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Oregon's High School Dropouts

Examining the economic and social costs

March 2010

Emily House

Released by:
CASCADE POLICY INSTITUTE
THE FOUNDATION FOR EDUCATIONAL CHOICE

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CASCADE POLICY INSTITUTE

4850 SW Scholls Ferry Road, Suite 103
Portland, OR 97225
(503) 242-0900
www.cascadepolicy.org

THE FOUNDATION FOR EDUCATIONAL CHOICE

One American Square, Suite 2420
Indianapolis, IN 46282
(317) 229-2130
www.edchoice.org

Acknowledgments

The author would like to thank Christian D'Andrea and Paul DiPerna of the Foundation for Educational Choice for assistance with editing and much feedback, and Brian Gottlob of PolEcon Research for assistance with data analysis.

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Executive Summary

This analysis presents the public costs of high school dropouts in Oregon. It examines how dropouts in the state dramatically impact state finances through reduced tax revenues, increased Medicaid costs, and high incarceration rates. This study describes how much high school dropouts cost Oregon's taxpayers each year, and how much could be saved by increasing the state's graduation rate.

The educational attainment gap in Oregon, though seemingly small relative to other states, is still troubling. While 89 percent of white students earn high school diplomas, only 79 percent of African American students graduate. More concretely, African American students are twice as likely to drop out as white students. A single cohort (e.g., class year) of dropouts costs Oregon hundreds of millions of dollars each year.

It is important to note that this analysis uses both the graduation rate and dropout rate when calculating the costs to the state when students do not complete high school. For the purposes of this analysis, graduation rate is defined as the percentage of students who complete high school in a given year, while the dropout rate refers to the percentage of students who withdraw from high school in a given year.

Key findings include:

- Over 5 percent of high school seniors did not complete high school during the 2007-08 school year. Estimates of Oregon's total high school graduation rate differ greatly – ranging from 96 percent to about 66 percent – depending on the time frame being considered.
- On average, working-age dropouts in Oregon earn $10,000 less each year than those who graduate from high school, reducing the overall earnings of the state significantly each year.
- At 9.2 percent, the unemployment rate (prior to the recent economic downturn) of high school dropouts in Oregon is more than twice the rate of those who have graduated from high school.
- Approximately $173 million in tax revenues is lost each year due to the decreased earnings of high school dropouts.
- Oregon's dropouts are significantly more likely than high school graduates to require Medicaid assistance. Over 40 percent of high school dropouts receive Medicaid benefits, costing the state more than $200 million in annual Medicaid costs.
- High school dropouts are twice as likely to be incarcerated as high school graduates. African American male dropouts are five times more likely to be incarcerated than African American males who have graduated from high school.

- The gap in incarceration leads to more than twice as many inmates as there would be if Oregon's graduation rate were 100 percent. For each year that graduation rates could be brought up to 100 percent, over $37 million could be saved in incarceration costs of that year's dropouts alone. Over time this could lead to significant savings to the state.
- Compared to other states, Oregon spends a much larger proportion of money on the provision of Medicaid for high school dropouts, and loses a larger share of tax revenue than many other states.[1]

Oregon's High School Dropouts
Examining the economic and social costs

Reforming K-12 education is a critical issue in Oregon, as it is throughout the rest of the nation. During the 2009 legislative session, various bills were proposed in an attempt to improve the outcomes of students throughout the state, including bills to promote dropout prevention and student retention programs.[2] Since increases in funding have in the past not resulted in dramatic growth in student retention, legislators and activists have sought more innovative, non-fiscal approaches to keep students in school. Improving K-12 education in Oregon is vital to ensuring stability and prosperity for future generations of residents.

While the personal consequences of dropping out of high school are clear (e.g., lower wages and higher unemployment), less public debate and media attention focus on the public costs of decreasing graduation rates. High school dropouts have direct and indirect fiscal effects on taxpayers throughout Oregon. Lower rates of labor force participation, higher rates of unemployment, and lower earnings and salaries are all consequences of the failure to earn a high school diploma. These consequences have a detrimental effect on all residents living in Oregon, negatively impacting overall wage and job growth while imposing a fiscal drag on state expenditures allocated to social programs. Higher levels of educational attainment lead to positive social effects in the form of reduced need for public welfare programs, better health, and lower crime rates.

This study focuses on the public financial costs of high school dropouts in Oregon, and we conclude by recommending policy action to improve student retention and graduation rates. Following a review of relevant empirical literature, the size and scope of the dropout problem in Oregon will be outlined.

The effects of high school dropouts on individuals' employment and earnings will be discussed, as will the public costs of dropouts in the form of lost tax revenue, health care costs, and incarceration costs.

Reviewing the research on dropouts

Human capital is an important concept when considering the well-being of a state and its citizens. *Human capital* describes a person's attributes that increase his or her earning potential and ability to accumulate wealth. It includes a person's "intelligence, educational background, work experience, knowledge, skill and health."According to Gary Becker, a Nobel Laureate in economics, human capital accounts for around 75 percent of the United States' wealth, with the rest consisting of capital in businesses, homes, goods, and government capital and cash.[3]

Educational attainment contributes to human capital, and it is a critical determinant of future success in the workforce.[4] Perhaps it goes without saying that individuals who drop out of high school usually face much greater challenges throughout their lifetime than their more highly-educated peers. Not surprisingly, those who do not hold a high school diploma are less likely to be in the labor force[4], and they are more likely to be unemployed should they be a member of the labor force. Furthermore, high school dropouts spend much longer periods of time unemployed and/or not enrolled in any sort of trade or training program.[5] As such, the average earnings of this population are at least $10,000 lower each year as compared to their peers who have graduated from high school.[6] These dropouts also eliminate the future prospect of higher education, which is a catalyst toward finding better jobs. Even Oregonians who have an associate's degree, or some other postsecondary schooling, will make significantly greater salaries than those who have no postsecondary education.

As a group, dropouts over the age of 24 are reported to be in worse health than adults who did not drop out of high school.[7] For this reason, Medicaid costs are much higher for this population, as many rely on social programs for health care.

