proposition 2.5 were implemented in the late 1970s and early 1980s, the use of assessment limitations has been a popular mechanism to reduce property tax burdens. Such limitations take two forms. First, they may limit the total assessment in the community. The Massachusetts Proposition 2.5 does this by limiting total assessments to 2.5 percent of property value in the community. Second, they may limit the rate

of growth in annual assessments. The Massachusetts Proposition 2.5 does this as well, limiting the rate of growth in total assessments to 2.5 percent per year. These programs do not solve the underlying problem of the rising cost of local public services, or provide a mechanism to assure adequate funding of those services. They merely limit the amount of property tax that can be raised.

The effect of assessment limitations has generally been to shift the funding of local public services to the state government. The limitations hobble local government units, constraining their revenue from the property tax. Unless state funding is provided to take up the slack, local public services must contract over time. Consequently, these programs are often coordinated with a shift in funding responsibility from local units to the state government, especially with reference to public education.

Homestead Exemptions

Homestead exemptions provide tax relief by exempting a specified portion of property value from taxation for owner-occupied homes. In this way all owner occupants gain a measure of tax relief. The magnitude of the tax relief depends on the size of the exemption. While providing relief, these programs do so without any regard for targeting the tax relief. All owner occupants are given a tax reduction—wealthy owners as well as poor owners. By providing tax relief in an indiscriminate fashion, these programs are a very expensive means of delivering tax relief to those who really need it. At the same time, wealthy homeowners fully capable of paying their property taxes are given tax relief.

Unless the homestead exemption program is state-funded, compensating local governments for the lost revenue, the local government units lose tax revenue, putting more pressure on property tax rates in order to raise adequate revenues to fund local public services.

On balance, homestead exemption programs are a highly inefficient way to provide property tax relief to those most in need. And, they do nothing to relieve the pressure on the property tax system. In fact, they generally place additional upward pressure on property tax rates.

Property Tax Deferral Programs

One of the difficulties with a property tax system is that the tax is levied on the basis of the property owner's wealth (i.e. the value of the real estate asset), whereas the tax payment comes out of the owner's income. This creates a potential mismatch between wealth and income, especially for liquidity constrained households such as senior citizens. Senior households may have paid off their mortgages long ago and own substantial real estate wealth as a result. But, in retirement their incomes may be relatively modest creating a strain to pay the annual property tax bill due on the property. The property tax system is based on ability from a property wealth point of view, not an income point of view.

While this problem may seem to be a garden variety capital markets issue, where the owner of the asset simply obtains a loan secured by the property, the problem is confounded by the fact that households differ in their ability to access credit in capital markets. Furthermore, states often wish to make it easier for property owners, not forcing them to go to the capital market. They also frequently provide below-market interest rates on deferred taxes. Of course, that involves a cost to the government.

Connecticut gives municipalities the option to defer property taxes for homeowners' principal residence. Municipalities that adopt deferral programs may defer taxes that exceed 8 percent of income. The deferred tax plus 6 percent interest is secured by a lien on the property.³³

The parameters of deferral programs differ among the states that have such programs, with some state programs being substantially more favorable to homeowners than the Connecticut program. For example, the Minnesota deferral program provides for senior citizens (at least 65 years of age) with incomes less than \$60,000 to pay 3 percent of their income for property tax, with the additional amount owed each year paid by the state. The senior citizen is given a low-interest loan by the state, secured with a lien on the homeowner's property. The interest rate is variable and capped at a maximum of 5 percent.³⁴

The relatively new North Carolina circuit breaker mechanism for senior and disabled citizens is a tax deferment program.³⁵ Property taxes are limited to a percentage of income. Eligible owners with income below the threshold have taxes limited to 4 percent of income. Taxes in excess of that amount are deferred. For owners with income above the threshold, but below 150 percent of the threshold, taxes are limited to 5 percent of income, with any excess deferred.

Circuit Breaker Tax Relief ³⁶

Connecticut currently uses two circuit breaker mechanisms to provide property tax relief, a circuit breaker for the elderly and disabled and an income tax credit for property taxes paid, as noted above. This section presents a review of the various types of circuit breaker mechanisms used by the states, and an analysis of their strengths and weaknesses. The purpose of this review is to inform the policy consideration of a comprehensive circuit breaker mechanism implemented in Connecticut. Simulation of such a policy option is included in this section.

Circuit breakers are tax mechanisms that provide income-based property tax relief for households that are overburdened with property taxes. The circuit breaker term for these

³³ Source: Significant Features of the Property Tax: http://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_Residential_Property_Tax_Relief_Programs.

³⁴ Source: http://www.revenue.state.mn.us/propertytax/factsheets/factsheet_03.pdf

³⁵ Source: Significant Features of the Property Tax, http://www.lincolnst.edu/subcenters/significant-features-property-tax/Report_State_Summaries.aspx#residential-property-tax-relief-programs

³⁶ The material in this section is taken from Anderson (2014) with modifications.

mechanisms draws on the electrical breaker analogy--to provide property tax relief to households who are overburdened by their property tax bill. The distinctive element in providing property tax relief via a circuit breaker, however, is that the property tax relief falls as income rises. Hence, more general property tax relief programs such as classified property tax, homestead exemptions provided to all home owners, or use-value assessment programs for agricultural land owners, are not considered circuit breakers because they are not directly linked to the property tax paid as a share of household income.

The primary advantage of a circuit breaker approach to providing property tax relief is that state resources are targeted specifically to those who need the relief the most. A general property tax exemption would provide the same relief to all homeowners, whereas a circuit breaker can specifically target those whose property tax bills are high relative to their income. The result is that for a given amount of property tax relief provided by the state (\$100 million, say), more substantial relief for those who need it most can be provided using a circuit breaker. Alternatively, we can say that the circuit breaker is a less expensive way to provide property tax relief because it does not waste relief on those who do not need it. Of course, defining need is a central issue in the design of any circuit breaker mechanism.

The majority of circuit breaker programs in the United States are focused on providing relief to elderly homeowners and renters. Table 4 lists the state funded circuit breakers by type of coverage. Twenty-one states, including Connecticut, provide relief to the elderly only. Beyond coverage for the elderly, another thirteen states (including the District of Columbia) provide relief to homeowners and renters of all ages. There are seventeen states without any form of state-funded circuit breaker property tax relief.³⁷

Recent studies of circuit breakers include Anderson (2005), Augustine et al (2009), Bell et al (2010), Bowman (2008), Bowman et al (2009), Langley (2009), and Lyons et al (2007).

³⁷ Some states, notably Virginia, permit local governments to implement and fund their own circuit breakers. Table 4 lists state-funded circuit breakers, so Virginia is listed as having no state-funded circuit breaker.

Table 4: State-Funded Circuit Breakers in the United States

Type of Coverage	States
Elderly only (21)	Arizona, California ^a , Colorado, Connecticut, Idaho, Illinois, Iowa, Kansas, Massachusetts, Missouri, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Washington, Wyoming, Utah
All ages (13)	District of Columbia, Hawaii, Maine, Maryland, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New York, Rhode Island, Vermont, West Virginia, Wisconsin
No circuit breaker (17)	Alabama, Alaska, Arkansas, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Mississippi, Ohio, South Carolina, Tennessee, Texas, Virginia

Notes: (a) California suspended funding for its circuit breaker in 2008 due to the severe state fiscal crisis. (b) Virginia permits local governments to implement and fund their own circuit breakers. Source: Bowman et al (2009) supplemented by data in Significant Features of the Property Tax (2013).

