

October 2002

KEEPING KIDS IN SCHOOL: THE IMPACT OF THE TRUANCY PROVISIONS IN WASHINGTON'S 1995 "BECCA BILL"

Executive Summary

In 1995, the Washington Legislature passed a law known as the "Becca Bill."¹ The Becca Bill addresses several areas of public policy, including those affecting at-risk, runaway, and truant youth.

This report describes the Institute's evaluation of the truancy provisions in the Becca Bill.² In passing the bill, the Legislature recognized that truancy is linked to poor academic performance, dropping out of school, substance abuse, and criminal behavior. The legislative intent is to keep kids in school and thereby avoid some of the undesirable outcomes associated with truancy.

The Becca law requires a school to inform a student's parents of unexcused absences and to meet with the student and parents if unexcused absences continue to accumulate. The school *may* take legal action in juvenile court when a student has five unexcused absences in a month. If a student has seven unexcused absences in a month, or ten in an academic year, the school district *must* file a truancy petition in juvenile court. If the truancy continues, the court can take several actions, including ordering a youth to a county detention facility and ordering the parents to perform community service and pay fines.

The Institute analyzed whether the truancy provisions of the Becca Bill have had an effect on

one of the main goals of the Act: keeping kids in school. Specifically, we examined whether the bill has increased high school enrollment rates. To do this, we analyzed county-level data several years before and after the Becca Bill went into effect, while statistically controlling for other factors that affect high school enrollment rates.³

Findings. We found that the truancy provisions of the Becca Bill appear to result in a statistically significant increase in high school enrollment. Thus, the bill seems to be achieving one of its intended outcomes: helping to keep youth in high school.

We estimate that about 2,664 additional high school students are enrolled today as a result of the Becca Bill. The state spends about \$3.5 million a year on the truancy petitions, an amount equal to \$1,314 per program success (\$3.5 million divided by 2,664 enrolled youth).

Limitations of This Study. It was beyond the scope of this short study to conduct a cost-benefit analysis of the Becca Bill's truancy provisions. Such an analysis would need to quantify the benefits of high school graduation and estimate all state and local costs associated with the bill's implementation. A systematic review of other evidence-based approaches that keep students in school was also beyond the scope of the study.⁴ Thus, an unanswered question is whether there are other less expensive ways (cheaper than \$1,314 per program success) to get the same benefit.

For more information, contact Steve Aos at the Institute, (360) 586-2740; saos@wsipp.wa.gov.

¹ The bill was named for a 13-year-old runaway girl who was murdered in 1993 in Spokane.

² The Becca Bill's truancy provisions are in Chapter 28A.225 RCW. Earlier Institute reports on the truancy provisions in the Becca Bill include M. Burley and E. Harding (1998) *Truant Students: Evaluating the Impact of the "Becca Bill" Truancy Petition Requirements*; and C. Webster (1996) *Truancy: Preliminary Findings on Washington's 1995 Law*. The Institute has also reported on the non-truancy aspects of the Becca Bill, see M. Burley and J. Mayfield (2001) *At-Risk and Runaway Youth in Washington State: Outcomes for Youth Admitted to Secure Crisis Residential Centers and Mandatory Chemical Dependency Treatment*. All Institute reports are available at <<http://www.wsipp.wa.gov/pubs.html>>.

³ The technical details supporting the analysis are described in the appendix to this report, beginning on page 5.

⁴ For an example of research on other approaches, see D. C. Gottfredson (2001) *Schools and Delinquency*. Cambridge, UK: Cambridge University Press.

