

**State and Local Fiscal Consequences of High School
Dropout Problems in Massachusetts**

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Introduction

Adults in Massachusetts who leave high school before graduating with a regular diploma will experience a wide array of adverse labor market, economic, income, health, and social consequences over their entire lifetime.¹ They will be employed less often, experience more severe labor market problems, receive lower hourly wages, and earn far less each year than their better educated peers over their working lives. As a result of their higher levels of joblessness, lower homeownership rates, and lower annual incomes, these adult dropouts will pay less in payroll and income taxes (state and federal), sales taxes, and property taxes, and receive considerably more cash income transfers (welfare benefits, Social Security Disability Income, Supplemental Security Income, and general relief) and in-kind transfer assistance (food stamps, Medicaid health insurance, rental subsidies) from the state and federal government than their better educated peers.

Less educated adults, especially males, are also more likely to be involved with the criminal justice system and to be incarcerated in jail or prison. Thus, they will impose costs on the taxpayers for maintaining and operating these facilities and probation/parole systems. The fiscal consequences of dropping out of high school are, thus, likely to be quite substantial, especially in a state like Massachusetts where more dropouts are covered by the Medicaid health insurance system, health care costs are higher, cash transfers are somewhat more generous than in the rest of the nation, and incarceration costs are high. The net fiscal impact of a given group of persons (e.g., high school dropouts, high school graduates with no post-secondary education) can be calculated by taking the difference between the amount of annual taxes paid and the combined annual value of the cash and in-kind transfers received and the incarceration costs imposed on the rest of society.

In an earlier research paper on the fiscal economic consequences of dropping out of high school, we estimated the mean annual value of the federal and state tax payments in the form of

¹ See: (i) Andrew Sum, Ishwar Khatiwada, Joseph McLaughlin, et.al., An Assessment of the Labor Market, Income, Health, Social, Civic and Fiscal Consequences of Dropping Out of High School: Findings for Massachusetts Adults in the 21st Century, Prepared for Boston Youth Transition Funders Group, Boston, Massachusetts, January 2007; (ii) Ishwar Khatiwada, Joseph McLaughlin, Andrew Sum, The Fiscal Economic Consequences of Dropping Out of High School: Estimates of the Tax Payments and Transfers Received by Massachusetts Adults in Selected Educational Subgroups, Prepared for Boston Youth Transition Funders Group, Boston, Massachusetts, February 2007.

payroll and income taxes and the value of the cash and in-kind benefits received by 18-64 year old adults in Massachusetts during 2002 and 2004. We will also calculated the lifetime net fiscal contributions at the federal and state level of these adults by their educational attainment.² On average over the 2002/2004 period, we estimated that the typical high school dropout annually would collect \$5,300 more in cash and in-kind benefits from the federal and state government than they paid in payroll and state/federal income taxes while the typical high school graduate would pay \$2,125 more in taxes than he/she received in cash and in-kind benefits, and the average B.A. holder would pay \$13,620 more in taxes than he received in cash and in-kind benefits. Over their lifetime, including the costs of incarceration in federal/state prisons, the average high school dropout in Massachusetts will impose a net fiscal burden of nearly \$275,000 on state/federal taxpayers while a high school graduate will contribute \$181,500 more in taxes than they will impose on the rest of the taxpayers in transfers/costs of incarceration, a net fiscal difference of \$456,500 between high school graduates and dropouts. The gap between the fiscal impacts of four year college graduates and high school dropouts was closer to \$1.5 million.

This paper is designed to identify and assess some of the most important fiscal impacts of high school dropouts on both the Massachusetts state budget and property tax receipts at the local level in recent years. At the state level, we will estimate annual tax payments by 18-64 year old adults in selected educational attainment groups for each of the following three tax revenue sources: the state personal income tax, state sales taxes, and unemployment insurance/workers' compensation taxes. For governments at the local level, the most important source of tax revenue is the property tax. Using data from the 2005 American Community Surveys on home ownership rates and estimated property taxes paid by homeowners in various educational groups, we will estimate median property tax payments by homeowners ages 18-64 in selected educational groups within the state.³

High school dropouts also affect the expenditure side of the state budget, particularly in the areas of cash income transfers and in-kind assistance, especially Medicaid health

² See: Andrew Sum, Ishwar Khatiwada, and Joseph McLaughlin, The Fiscal Economic Consequences of Dropping Out of High School: Estimates of the Tax Payments and Transfers Received by Massachusetts Adults in Selected Educational Subgroups, Report Prepared for the Boston Private Industry Council, Boston, January 2007.