Circuit Breaker Features

A variety of circuit breaker mechanisms are used in the United States. In this section the various types of circuit breakers are presented based on their differing design features.

Circuit breakers can be classified by type: threshold type (single, or multiple), sliding scale type, or hybrid and quasi type. Table 5 provides a taxonomy of circuit breakers describing each type. Langley (2009) reports that for elderly homeowners and renters in 2008 five states used a single threshold circuit breaker, 9 states used multiple thresholds, 10 used a sliding scale type of circuit breaker, 7 states applied quasi circuit breakers, and 3 states employed a hybrid form of circuit breaker. Allen and Woodbury (2006) provide a good overview of circuit breakers and a case study of the Maine circuit breaker expansion that took place in 2005. It should be noted, however, that since that time Maine has significantly reduced its state property tax relief. Table 6 lists the primary type of state-funded circuit breaker used by states for both elderly and non-elderly homeowners.

Threshold-type circuit breakers define a level of property tax relative to income and then provide tax relief for all or a portion of the property taxes in excess of that threshold. Advocates of this type of circuit breaker promote the view that taxpayers should not have to pay more than a maximal amount of income in property tax. Above that level, relief is provided. Critics of this type of circuit breaker argue that homeowners with more expensive homes should pay more tax,

even after the relief provided by the circuit breaker. Homeowners in communities that choose to provide high levels of public services, and consequently have high property taxes, should have to bear the burden of the higher tax rates and not be held harmless by a threshold type circuit breaker.

Sliding-scale type circuit breakers, as used in Connecticut, provide property tax relief based on the income of the taxpayer, with the amount of relief declining as income rises. This type of circuit breaker provides tax relief for low-income homeowners without leveling the net tax burden relative to income, thereby retaining (although muting) difference across communities due to voter choices regarding public services. Advocates of this form of tax relief argue that the differences in housing markets and public service levels are maintained with this mechanism, unlike the threshold-type circuit breakers.

Table 5: Circuit Breaker Taxonomy

Type of circuit breaker	Comments
Threshold type	This is the classic type of circuit breaker, providing relief when the property tax burden exceeds a threshold level, relative to household income
<i>Single threshold</i>	When property tax relative to income rises above the threshold, the circuit breaker trips and property tax relief is provided
<i>Multiple threshold</i>	Adds progressivity to the circuit breaker mechanism by providing more generous relief at lower income levels or at higher threshold levels of property tax relative to income
Sliding scale type	Income brackets are specified with all qualifying households in each bracket eligible for a given percentage reduction in property taxes, regardless of the size of their property tax bill
Hybrid and quasi type	Hybrids combine elements of threshold and sliding scale mechanisms. Quasi circuit breakers typically use multiple income brackets to provide benefits that decline as income rises. But, benefits are generally not related to actual property tax liabilities.

Source: Adapted from Bowman et al (2009).

Table 6: Types of State-Funded Circuit Breakers used by States

Type of circuit breaker	States using this type of circuit breaker for elderly homeowners	States using this type of circuit breaker for non-elderly homeowners
Single threshold type	(6) Hawaii, Illinois, Maine, Massachusetts, Oklahoma, West Virginia	(4) Hawaii, Maine, Michigan, West Virginia
Multiple threshold type	(10) District of Columbia, Maryland, Michigan, Missouri, Montana, New Mexico, North Carolina, Rhode Island, Wisconsin, Vermont	(5) District of Columbia, Maryland, Rhode Island, Vermont, Wisconsin
Sliding scale type	(10) Connecticut, Iowa, Kansas, Nebraska, Nevada, New Hampshire, New Jersey, North Dakota, South Dakota, Washington	(3) Montana, New Hampshire, New Jersey
Hybrid and quasi type	(7 quasi) Arizona, California, Colorado, Idaho, Pennsylvania, Utah, Wyoming (3 hybrid) Minnesota, New York, Oregon	(0 quasi) (2 hybrid) Minnesota, New York

Source: Bowman et al (2009) supplemented by data in Significant Features of the Property Tax (2013).

Single Threshold Circuit Breaker Design

A simple single threshold type of circuit breaker usually takes the form of an income tax credit for which a taxpayer qualifies if her property tax liability exceeds a threshold share of her income. The credit is then a fraction of the amount by which the property tax exceeds the specified share of income. This type of circuit breaker can easily be implemented in Connecticut, as an adaptation of the current property tax credit.

The credit can be written as $C = a(P - bY)$ where P is the property tax, Y is income, and a, b are parameters specified by policymakers. If the property tax exceeds a threshold level of income, $P > bY$, the taxpayer qualifies for the credit; otherwise no credit is provided. The parameter b , defines the threshold where the circuit breaker is triggered and is therefore viewed as the critical factor in determining the credit. The parameter a specifies how much of the property tax liability in excess of the threshold is covered by the credit. The polar case for the parameter a is a credit that provides relief for all property taxes paid in excess of the threshold level: $a = 1$. In that case the credit pays the entire property tax bill in excess of the threshold

level of income. While states vary widely in their credit mechanism specifications, as reported in Lyons et al (2007), the parameter b is often in the range of .03 to .05 and the parameter a is often .50 to .75. States may also set a cap for the credit, limiting the credit to a maximum amount.

Consider an example where policymakers specify the credit as 50% of the property tax paid in excess of 5% of income, subject to a cap of \$1,000. In that the credit can be written as, $C = .5(P - .05Y)$. The taxpayer qualifies for the credit if her property tax bill exceeds 5 % of her income: $P > .05Y$. A qualifying taxpayer then receives a credit of one-half of the amount by which her property tax exceeds 5% of her income, up to a maximum of \$1,000.

Policymakers may make the credit more generous by (1) making the threshold easier to reach, (2) by making the credit a larger share of the property tax in excess of the threshold, or (3) increasing the credit cap. All of these actions increase the property tax relief cost to the state, however. It should be recognized that all three ways to make the credit more generous also have the effect of lowering the taxpayer net cost of an additional dollar of property tax, and do so for more taxpayers by the first method. This may have the unintended consequence of encouraging recipients to support additional increases in the property tax rate.³⁸

Alternative Circuit Breaker Designs

The single threshold circuit breaker discussed above is the classic circuit breaker, but there are alternative mechanism designs for providing property tax relief used by states, as indicated in Table 6. In this section we briefly discuss multiple threshold and sliding scale circuit breaker designs.

Multiple threshold circuit breakers allow for more progressive tax relief. As income rises, the size of the property tax credit is scaled down and eventually disappears. With this type of circuit breaker, as income increases the level of property tax burden relative to income where tax relief is provided also increases. Progressivity is provided with a lower threshold level of property tax burden for low income households than for high income households

Sliding scale circuit breakers have income brackets that are specified with all households in the group eligible for tax relief (e.g., elderly owners, owners of all ages). In each bracket of the circuit breaker mechanism tax relief is a given percentage reduction in property taxes, regardless of the size of the homeowner's property tax bill. The sliding scale form of circuit breaker provides property tax relief based on income with the explicit intention of leaving remaining differences across taxpayers in place. Those differences may be due to individual choices regarding the amount of housing to consume, or may be due to differences in voter preferences for public services.

The Appendix provides additional information on the design of multiple threshold and sliding scale circuit breaker mechanisms.

