

The Fiscal Consequences of Dropping Out of High School in the Los Angeles Metro Area

Prepared by:

Paul E. Harrington

Neeta P. Fogg

Alison H. Dickson

Center for Labor Market Studies

Northeastern University

Boston, Massachusetts

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Executive Summary

A high school diploma has increasingly become a prerequisite to full participation in the mainstream economy. Access to year-round, full-time jobs - even at low hourly rates of pay – are quite limited for high school dropouts living in the Los Angeles metro area. Individuals who fail to graduate from high school have become increasingly relegated to the fringes of the labor market, stuck in extended periods of joblessness and, when working, are more likely to be employed in part-time, part-year, low skill jobs.

Dropping out of high school imposes very high costs on the individual who drops out of school mainly through poor labor market outcomes. Other costs imposed are restricted access to higher education and training and a weaker voice in the political and electoral system. The weak labor market outcomes of high school dropouts result in reduced annual earnings, low-income levels, a sharply higher risk of poverty, and all the negative personal and family consequences associated with life at the margins of the labor market. However, the costs of dropping out are not borne exclusively by the dropout. Many of the costs of dropping of high school spill over to local communities: to the city of Los Angeles, to suburban Los Angeles, to the state of California, and to the nation a whole.

There are a variety of non-monetary, as well as monetary, costs that the decision to drop out of high school imposes upon the broader community. One of the primary sources of direct monetary costs that high school dropouts impose on the community are in the form of lower tax payments. A second major source of costs imposed by dropouts on the larger community is more intensive reliance on both cash and non-cash government income transfers. Another cost that is imposed by high school dropouts on the economy is the cost of incarceration. High school dropouts have much higher probabilities of incarceration at any one point in time than those with more schooling.

The grim fiscal consequences of dropping out of high school are exacerbated in an economy that continues to create jobs that require high levels of skills and literacy proficiencies. Employment opportunities for unskilled persons have declined sharply as the industry structure of employment has shifted from manufacturing to service industries and as the production of the nation's output has become more technologically sophisticated raising the literacy and

educational requirements of the workforce. Although employment opportunities for high school dropouts do exist at the lower end of the labor market, an increase in the labor supply of low skilled workers from undocumented immigration and increased globalization and outsourcing of low-skill jobs have exerted a downward pressure on both dropout employment rates and wages. All of these trends have increased the cost of dropping out of high school; not only to the individual high school dropout, but also to the economy and society at large.

Employment and Earnings

- Between 2006 and 2008 an average of 64 percent of 18 to 64 year old high school dropouts in the Los Angeles metro area were employed, compared to nearly 71 percent of high school graduates, 76 percent of those with a college education below a bachelor's degree, and 82 percent of those with a bachelor's or a higher college degree.
- The mean annual earnings of 18 to 64 year old high school dropouts in the Los Angeles metro area were only \$16,478, or 42 percent of the mean annual earnings of all non-elderly adults in the metro area (\$39,230). The mean annual earnings of high school graduates in the metro area were \$25,770, representing an earnings premium compared to high school dropouts of 56 percent. The mean annual earnings of college-educated residents of the Los Angeles metro area ranged from \$37,231 among those who had completed some college below the bachelor's degree level, to \$68,348 among those with a bachelor's or a higher degree. These earnings levels were, respectively, 2.3 and 4.1 times times higher than the mean annual earnings of high school dropouts in the area.
- Over their entire working lifetime, high school dropouts in the Los Angeles metro area are expected to earn an average of only \$739,927. Residents of the area who graduate from high school can expect to earn about \$1.193 million (or 61 percent more than that of high school dropouts), those who complete some college education below a bachelor's degree can expect to earn \$1.665 million (or 2.3 times as much as high school dropouts), while those with a bachelor's or a higher degree are expected to earn 4 times as much as high school dropouts over their working lifetimes (\$2.927 million).

Home Ownership and the Value of Owner-Occupied Homes

The amount of property taxes paid by individuals depends on their home ownership rates and the market value of their homes. The rate of home ownership and the value of owner-occupied homes also increased with educational attainment in the Los Angeles metro area.

- Between 2006 and 2008, just under half of all 18 to 64 year old householders in the Los Angeles metro area owned their homes (48 percent). The rate of home ownership in the metro area varied from just 33 percent among high school dropouts, to 40 percent among high school graduates, to 49 percent among those householders with some college education below the bachelor's degree level, and to a high of 60 percent among householders with a bachelor's or a post-graduate education.
- The mean value of owner-occupied homes increased steadily with the education of the householder. Between 2006 and 2008, the mean value of an owner-occupied home in the Los Angeles metro area was \$611,482 and the range of the values of these homes by the education of the householder varied from a low of \$463,783 among high school dropouts to a high of \$697,015 among owner-householders with a bachelor's or a higher degree.

Annual Tax Payments

Not only were better-educated residents of the Los Angeles metro area more likely to pay the federal, state, and local taxes but they also paid much higher amounts of these taxes over the year.

- High school dropouts in the Los Angeles metro area made a mean combined annual tax payment (including federal and state income taxes, social security payroll taxes, federal government retirement contributions, local property taxes, and state sales taxes) of just \$5,496, which represents just over a third of the mean combined annual tax payment of all adult residents of the metro area (\$15,557). The mean combined annual tax payment among high school graduates was \$9,746, while those residents with a bachelor's or a higher college degree paid an average of \$27,151 in tax payments per year.
- On average, for every \$1 in taxes paid by a high school dropout in the Los Angeles metro area, high school graduates paid \$1.77 while bachelor's or higher college degree holders paid \$4.94.

Transfers

Income is a recurring and important component of most eligibility criteria for government transfer payments to the non-elderly population. Given the lower levels of employment and earnings and incomes among the poorly educated compared to their better-educated counterparts, poorly educated individuals would be more likely to be eligible for, and therefore more likely to receive, government transfers.

- Almost a fifth of all the non-elderly residents in the Los Angeles metro area received one or more cash transfer payments (19 percent). The proportion of working age adults who received government transfers was highest among high school dropouts and declined sharply among better-educated groups. Nearly a third of Los Angeles metro area residents who were high school dropouts received one or more cash transfer payments (32 percent), compared to 21 percent among high school graduates, and 10 percent among college graduates with a bachelor's or a higher college degree.
- Less than a fifth of all non-elderly adult residents of the Los Angeles metro area (17 percent) had reported receiving one or more in-kind transfers such as Medicaid benefits, food stamps, energy assistance, or housing subsidies.
- The rate of receipt of non-cash transfers among the non-elderly population in the Los Angeles metro area also varied sharply by level of educational attainment. Among high school dropouts 34 percent received a non-cash transfer benefit—representing about 1.8 times the rate of receipt among high school graduates without any college education (20 percent) and 6.6 times the rate of receipt among the best-educated residents of the area (5 percent).

The Incidence and Costs of Institutionalization

- The incidence and costs of institutionalization of adults in California declined sharply with increases in educational attainment. While 1.4 percent of all 18 to 60 year Californians were institutionalized between 2007 and 2008, the rates of institutionalization varied from a high of 3.3 percent among high school dropouts, to 1.9 percent among those with just a high school diploma or a GED, to 0.1 percent among college educated adults with a bachelor's or a higher degree.

- The high rate of institutionalization among high school dropouts resulted in a high annual average cost of institutionalization per adult high school dropout in California (\$1,006). The annual institutionalization cost among adult high school graduates, with no college education, was much lower (\$592). Among college educated adults residents of California the average annual cost of institutionalization per person was even lower: \$240 among adults with a below bachelor's degree level college education and \$42 per year among college graduates with a bachelor's or higher academic degree.

The Mean Annual Net Fiscal Contributions

The difference between the mean annual tax payments and the mean values of annual cash and in-kind transfers and per capita annual costs of institutionalization represent the mean annual net fiscal contributions.

- The mean net annual fiscal contribution of the average non-elderly working age adult without a high school diploma in the Los Angeles metro area was positive, albeit small: \$1,756.
- Adults in the remaining three educational groups also had positive net annual fiscal contributions, although to much larger magnitudes. Adults in the Los Angeles metro area with only a high school education and no postsecondary education annually contributed, on average, \$7,170 more in tax payments than the sum of what was received in the form of transfers and the costs that they imposed for institutionalization. The annual net fiscal contribution of adults with a college education was even greater. Residents of the metro area who had a college education below the bachelor's degree level contributed on average \$13,487 per year, while the per capita mean annual net fiscal contribution of college graduates with a bachelor's or higher degree was \$26,304.
- The ratio of mean annual tax payments to the annual mean value of transfers and annual institutionalization costs rose sharply with education in the Los Angeles metro area—from only 1.47 among adults who did not complete high school, to 3.78 among adults with a high school diploma, to 32.05 among adults with a bachelor's or a higher academic degree. Thus, while a high school dropout paid only \$1.47 for every \$1 received in the form of transfers and institutionalization costs, those with a high school

diploma and those with a bachelor's or a higher degree contributed, respectively, \$3.78 and \$32.05 in tax payments for every \$1 received in transfers and institutionalization costs.

- Male residents of the Los Angeles metro area made a larger net annual fiscal contribution than their female counterparts did at every level of educational attainment, especially among high school dropouts. Adult female high school dropouts had a mean annual net fiscal contribution of only \$248, 13 times smaller than that modest contribution of their male counterparts (\$3,280).
- While there was a strong positive correlation between the mean annual net fiscal contribution and level of educational attainment across both genders in the Los Angeles metro area, this correlation was especially strong among females. While male high school graduates contributed on average almost 2.6 times as much as their male counterparts who were a dropout (\$8,588 versus \$3,280, respectively), female high school graduates contributed almost 23 times as much as dropout female residents (\$5,655 versus \$248, respectively).

The Lifetime Mean Annual Net Fiscal Contributions

- Over their working lives, the small positive mean annual net fiscal contribution of adult residents of the Los Angeles metro area who failed to complete high school would accumulate into a contribution of less than eighty-five thousand dollars over their working lives (\$82,515). In contrast, a resident with a bachelor's or a higher academic degree is estimated to contribute almost 13 times as much over their working lifespan; more than one million dollars (\$1,039,025).
- Adult female high school dropouts in the Los Angeles metro area have an estimated mean lifetime net fiscal contribution of only \$11,649; 7 times smaller than the estimated lifetime contribution of all high school dropouts in the metro area (\$82,515) and 13 times smaller than the estimated lifetime contribution of male dropouts in the area (\$154,160).
- Each high school dropout in the Los Angeles metro area is estimated to make a net positive fiscal contribution of lifetime cost of \$82,515, while each high school graduate (without any college education) is expected to make a greater net positive fiscal

contribution of \$322,671 over their working lives. Thus, the financial benefit that can be expected to accrue to the federal, state and local governments from each successful high school graduation of a high school dropout resident in the Los Angeles metro area is almost a quarter of a million dollars (\$240,156).

- Over their working lifespan it is estimated that all high school dropout residents of the Los Angeles metro area only contribute about a quarter (25.6 percent) of what high school graduate residents do, and less than a tenth (7.9%) of what residents who have a bachelor's or higher degree do.
- Female high school graduates are estimated to contribute even less over their working lifespan: only 4.6 percent of what female high school graduate residents of the Los Angeles metro area contribute and only 1.4 percent of what female residents who have a bachelor's or higher degree contribute (\$11,649 versus \$254,456 and \$859,476, respectively).

Thus, it is clear that working age adults in the Los Angeles metro area who fail to complete high school – especially female high school dropouts - impose heavy burdens upon the public coffers in the form of low tax payments, high rates and amounts of receipt of government transfer costs, and high institutionalization costs. These external costs are in addition to the sizable personal costs of dropping of high school that are borne by the individuals themselves. The large gap between the lifetime net fiscal contributions of high school dropouts and their counterparts with just a high school education indicate that the monetary benefit of each successful high school graduation to the public coffers in the Los Angeles metro area is indeed very large.

Furthermore, although the components in the net fiscal contributions estimated in this report encompass a wide array of taxes and transfers and costs, these estimates are still very conservative since they do not include non-quantifiable personal costs, health costs, and social costs of high school dropouts and the transmission of these costs to future generations through diminished resources available to their children. Thus, *everyone* in the Los Angeles metro area pays when someone drops out of high school.

Introduction

A high school diploma has increasingly become a prerequisite to full participation in the mainstream economy. Access to year-round, full-time jobs - even at low hourly rates of pay - is quite limited for high school dropouts. Individuals who fail to graduate from high school have become increasingly relegated to the fringes of the labor market, stuck in extended periods of joblessness and, when working, are more likely to be employed in part-time, part-year, low skill jobs. Indeed, a high school diploma has become the minimum educational requirement for residents of the Los Angeles metro area that can provide access to employment and earning experiences over their working lives capable of generating sufficient income to achieve a middle class standard of living.¹

While high school dropouts are increasingly relegated to the margins of the labor market, they are also largely shut out of the economic gains associated with access to post secondary education at the two and four year college degree level as well as in non degree post secondary educational programs. Admission to a higher education program requires the completion of high school. Even when admission is not contingent upon earning a high school diploma, dropouts are less likely to enroll in a post secondary program. High school dropouts are therefore also shut out of most education and training opportunities.

The degree of civic engagement of individuals is also found to be highly correlated with their level of educational attainment. Unsurprisingly, civic engagement is another arena with very limited participation by high school dropouts. Compared to better educated individuals including high school graduates, high school dropouts are considerably less likely to participate in the labor market, are not eligible (and are unlikely) to enroll in most postsecondary education programs and a number of training programs, and are not as active in the civic or the electoral arena.

¹ A very close association exists between education and employment in the Los Angeles metro area: young adults with a lower level of education are considerably less likely to be employed. See: Neeta Fogg and Paul Harrington. *"One out of Five" A Report on Out of School and Out of Youth in Los Angeles and Long Beach*. Center for Labor Market Studies, Northeastern University, Boston MA. November 2004.

Evidence on the poor labor market participation and inferior labor market outcomes among high school dropouts abounds.² Individuals who fail to complete high school are less likely to participate in the labor market and look for a job. When they do look for employment, the lack of a high school diploma poses a major barrier to finding work. Consequently, the unemployment rate of high school dropouts is considerably higher than that of their better-educated counterparts. During 2008 the annual average unemployment rate of high school dropouts across the nation was 9 percent, considerably higher than the 5.7 percent rate among high school graduates and the 2.8 percent rate among college graduates with a Bachelor's degree³. Furthermore, even when dropouts do find a job, they typically work considerably fewer hours per year and have sharply lower hourly wages. The combination of both of these factors sharply depresses their annual earnings compared to those with more schooling. High school dropouts are also much less likely to receive employment-related benefits such as health insurance and employer sponsored retirement programs compared to better-educated individuals. Although possessing just a high school diploma does not guarantee the best labor market outcomes, completing high school sharply increases access to labor market opportunities that are now largely unavailable to those without a high school diploma.

In the education arena, access to postsecondary education and many training programs is typically denied to those who do not have this basic credential. Civic engagement in the form of volunteering activities, active group or association membership, fundraising and charity activities, regular voting in elections, and volunteering for political campaigns is also much less likely among high school dropouts.⁴ Moreover, civic engagement has declined over time with the

² For a review of the relationship between educational attainment, literacy proficiencies, and labor market outcomes in the nation, see: (i) Andrew Sum, Irwin Kirsh, and Kentaro Yamamoto. *Pathways to Labor Market Success: The Literacy Proficiencies of U.S. Adults*. Education Testing Service, Princeton, New Jersey. 2004; (ii) Irwin Kirsh, Henry Braun, Andrew Sum, and Kentaro Yamamoto. *The Perfect Storm: Three Forces Changing Our Nation's Future*. Education Testing Service, Princeton, New Jersey. 2007; (iii) Paul Barton. *One-third of a Nation: Rising Dropout Rates and Declining Opportunities*. Policy Information Center, Educational Testing Service, Princeton, New Jersey. 2005.

For an analysis of the labor market outcomes of high school dropouts in the Los Angeles metro area, see: Alison H. Dickson, Neeta P. Fogg, Paul E. Harrington and Ishwar Khatiwada. *The Lifetime Employment, Earnings and Poverty Consequences of Dropping Out of High School in the Los Angeles Metro Area*. Center for Labor Market Studies, Northeastern University, Boston. September 2009.

³ *Education Pays*. Bureau of Labor Statistics, Current Population Survey. December 22nd, 2009.

⁴ Scott Keeter, Cliff Zukin, Molly Andolina, and Krista Jenkins. *The Civic and Political Health of the Nation: A Generational Portrait*. The Center for Information & Research on Civic Learning & Engagement, Tufts University, Medford, Massachusetts. September 2002; (ii) A Krueger and M Lindahl. *Education for growth: Why and for whom?* Journal of Economic Literature, 39, 1101-1136. 2001.

largest declines occurring among high school dropouts.⁵ An apt description of this phenomenon was provided by John Bridgeland, a former domestic advisor to President Bush, who said that “High school dropouts are ... nearly voiceless in a system that fails them.”⁶

There is no doubt that dropping out of high school imposes very high costs on the individual who drops out of school, mainly through poor labor market outcomes but also from restricted access to higher education and training and a weaker voice in the political and electoral system. The weak labor market outcomes of high school dropouts result in low level of earnings, low-income levels, a higher risk of poverty, and all the negative personal and family consequences associated with poverty and economic disadvantage. However, the costs of dropping out are not borne exclusively by the dropout. Rather, many of the costs of dropping of high school spill over to local communities: to the city of Los Angeles, to suburban Los Angeles, to the state of California, and to the nation a whole.

There are a variety of non-monetary, as well as monetary costs, that the decision to drop out of high school imposes upon the broader community. One of the primary sources of direct monetary costs that high school dropouts impose on the community are in the form of lower tax payments. Most taxes are levied on income, consumption and wealth, all of which are heavily dependent on an individual’s ability to generate earned income over their working lives. A second major source of costs imposed by dropouts on the community is more intensive reliance on both cash and non-cash government income transfers. As is amply evident in the remainder of this paper, the impact of dropping out on federal, state, and local government revenues and expenditures is quite considerable and the costs of these revenue deficits and increased expenditures that are associated with dropping out of high school are borne by those who have achieved higher levels of educational attainment.

The incomes of high school dropouts are depressed because they are less likely to be employed and when they do find employment they gain access to lower-quality jobs that pay lower wages and provide fewer benefits. This has important implications for tax revenues at the federal, state and local level. High school dropouts have lower rates of participation in the labor

⁵ *Broken Engagement: America's Civic Health Index*. National Conference on Citizenship, Washington, D.C. September. 2006; (ii) *Renewed Engagement: Building on America's Civic Core*. National Conference on Citizenship. Washington, D.C. September 2007; (iii) Robert Putnam. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster, New York, New York. 2000.

⁶ Amy Goldstein. “Civic Involvement Tied to Education”. *The Washington Post*. September 19, 2006, p. A19.

force, lower employment rates, work fewer hours per week and fewer weeks during the year, and thus have much lower annual and lifetime earnings than those who have higher levels of education, including college graduates as well as high school graduates. Low earned income among dropouts in the Los Angeles metro area translates into reduced tax payments and higher transfer costs.