What the Law Does: The Truancy Provisions in the Becca Bill

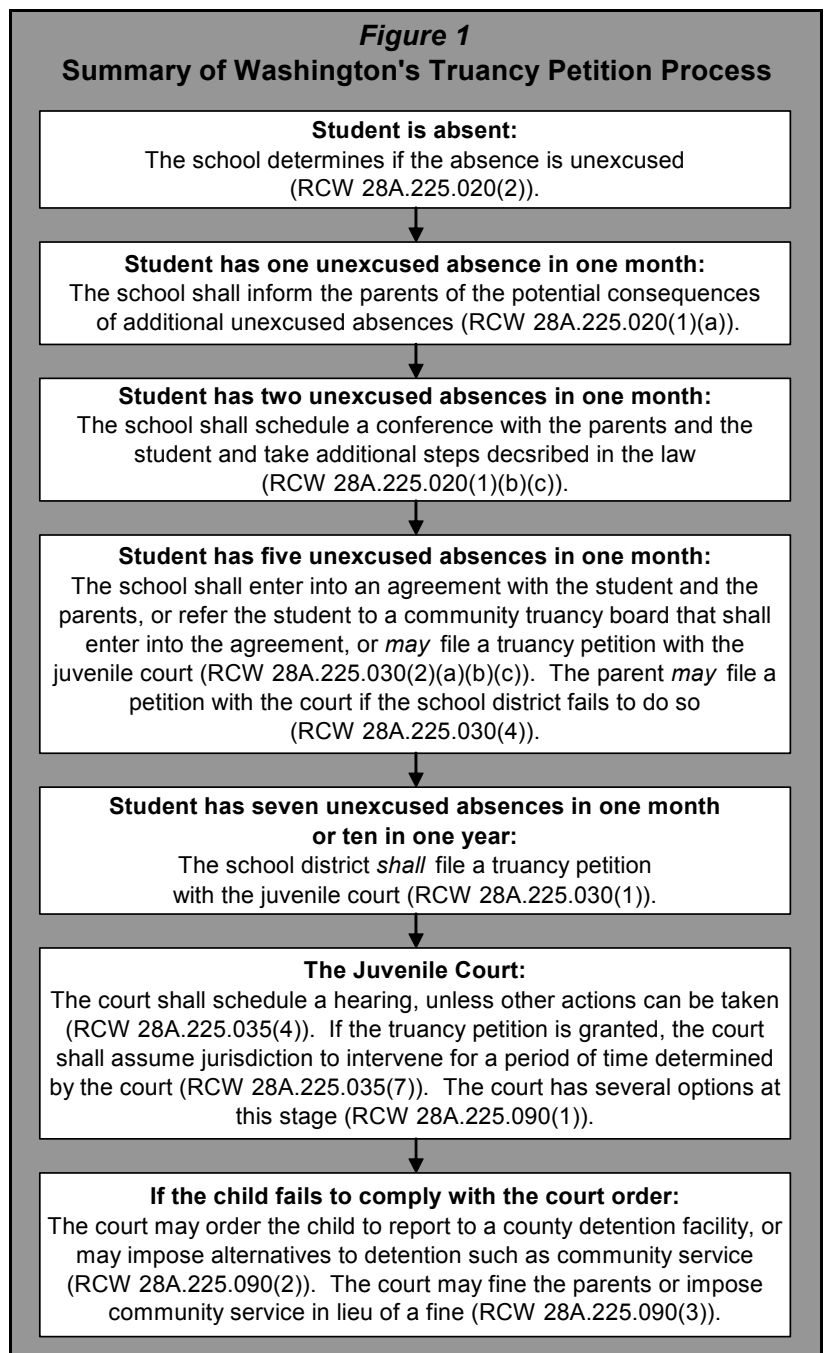
Figure 1 summarizes the steps in the law. When a student has one or two unexcused absences, schools must notify parents, schedule conferences, and take other steps to try to keep the absences from reoccurring. If a student has five unexcused absences in a month, the school may refer the student to a community truancy board, if available.⁵ At this stage, the school district, or the parent, *may* file a truancy petition with the county juvenile court.

If the number of unexcused absences reaches seven in a month, or ten in a school year, the school district *must* file a truancy petition with the juvenile court. The court has a number of options at this stage, including ordering the youth to attend school; ordering the youth to attend another public school, an alternative school, a dropout prevention program, or skill center; or, ordering the youth to attend a private non-sectarian school or program.

If the youth fails to comply with the court order, the court can require the youth to report to a county detention facility and order the parents to perform community service and pay fines.

In this evaluation, we are limited in our ability to measure how students flow through the system depicted in Figure 1. There are no statewide school data on the number of unexcused absences or the actions schools take to implement the first steps in the Becca truancy process. Reliable data, however, are recorded on the number of truancy petitions filed in juvenile courts—a relatively late stage in the process shown in Figure 1. While it would be ideal to have systematic information on the earlier stages of the process, the filing of truancy petitions in juvenile court is a reasonable place to measure the law's effects. The threat of court involvement is one of the consequences that school districts discuss with students and parents when unexcused

⁵ Community Truancy Boards were created in the Becca Bill, RCW 28A.225.025.

