



Chris Benner, Ph.D. Department of Human and Community Development

Gloria M. Rodriguez, Ph.D. School of Education

Bidita Tithi, Graduate Student Geography Graduate Group

Cassie Hartzog, Doctoral Candidate Department of Sociology

Center for Regional Change University of California, Davis One Shields Ave, 1309 Hart Hall Davis, CA 95616 530.751.8799 http://regionalchange.ucdavis.edu

Cost of Dropouts in the Capital Region



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Citation Information: Benner, Chris, Gloria M. Rodriguez, Bidita Tithi, & Cassie Hartzog. 2010. *Cost of Dropouts in the Capital Region*. Healthy Youth/Healthy Regions Working Paper. Center for Regional Change, UC Davis Educational attainment is a critical input in securing positive outcomes on a wide range of dimensions of well-being among youth, including physical and mental health, employment, and civic engagement.

The purpose of this working paper is to provide an analysis of the costs associated with high school dropouts to raise awareness among regional constituents of the impact that educational attainment outcomes have not just on youth well-being across the nine counties of the Capital Region, but for the entire region, through the loss of economic value and the associated public sector costs associated with reduced revenue and additional social expenditure.

The scale of this cost to the region is quite substantial. In the 2007-08 school year, an estimated 8,961 students dropped out of high school. Based on the average difference in annual earnings for adults in the region between high school dropouts and those who have graduated from high school, this represents nearly \$215 million in lower annual earnings. Over a lifetime, the estimated loss in lifetime earnings for dropouts is \$2.6 billion for the 9-county Capital Region. While this represents the loss in overall lifetime earnings (an important component of economic demand), there are also direct fiscal costs to taxpayers in the region, associated with higher costs of social programs that are spent on those without a high school degree, and the loss of potential income. The combined lifetime costs of the additional expenditures in social and welfare programs and the criminal justice system, combined with the loss in normal tax revenue, for just one year's cohort of dropout students is estimated to be \$480 million.

This information is shared in an effort to highlight the importance of greater attention and responsiveness to the needs—and strengths—of youth who face considerable obstacles in both advancing through the educational process and in securing other social, emotional, and community supports. We recognize that such analyses are often used to frame the discussion of school dropouts as a "burden to society" story, which can inadvertently limit the community dialogue that is needed to address this significant challenge in increasing educational attainment, especially among the most marginalized and vulnerable youth. Indeed, as colleagues on this project (London et al., 2010; Erbstein, Burciaga & Rodriguez, 2010) have demonstrated through the work conducted with youth across the region, even in situations where youth appear to be disengaged from school and/ or work, they nevertheless bring a wide range of personal, community-developed assets that can be viewed as untapped resources that could greatly enhance the development of communities throughout the region. Therefore, we present the following analysis to give community constituents a view of the savings that can be achieved by attending more directly to the needs and strengths of youth and their families and communities—thereby increasing the potential for investment in their futures through education, health, workforce preparation, and civic engagement activities that further strengthen youth and their families.

Foundations of Social Cost of Dropout Analysis

People who drop out of high school, over their lifetime, represent a significant loss to the economy, society, and the public sector. Those with lower education levels, on average, have substantially lower earnings, more tenuous connections to the labor market, make greater demands on social services, tend to have higher crime levels and worse health. Over the past three decades, researchers in the United States have taken up the question of what cost to society school dropouts represent and how to invest in education in ways that prevent dropouts and thus derive associated cost savings (Catterall, 1985; Cohen, 1998; Belfield & Levin. 2007a; Belfield & Levin, 2007b; Belfield & Levin, 2009; Levin et al., 2007b; Ramirez & del Refugio Robledo, 1987; Levin, 1972). Among the earliest analyses undertaken to understand the social cost impact of dropouts was Levin's 1972 study of the cost of dropouts. In this early work—which in many regards established a model that has been followed and modified since that time—Levin (1972) identified several factors associated with the cost of dropouts, including the following.

