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The Economic Value of Opportunity Youth

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SUMMARY

In their early adult years, it is important for youth to gain additional skills through further educational, training, and work experience. Yet, many of America's youth are neither enrolled in school nor participating in the labor market – they are not investing in their human capital or earning income. Their disconnection represents a significant loss of economic opportunity for the nation. This report examines the status of these 'opportunity youth'.

For the 16-24 age group, we estimate that at least 6.7 million (17%) are currently 'opportunity youth'. These youth are disproportionately male and from minority groups, but substantial rates are found for all youth groups. Opportunity youth may have dropped out of high school or college and been unable to find work; may have been involved in the criminal justice system; may have mental or health conditions that have inhibited their activities; or may have care-giving responsibilities in their families.

Some opportunity youth are 'chronic': they have never been in school or work after the age of 16. Others are 'under-attached': despite some schooling and some work experience beyond 16, these youth have not progressed through college or secured a stable attachment to the labor market. We estimate a chronic opportunity youth population of 3.4 million and an under-attached opportunity youth population of 3.3 million. Both groups are failing to build an economic foundation for adult independence.

The economic burden of opportunity youth is not just felt by the youth themselves. Both taxpayers and society lose out when the potential of these youth is not realized. Opportunity youth are less likely to be employed and more likely to rely on government supports. In addition, they report worse health status and are more likely to be involved in criminal activity. This has costly implications for taxpayers and for society both now and in the future.

Decisions made by youth have consequences for adult livelihoods: individuals with limited labor market experience in youth have lower earnings in adulthood; incarcerated youth who commit crimes find it much harder to get work after release; and youth in poor health may be unable to find work that offers health insurance. One key mediator is education. We estimate that the high school graduation rate of opportunity youth is 18 percentage points lower than the rest of the youth population. By age 28, only 1% of opportunity youth will have completed at least an Associate's degree; the rate for the rest of the population is 36%. Low levels of education in youth diminish economic well-being in adulthood.

We calculate the economic burden of opportunity youth from the perspective of both the taxpayer and society. We also calculate the immediate burden – that incurred when a person is aged 16-24 – and the future burden – that incurred over the rest of his or her adult lifetime. These calculations are derived from national surveys such as the American Community Survey and the Current Population Survey and from longitudinal surveys such as the National Longitudinal Survey of Youth 1997, the Educational Longitudinal Survey of 2002, and Add Health. Longitudinal surveys allow us to follow actual opportunity youth as they age into adulthood and so we attribute differences in adulthood to youth behaviors. We calculate the lost earnings, lower economic growth, lower tax revenues and higher government spending associated with opportunity youth.

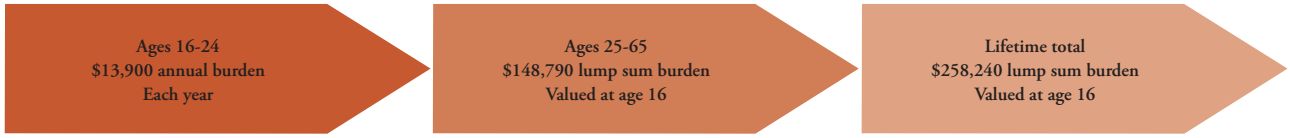
We estimate that each opportunity youth imposes – on average and compared to other youth – an immediate taxpayer burden of $13,900 per year and **an immediate social burden of $37,450 per year** (2011 dollars). These are annual amounts for each year that a youth is identified as having opportunity youth status.

After each opportunity youth reaches 25, he or she will subsequently impose a **future lifetime taxpayer burden of $170,740 and a social burden of $529,030**. Thus, the immediate burden is only a fraction of the future loss in potential: on average, only one quarter of the burden is incurred in youth (up to age 24); three-quarters is incurred afterward (ages 25-65).

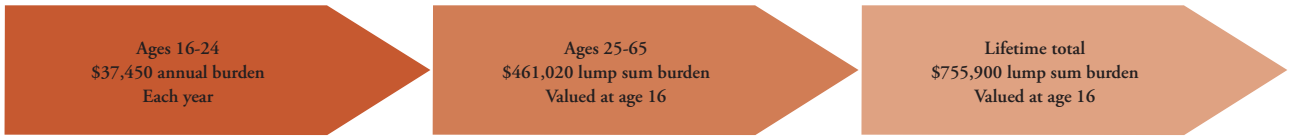
In total, a 20-year old opportunity youth will impose a full taxpayer burden of $235,680 and a full social burden of $704,020. These are lump sum amounts expressed in 2011 present value dollars.

The economic burden depends on the age of the youth. The charts below show how the economic burden is calculated for a 16 year old opportunity youth. There is a burden each year of youth (ages 16-24) and then there is burden as a result of lost potential in adulthood (ages 25-65). The lifetime total burden is the sum of these youth and adult burdens. The lifetime total burden is expressed as a lump sum, i.e. how the burden is valued when the youth is 16 years old.

Taxpayer Burden of Each 16 Year Old Opportunity Youth



Social Burden of Each 16 Year Old Opportunity Youth



For a 16 year old opportunity youth, therefore, the total taxpayer burden is $258,240 and the total social burden is $755,900.

The economic potential of an opportunity youth cohort is very large. Considered over the full lifetime of a cohort of 6.7 million opportunity youth who are aged 16-24, **the aggregate taxpayer burden amounts to $1.56 trillion in present value terms. The aggregate social burden is $4.75 trillion**. These costs 'roll over' each year because each year brings a new cohort of opportunity youth.

In order to draw on the potential of opportunity youth, it will be necessary to make cost-effective, targeted investments. Where such investments are effective, their economic value is likely to be substantial. But these investments will need to be targeted toward youth who are on the margin of education and work. Approximately half of all opportunity youth are chronic, i.e. they have almost no formal education or work experience between the ages of 16 and 24. These youth will require a substantial array of social and economic supports. The other half are 'under-attached' opportunity youth: these individuals are likely to have completed high school and may have participated in (but not completed) higher education; and they are likely to have accumulated some work experience. These under-attached youth are far from full participants in the economy but they may – given the appropriate reforms and supports – play a much more productive role.

We estimate that the total taxpayer burden for each under-attached opportunity youth is $215,580. The total social burden is $596,640 per youth. These figures represent threshold values for deciding on the optimal investment in such youth. That is, investments up to this amount to ensure that opportunity youth are fully productive would pay for themselves. Across the 3.3 million such youth, the total fiscal loss is $707 billion and the total social loss is $1.96 trillion (expressed as lump sum amounts at age 20).

Sensitivity analysis indicates that the immediate taxpayer burden per under-attached opportunity youth is probably higher than the estimates reported here.

Overall, the economic burden from failing to invest in all of America's youth is substantial. More education, better training, as well as social supports will be needed to alleviate this burden.

1. INTRODUCTION

It is often said that youth are society's future; we need to prepare and nurture them if we desire that future to be bright and productive. Yet, with the spotlight currently on slow economic growth and high unemployment across the U.S., there has been little focus on the plight of youth as they transition from school to adult life. But in the summer of 2011, the unemployment rate of 16-24 year olds was more than 18% or twice the overall unemployment rate; and for young African Americans and Hispanics it was 30% and 20%, respectively. At the same time, youth are finding it hard to get any work experience: the percentage of the overall youth population with a job was less than 50%, a decline of 7 percentage points since 2008, and among African Americans only about a third had jobs. Many who were not employed were neither looking for a job nor engaged in education or training. A large number of youth had already terminated their education, in many cases dropping out of high school, without making the transition to work or even into the labor market.

Primarily, our society harbors expectations of preparing youth for productive adult roles through education and training. Especially crucial is completion of high school and at least some post-secondary education or training for working life. Investment in human capital through education and training is a key expectation for regular employment, social mobility and adequate income across a lifetime. Yet, this investment must be well-integrated with transitions into the labor market. When youth do not make smooth transitions through the educational system and into the workplace, they pay a price not only today, but also later in life. Employers look for a smooth trajectory of activity and progress for their future workers, a process by which the young continually acquire workplace skills and acclimate to the demands of the workplace. Research has shown that young persons with significant gaps in the education-work sequence of activity clearly experience a pay and employment handicap even when they later seek work (Bell and Blanchflower 2011; Mroz & Savage 2006). That is, they are "scarred" in such a way that future healing is not complete even when they are able to gain employment, and they lag behind others with continuous educational and work histories. Some hint of the magnitude of loss of employment or failure to gain employment is found in recent work on job loss where the authors find that even those with 3 or more years of job tenure who suffer job displacement lose about 11 percent of the present value of future earnings (David & von Wachter 2011).

Thus, when a key component of youth fails to participate or take advantage of educational and training opportunities, there is a loss of human talent, not only at present, but with negative consequences for the future. But it is not just the individual youth themselves who lose out. There are costs to the entire society beyond the loss of goods and services that might have been produced and costs to the taxpayer for additional government supports. To the degree that youth lack sufficient education and work, they are likely to require public services and contribute minimally to tax revenues that support government services. More specifically, they are more likely to get involved in alternatives to work such as criminal activities, as well as rely on public assistance and government health programs. To the degree that activities such as crime also have costs to victims and society beyond the criminal justice system, there can be large social costs beyond the fiscal ones.

In many other industrialized countries, this phenomenon of youth disadvantage and disconnection has already been recognized as the so-called NEET – Not in Education, Employment or Training – challenge. In Australia and the United Kingdom, it has been a focus of annual estimates and reports for more than a decade (Foundation for Young Australians, 2010). Among the OECD countries in 2010, it was estimated that almost 13% of the population 15-24 were not studying, working, training or seeking work (OECD, 2010). Yet in the U.S. it has only recently become a topic of interest, and much less is known about this group for the U.S. (Bureau of Labor Statistics, 2011).

This report presents a detailed picture of the size of this group for the U.S., their demographic makeup and activities, as well as the social and fiscal costs they present. Particular detail is placed on race and gender as well as the relative absence or intensity of activity among opportunity youth. Rather than referring to them as NEET youth, we will describe them as opportunity youth. These are youth whose potential is not being fully realized – our failure to harness that potential is an opportunity missed. These youth represent a social opportunity, but also an economic one. Thus, our focus is on opportunities for raising future productivity through education and training, expanding economic growth through increased participation in the workplace, and relieving the burden to the taxpayer either through increased tax revenues or reduced reliance on public services.

First, it is necessary to describe opportunity youth. The phenomenon of opportunity youth is not as straightforward as the NEET acronym suggests. Youth do not follow simple paths through early adulthood. There are many determinants of youth behavior and these fluctuate over time: teenage mothers will have family responsibilities but may transition back into the workforce by age 24, for example; youth may engage in early substance abuse and then disengage from school but then enroll in college. Opportunity youth are not a monolithic group: patterns vary by age, by sex, and by race. These youth behaviors are not counted in a single dataset; many sources of information are required to obtain a complete picture of opportunity youth. Thus, our initial efforts are devoted to trying to obtain consistent definitions and measures of opportunity youth to undertake further analysis. We do not believe that there is only one definition or measurement, but some are probably more preferable than others because of their usefulness in addressing the issues and the availability of data. We use one definition of opportunity youth to estimate the aggregate social and fiscal costs, but these estimates clearly depend on who is counted as opportunity youth. Refined analyses of the opportunity youth population allows for more precise calculations of the economic burden. We present some refined analyses, but we note that many others – by region or by youth behavior – are also necessary.

Whenever a major component of the nation or its communities' productive capacity is unused, there is a loss of potential production and output. The high unemployment rate in the general population is not a rationale for the disproportionately higher unemployment of youth. Policies and initiatives must be established to move again towards more youth participation in the labor market. However, even when general employment levels are high, it appears that there are large numbers of youth who are neither studying nor working. In the long run, we wish to enlist all of the human resources in society to expand preparation for work, employment, and the output of goods and services. By understanding the magnitude and reasons for youth who are not participating in these activities, we will be better able to consider ways of incorporating this group more fully in society.

2. WHO ARE OPPORTUNITY YOUTH?

Defining Opportunity Youth

Opportunity youth are typically defined by what they are not doing, i.e. they are neither accumulating human capital in school or college nor accumulating labor market skills by working. However, youth do not follow simple, direct life trajectories from school to college to work. Many youth are balancing work and education, as well as having other responsibilities such as family care; and even for those in school or employed, some outside behaviors – such as drug use or criminal activity – may have long run repercussions (Swahn and Bossarte, 2009).

Other studies have identified similar populations of youth, typically designating them as 'disconnected' or 'idle'. As summarized by the Congressional Research Survey (CRS 2009, Table A-1), earlier studies estimated dis-

connected youth at between 8% and 15% of the 16-24 population. Rates are slightly higher for females than males and they are significantly higher for minorities, immigrant youth, and those in urban areas. Rates are somewhat higher for older youth.

Different estimates typically reflect different definitions. The CRS's own estimate is of a chronically disconnected youth population – those who have been disconnected for at least one year – of 1.92 million, or 5.1% of this age group. This CRS estimate primarily identifies youth who are either disabled or care-givers with family responsibilities; using the CRS estimate, there are only 0.51 million disconnected youth (or 1.4% of all youth) not in these two categories. (This estimate of chronic disconnection does not count those youth who are incarcerated or otherwise institutionalized). This CRS estimate therefore identifies the most disconnected. But, there are many youth who have some attachment to the labor force or education system but are not able to build a secure future for themselves.

Measuring Opportunity Youth

Our goal is to understand the opportunity youth population in relation to its economic potential. We use several approaches. The first designates youth as either working or being in school/college as their primary activity, that is, those ostensibly taking advantage of their available opportunities; otherwise, these individuals are opportunity youth. This approach mirrors that of prior studies and it yields a straightforward overall count of opportunity youth. But it fails to capture how students are balancing work and education and it does not elucidate what opportunity youth are doing with their time. For example, one-quarter of college students aged 16-24 are part-time.

Therefore, our second approach accounts for individuals' time in work and education and yields an Opportunity Youth Intensity Measure (OYIM). This approach gives youth a weighted value equal to 1 if they are completely an opportunity youth and zero if they are fully employed or in full-time education. So, a person who is in college half-time (and not working) is counted as 0.5 of an opportunity youth; a person who works for three months of the year is counted at 0.75; and a person who does both these activities in the same year is counted as 0.25. This method captures the balancing of work and education, as well as measuring low engagement of youth; and it sheds more light on what opportunity youth might be able to do. It employs data over a longer period of time per youth, rather than point-in-time measures or relying on retrospective information.