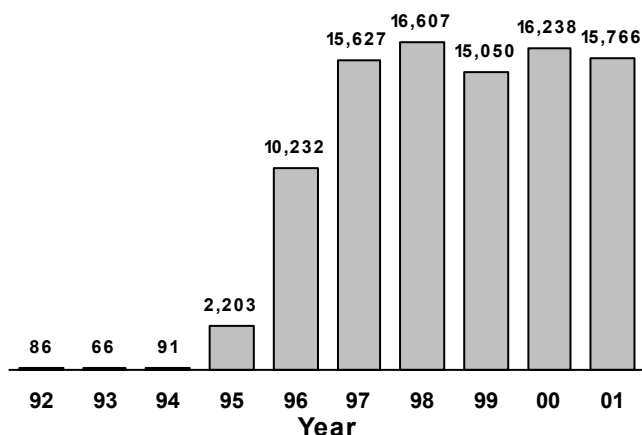


absences first begin to accumulate. Thus, the prospect of juvenile court involvement may serve as a deterrent to the student and his or her family for continued unexcused absences. It should be noted, however, that this study is limited by our inability to distinguish (statistically) the effectiveness of the separate actions taken by the schools and the juvenile courts; that is, we are constrained to a single overall measurement (truancy filings in juvenile court) of the Becca Bill's truancy provisions.

Truancy Petitions Filed in Washington's Juvenile Courts and State Funding Levels

The number of truancy petitions filed in the juvenile courts in Washington increased substantially in the years after implementation of the Becca Bill. Figure 2 displays the total number of petitions by year.⁶ Prior to the Becca Bill, fewer than 100 petitions were filed per year. As the bill began to take effect in 1995, the volume of petitions increased rapidly. Since 1997, the number has hovered around 16,000 petitions per year.

Figure 2
Truancy Petitions Filed in Washington Juvenile Courts: 1992 to 2001



The state provides about \$6.5 million a year in funding to the counties for the petition filing provisions in the Becca Bill. This funding pays for truancy petitions (about \$3.5 million) as well as "child in need of services" petitions and "at-risk youth" petitions (about \$3 million). The later two legal interventions, which stem from other aspects of the Becca Bill and the 1978 Family Reconciliation Act,⁷ are part of the overall funding formula the state uses to pay counties for all three types of petitions.

Keeping Kids in School: Measurement

As mentioned, the primary goals of the truancy provisions of the Becca Bill are to keep kids in school and reduce the undesirable consequences

⁶ The data in Figure 2 are from the Administrative Office of the Courts, available at <http://www.courts.wa.gov/caseload>.

⁷ More information on CHINS and ARY petitions can be found in the Governor's Juvenile Justice Advisory Committee 2001 Juvenile Justice Report, available at <http://www.wa.gov/juvenilejustice/annualrpt.html>.

that have been linked with truancy. A number of research studies have found a correlation between truancy and poor academic performance, dropping out of school, substance abuse, and crime.⁸ While cause-and-effect is difficult to prove statistically, the premise of the Becca Bill is that keeping kids in school will reduce, at least to a degree, some of these other outcomes.

The purpose of this analysis is to test whether truancy petitions have a direct effect on keeping kids in school. There are three plausible ways to measure how successful schools are in achieving this goal: high school enrollment rates, high school dropout rates, and high school graduation rates. These three measures are, naturally, interrelated: the higher the enrollment rate, the lower the dropout rate; and higher enrollment rates should be strongly related to higher high school graduation rates.

In this study, we use enrollment rates in local public and private high schools to measure whether the Becca Bill has been successful in keeping kids in school.⁹ We calculated high school enrollment rates in two steps. First, we obtained county-level data from the Office of the

⁸ See, for example: (a) D. Huizinga, R. Loeber, T. P. Thornberry, L. Cothorn (2000) *Co-occurrence of Delinquency and Other Problem Behaviors*, Office of Juvenile Justice and Delinquency Prevention, <http://ojjdp.ncjrs.org/pubs/alpha.html>;

(b) M. L. Baker, J. N. Sigmon, M. E. Nugent (2001) *Truancy Reduction: Keeping Students in School*, Office of Juvenile Justice and Delinquency Prevention, <http://ojjdp.ncjrs.org/pubs/alpha.html>;