- 1. Forgone national income;
- 2. Forgone tax revenues for the support of government services;
- 3. Increased demand for social services;
- 4. Increased crime;
- 5. Reduced political participation;
- 6. Reduced intergenerational mobility; and
- 7. Poorer levels of health

Levin's analysis utilized a review of the existing educational research to determine the investment required to reduce dropouts and produced estimates for the first four cost factors associated with dropouts to arrive at a benefit-cost ratio associated with the reduction of dropouts. Using his estimates, the ratio was 6:1, which means that \$6 in social benefits (in the form of public cost savings) could be derived from each public dollar invested in reducing dropouts. Several years later an analysis of costs for Texas dropouts, and the benefit/cost ratio was reported to be as high as 9:1 (Ramirez & del Refugio Robledo, 1987). In the same year, Rumberger (1987) reported the results of Levin's analysis and incorporated this approach in his ongoing work on dropouts in California, with some adjustments that reflect current knowledge on the educational options provided to youth with various schooling situations. In addition, the incorporation of public healthcare costs associated with dropouts has been a development of more recent research that built upon Levin's initial work.¹

Other analyses of the cost of dropouts (and the associated savings derived from dropout reduction or prevention) take generally similar approaches, but they focus on certain cost dimensions of interest. For example, some analyses take the approach of estimating the costs of increased juvenile crime (and other criminal justice system costs) that can be associated with dropouts (Belfield & Levin, 2009; Cohen, 1998; Lochner & Moretti, 2004). Other research instead focused the estimates on the dimension of health-related costs associated with dropouts, including analyses that seek to understand the extent to which dropouts across the United States remain uninsured or reliant on public healthcare insurance for some portion of their adult lives to determine the broader social

See Geraghty, E. 2010 for a discussion of health conditions of youth in the Capital Region.

¹

implications of dropout (Muennig, 2006).

Some studies and evaluations have also undertaken to estimate the impact of various interventions aimed at reducing dropouts and/or increasing high school graduation rates (Levin et al., 2007a; Levin et al., 2007b; Stem et al., 1989). We examined these studies to determine if their cost estimates were conducted in a manner that might provide additional insights for the estimates that we sought to provide for the Healthy Youth/Healthy Regions audience. Our attention was not focused on the particular interventions, but rather upon the methodology employed to estimate the cost savings derived from the reduction of dropouts/increase in graduates.

More recent research conducted by Clive Belfield and Henry Levin focused on the California dropouts and built upon the early analyses conducted by Levin by integrating the social cost factors attributable to health care, crime, and public assistance—three key sources of social service costs that are typically associated with dropouts (Belfield & Levin, 2007a; Belfield & Levin, 2007b). This work was commissioned by Rumberger's California Dropout Project, and their aim is articulated as an effort to provide the basis for increasing attention to and investments in the reduction of dropouts, given the long-established relationships between dropouts and a variety of significant social costs—and the potential benefits to society of reducing the incidence of this phenomenon.

Cost of Dropouts in the Capital Region: by County and for the Region as a Whole

In order to estimate the impact of school dropouts on the Capital Region, we employed the approach developed by Russell Rumberger and Susan Rotermund (2009) for the California Dropout Project, as well as the cost/benefit analysis conducted by Belfield and Levin (2007a) to determine the loss of economic earnings and the public fiscal losses linked to dropouts in California. To prepare this estimate of the total costs of dropouts and the potential savings of reduced dropouts, we utilized our data collected for the preliminary analyses of dropout patterns across the counties in the region. Cost estimates reflecting the economic losses derived from dropouts were determined by multiplying the total dropout figures by county and for the region by the figures developed in Belfield and Levin's model, which reflect three primary lifetime costs: (1) health, (2) public assistance/welfare, and (3) criminal justice. In addition, they also adjusted these figures to reflect the "savings" derived from not having to pay for the costs of education after the students dropped out of school.² Rumberger and Rotermund have conducted a similar analysis for key cities throughout California, including Sacramento; however, this analysis is for county-level estimated potential public losses associated with one year of dropouts (2006-07) for the entire region. Our estimates (shown below in Tables 2 through 4) can be interpreted as either the lifetime costs incurred in California and the region for each dropout or, if dropouts are prevented, the social cost estimates can be viewed as potential savings resulting from the reduction of dropouts in the region.

Labor Market Status by Educational L	evel, 2008, 25.	6-64 year olds, HY	'HR Core F	Region	
	Employed	Unemployed	Not in Iabor force	Average Annual Wage and Salary Income	Average Weeks Worked Last Year*
Educational Attainment					
8th Grade or less	56.4%	6.9%	36.7%	\$13,744	23
Some HS no diploma	54.1%	7.0%	38.9%	\$16,424	27
High school graduate	66.2%	6.8%	27.0%	\$25,030	34
Some college, no degree	75.2%	5.1%	19.7%	\$33,300	39
Associate degree	79.0%	3.1%	17.9%	\$38,119	40
Bachelors degree	81.9%	3.0%	15.2%	\$49,257	42
Graduate or Professional degree	84.9%	1.5%	13.6%	\$68,195	43
Dropout Category					
Less than High School Degree	55.2%	6.9%	37.9%	\$15,201	25
High School Degree or Higher	76.1%	4.4%	19.5%	\$39,160	39
Total	73.5%	4.7%	21.8%	\$36,241	37

Table 1.