³ The American Community Survey is a national household survey conducted annually by the U.S. Census Bureau since 2001. The survey utilizes a questionnaire nearly identical to the long form questionnaire used in conducting the 2000 Census. Approximately 34,000 households in Massachusetts completed questionnaires as part of the ACS 2005 survey.

expenditures, public housing subsidies, homeless shelter operations, and childcare subsidies for low income families and TANF recipients.⁴ Adults lacking high school diplomas, especially males, also are considerably more likely than their better educated peers to be incarcerated in local jails or state prisons, thereby imposing additional costs on state and local taxpayers for the operation and maintenance of these jails and prisons and the administration of the probation and parole systems. The costs of crime victimization borne by individual citizens and insurance holders are often even more considerable than these incarceration costs.⁵

Using a wide variety of data sources, we will provide estimates of the annual taxes paid to both state and local government by Massachusetts adults in selected educational groups, state-financed cash and in-kind transfers received by adults in these various educational groups, and the costs of incarcerating these adults in state and local jails and prisons in recent years. A listing of the tax payments, transfers, and incarceration costs used in our analysis appears in Table 1. Findings of our analysis will reveal that, over their lifetimes, adults who fail to graduate from high school will impose substantial fiscal burdens on the rest of the state's residents, and the magnitudes of these net fiscal burdens appear to be rising over time.⁶

⁴ The TANF program is the Temporary Assistance for Needy Families program which replaced the former Aid to Families with Dependent Children program (AFDC) in the late 1990s under national welfare reform legislation. It provides both cash transfers, child care subsidies, and education and training services to primarily single mothers.

⁵ For a review of research on the cost of victimization, see: Mark A. Cohen, et. al., "Willingness to Pay for Crime Control Programs," *Criminology*, Vol. 42, No. 1, 2004.

⁶ The household surveys include the March Current Population Surveys for 2003 and 2005, the 2005 American Community Surveys, and the 2000 Census public use files. We also rely on administrative data bases on TANF recipient characteristics, unemployment insurance tax rates, state sales tax payments by household income, incarceration costs, homeless shelter costs, state payments for Medicaid, and parole/probation costs.

Table 1:
State and Local Revenue Sources, Cash Transfers, In-Kind Transfers, and Criminal Justice System Expenditures Impacted by High School Dropouts in the Commonwealth

State Taxes	Cash Transfer Payments	In-Kind Transfers	Incarceration Costs
State personal income taxes	Temporary Assistance to Needy Families (TANF)	Medicaid Expenditures	Jail/Prison Costs
State sales taxes	Emergency Assistance to the Elderly, Disabled, and Children (EAEDC)	Public Housing Subsidies*	Probation/Parole Costs*
Unemployment insurance and workers' compensation taxes	Supplemental Security Income for the Aged and Disabled (SSI)	Child Care Subsidies for Low Income and TANF Recipients	
Above Three State Taxes Combined	Unemployment Insurance Benefits	Housing Shelters*	
Local property taxes			

Note: (*) Specific estimates of these costs are not included in this paper.

Annual State and Local Tax Payments Made by Massachusetts Adults by Educational Attainment

To estimate the net fiscal impact of dropping out of school on the Massachusetts state budget and the fiscal health of local governments, we first analyzed key sources of tax revenue to the state and local governments. We identified three key sources of revenue to the state: state income tax receipts, employers' unemployment insurance and workers compensation costs and the state's sales taxes.⁷ In addition, we included the property tax payments made by homeowners to local governments. The estimated amount of revenues from each source both individually and

⁷ While these UI taxes and workers' compensation contributions are paid by employers, most of the payroll costs are shifted back to workers in the form of lower wages.

combined for high school dropouts, high school graduates, adults with 1-3 years of college, and bachelor degree holders are displayed in Table 2.

On average, high school graduates (18-64 years old) in Massachusetts earn about \$10,000 more per year than high school dropouts. As a consequence of these higher annual earnings, they will pay more in state income taxes than their counterparts who did not graduate from high school or obtain a GED. On average, high school graduates paid \$455 more per year in state income taxes than high school dropouts did during the 2002/2004 period. Adults with 13-15 years of schooling paid three times as much in state income taxes as did high school dropouts while bachelor's degree holders paid over five times the mean annual amount of state income taxes paid by high school dropouts.

The higher earned incomes of adults with more years of schooling also lead to greater employer payroll tax contributions for unemployment insurance and worker's compensation. The tax rates for these programs are subject to relatively limited earnings caps, thus, the differences in annual UI taxes across educational group are smaller than income tax payment differences. For example, in Massachusetts, the cap on the maximum earnings subject to the unemployment insurance tax was only \$14,000 in 2006.