Dropouts make up a disproportionate percentage of the nation's prison inmates. As a male who does not graduate from high school is anywhere from two to five times more likely to be incarcerated as a male who has graduated, it is clear that both the personal and social consequences of not receiving a high school

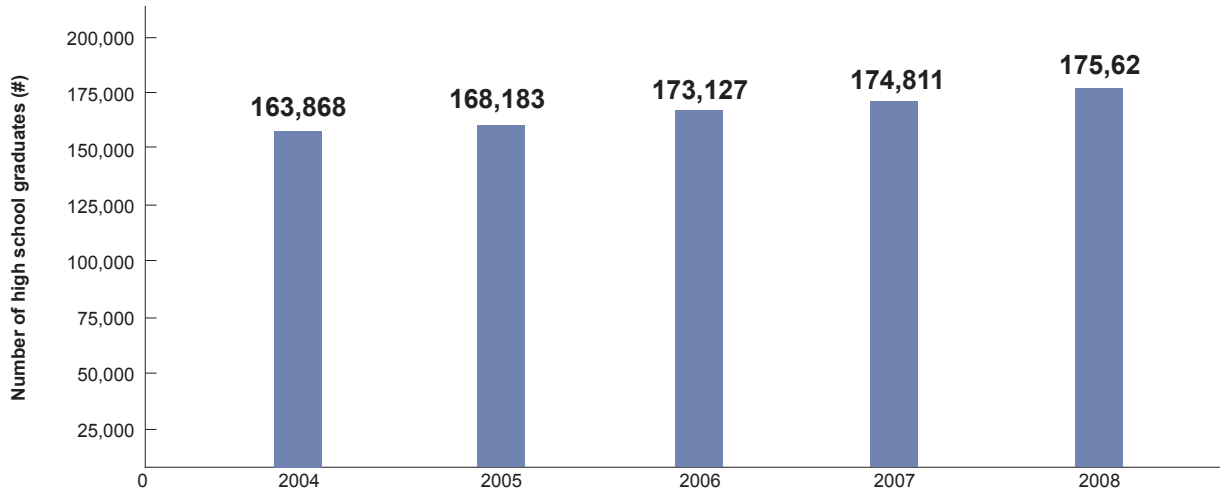
diploma are dire.[8] When considering the costs of healthcare and incarceration, each student who graduates can save the taxpayers of the state in which she lives anywhere from $1.7 to $2.3 million over her lifetime.[9]

Size and scope of the dropout problem in Oregon

High school graduation is a critical predictor of one's future earning potential and economic success, as well as a key indicator of school district performance and a state's future workforce. Figure 1 shows the number of Oregon residents who have earned a high school diploma over the past five years.

The Oregon Department of Education (ODE) reports statewide increases in total high school graduates. Figure 1

Total statewide high school graduates (2004 to 2008)



Source: Oregon Department of Education, 2009.[12]

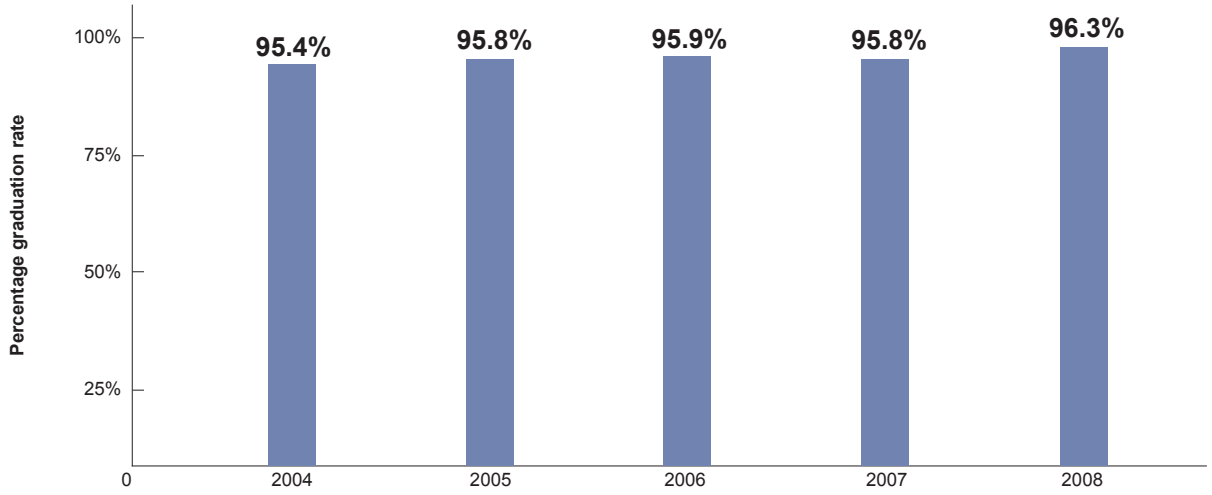
While the population of Oregon has grown each year, the dropout rate has remained relatively consistent. That said, more students are dropping out each year, while the percentage of student dropouts remains similar. While the majority of high school seniors do graduate from high school, a significant number do not. Over the past five years, approximately 5 percent of high school seniors have not graduated each year. This trend has remained relatively consistent, as can be seen in Figure 2.

To clarify, Oregon defines a high school dropout as a student in grades 9-12 who withdraws from school

without receiving a high school diploma, GED, modified diploma, or transferring to another school. This number basically represents the number of high school students who leave school in a given school year. Graduation rate calculations are currently based on the National Center for Education Statistics formula, in which the number of graduates with a regular diploma in the school year is divided by the sum of the number of graduates with a regular diploma plus the number of students who dropped out from grades 9-12 that school year. This measure as sanctioned by the United States Department of Education may be changing, however, as students who receive a modified diploma, extended diploma, or alternative certificate will count against a state's graduation rate, dramatically decreasing Oregon's asserted graduation rate.

The ODE reports very high, flat statewide graduation rates. Figure 2

Statewide high school graduation rates (2004 to 2008)



Source: Oregon Department of Education, 2009.[13]

Many states tend to over-report high school graduation rates, and Oregon is no exception. Thus, it is likely that Figures 1 and 2 are overstated.