(c) R. Loeber, D. P. Farrington (2001) "The Significance of Child Delinquency," in *Child Delinquents: Development, Intervention, and Service Needs*, edited by R. Loeber, D. P. Farrington. Thousand Oaks: Sage Publications;

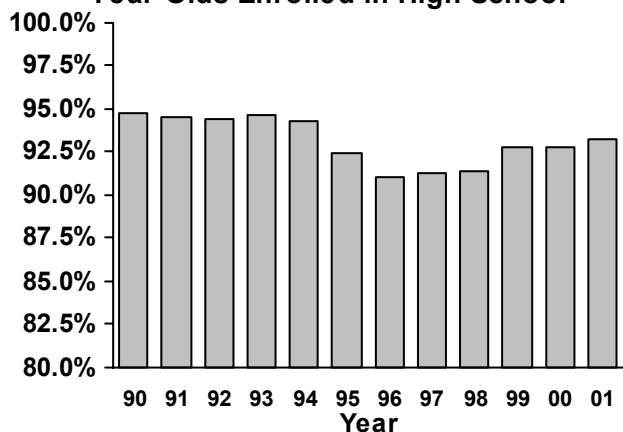
(d) T. I. Herrenkohl, J. D. Hawkins, I. Chung, K. G. Hill, S. Battin-Pearson (2001) "School and Community Risk Factors and Interventions," in *Child Delinquents: Development, Intervention, and Service Needs*, edited by R. Loeber, D. P. Farrington. Thousand Oaks: Sage Publications.

⁹ Unfortunately, we could not test whether the Becca Bill affects graduation rates or dropout rates because Washington does not have reliable local longitudinal data on these outcomes. Dropout data are not uniformly reported across the state over time and are only reported for public schools, not private schools. Statistics on high school graduation rates have similar problems. The available information on the number of high school graduates is unevenly reported. More significantly, the Office of the Superintendent of Public Instruction collects county-level data on the number of *public* high school graduates, not county-level data on *private* school graduates. Thus, for this study, it was not possible to use either local high school dropout rates or graduation rates as a direct measure of the degree to which schools keep students in school.

Superintendent of Public Instruction on the total number of students enrolled in public and private high schools in grades 10, 11, and 12.¹⁰ A high school enrollment *rate* was then created by dividing the sum of enrollment for the three grades by the number of 15-, 16-, and 17-year-olds living in each county. The population numbers are from the Office of Financial Management.¹¹

Figure 3 displays the statewide trends in high school enrollment rates from 1990 to 2001, as calculated. Rates were fairly steady in the early 1990s at about 94 percent; that is, statewide, about 94 percent of all 15- to 17-year-olds were enrolled in public or private high schools in the early 1990s. This rate fell in the mid-1990s to a low of 91 percent in 1996, and the rate has increased over the last five years.

Figure 3
Enrollment Rates in Washington, 1990 to 2001: Percent of 15- to 17-Year-Olds Enrolled in High School



Has the Truancy Filing Rate Affected the High School Enrollment Rate?

The Research Question: The information in this report indicates that during the 1990s high school enrollment rates in Washington began to increase at about the same time as the Becca truancy filings increased. Is there a cause-and-effect relationship between these two trends? More generally, do changes in truancy filing rates lead to changes in high school enrollment rates?

¹⁰ The data are October headcounts of enrollment, <<http://www.k12.wa.us/dataadmin/>>.

¹¹ OFM tabulates data for the 15- to 17-year-old age group; this three-year grouping was used in this study to represent the high-school age population because the OFM data are readily available for that age grouping, see <<http://www.ofm.wa.gov/demographics.htm>>.

Method: To test this relationship, the Institute conducted a statistical analysis of high school enrollment rates in Washington. We analyzed county-level data from 1990 to 2001—several years before and after the Becca Bill went into effect. In addition to the number of truancy petitions filed, we statistically controlled for other observed factors that affect local high school enrollment rates. We examined a number of economic variables (the level of personal income, the unemployment rate, and retail wages); demographic variables (black and Hispanic percentages, and a measure of population density); and social and school variables (the birth rate to teenage females, and the ratio of private school enrollment to total school enrollment). We also controlled for unobserved factors that may influence enrollment rates by including separate county and year variables. The technical details behind these statistical methods are discussed in this report’s appendix, beginning on page 5.

Main Study Finding: We found that the truancy provisions of the Becca Bill appear to result in a statistically significant increase in high school enrollment rates. Thus, the bill seems to be achieving one of its intended outcomes: helping to keep youth enrolled in high school.