Adults with higher incomes are also expected to pay more in state sales taxes during the year due to higher consumption expenditures on goods and services subject to the tax. We used IRS estimates of the sales taxes paid by households in various income ranges to calculate the average sales taxes paid by householders in different educational attainment subgroups. Since incomes rise with levels of educational attainment, more educated adults can be expected to pay more sales taxes (Appendix Table A). The average high school dropout paid \$168 in sales taxes in 2005 versus \$294 for high school graduates, \$365 for adults with 13-15 years of schooling, and \$471 for Bachelor's degree holders.

After adding the four sources of tax revenue displayed in Table 2, high school graduates paid approximately \$1,250 more in taxes to state and local governments than high school dropouts. The annual gap is even larger between high school dropouts and adults who completed at least some post-secondary schooling.

Table 2:
Tax Payments Made by Massachusetts Adults to State and Local Governments By Level of Educational Attainment, 2002/2004 Averages

	(A)	(B)	(C)	(D)
Tax Income	High School Dropout	High School Graduate	13-15 Years of Schooling	Bachelor's Degree Holder
State Income Tax	\$531	\$986	\$1,590	\$2,709
Employer's UI Contribution	\$235	\$308	\$333	\$348
State Sales Tax Paid by				
Householder	\$168	\$294	\$365	\$471
Property Taxes by Homeowners	\$833	\$1,427	\$1,716	\$2,363
Total Taxes Paid to State and Local Government	\$1,767	\$3,015	\$4,004	\$5,891

Sources:

1. March 2003 and March 2005 CPS surveys, Annual Social and Economic Supplement, public use files, tabulations by authors.
2. 2005 ACS, public use files tabulations by authors.
3. "State and Local General Sales Taxes", Internal Revenue Service, Department of Treasury, Publication 600, 2006.

Home Ownership Rates, Median Values of Homes, and Property Taxes Paid by Homeowners by Educational Attainment of the Householder in Massachusetts

Local governments in Massachusetts are heavily dependent on property tax revenues for their financing of public services. Median annual property tax payments by homeowners in Massachusetts also are substantially higher than they are in the rest of the country. For example, during 2005, we estimate that the median amount of property taxes paid by homeowners in Massachusetts was \$3,018, which was \$1,120 or nearly 60 percent higher than in the rest of the country, further increasing the comparative cost of living in the state and making the state a less competitive place to work and live.⁸

⁸ These estimates of median annual property tax payments by homeowners in Massachusetts and the U.S. were based on the 2005 American Community Surveys. Median property tax payments were estimated at \$3,018 for homeowners in Massachusetts and \$1,899 for the U.S., an absolute difference of \$1,119. Homeowners who were high school dropouts bore the largest differential burden between property tax payments in Massachusetts and the U.S.

Another adverse fiscal consequence of high school dropouts stems from their lower home ownership rates and lower property tax payments at the local level. Home ownership rates in Massachusetts in 2005 were strongly correlated with the educational attainment of the householder.⁹ Overall, 62 percent of state households with a householder between 18 and 64 years old owned their housing units in 2005 (Table 3 and Chart 1). These homeownership rates ranged from a low of 34 percent among householders lacking a high school diploma to 55 percent for high school graduates and to a high of 76 percent among adults with a Master’s or higher degree.

