

# **The Costs of Dropping Out of School in Iowa**

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Update of 2002 Study for the Iowa Association of Alternative Education  
and a 2004 Iowa Legislative Services Agency Analysis

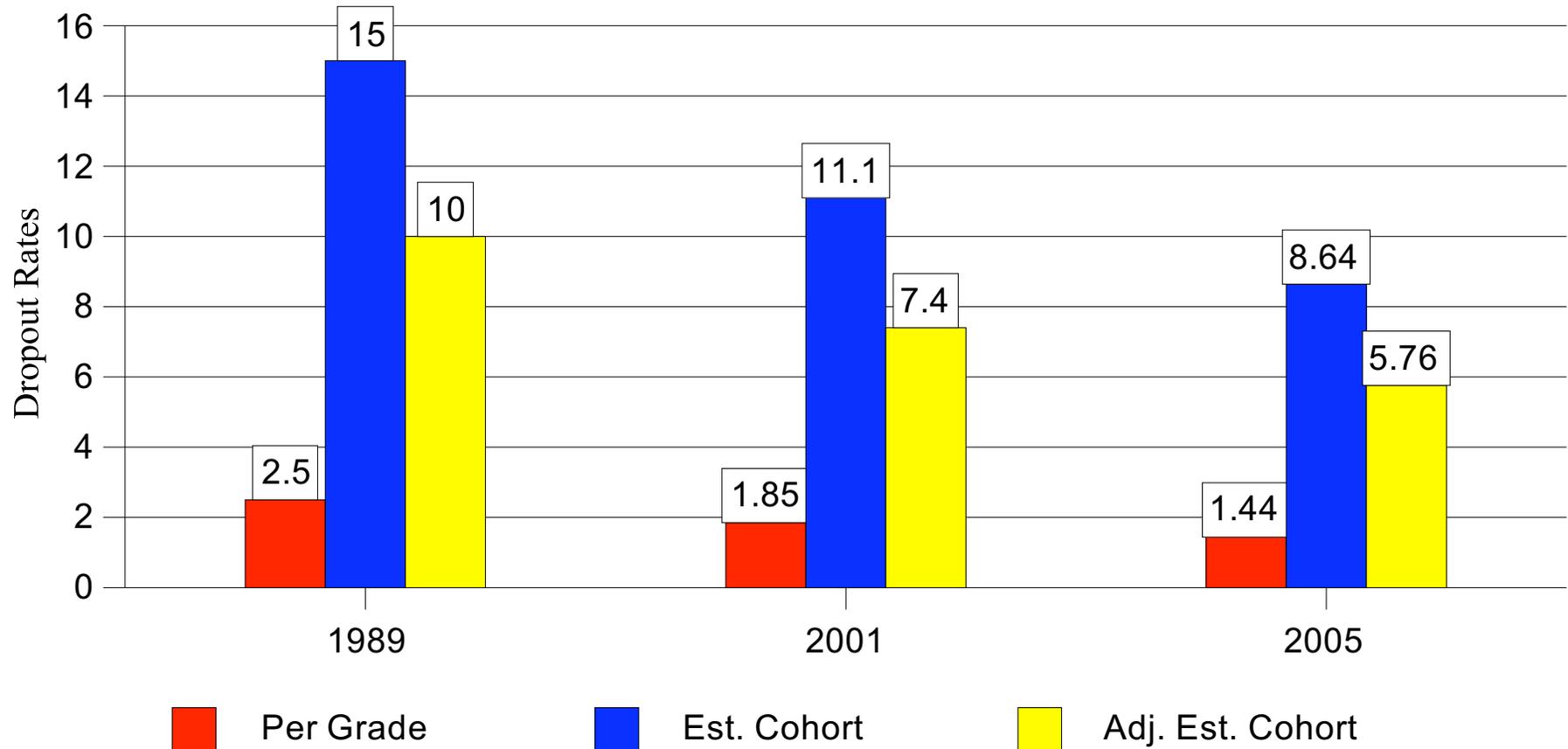
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# DROPOUT RATES IN IOWA

1989<sup>1</sup> & 2001 & 2005



<sup>1</sup> Year of previous study

Note: The “estimated cohort” rate is the estimated dropout rate for all six grades 7-12 ( $= 6 \times$  per grade rate). The “adjusted estimated cohort” is the estimated cohort rate adjusted for those expected to return and graduate ( $= (2/3) \times$  cohort rate).