Most taxes are closely associated with the income and earnings of individuals. Tax payments generally increase with income. In the case of income taxes, this connection is especially strong. Since income taxes are based upon income levels and high school dropouts have lower earnings and incomes, they are likely to make much smaller contributions to the public coffers in the form of income taxes. The social security payroll tax is also tied to earnings as it is imposed as a fixed percent of earnings. The more marginal employment and earnings experiences of high school dropouts means that at any given point in their working lives they either pay no social security payroll tax or pay much smaller amounts of this tax compared to those with more schooling.

Because of their lower earnings and incomes, high school dropouts also have a lower purchasing power and therefore pay smaller amounts of sales taxes than better-educated individuals who have higher earnings and incomes and a higher purchasing power. High school dropouts are also much less likely to own their home and when they do own their home, they are more likely to own a lower-price home that is within the reach of their limited means. Since real estate (home) property tax payments are proportionate to the assessed value of the home, high school dropouts are likely to pay either no property tax since many do not own their homes or they are likely to pay smaller amounts of property taxes since many own lower priced homes. Thus, high school dropouts contribute less than better-educated individuals to the revenues of the federal, state, and local governments.

As noted earlier, high school dropouts are much more dependent on public assistance income transfer programs than their better-educated counterparts are. They are more likely to receive transfer payments than others and the amount of cash and non-cash transfer payments are higher among high school dropouts than among their better-educated counterparts. The reason underlying the higher reliance on public assistance among high school dropouts is their poorer labor market outcomes—lower rates of labor force participation, lower employment rates, and

fewer annual hours of employment, and lower wages—that result in lower earnings and incomes among them. Eligibility for cash and non-cash transfers for the non-elderly (those under the age of 65) is largely based upon household income levels. The lower levels of earnings and incomes of high school dropouts sharply increase their likelihood of eligibility for transfer payments. The receipt of cash and non-cash transfer income is therefore much higher among high school dropouts.

Another cost that is imposed by high school dropouts on the economy is the cost of incarceration. Many high school dropouts operate on the fringes of the legitimate labor market. Involvement in illegal activities is much higher among high school dropouts than among those who have completed high school. The rate of involvement in illegal activities decreases sharply among those with postsecondary education and college degrees. A higher involvement in illegitimate activities among high school dropouts leads to a higher rate of incarceration among them. In fact, a large majority of the nation’s inmates lack a high school diploma. According to the Bureau of Justice Statistics in 1997, 41 percent of the nation’s inmates in federal and state prisons and local jails did not have a high school diploma and another 24 percent had obtained only a GED. Thus, nearly two-thirds of the nation’s inmates did not earn a regular high school diploma. As a comparison, only 18 percent of the general population (age 18 or older) lacked a regular high school diploma associated with the successful completion of four years of high school.⁷

Some economists argue that the high rate of involvement of high school dropouts in illegitimate activities is associated with a lack of opportunities in the mainstream or legitimate economy. The lack of opportunities in the mainstream economy among high school dropouts reduces their opportunity cost (lost wages) of incarceration, which is one of the consequences of participation in illegitimate activities.⁸ If their perceived earnings from the illegitimate activities are higher than their earnings in legitimate jobs, high school dropouts will be more likely to pursue illegitimate activities.⁹

⁷ Caroline Wolf Harlow. *Education and Correctional Populations*. Bureau of Justice Statistics, Special Report. January 2003, NCJ 195670.

⁸ Lance Lochner and Enrico Moretti. “The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports”. *The American Economic Review*. March 2004, pp. 155-189.

⁹ Richard Freeman, “Why Do So Many Young American Men Commit Crimes and What Might We Do About It.” *Journal of Economic Perspectives*. Winter 1996, pp 25-62.

The grim consequences of dropping out of high school are exacerbated in an economy that continues to create jobs that require high levels of skills and literacy proficiencies. Employment opportunities for unskilled persons have declined sharply as the industry structure of employment has shifted from manufacturing to service industries and as the production of the nation's output has become more technologically sophisticated raising the literacy and educational requirements of the workforce. In the state of California as a whole, the services industry (including personal business and health, legal, and educational services) represented 37% of the economy in 2005; this share is expected to increase to 40 percent by 2025. In contrast, the share of employment in manufacturing is expected to decline from 11 percent to 8 percent.¹⁰ Indeed, it has been predicted that by 2025 41 percent of the jobs in the state of California will require a college degree.¹¹ Although employment opportunities for high school dropouts do exist at the lower end of the labor market, an increase in the labor supply of low skilled workers from undocumented immigration and increased globalization and outsourcing of low-skill jobs have exerted a downward pressure on wages at the lower end of the labor market and limited the access to employment of high school dropouts even in the low-skill sector of the labor market. All of these trends have increased the cost of dropping out of high school to the individual high school dropout, the economy, and society at large.

This research report describes and estimates some of the most important financial impacts on federal, state and local government revenue and expenditures of high school dropout residents in the Los Angeles metro area, relative to residents with more schooling.¹² It examines the financial consequences to government of dropping out of high school in the Los Angeles metro area by providing an estimate of the net lifetime fiscal impact associated with each of the following four educational subgroups of adults (18-64) in the Los Angeles metro area:

- Less than 12 or 12 years of school, no high school diploma or GED certificate.¹³
- High school diploma or GED, no completed years of post-secondary schooling
- One to three years of college, including Associate degree holders
- Bachelor's or higher degree holders

¹⁰ *Just the Facts: California's Future Economy*. Public Policy Institute of California. September 2008.

¹¹ Hans Johnson and Ria Sengupta. *Closing the Gap: Meeting California's Need for College Graduates*. Public Policy Institute of California. April 2009.

¹² Our definition of the Los Angeles Metro Area includes Los Angeles, Long Beach and Santa Ana.

¹³ High school students and college students under the age of 25 are excluded from the analysis. The monthly CPS survey collects data on the school enrollment status of persons 16-24 years of age.

The net fiscal impact is measured as the difference between quantifiable revenues in the form of taxes paid and the total quantifiable costs or expenditures in the form of cash transfer payments, monetary value of non-cash transfers, and incarceration costs of each adult resident of the metro area.

The report begins with an analysis of the labor market outcomes of employment, earnings, and lifetime earnings, of the working-age adult (18-64) Los Angeles metro area residents by their educational attainment. The income of adult residents, which is the primary determinant of their tax payments and their dependency on income transfers, is largely determined by their level of earnings in the labor market.

Also presented in this section are home ownership rates and the values of owner-occupied homes among Los Angeles metro area residents in each of the four educational groups. The ability to accumulate wealth, most often held as a form of property, is heavily dependent on an individual's lifetime stream of earnings. The lower level of earnings and incomes of high school dropouts result in lower rates of home ownership among them. Furthermore, when they do own their homes, high school dropouts are likely to own lower-priced homes. Home ownership rates and the market values of owner-occupied homes determine the amount of property tax payment by households. Lower home ownership rates combined with ownership of lower priced homes among high school dropout households translate into lower property tax payments among high school dropouts compared to better-educated individuals.

Following our discussion of home ownership the report describes and presents estimates of each of the components of quantifiable revenues—tax payments— from households, that are included in computing the net fiscal impact for each educational group. Estimates are presented for federal income tax payments, social security retirement payroll taxes, federal government retirement contributions, state income tax payments, state sales tax payments, and the property tax liability. The sum of these tax payments represents the total tax payments made by individuals in each educational group.

The next section of the report contains descriptions and estimates of each of the components of quantifiable costs—cash and non-cash transfer payments and incarceration costs—used in our computation of net fiscal impacts. Dollar values of nine cash transfer payments and estimated market values of five non-cash or in-kind transfers for adult (18-64)

residents of the Los Angeles metro area by their level of educational attainment are presented in this section.

Another component of the quantifiable costs used in our computation of net fiscal impacts is the cost of incarceration. Our methodology of computing incarceration costs involves the use of the ACS data to compute the rate of institutionalization among residents of the area. The ACS count of the residents of an area includes the residents of all group quarters located in the area. This means that if a jail or prison is located in an area, the area will have a higher institutionalization rate. This methodology would produce accurate rates of institutionalization for an entire state. However, the institutionalization rate at the substate areas would be highly sensitive to the location of jails and prisons in the area resulting in an upward bias in the institutionalization rate for the area if a prison or jail is located in the area. An upward bias in the institutionalization rate would produce an upwards bias in the cost of institutionalization per adult resident in the area. Therefore, in this paper we have used the institutionalization costs per adult resident in the entire state of California to represent the incarceration costs per adult resident in the Los Angeles metro area.

The final section of this paper contains estimates of the net fiscal impacts associated with each educational subgroup of adult residents in the Los Angeles metro area. Annual average estimates of the net fiscal impacts associated with each educational subgroup of Los Angeles metro area residents are presented in this section. We also extrapolate these mean annual estimates over the working lifetimes of each educational subgroup of residents to obtain estimates of the expected lifetime fiscal impacts of achieving a given level of educational attainment in the Los Angeles metro area. The expected annual and lifetime fiscal impacts of each educational subgroup of adult residents in the Los Angeles metro area are also presented separately for male and female residents of the area.

Employment, Annual Earnings and Lifetime Earnings of LA Metro Area Residents by Educational Attainment

The employment and earnings experiences of adults are key determinants of their fiscal contributions to the federal and state government budgets in the form of tax payments. Tax payments typically increase with income levels. In the case of progressive taxes the tax rate itself

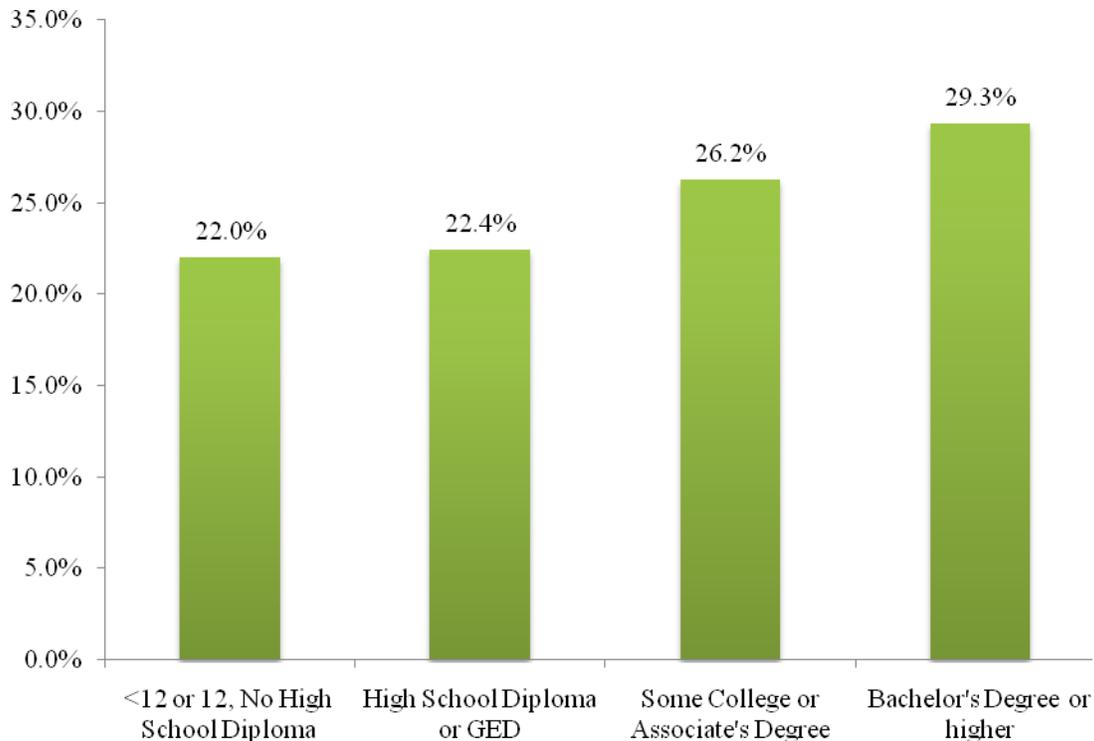
increases with income resulting in a more than proportionate increase in tax payments for a given increase in income. In the case of proportional taxes, since the tax rate remains the same at all income levels, an increase in income results in a proportionate increase in tax payments. The federal personal income tax is a progressive tax, whereby adults with higher personal incomes not only pay higher federal income tax payments but they also pay a higher share of their personal income in federal income taxes. The California state personal income tax is also a highly progressive tax (with seven income tax brackets for each of the years included in the analysis of this report).¹⁴ The social security payroll tax on the other hand is a proportional tax whereby the social security tax liability rises proportionately with income levels. The social security payroll tax is imposed as a fixed percentage of earnings (6.2 percent) up to a maximum income threshold that is increased each year based on the rate of inflation. The upper income limit for social security payroll tax was \$94,200 in 2006, \$97,500 in 2007, \$102,000 in 2008 and \$106,800 in 2009.¹⁵ Although the California sales tax of 8.25 percent is imposed on taxable purchases made in the state, the state's sales tax payments also increase with income, since increased incomes are associated with an increase in expenditures on goods and services, many of which are subject to the sales tax.

Before turning our attention to the labor market outcomes of residents of the Los Angeles metro area, it is helpful to begin by looking at their educational attainment. An analysis of the data (see Chart 1) reveals that a significant share of the population had not graduated from high school. Over a fifth of the residents from the Los Angeles metro area had dropped out of high school (22 percent). This is also equal to the size of the share of the adult population that had a high school diploma. Meanwhile just over half of the adult population of the Los Angeles metro area had a college education, with 26 percent that had completed some college education or earned an associate's degree and 29 percent holding a bachelor's or a higher academic degree.

¹⁴ California had 7 income tax brackets between 2006 and 2009 (2006: 1%>0, 2%>\$6,319, 4%>\$14,979, 6%>\$23,641, 8%>\$32,819, 9.3%>\$41,476, 10.3%>\$1,000,000; 2007: 1%>0, 2%>\$6,622, 4%>\$15,698, 6%>\$24,776, 8%>\$34,394, 9.3%>\$43,467, 10.3%>\$1,000,000; 2008: 1.0 > \$0, 2% > \$6,828, 4% > \$16,186, 6% > \$25,545, 8% > \$35,461, 9.3% > \$44,815, 10.3% > \$1,000,000; 2009: 1.25% > \$0, 2.25% > \$7,168, 4.25% > \$16,994, 6.25% > \$26,821, 8.25% > \$37,233, 9.55% > \$47,055, 10.55% > \$1,000,000). See: *State Individual Income Tax Rates, 2000-2010*. The Tax Foundation. <http://www.taxfoundation.org/taxdata/show/228.html>

¹⁵ The 6.2 percent tax is paid by employee and is matched by a 6.2 percent tax payment by the employer. There is no upper income limit on Medicare taxes where the employer and employee each pay 1.45 percent on all earnings. See: Social Security Online Electronic Fact sheet. Available at: <http://www.ssa.gov/pubs/10003.html>.

Chart 1: Percentage Distribution of the 18 to 64 Year Old Civilian Non-Institutional Population (Excluding 18 to 22 Year Old Students) in the LA Metro Area*, by Educational Attainment (3 year average, 2006-2008)

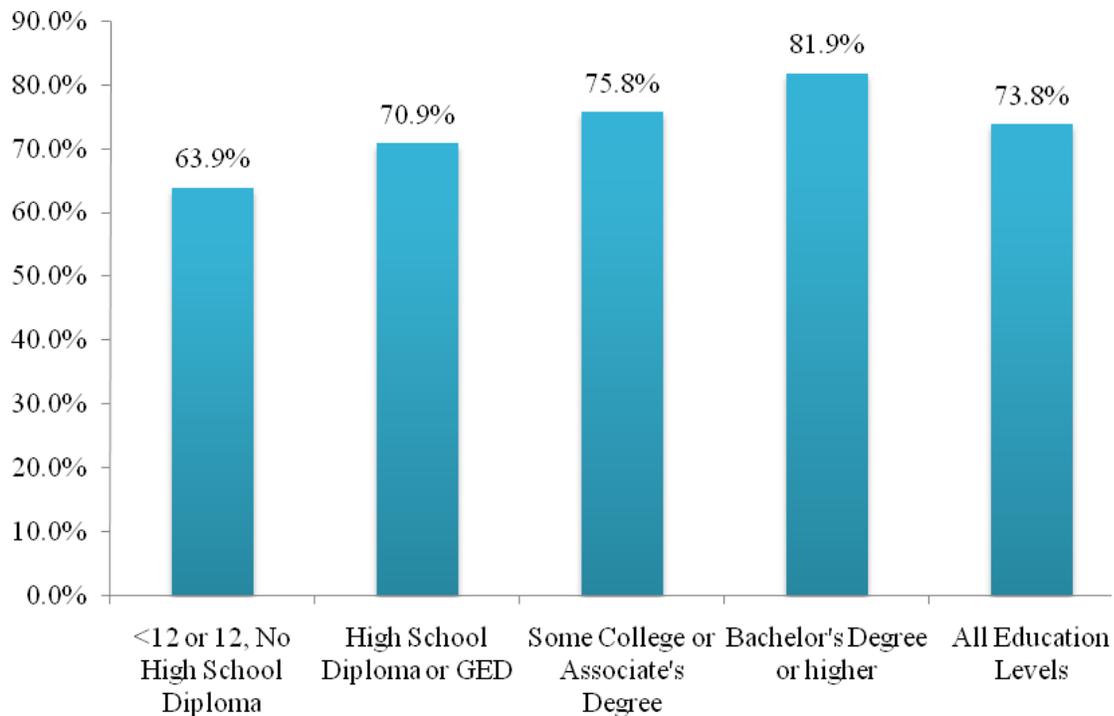


Source: 2006, 2007 and 2008 American Community Survey (ACS), Public Use Microdata Samples (PUMS) files. U.S. Census Bureau. Tabulations by authors.

*LA Metro area includes Los Angeles, Long Beach and Santa Ana counties

An analysis of the employment rates of 18 to 64 year old adults in the Los Angeles metro area (see Chart 2) reveals a strong positive correlation with educational attainment. An average of 64 percent of high school dropouts in the Los Angeles metro area were employed during the 2006 to 2008 period. Completing high school increased the probability of employment: almost 71 percent of the metro area's high school graduates were employed. Postsecondary education is associated with even higher rates of employment. Around three quarters of the adult residents in the Los Angeles metro area with some college education or an associate's degree were employed (76 percent), while 82 percent of those with a bachelor's or a higher academic degree were employed.

Chart 2: Employment to Population Ratio of the 18 to 64 Year Old Civilian Non-Institutional Population (Excluding 18 to 22 Year Old Students) in the LA Metro Area*, by Educational Attainment (3 year average, 2006-2008)



Source: 2006, 2007 and 2008 American Community Survey (ACS), Public Use Microdata Samples (PUMS) files. U. S. Census Bureau. Tabulations by authors.

