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Does raising the state compulsory school attendance age achieve the intended outcomes?

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Key findings

Seeking to reduce student dropouts, truancy, and disciplinary actions, some states have raised the compulsory school attendance age. But there is insufficient evidence to build a case for or against doing so. Despite divergent views on the merits, recent studies conclude that if states enact stricter compulsory attendance age laws, they should do so in conjunction with complementary retention and dropout prevention policies that create a comprehensive approach.

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Summary

The United States and other industrialized countries have used compulsory school attendance legislation to encourage high school students to stay in school. In recent decades many states have raised the compulsory school attendance age to 17 or 18, in most cases from a previously mandated 16. The chief arguments favoring the change are that it will reduce dropout rates, signal to children and their families that dropping out is unacceptable, and more than compensate for the higher costs of educating students longer through lower spending on social programs, public safety, correctional services, and other state programs and functions. Arguments against increasing the age are that costs will rise, that requiring older teens to remain in schools against their will causes disciplinary and safety problems for other students, and that doing so usurps parents' rights to make education decisions for their children.

Maryland recently raised its compulsory school attendance age from 16 to 18 in two stages: from 16 to 17 at the beginning of the 2014/15 school year and from 17 to 18 at the beginning of the 2016/17 school year (Maryland Senate Bill 362, 2012). The Maryland State Department of Education, a member of Regional Educational Laboratory Mid-Atlantic's School Completion and Engagement Research Alliance, requested technical assistance from Regional Educational Laboratory Mid-Atlantic in fulfilling reporting requirements to the legislature and in implementing the policy changes.

Against this background, this review addresses the following research questions:

- What changes have occurred in dropouts, truancy, and disciplinary actions in states that raised their compulsory school attendance age during 2002–11?
- What broader social outcomes have been identified in studies using national datasets?
- How have these states measured changes in these expected outcomes?

What changes have occurred in dropouts, truancy, and disciplinary actions in states that raised their compulsory school attendance age?

Eleven states raised their compulsory school attendance age during 2002–11: Alabama, Colorado, Illinois, Indiana, Michigan, Nebraska, Nevada, New Hampshire, Rhode Island, South Dakota, and West Virginia. Online searches and outreach to state public information officers uncovered a few studies on outcomes related to a higher compulsory school attendance age, but many of the studies were methodologically flawed. Ultimately, the findings of the research literature are mixed on resulting changes in dropout, truancy, and disciplinary actions. Studies simply do not provide conclusive, empirical evidence for or against increasing the compulsory school attendance age. However, despite divergent views on the merits of raising the compulsory attendance age, recent studies tend to conclude that if states take this route, they should do so in conjunction with other retention and dropout prevention policies to create a comprehensive approach.

What broader social outcomes have been identified in studies using national datasets?

Because so few studies were found, the search was expanded to research using national datasets and reporting on changes in broader social outcomes. A few studies found positive financial and social outcomes associated with higher compulsory school attendance

Studies do not provide conclusive, empirical evidence for or against increasing the compulsory school attendance age

ages: higher adult earnings and average lifetime wealth and lower unemployment, teenage pregnancy, and mortality rates. However, some of the studies have limited utility in today's policy debates because their datasets cover periods when economic conditions and student demographics were very different from today's. Other studies found little positive impact, negative outcomes, or mixed results following increases in compulsory school attendance age.

How have these states measured these changes?

This study found no state-specific studies aimed at measuring changes in dropouts, truancy, and disciplinary actions following a rise in the compulsory school attendance age, so no data elements used by other states can be reported here. However, some suggested data elements for future analyses are presented in the full report.

Next steps

The review of publicly available documents suggests that despite considerable interest in the effects of raising the compulsory school attendance age at the time state legislatures are considering the policy change, interest wanes once the policy is implemented. And states have not collected data that would enable student outcomes to be examined.

Implementation of Maryland's compulsory school attendance requirements enacted in 2012 offers an opportunity to break this pattern. A well-designed study of student outcomes following implementation of the new law could inform policymakers in Maryland and other states that may consider such increases. Longitudinal analyses, one for the change from age 16 to 17 and another for the change from age 17 to 18 and both covering multiple years—for example, from three years before to three years after the age increase takes effect—could track numbers, rates, and percentages of students ages 15, 16, 17, and 18 for the following indicators:

- Dropouts.
- Truancy.
- Bullying, harassment, or intimidation.
- Referrals to alternative education options.
- Suspensions, also disaggregated by type of offenses.
- Expulsions, also disaggregated by type of offenses.

To facilitate analysis, researchers should document implementation dates for the higher compulsory school attendance age and other statewide policy changes that might affect dropout, truancy, and disciplinary action rates, such as new dropout prevention strategies and new antitrucancy programs. The impact of raising the compulsory school attendance age can be evaluated most accurately by an experimental study that compares groups with different compulsory attendance ages so that the findings lend themselves to causal conclusions. For example, states could stagger implementation over several years, as Maryland recently did, choosing counties and districts randomly for successive waves of implementing the higher age requirement.