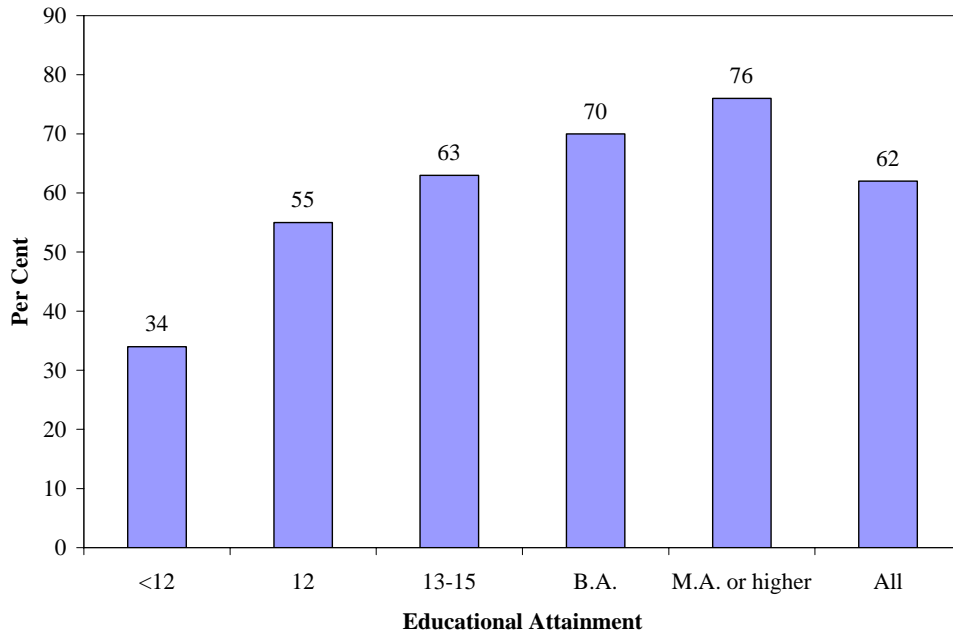
Table 3:
Home Ownership Rates, Median Values of Homes and Median Property Tax Payments of Massachusetts Households by Educational Attainment of the Householder, 2005

	(A)	(B)	(C)	(D)
Educational Attainment	Home Ownership Rate	Median Value Of Owner Occupied Homes	Estimated Median Property Tax Paid by Home Owners	Median Property Taxes Paid (x) Ownership Rate
<12 or 12, no diploma	34.3	\$305,600	\$2,430	\$833
H.S. diploma/GED	55.2	\$314,140	\$2,586	\$1,427
1-3 years of college including Associate degrees	62.8	\$346,500	\$2,732	\$1,716
Bachelor degree	69.6	\$404,600	\$3,395	\$2,363
Master’s or higher degree	75.7	\$458,500	\$3,843	\$2,909
All	62.4	\$370,200	\$3,018	\$1,883

Source of data: 2005 American Community Surveys, public use files, tabulations by authors.

⁹ In a household with two or more adults present in the home, the householder is the person in whose name the housing unit is owned or rented. In a married couple family, the householder can be either the husband or the wife.

Chart 1:
Home Ownership Rates Among Massachusetts Householders by
Educational Attainment of Householder, 2005



The overall homeownership rate in Massachusetts during 2005 was modestly below that of the U.S. despite higher median and mean household incomes in the Commonwealth in comparison to the U.S. (Table 4). The considerably higher relative cost of homes in our state discourages home ownership. The homeownership gaps between householders in Massachusetts and the U.S. were highest for those householders who lacked a high school diploma (11.4 percentage points) followed by high school graduates with no college (5.5 percentage points). Rising costs of homes in the state have especially depressed home ownership rates among younger adult dropouts. In 2005, fewer than 1 of 5 Massachusetts households headed by an individual under 40 years of age lacking a high school diploma owned their homes, a home ownership rate only one-half as high as that of high school graduates and only one-third as high as that of younger households headed by individuals with a Bachelor’s or Master’s degree. The 2005 home ownership rate of Massachusetts households headed by an individual 18-40 years old with no diploma or GED was fifth lowest in the entire country.

Table 4:
Home Ownership Rates of Massachusetts and U.S. Households by Educational Attainment of the
Householder (18-64 Years Old), 2005

	(A)	(B)	(C)
Educational Attainment	MA	U.S.	MA-U.S.
All	62.4	63.8	-1.4
<12	34.3	45.7	-11.4
12, diploma or GED	55.2	60.7	-5.5
13-15 years	62.8	63.6	-0.8
Bachelor's degree	69.6	71.7	-2.1
Master's or higher degree	75.7	78.2	-2.5

Source: 2005 American Community Surveys, public use files, tabulations by authors.

The estimated median value of the homes owned by high school dropouts in the Commonwealth in 2005 was quite high at \$305,600 (Table 3).¹⁰ Median values of homes in Massachusetts increased with the educational attainment of the householder, rising to just under \$405,000 for Bachelor degree holders and to \$456,000 for homeowners with a Master's or more advanced degree. The median value of homes in Massachusetts during 2005 was more than twice as high as those across the entire nation (\$370,000 vs. \$176,000).

In completing the ACS household questionnaire, respondents were asked to report the amount of property taxes they paid in the prior calendar year. The amount is reported in a given payment category rather than as a specific absolute amount. We used interpolation techniques to estimate the median value of the property taxes paid by homeowners in a given educational attainment group. Our estimates of annual property tax payments are displayed under Column C of Table 3. The median value of the property tax payments for all homeowners across the state was \$3,018. They ranged in value from \$2,430 among those adults lacking a high school diploma/GED to \$2,586 for high school graduates, and to a high of \$3,843 for those householders with a Master's or more advanced degree.