Source: U.S. Census American Community Survey 2008.

* Weeks worked is from the 2000 Census.

The first factor to highlight is the reduced earnings associated with dropping out of high school. Table 1 provides basic indicators of labor market status by education level for all 25-64 year olds in

² (The technical details for each of these cost figures is discussed in greater detail in Belfield and Levin's two reports, which can be located via the California Dropouts Project website at http://cdrp.ucsb.edu).

the Healthy Youth/Healthy Regions core area.³ The figures clearly show that educational attainment is strongly associated with high labor force participation rates, lower unemployment, higher salaries and more weeks worked per year. In 2008, only 55.2% of residents in the region who didn't have a high school degree were employed, compared to 76% of those with a high school degree or higher. Nearly 38% of those in the region without a high school degree were not in the labor force at all, compared to 19.5% of those with a high school degree or higher. High school graduates (including those with higher degrees as well) earned on average more than 2 ½ times as much as those without a high school degree, earning on average \$39,160 compared to the average of \$15,201. Even those with just a high school degree in the region earned 60% more on average than high school dropouts, earning \$25,030.

When these average figures are multiplied by the absolute number of students who dropout of school each year, the scale of the problem becomes quite large. Table 2 shows the number of students who dropped out of school in 2006-07 by county, totaling 8,961 for the entire 9-county region. When multiplied by the average difference in annual earnings between dropouts and high school graduates, this represents a combined loss of nearly \$215 million in wages and purchasing power in the regional economy. Using estimated generated by Belfield and Levin, each student who drops out of school earns on average the equivalent of \$289,820 less than they would be expected to make as high school graduates. For the 8,961 students who dropped out in 2006-07, this represents nearly \$2.6 billion in lost lifetime earnings.

Estimate	ed annual	and lifetime economic losses related to high	gh school dropouts in HYHR Counties
		Average annual income difference, HS Dropout versus all HS Graduates	Average Lifetime Earnings Loss, HS Dropout versus expected HS graduate
Per each HS Dropout		\$23,960	\$289,820
Amador	72	\$1,725,120	\$20,867,040
El Dorado	277	\$6,636,920	\$80,280,140
Nevada	1,613	\$38,647,480	\$467,479,660
Placer	520	\$12,459,200	\$150,706,400
Sacramento	2,953	\$70,753,880	\$855,838,460
Solano	2,207	\$52,879,720	\$639,632,740
Sutter	689	\$16,508,440	\$199,685,980
Yolo	373	\$8,937,080	\$108,102,860
Yuba	257	\$6,157,720	\$74,483,740
Total of 9 counties	8,961	\$214,705,560	\$2,597,077,020
California	84,603	\$2,027,087,880	\$24,519,641,460

Table 2.

Source: California Department of Education, 2009; Belfield & Levin, 2007a

³ Because of data limitations, these figures don't include residents of Nevada or Amador counties, but do include El Dorado, Sacramento, Placer, Solano, Sutter, Yolo and Yuba counties, which include 95% of the 9-county region's population.

While this figure represents lost earnings to the individuals who drop out of school, they also represent lost purchasing power in the regional economy. Furthermore, there are significant fiscal and social costs associated with dropouts as well. As noted in Table 3 (Federal Government) and Table 4 (State and local government), for the nine counties comprising the Sacramento Capital Region, the long-term fiscal impact of just one year of dropouts (n=8,961) would be approximately \$1.5 billion, including an estimated cost to state and local governments of about \$480 million and over a billion dollars in estimated cost to the Federal Government. A significant portion of these social costs comes in the form of reduced tax revenues. Also important to our project's considerations are the enormous estimated health costs (Geraghty, 2010). As explained by Belfield and Levin (2007a), to the extent that a high school diploma might lead one to continue to higher educational attainment levels, it is also significant for this study to consider the estimated welfare (public assistance) expenditures as likewise linked to the region's capacity for workforce and employment opportunity development (Benner, Mazinga & Huang, 2010). With particular attention to our most vulnerable youth populations, these figures also help us to appreciate the inextricable linkages among health, education, and labor in understanding how our efforts to reduce dropouts can produce other important benefits to ensure healthier transitions to adulthood.