The study found no state-specific studies measuring changes in dropouts, truancy, and disciplinary actions following a rise in the compulsory school attendance age

Contents

Summary i

What changes have occurred in dropouts, truancy, and disciplinary actions in states that raised their compulsory school attendance age? i

What broader social outcomes have been identified in studies using national datasets? i

How have these states measured these changes? ii

Next steps ii

Why this study? 1

What the study examined 2

What the study found 3

There is no clear pattern of effects on dropouts, truancy, and disciplinary actions of raising the compulsory school attendance age 3

The effects on broader social outcomes are also mixed 5

No state-specific studies aimed at measuring outcomes were found 6

Limitations of the study 6

Implications and suggested future directions for research 7

Combining a higher compulsory school attendance age with complementary measures 7

Directions for future study 8

Appendix A Methodology A-1

Appendix B Summary of statutes raising the age of compulsory school attendance, 2002–11 B-1

Appendix C Summary of compulsory school attendance requirements C-1

Notes Notes-1

References Ref-1

Figures

A1 Coding protocol: authorizing legislation A-2

A2 Data collection/coding protocol: studies, records, statistics, and media reports A-3

Map

1 Compulsory school attendance ages in the United States 2

Tables

1 States that enacted laws changing the compulsory school attendance age during 2002–11 3

C1 Punishments for habitual truancy and exemptions to compulsory school attendance laws for all states with a compulsory attendance age of 17 or 18 C-1

Why this study?

The United States and other industrialized countries have encouraged high school students to stay in school by enacting laws that define the minimum age at which students may leave school. The underlying assumption is that young people benefit from continuing their studies to a certain age. In recent decades states have enacted legislation raising the age from 16 (in most states) to 17 or 18. In the January 2012 State of the Union address, President Obama called on all states to require students to stay in school until age 18, a position shared by the National Conference of State Legislatures (Deyé, 2011), the National Association of Secondary School Principals (National Association of Secondary School Principals, 2010), and the National Governors Association (Princiotta & Reyna, 2009).

Several arguments are made for raising the compulsory school attendance age (Bridgeland, DiIulio, & Streeter, 2007; Rennie Center for Education Research and Policy, 2009):

- Dropout rates will fall.
- Teachers engage more fully with students when they are not about to drop out.
- Low compulsory school attendance ages signal to students and their families that dropping out is acceptable.
- Lower compulsory school attendance ages are a remnant of earlier times.
- Society has a moral obligation to fully educate all students.
- The costs of the change will be more than compensated for by lower spending on social programs, public safety, correctional services, and other state programs and functions.

Several arguments are made for raising the compulsory school attendance age—counter-arguments are also made

Counter-arguments are made against raising the compulsory school attendance age (Rennie Center for Education Research and Policy, 2009; Stadalsky, 2012; Compulsory Education Laws: The Dialogue Reopens, 2000):

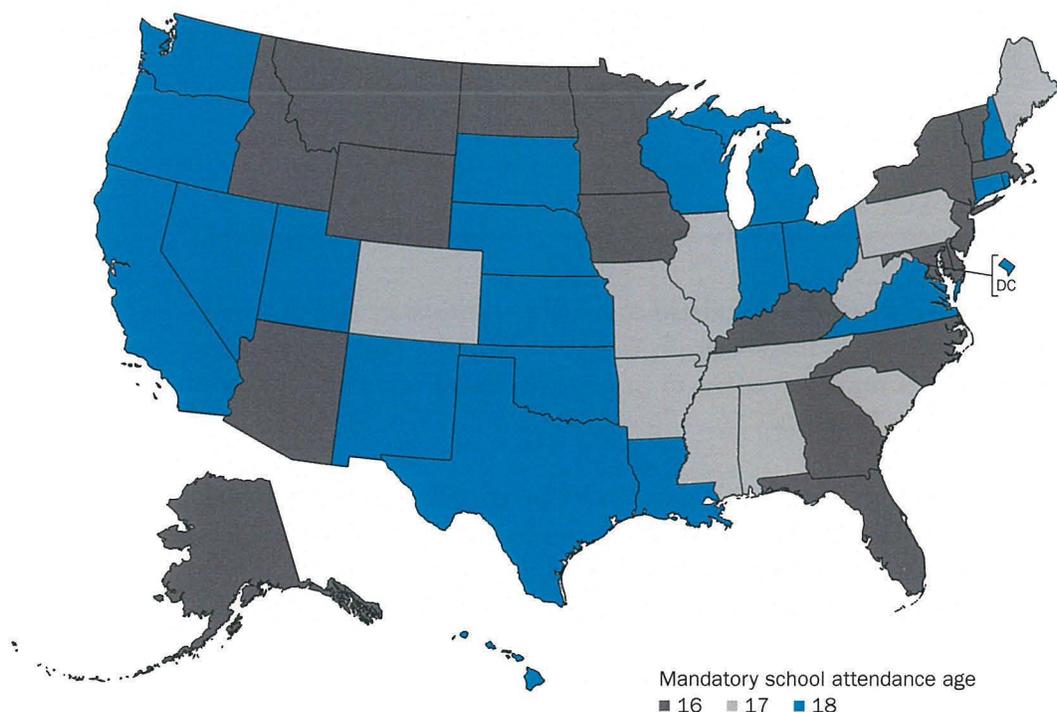
- It will cost more to educate more students, both to pay for additional teachers, counselors, facilities, and materials and to meet the special needs of students who would otherwise have dropped out (special programs, alternative schools, truant officers, and the like).
- Raising the compulsory school attendance age is ineffective in keeping potential dropouts in school
- Older teens forced to remain in schools they do not want to attend will cause disciplinary and safety problems.
- Expanding compulsory schooling usurps parents' rights to make education decisions for their children.