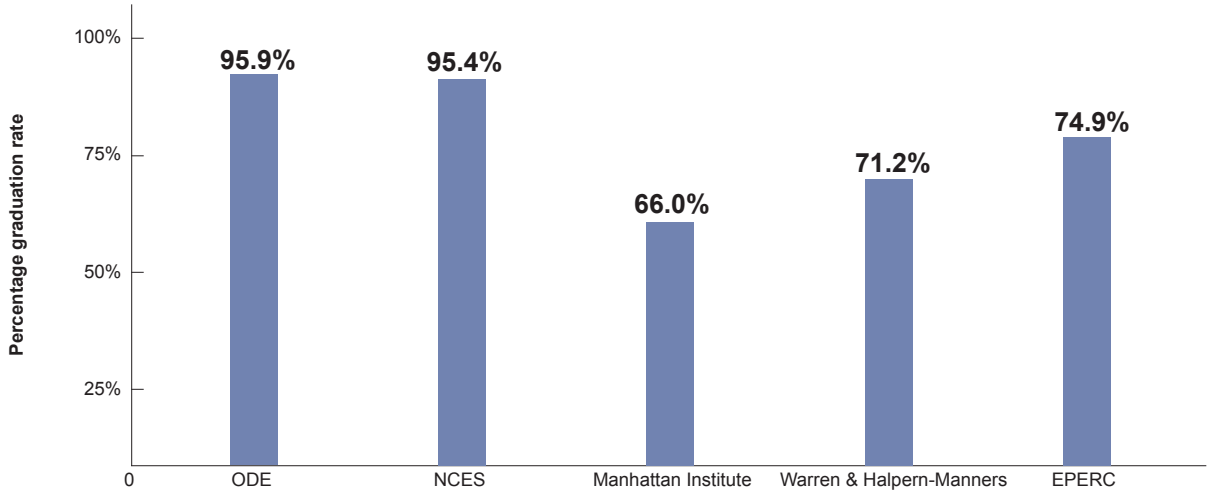
It is important to note that this analysis uses both the *graduation rate* and *dropout rate* when calculating the costs to the state when students do not complete high school. While many states and organizations have reached a consensus with regard to the definitions of these terms, there is still much variability.[10] Figure 3 illustrates that differences in calculations often account for dramatically different reports of high school completion. For the purposes of this analysis, *graduation rate* is de-

fined as the percentage of students who complete high school in a given year, while the *dropout rate* refers to the percentage of students who withdraw from high school in a given year.[11]

Figure 3 compares Oregon's officially reported high school graduation rate (for the 2005-06 school year, as measured by the Oregon Department of Education) with those of various independent educational research groups. While the estimate by the National Center for Education Statistics is similar to that of the Oregon Department of Education, estimates presented by the Manhattan Institute, Warren and Halpern-Manners, and the Editorial Projects in Education Research Center indicate larger dropout problems for the state.[14] The latter three organizations compute graduation rates based on freshman year enrollment, determining what percentage of freshmen complete high school in four years. It is clear that students throughout the state are dropping out of school well before reaching their senior year, as opposed to dropping out during their senior year. This information is critical so that interventions to retain these students may be targeted during the appropriate time period.

Graduation rates for 2006 differ by reporting organization. Figure 3

Statewide high school graduation rates by reporting organization



Note: 2006 is the most recent year for which all organizations provided accessible estimates.
Source: Oregon Department of Education (ODE), Graduation Rate Data; National Center for Education Statistics (NCES), Dropout Data, United States Department of Education; Manhattan Institute, April 2006; John R. Warren and Andrew Halpern-Manners, "Measuring High School Graduation Rates at the State Level: What Difference Does Methodology Make?", paper presented at the April 2007 meetings of the Population Association of America; Editorial Projects in Education Research Center (EPREC), "Ready for What? Preparing Students for College, Careers, and Life After High School." (2007).

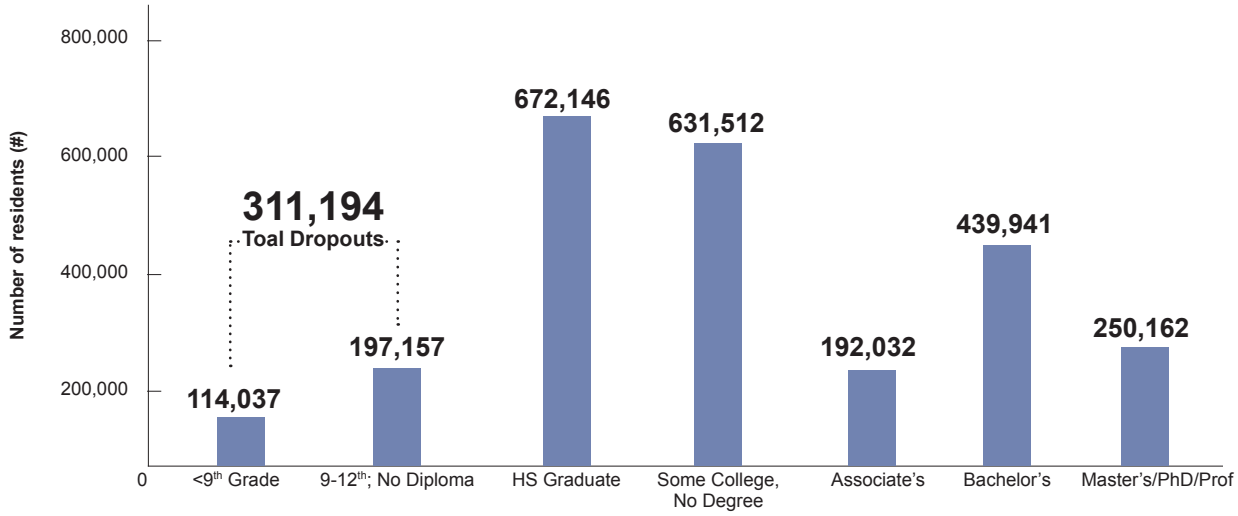
Over 300,000 working-age adults in Oregon do not hold a high school diploma. According to the American Community Survey, 12.5 percent of Oregon's residents over the age of 25 have not earned a high school

diploma. Figure 4 shows the number of Oregon residents over the age of 25 by educational attainment.

The U.S. Census reports more than 300,000 K-12 dropouts in Oregon.

Figure 4

Residents by educational attainment

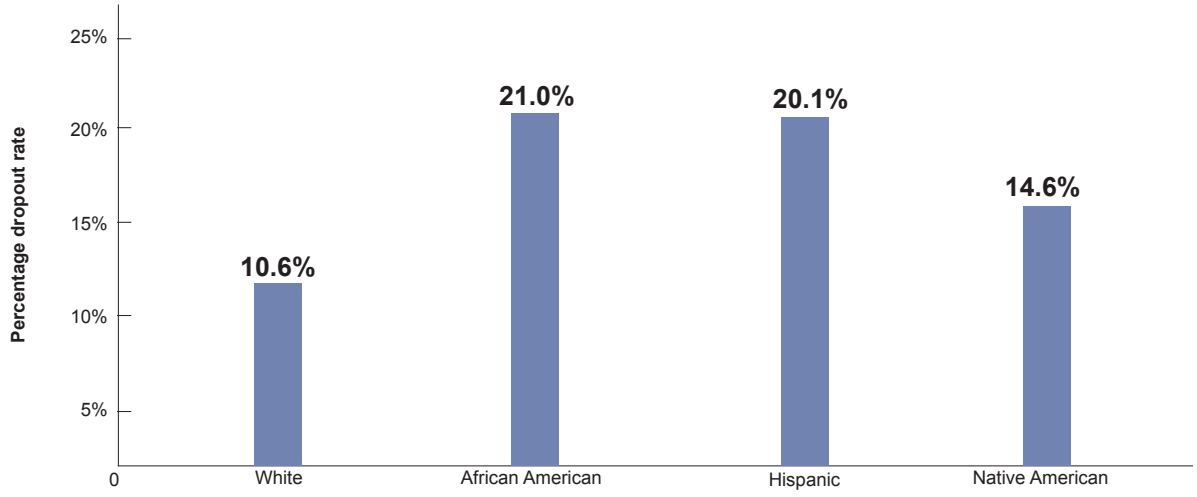


Source: U.S. Census Bureau, "American Community Survey, 2007," data for Oregon, author's analysis.