# Comparison of Median Personal Income: Dropouts and High School Graduates in Iowa

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## Incomes of Dropouts and H.S. Graduates with No College, Some College, Bachelor Degree, and Advanced Degree

Differences in median incomes over 45-year working lifetime (based on 2000 census for Iowa):

- Dropouts and h.s. graduates w. no college:  $\$4,093 \times 45 = \mathbf{\$184,185}^1$
- Dropouts and h.s. graduates w. some college:  $\$6,311 \times 45 = \mathbf{\$283,995}$
- Dropouts and h.s. graduates w. Bachelor degree:  $\$14,137 \times 45 = \mathbf{\$636,165}$
- Dropouts and h.s. graduates w. advanced degree:  $\$24,758 \times 45 = \mathbf{\$1,114,110}$
- Dropouts and h.s. graduates (overall):  $\$8,579 \times 45 = \mathbf{\$386,055}$

Note: The result for h.s. graduates (overall) was calculated by taking the weighted median of the four groups (graduates with no college, some college, Bachelor degree, and advanced degree), which yielded \$30,779, and subtracting the median income for dropouts (\$22,200).

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<sup>1</sup> Figures used in 2004 analysis by Dennis Prouty, Iowa Legislative Services Agency, Fiscal Services.

# Interpretation of Income Result

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## Value of School in Terms of Personal Income (hourly rate)

- Students take about 5 course-hours per year, which yields  $5 \times 180$  days or about 900 hours of school per year.
- This translates to about  $4 \times 900$  or 3,600 hours for the four years of high school.
- Dividing the loss in a 45-year working lifetime income for dropouts compared with graduates (who do **not** go on to college), namely \$184,185, by 3,600 hours yields **\$51/hour**.
- Dividing the loss in a 45-year working lifetime income for dropouts compared with graduates (including those (i) not going to college, (ii) with some college, and (iii) earning college degrees), namely \$386,055, by 3,600 hours yields **\$107/hour**.
- In other words, graduating from high school is worth approximately \$50-100 per school hour – in terms of potential for increased lifetime income – compared with \$5-6 per hour for the typical high school job. While often beneficial and sometimes necessary, high school jobs can also cause some students to skip class and drop behind on school work. This can lead to dropping out of school and the aforementioned loss in lifetime income at the rate of about \$50-100/school hour, for a short term gain of only \$5-6/hour from the high school job.

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*Thanks to Mr. Del Holland of Cedar Rapids Metro High School for suggesting this interpretation at the IAAE conference in Des Moines in 2002.*

# Potential Net Increase in State Treasury Associated with Educating Dropouts to High School Graduation

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## “Opportunity Cost” to State Treasury Versus State Cost for Educating Iowa’s 3,319 Dropouts

- Reduced state tax revenues over 45 year lifetime of work due to reduced personal income of dropouts: **\$65.1 million** (“opportunity cost” to state treasury) [=  $(\$1,178 - \$742) \times 3,319 \text{ dropouts} \times 45 \text{ years}$ ]
- State cost ("one-time") to educate 3,319 dropouts to high school completion: **\$37.4 million** [=  $(\$5,128) \times 3,319 \text{ dropouts} \times 2.2 \text{ years}$ ]
- Potential net increase in state treasury over 45 year lifetime of work of current dropouts associated with educating them to the status of graduates:  
**\$65.1 million - \$37.4 million = \$27.7 million or about \$615 thousand per year**

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Note: The above estimates of reduction in state tax revenue and net increase in the state treasury are lower than those of Veale (2002) due to (1) the use of more accurate information on differences between personal income of high school dropouts and graduates in Iowa, (2) higher state cost for education (used budgeted figure for FY 2007), and (3) the lower number of dropouts (in 2004-05). The above estimate should be “conservative” since we are using 2000 personal income figures, 2004 tax rates, and 2007 state cost data for education.

# Increased Risk of Incarceration

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## Dropouts v. High School Graduates

Critical Data (2006):

- Number of inmates reporting less than high school education (dropouts) = **2,125**
- Number of inmates reporting they were high school graduates, had some college, a college degree, or voc-tech training (graduates) = **2,194**
- Probability of dropout given incarceration = **.492**
- Probability of dropout (cohort rate, general population) = **.086**

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Note: We omitted the GEDs and those with “unknown” education. Conservatively, 25% of those indicating they “completed Grade 12” were estimated to have actually dropped out in that grade (Nancy Kucera, Dept. of Corrections, personal communication, October 2006).