Widely varying estimates of the cost of raising the compulsory school attendance age are often part of the debate preceding enactment of new legislation. Often, state agencies are charged with developing cost estimates for legislators. In Maryland, for example, the Department of Legislative Services developed a Fiscal and Policy Note for Senate Bill 362 of 2012, which predicted increased general fund expenditures of \$8.8 million in fiscal 2017, \$35.6 million in fiscal 2018, and about \$71.2 million in fiscal 2020, plus additional costs for classroom facilities in some districts (Maryland Department of Legislative Services, 2012). One study maintains, however, that for any state “the costs for additional teachers and classrooms are likely to be minimal because compliance . . . will be low” (Whitehurst & Whitfield, 2012, p. 6).

In the Mid-Atlantic Region the compulsory school attendance age is currently 16 in Delaware, Maryland, and New Jersey; 17 in Pennsylvania; and 18 in the District of Columbia. Nationally, the age is 16 in 17 states, 17 in 11 states, and 18 in 22 states and the District of Columbia, though in some states ages differ by district (National Center for Education Statistics, 2012; map 1). Maryland recently raised the compulsory school attendance age from 16 to 18 in two stages: from 16 to 17 at the beginning of the 2014/15 school year and from 17 to 18 at the beginning of the 2016/17 school year (Maryland Senate Bill 362, 2012). The Maryland State Department of Education requested technical assistance from Regional Educational Laboratory Mid-Atlantic in fulfilling state reporting requirements and in implementing the policy changes. The department requested a review of data from other states that raised their compulsory school attendance age during 2002–11 (Maryland Senate Bill 362, 2012, p. 8), to examine subsequent changes in dropouts, truancy rates, and disciplinary actions and to identify the data needed to track and report the impact of the policy change.

In the Mid-Atlantic Region the compulsory school attendance age is 16 in only three states, 17 in one, and 18 in one

Map 1. Compulsory school attendance ages in the United States



Source: National Conference of State Legislatures. Downloaded January 8, 2013, from <http://www.governing.com/blogs/view/are-states-willing-to-require-school-attendance-until-age-18.html>

What the study examined

Against this background on legislation on compulsory school attendance age, this review addresses the following research questions:

- What changes have occurred in dropouts, truancy, and disciplinary actions in states that raised their compulsory school attendance age during 2002–11?
- What broader social outcomes have been identified in studies using national datasets?
- How have these states measured changes in these expected outcomes?

Eleven states raised their compulsory school attendance age during 2002–11: Alabama, Colorado, Illinois, Indiana, Michigan, Nebraska, Nevada, New Hampshire, Rhode Island, South Dakota, and West Virginia (table 1). To answer the first question about any changes in dropouts, truancy, and disciplinary actions since the states raised their compulsory school attendance age, database searches were conducted for research articles, media reports, and other reports by state education agencies and other state agencies. Internal reports were identified by contacting public information officers or staff members responsible for dropout prevention in the state education agencies (see appendix A for details of the study methodology).

Table 1. States that enacted laws changing the compulsory school attendance age during 2002–11

State	Effective date	Original/ revised age	State	Effective date	Original/ revised age
Alabama	2009	16 / 17	Nevada	2007	17 / 18
Colorado	2007	16 / 17	New Hampshire	2009	16 / 18
Illinois	2005	16 / 17	Rhode Island	2011	16 / 18
Indiana	2005	16 / 18	South Dakota	2009	16 / 18
Michigan	2010	16 / 18	West Virginia	2011	16 / 17
Nebraska	2005	16 / 18			

Note: See appendix B for the statutory authority and other information about the change in each state.
Source: Authors' review of the literature, as described in appendix A.

The evidence for raising the compulsory school attendance age is inconclusive, so no clear policy implications can be drawn

Only a few studies were found on outcomes related to a higher compulsory school attendance age, and many of them were methodologically flawed. None of the 11 states reported any relevant studies, reports, or organized efforts to track outcomes subsequent to changes in the compulsory student attendance law.

Because so few studies were found, the search was expanded to research based on national datasets (such as U.S. Census data, the National Center for Education Statistics Common Core of Data, and the Uniform Crime Reports of the Federal Bureau of Investigation) and reporting on changes in broader social outcomes. Twenty-one such studies were found.

What the study found

The evidence for raising the compulsory school attendance age is inconclusive, so no clear policy implications can be drawn on the merits of such policies. Most of the recent studies conclude that any decision to raise the compulsory school attendance age should be part of a package of retention and dropout prevention policies rather than a solitary policy change.

There is no clear pattern of effects on dropouts, truancy, and disciplinary actions from raising the compulsory school attendance age

The identified studies report mixed outcomes, with not enough empirical evidence for or against an increase in the compulsory school attendance age. Accordingly, there is not enough evidence on whether raising the compulsory school attendance age achieves the intended outcomes of reducing dropouts, truancy, and disciplinary actions or attaining broader social outcomes.

Dropouts and truancy. Although some national or multistate studies have documented associations between compulsory school attendance age and positive education outcomes, such as higher high school attendance rates, lower dropout rates, and increased educational attainment (Angrist & Krueger, 1991; Li, 2006; Lleras-Muney, 2002; Sansani, 2012; Wenger, 2002), some of the datasets used are outdated (with data on men born in the 1920s, 1930s, and 1940s), and some of the studies do not distinguish between compulsory attendance age changes at school exit and entry. One study found that a one-year increase in the compulsory school attendance age is associated with a 0.07 year increase (approximately 26 days) in the time the average student stays in school (Oreopoulos, 2007b). That is a substantial increase for students who are prevented from dropping out earlier. It is likely that “[s]ome of these students will experience positive long-term effects, [for example] on employment and college-going, as a result of receiving more schooling” (Whitehurst & Whitfield, 2012, p. 5).