Attainment gaps are wide in Oregon.

Figure 5

Dropout rate by race/ethnic group



Source: Oregon Department of Education, 2009.

The racial demographics of Oregon's high school dropouts resemble statistics in other states and highlight an educational attainment gap. The Oregon Department of Education reports dropout rates of 10.6 percent for white students, 21 percent for African Americans, and 20.1 percent for Hispanic students. Differences are shown in Figure 5.[13]

Graduation rates vary across Oregon's three biggest city school districts. Table 1

Comparing graduation rates across school districts (2007)

	Eugene SD	Salem-Keizer SD	Portland SD
% Graduation Rate	**88.6**	**81.3**	**73.7**
Anticipated Total Dropouts Per Year	**1,941**	**6,706**	**11,713**
District Profile			
# Students	17,028	35,863	44,538
# Schools	45	66	98
% Native American	5.3	1.7	2.1
% African American	3.3	1.2	16.3
% Hispanic	8.5	27.4	13.3
% White	76.7	66.0	57.5
% Free and Reduced Priced Lunch	30.6	50.0	46.5

Source: EPE Research Center Mapping Tool, 2009.[15]

Oregon dropouts have worse life outcomes when compared to graduates. Table 2

Projected life outcomes by educational attainment

	Dropouts	HS Grads	Some College	Associate's	Bachelor's	Master's	PhD/Prof
% Labor Force	68	76.4	77.2	80.8	82.7	83.9	82
% Unemployment Rate	9.2	7.8	5.8	4.9	2	1.1	0
Annual Earnings, Total	$16,785	$26,561	$29,633	$38,548	$49,959	$74,428	$74,428
% Medicaid or With Child on Medicaid	43.2	20.9	16.5	13	6.4	5.7	6.1
% Incarceration Rate, Males Only				*All College Grads Combined*			
% White	1.5	0.6	0.5	0.5			
% African American	5.0	1.0	0.5	0.5			

Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2005-07," data for Oregon, author's analysis.

Along with racial disparities, geographic disparities also exist throughout Oregon. While clear differences exist among urban, suburban, and rural school districts across the state, there are striking differences across districts serving Oregon's three largest cities – Portland, Salem, and Eugene. Table 1 compares the student demographics, levels of poverty, and differing 2007 graduation rates across these three districts.

Dropouts cost Oregon taxpayers millions every year

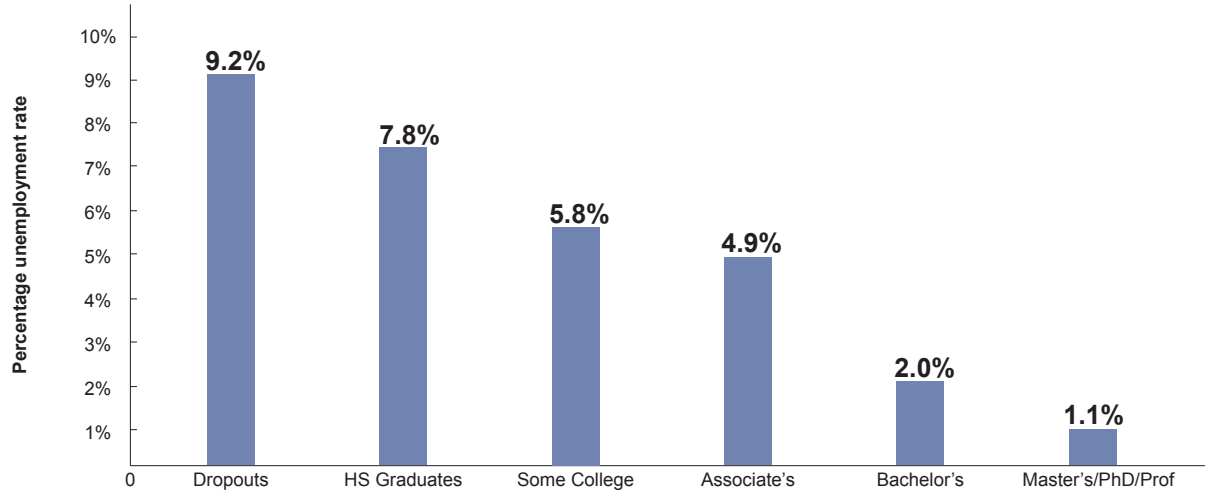
A person's level of educational attainment is a fairly accurate predictor of future economic success, as well as involvement in the labor force, likelihood of incarceration, and reliance on public benefits. Table 2 summarizes the effect of differing levels of education on the life outcomes of Oregon residents, ages 20-64. The table demonstrates that those who do not finish high school are less likely to be in the workforce, and are more likely to be unemployed. High school dropouts earn much less each year than their peers who completed high school, and are more likely to collect Medicaid benefits. Dropouts are also more likely than high school graduates to be incarcerated.

Effects of high school completion on employment in Oregon

Figure 6 presents differing unemployment rates according to level of educational attainment. A high school dropout is more likely to be unemployed than than any other group. At 9.2 percent, their unemployment rate prior to the economic recession is substantially higher those who have graduated from high school or college. The research literature discussed above indicates that postsecondary experience, no matter how much, is positively related to greater employment opportunities and greater earning potential. This association is evident in the chart. A person having more education offers more human capital, and therefore is more likely to be employed and contributing tax revenue to the state.