³⁸ Bell and Bowman (1987) document such an effect in Minnesota.

Hybrid or Quasi Circuit Breakers

Hybrid forms of circuit breakers combine elements of threshold and sliding scale mechanisms. Quasi circuit breakers typically use multiple income brackets to provide benefits that decline as income rises. But, in this case the benefits are generally not related to actual property tax liabilities. For example, the Idaho quasi circuit breaker provides tax relief based on the taxpayer's income, but the tax relief is not based on the property tax paid by the homeowner.

Relief is provided based on the taxpayer's income, often finely tuned to income scales. Bowman et al (2009) report the number of income brackets for several state quasi circuit breakers as follows: Arizona 21, California 38, Idaho, 36, Pennsylvania 4, Utah 7. In the case of Idaho, the 36 income brackets range from a minimum of zero to a maximum of \$28,000 of income. The number of brackets for Colorado and Wyoming is determined by formula and is, therefore, effectively infinite.

Circuit Breaker Design Considerations

Design of a circuit breaker mechanism first requires a decision on whether to level the property tax share of income for recipients, in which case the threshold-type program is appropriate, or to leave property tax differences in place and simply provide relief for the low income homeowners, in which case a sliding-scale program is appropriate.

The second step in circuit breaker program design is to make a decision regarding what it means to be over-burdened by the property tax. In what follows we will emphasize the threshold-type circuit breaker program for illustrative purposes, although we will also comment on sliding scale programs where appropriate.

With a threshold-type circuit breaker the key issue is to specify a threshold share of household income spent on property taxes, beyond which the taxpayer is considered overburdened by the tax. Hence, property tax relief is provided to only those taxpayers whose property tax bill exceeds a specified percentage of their income. For this purpose, the definition of income should be very broad in order to make the circuit breaker as fair as possible. For example, if a narrow definition of income were used that included only wage and salary income, as is used for the payroll tax, then very wealthy taxpayers whose primary source of income is interest income or dividends could qualify for property tax relief when such taxpayers do not really need that relief. States using an income tax credit to administer their circuit breaker should use the broadest measure of income reported on the state income tax form (e.g. adjusted gross income, AGI, from the federal tax return) and should also require taxpayers add other income sources as well. For example, tax-exempt municipal bond interest should be included. This is critical to assuring equity in the program, treating equals (in regards to income levels regardless of income sources) equally. Issues of equity related to in-kind, barter, and informal market income are also

important to consider and provide additional reasons to define the income measure as broadly as is feasible.

In addition, the size of the credit, refund, or direct tax property tax reduction must be specified. Policymakers must determine how much of the property tax paid in excess of the threshold level of income should be refunded. While it might be tempting to refund all of the excess, there are several considerations to examine. First, the higher the share of the excess refunded the more expensive is the circuit breaker program. The state must pay for the property tax relief and the more generous the circuit breaker formula, the more expensive is the program. Second, it is important to consider how the circuit breaker mechanism may affect incentives. The more generous the circuit breaker, the lower the cost of additional local public services to program beneficiaries.

Taxpayers qualifying for the circuit breaker tax relief may therefore have an incentive to vote in favor of additional local property taxes because their tax price is being reduced. That is, the effective price paid for an additional dollar's worth of public spending is less than a dollar due to the way the circuit breaker returns a portion of the property tax paid for that service. In addition, a more generous program may lower the tax price of public services for a larger share of the electorate. While the demand for local public services may not be highly responsive to the tax price, it is nevertheless important to be cautious about making the tax price of additional services low via a circuit breaker.

With a sliding-scale type of circuit breaker program, it is necessary to determine the income levels at which homeowners will receive relief and how that relief will decline and taper off at higher income levels. The income levels, number of income brackets, and the phase-out mechanism are critical design issues to be determined.

Additional Circuit Breaker Design Issues

Non-elderly coverage: States must consider whether they want to provide property tax relief only for elderly households, or to include low income non-elderly households in their circuit breaker program. There is often a presumption that elderly households are living on fixed incomes and therefore need some form of property tax relief. That generalization is not fully accurate, however, as there are wealthy elderly households as well. A political decision to provide relief for all elderly households may therefore include non-deserving wealthy households. Furthermore, states sometimes include disabled, blind, veteran, and other categories of non-elderly households in their circuit breaker coverage due to policy concerns. If the primary policy objective is to provide property tax relief to those who are overburdened, then the only factors considered should be property tax liability relative to a broad measure of income.

Renter coverage: Another policy issue to consider is how to include renters in the property tax relief program. While the landlord technically pays the property tax to the local government units, the effective burden of the property tax is often passed on to the renters. Hence, many state

circuit breakers include renters who are able to count a certain percentage of their annual rent as property tax paid. States use percentages from 15 to 35% as their assumed proportion of rent paid that is effectively property tax paid by the renters. Bowman et al (2009) have reviewed the data and suggest that these percentages are probably too high, overstating the extent to which renters are actually paying property taxes.

Income ceiling: The maximum income level at which homeowners may receive circuit breaker tax relief is an important design issue. Bowman et al (2009) indicates that 22 of 34 states (including the District of Columbia) with circuit breakers have income ceilings below \$40,000. As a consequence, the property tax relief is targeted to relatively low income households in these states. Other states with higher income ceilings provide tax relief to a wider range of households across the income distribution. Tax relief is provided in a less progressive manner the higher the income ceiling. Most of these income ceilings are not indexed for inflation, but should be.

Credit cap: In order to limit the cost of a circuit breaker program, the state may wish to cap the size of credit that any individual taxpayer may receive. A cap on the credit effectively overrides the circuit breaker mechanism, limiting the amount of property tax relief provided regardless of the program's other design features. A credit cap limits relief to any one claimant and thereby avoids the problem of giving too much tax relief to owners of very large or very valuable properties.

Refundable credit: If the circuit breaker tax relief is provided via state income tax credit that is fully refundable, a taxpayer who has zero income tax liability can still receive the full amount of the property tax credit. That makes the income tax more progressive than it would be otherwise. In fact, for states with a flat rate income tax, the presence of a circuit breaker can make the tax progressive (in addition to other income tax features such as its personal exemptions and standard deduction). Some states choose to keep the circuit breaker tax relief distinct from the state income tax, avoiding potential confusion on the part of taxpayers. States without an income tax must design their circuit breakers to operate independently.

Capitalization: To the extent that a circuit breaker mechanism lowers property tax burdens generally in a local government jurisdiction, we can expect that the tax relief may be at least partially capitalized into higher property values (assuming the tax relief is continuing or permanent).³⁹ That provides a one-time increase in wealth for current property owners who benefit from the tax relief. Subsequent buyers of homes pay prices that presumably take the property tax relief into account so there is no effect for them. If the tax relief is more highly targeted to a relatively small number of individual homeowners in need of relief, however, there is little likelihood of a capitalization effect. This is the case of a circuit breaker mechanism targeted to the elderly, for example.

³⁹ Evidence on tax capitalization is mixed, with most studies indicating partial capitalization, not complete capitalization. The reasons for partial capitalization may include uncertainty regarding the permanence of the tax program, or sources of market failure.

Who pays the tax? Circuit breaker mechanisms can be either state funded or locally funded. With state-funded circuit breakers the state government pays for the property tax relief provided. In the case of a circuit breaker administered as an income tax credit, for example, the property owner first pays the full property tax bill to the local government units levying a property tax and then receives a credit from the state government providing property tax relief. With this mechanism the local governments receive the full amount of property tax due and the state pays the cost of tax relief independently of the local units. Administratively, this is a clean mechanism.