# Risk of Incarceration

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## Calculation (Bayes' Rule)

By Bayes' Rule for inverting conditional probabilities, assuming the estimated cohort dropout rate for the general population, it may be shown that the (increased) **risk** of incarceration among dropouts over that of graduates is equal to

$$\frac{\text{Odds of dropping out among incarcerated } (.492)/(.508)}{\text{Odds of dropping out among general pop. } (.086)/(.914)} = \frac{.492}{.508} \div \frac{.086}{.914}$$

or **10.3**. (See previous slide for data.)

Note: A similar calculation yields 15.7 with the *adjusted* cohort dropout rate.

# Cost of Incarceration

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## V. State Cost to Educate Dropout to High School Completion

- Average cost of keeping a person incarcerated for one year in Iowa in 2002 was **\$22,977\***
- State cost to educate a student for one year in 2002 was \$4,512
- State cost to educate a dropout to high school completion was estimated to be **\$10,017** (2.22 additional years x \$4,512/year)—**44%** of the cost of incarceration for one year
- Additional costs of crime: court costs, damage to property, loss in productivity, increased insurance rates, loss of human life, incapacitation, and escalating hospital/health costs for victims and incarcerated

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\* This is the most current data available on the cost of incarceration. Such data are no longer available from the Iowa Department of Corrections.

# Costs of Dropping Out of School

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## Quantifiable Cost Estimates for Iowa: Updated

- Reduced personal income over lifetime = **\$386,055**
  - Reduced state tax revenues over lifetime = **\$65.1 million**
  - Increase in welfare burden due to dropouts' higher rate of unemployment = **\$1.3 million** per year
  - Increased risk of incarceration = **10.3** (assuming cohort dropout rate of 8.6%) to **15.7** (assuming adjusted cohort dropout rate of 5.8%)
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# Costs of Dropping Out of School

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## Non-Quantifiable Costs for Iowa Dropouts

- Deceleration in human growth and potential
  - Reduced sense of control over one's life (things happen *to* them, rather than their making things happen)
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# Deceleration in Human Growth and Potential

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## Some Implications

Dropouts likely to have:

- Lower cognitive skill levels
  - Reduced options to economic progress in today's information-based/high tech economy
  - Restricted social network (due to the educational gap between dropouts and graduates)
  - Poorer health (more likely to have unhealthy behaviors; less likely to have healthy ones)
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# Dropout's Reduced Sense of Control

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## Dropouts Have More External “Locus of Control”

Dropouts tend to think that things happen *to* them, rather than their making things happen. Some possible implications:

- Less likely to be involved in political processes
- Less likely to participate in activities to change her/his environment
- Less likely to reduce or cease unhealthy behaviors (e.g., smoking) and increase healthy ones (e.g., nutrition and exercise)

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Reference: Wehlage, G. & Rutter, R. (1987). Dropouts: How much do schools contribute to the problem? In G. Natriello (Ed.) *School dropouts: Patterns and policies*. New York: Teachers College Press.

# Analysis by Iowa Legislative Services Agency (Fiscal Services): An Alternative View

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## Comparison of Median Incomes of Iowa's Dropouts and High School Graduates (Not Going on to College)

- Median income for an Iowa H.S. dropout is **\$22,200** (U.S. 2000 census).
- Median income for an Iowa H.S. graduate is **\$26,293** (ibid.).
- The difference in median income for Iowa dropouts and graduates is **\$4,093**.
- This translates, in constant year 2000 dollars, into an Iowa H.S. dropout earning **\$184,185** less in a 45-year working lifetime than an Iowa H.S. graduate.
- The above estimate is based solely on those high school graduates who do **not** go on to college (i.e., *excludes* graduates who take some college and those who earn a Bachelor or advanced degree) in the estimate of the income for the average Iowa high school graduate.\*

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\* Since graduating from high school for many is a “gateway” to postsecondary education, one may want to include the incomes of those going on to college along with those who do not go on to college in the estimate (as in a previous slide).