Total of 9 8,961 (\$34,410,240) \$675,211,350 \$262,915,740 \$94,807,380 \$34, counties	Yuba 257 (\$986,880) \$19,364,950 \$7,540,380 \$2,719,060 \$	Yolo 373 (\$1,432,320) \$28,105,550 \$10,943,820 \$3,946,340 \$1,	Sutter 689 (\$2,645,760) \$51,916,150 \$20,215,260 \$7,289,620 \$2,	Solano 2,207 (\$8,474,880) \$166,297,450 \$64,753,380 \$23,350,060 \$8,	Sacramento 2,953 (\$11,339,520) \$222,508,550 \$86,641,020 \$31,242,740 \$11,	Placer 520 (\$1,996,800) \$39,182,000 \$15,256,800 \$5,501,600 \$2,	Nevada 1,613 (\$6,193,920) \$121,539,550 \$47,325,420 \$17,065,540 \$6,	El Dorado 277 (\$1,063,680) \$20,871,950 \$8,127,180 \$2,930,660 \$1,	Amador 72 (\$276,480) \$5,425,200 \$2,112,480 \$761,760 \$	Savings per Expected HS (\$3,840) \$75,350 \$29,340 \$10,580 Graduate	Total dropouts (Education Tax payments Health Crime We (Grade 9-12) Savings*) Tax payments Expenditure Expenditure Expen	Table 3. Estimated Lifetime Fiscal Costs for total dropout in 2006-2007 for each county: Federal Government
11,350 \$	64,950	05,550	16,150	97,450	08,550	82,000	39,550	71,950	25,200	75,350	ments E	07 for each c
\$262,915,740	\$7,540,380	\$10,943,820	\$20,215,260	\$64,753,380	\$86,641,020	\$15,256,800	\$47,325,420	\$8,127,180	\$2,112,480	\$29,340	Health :xpenditure	county: Federal
\$94,807,380	\$2,719,060	\$3,946,340	\$7,289,620	\$23,350,060	\$31,242,740	\$5,501,600	\$17,065,540	\$2,930,660	\$761,760	\$10,580	Crime Expenditure	Government
\$34,679,070	\$994,590	\$1,443,510	\$2,666,430	\$8,541,090	\$11,428,110	\$2,012,400	\$6,242,310	\$1,071,990	\$278,640	\$3,870	Welfare Expenditure	
\$1,033,203,300	\$29,632,100	\$43,006,900	\$79,441,700	\$254,467,100	\$340,480,900	\$59,956,000	\$185,978,900	\$31,938,100	\$8,301,600	\$115,300	Total Direct Federal Government Fiscal Costs	

*Can be viewed as investment avoided by having students drop out of school and thus are deducted from total social costs to arrive at Total Economic Costs.

Table 4. Estimated Lifet	ime Fiscal Costs	for total dropout in 200	6-2007 for each c	ounty: state and local g	yovernment		
	Total dropouts (Grade 9-12) in 2006-2007	(Education Savings*)	Tax payments	Health Expenditure	Crime Expenditure	Welfare Expenditure	Total Direct State and Local Government Fiscal Costs
Savings per Expected HS Graduate		(\$26,840)	\$25,840	\$29,510	\$21,370	\$3,700	\$53,580
Amador	72	(\$1,932,480)	\$1,860,480	\$2,124,720	\$1,538,640	\$266,400	\$3,857,760
El Dorado	277	(\$7,434,680)	\$7,157,680	\$8,174,270	\$5,919,490	\$1,024,900	\$14,841,660
Nevada	1,613	(\$43,292,920)	\$41,679,920	\$47,599,630	\$34,469,810	\$5,968,100	\$86,424,540
Placer	520	(\$13,956,800)	\$13,436,800	\$15,345,200	\$11,112,400	\$1,924,000	\$27,861,600
Sacramento	2,953	(\$79,258,520)	\$76,305,520	\$87,143,030	\$63,105,610	\$10,926,100	\$158,221,740
Solano	2,207	(\$59,235,880)	\$57,028,880	\$65,128,570	\$47,163,590	\$8,165,900	\$118,251,060
Sutter	689	(\$18,492,760)	\$17,803,760	\$20,332,390	\$14,723,930	\$2,549,300	\$36,916,620
Yolo	373	(\$10,011,320)	\$9,638,320	\$11,007,230	\$7,971,010	\$1,380,100	\$19,985,340
Yuba	257	(\$6,897,880)	\$6,640,880	\$7,584,070	\$5,492,090	\$950,900	\$13,770,060
Total of 9 counties	8,961	(\$240,513,240)	\$231,552,240	\$264,439,110	\$191,496,570	\$33,155,700	\$480,130,380
California	84,603	(\$2,270,744,520)	\$2,186,141,520	\$2,496,634,530	\$1,807,966,110	\$313,031,100	\$4,533,028,740
Source: Califorr	nia Department	of Education, 2009; Belfi	ield & Levin, 2007.	- - -			
· ·	-		-	-		-	•