When is the credit received? One potential problem with implementation of circuit breaker mechanisms is that the property owner must pay the full tax bill and only later receive the tax relief. This is a *back-loaded* mechanism in terms of providing tax relief. Various mechanisms for *frontloading* the tax relief are possible, although they are administratively more difficult. Some states provide a credit against the next year's property tax bill, for example. With a locally funded circuit breaker, the local government units that levy the property tax provide direct relief to qualifying homeowners or renters. But, in this case, they do not receive any payment from the state government to make them whole. The loss of property tax revenue due to the circuit breaker mechanism must be made up in some other way. Generally speaking, the local government units are most likely to spread the property tax burden over the remaining property taxpayers by raising property tax rates, thereby shifting the tax burden to them.

Incomplete coverage: Another problem with circuit breaker forms of tax relief is the issue of potentially incomplete coverage. Experience shows that not all eligible households receive tax relief via circuit breakers. In the case of the circuit breaker mechanism designed as a state income tax credit, for example, receipt of the tax relief requires filing a state income tax return. Even though the credit may be fully refundable, as in Michigan, taxpayers with no income tax liability may not file a return and therefore they forego the property tax relief to which they are eligible. In other cases where the circuit breaker is administered via the local assessor's office, tax relief still requires an application process. Consequently, some taxpayers deserving of tax relief get none. Public awareness programs may improve coverage, but there is still likely to be incomplete coverage due to barriers in the administration of the program. In comparison, a property tax exemption may provide more complete coverage.

Circuit Breaker Administration

There are three mechanisms used by states in administering their circuit breaker programs: direct rebate checks, income tax credits, and property tax exemptions or credits. Table 7 illustrates the states using each approach and summarizes some of the policy concerns associated with each approach (listed in the three columns of the table).

A direct rebate check is provided by seventeen states. This mechanism requires an independent mechanism (separate from the state income tax) by which taxpayers document their income and property tax bills. This mechanism may be administered at either the state or local level, but requires taxpayers to submit tax return information and property tax bill information. While any circuit breaker mechanism requires both income tax and property tax data for implementation, mechanisms of delivery other than a state income tax credit require this information and an independent administration system. In the case of a rebate, the state must create an independent rebate administration mechanism. Notably, the states without a broad based personal income tax (New Hampshire, Nevada, South Dakota, and Wyoming) administer their property tax relief in this way.

Configuring the property tax relief as an income tax credit, as is done by eleven states and the District of Columbia, eliminates the need for an independent mechanism, but that advantage is counterbalanced by the experience that such a mechanism results in poor awareness among taxpayers that the state is providing local property tax relief. Also, an income tax credit mechanism provides back-loaded relief, requiring the taxpayer to first pay the entire property tax bill and only later receive an income tax credit. Methods of front loading the credit are possible but require more complex administrative processes.

With this and other circuit breaker mechanism designs, taxpayers may or may not recognize that they are receiving property tax relief. Of course, policymakers want taxpayers to know that their property taxes are being reduced. Hence, mechanisms that make that clear to taxpayers are generally preferred. The only potential problem with that recognition, however, is that there may be an incentive for recipients to vote in favor of higher local property taxes as they realize the marginal tax prices of public services is being reduced.

Finally, a property tax exemption or credit mechanism is provided by ten states. This mechanism requires that taxpayers document their income to the local assessor or other administrative officer. The advantages of this approach include the fact that the local government unit already has the property tax information and delivery of the property tax relief in this form may make it more apparent to the taxpayer that relief is being provided. If the mechanism is state funded, it also requires that the state have in place or create a mechanism by which it can reimburse local government units for the lost property tax revenue.

Regardless of the mechanism used, with a state-funded mechanism the state is placing itself in the role of providing a degree of local property tax relief. Consequently, policy decisions regarding the circuit breaker mechanism should be made taking into account the larger context of the state's method of distributing other forms of aid to local governments. Grants to local governments, revenue sharing formulas, and state aid distribution mechanisms are other methods by which the state provides assistance to local government units. These mechanisms alter the local governments' needs for tax revenue, including property tax revenue. In the case of a state-funded circuit breaker, the state is also stepping in to alter the local property tax burden, if only

for a select number of program recipients. Hence, a wider view of the entire array of intergovernmental transfers may be useful.

Table 7: Administrative Mechanisms

	Direct rebate check	Income tax credit	Property tax exemption or credit
States using this approach	California, Colorado, Connecticut (R), Illinois, Iowa (R), Kansas, Maine, Maryland (R), Minnesota, New Hampshire*, New Jersey, Nevada*, Oregon, Pennsylvania, South Dakota*, Vermont (R), Wyoming*	Arizona, District of Columbia, Massachusetts, Michigan, Missouri, Montana (E), New Mexico, New York, Oklahoma, Rhode Island, Wisconsin, West Virginia	Connecticut (O), Idaho, Iowa (O), Maryland (O), Montana (D), Nebraska, North Dakota, Utah, Vermont (O), Washington*
Administrative concerns about this approach	<ul style="list-style-type: none"> • Requires an independent mechanism by which taxpayers document their income and property tax bills • State must create an independent rebate administration mechanism 	<ul style="list-style-type: none"> • Awareness among taxpayers that the state is providing property tax relief tends to be low • Cannot be used by states with no income tax • Back loaded tax relief 	<ul style="list-style-type: none"> • Taxpayers must document their income to local assessor or other administrative officer • State must create mechanism by which to reimburse local government units for lost property tax revenue

Notes: R indicates program applies to renters, O indicates program applies to owners, D indicates program applies to under 62 and disabled veterans. * indicates that the state has no broad based personal income tax.

Sources: Lyons et al (2007), Significant Features of the Property Tax (2011), and Bowman et al (2009) Tables 6.1 and 6.2.

Benefits, Costs, and Distributional Consequences of Circuit Breakers

Benefits

The direct benefits provided by a circuit breaker mechanism are measured in terms of the amount of property tax relief given to needy recipients. With circuit breakers, the benefit is simply the reduction in property taxes for low income households, reducing their tax burden. That may enable homeowners to remain in their homes when otherwise they would have been forced out due to high property tax burdens relative to their incomes. For renters qualifying for a credit, their after-tax income rises, enabling them to afford other necessities.

Since the tax relief is typically state-funded, the state government bears the burden of providing local property tax relief. Local government units are held harmless in the sense that they derive the full amount of property tax that their local rates would generate given the tax base. The state either provides the tax relief to needy homeowners and renters independently of the local tax administration mechanism (as with a credit applied via the state income tax) or reimburses the local government units if the relief is administered locally.

Indirect benefits may also be recognized, beyond the value of the direct property tax relief provided, but they are difficult to measure and quantify. For example, the benefit of enabling an elderly homeowner to stay in her home and afford her property tax payment is a very real benefit. Yet, it is difficult to know exactly how many recipients are able to stay in their homes due to the circuit breaker relief provided. We cannot assume that this is the case for all recipients. Glaeser and Shapiro (2003) find, for example, that there are externalities associated with homeownership that may justify subsidies. They find that homeownership is associated with political activism, social connection, increased home maintenance and gardening, among other factors. Evidence of the economic effect of homeownership on others is captured in their finding that a 10% increase in homeownership is associated with a 1.5% increase in home prices. That is, people seem to be willing to pay more to locate near homeowners. If homeownership creates these positive benefits for others in a community (besides the private benefits provided to the homeowner directly), and if a circuit breaker mechanism to provide property tax relief helps people become or remain homeowners, then there are indirect benefits to recognize.