Our third approach is intended to count 'chronic' opportunity youth, i.e. those individuals who have spent the majority of their life between the ages of 16 to 24 as opportunity youth. These individuals are most likely different from students who are intermittently out of school or unemployed. Chronic status may be triggered by involvement in juvenile crime and vice versa: almost two-thirds of juvenile criminals are re-arrested within 24 months; and two years after being released, juvenile criminals have accumulated on average only 3 calendar months of school (Blomberg et al., 2011). We distinguish chronic opportunity youth as a subset of all opportunity youth: the former are likely to require different supports and policy interventions from those youth who are partially attached to the labor market or enrolled part-time in higher education.

Finally, we explicitly count those persons undertaking associative behaviors, such as drug use or criminal activity, which might either lead them to be out of work or the education system or reduce their productivity. However, this approach does not yield an aggregate count of opportunity youth because a single individual may undertake several behaviors (e.g. a teenage pregnant drug user), and therefore would be counted once for each adverse behavior. We report these behavioral counts to illustrate the range of behaviors or circumstances of youth.

We use a range of datasets to count opportunity youth. The two large-scale datasets are the American Community Survey (ACS) and the Current Population Survey (CPS). These surveys primarily yield information on employment and educational activities; opportunity youth status is determined as the residual population that is not

engaged in these activities. Both the ACS and CPS are likely to under-survey at-risk populations, especially those persons who are institutionalized (Schmitt and Baker, 2006) and those in the military.[1] Therefore, we also derive counts from the National Longitudinal Survey of Youth 1997 (NLSY97), the Educational Longitudinal Survey of 2002 (ELS2002), and Add Health.[2] A major advantage of these sample surveys is that they contain much more detail on the intensity of work and education undertaken by youth, as well information on behaviors associated with opportunity youth status, especially criminality and health issues. Longitudinal datasets also allow us to track individuals over time to derive our measure of chronic opportunity youth and to disaggregate opportunity youth by race, gender, and age.

Finally, we review data on national estimates of behaviors and statuses such as drug use or teenage pregnancy. These counts are useful because they are purposefully intended to survey hard-to-reach groups (e.g. those in shelters) and use more specific and valid definitions of each behavior.[3]

Counting Opportunity Youth

Currently, there are 38.9 million youth between the ages of 16 and 24 in the U.S. Most of these youth are in school initially followed by college participation and other forms of post-secondary education or employment, but a sizeable proportion do not follow this path. Table 1 shows our estimates of opportunity youth using the first three approaches.

The first row of Table 1 shows the American Community Survey measure. On this count only 9% of youth are opportunity youth. However, this estimate appears to be too low.[4]

Table 1 — Opportunity Youth in the US

Count and Measure	Percent of Age Group	Opportunity Youth (millions)
ACS	9.2	3.58
Primary Status Measure:		
CPS	16.0	6.23
NLSY97	14.8	5.76
ELS2002	21.9	8.53
ADD Health	16.5	6.43
Average	*17.3*	*6.74*
Intensity Measure:		
NLSY97	27.5	12.54
ELS2002	32.9	12.81
Average	*30.2*	*11.76*
Chronic Measure:		
NLSY97	10.1	3.93
ELS2002	8.2	3.19
Total youth population ages 16-24	100	38.94

Notes and Sources: ACS American Community Survey 2009. CPS Current Population Survey (March release, pooled 2006-2010) defined as unemployed (on layoff and looking) plus not in labor force (disabled, other, retired) minus those in school. NLSY97 weighted frequencies. ELS2002 sample aged 20-21. ADD Health sample ages 16-24 (unweighted). Total youth population Puzzanchera et al. (2010).

The primary status measure classifies youth based on their primary activity during the year. Youth who are not engaged in either work or in school at any meaningful level are defined as opportunity youth. This measure yields an opportunity youth group of 6.7 million or 17.3% of the youth population. Even this estimate is likely to be too low. As shown in the middle panel of Table 1, the Opportunity Youth Intensity Measure (OTIM) classifies youth on a per month basis based on their work and educational commitments as a proportion of full-time, with the unused time defined as opportunity youth time. Most youth spend some proportion of their time in this last way. This measure indicates a substantially larger opportunity youth phenomenon: almost one-third (32.6%) of all youth time is devoted neither to work nor to enrollment in school.

Finally, Table 1 shows the count of chronic opportunity youth. The chronic measure counts individuals who during the years 16-24 spend virtually all their time as opportunity youth. This measure requires longitudinal information on youth, so only two estimates are available. These show that 3.2-3.9 million individuals (or 9% of all youth) might be described as 'permanent' opportunity youth, i.e. after 16, they never attended school, went to college, or worked.[5]

In some respects, the numbers of opportunity youth depend on how one defines this population. Some youth face multiple disadvantages; others have made active choices to reject participation in work or education, at least for these years; and another group may be 'under-connected', i.e. not fully participating. We identify approximately 9% of youth (3.4 million) who have almost no formal schooling or employment between the ages of 16 and 24 – chronic opportunity youth. Beyond this, there are many youth who have experienced substantial periods out of the labor market or education system. To be conservative, we use the primary status measure (Table 1) to estimate two categories of opportunity youth. That is, 17% of youth are opportunity youth, but 8% are not in the chronic category; we refer to these 3.3 million youth as 'under-attached'. (Using the intensity measure, it might be reasonable to count the under-attached opportunity youth at almost 25% of all youth). Thus, our approach assumes that a high proportion of youth have substantial economic potential. Failure to fully realize this potential is a missed opportunity for both individuals and society.

Disaggregating Opportunity Youth

It is helpful to disaggregate opportunity youth to see both how heterogeneous the group is and how different youth are affected.

Table 2 shows the numbers for youth behavior that is often associated with opportunity youth. These behaviors include teenage pregnancy, residence outside the home (institutional or incarcerated), substance abuse and criminality. There are also 0.7-2.3 million disabled youth; 0.8 million youth with family care-giver responsibilities; and 0.9 million households where the household head is aged 18-24 with incomes below the poverty line. The patterns in this table suggest that opportunity youth have a wide range of behavioral characteristics that suggest that they are unlikely to be assisted by a single reform or policy program.

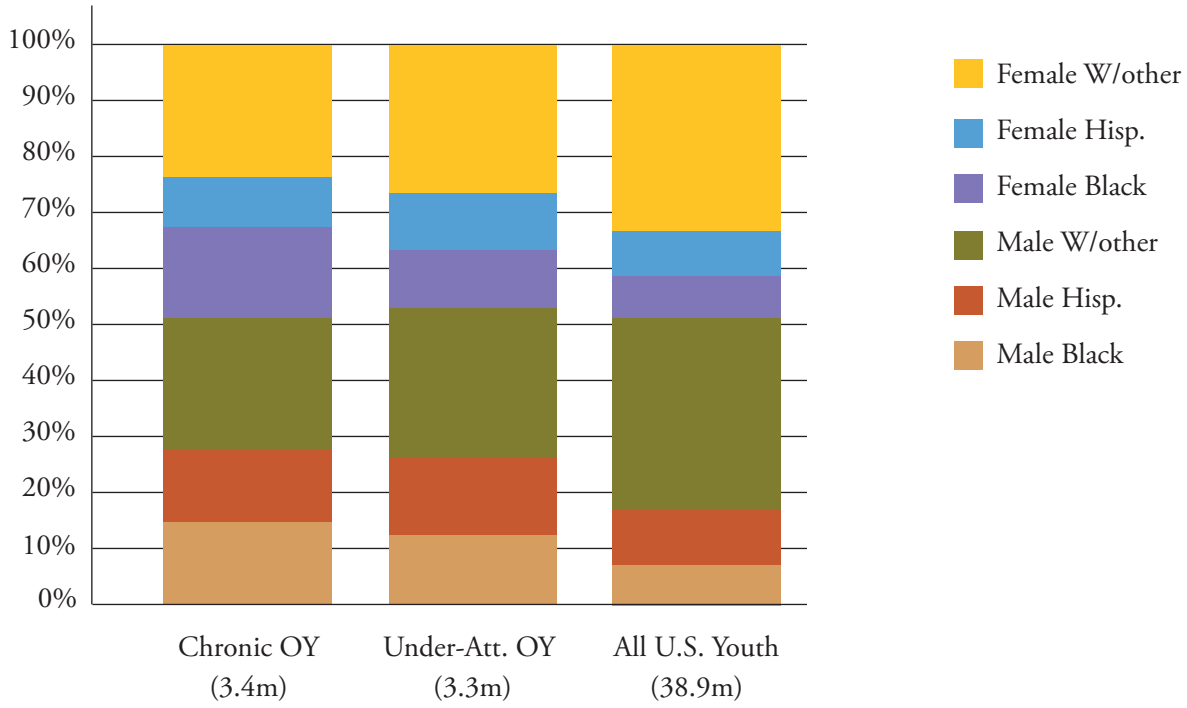
Figure 1 shows the proportions who are chronic and under-attached opportunity youth (using frequencies from the NLSY97). Opportunity youth status is much more common for minority youth – both under the chronic and under-attached definitions. This age group is composed of 67% white or other racial groups; 15% black; and 18% Hispanic. In contrast the NLSY97 data show the racial composition of opportunity youth is 46%, 32%, and 22%, respectively. Although the number of whites is substantial, they are under-represented relative to their population, and the two minority groups are over-represented. Opportunity youth status is evenly divided between males and females. Slightly more than half of all opportunity youth are male, but slightly more than half of the youth population is male too. However, there is a critical difference: female opportunity youth are more likely to have family responsibilities; male opportunity youth are more likely to be incarcerated.

Table 2 — Youth in the US: Behavioral Counts

	Percent of Age Group	Youth (millions)
Behavioral Measure:		
Teenage pregnancy (mother)	1.7	0.67
Institutional residence	2.0	0.76
Incarcerated	0.8	0.31
Substance abuse	2.9	1.13
Criminal status (ever arrested)	18.0	7.03
Criminal activity	6.3	2.45
Disability	5.8	2.26
Severe disability	1.7	0.65
Family care-giver responsibilities	2.0	0.77
Poverty level	2.4	0.93

Notes and Sources: Teenage pregnancies, only ages 16-19, includes all pregnancies (Kost et al., 201c0). Institutional residence: Quarters are adult correctional facilities, health care facilities, and other facilities (juvenile facilities, other health care facilities, military quarters, and shelters (excludes university housing), ACS 2005-2009. Incarcerated: juveniles 16-24 in residential placements plus persons in 16-24 in state and federal prisons (Sickmund et al., 2011; West et al., 2010). Substance abuse: Past month use of selected illicit drugs excluding marijuana (OAS, 2008). Criminal status ever: Probability youth aged 16-24 will ever be arrested during these years (NLSY97). Criminal activity: Proportion of youth aged 16-24 arrested within a given year (NLSY97). Disability: Sensory, physical, mental or self-care disability (ages 5-15 rate). http://www.census.gov/prod/2003pubs/c2kbr-17.pdf. Severe disability: CRS (2009), Figure 1. Family care-giver responsibility: CRS (2009, Figure 1). Poverty level: Ages 18-24 ACS 2008 (Table 715). Total youth population Puzzanchera et al. (2010).

Figure 1 — Opportunity Youth Status by Gender and Race



Finally, we find age differences in opportunity youth status. Broadly, these show low rates of opportunity youth status for youth aged 16-18 (school years), and then a jump to a stable rate for those aged 18 up to 24. This suggests that it is not too much of a generalization to think of youth aged 16 to 24 as a cohort. Opportunity youth rates for 20 year-olds, at least, appear very similar to rates for 24-year olds, albeit perhaps for different reasons. However, as shown in Appendix Figures 1 and 2, there are some differences by race and gender. For minority youth, the jump after age 17 is especially steep; whereas for white and other race groups, the transition into opportunity youth status is more gradual, perhaps because this group is more attached to the education system (Appendix Figure 1). Similarly, for males there is a steep jump by age 18 and then a steady rate of opportunity youth; for females, the transition is smoother over the entire youth period (Appendix Figure 2).

3. DEFINING THE ECONOMIC BURDEN OF OPPORTUNITY YOUTH

The economic burden of opportunity youth is multifaceted: persons without labor market skills or human capital are at-risk of poorer economic, social, and personal outcomes, both immediately and over the life course. Opportunity youth are burdened, but so is society and so are taxpayers.

We calculate the economic burden from the perspective of both society and the taxpayer. These perspectives overlap slightly but are based on different interpretations of resource use. The social perspective counts all of the resource implications of opportunity youth, regardless of who 'pays' for them. The fiscal perspective is narrower: it only counts resources for which the taxpayer is responsible. The main consequence of having a large opportunity youth population is the lost earnings and lost tax revenues. But there are other consequences where such youth have inferior health status, are engaged in more criminal activity, and utilize more social services, such as welfare. The full complement of components that make up this economic burden are reported in Box 1.

The social burden is composed of lost gross earnings (Y), all additional health expenditures (H), and all crime costs (C). Welfare and social services (WS) which are not direct transfers from government to individuals may also be included in the social burden. The public and private cost of education should also be included (E). An important, but often neglected, component of the social burden is the economic distortion imposed by raising taxes to pay for government programs. Raising taxes imposes costs on individuals who avoid the taxed good (and so do not pay the tax).[6] This cost is called the 'marginal excess tax burden' (m). Another economic consequence is the lost productivity spillovers associated with having a more productive or skilled workforce (YG). Workers learn from each other, so having a more skilled workforce helps all workers (Moretti, 2004).

The taxpayer (or fiscal) burden is composed of lost taxes (T), additional health care paid for by the taxpayer (HF), expenditures for the criminal justice system and corrections (CF), and all welfare and social service payments regardless of whether they are transfers (WF + WS). Any savings in lower education spending – because opportunity youth are not in college – should also be accounted for (EF).

In addition, there are other components of the social and fiscal burden that we have not included. First, there are costs to families from opportunity youth behaviors, such as providing residence or care for individuals who are not economically independent or direct outlays of health expenditures. Second, there are resource commitments by non-governmental agencies or charities to ameliorate youth delinquency. Third, there are intergenerational burdens as disadvantage – either economic or health-related – is transferred from youth to their children.[7] Each of these three burdens may be substantial but they are omitted because there is insufficient data or evidence as to their magnitudes.