Unemployment varies by educational attainment. Figure 6

Oregon unemployment rates by educational attainment



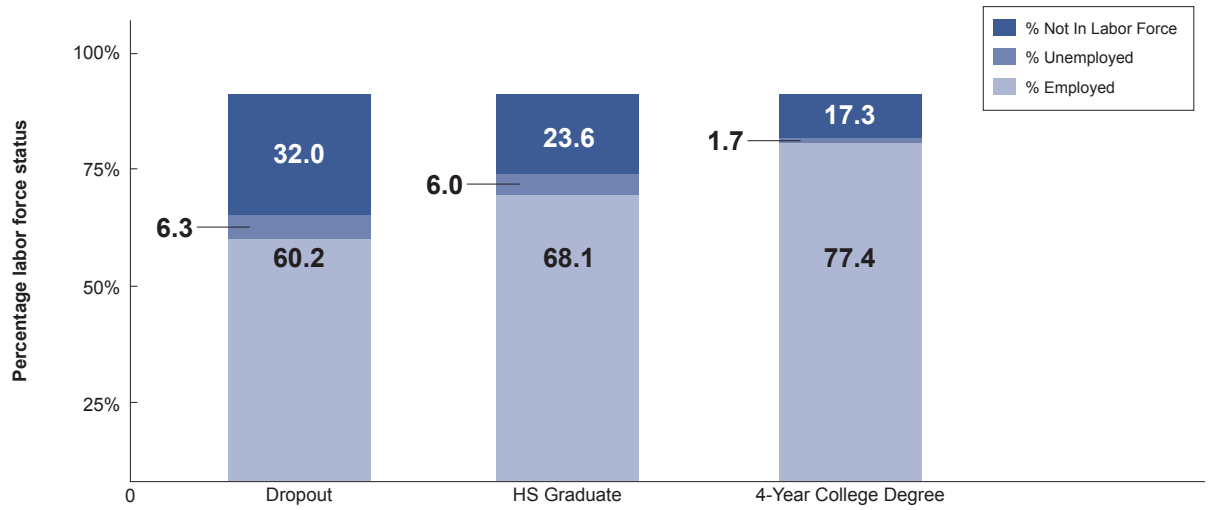
Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2005-07," data for Oregon, author's analysis.

Figure 7 displays employment data by level of educational attainment. Oregon's high school dropouts are less likely to be in the labor force (either working or looking for work) than those with additional educational attainment. Approximately 60 percent of these individuals are employed, as compared to 68.1 and 77.4 percent of high school and college graduates, respectively.

Prior to the 2008-2009 recession, nearly 2 out of 5 dropouts were not working.

Figure 7

Labor force status by educational attainment



Note: A person is considered "Not in the labor force" if a person does not have a job and is not looking for work. A person is considered "Unemployed" if a person does not have a job but is actively looking for work.
Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2005-07," data for Oregon, author's analysis.

Effects of dropouts on individual earnings

On average, high school dropouts in Oregon make almost $10,000 less each year than high school graduates. The average annual earnings of dropouts are lower than those of high school graduates due to lower paying jobs, lower workforce participation, and lower employment rates. Figure 8 highlights the impact of dropouts in terms of annual earnings in 2007.

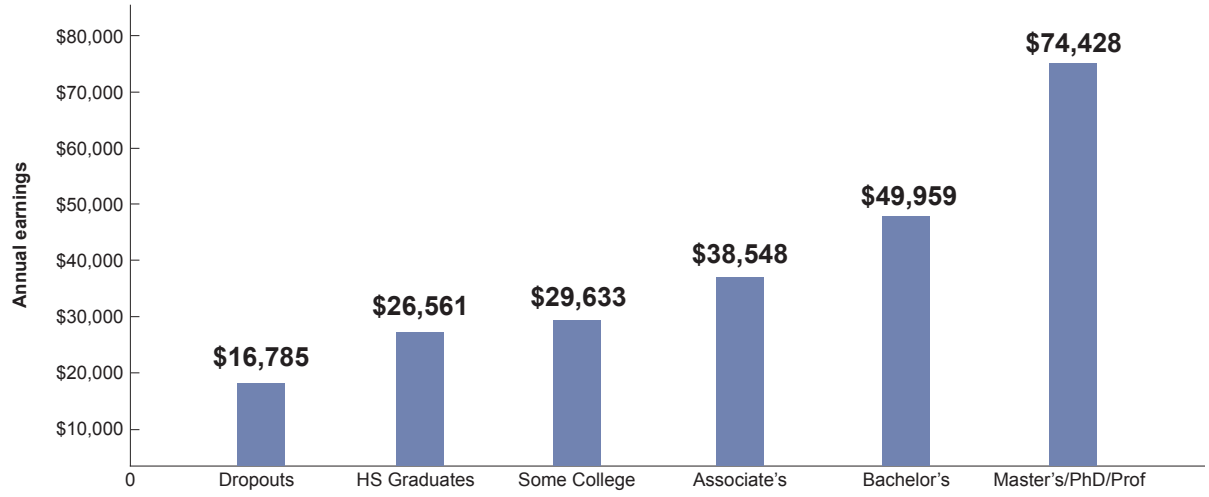
The fiscal impact on Oregon's economy is profound when considering lost income due to dropouts. Table 3 shows lower earnings by dropouts cost Oregon $2.1 billion in lost taxable revenues over their lifetime. This is a conservative projection, based on dropouts simply completing high school

with no further postsecondary educational attainment. This increase in earnings could be reinvested into the economy of Oregon, resulting in greater productivity as well as growth in both wages and availability of jobs.

Graduate annual earnings far exceed dropout earnings.

Figure 8

Annual earnings by educational attainment



Source: U.S Census Bureau, "American Community Survey, 2007," data for Oregon, author's analysis.

Over their collective lifetimes, Oregon's population of dropouts will cost the state about $2 billion in lost taxable earnings.

Table 3

Average annual earnings and total annual earnings by educational attainment

Educational Attainment	Population	Average Annual Earnings	Lifetime Earnings	Lifetime Earnings if Dropouts Become HS Grads
Dropouts	218,641	$16,785	$3,669,932,913	$0
HS Graduates	604,555	$26,561	$16,057,343,533	$21,864,908,956
Some College	566,942	$29,633	$16,800,078,898	$16,800,078,898
Associate's Degree	210,710	$38,548	$8,122,428,009	$8,122,428,009
Bachelor's Degree	471,916	$49,959	$23,576,357,061	$23,576,357,061
Master's/PhD/Prof	206,917	$74,428	$15,400,335,709	$15,400,335,709
TOTAL	**2,279,681**	**$39,319**	**$83,626,476,123**	**$85,764,108,633**
INCREASED EARNINGS IF ALL DROPOUTS BECOME HS GRADUATES →				**$2,137,632,510**

Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2007,"data for Oregon, author's calculations.

Furthermore, greater average earnings throughout the state, due to increased high school graduation rates, would increase the average per capita income of citizens of Oregon – a significant personal benefit for those completing high school.