*LA Metro area includes Los Angeles, Long Beach and Santa Ana counties

The differences in the employment rates of high school dropouts and college educated residents of the Los Angeles metro area are sizable. The average employment rate of college-educated residents with a bachelor's or higher degree was 18 percentage points higher, and those with some college or an associate's degree had an employment rate that was almost 12 percentage points higher, than that of their counterparts who had failed to complete high school. Thus, individuals with lower levels of education in the Los Angeles metro area have considerably lower rates of employment than better-educated city residents. In fact, as we shall see in the remainder of this paper, on every labor market outcome, the performance of poorly educated individuals in the Los Angeles metro area is inferior relative to that of better-educated individuals.

Wide gaps also exist between high school dropouts and their better-educated counterparts in the Los Angeles metro area with regards to their annual earnings (see Table 1). The lower rates of employment of poorly educated individuals, coupled with lower hourly wage rates and fewer annual hours of work, result in a considerably lower level of earnings. The mean annual earnings of 18 to 64 year old high school dropouts in the Los Angeles metro area between 2006 and 2008 stood at only \$16,478 while high school graduates earned \$25,770 per year, representing 56 percent higher earnings compared to high school dropouts.

The earnings of residents of the Los Angeles metro area increased sharply with additional education. Individuals with a postsecondary education are more likely to be employed, are paid a higher hourly wage, and work more hours during the year, and thus earn much more than those without any postsecondary education. The mean annual earnings of a college-educated resident of the Los Angeles metro area ranged from \$37,231 among those who had completed some college below the bachelor's degree level, to \$68,348 among those with a bachelor's or a higher academic degree. These earnings levels were, respectively, 2.3 and 4.1 times higher than the mean annual earnings of high school dropouts in the city. These sharp differences between the annual earnings of high school dropouts and those of well-educated adult residents in the Los

Table 1: Mean Annual Earnings of the 18 to 64 Year Old Civilian Non-Institutional Population (Excluding 18 to 22 Year Old Students) in the LA Metro Area*, by Educational Attainment (3 year average, 2006-2008) (In 2008 Dollars)

Educational Attainment	LA Metro Area	Ratio Relative High School Dropouts
<12 or 12, No High School Diploma	\$16,478	1.000
High School Diploma or GED	\$25,770	1.564
Some College or Associate's Degree	\$37,231	2.259
Bachelor's Degree or higher	\$68,348	4.148
All Education Levels	\$39,230	2.381

Note: Individuals with no earnings were assigned zero earnings in the computation of mean annual earnings
Source: 2006, 2007 and 2008 American Community Survey (ACS), Public Use Microdata Samples (PUMS) files. U.S. Census Bureau. Tabulations by authors.

*LA Metro area includes Los Angeles, Long Beach and Santa Ana counties

Angeles metro area are expected to result in large differences in their annual tax payments for payroll taxes, federal and state personal income taxes and sales taxes.

Not only are there wide differences between the annual earnings of different educational subgroups of the population, but an examination of their lifetime earnings reveals that these differences persist over their entire working lifetimes (see Table 2). We have estimated lifetime earnings of all 18 to 64 year old residents of the Los Angeles metro area using a cross-sectional methodology by first estimating the mean annual earnings of residents for single ages between the ages of 18 and 64 and then aggregating these mean annual earnings estimates of 47 age groups to produce the expected mean lifetime earnings of residents by their level of educational attainment. The lifetime earnings differentials represented by these cross-sectional estimates are conservative since they are estimated at a point in time and do not account for declines in the earnings of poorly educated individuals that are likely to continue into the future, as they have occurred over the past 25 to 30 years.

Over their entire working lifetimes, high school dropouts in the Los Angeles metro area were expected to earn less than three quarters of a million dollars (\$739,927). The lifetime earnings of high school graduates were considerably higher: \$1.193 million, or 61 percent more than that of high school dropouts. Similar to the college annual earnings premium, the lifetime

Table 2: Mean Lifetime Earnings of the 18 to 64 Year Old Civilian Non-Institutional Population (Excluding 18 to 22 Year Old Students) in the LA Metro Area*, by Educational Attainment (3 year average, 2006-2008) (In 2008 Dollars)

Educational Attainment	LA Metro Area	Ratio Relative High School Dropouts
<12 or 12, No High School Diploma	\$739,927	1.000
High School Diploma or GED	\$1,193,394	1.613
Some College or Associate's Degree	\$1,664,727	2.250
Bachelor's Degree or higher	\$2,927,304	3.956
All Education Levels	\$1,755,517	2.373

Note: Individuals with no earnings were assigned zero earnings in the computation of mean annual earnings
Source: 2006, 2007 and 2008 American Community Survey (ACS), Public Use Microdata Samples (PUMS) files. U.S. Census Bureau. Tabulations by authors.

*LA Metro area includes Los Angeles, Long Beach and Santa Ana counties.

earnings associated with a college education was sizable. A Los Angeles metro area resident who completed some college education below a bachelor's degree could expect to earn \$1.665 million, representing lifetime earnings that were 2.3 times as large as that of high school dropouts. Meanwhile, individuals with a bachelor's degree or higher in the Los Angeles metro area are expected to earn 4 times as much as high school dropouts do over their working lifetimes. The mean lifetime earnings of adult residents who hold a bachelor's or a higher degree was almost 3 million dollars (\$2.927 million). Thus, it is clear: students who learn more also earn more.

House Ownership Rate in the LA Metro Area by Educational Attainment

The property tax is the largest single source of revenue for most local governments. Many of the services provided by local governments, particularly elementary and secondary education, are largely financed by local real estate or property taxes. In California, as well as in other states, property tax revenues are a large component of the financing of the K-12 education system. For example, in California, during the 2006-07 fiscal year, the real estate property taxes accounted for about a fifth of the state's K-12 budget.¹⁶ Given the importance to state and local finance, we have included property tax revenue impacts as one of the revenue components in our estimates of the fiscal impacts of adults with different levels of education.

The amount of property taxes paid by individuals depends on their home ownership rates and the market value of their homes. Home ownership is closely associated with the level of income of the householder that in turn is determined largely by the employment and earnings of the householder. As noted above, the employment rate and earnings of individuals in the Los Angeles metro area rose sharply with educational attainment. As in most urban areas, the home ownership rates in the Los Angeles metro area were quite low. However, as shown in Table 3, the rate of home ownership increases considerably with educational attainment. While just under half of all 18 to 64 year old householders in the Los Angeles metro area owned their homes (48 percent), the rate of home ownership varied from just 33 percent among high school dropouts, to 40 percent among high school graduates, to 49 percent among householders with some college

¹⁶ *A Guide to California's School Finance System (February 2007)*. Education Data Partnership. <http://www.ed-data.k12.ca.us/Articles/Article.asp?title=Guide%20to%20California%20School%20Finance%20System>

Table 3: House Ownership Rates and the Mean Value of Owner-Occupied Homes of 18 to 64 Year Old Householders in the LA Metro Area*, by Educational Attainment
(3 year average, 2006-2008)
In 2008 Dollars

Educational Attainment	Home Ownership Rate	Mean Value of Owner-Occupied Home
<12 or 12, No High School Diploma	32.9%	\$463,783
High School Diploma or GED	40.0%	\$532,408
Some College or Associate's Degree	48.5%	\$585,351
Bachelor's Degree or higher	59.5%	\$697,015
All Education Levels	48.1%	\$611,482

Source: 2006, 2007 and 2008 American Community Survey (ACS), Public Use Microdata Samples (PUMS) files. U.S. Census Bureau. Tabulations by authors.

*LA Metro area includes Los Angeles, Long Beach and Santa Ana counties

education below the bachelor’s degree level, and up to a high of 60 percent among householders with a bachelor’s or a higher academic degree.

The property tax revenues of local governments are determined by the value of the property that is owned by residents of the locality. Our analysis of the ACS data files found that although the overall value of property in the Los Angeles metro area is very high, the value of owned homes varied considerably by the educational attainment of the householder. Between 2006 and 2008 the mean value of an owner-occupied home in the Los Angeles metro area was \$611,482 and the range of the values of these homes by the education of the householder varied from a low of \$463,783 among high school dropouts to a high of \$697,015 among owner-householders with a bachelor’s or a higher degree. Thus, the mean value of owner-occupied homes in the Los Angeles metro area increased steadily with the education of the householder. The homes owned by high school graduates had a 15 percent higher market value compared to those owned by high school dropouts (\$532,408 versus \$463,783, respectively). Postsecondary education was associated with even higher home values. The mean values of homes owned by householders with some postsecondary education below the bachelor’s degree level and by householders with a bachelor’s degree or higher were, respectively, about 26 percent and 50 percent greater than the mean value of homes owned by Los Angeles metro area householders who had failed to complete high school (\$585,351 and \$697,015 versus \$463,783, respectively).

Data Sources and Methodology Underlying the Fiscal Impact Estimates in the LA Metro Area

The analyses of the fiscal consequences of dropping out of high school presented in this report are based on a wide array of national and state data sources that are listed in Table 4. The estimates of the net fiscal contributions of adult residents in the Los Angeles metro area in selected educational subgroups are based on a number of different data sources and a massive series of data calculations by the Center for Labor Market Studies of Northeastern University.

First, the primary source of data for most of the annual tax and cash/in-kind transfer data is the Annual Social and Economic Supplement to the March Current Population Survey (CPS).¹⁷ We have used the U.S. Census Bureau's March CPS Supplement surveys data for the March 2006, March 2007, March 2008 and March 2009 CPS. The March CPS surveys for these four years involved interviews with nearly 16,500 18 to 64 years old adults in the Los Angeles metro area.¹⁸ The monthly CPS household survey is conducted by the U.S. Census Bureau for the U.S. Bureau of Labor Statistics and is the source of the monthly data on the nation's labor force, employed, and unemployed populations.

The March CPS survey contains a supplementary set of questions that collects information from respondents on their sources of income during the previous calendar year, and their receipt of various forms of cash and in-kind assistance (energy assistance, food stamps, and housing subsidies) from local, state, and national government agencies. With the available income and employment information and marital status of respondents, the U.S. Census Bureau imputes estimates of the amount of Social Security payroll taxes, federal retirement contributions, and state and federal income taxes paid by individuals during a given calendar year. These imputed tax and cash/in-kind transfer data for calendar years 2005, 2006, 2007 and 2008 are used to estimate the net fiscal contributions of 18 to 64 year adults in the Los Angeles metro area by their educational attainment level.

¹⁷ For more details on the design of the March CPS supplement and the definitions for each of the variables for which data are collected. See: www.census.gov/CPS.

¹⁸ For a review of the labor force concepts and measures underlying the monthly CPS household surveys, See: U.S. Bureau of Labor Statistics. *Employment and Earnings, January 2007*. "Appendix A," U.S. Government Printing Office, Washington, D.C. 2007.

Table 4: Sources and Uses of the Databases used in this Research Report

Data Source	Use of Data
American Community Survey 2006, 2007 and 2008	Provided estimates for a variety of employment, earnings, income, housing, and educational attainment measures for LA metro area adults.
March 2006, March 2007, March 2008 and March 2009 Current Population Surveys (CPS) Supplements	Primarily used to estimate the net fiscal contributions of adult residents by their level of educational attainment.
Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured	Provided estimates on the cost of Medicaid services and health insurance.
U.S. Department of Treasury, Internal Revenue Service sales tax exemption data, 2006, 2007 and 2008	Used to estimate personal sales tax
U.S. Department of Justice	Used the annual report for information on the number of inmates in jails and prisons and the annual cost to house inmates.

Second, many of the employment and earnings measures, as well as a number of the housing, income, home value and property tax measures, are based on the findings of the American Community Surveys for 2006, 2007 and 2008. The American Community Survey (ACS) is a national household survey conducted by the U.S. Census Bureau since 2000. During 2006, 2007 and 2008, over 126,000 households in the Los Angeles metro area completed an ACS questionnaire that collected detailed information on the demographic (age, gender, race-ethnic origin, marital status) and socioeconomic characteristics of all household members, including their educational attainment and school enrollment status,¹⁹ the employment status of all working-age adults (16 and older) at the time of the survey, their labor market experiences in the twelve month period prior to the survey, and their earnings and other sources of money income in the previous twelve months. The ACS survey data on the annual money incomes of families and the number/age distribution of family members can be used to identify the number of families and persons that were poor/near poor or low income.²⁰ The ACS public use files for 2006, 2007 and 2008 were used to generate many of the estimates appearing in this report.

¹⁹ Respondents to the ACS survey were asked to identify whether they were enrolled in school at any time in the two month period immediately prior to the survey. Persons who were not enrolled in school and who lacked a high school diploma/GED are classified as high school dropouts in this report. GED holders will be assigned to the high school graduate category if they did not complete any years of post-secondary schooling.

²⁰ The definition of a “low income family” in this report is that used by many poverty and welfare reform researchers across the country. It is a family with an annual pre-tax, money income below two times the poverty

A third data source was the administrative data from the Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured. This data source provided estimates of the annual cost to the Medicaid system in California of providing health services to the Medicaid population by disability status. We have used these data to generate the fiscal costs of providing health insurance to Medicaid recipients by educational attainment in the Los Angeles metro area.

A fourth set of data that we used in estimating sales tax was provided by U.S. Department of Treasury, Internal Revenue Service for 2006, 2007 and 2008. We used 2006, 2007 and 2008 ACS survey personal income data and IRS sales tax exemption data to estimate average sales tax for adults.

A final source of data that was used in conducting this study was an administrative database provided by the U.S. Department of Justice. This database provided information on the annual costs of housing an inmate in a Californian prison. Along with incarceration rates derived from the ACS data, these cost data were used to estimate the per person costs of incarceration in the state of California by educational attainment.

Methodology and Calculations Underlying the Estimates of the Net Fiscal Contribution of the Residents in the LA Metro Area

In the March CPS supplement survey, given the self-reported information on annual earnings and incomes, sources of those incomes, the marital status of respondents, and the type of household in which the respondent lived (married couple family, single parent family, single individual), the U.S. Census Bureau calculates estimates of their Social Security payroll taxes, federal government retirement contributions, and their state and federal income tax liability.²¹ In the case of federal and state income tax payments, the U.S. Census Bureau has a methodology for married couple families. On the assumption that married couple families file a joint tax return, the estimate of the federal and state income tax payments are assigned to the householder in a married couple family. The spouse in a married couple family is assigned a value of zero for

income threshold for a family of its given size and age composition. For a review of the poverty, low income, and selected other income thresholds used by poverty researchers to define income inadequacy, See: Garth Mangum, Stephen Mangum, and Andrew Sum. *The Persistence of Poverty in the United States*. Johns Hopkins University Press, Baltimore. 2004.

²¹ For married couples, an assumption is made by the U.S. Census Bureau that the couple files a joint tax return in determining its federal income tax liability.

federal and state income taxes. Using a methodology that we have developed (described in Appendix A) we have made separate estimates of the federal and state income tax liability for the householder and the spouse in married couple families. For each non-married individual the U.S. Census Bureau imputes estimates of their federal and state income tax payments and assigns these payments to their personal record.

Social Security payroll taxes and federal government retirement contributions were estimated by the U.S. Census Bureau for each individual based on their annual earnings and the source of their annual earnings. Only the employees' contribution to the social security payroll tax is included in this estimate. However, employers also pay an equivalent amount of social security payroll taxes to the federal government. The employers' contribution goes to the U.S. treasury in the form of tax revenue. This social security payroll tax payment by the employer would not have been made without the employment and earnings of the employee. Therefore the employer portion as well as the employee portion of the social security payroll tax payment should be attributed to the worker.

Using the 2006 to 2009 March CPS survey data and the 2006 to 2008 ACS survey data, we have estimated the mean annual tax payments for each individual between the ages of 18 and 64 (excluding 18 to 24 year olds who were enrolled in school at the time of the March surveys) in each of the tax categories listed in Table 5. The sum of these taxes represents the combined mean annual tax payments that were estimated for individuals in each of the four educational subgroups.

The U.S. Census Bureau does not provide any estimates of annual state sales tax payments for persons interviewed during the March CPS survey. In our fiscal impact analyses, we have estimated the mean sales tax payments for individuals by using a combination of personal income data from the 2006, 2007 and 2008 ACS surveys and sales tax tables for California published annually by the U.S. Department of Treasury's Internal Revenue Service (IRS). Federal taxpayers are allowed to claim state and local sales taxes paid when filing their federal income tax returns. Tax filers use published data from IRS tables to estimate their sales tax deductions based on their taxable income and the number of exemptions. Sales tax rates vary

Table 5: Income, Payroll, Sales and Property Tax Payments to the Federal Government and State and Local Governments that are used in the Computation of the Net Fiscal Impacts

Federal Government	State and Local Governments
Federal income tax payments	State income tax liability
Federal retirement payroll deductions	Property tax liability
Social Security retirement payroll taxes	State Sales tax payments

by state and the allowable deductions for state sales taxes are based on the number of exemptions. In our analysis of state sales taxes, we applied a single person exemption to each individual respondent 18 to 64 years old with a positive income. For each person in our analysis, we assigned a state sales tax payment equal to the IRS sales tax deduction for a person with their income. In computing the national sales tax payment amounts, we calculated these sales tax payments separately for each of the 45 states that had a state sales tax between 2006 and 2008.

The U.S. Census Bureau also does not provide estimates of the annual property taxes paid by households that own their homes. These data are not collected as part of the March CPS supplement on earnings and incomes. We have utilized findings from the 2006, 2007 and 2008 American Community Surveys (ACS) on home ownership rates of households and their annual property tax payments to compute their expected mean annual property tax payments.²² The property tax payments are assigned to the householder in each household that owned the housing unit they occupied at the time of the ACS survey.

The U.S. Census Bureau also has used the March CPS supplement to collect data from respondents on their receipt of a wide array of cash income transfers from local, state, and federal governments, including unemployment insurance payments, Temporary Assistance to Needy Families (TANF) benefits, Supplemental Security Income (SSI) payments for the aged and the disabled, Social Security Disability payments, general relief, and veteran’s payments. The combined annual incomes from each of these cash income transfer programs (listed in Table 5) were calculated for each respondent. In addition to the cash transfer payments, the March CPS questionnaire collected information on respondents’ receipt of a wide array of in-kind transfers from state and federal governments, including food stamps, federal Earned Income Tax Credits

²² The expected mean values of these property tax payments are the product of the home ownership rate for a given group and the mean value of their property tax payments.

Table 6: Cash and Non-Cash Transfers Received by Individuals or Households that are used in the Computation of Net Fiscal Impacts

Cash Transfers	Non-Cash Transfers (In-Kind Benefits)
Unemployment benefits	Market value of food stamps
Worker's compensation	Market value of Medicare insurance
Social Security payments	Market value of Medicaid benefits
Supplemental Security Income for the disabled and aged	Family market value of housing subsidies
Public assistance income (TANF, general relief)	Energy assistance payments
Veteran's payments	
Survivor's income benefits	
Other disability income	
Federal Earned Income Tax Credits	

(EITC) Medicaid/Medicare health insurance benefits and energy assistance.²³ The U.S. Census Bureau has imputed cash values for each of these in-kind benefits. They are primarily assigned to the household unit rather than to individual household members. We have assigned most of these in-kind transfers to the householder.²⁴ We then summed the cash values of each of these in-kind benefits and added them to the estimated value of cash income transfers for each household member.