We estimate that about 2,664 additional high school students are enrolled today as a result of the Becca Bill. The state spends about \$3.5 million a year on the truancy petitions, an amount equal to \$1,314 per program success (\$3.5 million divided by 2,664 enrolled youth).

Limitations of This Study. It was beyond the scope of this short study to conduct a cost-benefit analysis of the Becca Bill’s truancy provisions. Such an analysis would need to quantify the benefits of high school graduation and estimate all state and local costs associated with the bill’s implementation. A systematic review of other evidence-based approaches that keep students in school was also beyond the scope of the study. Thus, an unanswered question is whether there are other less expensive ways (cheaper than \$1,314 per program success) to get the same benefit.

Technical Appendix

This appendix is intended for technical audiences only; it describes the analytical details of an econometric model developed to estimate the effects of the Becca Bill's truancy provisions on high school enrollment rates.

The model uses a panel data set, assembled for this analysis, with pooled cross sections over time. Panel models have the distinct advantage of allowing fixed unobserved factors to be controlled in a regression analysis.¹² The basic units of observation for this study are the 39 counties in Washington for the years 1990 to 2001. This produces a total of 468 observations (39 counties for 12 years) for each variable. As Figure 2 shows, the truancy provisions of the Becca Bill began to take effect in 1995. The panel data set assembled for this study contains county-level data balanced to include a number of years before and after the implementation of the Becca Bill.

The Model: The structural model estimated in this analysis takes the following fixed effects panel form:

$$\ln(Erate1012)_{ct} = \beta_0 + \beta_1 \ln(TFrate)_{ct} + \psi' X_{ct} + \phi C_c + \delta T_t + \varepsilon_{ct}$$

The enrollment rate (*Erate*) for county *c* in time period *t* is estimated as a linear function of the truancy filing rate (*TFrate*), a vector of *X* labor market, demographic, and other covariates, and separate county *C* and year *T* dummies. The covariates used in this analysis are the county unemployment rate, real per capita income, the teen birth rate for 15- to 17-year-old females in a county, the percentage of all enrolled students in a county attending private schools, and the number of juveniles 10 to 17 years old in the county. Other covariates were also tested.

The expected sign on the unemployment rate is positive: that is, the higher the unemployment rate, the greater the chance that a youth will stay in school rather than quitting to find work. We expect that the higher the level of real per capita income in a county, the higher the enrollment rate, since it is reasonable to assume that higher income counties are also counties that have more highly educated families, the children of whom are likely to have higher high school enrollment rates. We expect the teen birth rate to be negatively related to high school enrollment rates: the higher the teen birth rate, the lower the enrollment rate as some females giving birth are expected to drop out of school. Given a nine-month gestation period, we expect enrollment rates to be affected by the teen birth rate after about a one-year lag. We expect that the higher the percentage of private school enrollment in a county, the higher the county's overall enrollment rate. The theory behind this is, in part, an economic one (private schools are more expensive and will often reflect more well-to-do counties) and, in part, one that uses the percentage as a measure of higher levels of parental involvement in schooling decisions. It is not clear what sign to expect on the population density variable used in this study.

In constructing a model that focuses on the relationship between truancy filings and school enrollment, the problem of simultaneity arises. That is, a county's high school enrollment rate and truancy filing rate are likely to be correlated with each other in a simultaneous relationship. Counties with high truancy filing rates are likely to have lower enrollment rates, but higher truancy filing rates (if the Becca Bill works) are likely to have increases in enrollment rates. Thus, theoretically, observed truancy filing rates, may be associated with both lower and higher school enrollment rates and estimates of this relationship with Ordinary Least Squares regression could produce ambiguous findings. Given this, to identify the enrollment equation described above, an instrumental variable (IV) is needed to break the simultaneity bias. The IV used for this study reflects how Washington has implemented the truancy provisions of the Becca Bill. The state of Washington pays counties to implement the petition process in the Becca Bill. The IV for this analysis is the level of funding that each county received to implement the Becca Bill, expressed in real terms. The argument for this IV is that the level of state funding is likely to influence the volume of truancy petitions filed in a county, but that enrollment rates in high school are unlikely to be related to these state funding levels except insofar as state spending influences the volume of truancy petitions filed.