Reduction of tax revenues

In addition to personal benefits, the public benefits of high school graduates are significant. Individuals with higher levels of education improve the productivity of Oregon's economy and typically find better-paying jobs, which in turn grows the state's income tax base. Higher graduation rates in Oregon would lead to increased tax revenues to state and local government.

Data on the earnings of working-age high school dropouts and graduates were collected from the U.S. Census Bureau's Current Population Survey (March Supplement) spanning 2005-2007. Using the TAXSIM model developed by the National Bureau of Economic Research, we calculate hypothetical tax liabilities. For the purpose of this analysis, various simplifying assumptions have been made. All taxpayers were treated as single taxpayers, and it was assumed that taxpayers were not eligible for various, specific exemptions. All income was treated as wage income, and taxpayers were not assumed to be homeowners. These assumptions are in line with aforementioned studies produced by the Foundation for Educational Choice.

Dropouts reduce Oregon's tax revenue by $173 million per year. Table 4

Calculating lost tax revenue due to graduate-dropout income difference

			Tax Payments by Dependent Exemptions			
	Population	**Total Income**	**No Children**	**1 Child**	**2 Children**	**3+ Children**
HS Graduates	604,555	$26,561	$1,671	$1,603	$1,461	$1,302
Dropouts	218,641	$16,785	$924	$721	$478	$319
Difference			$747	$882	$983	$983
x						
Dropouts			111,372	27,857	42,218	24,555
Lost Tax Revenue			$83,194,884	$24,569,874	$41,500,294	$24,137,565
TOTAL LOST TAX REVENUE →						**$173,402,617**

Source: NBER TAXSIM Model, author's calculations.

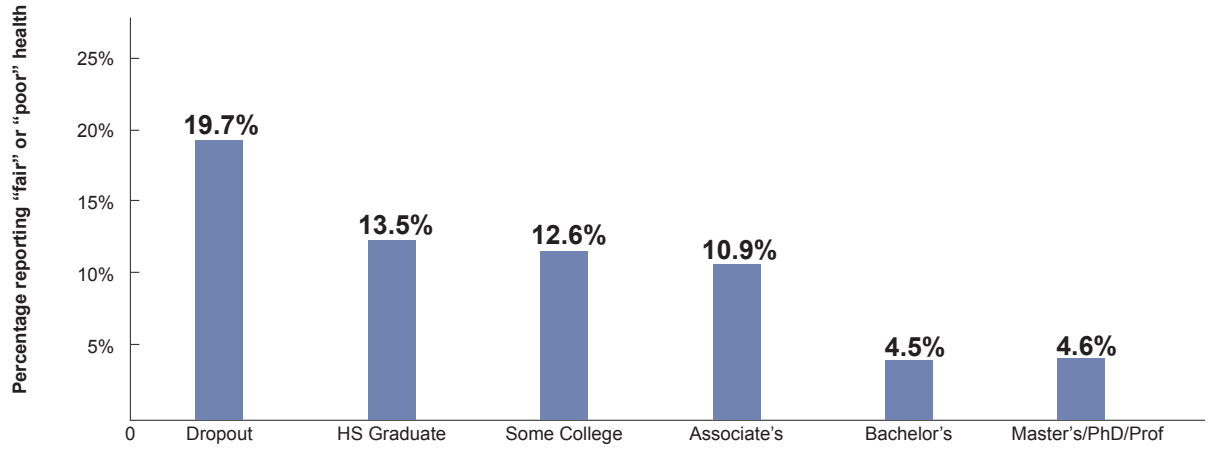
We calculate state tax liabilities for taxpayers with and without dependent children, and weight by the percentage of dropouts with or without children, as presented by the Current Population Survey data. Table 4 summarizes the tax revenue lost as a result of Oregon's dropout problem. The income tax figure is calculated by determining the difference between graduate and non-graduate tax liabilities, and multiplying the difference by the number of high school dropouts. As can be seen below, the state of Oregon loses approximately $173 million in tax revenue each year due to the lowered earnings of high school dropouts.

Dropouts increase the cost of health care

High school dropouts in Oregon are much more likely to rely on public programs such as Medicaid, Temporary Assistance to Needy Families, and food stamps.[16] The likelihood of needing one or more of these public assistance programs increases greatly for those without a high school diploma when compared to their more educated peers.[17] These public costs increase as dropouts are more likely to be unemployed. In addition, those dropouts who are employed are less likely to hold a position that provides health care coverage, which increases their dependence on Medicaid programs.[18] Figure 9 displays data on the general health of citizens of Oregon by educational attainment. Dropouts report poorer overall health than those who have graduated from high school. As the individuals are more likely to use public welfare programs, the general ill health of this population translates into even higher costs for the state.

Dropouts tend to self-report poorer health. Figure 9

Self-reported quality of health by educational attainment



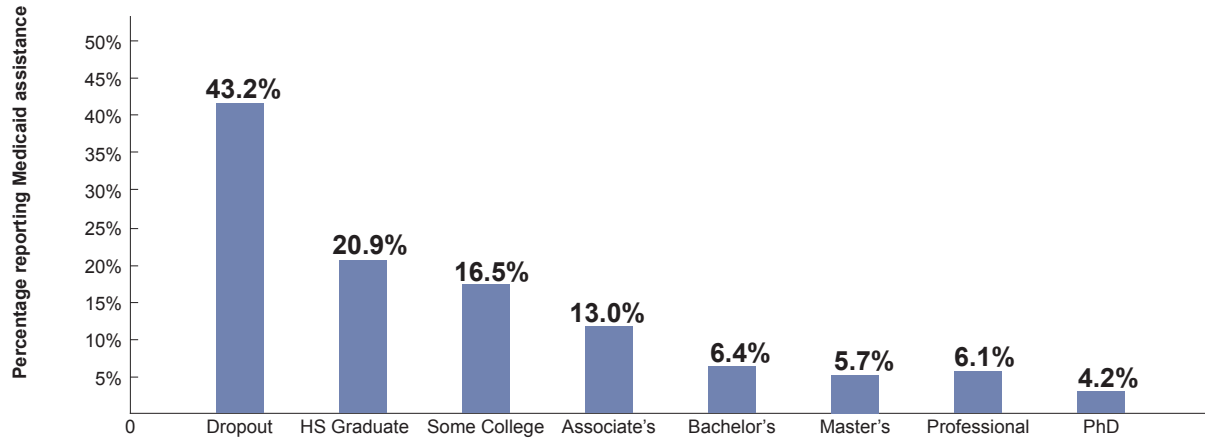
Source: U.S Census Bureau, "Current Population Survey, March Supplement 2007," author's calculations.