Box 1 — The Components of the Economic Burden of Opportunity Youth

Y	Lost earnings	Gross income including fringe benefits (health and pension)
T	Lost tax payments	Includes federal and state income/consumption taxes
C_F	Crime: Public expenditures	Criminal justice system, policing, and corrections expenditures (federal, state, and local)
C_V	Crime: Victim costs	Reduced quality of life, monetary damages, lost earnings
H_F	Health: Public expenditures	Medicaid, Medicare for persons under 65, and other government agency expenditures on health
H_P	Health: Private burdens	Private expenditures on medical treatments (out-of-pocket, private insurance) and private valuations of health
W_S	Welfare: Support programs	Expenditures on social supports (e.g. workforce retraining)
W_F	Welfare: Transfer payments	Amounts paid to individuals who receive government supports
Y_G	Productivity spillovers	General economic gains from a more educated workforce
E_F	Education: Public savings	Lower schooling and college subsidies from government agencies
E_P	Education: Private fee savings	Lower fees and college expenses for families
M	Marginal excess tax burden	Cost of raising taxes to pay for public services
Social Burden $= Y + mC_F + C_V + mH_F + H_P + mW_S + Y_G - mE_F - E_P$		
Fiscal Burden $= T + C_F + H_F + W_S + W_F - E_F$		

The social and fiscal burdens are therefore the sums of the appropriate components in Box 1. Each component is calculated from social science research and the most recent available data, including government budget documentation and web-based datasets.[8] This method is now well-accepted, following methodological and empirical research over the past four decades. Also, the method has been applied in a range of different contexts and for different populations.[9] We calculate each component of the burden separately by race and gender; we then aggregate them up to report a nationally representative figure based on the demography of the current U.S. youth population.

The burdens are reported per opportunity youth and per opportunity youth cohort aged 16-24. The economic burden of opportunity youth has two elements: an immediate burden when the youth are ages 16-24; and a long run burden as the consequences of failure to invest in human capital or labor market skills play out over the life course. Both are important: a youth who is incarcerated at age 20 imposes an immediate economic burden in terms of criminal justice system and corrections expenditures; but the long-run loss – in terms of jeopardized economic well-being as well as future incarceration costs – may be even larger.[10] We calculate both the immediate burden and the future lifetime burden in such a way that they can be added together.

Although we believe that the economic potential of opportunity youth is substantial, it is important to be realistic about what potential can be realized. For youth with significant health conditions or disabilities, the challenges to successful labor market participation are much greater. For some youth, the decision not to work or go to school – perhaps because of family commitments – is justifiable. However, for a good proportion of youth it

is the combination of poor schooling, family disadvantage, and community deprivation that has weakened their economic potential. Importantly, the determination of how much economic potential is being lost should be made in conjunction with policies that might draw forth that potential.[11]

We distinguish between chronic opportunity youth and youth who are significantly under-attached either to the labor market or the education system. Thus, for the individual burden per opportunity youth and the aggregate burden per cohort, we report estimates for all opportunity youth (6.7 million). In addition, we report estimates for the under-attached opportunity youth (3.3 million).[12] This latter group might – given well-targeted policies – participate fully in the economy; they have at some point in their youth been in education or participating in the labor market. Subject to successful public, philanthropic or private investments, it might be reasonable to expect these youth to realize their economic potential. The extent to which chronic opportunity youth can successfully participate in the labor market or attend college is less easily determined.

In addition, we report summary estimates separated by race and gender.[13] As emphasized above, females exhibit very different patterns from males, with more family responsibilities, less criminal activity, and higher rates of college enrollment. Minority students also exhibit different patterns, either because of differences in family circumstances, school quality, or labor market options. We do not explore the reasons for such differences, although such an exploration is critical for deciding on appropriate policy reforms.

4. THE IMMEDIATE ECONOMIC BURDEN

Earnings and Taxes

Few opportunity youth have jobs. Where such youth are employed, their work is often intermittent and – given their schooling – primarily in low-wage and temporary jobs with few benefits. Thus, one of the main burdens of opportunity youth is the contemporaneous loss in earnings.

To calculate lost earnings we use data from the CPS. We compare those in the CPS who are identified as opportunity youth with those who are working. (Opportunity youth cannot be compared to those in school or full-time college because the latter group does not have any earnings). Earnings by age and gender for opportunity youth and those with any form of employment are given in Appendix Tables 1M and 1F. These tabulations reveal that an opportunity youth is earning $4,100 per year on average; youth who are working part-time or full-time (perhaps while also in school) are earning an average of $13,900 per year. Therefore, the lost earnings per opportunity youth is on average $9,800 per year. The aggregate amount across the 6.7 million opportunity youth is $65.8 billion.

These gaps in earnings by opportunity youth translate into gaps in tax contributions at both the state and federal level. These too can be calculated from the CPS, again by comparing those working at ages 16-24 with those classified as opportunity youth. The tax gaps (federal, state and FICA) are shown in Appendix Tables 1M and 1F).[14] Overall, the average opportunity youth pays $750 in taxes; the average working youth pays $2,430. Thus, each opportunity youth is contributing $1,680 less in taxes. Across the entire cohort, this amounts to a tax loss of $11.3 billion annually.

Of course, these amounts are understatements because they are comparisons of wages on entry to the labor market. Many young workers enter the labor market only part-time; and many are sacrificing pay for jobs that have training apprenticeships, with the expectation of higher wages after more work experience. Thus, the actual gap – even in the short run – is probably much larger. The full lifetime gap, as we show below, is extremely large.

Crime

Opportunity youth are more likely to be involved in crime, in part because their incomes are lower. Youth crime is a substantial proportion of all crime committed in the U.S.: the years 16-24 cover the peak years of offending across a lifetime. Youth are arrested for 37% of all violent crimes and 43% of all property crimes; over 300,000 are in prison or other detention facilities (UCR, 2010, Table 38; Sickmund et al., 2011). Juvenile youth commit crimes typically related to drug use, gun violence, gang activity, and alcohol/drug abuse, as well as crimes in school. Although these crimes are as serious as adult crimes, many juvenile crimes are not prosecuted through the adult justice system, partly masking the fiscal burden they impose (NCJJ, 2008). Yet, far more important than these fiscal costs is the psychological and monetary burden on the victims of crime. Indeed, the victims of youth crimes are often youths themselves, and many experience lifetime social and psychological costs related to their victimization.

The taxpayer burden of crime is composed of criminal justice system expenditures (policing and sentencing), incarceration expenditures, and expenditures on crime prevention by agencies such as the ATF and DEA. The full amount of government spending on crime is given in Appendix Table 2. Across all youth aged 16-24, federal, state and local agencies spend $75 billion directly each year on crime.

The social burden of crime includes these fiscal burdens, as well as costs directly imposed on victims and avoidance costs by victims and potential victims.[15] The burden for victims is calculated from the number of crimes times the burden per crime. These figures are given in Appendix Table 3.[16] Conservatively, the costs to victims of youth crime are $118.4 billion annually.[17]

Note that these burdens are across all youth, not just opportunity youth. Most youth commit no crimes. Disentangling the proportion of this burden attributable to opportunity youth is not straightforward: many criminals are employed in the labor market and many crimes take place in school, i.e. they are committed by students. Other studies have simply attributed all crime to opportunity youth. This conflates different persons as being opportunity youth in one sense (as criminals) and not in another (as workers). It is also misleading: it implies that an enhancement of policies to help opportunity youth could cause youth crime to disappear, which is unrealistic.

We use estimates from the NLSY97 to apportion crime between opportunity youth and the rest of the youth population. The NLSY97 contains information on whether a youth was ever arrested and we cross-correlate that with our measure of opportunity youth from the NLSY97. Based on these correlations, we attribute 63% of all youth crime to opportunity youth, even though this group is only 17.3% of the population.[18] This proportion is high, but it fits with the well-established correlation between crime and disadvantage or low education (Merlo and Wolpin, 2009; Lochner and Moretti, 2004). It also accords with the pattern of criminal activity by chronic offenders: approximately 6% of all offenders are responsible for half of all crimes (Cohen and Piquero, 2009) and opportunity youth are disproportionately in this group.

Therefore, the annual fiscal burden of crime is $76.7 billion across the entire 6.7 million opportunity youth. The social burden includes this fiscal burden plus an additional $111.2 billion in victim costs (and a marginal excess tax burden as we discuss below).

Critically, these are only estimates of expenditures during these years of youth. A person who is incarcerated will impose costs over a much longer time frame, both because time incarcerated continues beyond the current year and because recidivism rates are extremely high. These long run costs are calculated below.

Health

Opportunity youth are likely to report worse health status. As shown in Appendix Table 4, they are more likely to have spent time in a mental hospital in the past five years; they are more likely to have received drug/alcohol treat-

ment in the last year; and are more likely to have used marijuana. This has fiscal and personal consequences.[19] Annual public spending per youth in the U.S. on health care, which includes Medicare, Medicaid, CHIP, DoD, DVA, other federal, state, and local programs, is $1,340 (Cylus et al., 2010). However, this spending is not uniform across all persons – a much greater proportion of opportunity youth receive public health care – nor is it evenly allocated – each person on Medicaid costs in excess of $10,000 annually (CMS, 2007). Plus, chronic disability is paid for by Medicare and opportunity youth are more likely to be chronically disabled. Finally, opportunity youth are more likely to be uninsured. Even as the uninsured receive fewer healthcare services (commensurate with their lower health status), the care they do receive is often delivered inefficiently through emergency rooms (Simpson et al., 2005).

Using Add Health data, we calculate that 27.8% of opportunity youth are on Medicaid; this compares to the mean for the entire cohort of 5.3% (Appendix Table 4).[20] We use these proportions – in conjunction with the public expenditures – to estimate the burden per opportunity youth per year. The average opportunity youth imposes a public health care burden of $3,490; by comparison, the average youth imposes a burden of $1,110. Therefore, each opportunity youth imposes a net burden of $2,380 for an aggregate burden of $16.0 billion.[21]

Welfare and Social Supports

Opportunity youth are more likely to receive welfare, such as TANF, housing assistance, food stamps and, for females, WIC (Grogger, 2004). The CPS includes information on amounts received for a subset of these welfare programs: supplemental security income and public assistance. These amounts are reported in Appendix Table 1M and 1F by age and opportunity youth status. For these two services alone, opportunity youth receive $280 more than other youth.[22] In addition, there are other direct payments (e.g. for WIC and food stamps) and the administrative cost of the program should also be counted. Conservatively, opportunity youth receive $360 more in welfare payments each year. The aggregate amount across the cohort is $2.4 billion annually.

There are also social support grant programs that are not delivered as transfer payments or direct services to individuals. For example, grants such as YouthBuild or homeless shelter grants are intended to ameliorate the economic and social challenges of disadvantaged youth. These programs were recently tabulated by the GAO (2008) and the relevant programs are summarized in Appendix Table 5.[23] Again, we cannot attribute all this spending to opportunity youth. Conservatively, we assume that opportunity youth rely on these grants in the same (heightened) proportion as they receive public assistance payments. This yields an extra amount spent on opportunity youth of $430 per youth. The aggregate amount across the opportunity youth cohort is therefore $2.9 billion annually.

Education

One 'saving' from opportunity youth is in education spending: youth who are not in school or college are not paying fees and are not receiving government subsidies. Of course, this short-run saving is a long-run burden – more education leads to higher future earnings – but to be consistent we have to count these savings.

To calculate the fiscal education savings (EF), we add up all the public expenditures on high school and all the college subsidies, weighted according to the respective enrollment rates of opportunity youth and all youth. To calculate the private costs (EP), we add up all the fees incurred by students in college (NCES, 2011). These amounts are significant per student, although they are attenuated by the fact that students can only dropout of high school in the earlier youth years (up to 18) and only a fraction of students go on to attend college. Per opportunity youth, we estimate the fiscal savings at $2,320 and the public savings at $2,210. In the aggregate, these amount to $15.7 billion less in government spending on education as a result of opportunity youth not being in school. The opportunity youth themselves save $14.9 billion in fees and expenses.

The Marginal Excess Tax Burden

The marginal excess tax burden is the distortion imposed by raising taxes to pay for government health, crime, and welfare services (net of education spending). Each of the above fiscal burdens is therefore magnified. Economic estimates put this burden conservatively at 13% (Allgood and Snow, 1998).[24] That is, the full cost of getting $1 of tax revenue to spend on public health care, for example, is actually $1.13. We therefore apply this value to each of the items of government spending. The distortion imposed by collecting taxes for public programs that serve opportunity youth alone is $1,540 per opportunity youth and $10.4 billion in aggregate.

The Immediate Burden per Youth

The immediate burden per opportunity youth is summarized in Table 3. Each year the average opportunity youth imposes a total fiscal burden of $13,890 and a total social burden of $37,440.

The fiscal consequences are driven primarily by spending on the criminal justice system: the primary offending years for crime are ages 18-19. The tax implications are relatively minor because most of the non-opportunity youth are in school, in college, or in the first few years of working and thus paying little in taxes. The social consequences are also driven primarily by criminal activity, both the fiscal effects and the impact on victims of crime, although gross earnings is also a significant part of the burden.

These amounts are substantial. By comparison, median household income in the U.S. is $49,500; the social burden per opportunity youth is therefore 75% of what the median household earns each year. They are annual amounts – each year there are opportunity youth aged 16-24 and each opportunity youth remains in this cohort for nine years. Equally importantly, these estimates do not capture the long run economic consequences of being an opportunity youth.

Table 3 — The Immediate Burden per Opportunity Youth

	Fiscal Burden	Social Burden
Gross earnings (Y)	—	$9,760
Taxes (T)	$1,680	—
Crime (C_F)	$11,370	$11,370
Crime (C_V)	—	$16,500
Health (H_F)	$2,380	$2,380
Welfare (W_F)	$360	—
Welfare (W_S)	$430	430
Education (E_F)	–$2,330	–$2,330
Education (E_P)	—	–$2,210
Marginal Excess Tax Burden (m)	—	$1,540
Total per Opportunity Youth	$13,900	$37,450

Notes: Opportunity Youth cohort is 6.74 million individuals aged 16-24 (see Table 1). Figures to nearest ten dollars. 2011 dollars. Productivity spillovers assumed to be zero for youth workers.

The Immediate Burden per Youth by Race and Gender

These burdens vary by race and by gender. Separate burdens are reported in Figures 2 and 3.

We emphasize that there are many factors driving these differences in burdens such that a causal interpretation cannot be made. However, the most salient association is between gender and crime: by far, males commit disproportionately more crimes.