Finally, we also estimated jail/prison costs for adults in California²⁵ in the four educational groups using ACS and U.S. Justice Department's statistics on jail/prison costs by state.

²³ The federal Earned Income Tax Credit (EITC) is primarily a cash tax credit refunded to low earner households by the Internal Revenue Service. The federal EITC is treated as a cash transfer rather than a negative tax by the U.S. Census Bureau in its calculations of the taxes paid and transfers received by individuals. For a review of the design and operations of the federal EITC program, see: Saul Hoffman and Laurence S. Seidman, *Helping Working Families: The Earned Income Tax Credit*, W.E. Upjohn Institute for Employment Research, Kalamazoo, 2003.

²⁴ Medicaid/Medicare expenditures are assigned to an individual household member by the U.S. Census Bureau.

²⁵ As noted earlier our methodology of computing incarceration costs involves the use of the ACS data to compute the rate of institutionalization among residents of the area. The ACS count of the residents of an area includes the residents of all group quarters located in the area. This means that if a jail or prison is located in an area, the area will have a higher institutionalization rate. This methodology would produce accurate rates of institutionalization for an entire state. However, the institutionalization rate at the sub state areas would be highly sensitive to the location of jails and prisons in the area resulting in an upward bias in the institutionalization rate for the area if a prison or jail is located in the area. An upward bias in the institutionalization rate would produce an upwards bias in the cost of institutionalization per adult resident in the area. Therefore in this paper, we have used the institutionalization costs per adult resident in the entire state of California to represent the incarceration costs per adult resident in the Los Angeles metro area.

The final fiscal ledger for estimating fiscal costs is presented in Table 7. Details about the specifics of the series of computations that were undertaken to produce estimates of federal and state income tax payments, property tax payments, sales tax payments, costs of Medicaid, estimates of jail and prison costs, and the lifetime net fiscal contributions of adults in the four educational subgroups are presented in Appendix A through G.

Table 7: A Listing of the Tax Payments, Cash Transfers, Non-Cash Transfers, and Jail/Prison Cost Items used in the Computation of the Net Fiscal Impact

(A) Total Tax Payments
+ Mean Federal Income Tax Payments
+ Mean State Income Tax Payments
+ Mean Federal Government Retirement Contribution
+ Mean Social Security Payroll (Include Employer Contribution)
+ Mean Expected Property Tax Payment
+ Mean Sales Taxes
(B) Total Transfers/Jail or Prison Cost
+ Mean Non-Cash Transfers
+ Mean Cash Transfers
+ Mean Jail/Prison Cost (for 18-60)
Taxes Paid -Transfer/Jail or Prison Cost (A-B)
Ratio of Taxes Paid to Transfer/Jail or Prison Cost (A/B)

Incidence of Tax Payments of the Residents in the LA Metro Area by Educational Attainment

In this section we present the proportion of residents of the Los Angeles metro area in each educational category that paid federal and state income taxes, social security payroll tax, and property tax.²⁶ The data presented in Charts 3, 4 and 5 clearly demonstrate that the

²⁶ Although our computation of fiscal impacts of achieving alternative levels of educational attainment includes six tax types listed in Table 4, we have analyzed the incidence of tax payment in this section for only four tax types. Data on the actual tax payments by persons and the incidence of tax payment are not available for the sales tax. We have estimated state sales tax payments for individual adults in the Los Angeles metro area by using a combination of personal income data from the 2006-2008 ACS surveys and sales tax tables for California published annually by the U.S. Department of Treasury's Internal Revenue Service (IRS). The Federal Government Retirement Contributions are included in our fiscal computations. However, only 1.9 percent of workers in the Los Angeles

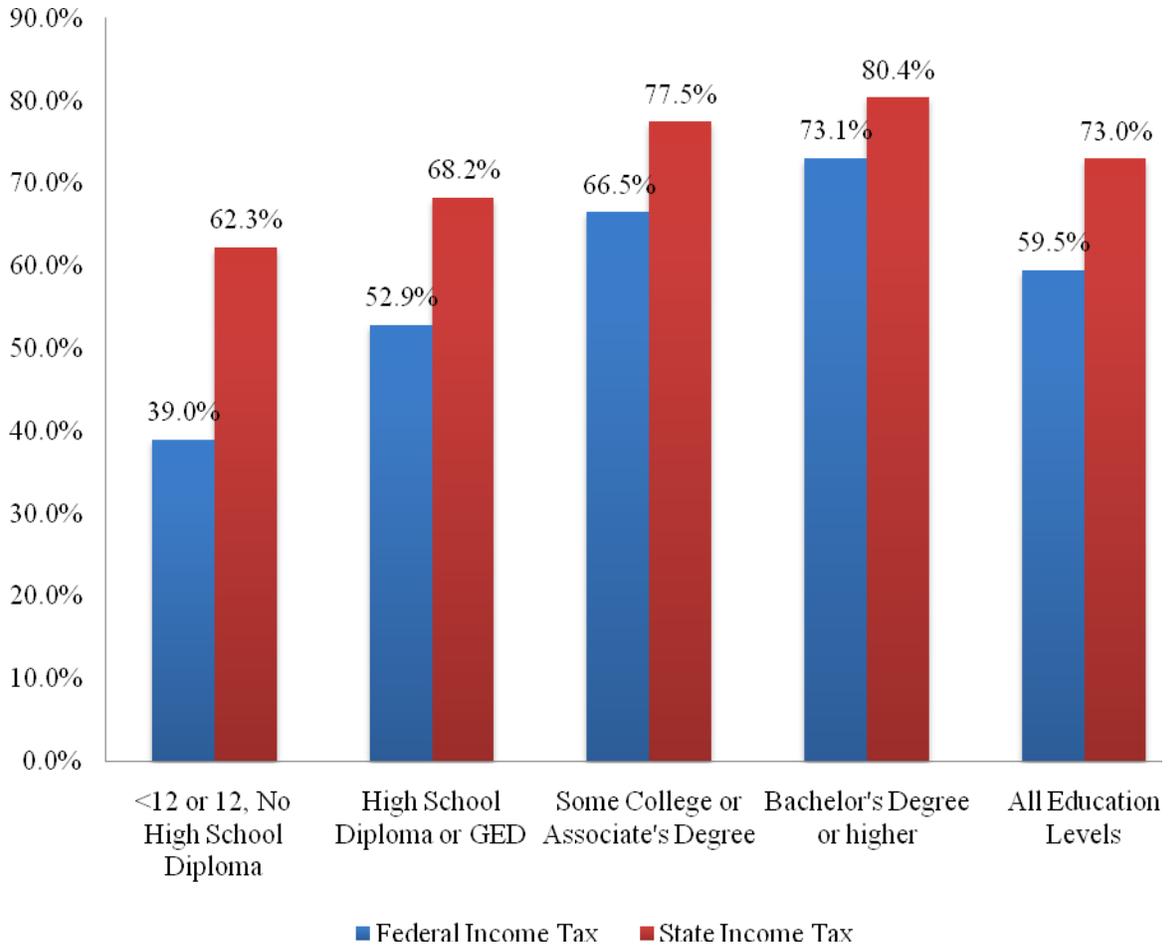
proportion of residents of the city that paid the different types of taxes increased sharply with educational attainment. The level of earnings and incomes of individuals determine the likelihood that they would pay taxes. Analysis presented in a previous section clearly demonstrated that earnings rose steadily and sharply with increases in education. Consequently, the proportion of individuals that contribute to the public coffers through taxes should also increase with increases in educational attainment.

Looking at Chart 3, we can see that the federal personal income tax payment was made by 60 percent of 18 to 64 year old residents of the Los Angeles metro area during the 2005 to 2008 period. The share of the metro area's non-elderly residents who were federal income taxpayers varied widely by educational attainment. Less than four tenths of high school dropouts in the Los Angeles metro area had paid any federal personal income tax compared to over half of high school graduates (39 percent versus 53 percent, respectively). The higher rate of employment among those residents with a college education yields a higher share of federal taxpayers among this group of individuals in the Los Angeles metro area. About two thirds of those who completed some college below the bachelor's degree level had contributed to the U.S treasury by paying the annual federal income tax in the 2005 to 2008 period (67 percent), while almost three quarters of those college graduates with a bachelor's or a higher degree had (73 percent). Therefore, residents in the Los Angeles metro area with a high school diploma or higher education level were considerably more likely to pay the federal income tax than high school dropouts were. Relative to high school dropouts, the likelihood of paying the federal income tax was 14 percentage points higher among high school graduates, 28 percentage points higher among those with some college education below a bachelor's degree, and 34 percentage points higher among college graduates with a bachelor's or higher degree.

In addition Chart 3 reveals that the proportion of the adult population in the Los Angeles metro area who paid any state income tax also increased steadily by educational attainment. Almost three quarters of all adult residents in the Los Angeles metro area had paid some state personal income tax during the calendar year over the 2005 to 2008 period (73 percent). Among

metro area actually made these contributions, and the per capita contributions were \$80. Because the very low incidence of payment of this tax, we have not included a separate discussion in this paper on the incidence of payment or the amount of payment of federal retirement contributions and the variation of these payments by educational attainment.

Chart 3: Percent of 18 to 64 Year Old Residents in the LA Metro Area who Paid any Federal or Income State Tax, by Educational Attainment (4 year average, 2005-2008)



Source: March Supplement to the Current Population Survey, 2006, 2007, 2008 and 2009. Tabulations by authors.
 Note: 18-24 year old students were excluded from the analysis.

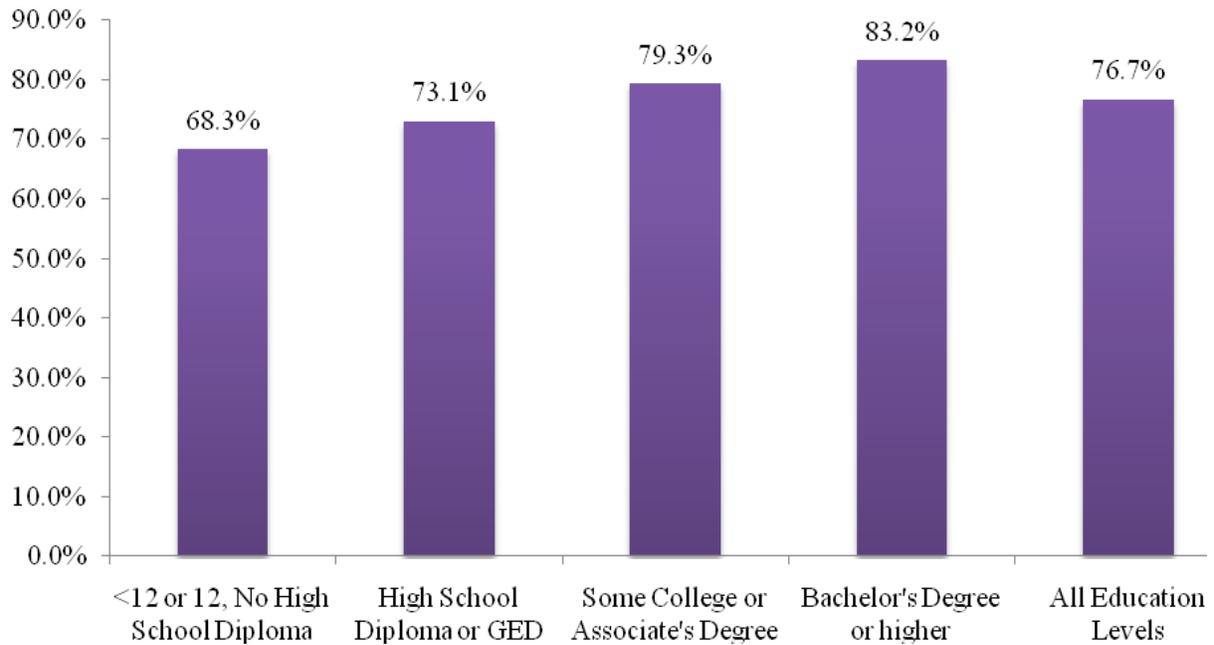
high school dropouts 62 percent had paid any state income tax during the year over this period; 6 percentage points lower than the share of high school graduates who had made annual state income tax payments over the same period (68 percent). The incidence of tax payments increased steadily as educational attainment increased. Residents with some college education below the bachelor’s degree level had a state income tax payment incidence of 78 percent; higher than that of high school dropouts and high school graduates, but lower than that of those with a bachelor’s or higher degree. Among those college graduate residents of the Los Angeles metro

area with a bachelor’s degree or higher level of education, 80 percent had paid annual state income taxes over the 2005 to 2008 period.

The social security payroll tax is a proportional tax on earnings up to a maximum threshold or the social security wage base that is increased each year based on the rate of inflation.²⁷ Although there is an upper income limit on taxable earnings (\$94,200 in 2006, \$97,500 in 2007 and \$102,000 in 2008), the social security payroll tax liability begins with the very first dollar of earnings on jobs that are subject to the FICA (Federal Insurance Contributions Act) tax.

Chart 4 reveals that the incidence of social security payroll tax payments varied widely by educational attainment among adult residents of the Los Angeles metro area. Just over three

Chart 4: Percent of 18 to 64 Year Old Residents in the LA Metro Area who Paid any Social Security Payroll Tax, by Educational Attainment (4 year average, 2005-2008)



Source: March Supplement to the Current Population Survey, 2006, 2007, 2008 and 2009. Tabulations by authors.
Note: 18-22 year old students were excluded from the analysis.

²⁷ The 6.2 percent tax is paid by employee and is matched by a 6.2 percent tax payment by the employer. There is no upper income limit on Medicare taxes where the employer and employee each pay 1.45 percent on all earnings. See: *Social Security Online Electronic Fact sheet*. Available at: <http://www.ssa.gov/pubs/10003.html>.

quarters of all 18 to 64 year old adults made social security payroll tax payments in the Los Angeles metro area (77 percent). However, the percent of residents of the metro area paying this tax ranged from only 68 percent of high school dropouts, to 73 percent of high school graduates, to 79 percent of those with some college education below the bachelor's degree level, and to a high of 83 percent among those with a bachelor's or a higher degree. Residents in the Los Angeles metro area with a high school diploma or higher education level were considerably more likely to pay the social security payroll tax than high school dropouts were. Relative to high school dropouts, the likelihood of paying the social security payroll tax was 5 percentage points higher among high school graduates, 11 percentage points higher among those with some college education below a bachelor's degree, and 15 percentage points higher among college graduates with a bachelor's or higher degree.

Annual Tax Payments of the Residents in the LA Metro Area by Educational Attainment

Not only were better-educated residents of the Los Angeles metro area more likely to pay the federal, state, and local taxes, but they also paid much higher amounts of these taxes over the year. We have estimated the mean amount of annual federal and state income taxes, social security payroll tax, federal government retirement tax contribution, property tax, and sales tax payments by adult residents of the Los Angeles metro area. The methodologies underlying the computations of these estimates are described in detail in Appendices A, B and C. Findings presented in Table 8 highlight the sharp differences in the amount of these taxes that were paid by city residents with different levels of educational attainment.

During the 2005 to 2008 period the mean annual federal income tax paid by Los Angeles metro area residents was only \$1,126 among high school dropouts, compared to \$2,886 among high school graduates, \$5,339 among those with some college education below bachelor's degree level, and \$10,697 among those with a bachelor's or a higher degree. High school graduates in the Los Angeles metro area made federal income tax payments that were on average 2.6 times higher than those paid by high school dropouts. The much higher annual earnings of those residents of the city who had a college education meant that these individuals paid significantly more in federal income tax payments than high school dropouts within the non elderly adult

population of the city. On average, those residents with some college or an associate's degree paid 4.7 times more, while those with a bachelor's or a higher degree paid almost 10 times more.

Just as the progressive structure of the federal income tax is expected to result in disproportionately sharp differences by income levels in the amount of taxes paid, so too is the California state income tax system which, as highlighted in a previous section, has a very progressive structure. In contrast, the sales tax, property taxes, and social security payroll taxes are flat or proportionate taxes with a constant tax rate.

As with the progressive federal income tax, better-educated residents of the Los Angeles metro area paid much more in the state income tax compared to high school dropout residents. The mean annual state income tax paid by city residents who were high school dropouts was only \$424; 61 percent less than the amount paid by those with a high school diploma (\$1,087), 78 percent less than the amount paid by those with some college or an associate's degree (\$1,893) and 89 percent less than the amount paid by those with a bachelor's degree or a higher level of education (\$3,882).

Table 8: Estimates of the Mean Annual Tax Payments of Adult (18 to 64) Residents in the LA Metro Area, by Type of Tax Paid and Educational Attainment
(4 year averages, 2005-2008)
(In 2008 Dollars)

Educational Attainment	Mean Federal Income Tax Payments	Mean State Income Tax Payments	Mean Social Security Payroll Tax Payments*	Mean Expected Property Tax Payment**	Mean Sales Taxes***
<12 or 12, No High School Diploma	\$1,126	\$424	\$2,504	\$1,084	\$351
High School Diploma or GED	\$2,886	\$1,087	\$3,844	\$1,476	\$436
Some College or Associate's Degree	\$5,339	\$1,893	\$5,531	\$1,938	\$552
Bachelor's Degree or higher	\$10,697	\$3,882	\$8,666	\$2,984	\$759
All Education Levels	\$5,530	\$2,009	\$5,464	\$1,936	\$537

Notes: (i). Federal, state, payroll, and retirement taxes, cash/non-cash transfers data are 4-year averages (CPS March Supplements 2006, 2007, 2008, and 2009). Persons 18-24 year old are excluded from the analysis; (ii). Property tax data are estimated from ACS 2006, 2007 and 2008; (iii). Sales taxes data estimated from ACS 2006, 2007 and 2008 using IRS tax sales tax exemption data for 2006, 2007 and 2008.

*Includes employer contributions

**For all 18-64 year olds

***For non-enrolled 18-64 year old individuals

Furthermore, better-educated residents of the Los Angeles metro area also paid much more in sales tax, property taxes and social security payroll tax than their high school dropout counterparts. Relative to high school dropouts, the best educated residents of the city (those with a bachelor's degree or a higher level of education) on average paid 3.5 times more in social security payroll, 2.8 times more in state property taxes, and 2.2 times more in the sales taxes during the 2005 to 2008 period. Even high school graduates in the Los Angeles metro area on average paid between 1.2 and 1.5 times more in sales, property and social security payroll taxes between 2005 and 2008 than their dropout counterparts did. Thus, the mean per capita amounts of taxes paid by Los Angeles metro area residents increased steadily and sharply with increases in educational attainment. The higher rates of employment and earnings among better-educated individuals underlie their higher per capita tax payments.