¹² J. M. Wooldridge (2000) *Introductory Econometrics, A Modern Approach*, Cincinnati: South-Western College Publishing; J. M. Wooldridge (2002) *Econometric Analysis of Cross Section and Panel Data*, Cambridge: The MIT Press; and W. H. Greene (2000) *Econometric Analysis, 4th Ed.*, New Jersey: Prentice Hall.

The Data: For each county in Washington, data were collected on the number of truancy petitions filed in the county juvenile courts.¹³ High school enrollment data were collected from the Office of the Superintendent of Public Instruction (OSPI).¹⁴ The enrollment data are October headcounts for both public and private schools in Washington. County level population data for 1990 to 2001 for 15- to 17-year-olds were obtained from the Washington State Office of Financial Management (OFM).¹⁵ OFM publishes data by county based on U.S. Census figures with official OFM intercensal estimates between the census years. OFM publishes this data for the 15- to 17-year-old age group; this three-year grouping was used in this study because the data were readily available in that form. The county high school enrollment numbers for 10th, 11th, and 12th grades were then divided by OFM 15 to 17 population figures to derive the high school enrollment rates. The OFM population numbers are pegged for April 1 of each year. The enrollment numbers are for October. The enrollment rates were computed by dividing the October enrollment rate by the average population estimate for the same calendar year and the following year. For example, the 2000 10th to 12th grade enrollment rate is computed with the October 2000 enrollment count divided by the average of the April 2000 and April 2001 15 to 17 population estimates.

County level economic information was also collected on retail wages, retail employment, and personal income. These data were obtained from the Local Area Personal Income data maintained in the federal Bureau of Economic Analysis' Regional Economic Information System.¹⁶ Retail wages and personal income per capita were computed for each county for each year. County unemployment rates were also obtained from the Washington State Employment Security Department.¹⁷ The Implicit Price Deflator for Personal Consumption Expenditures was used to express all dollar-based variables in constant terms.¹⁸ Additional information was collected on the percentage of a county's total population that was white and nonwhite, and on the land area in each county so that a population-per-square-mile variable could be tested. County level teenage birth data were collected to test whether teenage birth rates have an effect on enrollment rates.¹⁹ The complete annual financial history, by county, of state spending on implementation of the Becca petition process was obtained from the state's Juvenile Rehabilitation Administration, the agency that passes the state funds through to the counties. These fiscal figures were converted to real dollars with the Implicit Price Deflator for Personal Consumption Expenditures.

The Results: Since the structural model for this analysis involves using an instrumental variable to identify the truancy filing rate, Table A1 shows the reduced-form estimation of the truancy-filing rate. As anticipated, it was found that the level of state funding for the Becca Bill's petition filing process (BECVOL1017) is positively and significantly

($p=.0000$) related to the level of truancy petitions filed in the state. Several different specifications of this reduced-form model were tried, including squaring the BECDOL1017 term. The model shown in Table A1 provides evidence of the significant relationship between state spending and the filing of truancy petitions. Of course, the argument for the use of state spending as an instrument for the truancy filing rate rests on the un-testable proposition that the level of state funding is likely to influence the volume of truancy petitions filed in a

Table A1: Reduced-Form Estimation of the Truancy Filing Rate				
Dependent Variable: Ln(TFRATE)				
Method: Least Squares				
Included Observations: 468				
White Heteroskedasticity-Consistent Standard Errors & Covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-105.3156	19.78044	-5.324231	0.0000
Ln(BECDOL1017)	0.943156	0.156364	6.031809	0.0000
PCTPRIVATESCH	-7.717179	5.802731	-1.329922	0.1843
Ln(RPCI ₋₁)	6.024965	1.656925	3.636232	0.0003
Ln(TEENBIRTHRATE ₋₁)	-0.143311	0.140066	-1.023173	0.3068
Ln(POP1017)	4.424404	1.426367	3.101869	0.0021
UnemploymentRate	-1.952835	5.989856	-0.326024	0.7446
Includes a full set of county and year dummy variables (output not shown)				
R-squared	0.813887			

¹³ Administrative Office of the Courts, <<http://www.courts.wa.gov/caseload/>>.

¹⁴ Office of the Superintendent of Public Instruction, <<http://www.k12.wa.us/dataadmin/>>.

¹⁵ Washington State Office of Financial Management, <<http://www.ofm.wa.gov/demographics.htm>>.