Of course, there are other mechanisms available for homeowners to be able to stay in their homes despite the need to pay property taxes when their incomes are low. Many elderly homeowners have substantial home equity built into their portfolios, which they can draw upon to pay living expenses including property taxes. Reverse mortgages allow homeowners to extract a portion of their wealth tied up in their homes without having to sell or move. Until recent years the reverse mortgage market was not very active, but in the past several years it has seen a substantial increase in activity (Shan 2011).

Costs

The direct cost of a circuit breaker mechanism is foregone state income or local property tax revenue. In addition, there is also the cost of administering the circuit breaker program. No matter what the delivery mechanism, any income-based method of providing property tax relief has an administrative cost. The size of that administrative cost depends on the delivery mechanism. Furthermore, the answer to the question of who bears that cost depends on the mechanism used. State-funded relief provided by way of an income tax credit, for example, increases the cost of administering the state income tax system. That additional cost is borne by the state tax administration. On the other hand, a local government method of delivering non-state funded property tax relief imposes additional costs on the local government units (typically municipalities and counties) that administer the program. In addition, the circuit breaker claimants bear a compliance burden.

Indirect costs also arise with a circuit breaker mechanism. To the extent that the property tax burden is partially shifted to other tax bases and therefore to other taxpayers, the higher tax rates that result bring with them additional excess burdens. The excess burden of a tax is the efficiency cost of the tax, in terms of how much it distorts economic decisions, over and above the revenue it raises. The marginal excess burdens created due to higher alternative tax rates necessary to raise revenue (assuming those taxes are applied to more elastically demanded or supplied goods than the land and structures property tax base) is a very real cost for the economy, but it is difficult to precisely identify and measure this cost.

Distributional Consequences

Because circuit breakers provide tax relief that is tied to household income, the usual presumption is that the distribution of benefits is progressive, making the property tax less regressive. That is, the circuit breaker provides proportionally more tax relief to low income households than to high income households. But, the actual distribution depends crucially on the definition of income used in the circuit breaker program. If adjusted gross income (AGI) or taxable income (TI) are used from the taxpayer's federal income tax form, important sources of income are likely to be missing resulting in a narrow income measurement and thereby less assurance that the program is benefitting truly low income households. Furthermore, the extent to which the circuit breaker has a progressive impact on the overall tax structure of a state depends on whether the circuit breaker is state funded or locally funded. It also depends on the replacement revenue used to fund local public goods and services, e.g. sales or income tax revenue (so the differential incidence matters). Policymakers designing circuit breakers must take these distributional considerations into account. In this section we briefly discuss these issues.

Table 8 illustrates Langley's (2009) simulated single threshold circuit breaker and its distributional properties. The mechanism simulated here is a single-threshold circuit breaker that

provides a benefit of 100 percent of the property tax paid in excess of 5 percent of household income. Moving up the income distribution from the first decile (bottom 10%) to the top decile (top 10 %) in the table, the percentage of households that are eligible to receive circuit breaker benefits falls from about 80% to about 9%. Median benefits provided by the circuit breaker vary as you move up the income distribution. The median amount is \$860 in the first decile, falls to a low of \$645 in the third decile, and then rises to a maximum of \$3,117 in the top decile. This distributional pattern is due to the way that housing expenditures, and thereby property taxes, vary with income. It should be noted, however, that the benefit *as a share of income* generally falls as you move up the income distribution (from the fourth decile up).

One feature to note in Table 8 is the distinction between owners and renters. At lower income levels, a larger share of renters is eligible for the circuit breaker. Owners typically receive larger benefits, however. Of course, this pattern depends crucially on Langley's circuit breaker design. His simulated mechanism provides a benefit of 100% of the property tax paid in excess of 5% of household income. In terms of the single threshold mechanism design the credit provided is $C = P - .05Y$. He also simulates a multiple threshold mechanism, a sliding scale program, and a fixed homestead exemption. Each form of property tax relief has a distinct set of distributional characteristics depending on the parameters of the mechanism. In general, however, we can say that a multiple threshold circuit breaker can be made to be more progressive than a single threshold mechanism. By defining multiple thresholds and allowing the parameters to vary with each threshold, policy makers can build more progressivity into the circuit breaker mechanism. In this way, a given amount of state funding for property tax relief can be more specifically targeted to households needing that relief. Similarly, a sliding scale mechanism can be made highly progressive. The least progressive tax relief mechanism (not a circuit breaker) is a simple homestead exemption of a fixed amount of property value.

A crucial factor to consider in a more in-depth policy analysis is the replacement, or non-replacement of lost revenue. If a circuit breaker is not state funded, the local government units must replace the lost revenue with other local own-source revenue. In the State of Indiana, for example, local income and sales taxes are permitted precisely to fund property tax relief. The remaining property owners bear the burden of locally provided property tax relief, so there is a resulting tax redistribution occurring that needs to be considered and estimated. All remaining property owners bear the cost of the program through higher rates than they would otherwise have to pay. The extent of that redistribution depends on the generosity of the circuit breaker program and the precise means by which the replacement revenue is defined. If the replacement revenue comes solely from residential property owners, for example, the distributional impact will be different than if the replacement revenue comes from all property owners, including agricultural, industrial and commercial property owners. Redistribution of tax burden across classes of property creates great difficulty in estimating the distributional impact of a circuit breaker program.

Table 8: Simulated Eligibility Rates and Median Benefits by Income Decile for a Single-Threshold Circuit Breaker

Income Decile	Income Range (\$)	Percent of Households Eligible for Benefits (%)			Median Benefit (\$)		
		Owners	Renters	Total	Owners	Renters	Total
1	Up to 11,900	68.6	86.3	79.5	955	832	860
2	11,901 to 20,190	51.8	79.8	66.0	905	590	672
3	20,191 to 29,160	41.8	61.6	50.4	945	484	645
4	29,161 to 38,000	34.6	41.5	37.3	975	452	680
5	38,001 to 48,100	28.1	26.0	27.4	1,010	515	830
6	48,101 to 60,000	23.7	17.3	21.9	1,095	580	945
7	60,001 to 74,100	18.7	11.3	17.1	1,200	575	1,050
8	74,101 to 94,000	15.9	7.5	14.5	1,425	730	1,330
9	94,001 to 130,000	14.5	4.7	13.3	1,525	795	1,500
10	Over 130,001	9.6	1.1	8.9	3,225	660	3,117
Total		26.6	49.2	33.7	1,100	625	820

Source: Langley (2009) Table A.1. Notes: (a) the income measure used in the Langley (2009) study is that contained in the American Community Survey (ACS). Survey respondents are asked to report wages, salary, commissions, bonuses, or tips from all jobs. In addition, they are asked to report self-employment income, interest, dividends, net rental income, royalty income, income from estates and trusts, social security or railroad retirement income, supplemental security income payments, public assistance or welfare payments, retirement, survivor or disability pensions, and other income. (b) Langley (2009) used the 2006 ACS data.

The ultimate distributional consequence of a state-funded circuit breaker program depends on the source of replacement revenue used. If the replacement revenue comes from the state's general fund sources, then the distributional impact will be linked to the state's major general fund revenue sources. Those sources are most often the state income tax and/or state sales tax, or fees/user charges. In most cases the state sales tax is less progressive (or more regressive) than the state income tax.