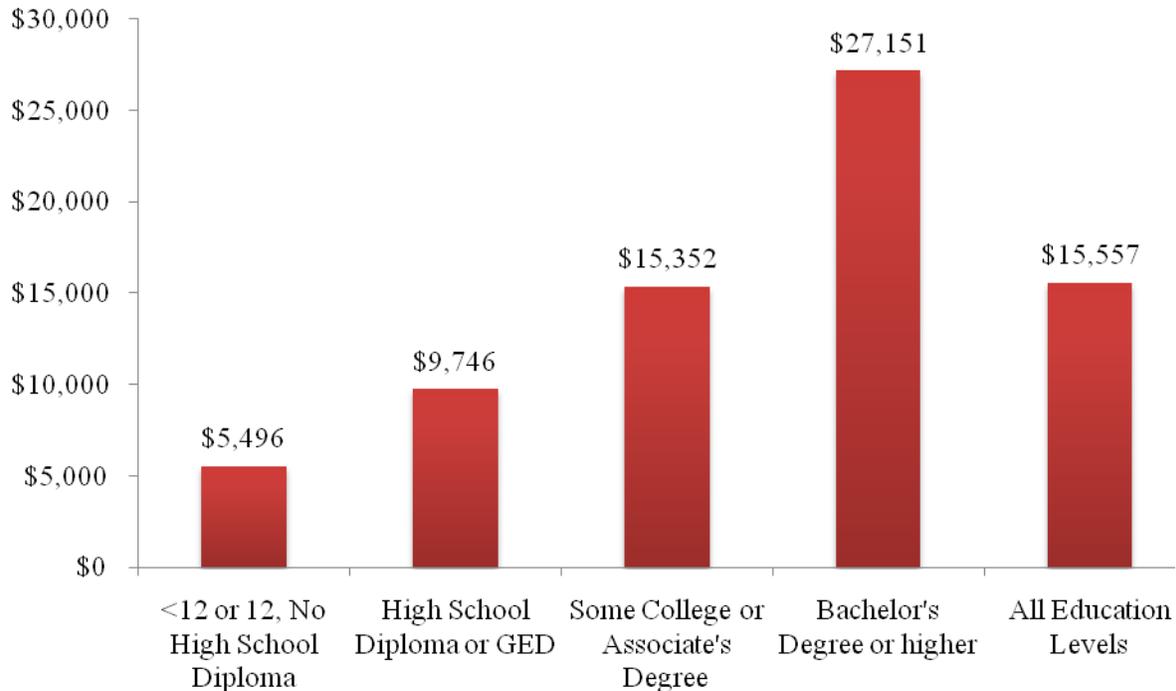
The mean combined tax payments by educational attainment represent the total tax payments in the form of federal, state, and local contributions made by individuals in each educational group.²⁸ As shown in Chart 5, the mean combined tax payment by each Los Angeles metro area adult was \$15,557. High school dropouts in the city made a mean combined tax payment of just \$5,496, which was just over half of the mean combined tax payment of adult residents of the city who graduated from high school (\$9,746).

Postsecondary education below the bachelor's degree level in the city was associated with a somewhat higher mean combined tax payment. City residents with postsecondary education below the bachelor's degree level made mean combined tax payments of \$15,352, or 2.8 times more than the mean payment of high school dropouts and 1.6 times more than high school graduates who had no additional schooling. Meanwhile, residents of the Los Angeles metro area with a bachelor's or a higher degree paid an average of \$27,151 in combined annual taxes each year during the 2005 to 2008 period; about 5 times as much as high school dropouts from the city paid.

The low levels of employment and earnings of high school dropouts in the Los Angeles metro area clearly translate into a low incidence of tax payment and much lower dollar amounts

²⁸ The combined tax payments include the five taxes listed in Table 8 as well as federal government retirement contributions. As noted earlier, because of the small incidence of the payment of these taxes and the consequent small per capita amount of payment of federal government retirement contributions, this report does not provide a separate discussion of the variation in the payment of this tax by educational attainment.

Chart 5: Estimates of the Mean Combined Annual Tax Payments of Adult (18 to 64) Residents in the LA Metro Area, by Educational Attainment (4 year averages, 2005-2008) (In 2008 Dollars)



The mean combined annual tax payments include federal and state income taxes, social security payroll taxes, federal government retirement contributions, local property taxes, and state sales taxes.

Notes: (i). Federal, state, payroll, and retirement taxes are 4-year averages (CPS March Supplements 2006, 2007, 2008, and 2009). Persons 18-24 year old are excluded from the analysis; (ii). Property tax data are estimated from ACS 2006, 2007 and 2008; (iii). Sales taxes data estimated from ACS 2006, 2007, 2008 using IRS tax sales tax exemption data for 2006, 2007 and 2008.

of taxes paid when such payments are made²⁹. On the contribution side of the fiscal ledger, poorly-educated adult residents of the Los Angeles metro area, particularly high school dropouts, were least likely to pay taxes and made the smallest average tax payments across each category of taxes compared to their better-educated counterparts. On average for every \$1 in taxes paid by a high school dropout in the Los Angeles metro area, high school graduates paid \$1.77, those

²⁹ Although not included separately in the discussion, the per capital amounts of the federal government retirement contribution exhibited similar variation by educational attainment.

with postsecondary education below the bachelor's degree level paid \$2.79, and college graduates with a bachelor's or a higher degree paid \$4.94. Furthermore, across the various tax types, the mean tax payments in the Los Angeles metro area of college graduates with a bachelor's or higher degree were between 2.2 to 9.5 times greater than those paid by high school dropouts. Even high school graduates in the city paid tax payments that were between 1.2 to 2.6 times higher than the amounts paid by high school dropout residents of the metro area.

The Receipt of Cash and Non-Cash Government Transfer Payments among Residents in the LA Metro Area by Educational Attainment

We emphasized in earlier sections of this study the strong connections between the level of educational attainment of the residents of the Los Angeles metro area and the degree of success in their labor market outcomes. We found that because of their higher earnings and incomes, better-educated adult residents were much more likely to pay federal, state, and local taxes than those who were poorly educated, especially those who failed to graduate from high school. Moreover, better-educated adult residents also made larger tax payments and therefore made larger revenue contributions to the budgets of the federal, state, and local governments.

In this section we present our analysis of the other side of the fiscal ledger—government transfer payments in the form of cash and in-kind benefits —received by Los Angeles metro area residents in each educational attainment category. Our analysis of transfers includes nine cash transfers and five non-cash (in-kind) transfers. The entire list of these cash and non-cash transfers is presented in Table 6.

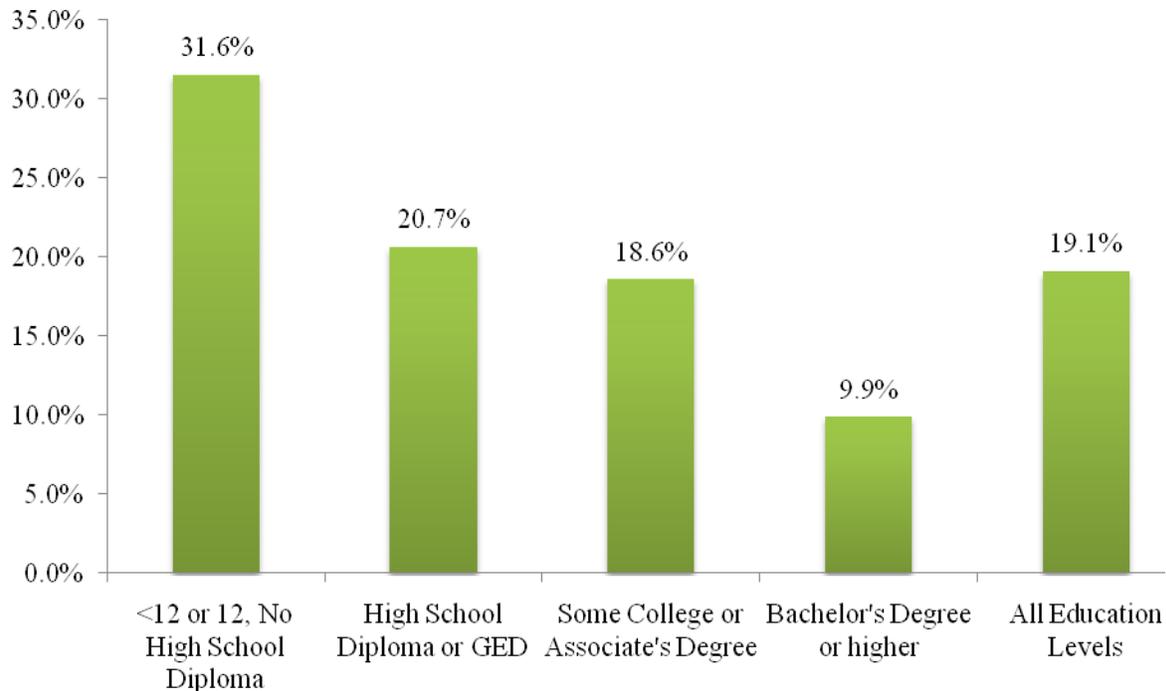
In order to receive a government transfer payment, the applicant must meet a variety of program eligibility guidelines. Income is a recurring and important component of most eligibility criteria for government transfer payments to the non-elderly population of the state. Indeed, these programs are often referred to as 'means-tested transfer programs'. Non-elderly individuals and families with lower incomes are more likely to be eligible to receive both cash and non-cash government transfers. Given the lower levels of employment and earnings among the poorly educated compared to their better-educated counterparts, poorly educated individuals would be more likely to be eligible for, and therefore more likely to receive, government transfers. Indeed, the proportion of working age adult residents of the Los Angeles metro area who received

government transfers was highest among high school dropouts and declined sharply among better-educated groups.

We begin by estimating the share of the city's non-elderly adult population that received money income or cash transfer income from a federal or state income transfer program. These cash programs include: earned income tax credit, unemployment insurance compensation, TANF/AFDC payments, veteran's payments, and supplemental security income. We also include those OASDI payments made to Los Angeles metro area residents under age 65. This includes cash payment to residents under the social security widows and survivors insurance programs as well as to those eligible for payment under the social security disability insurance program. In addition, some residents between the ages of 62 and 64 received cash payments under social security's old age retirement insurance program by opting to receive reduced retirement benefits over their lifetime relative to the payments available to them had they chosen to defer social security payments to the normal retirement age of 65.

The receipt of cash transfer payments varied widely across educational groups of Los Angeles metro area adults (see Chart 6). Across all education levels, almost a fifth of adult metro area received cash transfer payments in the 2005 to 2008 period (19 percent). The least educated adults were the most likely to receive cash transfer payments. Nearly one-third of high school dropout residents (32 percent) received one or more cash transfer payment. The percentage of individuals receiving cash transfer payments was 21 percent among high school graduates (with no postsecondary education), representing an 11 percentage points lower rate of receipt of cash transfer payments compared to high school dropouts. Meanwhile the share of cash transfer recipients among adults with some college education below the bachelor's degree level was 19 percent and only 10 percent among college graduates with a bachelor's degree or higher. High school dropouts in the Los Angeles metro area were therefore 3.2 times more likely than their counterparts with a bachelor's or higher degree and 1.5 times more likely than high school graduates (without any college education) to collect one or more cash government transfer.

Chart 6: Percent of Adult (18 to 64) Residents in the LA Metro Area who Received Cash Transfers, by Educational Attainment (4 year average, 2005-2008)

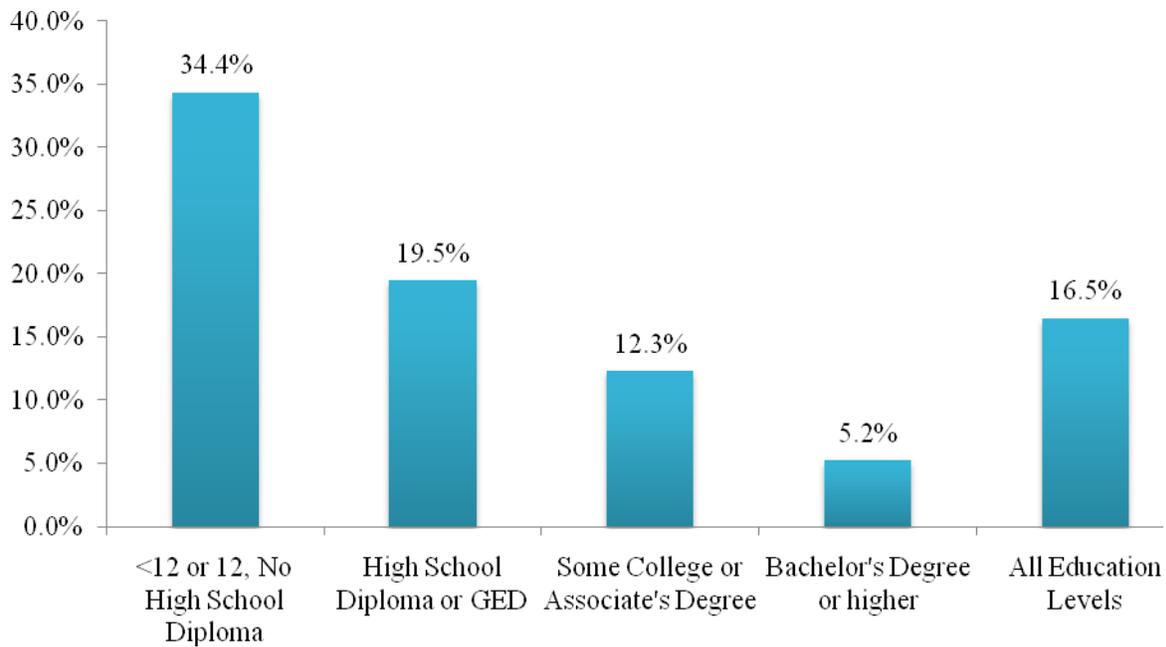


Notes: (i) Cash transfers are 4-year averages (CPS March Supplements 2006, 2007, 2008 and 2009). Persons 18-24 year old enrolled in school are excluded from the analysis.

The share of adults in the Los Angeles metro area receiving in-kind or non-cash transfers was slightly lower than the proportion of cash transfer recipients among all residents of the Los Angeles metro area and among three out of the four educational subgroups (Chart 7). High school dropouts was the only educational subgroup in the metro area with a higher receipt of in-kind or non-cash transfers. Just over three quarters of the area's high school dropout residents received one or more in-kind transfers (34 percent), while 32 percent received one or more cash transfer payments.

Among all adult residents of the Los Angeles metro area less than a fifth (17 percent) reported receiving one or more in-kind transfers, such as Medicaid benefits, food stamps, energy assistance, housing subsidies, or school lunch subsidies. However, as with the recipient rate of cash transfers, the rate of receipt of non-cash transfers among the area's non-elderly population varies sharply by level of educational attainment.

Chart 7: Percent of Adult (18 to 64) Residents of the LA Metro Area who Received Non-Cash Transfers, by Educational Attainment (4 year average 2005-2008)



Notes: (i) Non-cash transfers are 4-year averages (CPS March Supplements 2006, 2007, 2008 and 2009). Persons 18-24 year old enrolled in school are excluded from the analysis.

Our analysis found that just over a third of residents who failed to complete high school in the Los Angeles metro area received a non-cash transfer benefit (34 percent). However, this proportion fell to a fifth among high school graduates without any college, while only 12 percent of those adults with some college or an associate’s degree had received non-cash transfers. Among college graduates in the Los Angeles metro area with a bachelor’s or a higher college degree the incidence of non-cash benefit receipts was even lower: 5 percent of those with a bachelor’s degree or higher had participated in some type of in-kind benefit transfer program. High school dropouts in the city were therefore 6.6 times more likely than college graduates with a bachelor’s or higher degree to collect non-cash transfers at any time during the year over the 2005 to 2008 period, and 1.8 times more likely than high school graduates (without any postsecondary education).

The Incidence and Costs of Institutionalization in California by Educational Attainment

The nation's incarceration rates have increased sharply over the past 25 years. The number of inmates incarcerated in federal and state prisons per 100,000 persons in the population more than tripled from 139 in 1980 to 501 in 2006.³⁰ These totals do not include individuals who were incarcerated in local jails. The total incarceration rate (including federal and state prisons and local jails) increased from 600 per 100,000 population in 1996 to 752 per 100,000 in 2006; representing a one-quarter increase.³¹

This increase in incarceration imposes considerable costs on society in the form of monetary costs of building and operating prisons and jails as well as human costs in the form of forgone wages of those who are institutionalized, reduced future opportunities for inmates after release, and many different types of social costs that are difficult to quantify. Institutionalization is more likely to be concentrated among poorly educated individuals, particularly high school dropouts. As noted in a previous section, a large majority of the nation's inmates lack a high school diploma. According to the Bureau of Justice Statistics in 1997, 41 percent of the nation's inmates in federal and state prisons and local jails did not have a high school diploma and another 24 percent had obtained only a GED. Thus, nearly two-thirds of the nation's inmates did not earn a high school diploma. This concentration of high school dropouts among inmates is considerably larger than the 18 percent share of high school dropouts in the general population age 18 or older.³²

As noted in an earlier section of the paper, our methodology of computing incarceration costs involves the use of the ACS data to compute the institutionalization rate among residents of the area. The ACS count of the residents of an area includes the residents of all group quarters (institutionalized and non-institutionalized) located in the area. The institutionalization rate is computed as the share of all residents that were residing in institutionalized group quarters. This

³⁰ Key Facts at a Glance, Incarceration Rate, 1980-2006, Correctional Populations in the United States and Prisoners in 2006. Bureau of Justice Statistics. December 2007. <http://www.ojp.usdoj.gov/bjs/glance/tables/incrttab.htm>

³¹ (i) Darrell K. Gilliard and Allen J. Beck. *Prison and Jail Inmates, 1995*. Bureau of Justice Statistics Bulletin. August 1996, NCJ-161132; (ii) William J. Sabol, Todd D. Minton, and Paige M. Harrison. *Prison and Jail Inmates at Midyear 2006*. Bureau of Justice Statistics Bulletin. June 2007, NCJ 217675.

³² Caroline Wolf Harlow. *Education and Correctional Populations*. Bureau of Justice Statistics, Special Report. January 2003, NCJ 195670.