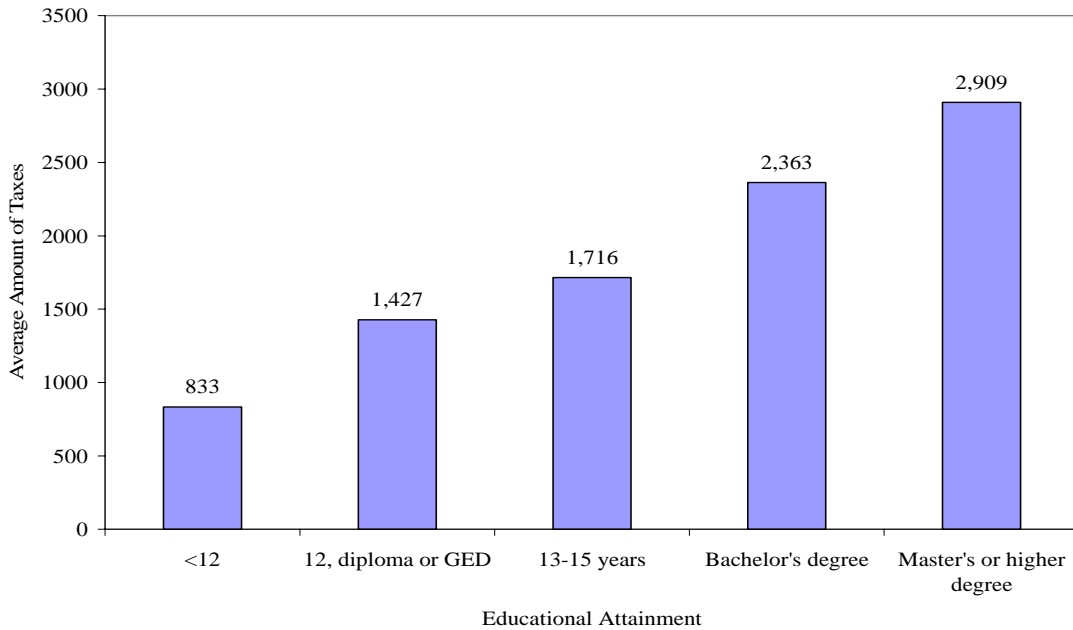
¹⁰ These estimates are based on self-reports of the respondents to the ACS survey not to any official assessment of home prices; however, previous studies based on comparisons of self-reported home values with appraised values showed a high degree of correspondence.

The differences between the estimated median property tax payments of homeowners who were high school dropouts and those of their peers who were either high school graduates or had completed one to three years of college were rather small at \$156 and \$402, respectively. However, these tax payments apply only to those adults who were homeowners. As noted earlier, households headed by persons who lacked a high school diploma/ GED were considerably less likely to own their homes. To adjust the estimates of median property tax payments for differences in home ownership rates, we multiplied the median property tax payment of homeowners in each educational group by the homeownership rate among those same households in 2005.¹¹

The estimated values of these ownership rate adjusted property taxes payments by educational attainment group are displayed in Column D of Table 3 and Chart 2. Given their very low homeownership rate, the estimated average (mean) amount of property tax payments by households headed by a high school dropout was only \$833 versus \$1,427 for high school graduates and \$2,363 for householders with a Bachelor's degree. Adult high school dropouts, thus, paid \$600 less per year in property tax payments than high school graduates, \$1,530 less than Bachelor degree holders, and nearly \$2,100 less than those with Master's or higher degrees. Households headed by adult dropouts in Massachusetts pay a relatively low average amount of property taxes, thereby further widening the fiscal contribution gaps between them and their better educated counterparts across the state.

¹¹ Ideally, these calculations would rely on the mean property tax payment; however, we could not precisely calculate means with the available ACS data. If property tax payments in a given educational group of homeowners are approximately normally distributed, the mean and median values will be identical.