# Analysis by Iowa Legislative Services Agency (Fiscal Services): An Alternative View (Cont.)

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## Budget Impact: Increased State Revenues from Dropout Prevention v. Cost of At-Risk Programs

- Additional “allowable growth” funding for at-risk students increased from \$9.5 million in FY 1992 to **\$64.4 million** in FY 2005.
  - Funding through “supplemental weighting” (for at-risk students) increased from \$8.9 million in FY 2001 (when it started) to **\$9.8 million** in FY 2005.
  - At-risk student programs cost a total of **\$74.3 million** (= \$64.4 + \$9.8 million, rounded up) in FY 2005.
  - Using the median incomes for Iowa h.s. dropouts and graduates (who did **not** go on to any college), it was estimated that graduates (or dropouts who remained in school and graduated) would pay **\$191** more in state taxes than h.s. dropouts.
  - Over a 45 year working life, the above individual would pay an additional **\$8,595** (= \$191 x 45) in taxes to the State of Iowa – than would a h.s. dropout.
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# Analysis by Iowa Legislative Services Agency (Fiscal Services): An Alternative View (Cont.)

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## Budget Impact: Increased State Revenues from Dropout Prevention v. Cost of At-Risk Programs

- To break even for FY 2005, at-risk programs would need to have prevented **8,639** students from dropping out. (Found by dividing cost of programs by estimated additional state taxes/individual graduating.)
- Decrease in dropout rate in Iowa over the past 16 years suggests an impact for dropout prevention programs.
- *Question:* How many potential dropouts (at-risk students) remained in school and graduated?
- One criterion for being at-risk is that the family is economically disadvantaged. Those eligible for free and reduced price meals are considered at higher risk for dropping out. Approximately one-third of students in grades 1-6 are eligible. Applying this proportion to students entering high school, the five year (1998-2002) average would be 13,628 at-risk students.
- Subtracting the average number of dropouts for this period (4,319) from the number of at-risk students (13,628), one obtains **9,309** “at-risk” students who were in the graduating class. This number exceeds the “break even” number given above.

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Note: This analysis uses a tax comparison between dropouts and high school graduates who do **not** go on to college.

# Social/Education Innovations in Iowa

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## Contributing to Reduction in Dropout/Unemployment Rates

- Dropout prevention programs via Iowa Code 257.38-41
  - School-Based Youth Services Program(s) supported by state grants (1990-2002) and Iowa Code 257.38-41
  - Drug & Violence Prevention Program at Woodbury Elementary in Marshalltown (federal grant)
  - 21st Century and Safe Schools/Healthy Students grants (federal resources for afterschool and other pro-social and prevention activities in selected communities)
  - Nearly 100 alternative schools/programs, GED, and high school completion programs
  - Career Education and School-to-Work initiatives
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# Social/Education Innovations in Iowa

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## Contributing to Reduction in Dropout/Unemployment Rates

- Iowa Jobs for America's Graduates (IJAG), Governor's initiative for improving the potential for dropouts and potential dropouts to succeed in employment
  - School improvement initiatives for all school districts to improve student performance and maximize potential
  - Federally sponsored Drug-Free Schools initiatives to help schools address substance abuse through education and intervention assistance programs
  - Surveys for monitoring risky behaviors (Youth Risk Behavior Survey and Iowa Youth Survey) and school health programs and policies (School Health Profiles)
  - Career and technical education programs
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# Useful Web Sites

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For Accessing Data on the Costs of Dropping Out of School

- **www.census.gov** for data on personal income of dropouts and graduates in U.S., especially the following page:

**<http://www.census.gov/hhes/income/earnings/call1iaboth.html>**

- **www.bea.gov** for data on personal income for a given state
  - **www.bls.gov** for data on unemployment rates for dropouts and graduates in U.S.
  - **www.iowaworkforce.org** for unemployment rates (monthly) in Iowa
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# Resources

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For Accessing Data on the Costs of Dropping Out of School

The following department/agencies were helpful in providing data for this slide show:

- Iowa Department of Corrections
  - Iowa Department of Education
  - Iowa Department of Human Services
  - Iowa Department of Revenue and Finance
  - Census Services (Iowa State University)
  - Iowa Legislative Services Agency (Fiscal Services)
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- Iowa Department of Education (2005). The Annual Condition of Education Report. Des Moines, IA 50319.
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