A study of the grades in which students drop out, dropout rates over time, and high school completion by state during 2001/02–2005/06 concluded that the compulsory school attendance age had a weak relationship with dropout timing (during higher grades rather than lower ones) and no meaningful relationship with completing high school (Landis and Reschly, 2011). The study found no discernible pattern of reductions in dropout rates for states that raised their compulsory attendance age. The study also tracked dropout rates in states two years before and one year after a change in their compulsory school attendance age, including 3 of the 11 states that are subjects of this study. While changes in rates cannot be causally attributed to the age change, the study reports that after the three states raised their compulsory attendance age in 2005, dropout rates fell from about 54 per 1,000 students in 2004 to about 40 in 2006 in Illinois, rose from about 22 to about 28 in Indiana,¹ and remained fairly stable at about 28 in Nebraska.

One study concluded that the compulsory school attendance age had a weak relationship with dropout timing and no relationship with completing high school

Another study found that an initial 2 percentage point improvement in the graduation rate observed among states that raised their compulsory school attendance age to 18 disappeared after adjusting for changes in student demographics and long-term trends in state graduation rates (Whitehurst & Whitfield, 2012). The study concluded that graduation rates were not higher for the group of states that raised their compulsory school attendance age to 18 during 1994/95–2008/09.² The study surmised that part of the reason higher compulsory attendance age laws seem to have so little effect is that they are not strictly enforced (as argued in Oreopoulos, 2007b).³

Disciplinary actions. A study comparing school crime (related to disciplinary actions) and suspensions and expulsions in states that raised their compulsory school attendance age during 2002–09 (Colorado, Illinois, Indiana, Nebraska, and Nevada) and states that did not (Gilpin & Pennig, 2012) found that⁴:

- Raising the age from 16 to 17 is not associated with any change in in-school crime.
- Raising the age to 18 is associated with an increase of in-school crime of 6.2 percent (“crime incidences increase immediately” in four out of five states, while Nevada “displays a downward trend throughout the entire sample period,” p. 11).
- Raising the age from 16 to 18 is associated with an increase of 12.2 percent in attacks without a weapon, 36.3 percent in threats without a weapon, and 43.4 percent in drug incidents; property and violent crimes did not increase.
- Raising the age from 16 to 18 is associated with an increase in suspensions of 4.8 per 1,000 students per year (a 34.4 percent increase) and a decrease in expulsions of 1.9 per 1,000 students per year (a 35.8 percent decrease).

The changes in suspensions and expulsions relate only to states that raised the compulsory school attendance ages to 18 (Indiana, Nebraska, and Nevada). The results are aggregated to the national level, so no data are provided on changes in individual states. These findings indicate only a correlation between increases in the compulsory attendance laws and changes in rates of suspensions and expulsions; they do not establish a causal relationship.

Four other studies that examined the relationship between higher compulsory school attendance age and crime found mixed results. One study concluded that schooling, including additional time in school as a result of increases in the compulsory attendance age, reduces criminal activity (Lochner & Moretti, 2004). Another study found that a higher compulsory attendance age is correlated with decreased property and drug crimes among male students because potential perpetrators are required to be in school (Chan, 2012). Similarly, a study found that stricter attendance requirements have a significant negative association with property and violent crime arrest rates for individuals ages 16–18 but that crime is potentially displaced from the streets to schools (Anderson, 2010). A study examining specific in-school problems associated with higher compulsory attendance ages reported a greater likelihood that female students and younger students report missing school because of fears for their safety, that younger students report being threatened or injured with a weapon on school property, and that students report being victims of in-school theft (Anderson, Hansen, & Walker, 2012).

Several studies using national datasets have found positive financial and social outcomes associated with higher compulsory school attendance ages; other studies have found little positive impact

The effects on broader social outcomes are also mixed

Several studies using national datasets have found positive financial and social outcomes associated with higher compulsory school attendance ages. These include higher adult earnings (Angrist & Krueger, 1991) and average lifetime wealth (Oreopoulos, 2007a) and lower unemployment (Li, 2006), teenage pregnancy (Black, Devereux, & Salvanes, 2008), and mortality rates (Acemoglu & Angrist, 2000). However, some of these studies have limited utility in today's policy debates because they use datasets from periods when economic conditions and student demographics were very different from those of today.⁵ In addition, studies that examined outcomes associated with more years of compulsory schooling (such as Acemoglu & Angrist, 2000) do not differentiate between years added at ages 17 and 18 and years added at ages 5 and 6.

Other studies have found little positive impact following increases in compulsory school attendance age. One study concluded that the combination of expanded compulsory schooling and the introduction of tougher child labor laws during 1910–39 accounted for about 5 percent of the increase in high school enrollment and educational attainment over the period (Schmidt, 1996). By contrast, another study argues that the quality of education declined following enactment of stricter compulsory school attendance laws over 1917–39 (Sansani, 2010). Yet another study found mixed results, with above-average students taking more honors classes and college entrance exams and below-average students receiving a lower quality education because they share classrooms with students who would otherwise have dropped out (Luppino, 2011). And as one study concluded, “[w]ithout strong enforcement systems or complementary programs to address increased enrollment of at-risk students, raising the compulsory attendance age will likely have little impact on school completion and could be disruptive to schools” (Agostino & Reese, 2010, p. 7).

No state-specific studies aimed at measuring outcomes were found

The literature search found no state-specific studies aimed at measuring changes in rates of dropout, truancy, and disciplinary actions following a rise in the compulsory school attendance age, so there was no way to answer the third research question. However, some data elements that could be collected and analyzed in the future are proposed in the final section of this report.