The greatest cost of dropout health care in Oregon is that of the state's share of Medicaid costs under the Oregon Health Plan. Current estimates show that 428,325 residents received some form of Medicaid benefit, for a total cost exceeding $1.9 billion (more than $4,400 average expenditure per recipient).[19]

We use the Current Population Survey data to determine Medicaid costs by educational attainment in Oregon. As can be seen in Figure 10 below, over 40 percent of high school dropouts receive Medicaid benefits. This is more than twice the rate of those who did graduate from high school, and over six times that of those with a 4-year degree.

Oregon's dropouts are twice as likely as graduates to depend on Medicaid. Figure 10

Self-reported Medicaid assistance by educational attainment



Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2007," data for Oregon, author's calculations.

To estimate the Medicaid costs due to dropouts, we compare the probability that a high school dropout in Oregon would be on Medicaid to the same probability for high school graduates. We use this comparison to determine the difference in the number of expected Medicaid recipients among high school dropouts and graduates, and multiply this difference by the average cost per Medicaid recipient. We multiply the estimated number of dropouts currently on Medicaid by the average cost per Medicaid recipient. We then estimate the reduction in the number of people who would be on Medicaid if all high school dropouts had obtained diplomas, and calculate the change in Medicaid costs as a result.

Table 5 presents Medicaid costs related to dropouts. We estimate that if all working-age Oregon dropouts had graduated from high school, Medicaid costs to the state would decrease by $218 million. It is important to note that the CPS tends to underestimate the percentage of Medicaid recipients due to limitations to its sampling procedure.[20] Because of this, these figures will likely understate the cost of Medicaid related to dropouts.

Higher Medicaid use by dropouts costs Oregon nearly $219 million per year. Table 5

Educational Attainment	Population	% on or w/Child on Medicaid	# on or w/Child on Medicaid	Total Cost to State	# If Graduated	Total Cost to State
Dropouts	218,641	43.2	94,453	$424,093,970	0	$0
HS Graduates	672,146	20.9	140,478	$630,746,220	186,174	$835,921,260
Some College	631,512	16.5	104,199	$467,853,510	104,199	$467,853,510
Associate's	192,032	13	24,964	$112,088,360	24,964	$112,088,360
Bachelor's	439,941	6.4	28,156	$126,420,440	28,156	$126,420,440
Master's/PhD/Prof	250,162	5	12,508	$56,160,920	12,508	$56,160,920
Total				$1,817,363,420		$1,598,444,490
ESTIMATED ANNUAL MEDICAID SAVINGS IF ALL DROPOUTS GRADUATE →						$218,918,930

Source: U.S. Census Bureau, "Current Population Survey, March Supplement 2007," data for Oregon, author's calculations.

Likelihood of incarceration

Oregon spends approximately $395 million incarcerating criminals each year, averaging $28,300 per inmate. The likelihood of incarceration for any individual high school dropout is small. However, the probability of his incarceration is twice that of his peers who earn a high school diploma. For example, an African American male who fails to graduate from high school has a 5 percent chance of incarceration in his lifetime. This probability is about three times higher than a white high school graduate, who has a 1.5 percent chance of being incarcerated (see Figure 11).

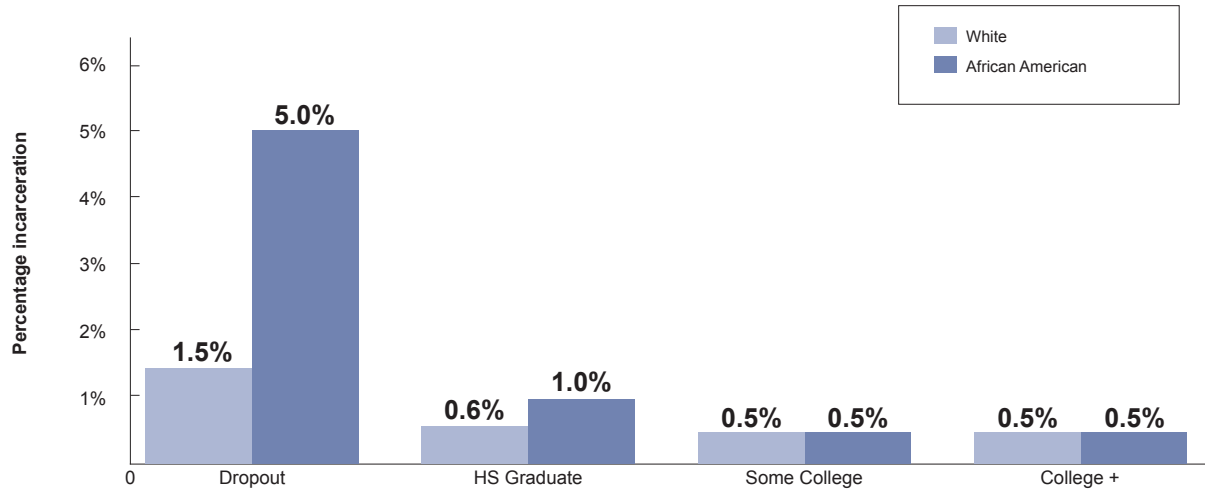
As educational attainment increases, the probabilities of incarceration decrease steadily. The costs of incarceration associated with dropouts are estimated by relying on the difference in probability of being incarcerated associated with higher levels of education attainment. Due to limitations in the data, we consider only the incarceration rates of males, who constitute 92 percent of Oregon's inmate population.[21]

Since the U.S. Current Population Survey does not survey incarcerated residents, we rely on indi-

rect estimates of criminal activity in Oregon and the previous work of academic researchers in order to make the following assertions.[22] These estimates display the likely number of Oregon dropouts who would be incarcerated at some point during their lifetime.

Dropouts are at least twice as likely as graduates to be incarcerated. Figure 11

Percent incarceration by educational attainment and race/ethnicity



Source: Lochner and Moretti, 2001; Oregon Department of Corrections, 2008.[23]

Nearly 90 percent of white students graduate from high school, while only 79 percent of African American students graduate. This provides further evidence of an attainment gap. Utilizing the anticipated rates of incarceration as outlined in the work of Lochner and Moretti (2001), and data presented in Figure 11, expected incarcerations were calculated using the number of high school dropouts presented, as well as a hypothetical number, assuming that all students did graduate.[24]

While African American dropouts are more likely to be incarcerated than their white peers, more incarcerated citizens tend to be white because there are many more whites living in the state.

Assuming the previously-mentioned $28,300 annual cost of incarceration per inmate, the state of Oregon can save over $37 million dollars each year by increasing graduation rates, thereby lowering incarceration rates throughout the state.