Figure 2 — Immediate Fiscal Burden per Opportunity Youth by Race and Gender

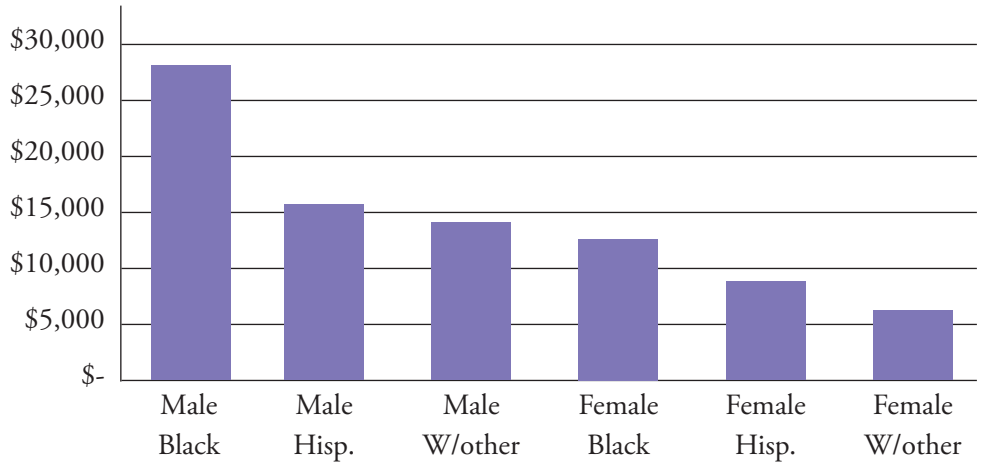
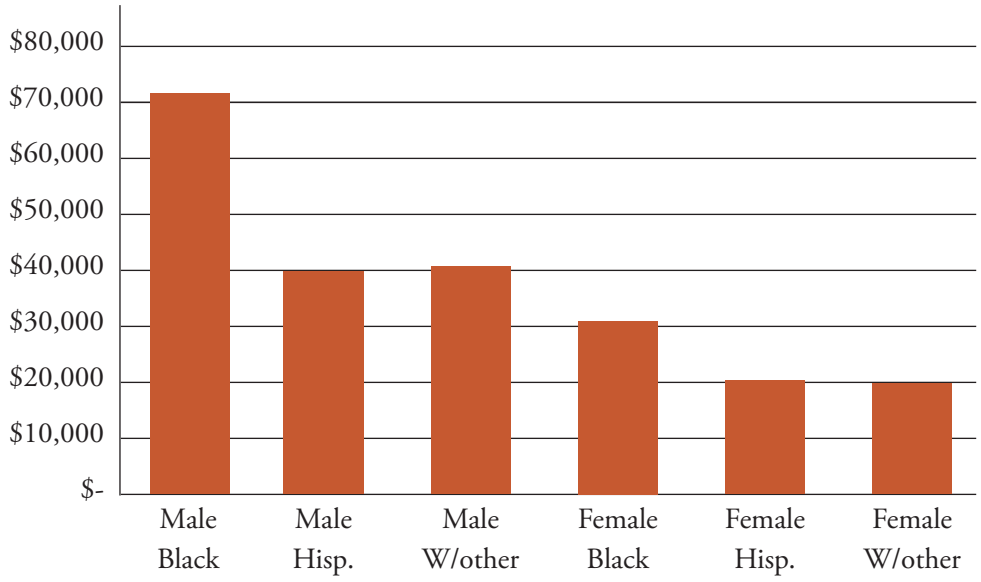


Figure 3 — Immediate Social Burden per Opportunity Youth by Race and Gender



The Immediate Burden per Cohort

The opportunity youth cohort is composed of 6.7 million youth. Across all these youth, the fiscal burden – lost taxes, higher government spending – amounts to $93.7 billion. The social burden – lost output, higher government expenditures – is $252.6 billion.[25]

5. THE LIFETIME BURDEN OF OPPORTUNITY YOUTH

As emphasized above, the immediate burden of opportunity youth is only part of the story. A 20-year old youth serving a prison sentence for a serious felony will impose fiscal and social costs long after he or she reaches 24. A 16-year old who drops out of high school will face a full adulthood of lower earnings and diminished economic well-being. The immediate burden understates the true costs.

Here we calculate these lifetime burdens. Referring to lifetime, therefore, we are referring to the period after age 24 so these figures are better expressed as future lifetime burdens.[26] To calculate the lifetime burden after age 24 we apply three approaches. These approaches vary in their projections of the future economic consequences of being an opportunity youth. For each approach, we use the more conservative estimate among the three projections of the effect of opportunity youth status.

Our primary approach is to use actual data on individuals who were opportunity youth but who are now adults. Using longitudinal datasets that start in youth and continue into adulthood, we are able to identify specific individuals who were opportunity youth and track their actual adult status. To follow through on earnings, crime, and welfare, we use the NLSY97. This dataset has annual information from ages 25 to 28, beyond which we extrapolate through later years of adulthood. To follow through on health, we use Add Health data, which tracks individuals until they are age 31. These datasets allow us to calculate lifetime burdens by race and gender, as well as allowing us to calculate separate lifetime burdens for those who are under-attached opportunity youth compared to those who are chronic opportunity youth.

Our other two approaches serve as a validity check on our primary approach. One relates opportunity youth to educational status. Specifically, we model the consequences of being an opportunity youth as if this status was equivalent to being a high school dropout, with the counterfactual calculated as high school graduation. This comparison may be justified in that approximately the same percentage of a cohort is opportunity youth as are high school dropouts. In addition, the correlation between these two statuses is very strong (see below and CRS, 2009).[27] Also, there is a wealth of evidence on the association between dropping out of high school and earnings, crime, health, and welfare.[28] These associations are not simply correlations, but are designed to reflect an underlying causal link with schooling (see the discussions in Rouse (2007) and Oreopoulos and Salvanes (2011)). The other approach models the lifetime burden as if the immediate burden was extended into the future, i.e. the disparities between opportunity youth and the rest of the youth population are assumed to be preserved over time. So, if opportunity youth earn 50% less than the average youth during the ages 16-24, they will earn 50% less during the lifetime. This approach is conservative in that earnings are likely to diverge over the life-time; for other components, it may be an overstatement of the gap (welfare supports are often time-limited and crime rates for all groups are much lower in later adulthood).

Table 4 illustrates how opportunity youth status can have persistent influences over a lifetime. It shows education levels at age 28, i.e. well after most youth have completed their investments in human capital. Education levels are reported separately for those who were opportunity youth between the ages of 16 and 24 and the rest of the population. Differences in human capital investments are extremely large. The high school graduation rate of opportunity youth is 75% compared to a rate of 92% for the rest of the population. One-in-ten opportunity youth has a GED, compared to 4% for the rest of the population. Although the GED is considered as 'high school equivalence', many studies have found that GED-recipients have lifetime earnings that are much closer to those of dropouts (Heckman, Humphries, & Mader 2011). But perhaps the strongest indicator of low human capital is the college completion rate of opportunity youth: by age 28, only 1% of opportunity youth have completed either an Associate's or Bachelor's degree; the rate for the rest of the population is 36%.

Table 4 — Education Levels at Age 28 by Opportunity Youth Status

	Percent with High School Diploma		Percent with GED		Percent with an Associate or Bachelor Degree	
	Opportunity Youth	Other Youth	Opportunity Youth	Other Youth	Opportunity Youth	Other Youth
Population	74	92	10	4	1	36
Black	63	93	14	4	1	30
Hispanic	68	86	9	5	1	21
White/other	79	93	8	3	2	43
Male	74	88	10	5	1	31
Female	71	96	10	3	1	42

Source: NLSY97. Notes: Opportunity Youth cohort is 6.74 million individuals aged 16-24 (see Table 1).

Table 4 also shows the gaps by race and gender. As many studies have found, minority youth and male youth have lower attainment both in high school and college. However, a substantial gap exists between opportunity youth and the rest of the population – regardless of race or gender. This is particularly evident when looking at college completion rates. Overall, Table 4 shows that educational status in adulthood is a useful proxy variable for opportunity youth status in adulthood.

All economic calculations are reported in 2011 dollars and in present values, i.e. they represent the value now of resources spanning into the future. All present values are calculated using a 3.5% discount rate as recommended by Moore et al. (2004). The present values are constructed so that they can be added directly to the immediate burden. In effect, this means that the present values are expressed as if the average opportunity youth was the mean age, i.e. 20 years old.

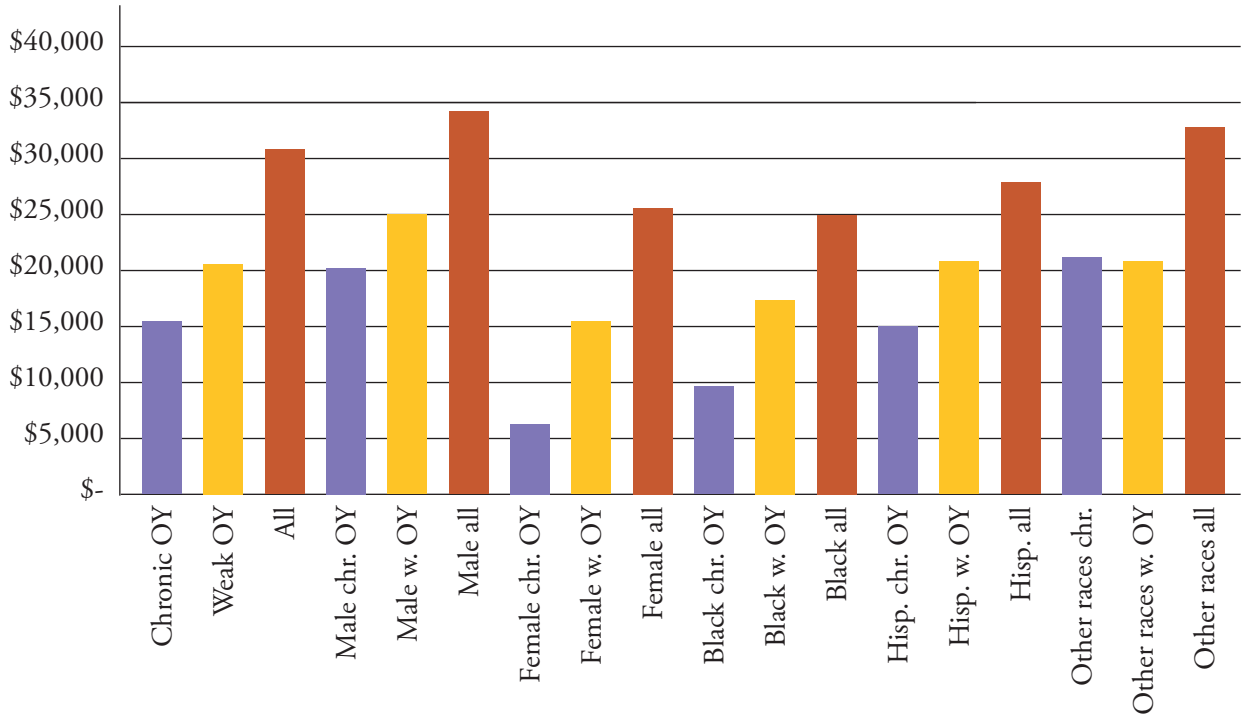
Earnings, Productivity Spillovers and Taxes

The lifetime association between opportunity youth status and economic productivity is likely to be very strong: opportunity youth are losing out on both of the major determinants of lifetime productivity – human capital and work experience.

Incomes in adulthood (ages 25-28) across opportunity youth status are given in Figure 4 (NLSY data).[29] These income differences reflect both differences in wages and hours worked. Appendix Figure 3 shows that opportunity youth are also less likely to be employed. The incomes of adults who were chronic opportunity youth are very low: at just over $15,000 per annum, the average chronic opportunity youth is far below the poverty line. For those who were under-attached opportunity youth, incomes are just above $20,000 by age 25-28. In contrast, the average earnings across all adults in this age group exceeds $30,000 per year. Figure 4 clearly shows the link between earnings and opportunity youth; this link holds for males and females and for all racial groupings.

When these income differences are extrapolated over the lifetime, they represent substantial differences in economic well-being. Expressed as present values, opportunity youth on average will accumulate $392,070 less in income than the average worker. Across an entire cohort of 6.7 million opportunity youth, this burden amounts to $2.6 trillion.

Figure 4 — Mean Income: Adults Ages 25-28



As a validity check, we calculate the lost earnings as if opportunity youth had the same earnings profile as high school dropouts. The relationship between earnings and human capital is very strong (Rouse, 2007). Recent estimates by Julian and Kominsky (2011) using ACS data find that the median earnings across all high school dropouts are $11,000 per year. For high school graduates, median earnings are $21,600 – almost double. We extrapolate these early-adult income differences forward using lifetime earnings profiles from the CPS (data merged from the years 2006 to 2010). Gross earnings, including tax payments and employer contributions, are grouped by age and by education level (dropout or graduate). From these groupings we derive a lifetime, full-earnings profile for opportunity youth and high school graduates.[30] The results are very similar to those derived using direct information on opportunity youth. Over the lifetime, we estimate the earnings of an opportunity youth to be valued at $375,300 and those of a high school graduate to be $712,210. The difference – $399,920 – is within 5% of our estimate using NLSY97 data.[31]

Moreover, these estimates only count the private gains in productivity. Over the working life, there are likely to be productivity spillovers as well.[32] As the workforce becomes more educated, there are positive effects across the labor force as workers help train each other and seem to raise the overall productivity of the work organization itself (Moretti, 2004).[33] Broadly, as the skill level of the workforce increases, so do average earnings (independent of one's own skill level). In a general review of this literature, McMahon (2006) puts the effect at approximately 37% of own earnings, a considerable spillover. Other studies estimate the effect to be lower, and contingent on the types of skills workers have (Iranzo and Peri, 2009). Therefore, our conservative estimate is of a productivity spillover equivalent to 10% of own gross lifetime earnings or $39,270 per opportunity youth.

These differences in earnings translate into differences in federal and state tax payments. Given the similarity in results across our methods, we rely on the CPS for tax data. As per the earnings estimates, lifetime tax payments

by education are calculated using smoothed, annual averages by age band.[34] In total, an opportunity youth will pay only $37,670 in taxes in their lifetime, compared to a high school graduate who will pay $144,240. The difference – $105,500 – is the tax burden lost from the situation of opportunity youth. Across an entire cohort of 6.7 million opportunity youth, this lifetime burden amounts to $711.1 billion.

Crime

Education levels are strongly correlated with criminal activity and our estimates from NLSY97 reinforce that opportunity youth are much more likely to be involved in crime.[35] The relationship is easiest to see by looking at incarceration rate data: more than 10% of all male high school dropouts are in prison, compared to less than 4% of high school graduates (Sum et al., 2009b; West et al, 2010). More directly, as shown in Appendix Figure 4, there is a strong association between the arrest rate and opportunity youth status.