*Can be viewed as investment avoided by having students drop out of school and thus are deducted from total social costs to arrive at Total Economic Costs

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Following the lead of Rumberger and Rotermund (2009) and Belfield and Levin (2007a), we also developed estimates of cost savings associated with different levels of reduction in the dropout rate. It is important to note here that our analysis is based only upon high school dropout figures; that is, grades 9-12 dropouts for the year 2006-07. Rumberger and Rotermund (2009) also included middle school total dropout figures for their city level analysis of Sacramento, operating under the assumption that this provides for a broader view of potential dropouts, as well as a longer timeframe within which dropouts might be prevented. In estimating the savings associated with reductions in dropouts, we used both Belfield and Levin's conservative estimate indicating that approximately 30% of California's dropouts would have completed high school by age 20 (not including earning a GED), as well as Rumberger's estimate based on a more detailed analysis of the 2004 cohort of California dropouts, which revealed that 50% of the dropouts in the study eventually completed a high school diploma by age 20. We present these savings estimates in Figure 1.

	If 30% of dropouts	were to graduate	If 50% of dropouts	were to graduate
	State/local government	Federal government	State/local government	Federal government
Fiscal savings	\$144 million	\$310 million	\$240 million	\$517 million
Socio-economic savings	\$722 million		\$1.2 billion	
Social Gains for Region*	\$866 million		\$1.4 billion	

Source: California Department of Education, 2009; Belfield & Levin, 2007a

*Social gains figures are derived by Belfield & Levin (2007a) based on estimated benefits, including increased earnings to additional graduates (net of taxes), reduced insurance and other costs to potential victims of crime, and fiscal savings to state/local governments (this is detailed separately in their article).

Figure 1. Proposed Fiscal Effects of Reducing 2006-2007 High School Dropouts (n=8,961)

Assuming a 30% reduction in the dropout rate, the total cost savings to the local, state, and federal governments would be approximately \$454 million. Assuming a 50% reduction in the dropout rate, the total social cost savings to the local, state, and federal governments would be approximately \$757 million. We also use Belfield and Levin's additional social gains estimates for the region that would include state and local fiscal savings plus the additional earnings enjoyed by each graduate (net of all taxes), as well as reductions in insurance or other costs for potential victims of crime. The total social gains, using these assumptions, would be \$866 million and \$1.4 billion at the 30% and 50% levels of reduced dropouts (additional graduates), respectively (See Figure 1).

It is important to note with regard to the educational costs (and savings) estimates presented in our analysis that such calculations do not take into account the potential additional costs that may be implied by pursuing reductions in dropouts. For example, it is possible that additional educational investments—beyond what would normally have been spent on education per student—would be required to reduce dropouts. Part of the reasoning is that "business as usual" in schools may not adequately serve the needs (or build upon the strengths) of youth who find themselves disengaged from school. Certainly, youth and adult allies' perspectives on regional educational conditions that are reported in (Breslau et al., 2010; Erbstein et al., 2010; Owens et al., 2010) include considerable

barriers and obstacles for students who may require a variety of social, emotional, health, and employment-related supports—aspects of well-being that also contribute to their ability to thrive within the academic setting. Thus, the potential savings that are attributable to reductions in dropouts may be less in terms of the educational component to the degree that it involves a change in educational processes that require additional expenditures. In addition, given the complexity of factors that influence the process of disengagement of youth from school and work, we also emphasize that investments in education alone may not be sufficient to reduce dropouts and realize the vast social cost savings. Other social systems and community development endeavors are likely to be critical in increasing the educational attainment levels of the region's populations.

Concluding Remarks

It is a long-held view that educational attainment is a significant driver in influencing the life chances of youth. We believe our analyses show that attention to the needs and strengths of youth as they pursue their educational goals is critical to enhance youth well-being in Capital Region. Certainly, any discussions of the economic mobility and healthy transitions to adulthood for youth involve considerations of their access to quality education and workforce preparation opportunities, and our colleagues who report on youth perspectives in this regard affirm the urgency of attending to these community concerns.

Our analysis provides additional data to support the notion that investments in education in the Capital Region can yield benefits both to the individual students as they pursue their personal and professional goals, as well as to their families and communities. Perhaps most importantly is the implication that with greater access to educational opportunities and broader forms of support for youth, the Capital Region is better positioned to tap into the talents and personal assets that young people possess and thus broaden the scope of perspectives that are represented in ongoing community development efforts. While educational attainment alone may not be sufficient to secure the long-term well-being of youth as they transition to adulthood, it is most certainly a necessary component in increasing their chances for economic mobility and healthier living and working conditions in the future.

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