Estimating Tax Expenditures for Circuit Breakers

There are two ways for a government to spend money: directly via appropriation and indirectly through the tax code. When expenditures are made indirectly through the tax code, those expenditures are called tax expenditures. In the case of expenditures to assist homeowners or

other property owners to pay their local property tax bills, it may be appropriate to estimate the foregone revenue as a tax expenditure and list it in the state tax expenditure report. Typically, a state tax expenditure report will only include estimates of state-level tax expenditures, not local government tax expenditures.

As explained in Poterba (2011) and Altshuler and Dietz (2011), the first step in estimating tax expenditures is to define what is normal in a tax system. With the property tax system, in particular, it is necessary to define what is normal in order to estimate the foregone revenue arising from deviations away from normal. If we begin with the widest possible definition of the tax base, we would include all property value in a state. Any exemptions would be the first form of tax expenditure, whether the exempt property is owned by the federal government, state government, other government units, or other tax exempt entities (e.g. churches, private universities, etc.) Partial exemptions such as homestead exemptions would also be considered tax expenditures. Beyond that, any property classification providing lower rates or reduced measures of value would be considered tax expenditures. Finally, circuit breakers or other forms of reduced property taxes would be considered tax expenditures.⁴⁰

If the circuit breaker program is state funded, the state budget may list the cost of the program directly, not necessarily in the state tax expenditure report. Circuit breakers that are not state funded, however, involve revenue losses for local government units and are therefore not generally reported in state budgets or state tax expenditure reports.

Unfortunately, the estimation of tax expenditures is fraught with complexity and subject to substantial uncertainty. This is due to both the fundamental question of tax system definition (i.e., what is normal) and the inherent problem of estimation of taxes not collected. Nowhere is this truer than in the realm of property taxation.

Bowman et al (2009) report that in 2008 there were 14 states that provided easily accessible data on circuit breaker tax expenditures. Based on that data, Table 9 provides an overview of the cost of state circuit breakers for a selected set of states. The largest circuit breaker, in terms of the number of homeowners and renters covered, is that of Michigan which provides tax relief to nearly 1.5 million. The most generous circuit breaker programs, in terms of the average benefit, are those of Maryland (all ages) at \$851 and Vermont at \$712. The most expensive program, in terms of the aggregate amount of tax relief provided, is that of New Jersey which spends approximately one billion. Even the most generous circuit breakers, however, provide tax relief that is a relatively small fraction of the total property tax collected in the state. Michigan's program has a cost that is 6.27% of the total property tax collected in that state while New Jersey's program costs 5.20%. The other states listed in Table 9 have program costs that are in the general range of 1%-3% of the property tax collected in the states.

⁴⁰ For more general recommendations on tax expenditure estimation see Connolly and Bell (2011) and Ladd (1994).

Table 9: Reported Cost of State-Funded Circuit Breakers, Selected States

State	Year	Eligibility	Number of Beneficiaries	Estimated Average Benefit (\$)	Cost of Total Program (\$ million)	Program Cost as a Percent of Total Property Tax Collected
MA	2006	65+			29.8	0.28
MD	2006	All ages/60+	56,818	851/265	42.5	0.71
ME	2006	All ages	92,000	443	42.8	1.94
MI	2010	All ages	1,488,757	544	809.4	6.27
MN	2006	All ages	301,406	630	190.0	3.56
MT	2005	62+	24,424	474	11.6	1.16
NJ	2006	All ages	1,106,871	966	1,069.0	5.20
NM	2005	65+	20,228	193	3.9	0.45
NY	2005	All ages	275,000	109	30.0	0.09
OK	2006	65+			0.1	0.004
PA	2007	65+	417,052	489	203.8	1.43
RI	2007	All ages	50,964	277	14.1	0.75
VT	2005	All ages	34,534	712	30.3	2.87
WI	2006	All ages	239,546	509	121.9	1.52

Source: Bowman et al (2009) p. 20.

Circuit Breaker Administration

Direct Rebate Check

For states administering their property tax relief using a direct rebate check, the method of estimating the tax expenditure will depend on the precise mechanism employed to document a taxpayer's property tax bill and income. For example, the State of New Hampshire, which lacks a state income tax, administers its "Low and Moderate Income Homeowners Property Tax Relief" (LMIHPTR) program through the New Hampshire Department of Revenue Administration. Applicants must complete form DP-8, a four-page tax form, and submit the form to the Department for review and approval. The form requires homeowners to report both the

federal adjusted gross income (AGI) (line 10(b)) and their property's assessed value (line 12(b)). This requirement illustrates the importance of taxpayer compliance costs as well as agency administrative costs in considering a circuit breaker program. Auditing claims for LMIHPTR for fraud may be difficult in such a case. While claimants are required to submit a copy of their federal tax return, the State of New Hampshire may not have the full advantage of using IRS data for New Hampshire residents to audit claims because the IRS data exchange agreement with states specifically provides that only federal income tax data necessary to administer the state's tax laws can be shared.

Income Tax Credit

In states that administer their circuit breaker tax relief through a state income tax credit, the estimation process is relatively straightforward. The revenue department compiles income tax data on the credit claimants and sums the total of the credits provided to obtain a tax expenditure estimate. This is the way it is done in Michigan, for example, where in CY2007 there were a total of 1,482,900 recipients (general plus seniors) receiving \$844.2 million in credits (Source: Executive Budget, FY2010). The ease and accuracy with which the tax expenditure can be estimated in this way is a major advantage of this administrative form of implementation. No estimation is required. The actual credits can be summed for an accurate total. Beyond certain knowledge of the total, distributional information can also be generated to illustrate the tax benefit and its incidence across the income distribution or across geographic areas of the state. Careful policy analysis can be conducted using such data to determine whether the circuit breaker is effectively achieving its policy objectives.

Property Tax Exemption or Credit

Income-based exemptions or credits must typically be administered locally because the property tax is administered locally. Consequently, it is usually the local assessor (county or municipal) who is required to administer an income-based property tax exemption or credit program. A simple (fixed amount for all taxpayers in a specific class) exemption would be easy to administer, but when that exemption or credit is tied to an income qualification the program is much more difficult to administer locally. An income qualification requires the local property tax administrator to collect information on income, which is not normally a part of administering the property tax system. Beyond collecting income information, the local property tax administrator must be able to audit and verify income information. That may pose a substantial difficulty unless there is an agreement for the state to share income data with local governments.

In order to estimate the tax expenditure of an income-based exemption or credit program, the local tax administrators must report the number of exemptions or credits and the amounts of each to a central government authority that collects the information, aggregates the data, and conducts an analysis of the total cost of the program. The central government authority must also provide consistency checks to assure that reporting practices of local administrators are uniform. This role can be provided by the state department of revenue, treasury, or other such unit.

This overview of the mechanisms used by states to provide income-based property tax relief, commonly called circuit-breakers leads to a recommendation for Connecticut.

Simulated General Circuit Breakers for CT

The State of Connecticut already has a property tax credit mechanism on its state income tax form. Hence, the simplest and most direct type of general circuit breaker to consider implementing is an income tax credit for property taxes paid. A single-threshold circuit breaker can easily be implemented via modification of the existing property tax credit on the CT income tax.