Limitations of the study

Several of the studies reviewed for this report pointed out common problems with research on the effects of raising the compulsory school attendance age:

- Some national analyses fail to account for long-standing regional differences in dropout and completion rates, which may affect their results. Historically, the Northeast and Midwest have had lower dropout rates and higher completion rates than the South and West (Landis & Reschly, 2011).
- Until recently, studies wanting to compare dropout and graduation rates across states with different compulsory school attendance requirements have had difficulties because states used different methods of calculating those rates (Rennie Center for Education Research and Policy, 2009).
- Some studies examined changes in the compulsory school attendance age that occurred decades ago, when the initial ages were 14, 15, or 16 and economic conditions and the demographics of student dropouts were very different from those of today. Currently, the demand for skilled workers and the benefits of additional education are greater, more students graduate from high school and attend college, and most dropouts come from a fairly small set of poorer households. “It is not clear whether compelling these individuals to remain in school beyond sixteen would generate the same effects found in earlier studies” (Messacar & Oreopoulos, 2012, p. 10).
- Some studies that focus on the impact of compulsory school attendance age on high school completion rely on information on educational attainment derived from self-reported data in U.S. Census Bureau household surveys rather than on more reliable school records (Whitehurst & Whitfield, 2012).
- Studies that compare states with rising compulsory school attendance ages over time are unable to control for other changes in education policy (such as new programs for potential dropouts) that may accompany the rise in compulsory attendance age or for changes in state and local economic conditions that may influence decisions to drop out (Rennie Center for Education Research and Policy, 2009; Whitehurst & Whitfield, 2012).
- Research has been complicated by errors in establishing the effective dates of increases in the compulsory school attendance age in various states in repeated editions of the National Center for Education Statistics *Digest of Education Statistics*. Prior to Whitehurst and Whitfield’s 2012 discovery of those errors, Oreopoulos (2007b) and Landis and Reschly (2011) had used the *Digest’s* dates and published studies based on the incorrect information. Whitehurst and Whitfield (2012) found and corrected 28 errors in data reported for 1994–2008 and substituted accurate data in their own studies.

Several of the studies reviewed for this report pointed out common problems with research on the effects of raising the compulsory school attendance age

Implications and suggested future directions for research

Neither proponents nor opponents of raising the compulsory school attendance age are on firm empirical ground. It is difficult to draw any policy implications from the mixed findings of the research literature on the merits of increasing the compulsory school attendance age. In fact, three recent reviews of the findings draw divergent conclusions. Messacar and Oreopoulos (2012) interpret the research as supporting a rise in the compulsory school attendance age to 18 in all states. The Rennie Center for Education Research and Policy (2009, p. 13) concludes that there is “little research to support the idea that an increase in the compulsory school attendance age decreases dropout rates and increases graduation rates.” To Whitehurst and Whitfield (2012, p. 6) the research suggests that raising the compulsory attendance age “is unlikely to produce outcomes that will be noticeable to state policymakers and taxpayers.”

Combining a higher compulsory school attendance age with complementary measures

Most of the more recent studies examined in those three reviews concluded that if states decide to increase the compulsory school attendance age, they should do so as part of a package of retention and dropout prevention policies rather than as an isolated policy change. Messacar and Oreopoulos (2012, p. 21) recommend that compulsory attendance age laws “be used as one approach in a series of strategies to keep students engaged in class throughout their school careers.” These strategies include combatting early disengagement (citing Lamdin, 1996; Peterson & Colangelo, 1996; Strickland, 1998), increasing parental involvement (citing Alexander, Entwisle, & Bedinger, 1994; Ensminger & Slusarcick, 1992; Astone & McLanahan, 1991; Rumberger, 1995), reducing class size (citing Rumberger, 1995), setting high academic expectations (citing Fryer, 2011), and increasing teacher support and encouragement (citing Brewster & Bowen, 2004; Catterall, 1998; Croninger & Lee, 2001; Lee & Burkam, 2003). Messacar and Oreopoulos also recommend mentoring programs; they single out Check & Connect because of research suggesting its effectiveness in increasing the likelihood of students staying in school (citing Anderson, Christenson, Sinclair, & Lehr, 2004; Lehr, Sinclair, & Christenson, 2004; Sinclair et al., 1998; Sinclair, Christenson, & Thurlow, 2005; Sinclair & Kaibel, 2002; What Works Clearinghouse, 2006).

The Rennie Center for Education Research and Policy (2009, p. 13) study recommends that any new Massachusetts law on compulsory school attendance age be coupled with—or, better yet, preceded by—a broad range of programs that lay down “a strong foundation for young adults who are at risk of dropping out to be engaged in school and on a path to earning a high school diploma.” The authors base their advice on the lack of empirical evidence of the effectiveness of raising the compulsory attendance age, the evidence on why students drop out (Boston Youth Transitions Task Force, 2006; Bridgeland, DiIulio, & Morison, 2006), and policies and programs “that have been shown to be successful in addressing these issues” (p. 13). Without citing evidence of effectiveness, the authors recommend addressing student disengagement and alienation from school, improving attendance monitoring and early intervention systems, expanding alternative education options, and possibly updating procedures for legally leaving school before graduation, including eliminating exemptions that permit 14- and 15-year-olds to do so.