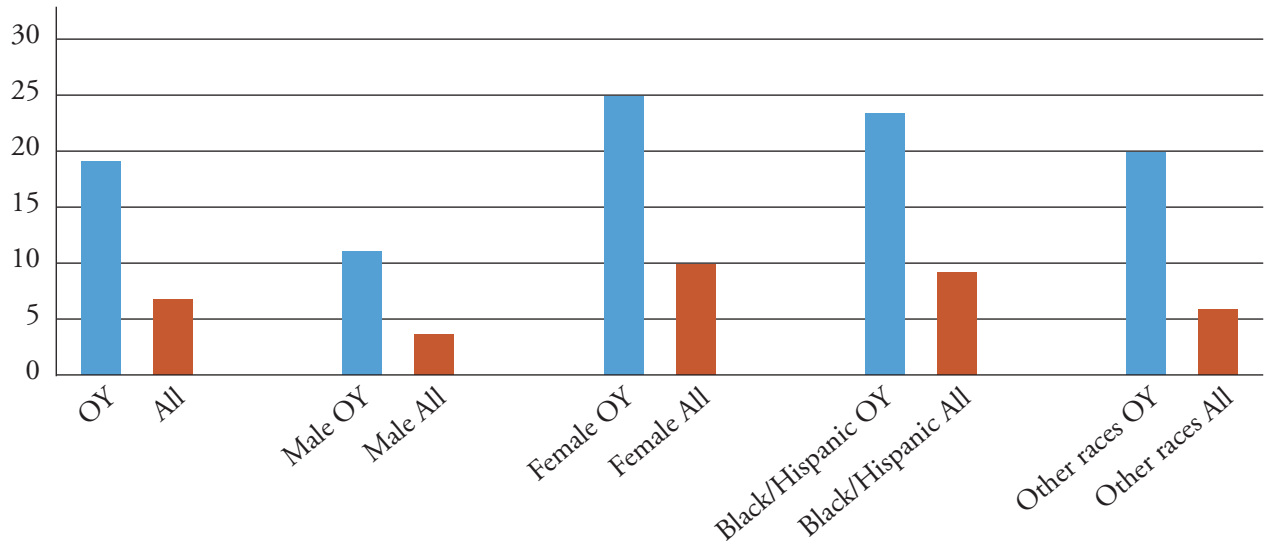
The fiscal and social costs of lifetime crime are calculated in the same way as the immediate costs. Fiscal costs are based on government expenditures; social costs are a function of crime times the burden per crime. To derive life course estimates of these burdens, we adapt calculations from Belfield and Levin (2009) based on lifetime crime profiles in Farrington and Welsh (2007). This approach estimates the lifetime burden per general offender and chronic offender and then allocates these offenders as either dropouts or graduates based on their prevalence in the prison population.

The lifetime fiscal burden of crime per opportunity youth is $13,700, which amounts to $92.4 billion across the cohort. The lifetime social burden is the sum of the fiscal burden plus the victim burden of $34,260 (plus a marginal excess tax burden added below). The burden on victims alone from opportunity youth crime is $216.2 billion annually.

Health

Figure 5 shows the differences in Medicaid enrollment between opportunity youth and the U.S. population. Overall, opportunity youth are approximately three times more likely to be on Medicaid between the ages of 26

Figure 5 — On Medicaid: Rates for adults aged 26-31



and 31. The disparity is evident for both genders, although female enrollment rates are much higher than those for males. Minority young adults are much more likely to be participating in Medicaid, but the bigger gap is not between the races but between those who were opportunity youth versus the general population. A similar pattern is evident when we compare rates for adults with no health insurance (Appendix Figure 5). More than one-third of opportunity youth have no health insurance during their adult life; this compares to one-fifth for U.S. population as a whole. A lack of health insurance is strongly evident for male opportunity youth: as adults, almost half of them do not have health insurance. As an illustration of the association between opportunity youth and adult health, Appendix Figure 6 shows obesity rates and opportunity youth status. On average, and for all subgroups, adult obesity rates are much higher for those who had been opportunity youth than for the general population. Thus, we anticipate significant health resource implications from having a significant proportion of opportunity youth.

Much of this relationship is driven by the strong link between education and health. This strong relationship includes both health conditions and health behaviors such as diet and exercise and only a fraction of the association is driven by income; much of it is driven by health knowledge (Cutler and Lleras-Muney, 2010; Kimbro et al. 2008). This in turn leads to significant health disparities by education over the lifetime (Adler and Stewart, 2010).

To calculate the lifetime costs of health care for opportunity youth, we apply three methods and take the average value. Our primary approach is to extrapolate from the incidences shown in Figure 5, using average expenditures for Medicaid patients. Second, we adapt estimates from Muennig (2007) based on the Medical Expenditures Panel Survey. Finally, we extrapolate the health care expenditures incurred during youth. These methods yield an estimated lifetime fiscal health burden per opportunity youth at $41,870 (present value). In aggregate, the burden is $282.2 billion.

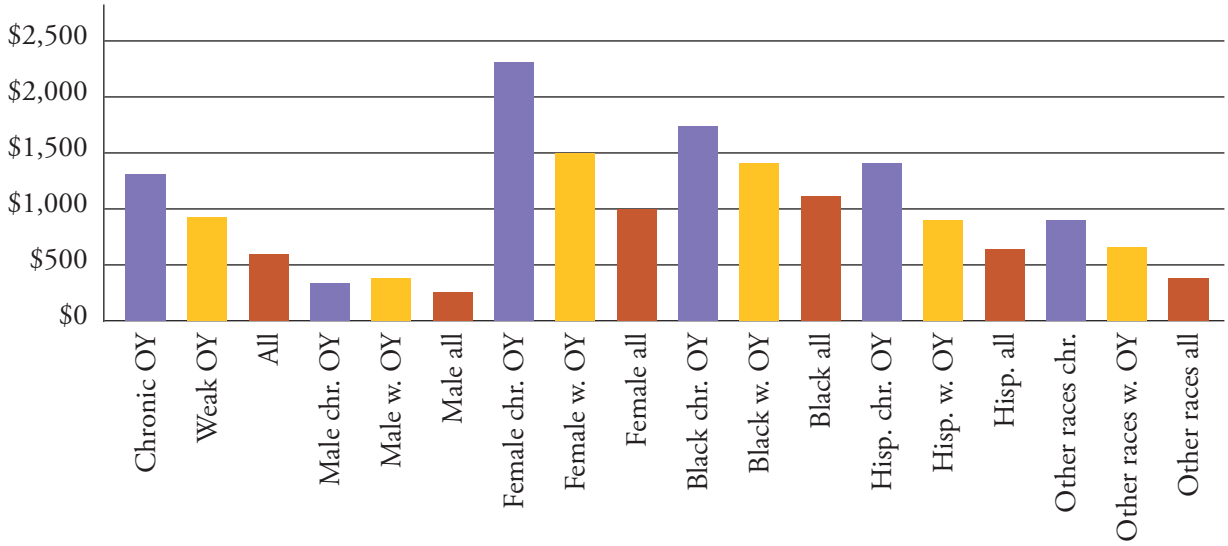
Public health-related expenditures do not count any personal value that private individuals might place on improved health or any savings they might reap in their own health-related spending. However, a social perspective should count the personal implications of opportunity youth status, i.e. if individuals value their health beyond what they pay in medications and treatments, society should take this into account. Two recent studies have estimated the personal health gains from education in terms of Quality Adjusted Life Years (QALYs), i.e. years of full health. Muennig et al. (2010) estimate a high school graduate will have an additional 2.4 QALYs over a dropout over the lifetime. The estimate by Schoeni et al. (2011) is somewhat lower, at approximately 1.5 QALYs. A lower bound estimate of the value of a QALY is $100,000 (Cutler and Lleras-Muney, 2010). So the personal burden of opportunity youth is between $150,000 and $240,000 per youth, just in terms of private health status. Adding this into the social calculus makes clear the enormity of the social burden of opportunity youth.

Welfare and Social Supports

In light of the substantial income gaps for opportunity youth, there are also likely to be significant differences in welfare receipt (Waldfogel et al., 2007). Using NLSY97 data, Figure 6 shows the relationship between welfare receipt in adulthood and opportunity youth status.[36] Although the absolute amounts are not large, the gaps between opportunity youth and the general population are significant. Chronic opportunity youth receive more than twice as much and the under-attached receive about 80% more than the average adult per year. The gaps are especially large for females, but they are also evident for each racial grouping.[37]

We extrapolate these amounts over the remaining lifetime. Over the lifetime, a high school dropout will receive $9,660 more in welfare payments than a high school graduate. The aggregate burden is $65.1 billion.

Figure 6 — Welfare Receipt (Annual): All adults aged 25-28



The Lifetime Burden per Opportunity Youth

The future lifetime burdens from the fiscal and social perspective are summarized in Table 5. These are the future lifetime economic burdens imposed by a single calendar year of youth, i.e. the group aged 16-24 in 2011, expressed in present values. The total includes an estimate for the marginal excess tax burden as above (at 13%).[38]

The fiscal burden to the taxpayer per opportunity youth is conservatively estimated at $170,740 each; the individual social burden is much higher, at $529,030. Restricting our analysis just to those who are under-attached, the individual fiscal burden is $150,640 and the individual social burden is $421,650. Of course, even these figures are conservative because they do not count the immediate burden up to age 24.

Table 5 — The Future Lifetime Burden per Opportunity Youth

	All Opportunity Youth		Under-attached Opportunity Youth	
	Fiscal Burden	**Social Burden**	**Fiscal Burden**	**Social Burden**
Gross earnings (Y)	—	$392,710	—	$312,940
Taxes (T)	$105,500	—	$98,780	--
Crime (CF)	$13,700	$13,700	$9,230	$9,230
Crime (CV)	—	$34,260	—	$23,060
Health (HF)	$41,870	$41,870	$38,880	$38,880
Welfare (WF)	$9,660	—	$3,750	—
Productivity Spillovers (YG)	—	$39,270	—	$31,290
Marginal Excess Tax Burden (m)	—	$7,230	—	$6,250
Total per Opportunity Youth	$170,740	$529,030	$150,640	$421,650

Notes: Opportunity Youth cohort is 6.74 million individuals aged 16-24 (see Table 1). Under-attached opportunity youth is 3.28 million individuals. Cohort refers to all opportunity youth aged 16-24 within a given year. Figures to nearest ten dollars. 2011 dollars. Present values expressed at age 20 (d=3.5%).

Figure 7 — Future Lifetime Fiscal Burden by Race and Gender

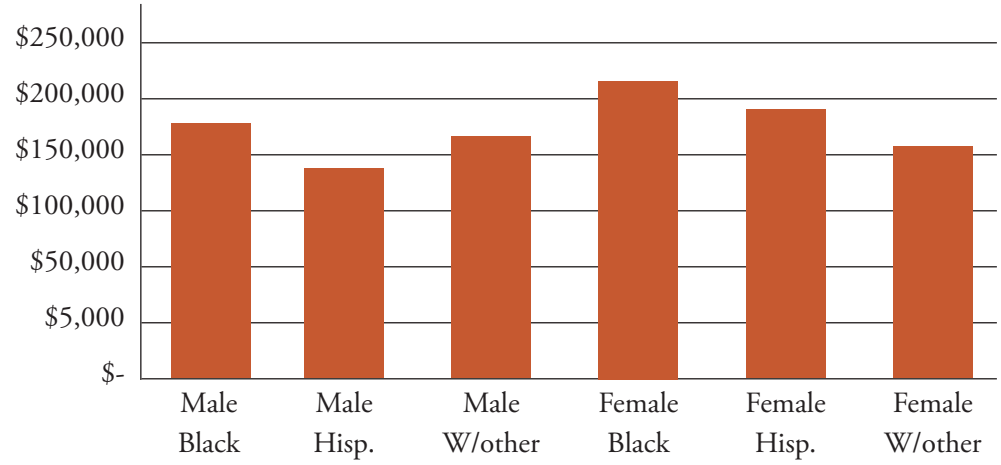
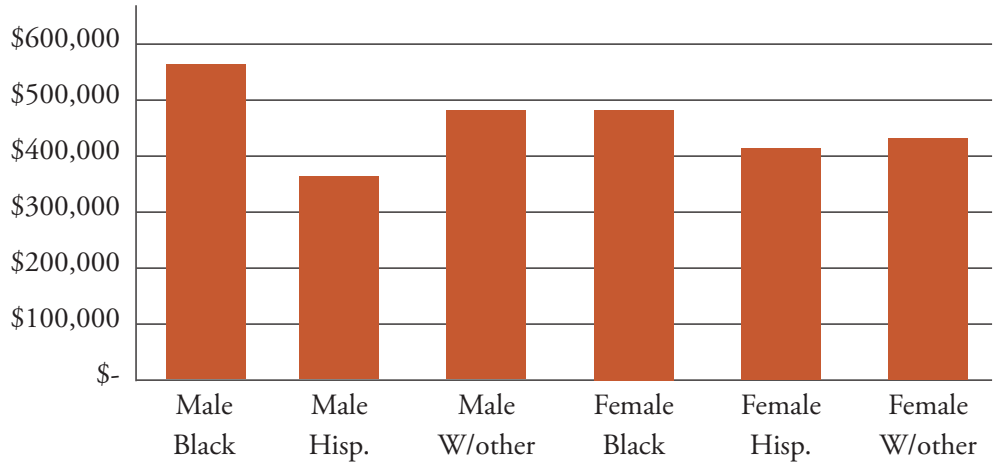


Figure 8 — Future Lifetime Social Burden by Race and Gender



The Future Lifetime Burden per Youth by Race and Gender

The lifetime burdens vary by race and by gender. Separate lifetime burdens are reported in Figures 8 and 9.

Again, these variations in burden are driven by many factors, including labor market opportunities, family decisions and, of course, prior behaviors during youth.

The Future Lifetime Burden per Cohort

Table 6 shows the future lifetime burden per cohort. Counting all 6.7 million opportunity youth, the future lifetime fiscal burden is $1.2 trillion and the social burden is $3.6 trillion.

Even when we narrow the focus to the under-attached opportunity youth, the economic burdens are still very large. Across the 3.3 million opportunity youth with some attachment to higher education or the labor market, the fiscal burden is $478 billion and the social burden is $1.3 trillion.

Table 6 — The Future Lifetime Burden per Opportunity Youth Cohort

	Fiscal Burden	Social Burden
All opportunity youth (6.74 million)	$1.15 trillion	$3.57 trillion
Under-attached opportunity youth (3.28 million)	$477.8 billion	$1.34 trillion

Notes: Figures to nearest ten dollars. 2011 dollars. Productivity spillovers assumed to be zero for youth workers. See Tables 2-3 for itemized components of fiscal and social burdens.

Clearly, the biggest loss in potential occurs in the future lifetimes of opportunity youth, not in the immediate years of youth. By not fully participating in the labor market or accumulating human capital, opportunity youth are severely jeopardizing their economic futures.

6. THE TOTAL BURDEN OF OPPORTUNITY YOUTH

The total economic burden associated with each year's opportunity youth is the sum of the immediate burden and the value of the lifetime burden.[39] As noted above, these burdens have been calculated so as to be additive, but – critically – the immediate burden has to be multiplied by five, which is the average amount that any current, specific youth will be an opportunity youth. In other words, the immediate burden is for one year, but only the 24-year olds impose one year of immediate burden. In contrast, a 16-year old opportunity youth will impose this immediate burden each year until they reach 24. Therefore, the average youth will impose the burden for five years. (An approximate interpretation is that the individual burdens are calculated for an opportunity youth who is 20 years old).