The prototype of this type of circuit breaker is the mechanism used in Michigan. The Michigan circuit breaker provides tax relief for owner-occupiers and renters. For homesteads, the tax relief is 60 percent of the property tax in excess of 3.5 percent of total household resources, subject to a cap of \$1,200. For renters, 20 percent of rent is counted as property tax paid. Households with total resources in excess of \$50,000 are not eligible for the circuit breaker.

In order to simulate a Michigan style circuit breaker for Connecticut, American Community Survey (ACS) data is used.⁴¹ Table 10 reports the simulation of a general circuit breaker for Connecticut based on the ACS sample. Institutional and non-institutional group quarters were omitted from the data set, leaving 7,477 housing units in the sample.⁴² Family income reported in the ACS was used along with the yearly amount of property tax paid by the family.⁴³ A total of 1,063 households are eligible to receive the circuit breaker credit, with property taxes in excess of 3.5 percent of income. For those eligible, total credits of \$1.2 million are provided, out of total tax payments of \$53 million. Credits are capped at \$1,200 per household, which is a binding constraint for 830 of the 1,063 eligible households.

When the ACS sample results are weighted (using the ACS reported household weights reflecting inverses of probabilities that households are sampled) and scaled to match the Connecticut total number of households and property taxes paid, the number of households eligible to receive the tax credit is 195,409. The credit is capped for 149,937 of those households, so they receive the maximum \$1,200 credit amount. The total amount of tax relief provided is \$211 million.

⁴¹ Inquiries regarding the availability of Connecticut data on household property taxes and income from the Department of Revenue Services and the Office of Policy Management proved unfruitful. Consequently, the American Community Survey (ACS) data for households in Connecticut is used in this preliminary analysis.

⁴² Group quarters are facilities such as prisons, jails, nursing homes, college dormitories, and group homes.

⁴³ The property tax data in the ACS is reported in tax bins, not in the exact dollar amounts. Consequently, the midpoint of each bin is used to represent the tax payment. The top bin is open-ended so for that bin, the mean of the bin is estimated using the Pareto probability distribution method described in Ligon (1994).

Table 10: Simulated General Circuit Breaker for Connecticut, Variant 1

	Unweighted ACS sample of households	Weighted ACS sample of households	Scaled for CT
Sample size-- households	7,477	652,811	1.3 million
Households eligible for circuit breaker credit	1,063	95,208	195,176
Number of eligible households with capped credits	830	73,053	149,937
Total amount of credits	\$1.12 million	\$102.9 million	\$211.2 million
Total property taxes paid by all households	\$53.0 million	\$4.5 billion	\$9.3 billion

Source: Author's estimates using ACS sample of Connecticut families living in single-family homes. Credit design requires household income to be less than \$50,000 and for property taxes to exceed 3.5 percent of family income. Credit amount is 60 percent of the difference between property taxes paid and 3.5 percent of family income, subject to a cap of \$1,200.

Alternative variants of this type of circuit breaker can be simulated by varying the eligibility threshold, the percent of taxes in excess of the threshold, and the credit cap. Those three parameters determine the generosity of the credit and thereby the total cost of the credit to the state. A higher threshold targets the credit more narrowly to households whose property taxes are high relative to income. A larger percentage of the tax in excess of the threshold paid by the credit also makes the circuit breaker more generous. Finally, a larger cap for the credit also makes the credit more generous. For a given total cost of the circuit breaker program, analysts can scale the three credit parameters to provide targeted relief.

Table 11 reports a less generous version of a single-threshold circuit breaker for CT, where the income and tax thresholds are the same as those in Table 10, but the share of tax paid in excess of the threshold is reduced to 40 percent and the credit is capped at \$1,000. In this simulation, the number of eligible households is unchanged at 195,409, since the eligibility parameters are unchanged. The number of households receiving the capped amount of the tax credit falls to 129,202, however, because of the combination of a smaller share of tax in excess of the threshold being paid (which reduces the credit amount) and the lower cap in this simulation. The total amount of property tax relief provided in this simulation falls to \$167.8 million.

Alternative variants of a single-threshold circuit breaker can be simulated by altering not only the two parameters varied in Tables 10 and 11, but also varying the income limitation and the tax threshold. Analysts can tailor the circuit breaker parameters to suit policy objectives provided by policy makers in terms of coverage and total cost to the State.

Table 11: Simulated General Circuit Breaker for Connecticut, Variant 2

	Unweighted ACS sample of households	Weighted ACS sample of households	Scaled for CT
Sample size-- households	7,477	652,811	1.3 million
Households eligible for circuit breaker credit	1,063	95,208	195,176
Number of eligible households with capped credits	715	62,950	129,202
Total amount of credits	\$920,187	\$81.8million	\$167.8 million
Total property taxes paid by all households	\$53.0 million	\$4.5 billion	\$9.3 billion

Source: Author’s estimates using ACS sample of Connecticut families living in single-family homes. Credit design requires household income to be less than \$50,000 and for property taxes to exceed 3.5 percent of family income. Credit amount is 40 percent of the difference between property taxes paid and 3.5 percent of family income, subject to a cap of \$1,000.

There are several advantages and disadvantages related to this approach in providing property tax relief.

Advantages:

- Tax relief is targeted to those most needing assistance, and that targeting is based on means-testing rather than other criteria
- Relief is provided regardless of other taxpayer or household characteristics (elderly, disabled, veterans, etc.), making implementation much simpler
- The circuit breaker mechanism adds a degree of progressivity to the state income tax
- The cost of the program can be determined explicitly by the state

Disadvantages:

- State revenues are required to pay for the credits, which involves using general fund revenues generated from other sources such as the state income or sales taxes
- The credit mechanism lowers the tax price of local public goods (e.g. schools) for credit recipients, which may encourage them to demand more public goods

Options for Policy Reform Consideration

Based on the review of direct property tax relief programs currently in use in Connecticut, the following policy options are suggested for the Tax Panel to consider.

- Consider replacing the current complex set of property tax exemptions and circuit breaker with a single unified circuit breaker mechanism that provides property tax relief to homeowners and renters whose property taxes are high relative to their household resources
 - Implement a single threshold type circuit-breaker credit on the Connecticut income tax to provide targeted relief (modification of the current CT property tax credit)
 - Fund that property tax relief with general revenues generated by state income and sales taxes, as well as with increased revenues from the elimination of other relief mechanisms (e.g. State-funded exemptions, and increased revenue from tightening PA490 provisions)
- Consider tightening PA490 provisions to target tax relief more specifically
 - Implement an objective test for agricultural use (e.g. *de minimus* level of net income from agricultural production)
 - Rationalize use-value assessment (UVA) computation methods used—a more accurate income measure and a more realistic capitalization rate
 - Ideally, move away from general tax relief for agriculture and move toward strategic use of UVA to protect and preserve land that provides ecosystem services that are a form of public good or generates positive externalities
 - The Tax Expenditure Report should provide an estimate of the foregone revenue due to PA490
- Consider modifications to the current property tax deferral program
 - Reduce the threshold level of tax relative to income from eight percent to, perhaps, five percent
 - Hold local governments harmless by having the State provide a low interest loan secured by a lien on the property that pays the property tax to the local government units