Whitehurst and Whitfield (2012) cite interventions and policies shown to be effective in increasing persistence and high school completion—including those described in the

Neither proponents nor opponents of raising the compulsory school attendance age are on firm empirical ground

What Works Clearinghouse publication, *Dropout Prevention: A Practice Guide* (Dynarski et al., 2008), and Check & Connect (Anderson, Christenson, Sinclair, & Lehr, 2004; Lehr, Sinclair, & Christenson, 2004; Sinclair et al., 1998; Sinclair, Christenson, & Thurlow, 2005; Sinclair & Kaibel, 2002; What Works Clearinghouse, 2006). The authors conclude that it “is easier to defend raising the [compulsory school attendance] age as part of a comprehensive set of policies that include such targeted interventions than it is to support it as an isolated legislative event that is supposed to take care of a serious problem” (p. 7).

Directions for future study

This analysis of the literature found considerable interest in the outcomes of raising the compulsory school attendance age while state legislatures were considering the issue, with legislators and advocacy organizations reviewing the research and conducting their own. But once the laws are enacted, states do not seem to generate the kind of data that would help them and other states gauge the effectiveness of these changes.

Without experimental studies, any observable changes following enactment of laws raising the compulsory attendance age could be attributable to other policies or changes occurring around the same time. Implementation of Maryland’s two-stage increase in school age requirements offers researchers an opportunity to conduct a rigorous experimental study of the resulting changes in student outcomes.⁶ Such a study could help policymakers in Maryland prepare complementary policies and provide guidance to the 28 states that might be considering raising the compulsory attendance age. The outcomes of interest should go beyond the “rates of dropout, truancy, and disciplinary actions” cited in the Maryland State Department of Education request to include changes in graduation rates and school violence as well.

Without experimental studies, any observable changes following enactment of laws raising the compulsory attendance age could be attributable to other policies or changes occurring around the same time

One way to set up an experimental study would be for states to stagger implementation of a higher compulsory school attendance age over several years, as Maryland has done, and to choose counties and districts randomly to implement the new policy in waves. Researchers could then track indicators for multiple years before and after the change in compulsory school attendance age. Even without randomization, longitudinal analyses—one examining the change from age 16 to 17 and another from age 17 to 18 (with both analyses covering multiple years)—could track numbers, rates, and percentages of students ages 15, 16, 17, and 18 for the following indicators:

- Dropouts.
- Truancy.
- Bullying, harassment, or intimidation.
- Referrals to alternative education options.
- Suspensions, also disaggregated by type of offenses.
- Expulsions, also disaggregated by type of offenses.

This structure allows for comparing different compulsory school attendance ages and drawing causal conclusions. To facilitate analysis, the researchers should document not only the change in compulsory attendance age, but also other statewide policy changes implemented over the study period that might have an impact on dropout, truancy, and disciplinary actions, such as new dropout prevention strategies and new antitrucancy programs.

Appendix A. Methodology

This study had two stages: identifying the states that raised their compulsory school attendance age during 2002–11 and examining studies reporting on the outcomes of these changes.

Identifying states

The first step was to identify states in which a new, higher compulsory school attendance age went into effect during 2002–11. A list of 16 states was identified based on information in the *2011 Digest of Education Statistics* (National Center for Education Statistics, 2012). Then, because the *Digest* files appeared to contain errors, the statutory history of the change was researched in each state, yielding a final list of 11.

Collecting data and examining findings

For the research question on changes in dropouts, truancy, and disciplinary actions in states that raised their compulsory school attendance age during 2002–11, the following datasets were searched to identify government and nongovernment documents reporting on outcomes following a rise in the compulsory school attendance age in the 11 states:

- The Education Resources Information Center.
- Google and Google Scholar.
- Resources of education policy organizations: the Education Commission of the States, the Council of Chief State School Officers, and the National Council of State Legislatures.
- EBSCOHost databases: EBSCOHost Education Research Complete, EBSCOHost Professional Development Collection, EBSCOHost Social Sciences Full Text (H.W. Wilson), and EBSCOHost SocINDEX with Full Text.

Search terms included state names, identification numbers of bills and statutes raising the compulsory school attendance age, “compulsory age,” “compulsory schooling,” “mandatory age,” “schooling age,” “minimum age,” “school completion,” “dropout rate,” “graduation rate,” “truancy rate,” “suspension rate,” “after-school detention,” “lunch detention,” “school discipline,” and “alternative education.”

Public information officers and staff members responsible for dropout prevention in each of the 11 state education agencies were also contacted by email, to identify any internal reports. They were asked for information on studies undertaken by the agency or another state agency tracking implementation of the new policy and requesting referral to other state employees who might know about such studies.

Because so few studies were found through these searches, the search was broadened to include research based on national datasets (such as U.S. Census data, the National Center for Education Statistics Common Core of Data, and the Uniform Crime Reports of the Federal Bureau of Investigation) and reporting on changes in broader social outcomes. Twenty-one such studies were found.

Analysis

The review team used coding protocols to systematically summarize the data on changes in compulsory schools attendance age in each state (figure A1) and to identify key information for each document or item retrieved (figure A2).

Figure A1. Coding protocol: authorizing legislation

State: _____

Statutory citation for policy change: _____

Legislative bill number, upper chamber _____; lower chamber _____

Enactment date: _____

Implementation date: _____

First school year impacted: _____

First school year impacted by second phase (if applicable): _____

Characteristics of the legislation

Old compulsory school age: _____

New compulsory school age: _____

New compulsory school age for second phase (if applicable): _____

Exemptions included in the legislation (or companion legislation):

Penalties included in the legislation (or companion legislation):

New or extended programs included in the legislation (or companion legislation):

Other provisions in the legislation:

Appendix B. Summary of statutes raising the age of compulsory school attendance, 2002–11

Alabama	
Change in age	16 to 17
Year enacted	2009
Effective	2009/10 school year
Statute and law or public act	Ala. Code § 16–28–3; Dropout Prevention Act of 2009:564
Complementary provisions	The law requires a “student exit interview” for students who desire to leave school and their parents, including a meeting with a team of student advocates to discuss alternatives to dropping out.