Table 7 summarizes the entire burden across each cohort of opportunity youth. Table 8 summarizes the burden across each cohort of under-attached opportunity youth. Emphatically, the future burden of opportunity youth is far greater than the immediate burden. That is, the real economic loss from opportunity youth is that these youth will not progress through adulthood being economically independent. The immediate burden is approximately one-quarter of the full burden. Also, the lifetime economic profiles of under-attached opportunity youth are not substantially different from those of chronic opportunity youth.

To the taxpayer, each opportunity youth imposes a burden which is equivalent to $235,680 as a current lump sum. The full lifetime fiscal burden amounts to $1.6 trillion across the cohort of 6.7 million opportunity youth in 2011. Across under-attached opportunity youth, the individual fiscal burden is $215,580. The full lifetime fiscal burden across all 3.3 million such youth amounts to is $707 billion.

From the social perspective, each opportunity youth imposes a burden which is equivalent to $704,020 as a current lump sum. The full lifetime burden amounts to $4.7 trillion across the cohort of 6.7 million opportunity youth in 2011. Across the 3.3 million under-attached opportunity youth, the social burden is almost $2 trillion.

These results broadly correspond to those of Cohen and Piquero (2009), who estimate the lifetime economic burden associated with high-risk youth. Their estimates, which adopt a social perspective, are of a total lifetime present value burden of $0.93 million for a heavy drug user and $2.8 million for a chronic offender (Cohen and Piquero, 2009, Table 12). Our numbers are lower for three key reasons: we use a shorter lifespan (by a few key

Table 7 — The Full Burden of All Opportunity Youth

	Per Opportunity Youth	Opportunity Youth Cohort ($ billions)
Fiscal burden:		
Immediate burden	$64,940	$437.7
Future burden	$170,704	$1,150.8
Total	**$235,680**	**$1,588.5**
Social burden:		
Immediate burden	$174,980	$1,179.4
Future burden	$529,030	$3,565.7
Total	**$704,020**	**$4,745.1**

Notes: Opportunity Youth is 6.74 million individuals (see Table 1). 2011 dollars. See Tables 2-5. Immediate burdens reflect five years of youth burden (discounted).

Table 8 — The Full Burden: Under-attached Opportunity Youth

	Per Under-attached Opportunity Youth	Under-attached Opportunity Youth Cohort ($ billions)
Fiscal burden:		
Immediate burden	$64,940	$213.0
Future burden	$150,640	$494.1
Total	**$215,580**	**$707.1**
Social burden:		
Immediate burden	$174,980	$574.0
Future burden	$421,650	$1,383.0
Total	**$596,640**	**$1,957.0**

Notes: Under-attached opportunity Youth is 3.28 million individuals (see Table 1). 2011 dollars. See Tables 2-3. Immediate burdens reflect five years of youth burden (discounted).

years); we use more conservative crime cost estimates; and we define an offender more generally, to include youth who commit only a few crimes.

Sensitivity Analysis

Our calculations rely on many associations between youth behaviors and their economic consequences. These associations are derived from the best available research evidence, but measurement error may still be significant.

It is likely that the full economic burden is significantly above the amount reported here. First, we have omitted some of the consequences – family repercussions, charitable efforts, and intergenerational impacts – and we have not considered broader societal implications from, for example, "mass incarceration" or ghettoization. Second, the calculations for each of the components in Box 1 were deliberately conservative both in terms of the datasets used and key assumptions. Most notably, we used the more conservative results from our two lifetime approaches

and we excluded any private valuation of good health. Finally, our calculations are based on data for current cohorts of youth and workers. Future cohorts of opportunity youth will most likely face even greater economic pressures (Kirsch, 2007); demographic and economic evidence suggests growing adversity for those least prepared for adulthood. The Great Recession of 2007-2009 has only reinforced this trend. From the taxpayer perspective, both health costs and incarceration costs are likely to escalate.[40]

One concern is that reducing the numbers of opportunity youth would have broader implications for the labor market: these newly engaged youth would displace other youth in jobs or push down wages. However, this effect will be very small. In fact, the U.S. economy exhibits 'skill-biased technological change', which means that the workforce becomes more skilled, firms switch to technologies that are more complex. Future projections emphasize the need for upgraded skills across the workforce. Also, these youth will be entering the labor market at staggered intervals after school, after some college, and after completing their degrees. Thus, adding more skilled youth to the workforce would be very unlikely to push down wages except in the very short run (Goldin and Katz, 2008; Carnevale et al., 2010).

For sensitivity analysis, our main concern is the immediate fiscal burden. It is highly improbable that the social burden will be small – even if it is arbitrarily halved, it still represents more than a decade's worth of the average adult's earnings. If the immediate fiscal burden is small, then government commitments may not be recouped by public investments within a reasonable time frame.

Therefore, we perform a Monte Carlo simulation for this fiscal burden. That is, we create new estimates of the fiscal burden by drawing values from the range of possible outcomes. Our baseline estimate of the immediate fiscal burden of under-attached opportunity youth is $150,640 (Table 5). The parameters for variation are described in Appendix Table 6; these are values that each component of the burden might take, with the mean being the most likely value. From 1,000 simulations drawn from these parameters, we can recalculate the fiscal burden 1,000 different types and so derive a range of values for this burden. We calculate the standard deviation for the immediate fiscal burden is $13,790. The lowest value from the 1,000 simulations was $105,880. Thus, the probability that the immediate fiscal burden per under-attached opportunity youth is less than $100,000 is extremely small.

7. SUMMARY AND POTENTIAL POLICY DIRECTIONS

The economic consequences of opportunity youth are enormous. To the taxpayer, each opportunity youth imposes a burden which is equivalent to $235,680 as a current lump sum. The full lifetime fiscal burden amounts to $1.6 trillion across the cohort of 6.7 million opportunity youth in 2011. From the social perspective, each opportunity youth imposes a lump sum burden of $704,020. The full lifetime burden amounts to $4.7 trillion across the cohort of opportunity youth in 2011. These numbers show how much is being squandered by failing to adequately invest in future generations.

In these analyses we do not make any commitments about how the potential of opportunity youth can be realized. There are many options – improved schools, safer neighborhoods, enhanced family and community supports, or tax incentives for employers. We also do not predict how many opportunity youth would respond to these commitments or what they would cost to implement. Indeed, there are many challenges to implementing effective programs for those who are most disadvantaged, poorest educated or least connected to the workplace (Bloom et al., 2010). Nevertheless, the personal, economic and social cost of failure is such that many such commitments might be attempted.

In considering policy directions on reducing the numbers of opportunity youth, it is important to note the considerable variety of conditions that characterize this population. Above all there is a lack of education and training for the workplace as well as work activity. But, it is important to note that there are varying degrees of participation among opportunity youth members with some pursuing various combinations of part-time work, education, and training and others mostly or completely withdrawn from these activities. Another substantial component is described as disabled or caretakers of others, mostly young mothers with child dependents. Opportunity youth are far from homogeneous in both their activity or lack of it and their specific needs to be more productive. It is useful to ask what alternatives might be considered for different groups.

Education

What is most common among most opportunity youth is the low level of educational attainment and the need for more education. Opportunity youth show a high school graduation rate that averages 18 percentage points below the overall rate, even at the age of 28. The college gap is even larger: at age 28 only about 1 percent of opportunity youth have achieved as much as an Associate Degree or Bachelor's Degree relative to 36 percent in the general population. These lower levels of education are probably an understatement because they do not adjust for the quality of preparation which is likely to be considerably lower than the norm with weaker courses undertaken in secondary school, and in schools with poorer resources. Accordingly, both general educational upgrading in schools that account for high levels of opportunity youth as well as specific attention to their particular educational needs would seem to be a high priority. These changes could include investment in a stronger teaching staff with more training and mentoring to assist these populations as well as specially-prepared counselors who help to focus on personal problems and orientation towards work and further education. Apprenticeship programs with businesses and government might also provide work experience and evidence of useful applications of education and work.

A higher proportion of opportunity youth than those in the general population have taken the General Education Development (GED) examination which has often been erroneously viewed as a measure of "high school equivalency", but the GED is far from equivalent. GED recipients have much poorer academic records in high schools than graduates, and their earnings are not very different from those of high school dropouts. Few succeed in higher education. There is also evidence that they lack the persistence and self-discipline required for success in the workplace and in higher education. In recognition of some of these deficiencies test developers are modifying the GED to comport with the more demanding common core academic standards that most states are adopting. But, there are questions raised about how raising GED requirements in themselves will boost relatively weak students in meeting higher standards and behavioral requirements for success in the workplace and higher education (Gewertz 2011; U.S. Department of Education 2011).

Training

A second policy direction that must be considered is that of access to training. Training cannot be viewed independently of a higher quality and more complete education. The existing job market requires at least minimal academic skills in language, mathematics, and general skills as well as self-discipline, conscientiousness, and other personality prerequisites. In general, the more education one has, the more likely these prerequisites are met and the more training opportunities that that have been made available by employers (Blundell et al. 1999). However, leading experts on training suggest that American companies no longer invest in in-house employee training (Capelli 2011). Unlike in the past when firms invested in helping workers adapt by providing experience and training, firms now expect to hire "ready-to-fit" employees, rather than recognizing that many need relatively minimal

training and experience to fit available job opportunities. A greater willingness of firms to provide training may be helpful, and government could potentially incentivize businesses to work in collaboration educational providers to establish needs, and develop education with training, particularly for occupations that are growing rapidly.

Disability and Childrearing

For many the lack of work, education, or training activity is associated with disability or caretaking responsibilities. But these categories are not necessarily as fixed as the labels suggest. For example, some female pregnancies may be a response to a situation where few other alternatives are envisioned. Bearing children and raising them by youth is much less beckoning when attractive futures are present in education, training, and work. The structure of public assistance may also provide larger rewards for child dependents than for engaging in education and training. At the margin childbearing may be viewed as a decision based upon incentives and costs, and incentives may be considerably greater than costs when individuals have poor academic or work prospects. Creating better prospects can offer more choices.

Some disabilities are also susceptible to influence – both on the part of authorities and individuals - as to how they inhibit the ability to work or undertake further study. Incentives can affect both the consideration and designation of disability by individuals and by pertinent government agencies (Cullen 2003). By making work, training and further education more available and attractive, it is possible to bring more of the disabled fully or partially into these activities (Lundberg & Plotnick 1995). And, public investments in improving health and functioning can alleviate some disabilities.

Priorities

As programs are designed to reduce the magnitude of the opportunity youth challenge, decisions must be made about where to initiate efforts. The natural temptation is to begin by addressing those in greatest need, i.e. opportunity youth who have not engaged in any productive activity and over a substantial period of time. However, this may be the group that is most seriously detached or alienated from the labor market and with the most discouraging and negative attitudes towards work and education. This group may be the most challenging to engage, in contrast with those who have demonstrated some participation. Our calculations indicate that those who are under-attached opportunity youth have similar income and health outcomes in later adulthood to those that were chronic opportunity youth. Thus, a very high fraction of all 6.7 million opportunity youth are likely to fall below means-tested thresholds for anti-poverty programs. However, opportunity youth who demonstrate at least part-time participation in either education or work or both may be most responsive to assistance. Under-attached opportunity youth have already demonstrated the volition to take advantage of what has been available to them if only on a part-time basis. Building on this partial success may provide the greatest effectiveness for an initial strategy while reserving more complex and highly tailored strategies for reaching those who are full opportunity youth.

Other studies have found that investment in reducing these types of challenges have a large payoff to both the taxpayer and society. Taking account of the costs of five specific programs that demonstrated effectiveness in reducing high school dropouts, it was estimated that the return on the investment of the taxpayer was as much as 3.5 times the cost for each additional high school graduate (Belfield & Levin 2007). All five programs that were evaluated showed large net gains after costs were deducted. The evidence suggests that this is a very good investment for the taxpayer.

ENDNOTES

1. There are approximately 515,000 persons aged 18-24 in the military. See www.slideshare.net/pastinson/us-military-active-duty-demographic-profile-presentation.

2. NLSY97 is a nationally representative longitudinal survey of youth born in 1980-1984. The survey is collected annually, beginning in 1997 and by 2009 the youth were at least 24. Thus, NLSY97 covers the entire youth period and we analyze multiple waves. NLSY97 may undercount opportunity youth: initial sampling began with eligible housing units (excluding institutionalized youth); and the attrition rate was 16% over the 13 waves. ELS2002 is a nationally representative longitudinal survey of students enrolled in 10th grade in 2002. We use the third wave (from 2006) when the students were 19-20. Detailed work and education histories are available, but the initial sampling unit was the school (so early dropouts and institutionalized youth are excluded). Finally, Add Health is a longitudinal survey begun in 1994 when respondents were in 7th-12th grade. We use the third wave (from 2007) when the sample was 18-26. Add Health includes detailed information on health status, but as with ELS2002 the initial sampling unit was the school.

3. For an estimate that focuses on group quarters, see Montalvo and O'Hara (2008). On the homeless and those in shelters, see www.hudhre.info/documents/2010HomelessAssessmentReport.pdf.

4. This estimate is similar to that by Montalvo and O'Hara (2008) who use the ACS to estimate 'idle youth', which they define as a subset of the disconnected youth population. It is difficult to identify those who are opportunity youth in group quarters; the ACS surveys persons in group quarters separately. Also, the ACS respondents are not the opportunity youth themselves, but in 85% of cases are a related adult within the household.

5. Our estimates on chronic opportunity youth accord with those of Vericker et al. (2009), who also find a 10% estimate of 'never-connected' youth and a 60% estimate of 'always-connected' youth. Using a subsample of NLSY97, Hair et al. (2009) estimate 8% of disconnected youth are permanently disconnected.

6. For example, if an individual works fewer hours because of the income tax, then the individual's economic decision has been distorted.

7. Also, we have not counted the costs of remediation in higher education, as many youth enter college unprepared for college classes. Although estimated at over $20 billion annually, it is not possible to directly attribute remediation expenditures to opportunity youth status (Snyder and Dillow, 2011).

8. One limitation of using budgetary documentation is that it is often incomplete and does not correspond to opportunity cost, i.e. what is given up by that spending. Budget statements only count spending on a particular program by that agency. They often have inaccurate capital costs. Also government spending combines preventive and palliative programs (e.g. programs to prevent drug abuse and programs to alleviate drug abuse). Finally, they only indicate what is being spent, not what should be spent.

9. On methodology, see Levin (1972), Haveman and Wolfe (1984), Baum and Payea (2006), and Lochner (2011). On application, the framework is used for a national analysis by Belfield and Levin (2007), for specific education credentials by Trostel (2010), and for states, e.g. Connecticut, Sum et al. (2009ab); Colorado, Belfield and Levin (2011); California, Brady et al. (2005) and Belfield and Levin (2008).