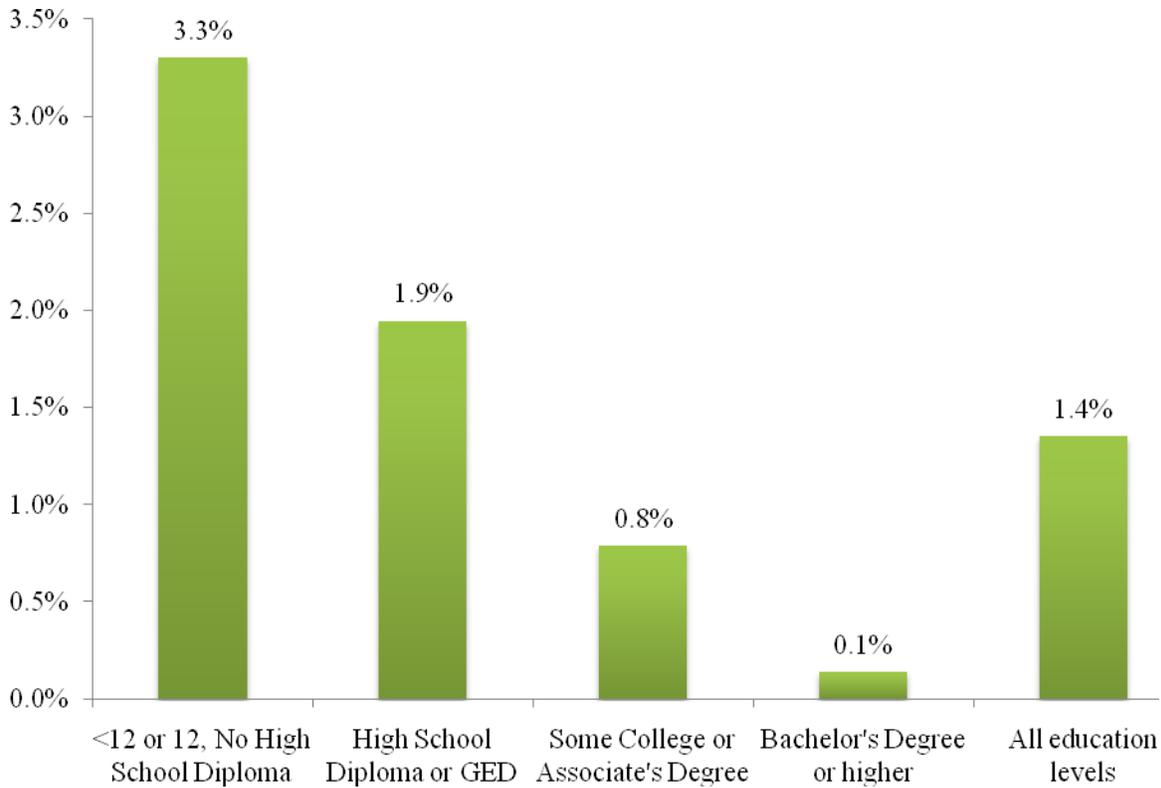
means that if a jail or prison is located in an area, the area will have a higher institutionalization rate. This methodology produces accurate rates of institutionalization for an entire state but not of substate areas. The size of the institutionalized population in substate areas would be highly sensitive to the location of jails and prisons in the area resulting in an upward bias in the institutionalization rate for the area if a prison or jail is located in the area. An upward bias in the institutionalization rate would produce an upwards bias in the cost of institutionalization per adult resident in the area. Therefore in this paper, we have used the institutionalization rate in the entire state of California to estimate the incarceration costs per adult resident in the Los Angeles metro area.

We have estimated the rates of institutionalization among the non-elderly (18 to 60) population in California from the 2007 and 2008 American Community Survey, which interviewed residents of institutionalized and non-institutionalized group quarters during the year. Institutionalized group quarter residents in the ACS include persons who were in correctional facilities (jails and prisons), nursing facilities, psychiatric hospitals, in-patient hospice facilities, and group homes for juveniles. The ACS survey public use data files unfortunately do not identify the type of institution in which institutionalized group quarter residents lived at the time of the survey. However, estimates of the national institutionalized population by type of institution from the 2000 decennial census found that a substantial majority of the adult institutionalized population under age 60 consisted of inmates of correctional facilities. Therefore we have used the institutionalization rate from ACS PUMS data files for California to represent the incidence of incarceration among 18 to 60 year old residents of the state by their educational attainment.

The findings in Chart 8 reveal that an average of 1.4 percent of the 18 to 60 year old population of California was institutionalized between 2007 and 2008. The institutionalization rates of these adults varied by educational attainment, from a high of 3.3 percent among high school dropouts, to 1.9 percent among those with just a high school diploma or a GED, to 0.8 percent and 0.1 percent, respectively, among college educated adults with a college education below the bachelor's degree level and those with a bachelor's degree or higher.

One of the components in our fiscal impact analysis is the per capita cost of institutionalization, that is, the cost of incarceration per resident in California between the ages of

Chart 8: Institutionalization Rates of 18 to 60 Year Old Adults in California, by Educational Attainment (2 year average, 2007-2008)
 (Rates per 100 members of the 18 to 60 year old population)



Source: 2007 and 2008 American Community Survey (ACS) Public Use Microdata Samples (PUMS) data files. Tabulations by authors.

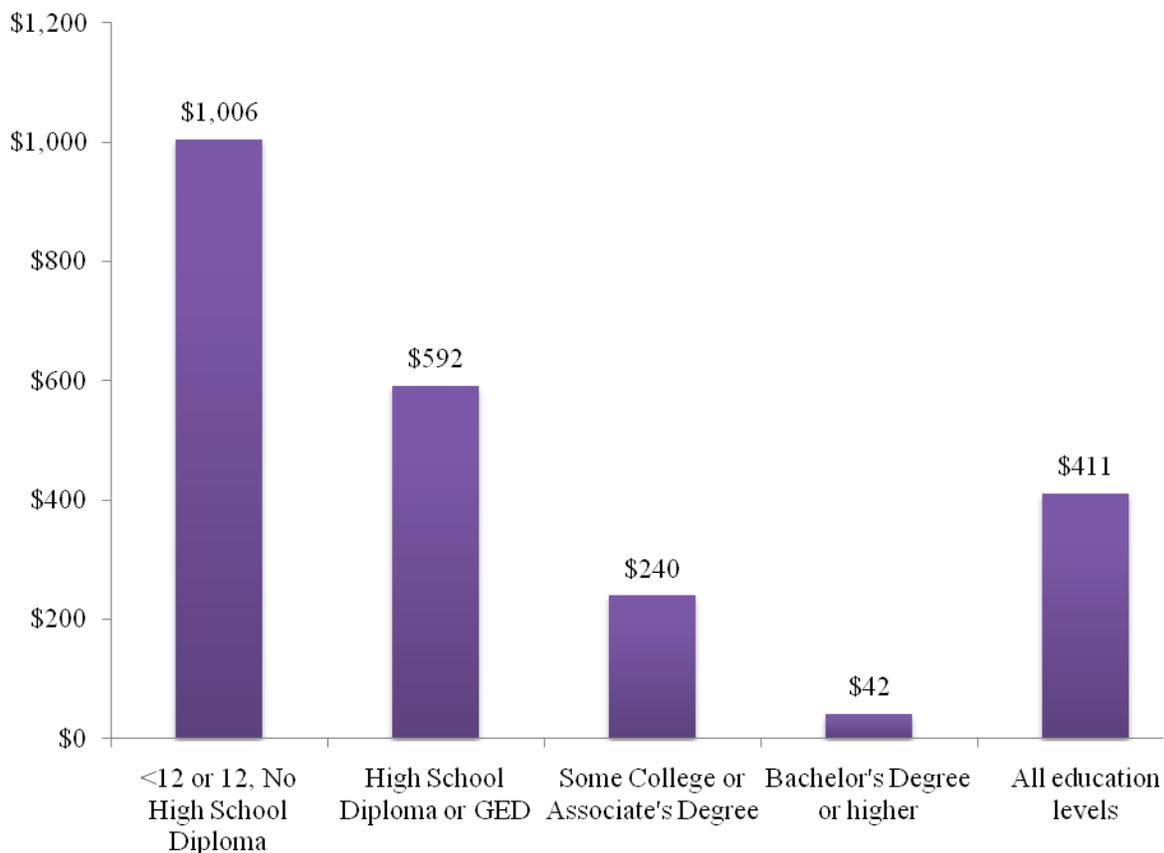
18 and 60 years. The greater the incarceration rate, the higher will be the total cost and the per capita cost of incarceration. Thus increased rates of incarceration raise the per capita costs of incarceration. Since the incarceration rate is much higher among high school dropouts than among better educated Californians, the total and per capita costs of incarceration are expected to be higher among high school dropouts than among better-educated adults.

Utilizing the Bureau of Justice Statistics estimate of the annual expenditures per inmate for California in 2001 and adjusting it for inflation between 2001 and 2008, we have derived a per inmate cost of incarceration for California of \$29,325 in 2008 dollars. By multiplying this per inmate cost by the number of institutionalized adults in each educational group we derived the total institutionalization cost for that educational group. We then divided this total institutionalization cost in each educational group by the total number of adult Californians in the

educational group to obtain mean per capita institutionalization cost (or mean institutionalization cost per person) in each educational group.

Findings presented in Chart 9 reveal wide differences in the per capita costs of institutionalization of adults in California by educational attainment. The higher rate of institutionalization among high school dropouts resulted in a high annual average cost of institutionalization per adult high school dropout in California (\$1,006). The annual per capita institutionalization cost among adult high school graduates, with no college education, was equal to around six tenths as much (\$592). Among college educated adults residents of California the

Chart 9: Mean Annual Costs of Maintaining 18 to 60 Year Old Adults in Institutions in California, by Educational Attainment (2 year average, 2007 - 2008) (In 2008 Dollars)



Note: Jail and prison cost data are estimated for 18-60 year olds from the 2007 and 2008 American Community Survey micro data files and the Bureau of Justice Statistics (BLS) cost estimates for 2001 adjusted for inflation to 2008 dollars.

average annual cost of institutionalization per person was \$240 among adults with a below bachelor's degree level of college education and only \$42 per year among college graduates with a bachelor's degree or higher. Thus, the mean annual cost of institutionalization among California adults who dropped out of high school was 1.7 times higher than that of high school graduates without any college education, and 24 times higher than that of adults with a bachelor's degree or higher.

The Mean Annual Net Fiscal Contributions of the Residents in the LA Metro Area by Educational Attainment

Using the mean annual tax payments, mean values of cash and in-kind transfers, and mean per capita annual costs of institutionalization, we have estimated the mean net annual fiscal contribution to the federal, state, and local governments for each working age educational group of adult residents of the Los Angeles Metro Area.

Findings presented in Table 9 reveal that during the 2005 to 2008 period, the mean annual tax payments made by all adult residents in the Los Angeles metro area was \$15,557 whereas the mean value of their cash and in-kind transfers and their institutionalization costs was \$2,102, yielding a positive mean net annual fiscal contribution of \$13,455.

The value of the mean net annual fiscal contributions of non-elderly adults in the Los Angeles metro area varied widely according to their level of educational attainment. The mean annual tax payments by high school dropouts was only \$5,496, while their mean annual total transfers and institutionalization costs was \$3,741. Consequently, high school dropouts in the Los Angeles metro area made a positive, albeit very small, annual net fiscal contribution (\$1,756). Adults in the remaining three educational groups made considerably bigger positive net annual fiscal contributions, increasing sharply with their level of educational attainment. Adults with only a high school education and no postsecondary education annually contributed \$7,170 more in tax payments than the sum of what was received in the form of transfers and the costs that they imposed for institutionalization; about 4 times more than the mean annual net fiscal amount contributed by dropout residents of the Los Angeles metro area. The mean annual net fiscal contribution of adults in the city with a college education is even greater.

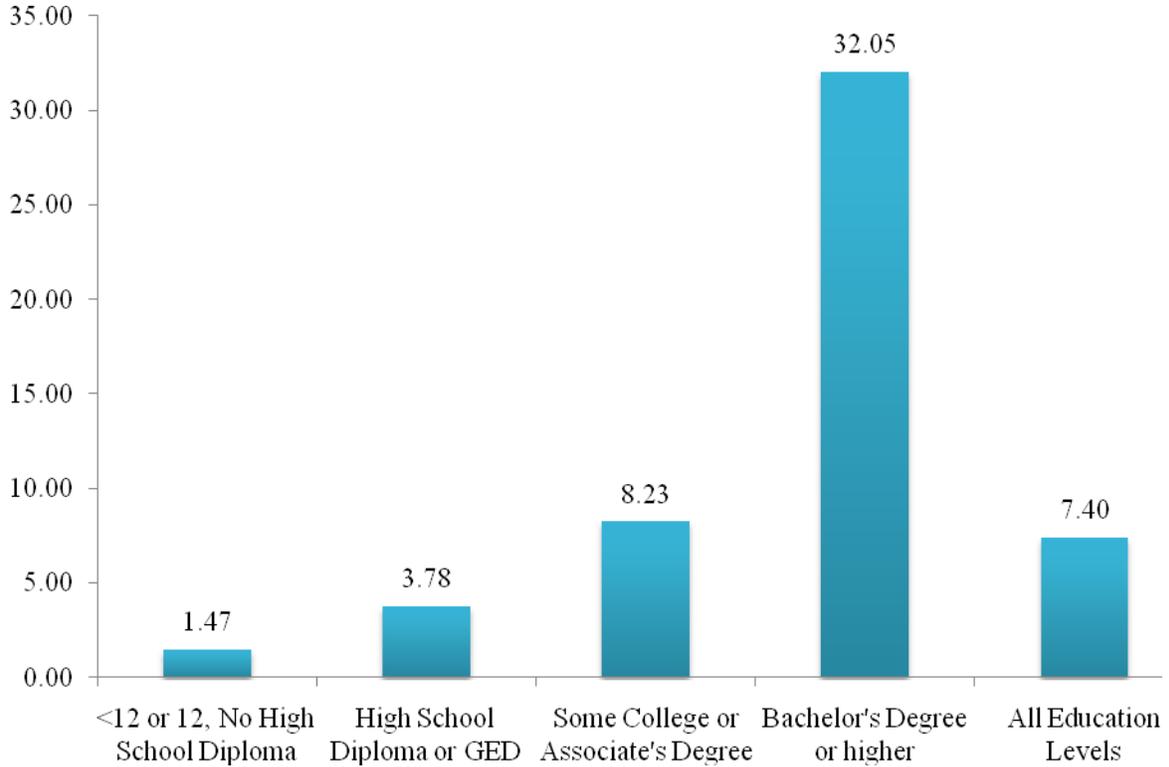
Table 9: The Mean Net Annual Fiscal Contributions of 18 to 64 Year Old Adults in the LA Metro Area, by Educational Attainment, (4 year average, 2005-2008), (In 2008 Dollars)

Educational Attainment	Mean Annual Total Tax Payments	Mean Annual Total Transfers and Institutionalization	Annual Net Fiscal Contributions (total tax payments minus total transfers and institutionalization costs)
<12 or 12, No High School Diploma	\$5,496	\$3,741	\$1,756
High School Diploma or GED	\$9,746	\$2,576	\$7,170
Some College or Associate's Degree	\$15,352	\$1,865	\$13,487
Bachelor's Degree or higher	\$27,151	\$847	\$26,304
All Education Levels	\$15,557	\$2,102	\$13,455

Those residents of the Los Angeles metro area who had a below bachelor’s level of college education contributed, on average, \$13,487 per year: almost 8 times more than the mean annual net fiscal contribution of residents in the city who had dropped out of high school. Meanwhile, college graduates in the Los Angeles metro area with a bachelor’s or a higher college degree made the greatest positive mean annual net fiscal contribution to the federal, state and local governments (\$26,304). They collected much less in transfers and imposed lower institutionalization costs (\$847) and paid much larger amounts in taxes (\$27,151), largely the result of their high degree of success in the labor market. Those residents of the Los Angeles metro area contributed 15 times as much per year as high school dropouts of the city did.

The net fiscal impact can also be presented as the ratio of mean annual tax payments to the mean annual value of transfers and annual institutionalization costs. We have computed these net fiscal contribution ratios for each of the four educational subgroups of adult residents in the Los Angeles metro and presented the findings in Chart 10. The values of these ratios rose sharply with education in the Los Angeles metro area: from just 1.47 among adults who did not complete high school, to 3.78 among high school graduates, to 8.23 among adults with some college education or an associate’s degree, and up dramatically to 32.05 among those adults with a bachelor’s or a higher academic degree.

Chart 10: The Ratios of Mean Annual Tax Payments to the Combined Value of Cash and In-Kind Transfers and Institutionalization Costs (Net Fiscal Contribution Ratios) of 18 to 64 Year Old Residents in the LA Metro Area, by Educational Attainment (4 year average, 2005-2008)



These ratios reveal that a high school dropout in the Los Angeles metro area paid only \$1.47 for every \$1 received in the form of transfers and institutionalization costs. In contrast, high school graduates without any further education contributed \$3.78 in taxes for every \$1 of transfers and institutionalization costs. Those with a college education below the bachelor’s degree level contributed \$8.23 for every \$1 received for transfers and institutionalization costs, while those with a bachelor’s degree or higher level of education contributed \$32.05 for every dollar in transfers and institutionalization costs. Across all education levels, residents of the Los Angeles metro area contributed \$7.40 for every \$1 of transfer income and institutionalization costs.

The Mean Annual Net Fiscal Contributions of the Residents in the LA Metro Area by Educational Attainment and Gender

The value of the mean annual net fiscal contributions of non-elderly adults in the Los Angeles metro area not only varies widely according to their level of educational attainment, but also by their gender. Data presented in Table 10 and Chart 11 reveal that male residents of the Los Angeles metro area made a larger annual fiscal contribution to the federal, state and local governments than their female counterparts at every level of educational attainment, especially among those who had dropped out of high school. Furthermore, this data reveals that while a strong positive correlation exists between the mean annual net fiscal contribution and level of educational attainment across both genders in the Los Angeles metro area, this correlation is especially strong among females.

The mean annual net fiscal contribution of all male adult residents in the Los Angeles metro area was \$15,783, 42 percent higher than the contribution of their female counterparts (\$11,101). Meanwhile, female residents of the Los Angeles metro area made a significantly lower mean net annual fiscal contribution than their male counterparts at every level of educational attainment. Adult female high school dropouts in the Los Angeles metro area made a mean annual net fiscal contribution of only \$248. In contrast, male dropout residents of the area contributed more than 13 times as much per year to the federal, state and local governments (\$3,280).