Colorado	
Change in age	16 to 17
Year enacted	2006
Effective	2007/08 school year
Statute and law or public act	Colo. Rev. Stat. § 22–33–104; 2006 Session Laws of Colorado, Chapter 265
Complementary provisions	Additional dropout prevention measures include grants for before- and after-school arts-based or vocational programs; pilot schools for students expelled from grades 6–9; a dropout prevention component in a youth services program; an afterschool pilot grant program in science, technology, engineering, and math; a teen pregnancy and dropout prevention program; a “second chance” program for problem students; and designation of certain schools as “alternative education campuses.” The legislation mandates that schools provide education services to habitually truant or expelled students and that schools inform grade 8 students and their parents of resources available for postsecondary education opportunities and of courses that satisfy higher education admission guidelines.

Connecticut	
Change in age	16 to 18
Year enacted	2000
Effective	2001/02 school year
Statute and law or public act	Conn. Gen. Stat. § 10–184; Conn. P.A. 00–157
Complementary provisions	Parental consent is required for withdrawal of students ages 16 and 17.

Note: Excluded from the review because the law took effect before 2002.

Illinois	
Change in age	16 to 17
Year enacted	2004
Effective	2004/05 school year (January 1, 2005)
Statute and law or public act	105 Ill. Comp. Stat. Ann 5/26–1; Ill. PA 93–858
Complementary provisions	Students whom the state considers to be dropouts may take advantage of graduation incentive programs or alternative learning programs, may be reimbursed for a percentage of course costs, and may receive full reimbursement of tuition if they can show employment within six months of completion of a job or career training program.

Indiana	
Change in age	16 to 18
Year enacted	2005
Effective	2005/06 school year
Statute and law or public act	Ind. Code Ann. § 20–33–2-6; § 22–33–2-9(B)
Complementary provisions	Specific withdrawal procedures are laid out for students younger than age 18 seeking to leave school. “Habitual truants” are ineligible for a driver’s license or learner’s permit.

Louisiana	
Change in age	17 to 18
Year enacted	2001
Effective	2001/02 school year
Statute and law or public act	La. Rev. Stat. Ann. § 17:221; La. Acts 2001, No. 1151, §1
Complementary provisions	None identified

Note: Excluded from the review because the law took effect before 2002.

Michigan	
Change in age	16 to 18
Year enacted	2010
Effective	2009/10 school year (January 4, 2010)
Statute and law or public act	Mich. Stat. Ann. § 380.1561; Mich. Am. 2009, Act 204
Complementary provisions	Mich. Stat. Ann. § 380.1311 recognizes alternative education possibilities, and it is the responsibility of expelled student and parents to locate alternative possibilities and enroll. The alternative school is to receive the expelling district’s foundation allowance for the expelled student.

Missouri	
Change in age	16 to 17
Year enacted	2009
Effective	2009/10 school year, but permits metropolitan school districts to lower compulsory school attendance age to 16. This provision terminated at the end of the 2011/12 school year.
Statute and law or public act	Mo. Rev. Stat. §167.031; A.L. 2009 S.B. 291
Complementary provisions	None identified

Note: Excluded from review because policy is not binding on all districts until 2012/13.

Nebraska	
Change in age	16 to 18
Year enacted	2004
Effective	2005/06 school year
Statute and law or public act	Neb. Rev. Stat. §79–201; Neb. Laws 2004, LB868, §1
Complementary provisions	None identified

Nevada	
Change in age	17 to 18
Year enacted	2007
Effective	2007/08 school year
Statute and law or public act	Nev. Rev. Stat. § 392.040; 2007 Statutes of Nevada, Page 2179
Complementary provisions	Attendance requirement is waived for students ages 15–18 who have completed grade 8 and wish to get a job or an apprenticeship; written permission required.

New Hampshire	
Change in age	16 to 18
Year enacted	2008
Effective	2009/10 school year
Statute and law or public act	N.H. Rev. Stat. Ann. § 193.1; 2008, 173:11
Complementary provisions	After age 16 student may obtain a waiver from the superintendent. The waiver is granted only to students who can prove they are 16 years old or older and have an alternative learning plan for obtaining a high school diploma or equivalent.

Rhode Island	
Change in age	16 to 18
Year enacted	2011
Effective	2011/12 school year
Statute and law or public act	R.I. Gen. Laws § 16–19–1; P.L. 2011, ch 338, § 1
Complementary provisions	Alternative learning settings are available for students ages 16–18 who withdraw from school.

South Carolina	
Change in age	16 to 17
Year enacted	1996
Effective	1996/97 school year
Statute and law or public act	S.C. Code Ann. 59–65–10
Complementary provisions	None identified

Note: Excluded from the review because the law took effect before 2002.

South Dakota	
Change in age	16 to 18
Year enacted	2007
Effective	2009/10 school year
Statute and law or public act	S.D. Codified Laws § 13–27–1; S.L. 2007, ch 98, § 1
Complementary provisions	Students who have successfully completed grades 1–8 are excused if they or their parents are members of a recognized church or religious denomination that objects to the regular public high school education and if the religious denomination provides “regularly supervised program of instruction.”

Washington	
Change in age	16 to 18
Year enacted	1969
Effective	1969/70 school year
Statute and law or public act	Wash. Rev. Code § 28A.225.010; 1969 ex.s. c. 223 § 28A.27.010
Complementary provisions	None identified

Note: Excluded from the review because the law took effect before 2002; subsequent amendments to the statute did not change the compulsory school attendance age.