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Appendix

Hartford Tax Rate History

Table A1: Hartford Tax Rate History

Tax Rate History									
Year	Mill Rate	Surcharge	Passback	Effective Mill Rate			Assessment Ratio		
				Commercial (LUC 201-583)	Residential (LUC 101-108)	Apt/Mixed Use (LUC 801-820)	Commercial (LUC 201-583)	Residential (LUC 101-108)	Apt/Mixed Use (LUC 801-820)
1975	82.00			82.00	82.00	82.00	65%	65%	65%
1976	82.00			82.00	82.00	82.00	65%	65%	65%
1977	90.90			90.90	90.90	90.90	65%	65%	65%
1978*	71.90			71.90	71.90	71.90	70%	45.8%	70%
1979	71.10			71.10	71.10	71.10	70%	47.7%	70%
1980	67.60			67.60	67.60	67.60	70%	47.1%	70%
1981	69.70			69.70	69.70	69.70	70%	45.6%	70%
1982	72.90			72.90	72.90	72.90	70%	50%	70%
1983	72.90			72.90	72.90	72.90	70%	55%	70%
1984	72.90			72.90	72.90	72.90	70%	60%	70%
1985	72.90			72.90	72.90	72.90	70%	65%	70%
1986	72.90			72.90	72.90	72.90	70%	70%	70%
1987	72.90			72.90	72.90	72.90	70%	70%	70%
1988	72.90			72.90	72.90	72.90	70%	70%	70%
1989*	34.40	0.1216	0.001739	38.58	23.17	34.40	70%	70%	70%
1990	34.40	0.1153	0.001873	38.37	23.30	34.40	70%	70%	70%
1991	34.40	0.1166	0.001885	38.41	23.31	34.40	70%	70%	70%
1992	34.40	0.1167	0.001888	38.41	23.32	34.40	70%	70%	70%
1993	34.40	0.1200	0.00196	38.53	23.39	34.40	70%	70%	70%
1994	33.40	0.1340	0.001896	37.88	22.33	33.40	70%	70%	70%
1995	32.40	0.1455	0.001971	37.11	21.40	32.40	70%	70%	70%
1996	31.40	0.1261	0.001937	36.36	20.37	31.40	70%	70%	70%
1997	29.88	0.1500	0.002458	34.36	19.37	29.88	70%	70%	70%
1998	29.50	0.1500	0.002503	33.93	19.03	29.50	70%	70%	70%
1999*	47.00	0.1500	0.007041	54.05	28.47	47.00	70%	70%	70%
2000	48.00	0.1500	0.006763	55.20	29.19	48.00	70%	70%	70%
2001	48.00	0.1500	0.007126	55.20	29.55	48.00	70%	70%	70%
2002	52.92	0.1500	0.005308	60.86	32.66	52.92	70%	70%	70%
2003	56.32	0.1500	0.003856	64.77	34.60	56.32	70%	70%	70%
2004	60.82	0.1500	0.002865	69.94	38.11	60.82	70%	70%	70%
2005	64.82	0.1500	0.00305	74.54	42.30	64.82	70%	70%	70%
2006*	63.39	0.1350		71.95	63.39	63.39	70%	38.869%	58.090%
2007	68.34	0.1200		76.54	68.34	68.34	70%	34.293%	51.011%
2008	72.79	0.1050		80.43	72.79	72.79	70%	29.666%	43.629%
2009	72.79	0.0900		79.34	72.79	72.79	70%	27.618%	40.991%
2010	71.79	0.0750		77.17	71.79	71.79	70%	26.173%	37.602%
2011*	74.29			74.29	74.29	74.29	70%	29.2%	50%
2012	74.29			74.29	74.29	74.29	70%	29.2%	55%
2013	74.29			74.29	74.29	74.29	70%	29.93%	60%

*Revaluation Years

Downtown Business Improvement District, add 1.5 Mills
(Prior to 2012 GL the rate was 1 mill)

Park Street Service District, add 3.5 Mills

Source: http://www.hartford.gov/images/assessment/documents/Historical_Tax_Rates.pdf

Uniformity Requirements

Table A2: States with Constitutional Provisions Requiring Uniform Taxation

Alabama	Indiana	Nevada	South Dakota
Arizona	Kansas	New Jersey	Tennessee
Arkansas	Kentucky	New Mexico	Texas
California	Louisiana	North Carolina	Utah
Colorado	Maryland	North Dakota	Virginia
Delaware	Michigan	Ohio	Washington
Florida	Minnesota	Oklahoma	West Virginia
Georgia	Mississippi	Oregon	Wisconsin
Idaho	Missouri	Pennsylvania	Wyoming
Illinois	Nebraska	South Carolina	

Source: Coe (2009, 159-160).

Alternative Circuit Breaker Mechanisms

Multiple Threshold Circuit Breaker Design

Multiple threshold circuit breakers allow for more progressive tax relief. As income rises, the size of the property tax credit is scaled down and eventually disappears. With this type of circuit breaker, as income increases the level of property tax burden relative to income where tax relief is provided also increases. Progressivity is provided with a lower threshold level of property tax burden for low income households than for high income households. For example, a state could specify that property tax relief is available when property tax bills exceed 3% of income for households with incomes below \$20,000, 5% of income for households with incomes between \$20,000 and \$30,000, and 7% of income for households with incomes between \$30,000 and \$40,000. The threshold percentages are applied incrementally as with a graduated income tax structure.

For eligible households with varying incomes, where the income of household i is written as Y_i , a multiple threshold circuit breaker with three income brackets, Y_1, Y_2, Y_3 , and three corresponding threshold percentages ($b_1 < b_2 < b_3$) can be written as,

$$C = a[P - b_1Y], \text{ if } Y_i \leq Y_1$$

$$C = a\{P - [b_1Y_1 + b_2(Y_i - Y_1)]\} \text{ if } Y_1 < Y_i < Y_2$$

$$C = a\{P - [b_1Y_1 + b_2(Y_2 - Y_1) + b_3(Y_i - Y_2)]\} \text{ if } Y_2 < Y_i < Y_3$$

$$C = 0, \text{ otherwise.}$$

With this type of circuit breaker, as income rises, $Y_1 < Y_2 < Y_3$, the level of property taxes relative to income needed to qualify for tax relief, $b_1 < b_2 < b_3$, increases. States can also specify the share of property tax relief above the threshold that is covered by the credit (a).

Sliding Scale Circuit Breaker Design

With a sliding scale circuit breaker, income brackets are specified with all households in the group eligible for tax relief (e.g., elderly owners, owners of all ages). In each bracket tax relief is a given percentage reduction in property taxes, regardless of the size of their property tax bill. Housing expenditures generally rise with family income, but not proportionately. Consequently, we expect that low income families will pay a larger share of family income on housing and therefore on property taxes in comparison with high income families. The sliding scale form of circuit breaker provides property tax relief based on income with the explicit intention of leaving remaining differences across taxpayers in place. Those differences may be due to individual choices regarding the amount of housing to consume, or may be due to differences in voter preferences for public services.

For example, consider a sliding scale circuit breaker with three brackets. The credit C provided is a fraction a of the property tax P paid, where the fraction depends on income Y . As income rises from zero up through Y_3 , the fraction of property tax refunded declines, with $a_1 > a_2 > a_3$. Taxpayers with income in excess of Y_3 receive no credit.

$$C = a_1P, \text{ if } 0 \leq Y \leq Y_1$$

$$C = a_2P, \text{ if } Y_1 < Y \leq Y_2$$

$$C = a_3P, \text{ if } Y_2 < Y \leq Y_3$$

$$C = 0, \text{ otherwise.}$$