Male high school graduates contributed 52 percent more per year than their female counterparts in the city (\$8,588 versus \$5,655, respectively), and male residents with a bachelor's degree or higher contributed 42 percent more each year than their female counterparts (\$30,961 versus \$21,759, respectively). This imbalance in the mean annual net fiscal contributions of male and female residents from the Los Angeles metro area – across each category of educational attainment – is mainly due to large differences in their mean annual tax payments. Across each of the levels of educational attainment, male residents from the Los Angeles metro area contributed between 30 percent and 81 percent more in tax payments than their female counterparts did (with the biggest difference in tax payments being between male and female high school dropouts). This is largely the result of the weaker labor market outcomes

Table 10: The Mean Net Annual Fiscal Contributions of 18 to 64 Year Old Adults in the LA Metro Area by Educational Attainment and Gender, (4 year average, 2005-2008) (In 2008 Dollars)

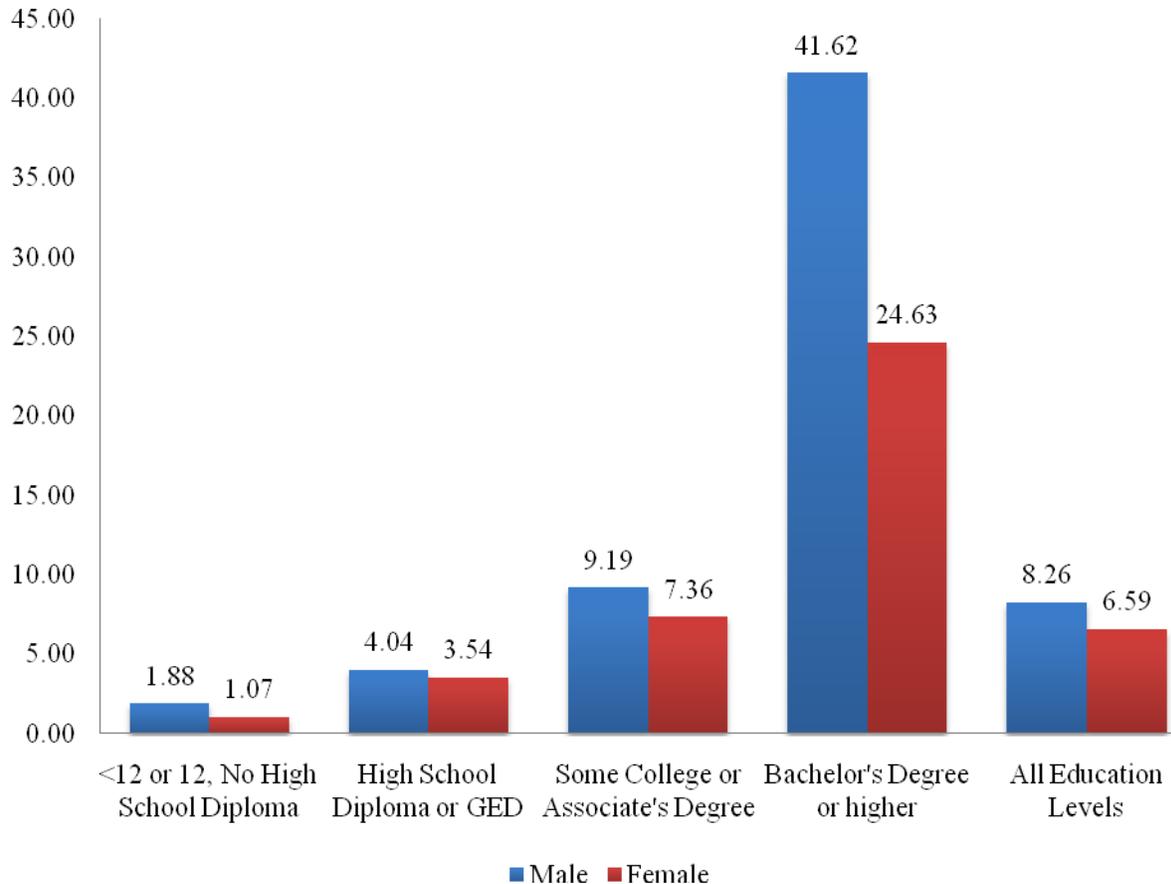
Educational Attainment	Mean Annual Total Tax Payments	Mean Annual Total Transfers and Institutionalization	Annual Net Fiscal Contributions (total tax payments minus total transfers and institutionalization costs)
Male			
<12 or 12, No High School Diploma	\$6,994	\$3,714	\$3,280
High School Diploma or GED	\$11,416	\$2,828	\$8,588
Some College or Associate's Degree	\$17,431	\$1,896	\$15,535
Bachelor's Degree or higher	\$31,723	\$762	\$30,961
All Education Levels	\$17,958	\$2,175	\$15,783
Female			
<12 or 12, No High School Diploma	\$3,864	\$3,616	\$248
High School Diploma or GED	\$7,881	\$2,227	\$5,655
Some College or Associate's Degree	\$13,362	\$1,815	\$11,547
Bachelor's Degree or higher	\$22,680	\$921	\$21,759
All Education Levels	\$13,089	\$1,988	\$11,101

of female residents in the Los Angeles metro area relative to male residents in the city - especially among female high school dropouts.

A look at the net fiscal impact as the ratio of mean annual tax payments to the mean annual value of transfers and annual institutionalization costs reveals that while male high school dropout residents of the Los Angeles metro area had a ratio of 1.88, this ratio is estimated to be just 1.07 among their female counterparts. These ratios reveal that a male high school dropout in the Los Angeles metro area paid \$1.88 in taxes for every \$1 received in the form of transfers whereas a female high school dropout paid only \$1.07 in taxes for every \$1 of transfers they received.

In addition, the gaps between the size of the mean net annual fiscal contribution of adult female high school dropouts in the Los Angeles metro area and the contributions made by better-educated women are relatively bigger than the equivalent gaps between male high school dropouts versus better educated men. Both male and female high school graduates in the Los

Chart 11: The Ratios of the Mean Annual Tax Payments to the Combined Value of Cash and In-Kind Transfers (Net Fiscal Contribution Ratios) of 18 to 64 Year Old Residents in the LA Metro Area, by Educational Attainment and Gender (4 year average, 2005-2008)



Angeles metro area made a higher mean annual net fiscal contribution than high school dropouts did. However, while male high school graduates contributed on average nearly 3 times as much as their counterparts who were a dropout did (\$8,588 versus \$3,280, respectively), female high school graduates in the city contributed almost 23 times as much as dropout female residents did (\$5,655 versus \$248, respectively). Also, while men in the Los Angeles metro area with a bachelor's degree or higher contributed \$30,961 per year to the government - 9 times more than their male counterparts who were a high school dropout (\$3,280) -, women in the city who had a bachelor's degree or higher contributed, on average, 88 times more per year than their dropout counterparts (\$21,759 versus \$248, respectively).

These greater gaps between the mean annual net fiscal contributions of female residents of the Los Angeles metro area with different levels of educational attainment than among males of the city with different levels of educational attainment can be accounted for by the larger variation found in the rates of work, hours of work, and hourly pay among female residents of the Los Angeles metro area with different educational backgrounds relative to their male counterparts.³³

The Mean Lifetime Net Fiscal Contributions of the Residents in the LA Metro Area by Educational Attainment and Gender

The net fiscal contributions presented in the previous section represent annual amounts of net fiscal impacts. The cumulative amounts of these annual fiscal impacts over the entire work life of each non-elderly adult resident could be sizable. We have converted the estimates of the mean annual net fiscal contributions of 18 to 64 year old adults in each educational subgroup into estimates of lifetime net fiscal contributions. Our estimates of lifetime net fiscal contributions are derived by multiplying the annual net fiscal contribution estimates by the total number of years in the work life of each educational group.

The work life of each educational subgroup was based on assumptions about the age at which they would begin their work life—which is the age when they are typically earn their educational credentials. We have assumed that a high school graduates would receive a diploma at age 18, a bachelor’s degree would be earned at age 22, and a master’s degree at age 24. The work life span—the number of years between the age at which they complete their education and age 64 -- was thus computed as 47 year period for high school dropouts, 45 years for high school, 43 years for those with some college, 41 years for Bachelor degree holders, and 38 years for those with a Master’s or a higher degree.³⁴

The mean lifetime net contributions of adult residents of Los Angeles metro area rose sharply with their education. The small positive mean annual net fiscal contribution of adults in

³³ See: Alison H. Dickson, Neeta P. Fogg, Paul E. Harrington and Ishwar Khatiwada. *The Lifetime Employment, Earnings and Poverty Consequences of Dropping out of High School in the Los Angeles Metro Area*. Center for Labor Market Studies, Northeastern University, Boston. September 2009.

³⁴ Estimates of the lifetime fiscal impacts of residents with a bachelor’s or a higher college degree were computed as a sum of the lifetime fiscal impacts of those who had earned just a bachelor’s degree (based upon a working lifespan of 41 years) and those who had earned a Master’s or a higher degree (based upon a working lifespan of 38 years).

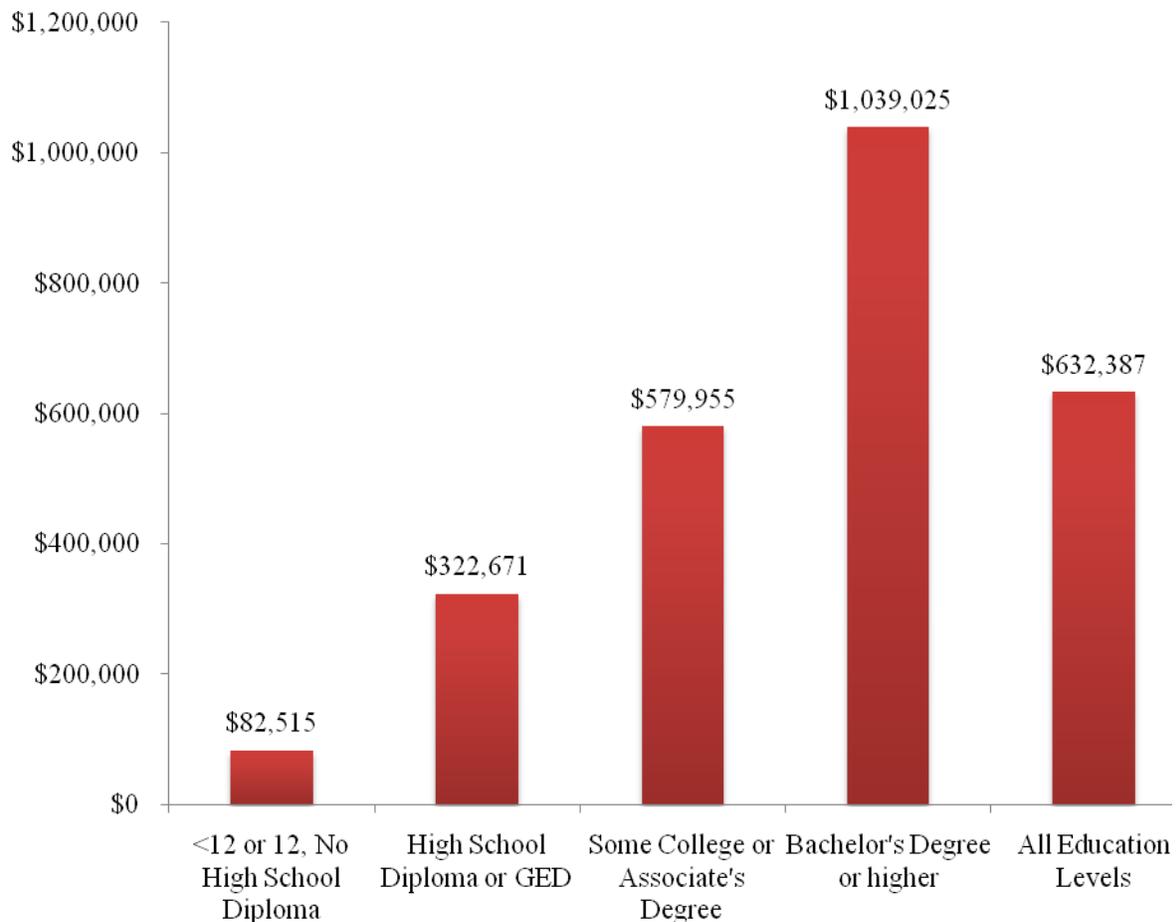
Table 11: The Lifetime Net Fiscal Contribution of Adults (18 to 64) in the LA Metro Area, by Educational Attainment, (4 year average, 2005-2008), (In 2008 Dollars)

Educational Attainment	Mean Lifetime Total Tax Payments	Mean Lifetime Total Transfers and Institutional-ization	Lifetime Net Fiscal Contributions (total tax payments minus total transfers and institutionalization costs)	Lifetime Net Fiscal Contribution Ratio Relative to High School Dropouts
<12 or 12, No High School Diploma	\$258,334	\$175,819	\$82,515	1
High School Diploma or GED	\$438,590	\$115,919	\$322,671	3.91
Some College or Associate's Degree	\$660,131	\$80,176	\$579,955	7.03
Bachelor's Degree or higher	\$1,072,482	\$33,458	\$1,039,025	12.59
All Education Levels	\$731,164	\$98,777	\$632,387	7.66

the metro area who failed to complete high school would cumulate into a small positive mean net fiscal contribution of less than eighty-five thousand dollars per adult over their working lives (\$82,515). Meanwhile, a high school graduate (without any college education) is estimated to contribute an average net amount of \$322,671 over their lifetime to the budgets of the federal, state, and local governments: almost 4 times the size of the contribution of dropout residents of the city. The mean lifetime net fiscal contributions of adults with some college and those with a bachelor’s or a higher academic degree is even greater, estimated – respectively - at \$579,955 and \$1,039,025. Thus, while those residents of the Los Angeles metro area who have some college education below the bachelor’s degree level are expected to contribute 7 times as much over their lifetime to the budgets of the federal, state and local governments as a high school dropout from the city would, those residents who have a bachelor’s or higher degree are estimated to contribute almost 13 times as much.

What would be the total impact of assisting a high school dropout in the Los Angeles metro area to return to school and complete high school? Each high school dropout in the Los Angeles metro area is estimated to make a net positive fiscal contribution of lifetime cost of just \$82,515, while each high school graduate (without any college education) is expected to make a greater net positive fiscal contribution of \$322,671 over their working lives. Therefore, the financial benefit that can be expected to accrue to the federal, state and local governments from each successful high school graduation of a high school dropout resident in the Los Angeles

Chart 12: The Lifetime Net Fiscal Contribution of Adults (18 to 64) in the LA Metro Area, by Educational Attainment, (4 year average, 2005-2008), (In 2008 Dollars)



metro area is almost a quarter of a million dollars (\$240,156).

In addition, breaking this data down further by gender (as done in Table 12) reveals that the estimated mean lifetime net fiscal contribution of female high school dropouts in the Los Angeles metro area is particularly small. Adult female high school dropouts in the Los Angeles metro area have an estimated mean lifetime net fiscal contribution of only \$11,649; 7 times smaller than the estimated lifetime contribution of all high school dropouts in the metro area (\$82,515) and 13 times smaller than the estimated lifetime contribution of male dropouts (\$154,160). Furthermore, while male high school graduates and male college educated residents with a bachelor's degree or higher in the Los Angeles metro area are estimated to contribute – respectively - between about 2.5 times and 8 times more to the government than male high

Table 12: The Lifetime Net Fiscal Contribution of Adults (18-64) in the LA Metro Area, by Educational Attainment and Gender, (4 year average, 2005-2008), (In 2008 Dollars)

Educational Attainment	Mean Lifetime Total Tax Payments	Mean Lifetime Total Transfers and Institutionalization	Lifetime Net Fiscal Contributions (total tax payments minus total transfers and institutionalization costs)	Lifetime Net Fiscal Contribution Ratio Relative to High School Dropouts
Male				
<12 or 12, No High School Diploma	\$328,735	\$174,575	\$154,160	1
High School Diploma or GED	\$513,728	\$127,275	\$386,453	2.51
Some College or Associate's Degree	\$749,515	\$81,532	\$667,984	4.33
Bachelor's Degree or higher	\$1,253,063	\$30,105	\$1,222,959	7.93
All Education Levels	\$844,044	\$102,228	\$741,816	4.81
Female				
<12 or 12, No High School Diploma	\$181,589	\$169,939	\$11,649	1
High School Diploma or GED	\$354,651	\$100,195	\$254,456	21.84
Some College or Associate's Degree	\$574,566	\$78,029	\$496,537	42.62
Bachelor's Degree or higher	\$895,853	\$36,377	\$859,476	73.78
All Education Levels	\$615,185	\$93,418	\$521,768	44.79

school dropouts during the course of their working lifespan, female high school graduates and female college educated residents with a bachelor’s degree or higher in the city are estimated to contribute - respectively - between about 22 times 74 times more than female high school dropouts.

The labor market attachment and the level of earnings of high school dropouts in the city – especially female high school dropouts - are relatively weak, resulting in low levels of per capita tax payments by them. The mean combined annual tax payments of all high school dropout residents of the city was only \$5,496, a level that was only 56 percent as high as that of high school graduates and worth only 20 percent of the mean annual tax payments made by the best-educated city residents who hold a bachelor’s or a higher college degree (\$9,746 and \$27,151, respectively). Meanwhile, the mean combined annual tax payment of female high school dropout residents was even less, just \$3,864. This represents only 49 percent of the equivalent payment of female high school graduates in the city and just 17 percent of the

equivalent payment made by female residents with a bachelor's degree or higher (\$7,881 and \$22,680, respectively).

On the other side of the fiscal ledger, high school dropout residents of the city – both male and female - were much more dependent on cash and in-kind transfer benefits—nearly one-third reported receiving one or more cash transfer payment and about 34 percent reported receipt of one or more in-kind or non-cash transfer benefits. The dollar value of the annual cash and non-cash transfer benefits and the per capital institutionalization costs of high school dropouts in the city in the 2005 to 2008 period was \$3,741, a level that was 1.5 times as high as that of high school graduate residents and 4.4 times greater than that of college graduate residents of the Los Angeles metro area (\$2,576 and \$847, respectively).

The net effect is that high school dropouts in the Los Angeles metro area – in particular female dropout residents - are estimated to make a significantly smaller annual financial contribution than residents of the city who have a higher level of educational attainment, especially those with a bachelor's degree or higher. Over their working lifespan, these annual differences add up and result in all high school dropout residents of the Los Angeles metro area contributing only about a quarter (25.6 percent) of what high school graduate residents of the city contribute to the government, and less than a tenth (7.9 percent) of what residents of the city who have a bachelor's or higher degree do. Meanwhile over their working lifespan female high school graduates in the Los Angeles metro area contribute even less; just 4.6 percent of what female high school graduate residents contribute to the government, and only 1.4 percent of what female residents who have a bachelor's or higher degree contribute.

Thus, it is clear that working age adults in the Los Angeles metro area who fail to complete high school impose heavy burdens upon the public coffers in the form of low tax payments, high rates and amounts of receipt of government transfer costs, and high institutionalization costs. These external costs are in addition to the sizable personal costs of dropping of high school that are borne by the individuals themselves. The large gap between the lifetime net fiscal contributions of high school dropouts and their counterparts with just a high school education indicate that the monetary benefit of each successful high school graduation to the public coffers in the Los Angeles metro area is indeed very large.

Recognizing the limited fiscal potential of high school dropouts, Marguerite Kondracke - President and CEO of America's Promise - has referred to them as "our next class of nonperforming assets."³⁵ Furthermore, although the components in the net fiscal contributions estimated in this report encompass a wide array of taxes and transfers and costs, these estimates are still very conservative since they do not include non-quantifiable personal costs, health costs, and social costs of high school dropouts and the transmission of these costs to future generations through diminished resources available to their children. Thus, *everyone* in the Los Angeles metro area pays when someone in the city drops out of high school.