West Virginia	
Change in age	16 to 17
Year enacted	2010
Effective	2011/12 school year
Statute and law or public act	W. Va. Code § 18-8-1a
Complementary provisions	Students who have completed grade 8 may be exempt from the attendance requirement if extreme destitution of the family is shown and the student receives a work permit.

Appendix C. Summary of compulsory school attendance requirements

Many states exempt students from compulsory school attendance requirements if they are employed, have a health condition or disability that makes attendance difficult, have passed grade 8, have parental permission, have permission from the school board or a court, sit for an exit interview, or are in an alternative education program (Education Commission of the States, 2010). Other states, including Tennessee and West Virginia, impose disincentives on early dropouts, like revocation of their driver's licenses until age 18 (Balfanz, Bridgeland, Bruce, & Fox, 2012). Messacar and Oreopoulos (2012) present a table listing punishments for habitual truancy and major exemptions to compulsory school attendance laws for all states with a compulsory attendance age of 17 or 18 (replicated in table C1).

Table C1. Punishments for habitual truancy and exemptions to compulsory school attendance laws for all states with a compulsory attendance age of 17 or 18

State	Compulsory school attendance age	Punishment for habitual truancy	Major exemptions
Arkansas	17	Fine up to \$500 (parents)	16 or older and in adult education 10 hours a week
California	18	Community service (parents, child, or all), juvenile delinquency school, parent education, \$1,000 fine (parents)	Work permit
Connecticut	18	Social and rehabilitation service (parents, child, or all)	16 or older and parent's consent or work permit
District of Columbia	18	Community service, fine, or imprisonment (parents)	17 or older, part-time school if working
Illinois	17	Community service (child), graduation incentives program, misdemeanor (parents, child, or all)	Working
Indiana	18	Ineligible for driver's license, misdemeanor (parents, child, or all)	16 or older and student, parent, and principal agree to withdrawal
Kansas	18	Social and rehabilitation service (parents, child, or all)	Parent's consent and signing of disclaimer acknowledging that child lacks skills and earnings will be lower
Louisiana	18	Up to \$250 fine or 30 days imprisonment (parents)	17 or older and parent's consent
Maine	17	None mentioned	15 or older, parent's consent, part-time school, and working
Minnesota	18	Misdemeanor (parents, child, or all)	16 or older and parent's consent
Mississippi	17	Misdemeanor (parents), foster care (child)	None
Nebraska	18	Misdemeanor (parents, child, or all)	16 or older and parent's consent or need to work
Nevada	17	Advisory board meeting, misdemeanor (parents), foster care (child)	Distant from school, need to work, or 14 or older and working
New Mexico	18	Ineligible for driver's license, social and rehabilitation service (child), misdemeanor (parents)	17 or older and working

(continued)

Table C1. Punishments for habitual truancy and exemptions to compulsory school attendance laws for all states with a compulsory attendance age of 17 or 18
(continued)

State	Compulsory school attendance age	Punishment for habitual truancy	Major exemptions
New York	17	Fine or imprisonment (parents)	16 or older and working
Ohio	18	Misdemeanor (parents, child, or all)	Work permit
Oklahoma	18	Misdemeanor (parents, child, or all)	16 or older, principal and parent agree
Oregon	18	Notice to parents	16 or older, parent's consent, and working
Pennsylvania	17	Misdemeanor (parents, child, or all)	None
Rhode Island	18	Fine or imprisonment (parents)	16 or older and parent's consent
South Carolina	17	Fine or imprisonment (parents)	Need to work
Tennessee	17	Misdemeanor (parents, child, or all), truancy school	None
Texas	18	Misdemeanor (parents, child, or all), truancy school	None
Utah	18	Misdemeanor (parents, child, or all), truancy school	16 or older and working
Virginia	18	Misdemeanor (parents, child, or all)	Parent's consent
Washington	18	Misdemeanor, social and rehabilitation service (parents, child, or all)	16 or older and working
Wisconsin	18	Fine or imprisonment (parents)	None

Source: Messacar and Oreopoulos (2012), from data presented in Oreopoulos (2007b).

Notes

1. Landis and Reschly (2011) incorrectly date the change to 2006; see the study limitations section. The study does not report precise dropout rates.
2. Whitehurst and Whitfield (2012) do not report results for individual states.
3. The stringency of compulsory school attendance laws varies by state. However, based on the analysis of data for the 11 states that changed their laws during 2002–11, there is little evidence that particular variations in legislative requirements have an impact on the targeted outcomes (see appendix C).
4. The study was motivated in part by Anderson (2010), which reported a 30-year decline in juvenile arrest rates in states that raised the compulsory school attendance age but suggested that the decline might be due to crimes taking place within schools instead of on the streets and being underreported by school administrators. The study, relying on data from the National Center for Education Statistics School Survey on Crime and Safety for 2003/04, 2005/06, 2007/08, and 2009/10, used the difference in differences approach, calculating the degree of change within each state and then comparing the differences observed across states.
5. Such as the oft-cited Angrist and Krueger (1991), which asserts that additional time in school is associated with higher educational attainment and earnings for men born in the 1920s, 1930s, and 1940s.
6. In 2012 Maryland raised its compulsory school attendance age from 16 to 18 in two stages: from 16 to 17 at the beginning of the 2014/15 school year and from 17 to 18 at the beginning of the 2016/17 school year (Maryland Senate Bill 362, 2012).

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