Oregon can save up to $37 million each year by increasing graduation rates. Table 6

Approximate annual costs of incarcerating dropouts (2008)

White Students	Percent Dropouts:	11%
	Number Dropouts:	18,958
African American Students	Percent Dropouts:	21%
	Number Dropouts:	28,899
Expected Incarcerations from Dropouts	White:	284
	African American:	1444
Expected Incarcerations without Dropouts	White:	114
	African American:	289
Projected Cost of Incarceration		$48,902,400
Projected Cost if No Dropouts		$11,404,900
DIFFERENCE →		**$37,497,500**

Source: Lochner and Moretti, 2001; Oregon Department of Corrections, 2008

Conclusion

This analysis examines various losses associated with high school dropouts in Oregon. It is important to note, however, that this report discusses only the most direct costs associated with low graduation rates. The failure of many students to graduate has a negative fiscal impact on the state, resulting in higher costs to taxpayers. It is clear that the need for reform centers on issues of student retention and graduation.

Each student who fails to graduate produces direct costs to taxpayers through lower tax revenues and higher social costs related to healthcare and incarceration. As noted in the discussion, dropouts cost the state of Oregon $173 million in tax revenue each year, and more than $200 million in annual Medicaid costs. Considering the likelihood of incarceration among those who do not complete high school, the state could potentially save up to an additional $37.5 million in incarceration costs each year should graduation rates increase.

Furthermore, the unemployment rate (prior to the economic recession) for high school dropouts in the state is 9.2 percent. Those dropouts who are employed earn, on average, $10,000 less each year than high school graduates. It is impossible to ignore these significant figures and their impact on Oregon's economy and workforce. It cannot be denied that improvements in student retention and high school graduation rates will benefit individual students as well as produce public benefits by improving the state economy and increasing the income tax base. The state saves money when high school graduation rates rise and the number of dropouts decreases.

Notes

[1] Comparisons are drawn between Oregon and other states recently profiled by the Foundation for Educational Choice. These profiles may be accessed online at http://www.edchoice.org/research/ShowResearch.do

[2] Oregon House Bill 3426: proposed to "(A)llow Department of Education to award grants from School Improvement Fund for dropout prevention and student retention programs." Introduced March, 2009.

[3] Gary S. Becker, "Investment in human capital: A theoretical analysis," *The Journal of Political Economy* 70 1(1962).

[4] Andrew Sum and Paul Harrington, "Left Behind in America: The Nation's Dropout Crisis," The Center for Labor Market Studies, Northeastern University, (2007).

[5] Russell Rumberger and Stephen Lamb, "The early employment and further education experiences of high school dropouts: A comparative study of the United States and Australia," *Economics of Education Review*, 22 (2002).

[6] Jennifer Laird et al., "Dropout rates in the United States: 2002 and 2003," U.S. Department of Education, National Center for Education Statistics (2006). Available: http://nces.ed.go/pubs2006/2006062.pdf

[7] Christopher Callahan et.al., "A Longitudinal Model of Health Insurance, An Update: Employer Sponsored Insurance, Medicaid, and the Uninsured," U.S. Department of Health and Human Services, working paper (2005).

[8] Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports," National Bureau of Economic Research, Working Paper #8605, 2001. Mark Cohen, "The monetary value of saving a high-risk youth," *Journal of Quantitative Criminology* 14 (2002).

[9] Mark Cohen, "The monetary value of saving a high-risk youth," Journal of Quantitative Criminology 14 (2002).

[10] National Governors Association, "Governors sign compact on high school graduation rates at annual meeting," (2005). Available: http://www.nga.org/portal/site/nga/menuitem. 6c9a8a9ebc6ae 07eee28aca9501010a0/?vgnextoid=f599184d94525010VgnVCM1000001a01010aRCRD

[11] These are the definitions used in the majority of literature reviewed, as well as in the work by government and research agencies cited. For more details regarding specific definitions used by each organization discussed, please see notes 14 and 15 below.

[12] Oregon Department of Education Graduation Rate Data. Available: http://www.ode.state.or.us/ search/ page/?id=2644

[13] Oregon Department of Education Dropout Rate Data. Available: http://www.ode.state.or.us/ search/page/?id=2644

[14] Oregon Department of Education Graduation Rate Data; National Center for Education Statistics Dropout Data, United States Department of Education; Manhattan Institute, April 2006; John R.Warren and Andrew Halpern-Manners, "Measuring High School Graduation Rates at the State Level: What Difference Does Methodology Make?", paper presented at the April 2007 meetings of the Population Association of America. Editorial Projects in Education Research Center, "Ready for What? Preparing Students for College, Careers, and Life After High School." (2007).

[15] The Mapping Tool provided by Editorial Projects in Education Research Center was used to determine student demographics and completion rates for the Eugene, Portland and Salem-Keizer school districts. This tool is available online at http://www.edweek.org/apps/gmap/

[16] Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services, MSIS state summary data. Kaiser Family Foundation, "State Health Facts." Available: http://www.statehealthfacts.org/compare.

[17] Callahan, C., et.al., "A Longitudinal Model of Health Insurance, An Update: Employer Sponsored Insurance, Medicaid, and the Uninsured," U.S. Department of Health and Human Services, working paper (2005).

[18] Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services, MSIS state summary data. Kaiser Family Foundation, "State Health Facts." Available: http://www.statehealthfacts.org/compare.

[19] Oregon Department of Human Services: Oregon Health Plan Demographics annual reports. Available: http://www.oregon.gov/DHS/healthplan/data_pubs/demog/main.shtml

[20] Large scale surveys of this nature often experience some degree of sampling error due to the inaccessibility of certain populations. In this case, lower income individuals who receive services such as Medicaid are likely underrepresented because they are less likely to be contacted by researchers, complete surveys, etc.

[21] Data provided by the Oregon Department of Corrections. Data available at http://www.oregon.gov/DOC/RESRCH/inmate_population.shtml

[22] Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports," National Bureau of Economic Research, Working Paper #8605, (2001).

[23] Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports," National Bureau of Economic Research, Working Paper #8605, (2001).

[24] National Association of State Budget Officers, "State Expenditure Report 2006," Fall 2007.

About the Author

Emily Anne House received her Master of Public Policy degree from Vanderbilt University, and is a Ph. D. student at the University of Michigan in the School of Education. Her academic focus is on issues pertaining to state-level P-16 initiatives to ensure postsecondary opportunity and success. She has worked extensively with the Tennessee Higher Education Commission on analyses related to the Tennessee Education Lottery Scholarship program. House is a graduate of Cornell University and taught Special Education as a Teach for America corps member in Saint Louis, Missouri.

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