10. These long-run effects may occur very quickly. Even by age 26, high school dropouts are twice as likely to report a health-related work limitation over high school graduates (Walsemann et al., 2008). Lee et al. (2009) estimate the relationship between youth ill health, neighborhood conditions, and long term health status.

11. One issue is that public policies influence the incidence of disability. Where disability payments are more generous than welfare payments, non-workers have an incentive to report their status as the former (see Kreider and Pepper, 2007). Thus, the extent of disability may appear greater than it is.

12. Using individual-level data we are able to distinguish the future lifetime consequences of chronic versus under-attached opportunity youth. However, we are not able to calculate the immediate youth burdens separately for chronic and under-attached youth due to data limitations.

13. However, we do not present average amounts per youth for each age from 16 to 24. As noted above, the average masks some within-cohort heterogeneity (between those aged under 19 and those aged over 19). But the average is a reasonable approximation.

14. These are conservative estimates of the tax gap because they do not include consumption taxes.

15. Other social and or fiscal costs include: avoidance costs by potential victims of crime, public restitution payments to victims; wage supplements to workers in crime-prone occupations (e.g. teachers in dangerous schools); productivity losses from participating in criminal activity; and transfers of assets from victims to criminals. These costs are omitted because of data limitations.

16. Data is only available on arrests, from which crimes are calculated based on a per-crime offense multiple. Costs per crime include medical bills and lost productivity (see Miller et al., 1996). Full details of this method are given in Belfield and Levin (2009). See also Appendix Table 3 notes.

17. Estimates based on Miller et al. (1996) are consistently below more recent estimates (e.g. DeLisi et al., 2010). However, no recent evidence covers the full array of crime types or disaggregates costs by fiscal and victim domains. Ludwig (2006) estimates that the social costs of crime are at least 2.5 times as large as the fiscal burden, a much higher ratio than ours.

18. This is a conservative estimate using the ADD Health proportions. Based on the NLSY97, 24% of the opportunity youth population have ever been arrested compared to 6% for the total youth population. Using ADD Health, the respective figures are 16% and 3%.

19. For the immediate health care burden we do not include any private valuations of health. Immediate health differences are small, although these foreshadow significant lifetime differences (Walsemann et al., 2008).

20. These figures are close to those of Sum et al. (2009b), who find that 28% of high school dropouts are enrolled in public health care programs, compared to 14% of high school graduates (and 3% of persons with a college education).

21. This excludes the cost of health care in schools. This number is also conservative because it assumes that all health cases are equally costly; it is likely that more disadvantaged persons require more intensive care, especially for psychological or mental treatments.

22. Again, this is an average across all youth: older youth and female youth receive significantly larger amounts.

23. They include programs funded at the federal, state, and local level although they are most likely a conservative itemization of the latter two levels of government. Isaacs et al. (2010) estimate the federal government is

responsible for approximately 90% of all welfare spending on children. We do not include tax expenditures in these calculations.

24. The literature on marginal excess tax burdens shows that they depend on how the revenue is raised (through taxes on consumption goods or income) and at what level (federal, state or local). However, the 13% value applied here is very low compared to other estimates.

25. An alternative way to estimate the burden of opportunity youth is to look more expansively at a particular social concern – substance abuse – and calculate its costs in all respects (crime, welfare, health, schooling, government programs, etc.). This costing exercise has been done by CASA (2009), who estimate the overall national substance abuse burden (from society's perspective) at $490.4 billion. Approximately 25% of this burden, which includes alcohol and tobacco, is attributable to persons aged 16-24 (http://www.ncbi.nlm.nih.gov/books/NBK16378/). Therefore, the aggregate burden of substance abuse by all persons in this age cohort is approximately $120 billion. This is not widely discrepant with our estimates, given that it does not include the earnings gaps or marginal excess tax burden.

26. Lifetime is assumed to be until age 65. To capture mortality differences, we use life tables from Skoog and Ciecka (2008).

27. Under some alternative classifications, e.g. by the Department of Labor, disconnected or at-risk youth and high school dropout are synonymous. The demographic race and gender patterns of high school dropouts mirror those of opportunity youth also (Chapman et al., 2010).

28. See respectively Card (1999), Lochner and Moretti (2004), Cutler and Lleras-Muney (2010) and Waldfogel et al. (2007). For an overview, see Belfield and Levin (2007).

29. These income figures include persons who report no earnings and so account for differences in labor market participation. We use the abbreviation 'weak' to denote 'under-attached' opportunity youth.

30. We actually estimate three earnings profiles varying with assumptions about productivity growth, the benefits offered to workers, and the discount rate. The mean of these profiles is applied here.

31. Our third method gives much larger differences. If we extrapolate forward the earnings differences during youth, we get an estimated earnings gap that is significantly above this difference. In youth, opportunity youth earn only one-quarter of what other youth earn.

32. No productivity spillovers are assumed for youth workers because they are likely to be the least skilled workers in a given labor market.

33. There are also likely to be economic gains because firms are more likely to invest where there are more skilled workers to hire. However, no robust evidence on the magnitude of this effect is evident.

34. Consumption taxes and property taxes are not included.

35. Other studies using NLSY97 also find a strong association between being a dropout and juvenile crime. Hjalmarsson (2008) estimates the graduation rate for those involved in juvenile crime is 19 percentage points lower than the average for the population; Sweeten (2006) finds that an arrest in high school doubles the probability of dropping out.

36. As a validity check, we use the average incidence for the broadest program, food stamps, from CRS (2004): 24% of high school dropouts are on food stamps compared to 9% of high school graduates.

37. Using education as a proxy for opportunity youth status, we estimate significantly higher welfare burdens associated with opportunity youth.

38. There are far fewer adult social supports compared to those for youth (as per those in Appendix Table 5). So this item WS is not included. Also, the differences in educational expenditures after age 24 are trivial when

weighted across the entire population. Hence, we exclude educational expenditures from the lifetime burden calculations.

39. An alternative way to express the burden would be to report the burden per opportunity youth per age (e.g. at age 16). However, this figure cannot easily be derived from Tables 2 and 3. First, the burden varies significantly at each age. For example, there are few earnings losses at age 16 and the heaviest crime burden is age 18 or 19. Second, the present valuations are not constructed so that they reflect the burden at a particular youth age.

40. On escalating health care costs, see Glied (2003); on rising prison costs, see Livsey et al. (2009) and on the rising costs of health care in prisons, see Hughes (2006).

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APPENDIX TABLES

Appendix Table 1M — Opportunity Youth: Economic Status for Males

	Age 16-17	Age 18-19	Age 20-21	Age 22-24	Cohort 16-24
Annual earnings					
Employed	$3,985	$8,831	$15,690	$22,509	$13,838
Opportunity Youth	$918	$3,265	$6,756	$8,928	$5,407
Federal taxes					
Employed	$193	$606	$1,158	$1,961	$1,089
Opportunity Youth	$116	$179	$426	$728	$403
FICA					
Employed	$294	$674	$1,179	$1,729	$1,053
Opportunity Youth	$72	$256	$493	$676	$408
State taxes					
Employed	$54	$162	$318	$520	$292
Opportunity Youth	$31	$67	$128	$221	$124
Supplemental Security Income					
Employed	$27	$11	$25	$16	$19
Opportunity Youth	$128	$155	$236	$386	$244
Public assistance					
Employed	$8	$2	$2	$2	$3
Opportunity Youth	$22	$15	$6	$16	$15

Source: Current Population Survey (March release, pooled 2006-2010). *Notes:* Employed includes any amount of employment during the year. Opportunity Youth are either not in labor force or unemployed. Mean values reported. Federal and state tax liabilities after credits. Observations: employed, 30242; opportunity youth, 9305.

Appendix Table 1F — Opportunity Youth: Economic Status for Females

	Age 16-17	Age 18-19	Age 20-21	Age 22-24	Cohort 16-24
Annual earnings					
Employed	$3,304	$7,005	$11,488	$18,237	$10,923
Opportunity Youth	$1,010	$2,267	$3,179	$3,919	$2,741
Federal taxes					
Employed	$144	$394	$710	$1,532	$788
Opportunity Youth	$46	$164	$264	$470	$262
FICA					
Employed	$251	$526	$857	$1,385	$825
Opportunity Youth	$67	$172	$242	$297	$206
State taxes					
Employed	$46	$118	$210	$439	$229
Opportunity Youth	$39	$37	$128	$221	$124
Supplemental Security Income					
Employed	$19	$11	$25	$16	$19
Opportunity Youth	$52	$155	$236	$386	$244
Public assistance					
Employed	$7	$2	$2	$2	$3
Opportunity Youth	$50	$15	$6	$16	$15
WIC receipt (%)					
Employed	0.1	3.3	7.0	8.5	5.1
Opportunity Youth	6.0	14.8	24.2	24.6	18.2

Source: Current Population Survey (March release, pooled 2006-2010). *Notes:* Employed includes any amount of employment during the year. Opportunity Youth are either not in labor force or unemployed. Mean values reported. Federal and state tax liabilities after credits. Observations: employed, 30242; opportunity youth, 9305.

Appendix Table 2 — Annual Government Expenditures on Crime

	Total All Youth Ages 16-24
($ billions)	
Police protection	$40.7
Judicial and legal	$19.5
Corrections	$14.9
TOTAL	$75.1

Notes: Justice Expenditure and Employment Extracts 2007, Table 1, NCJ 231540; Criminal Justice Expenditure and Employment Extracts Program (CJEE). Youth burden calculated based on proportion of crimes committed by youth (FBI UCR 2009, Table 38) and incarceration proportion of youth based on group quarters residence (ACS, 2008). Opportunity youth burden based on proportion of crimes committed by OY from NLSY97. 2011 dollars.

Appendix Table 3 — Victim Costs of Crime

	All youth ages 16-24			
	Arrests	**Offense Multiple**	**Victim costs per crime**	**Total victim costs ($ billion)**
Murder and non-negligent manslaughter	4573	1	$5,315,805	$24.31
Driving under the influence	336964	2	$32,546	$21.93
Other assaults	363633	2.85	$16,996	$17.61
Aggravated assault	117826	2.85	$43,390	$14.57
All other offenses (except traffic)	1081810	2	$3,616	$7.82
Sex offenses (excl. forcible rape/ prostitution)	18622	2.85	$121,142	$6.43
Prostitution and commercialized vice	16112	2	$157,304	$5.07
Drug abuse violations	642913	2	$3,616	$4.65
Forcible rape	6458	2.85	$157,304	$2.90
Liquor laws	334475	2	$3,616	$2.42
Offenses against the family and children	19282	2	$59,667	$2.30
Disorderly conduct	215678	2	$3,616	$1.56
Robbery	56263	1.4	$14,465	$1.14
Drunkenness [a]	135553	2	$3,616	$0.98
Larceny-theft	492157	2.9	$669	$0.95
Vandalism [a]	100559	2.05	$3,616	$0.75
Arson	3072	2.85	$67,840	$0.59
Weapons; carrying, possessing, etc. [a]	63295	2	$3,616	$0.46
Fraud [a]	41465	2.9	$3,616	$0.43
Curfew and loitering law violations [a]	46067	2	$3,616	$0.33
Burglary	125215	1	$2,531	$0.32
Motor vehicle theft	28733	1.5	$6,690	$0.29
Stolen property; buying, receiving, possessing [a]	37441	2	$3,616	$0.27
Forgery and counterfeiting [a]	21201	2	$3,616	$0.15
Vagrancy [a]	7762	2	$3,616	$0.06
Embezzlement [a]	5851	2	$3,616	$0.04
Gambling [a]	4003	2	$3,616	$0.03
Suspicion [a]	454	2	$3,616	$0.00
TOTAL	4327433			$118.4

Notes: Offense multiples adjusted from Farrington et al (2003) bounded at 1. Victim costs from Miller et al. (1996) expressed in 2011 dollars. Crimes denoted [a] are assumed to have costs equal to robbery without injury. Arrests from Table 38, UCR, FBI.

Appendix Table 4 — Health Disparities by Opportunity Youth Status

	Total All Youth Ages 16-24	Opportunity Youth
Spent time in mental hospital in past 5 years	2.2%	3.1%
Attended drug/alcohol treatment in past 12 months	2.6%	3.0%
Used marijuana more than 3 times a week	8.4%	11.4%
Medicaid receipt	5.3%	17.8%
No health insurance	20.9%	37.1%

Notes: Add Health data, wave 3 (unweighted).

Appendix Table 5 — Social Supports ($ millions)

$ millions	Total of all youth ages 16-24
Department of Labor[a]	2927.68
Department of Health and Human Services[b]	294.56
Department of Education[c]	375.2
Department of Justice[d]	201.6
Total	$3,799.04

Source: GAO (2008). Notes: 2011 dollars based on 2006 appropriations. Notes: Federal grant programs that include state and local funding. [a] Job Corps, WIA Youth Activities, Youth Build, Youth Offender Grants. [b] Chafee Foster Care Independence Program, Runaway and Homeless Youth Program. [c] Adult Education Basic Grants to States, excluding amounts to persons aged 25+, Workplace and Community Transition Training for Incarcerated Youth, Education for Homeless Children and Youth, Title I-D programs. [d] Part E Programs of OJJDP, Title II B State Formula Grants.