Chart 2:
Estimated Average Amount of Property Taxes Paid by Households in Massachusetts by the Educational Attainment of the Householder, 2005



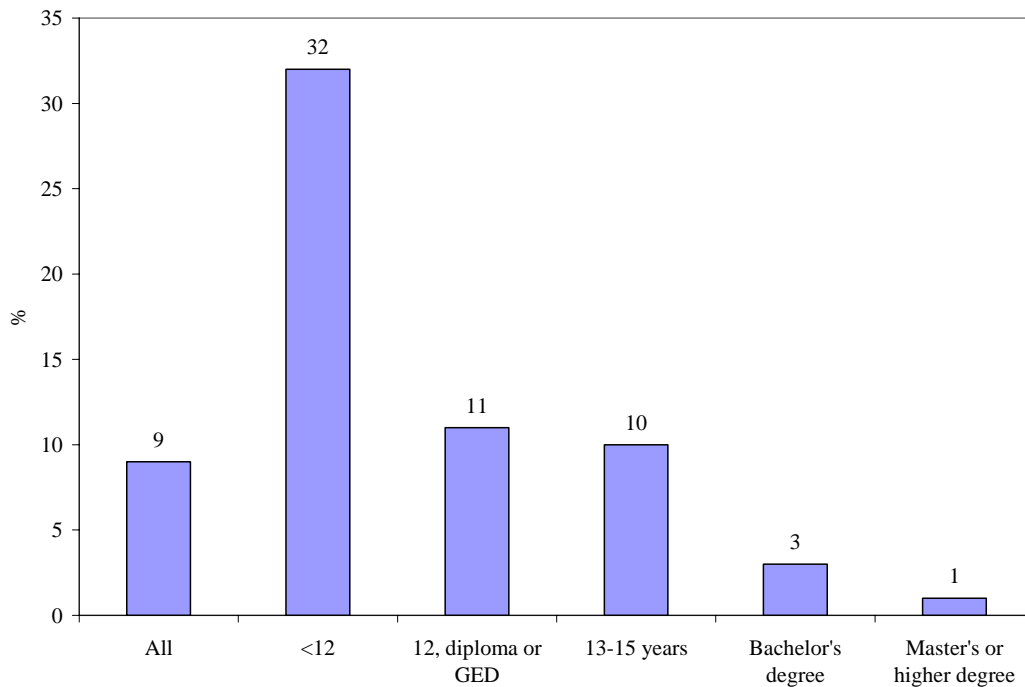
Not only are households headed by adults lacking a high school diploma/ GED certificate far less likely to be homeowners in Massachusetts than their better educated peers, but they are much more likely to be living in public housing or in subsidized private housing when they rent. Thus, as subsidized renters, part of their rent is paid for by the rest of the taxpaying public through federal, state, and local taxes.¹² During March 2005-March 2006, we estimate that one-third of all households headed by an 18-69 year old adult lacking a high school diploma in Massachusetts were living either in public housing or in private housing units where their rents were subsidized by the federal/state government (Chart 3).¹³ These subsidized housing units further increase the fiscal burden on the rest of the taxpaying public. Only 11 percent of households headed by a high school graduate were living in public housing or subsidized, private rental housing, and fewer than 3 of every 100 households headed by a four year college graduate were doing so. Adult dropouts were, thus, three times as likely as high school graduates to

¹² Landlords may succeed in passing part of the property tax onto tenants especially in a rental market characterized by very low vacancy rates. Economists studying this issue are somewhat divided over who bears the burden of the property tax. Less educated renters are far more heavily subsidized than their better educated peers; thus their tax payments as renters are well below the average for better educated renters.

¹³ These estimates are based on the March 2005 and March 2006 CPS surveys, which collected information on the home ownership status of residents and their occupancy of either public housing or subsidized housing.

occupy subsidized housing and nearly 12 times as likely to do so as adults holding a bachelor's degree. The bulk of the costs of subsidizing public housing are borne by state and local governments across the Commonwealth. These costs further add to the negative fiscal consequences of high school dropouts.

Chart 3:
Percent of Massachusetts Households Headed by 18-69 Year Olds Who Were Living in Subsidized Private Housing or Public Housing by Educational Attainment, 2005



State Financed Cash and In-Kind Transfers Received by Massachusetts Adults by Educational Attainment

There are a variety of cash transfer programs for low income families and individuals in Massachusetts that are financed either in part or in whole by state government. Cash payments to primarily single mother families under the Temporary Assistance to Needy Families (TANF) program in the Commonwealth are financed jointly by the federal and state government. There were approximately 47,000 families receiving TANF benefits in the Commonwealth in 2005. The TANF program also provides extensive child care subsidies to working mothers under the TANF program and to other low income mothers and provides education and job training

services to adult TANF recipients to promote their employability. The Emergency Assistance to the Elderly, Disabled, and Children program, known by its acronym (EAEDC), is a cash transfer program completely financed by state tax revenues. During FY 2005, there were 16,970 cases per month receiving EAEDC cash benefits across the Commonwealth. The Supplemental Security Income Program (SSI) is a joint federal/state cash income transfer program that provides monthly payments to selected disabled individuals and to indigent older adults (65+). The Commonwealth supplements the monthly payments from the federal government to the aged and the disabled under the SSI program. Unemployment insurance benefits also are paid to unemployed workers with sufficient earnings and weeks of employment during a given year to be eligible for such benefits. The UI benefits are paid for by taxes collected from state employers covered by the provisions of the UI program. While employers directly pay these taxes, labor market research indicates that their financing is largely shifted to employees in the form of lower wages.