¹⁶ Bureau of Economic Analysis' Regional Economic Information System, <<http://www.bea.doc.gov/bea/regional/reis/>>.

¹⁷ Washington State Department of Employment Security, <<http://www.wa.gov/esd/lmea/>>.

¹⁸ Washington State Office of the Forecast Council, <<http://www.wa.gov/ofc/>>.

¹⁹ Washington State Department of Health, <<http://www.doh.wa.gov/Data/data.htm>>.

county, but that enrollment rates in high school are unlikely to be related to these state funding levels except insofar as state spending influences the volume of truancy petitions filed. With this single IV for the truancy-filing rate, the model is exactly identified so no tests for over-identifying conditions were possible.

Table A2 shows the results of the final version of the structural model estimated for high school enrollment rates. Because the truancy filing rate (TFRATE) was instrumented with the level of state funding (BECDOL1017), the model was estimated with two-stage least squares. The model output indicates the significance ($p=.0022$, White heteroskedasticity-consistent standard errors) of the truancy filing rate in explaining changes in high school enrollment rates. A variety of other specifications were tried, including lagging the filing rate variable, both with and without instrumenting the lagged state spending variable. Several other exogenous variables were included in alternate specifications (population density, ethnicity, and other economic variables). Weighted least squares specifications were also tried, using each county's annual 10- to 17-year-old population as the weight. In all of these alternative specifications, the coefficient on the truancy filing rate variable was significant with an elasticity similar to that in Table A2. The final model shown in Table A2 is representative of all the alternative models, which increases the confidence that can be placed in conclusions drawn in this study.

Table A2: Structural Model of the High School Enrollment Rate				
Dependent Variable: Ln(ERATE1012)				
Method: Two-Stage Least Squares				
Included Observations: 468				
White Heteroskedasticity-Consistent Standard Errors & Covariance				
Instrument list: C Ln(BECDOL1017) PCTPRIVATESCH				
Ln(RPCI ₋₁) Ln(TEENBIRTHRATE ₋₁) UR Ln(POP1017)				
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15				
C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27				
C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 T91 T92 T93				
T94 T95 T96 T97 T98 T99 T00 T01				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.876796	1.248127	0.702489	0.4828
Ln(TFRATE)	0.022285	0.007223	3.085241	0.0022
PCTPRIVATESCH	0.512224	0.401426	1.276011	0.2027
Ln(RPCI ₋₁)	0.160592	0.096016	1.672549	0.0952
Ln(TEENBIRTHRATE ₋₁)	-0.001338	0.008064	-0.165968	0.8683
Ln(POP1017)	-0.244316	0.090394	-2.702805	0.0072
UnemploymentRate	0.183737	0.384967	0.477280	0.6334
Includes a full set of county and year dummy variables (output not shown)				
R-squared	0.823336			

The marginal effect in 2001 of the Becca truancy filings is computed by dividing 2001 high school enrollment levels in grades 10 to 12 by the number of truancy filings in 2001 (239,082 / 15,766) and multiplying by the elasticity from the output shown on Table A2 (.022285). This produces the estimate of the number of youth enrolled today—per truancy filing—as a result of the Becca 2001 filings (0.33793). This number then must be adjusted for the method the Institute uses to reflect different research design standards. The evaluation methods used in this study indicate that it is a “level 3” study on the Institute’s 5-point research design scale.²⁰ Thus the marginal effect is divided by 2 to get an adjusted effect (0.33793 / 2 = 0.16896). This number, when multiplied by the number of truancy filings in 2001, produces the estimate of the number of additional high school students enrolled today as a result of the Becca Bill (2,664).

Other Outcomes Examined

The preceding technical analysis describes our estimates of how truancy filings affect high school enrollment rates. In addition to high school enrollment rates, there are two other plausible ways to measure how successful schools are in keeping kids in school: high school dropout rates and high school graduation rates. All three measures are, naturally, interrelated: the higher the enrollment rate, the lower the dropout rate; and higher enrollment rates should be strongly related to higher high school graduation rates. Unfortunately, in this study we could not test whether the Becca Bill affects graduation rates or dropout rates because Washington does not have reliable local longitudinal data on these outcomes. Dropout data are not uniformly reported across the state over time and are only reported for public schools, not private schools. Statistics on high school graduation rates have similar problems. The available information on the number of high school

²⁰ S. Aos, P. Phipps, R. Barnoski, and R. Lieb (2001) *The Comparative Costs and Benefits of Programs to Reduce Crime Version 4.0*, Washington State Institute for Public Policy, available at <<http://www.wsipp.wa.gov/crime/pdf/costbenefit.pdf>>.

graduates is unevenly reported. More significantly, the Office of the Superintendent of Public Instruction collects county-level data on the number of public high school graduates, not county-level data on private school graduates. Thus, for this study, it was not possible to use either local high school dropout rates or graduation rates as a direct measure of the degree to which schools keep students in school.