³⁵ America's Promise Alliance is a cross-sector partnership of more than 300 corporations, nonprofits, faith-based organizations and advocacy groups. They have made a top priority of ensuring that all young people graduate from high school ready for college, work and life. Gary Fields. *The High School Dropout's Economic Ripple Effect*. The Wall Street Journal. October 21st 2008. <http://online.wsj.com/article/SB122455013168452477.html>.

Appendix A: Estimating the Annual Federal and State Income Taxes Paid by Husbands and Wives in Married Couple Families

In computing the annual federal and state income tax payments of adults in the March CPS Annual Social and Economic Supplement, the U.S. Census Bureau adopts a different practice for husbands and wives in married couple families than it does for all other individuals with incomes during the year. For married couple families, the U.S. Census Bureau adopts the assumption that the couple files a joint federal and state income tax return. Research staff then estimated the federal and state income tax liability for the married couple and assigned the entire federal and state income tax liability to the head of the married couple family. The householder of this married couple family can be either the husband or the wife. In approximately 85 percent of the cases, the householder in a non-elderly married couple family is the husband.³⁶ For all other individuals, whether living in families or in non-family households, the federal and state income tax liability appears on their personal record. Given the above practice in assigning income tax liabilities to the head of a married couple family, we cannot identify from the existing March CPS records the specific federal and state income tax liability of the husband and spouse in a married couple family. To avoid exaggerating the income tax payments of the heads of married couple families and severely underestimating the income tax payments of the spouses in such families, we developed a set of computer programming instructions with the SPSS statistical package that allowed us to generate separate estimates of the federal and state income tax liability of husbands and wives.

The procedures used to estimate husband/wife income tax liability can be summarized as follows. We first calculated the percentage shares of joint husband/wife earnings during the year that were earned by the family head and the spouse. The family head's percentage share of earnings (e.g., 70%) was then multiplied by the estimated joint federal income tax liability of the married couple to estimate his (her) federal income tax payments. Suppose that the married couple's federal income tax liability was \$20,000 and the head obtained 70% of the combined earnings during the year. The head's federal income tax liability was computed to be $\$20,000 * .70 = \$14,000$. The remaining \$6,000 in federal income tax liability was then assigned to the

³⁶ Our definition of a non-elderly family is one whose head is an individual under the age of 65.

spouse.³⁷ The same statistical procedures were used to compute the state income tax payments of the husband and wife.

³⁷ In a married couple family, the spouse can be either the husband or wife depending on which of the two was classified as the family householder.

Appendix B: Estimating Median and Mean Values of Homes and Annual Property Taxes Paid by Householders

The 2006, 2007 and 2008 American Community Surveys (ACS) collected data on the characteristics of the homes occupied by responding households, including ownership status, the home’s estimated market value, the year when the house was built, and annual property tax payments. Both the data on estimated home prices and property tax payments were collected in a categorical form rather than in continuous form. For example, the respondent was asked to identify the estimated value of their home from 24 pre-assigned categories, ranging from under \$10,000 to over \$1 million. Similarly, the household was asked to choose from over 68 categories the size of their annual property tax payments ranging from \$0 to \$10,000 or more.

Using these categorical data on home price and property tax payments, we calculated mean/median home prices and property tax payments for householders in each of the four educational categories appearing in our analysis. We used the following two formulas to estimate mean and median values of homes and annual property tax payments appearing in our analysis. The mean values of homes and property tax payments are likely somewhat underestimated due to the absence of upper limits for the top category. For example, the property value of homes in the top category was \$1,000,000 or more and for property tax payments it was \$10,000 and over. However, there were very few cases in these upper housing value and property tax categories. The estimated mean and median values of the two variables were calculated as follows:

$$\text{Mean} \cong \frac{\sum_{j=1}^c m_j f_j}{n} \text{-----}(1)$$

Where, c = number of income classes in the frequency distribution

m_j = mid point of home prices or property tax payments in the j^{th} class

f_j = frequency of the observations in the j^{th} income class

n = number of households who owned their home

$$\text{Median} \cong l + \frac{h}{f} \left(\frac{N}{2} - C \right) \text{-----}(2)$$

Where, l = lower bound of the response category containing the median value of homes or property taxes (in dollars)

h = width of the median response category (in dollars)

f = frequency of the median category

N = (Total number of sample cases)

C = Cumulative frequency preceding the median category

Appendix C: Estimating State Sales Tax Payments for Individuals

The U.S. Census Bureau does not provide any estimates of annual state sales tax payments for persons interviewed during the March CPS survey. In our fiscal impact analyses, we have estimated state sales tax payments for individual adults in California by using a combination of personal income data from the 2006, 2007 and 2008 ACS surveys and sales tax tables for California published annually by the U.S. Department of Treasury's Internal Revenue Service (IRS). In our analysis of state sales taxes, we applied a single person exemption to each individual respondent between the ages of 18 and 64 years with a positive income. For each person in our analysis, we assigned California state sales tax payment equal to the IRS sales tax deduction for a person in California with their annual income in 2006, 2007 and 2008. Below are sample tables of the allowable sales tax deductions for residents of California in 2006, 2007 and 2008.

Appendix Table C-1:
State Sales Tax Tables, California, 2006

California: 7.2500%							
Income		Exemptions					
At Least	But Less Than	1	2	3	4	5	Over 5
\$0	\$20,000	\$247	\$266	\$278	\$287	\$294	\$304
\$20,000	\$30,000	\$437	\$471	\$493	\$508	\$521	\$537
\$30,000	\$40,000	\$541	\$583	\$609	\$628	\$644	\$664
\$40,000	\$50,000	\$632	\$681	\$712	\$735	\$753	\$777
\$50,000	\$60,000	\$716	\$772	\$807	\$832	\$853	\$880
\$60,000	\$70,000	\$794	\$856	\$895	\$923	\$946	\$976
\$70,000	\$80,000	\$869	\$937	\$979	\$1,010	\$1,035	\$1,068
\$80,000	\$90,000	\$939	\$1,013	\$1,058	\$1,092	\$1,118	\$1,155
\$90,000	\$100,000	\$1,007	\$1,085	\$1,134	\$1,170	\$1,199	\$1,237
\$100,000	\$120,000	\$1,097	\$1,183	\$1,236	\$1,275	\$1,306	\$1,348
\$120,000	\$140,000	\$1,222	\$1,318	\$1,377	\$1,421	\$1,456	\$1,502
\$140,000	\$160,000	\$1,334	\$1,438	\$1,503	\$1,550	\$1,588	\$1,639
\$160,000	\$180,000	\$1,446	\$1,559	\$1,629	\$1,681	\$1,722	\$1,778
\$180,000	\$200,000	\$1,549	\$1,670	\$1,745	\$1,801	\$1,845	\$1,904
\$200,000	or more	\$2,078	\$2,240	\$2,341	\$2,415	\$2,474	\$2,554

This table includes the 1% uniform local sales tax rate in addition to the 6.25% state sales tax rate
Source: Internal Revenue Service. "State and Local General Sales Taxes", Publication 600: 2006. www.irs.gov

Appendix Table C-2:
State Sales Tax Tables, California, 2007

California: 7.2500%							
Income		Exemptions					
At Least	But Less Than	1	2	3	4	5	Over 5
\$0	\$20,000	\$248	\$292	\$321	\$344	\$363	\$389
\$20,000	\$30,000	\$413	\$486	\$534	\$572	\$603	\$645
\$30,000	\$40,000	\$501	\$588	\$647	\$692	\$729	\$780
\$40,000	\$50,000	\$577	\$678	\$745	\$797	\$839	\$899
\$50,000	\$60,000	\$647	\$760	\$835	\$892	\$940	\$1,006
\$60,000	\$70,000	\$712	\$835	\$917	\$981	\$1,033	\$1,105
\$70,000	\$80,000	\$774	\$907	\$996	\$1,065	\$1,121	\$1,200
\$80,000	\$90,000	\$831	\$975	\$1,070	\$1,144	\$1,204	\$1,288
\$90,000	\$100,000	\$887	\$1,039	\$1,141	\$1,219	\$1,283	\$1,373
\$100,000	\$120,000	\$960	\$1,125	\$1,235	\$1,319	\$1,388	\$1,485
\$120,000	\$140,000	\$1,062	\$1,244	\$1,365	\$1,458	\$1,535	\$1,641
\$140,000	\$160,000	\$1,153	\$1,350	\$1,481	\$1,581	\$1,664	\$1,779
\$160,000	\$180,000	\$1,244	\$1,456	\$1,597	\$1,705	\$1,794	\$1,918
\$180,000	\$200,000	\$1,328	\$1,553	\$1,703	\$1,818	\$1,913	\$2,045
\$200,000	or more	\$1,755	\$2,050	\$2,246	\$2,396	\$2,520	\$2,692

This table includes the 1% uniform local sales tax rate in addition to the 6.25% state sales tax rate
Source: Internal Revenue Service. *2007 Instructions for Schedules A & B (Form 1040)*. www.irs.gov

Appendix Table C-3:
State Sales Tax Tables, California, 2008

California: 7.2500%							
Income		Exemptions					
At Least	But Less Than	1	2	3	4	5	Over 5
\$0	\$20,000	\$246	\$280	\$303	\$320	\$334	\$354
\$20,000	\$30,000	\$423	\$480	\$518	\$547	\$571	\$603
\$30,000	\$40,000	\$518	\$587	\$633	\$668	\$696	\$736
\$40,000	\$50,000	\$601	\$681	\$734	\$774	\$806	\$852
\$50,000	\$60,000	\$678	\$767	\$825	\$870	\$907	\$958
\$60,000	\$70,000	\$748	\$846	\$910	\$960	\$1,000	\$1,056
\$70,000	\$80,000	\$815	\$922	\$991	\$1,045	\$1,088	\$1,149
\$80,000	\$90,000	\$879	\$992	\$1,067	\$1,124	\$1,171	\$1,236
\$90,000	\$100,000	\$939	\$1,060	\$1,140	\$1,201	\$1,251	\$1,320
\$100,000	\$120,000	\$1,019	\$1,150	\$1,236	\$1,302	\$1,356	\$1,430
\$120,000	\$140,000	\$1,131	\$1,275	\$1,370	\$1,443	\$1,502	\$1,584
\$140,000	\$160,000	\$1,230	\$1,386	\$1,488	\$1,567	\$1,631	\$1,720
\$160,000	\$180,000	\$1,330	\$1,497	\$1,608	\$1,692	\$1,761	\$1,856
\$180,000	\$200,000	\$1,420	\$1,599	\$1,716	\$1,805	\$1,879	\$1,980
\$200,000	or more	\$1,885	\$2,117	\$2,269	\$2,385	\$2,481	\$2,613

This table includes the 1% uniform local sales tax rate in addition to the 6.25% state sales tax rate
Source: Internal Revenue Service. *2008 Instructions for Schedules A & B (Form 1040)*. www.irs.gov

Appendix D: Estimating the Annual Average Costs of Medicaid

The U.S. Census Bureau collects data on the Medicaid/Medicare recipient status of respondents in a supplement to the March CPS survey. Based on the family's annual income, the cost of its food and housing needs, and the market value of the medical benefits, the Bureau applies a fungible value approach to estimate the family's values of the health services provided by Medicaid.³⁸ However, for individual member of the households, the Bureau estimated the market value of Medicaid. The actual cost of providing Medicaid services is higher than the U.S. Census Bureau fungible or market value estimates. The actual annual fiscal outlays on Medicaid recipients vary considerably by age group and disability status. For example, for all adults (18-64) in the Los Angeles metro area, the mean value of Medicaid services based on the Census Bureau's market value approach was only \$447. This estimated value of Medicaid services was about 24% lower than the costs we estimated using March CPS and Health and Human Services administrative data on Medicaid expenditures - \$554: (Appendix Table D-1).

Appendix Table D-2 illustrates the methodology that was used by the Center for Labor Market Studies to estimate the average annual per capita cost of providing Medicaid to non-elderly adults in the Los Angeles metro area. Based on the March CPS supplement data; we first estimated the distribution of adult Medicaid recipients by their disability status. In the Los Angeles metro area just over 40% of the Medicaid recipients were classified as disabled adults and the remaining 60% were non-disabled adults (Appendix Table D-2, first row). According to the Medicaid administrative office, the costs of providing Medicaid services for disabled and non-disabled adults in California were \$12,346 and \$880, respectively (Appendix Table D-2, second row). We calculated annual average Medicaid costs by multiplying the share of each

³⁸ The U.S. Census Bureau describes fungible value as follows: "The fungible approach for valuing medical coverage assigns income to the extent that having the insurance would free up resources that would have been spent on medical care. The estimated fungible value depends on family income, the cost of food and housing needs, and the market value of the medical benefits. If family income is not sufficient to cover the family's basic food and housing requirements, the fungible value methodology treats Medicare and Medicaid as having no income value. If family income exceeds the cost of food and housing requirements, the fungible value of Medicare and Medicaid is equal to the amount which exceeds the value assigned for food and housing requirements (up to the amount of the market value of an equivalent insurance policy (total cost divided by the number of participants in each risk class))." <http://www.census.gov/hhes/income/histinc/redefs.html>

Appendix Table D-1:
Difference Between the Estimates of CPS Market Value of Medicaid and the CLMS
Estimates for All 18-64 Year Old Adults in the LA Metro Area, 2005-2008

	(A)	(B)	(C)
Education	CPS Market Value of Medicaid	CLMS Estimates Based on Medicaid Costs of Adults and CPS Data	% Difference (B/A)-1
<12 or 12, No HS Diploma	\$856	\$998	17%
HS Graduate or GED	\$613	\$730	19%
1-3 Years of College	\$343	\$444	29%
Bachelor's Degree	\$122	\$203	67%
Total	\$447	\$554	24%

Medicaid recipient group that was disabled by \$12,346 and the share of adults that were non-disabled by \$880 (Appendix Table D-2, third row). The annual average expected cost of Medicaid in the Los Angeles metro area was estimated to be \$5,074 for disabled adults and only \$518 for non-disabled adults (Appendix Table D-2, fourth row). We then summed the cost of

Appendix Table D-2:
Estimates of the Mean Annual Per Capita Cost of Providing Medical Care to Non-Elderly
Medicaid Recipients (18-64 Year Old) in the Los Angeles Metro Area. in 2005-2008

Variable	Non Disabled	Disabled
(A) % Distribution of Medicaid Recipients by Disability Status ⁽ⁱ⁾	58.9%	41.1%
(B) Annual Average Cost of Providing Medicaid (Administrative Data) ⁽ⁱⁱ⁾	\$880	\$12,346
(C) Annual Average Costs of Providing Medicaid (A * B)	\$518	\$5,074
(D) Sum of Costs (Disabled and Non-Disabled)	\$5,593	
(E) % Who Received Medicaid	9.9%	
F) Average Annual Per Capita Cost of Medicaid (D* E)	\$554	

Source: (i) March 2006, 2007, 2008 and March 2009 CPS surveys, Work Experience and Income Supplement, public use files, tabulations by authors;
(ii) The Urban Institute and Kaiser Foundation Commission on Medicaid and the Uninsured estimates are based on data from Medicaid Statistical Information System (MSIS) reports from the Centers for Medicare and Medicaid Services (CMS), 2007, web site, <http://www.statehealthfacts.org/comparetable.jsp?ind=183&cat=4>

Medicaid for disabled and non-disabled adults to obtain the total average annual cost of providing Medicaid for adults (Appendix Table D-2, fifth row). The total cost of providing Medicaid services to Los Angeles metro area adults was estimated to be \$5,593. Finally, to estimate the taxpayer cost of providing Medicaid coverage to adults in the Los Angeles metro area, we multiplied the average annual cost of providing Medicaid coverage to recipients of Medicaid by the percent of the members of the 18-64 year old adult population that were Medicaid/Medicare recipients – 9.9 percent (Appendix Table D-2, sixth row). Thus, the mean annual per capita costs of Medicaid for adults (18-64 years old) in the Los Angeles metro area was \$554. We repeated this process for each of the four educational subgroup of adults used in our analysis (Appendix Table D-1). We then replaced the estimated fungible value of Medicaid on the March CPS survey with this value to estimate taxpayer costs of providing Medicaid.

Appendix E: Estimating Jail/Prison Cost of Adults (18-60)

To estimate rates of institutionalization among the non-elderly adult population of the state of California, we analyzed the findings of the 2007 and 2008 American Community Surveys, which interviewed residents of institutionalized and non-institutionalized group quarters for the first time during that year. Institutionalized group quarter residents include those persons who were under supervision in correctional facilities (jails/prisons), nursing/skilled nursing facilities, mental (psychiatric) hospitals, in patient hospice facilities, and group homes for juveniles. The public use files for the ACS survey unfortunately do not identify the specific type of institution in which these individuals were living at the time of the survey. Nationally, the U.S. Census Bureau’s publication of institutionalization data the 2000 decennial census surveys revealed that about 89 percent of the members of the institutionalized population between the ages of 18 and 64 were inmates of correctional facilities.³⁹ Since our analysis of the costs of incarceration are restricted to adults under age 60, the share of institutionalized population that was in correctional facilities is expected to be even larger than 89 percent since older adults between 60 and 64 years old who are institutionalized are more likely to be in nursing homes and less likely to be in correctional facilities.

Appendix Table E-1:
Mean Annual Costs of Maintaining 18-60 Year Old
California Adults in Institutions in 2008

(A) 2008 Institutionalization Rate	1.40%
(B) Cost of Incarceration in 2008	\$29,325
Average Annual Cost of Incarceration (A*B)	\$411

The U.S. Bureau of Justice Statistics estimated the annual per state prison inmate costs for the entire nation in 2001. Adjusting this per inmate cost for inflation between 2001 and 2008, the cost per inmate in 2008 was derived. By multiplying the mean institutionalization rate for

³⁹ See: U.S. Bureau of the Census, Census 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data, American FactFinder, Table Number PCT17: Group Quarters Population by Sex by Age by Group Quarters Type. url: http://factfinder.census.gov/servlet/DTable?_bm=y&-geo_id=01000US&-ds_name=DEC_2000_SF1_U&-_lang=en&-mt_name=DEC_2000_SF1_U_PCT017&-format=&-CONTEXT=dt

each educational group of adults from the 2007 and 2008 American Community Surveys by the per inmate cost, we can estimate the average annual costs of institutionalization per adult in each educational attainment group.

Appendix F: The Mean Lifetime Net Fiscal Contributions Adults by Educational Attainment

The estimates of the mean annual net fiscal contributions of 18-64 year old adults in each educational attainment group can be converted into mean work-life estimates by multiplying them by the number of years over the work-life. For dropouts, we used a 47 year period, for high school graduates 45 years, for those with some college 43 years, and 39 year for those with a Bachelor's or higher degree.⁴⁰

⁴⁰ We assumed that an average high school graduate would receive a diploma at age 18, a bachelor degree holder would earn the degree at age 22 and a Master's degree holder would earn the degree at 24.