In our state, adults who lack a high school diploma/GED are considerably more likely to receive cash transfers under three of the above four programs than their better educated peers across the state. With available household survey data on the receipt of each of these cash transfers incomes by Massachusetts adults in each educational group and budgetary estimates of the state's contributions to the funding of each of these programs, we have generated annual estimates of the per adult costs of each of these programs for 18-64 year olds in each of the four educational subgroups.

Despite their considerably higher rates of unemployment, adult dropouts receive a modestly lower amount of UI benefits than their better educated counterparts. This result appears to be attributable to some combination of the following three factors: a lower incidence of UI benefit eligibility among unemployed high school dropouts¹⁴, the lower rate of labor force attachment among adult high school dropouts¹⁵, and their lower mean weekly UI benefit payments when they do collect UI benefits. The average weekly benefit amount is tied to prior weekly earnings in the base qualifying period subject to a maximum. Adult high school dropouts

¹⁴ Some unemployed high school dropouts will not have acquired sufficient earnings during the base period to qualify for UI benefits while others, including illegal immigrants, will have been paid off the books and, thus, not be eligible for UI benefits. Some dropouts may not be well informed of their eligibility for UI benefits.

¹⁵ The mean amount of UI benefits is calculated per adult in the 18-64 year old population. Since dropouts are less likely to be active in the labor force, a higher unemployment rate (U/L) will be associated with a lower U/P ratio.

received only \$111 in unemployment compensation compared to \$272 for high school graduates, \$214 for adults with 13-15 years of schooling, and \$167 for bachelor’s degree holders. In contrast, high school dropouts, on average, received over \$200 more during the year than high school graduates and \$400 more per year than bachelor degree recipients in the three mean tested programs in Table 5 (TAFDC, EAEDC, and SSI). The combined impact of these four cash transfers programs is quite modest for high school dropouts in comparison to high school graduates (\$48 per year).

Table 5:
Cash Transfers Received by Massachusetts Adults by Level of Educational Attainment and Type of Transfer, 2002/2004

	(A)	(B)	(C)	(D)
Type of Cash Transfer	High School Dropout	High School Graduate	13-15 Years of Schooling	Bachelor's Degree Holder
Unemployment Compensation TAFDC, EAEDC, and SSI Transfers	\$111	\$272	\$214	\$167
Total Cash Transfers	\$403	\$194	\$14	\$0
	\$514	\$466	\$228	\$167

Source: March 2003 and March 2005 CPS surveys, Annual Social and Economic Supplement, public use files, tabulations by authors.

In addition to cash transfers, high school dropouts are much more likely to be dependent on in-kind transfers especially Medicaid health insurance benefits than their counterparts with a regular high school diploma and additional years of schooling beyond high school. In Table 6, the estimated value of two in-kind transfers, which are financed by the state of Massachusetts, are shown by level of educational attainment. The annual cost of Medicaid services provided to high school dropouts far exceeded the Medicaid costs for high school graduates (\$3,451 to \$1,083). Since Massachusetts receives a 50-50 matching rate from the federal government for Medicaid expenditures, we assumed that the state finances 50% of these costs as displayed in Table 6. The average annual health insurance costs for Bachelor’s degree holders were substantially lower than those of high school graduates and dropouts. In addition to large in-kind transfers associated with health insurance programs, high school dropouts also received

substantial housing subsidies, however, most of the financing for these subsidies comes from the federal government. The annual gap in in-kind transfers made to the average high school dropout versus the average high school graduate was \$1,181.

Table 6:
In-Kind Transfers Received by Massachusetts Adults by Level of Educational Attainment and Type of Transfer

	(A)	(B)	(C)	(D)
Type of In-Kind Transfer	High School Dropout	High School Graduate	13-15 Years of Schooling	Bachelor's Degree Holder
State EITC	\$19	\$22	\$24	\$5
Medicaid (Market Value)	\$1725	\$541	\$340	\$91
Total	\$1,744	\$563	\$364	\$96

Source: March 2003 and March 2005 CPS surveys, Annual Social and Economic Supplement, public use files, tabulations by authors.