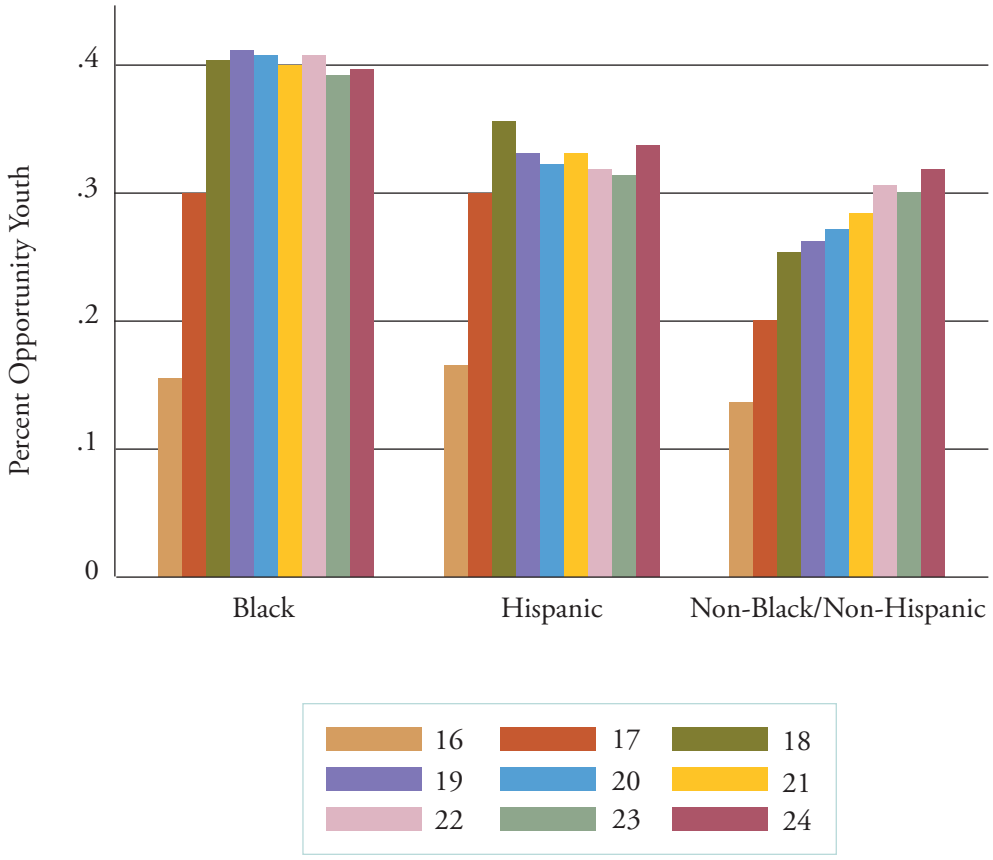
Appendix Table 6 — Monte Carlo Simulation of Immediate Fiscal Burden

	Mean	SD
Baseline estimate	$150,640	
Taxes (T)	$98,780	$12,120
Crime (C_F)	$9,230	$4,600
Health (H_F)	$38,880	$5,750
Welfare (W_F)	$3,750	$810

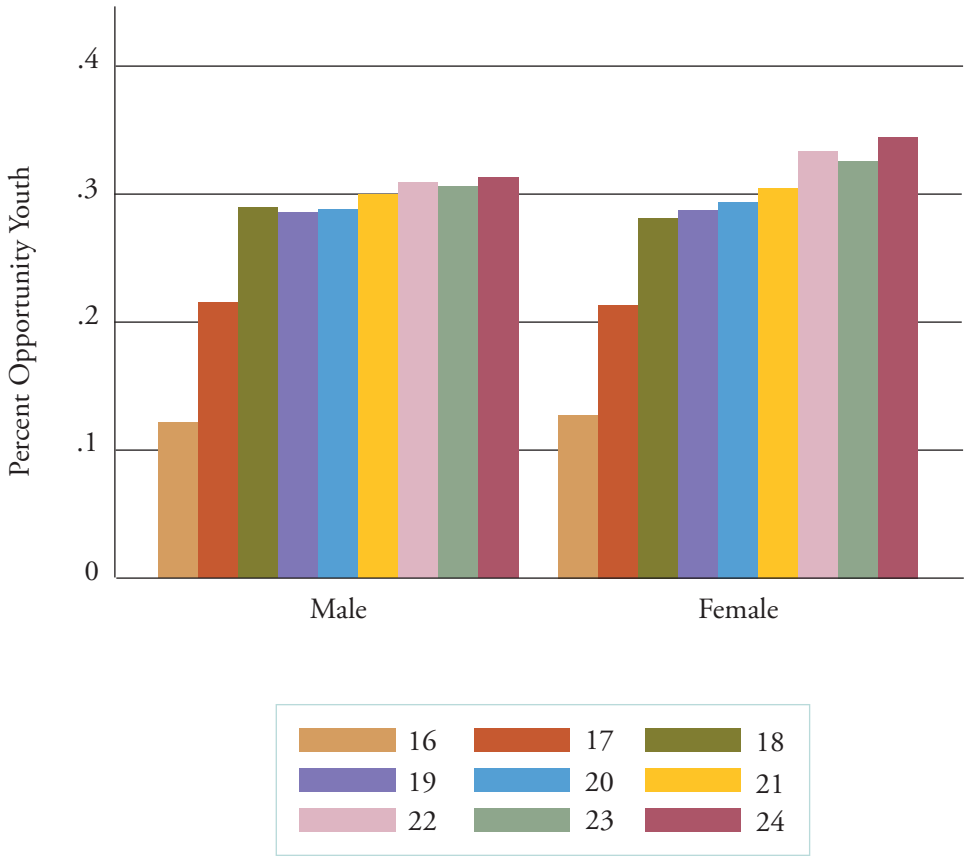
Notes: Distribution of tax payments based on distribution of incomes (Appendix Tables 1M and 1F).

APPENDIX FIGURES

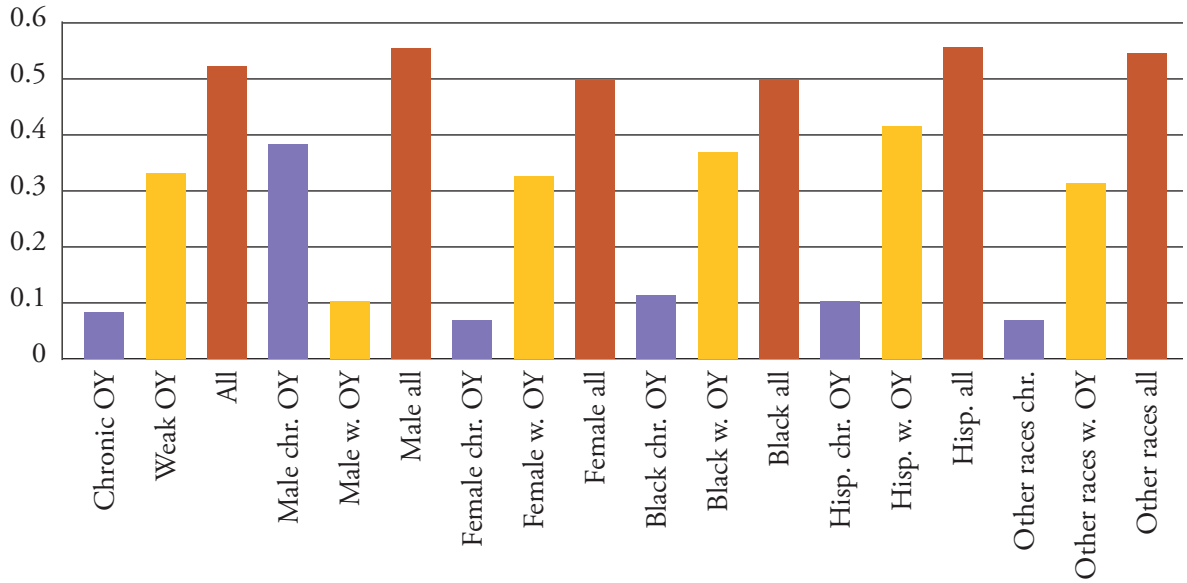
Appendix Figure 1 — Average Primary Opportunity Youth Status by Race and Age



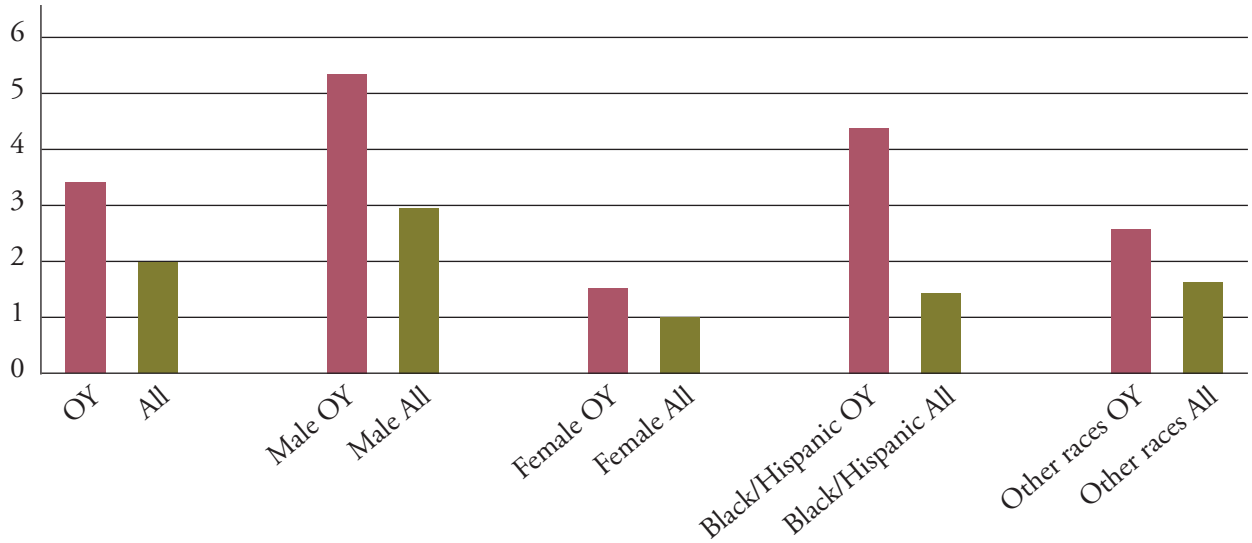
Appendix Figure 2 — Average Primary Opportunity Youth Status by Gender and Age



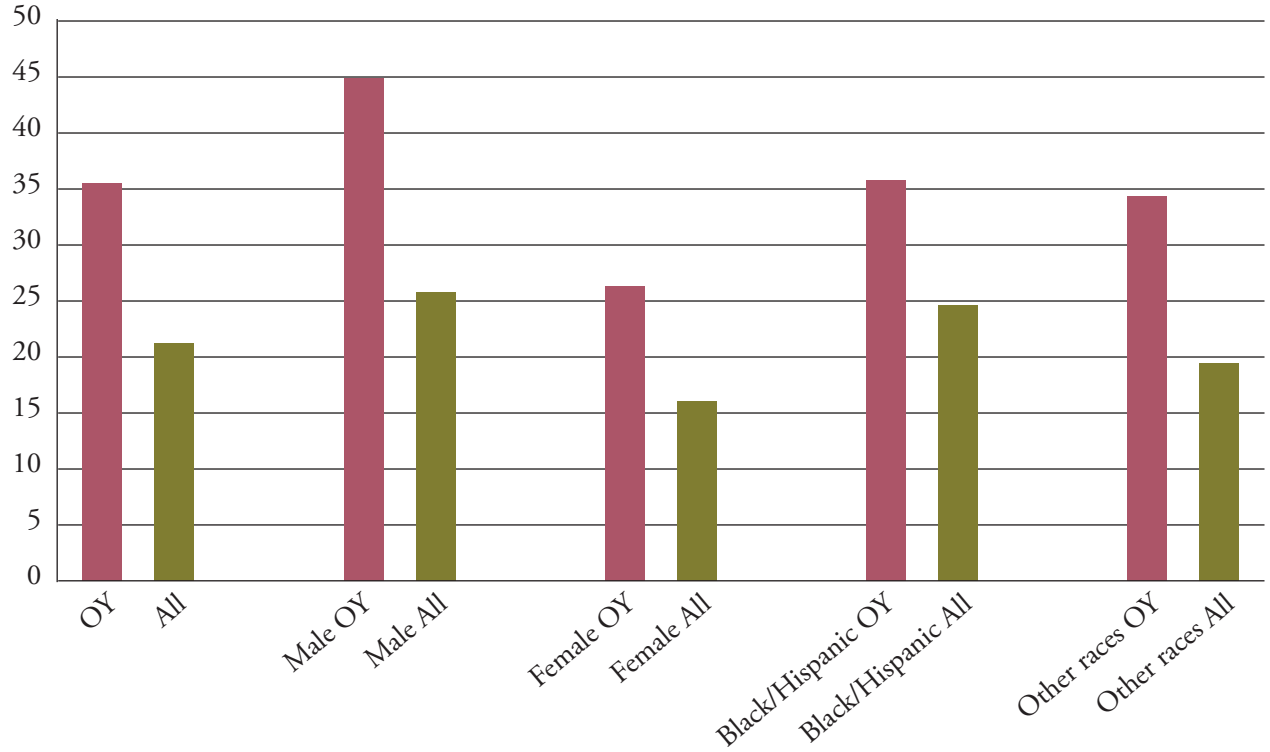
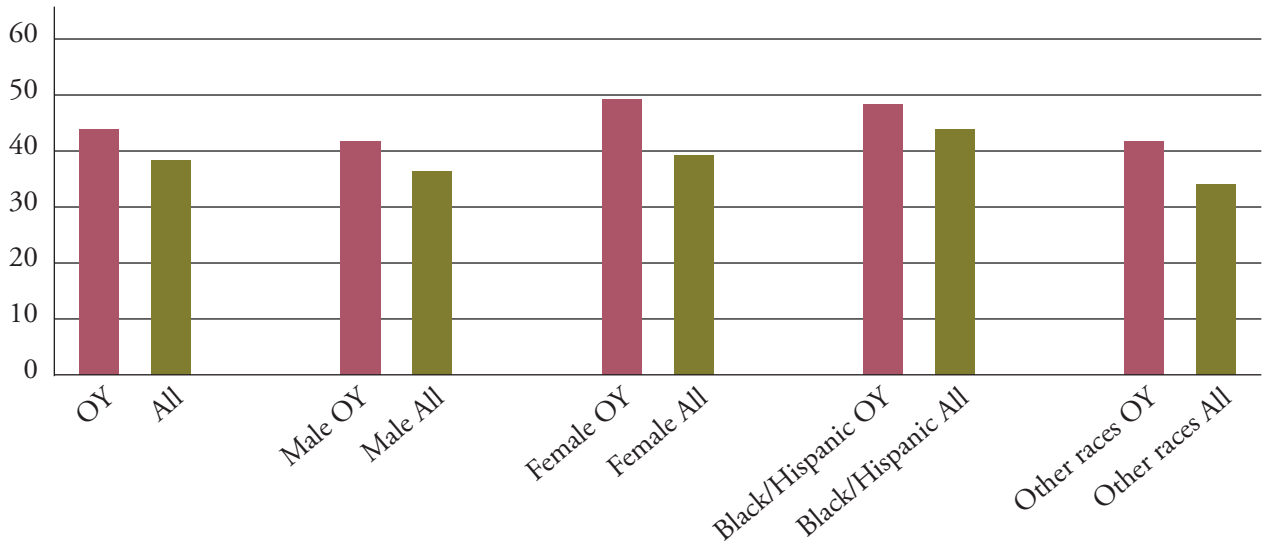
Appendix Figure 3 — Percent Employed Full-time: Adults aged 25-28



Appendix Figure 4 — Arrests: Rates for adults aged 25-28



Appendix Figure 5 — No Health Insurance: Rates for adults aged 26-31



Appendix Figure 6 — Obesity: Rates for adults aged 26-31