High School Graduation Rates: Despite this data limitation, however, some inference can be gained about high school graduation rates. While *county-level* graduation rate data are not available, *state-level* statistics are available on the number of public and private high school graduates. We computed a state-wide “on-time” high school graduation rate that measures the percentage of students in Washington who graduate from high school during their 17th or 18th year. The “on-time” graduation rate is computed by dividing each year’s total number of public and private high-school graduates by that year’s averaged number of 17- and 18-year-olds living in Washington. With this information, we can examine the relationship between high school enrollment rates and graduation rates at the state level.

Figure A1
Graduation Rates Are Related to Enrollment Rates: 1980 to 2001

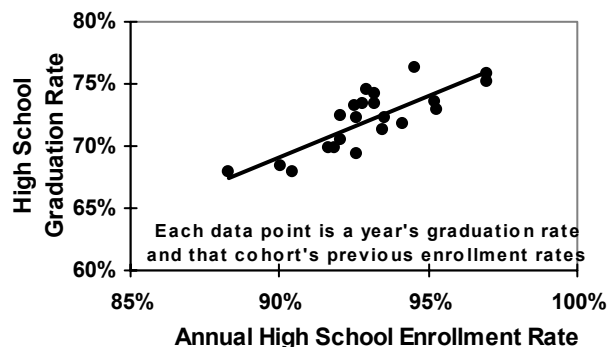
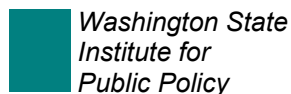


Figure A1 demonstrates that the state-level graduation rate is highly correlated with the state-level enrollment rate measure developed for this study. This correlation increases confidence that the enrollment measure used in this study is meaningfully related to another key school outcome: the success of the school system in producing high school graduates. Furthermore, since this study shows that the truancy petition filing rate has an effect on enrollment rates, the information in Figure A1 provides some correlational evidence that policies that can increase enrollment rates are likely to improve graduation rates as well. Again, due to data limitations, we could not test this relationship directly in this study, but there is some evidence indicating that an association between truancy filings and graduation rates exists.

Juvenile Arrest Rates: We also examined how high school enrollment rates are related to juvenile arrest rates—another policy focus of the Becca Bill. Using the same analytical methods described in this report, we conducted a multivariate statistical analysis (controlling for the level of juvenile detention, economic variables, and other variables) and found some evidence that higher high school enrollment rates are correlated with lower juvenile arrest rates. Specifically, we performed a panel regression with data for all 39 counties for the years 1990 to 2000 (N=429), with the log of the county juvenile arrest rate as a linear function of the log of the high school enrollment rate, the log of the county detention rate, the log of real retail wages, the log of real per capita income, the log of the teen birthrate, and a full set of county and year dummy variables. Weighted least squares regression was used (the weights were each county’s annual 10- to 17-year-old population). The coefficient on the enrollment rate was an elastic -1.34, with a significance of $p=.007$ with regular standard errors, and $p=.10$ with White heteroskedasticity-consistent standard errors. That is, higher high school enrollment rates were associated with lower juvenile arrest rates. No attempt was made in this exploratory regression to estimate the simultaneity between the arrest rate and the detention rate.

As with the evidence just discussed on graduation rates, however, our analysis of juvenile arrest rates should be regarded as indicative only. That is, we were not able to test directly the causal link between truancy filing rates and juvenile arrest rates; it was not possible to break the simultaneity that no doubt exists between some of the variables in the arrest rate model. As a result, it is not possible to draw cause-and-effect conclusions from the arrest rate model. On the other hand, since the multivariate analysis did indicate that higher enrollment rates are correlated with lower juvenile arrest rates, and since the main study finding shows that truancy petitions are related to higher enrollment rates, there is some indicative—but not causal—evidence that truancy petitions are associated with lower juvenile arrest rates.

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