Institutionalization Costs of 16-64 Year Olds in Massachusetts by Level of Educational Attainment

The data on institutionalization rates for subgroups of adults available from the 2000 Census can be combined with administrative data on the annual per capita cost of housing and supervising jail and prison inmates to estimate the annual institutionalization costs associated with dropping out of high school. According to the Massachusetts Department of Corrections, the annual per inmate cost for state prisons for fiscal year 2006 was \$43,025. By multiplying the institutionalization rate of each educational group of adults from the 2000 Census by the per inmate cost, we can estimate the average annual costs of institutionalization for each educational attainment group. The average, high school dropout costs the state of Massachusetts approximately \$1,100 in expenditures related to incarceration per year (Table 5). The annual costs of incarceration of high school dropouts was 2 times as high as those of high school graduates without any postsecondary schooling and 25 times higher than those of four-year college graduates.

Table 7:
Annual Per Capita Costs of Incarceration for 16-64 Year Olds by
Educational Attainment, Massachusetts, 2005

	(A)	(B)	(C)
Educational Attainment	Institutionalization Rate (in %)	Per Capita Cost	Average Annual Cost (in \$)
1-12 Years, No Diploma or GED	2.5	\$43,025	1,076
High School Diploma, No College	1.1	\$43,025	473
1-3 Years of College	0.5	\$43,025	215
Bachelor's Degree	0.1	\$43,025	43

The Fiscal Consequences of Dropping Out of High School on State and Local Taxpayers

The primary purpose of this paper was to identify and estimate some of the most important fiscal impacts of high school dropouts on both the Massachusetts state budget and property tax receipts at the local level in recent years. Earlier we noted that the net fiscal impact of a given group of persons (e.g., high school dropouts, high school graduates with no post-secondary education) can be calculated by taking the difference between annual taxes paid and the annual value of cash and in-kind transfers received and incarceration costs imposed. In Table 8, we provide estimates of the net fiscal impacts of the four educational groups. High school dropouts imposed \$1,567 in cash and in-kind transfers and incarceration costs than they paid in state and local taxes. In sharp contrast, high school graduates paid \$1,513 more in state and local taxes than they received in transfers or imposed in incarceration costs on the state. The mean annual difference between the net fiscal contributions of high school graduates and high school dropouts was about \$3,080. The gaps between the fiscal contributions of dropouts and better educated adults increased with their level of educational attainment. Over the working-age lifetime (18-64 years of age), the gap in fiscal contributions to state and local governments between high school graduates and dropouts would be equal to nearly \$145,000 and the gap between dropouts and bachelor degree holders would exceed \$330,000.

Table 8:
Mean Annual State and Local Taxes Paid- Transfers Received by Non-Enrolled 16-64 Year Old
Adults in Massachusetts by Educational Attainment, 2002-2004 Averages (in \$)

Educational Attainment	(A) State and Local Taxes Paid	(B) Cash and In-Kind Transfers	(C) Average Annual Per-Capita Costs of Incarceration	(D) Net Fiscal Impact (Column A – (B+C))
<12 or 12, no diploma	\$1,767	\$2,258	\$1,076	-\$1,567
High school diploma or GED	\$3,015	\$1,029	\$473	\$1,513
1-3 years of college, including Associate degree	\$4,004	\$592	\$215	\$3,197
Bachelor's degree	\$5,891	\$263	43	\$5,585

Appendix A

The Internal Revenue Service (IRS) provides estimates of the amount of sales taxes paid by households by their level of income. We used the ACS 2005 to make estimates of the mean incomes of adults in each educational group in Massachusetts. The mean incomes of adults by educational attainment were used in combination with the IRS sales tax tables to estimate the average sales tax paid by adults in Massachusetts by their level of educational attainment.

Appendix Table A:
Estimates of State Sales Taxes Paid by Massachusetts Adults by Educational Attainment, 2005
(Averages in Dollars)

	(A)	(B)
Educational Attainment	Mean Personal Income 2005	Estimate of Sales Tax Paid
<12 or 12, no diploma	\$16,764	168
High school diploma or GED	\$26,013	294
1-3 years of college, including Associate degree	\$30,909	361
Bachelor's degree	\$50,887	475
Master's or higher degree	\$74,562	539

Source: “State and Local General Sales Taxes”, Internal Revenue Service, Department of Treasury, Publication 600, 2006.