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# THE VALUE PROPOSITIONS ASSOCIATED WITH FUNDING RESEARCH-BASED K-12 EDUCATION PRACTICES

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September 6, 2016





## ***The Value Propositions Associated with Funding Research-Based K-12 Education Practices***

SEPTEMBER 6, 2016

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### **ABOUT CTBA**

Founded in 2000, the Center for Tax and Budget Accountability is a non-profit, bi-partisan research and advocacy think tank committed to ensuring that tax, spending and economic policies are fair and just, and promote opportunities for everyone, regardless of economic or social status.

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## Table of Contents

1. INTRODUCTION .....	1
2. KEY FINDINGS .....	1
3. THE IMPORTANCE OF A QUALITY K-12 EDUCATION: FROM AN INDIVIDUAL PERSPECTIVE—LOWER UNEMPLOYMENT AND HIGHER WAGES.....	4
4. THE IMPORTANCE OF INVESTING IN K-12 EDUCATION FROM A STATE POLICY PERSPECTIVE.....	6
5. IDENTIFYING K-12 EDUCATIONAL PRACTICES THAT BUILD CAPACITY AND GENERATE LONG TERM SOCIETAL AND ECONOMIC .....	10
6. USING THE EVIDENCE BASED MODEL OF EDUCATION FUNDING TO CREATE A K-12 SYSTEM THAT GENERATES ECONOMIC AND SOCIAL BENEFITS.....	16
7. ILLINOIS: CURRENT STATE .....	17
8. THE COST AND POTENTIAL ECONOMIC IMPACT IN ILLINOIS OF PROVIDING A QUALITY K-12 EDUCATION FOR ALL STUDENTS.....	21
9. THE POTENTIAL VALUE TO ILLINOIS OF PROVIDING A QUALITY K-12 EDUCATION FOR ALL STUDENTS .....	22
10. CONCLUSION .....	26

## Table of Figures

Figure 1 .....	5
Figure 2 .....	5
Figure 3 .....	6
Figure 4 .....	7
Figure 5 .....	8
Figure 6 .....	9
Figure 7 .....	12
Figure 8 .....	15
Figure 9 .....	17
Figure 10.....	18
Figure 11.....	18
Figure 12.....	19

## Table of Figures

Figure 13.....	20
Figure 14.....	21
Figure 15.....	22
Figure 16.....	23
Figure 17.....	24
Figure 18.....	24
Figure 19.....	25
Figure 20.....	25
Figure 21.....	25
Figure 22.....	26

## 1. INTRODUCTION

The importance of a high quality education is recognized broadly. From an individual's perspective, the correlation between educational attainment and the ability to secure a high paying, good benefit career has never been stronger. From a state policy perspective, the significant body of research indicates that investing adequately in public education is one of the very few policy options available to decision makers that bears a statistically meaningful relationship to boosting that state's economy over time.<sup>1</sup> Indeed, over the last 30 years, those states that have done the best job of building the capacity of their public education systems have enjoyed a statistically meaningful advantage in economic growth over states that have not made adequate investments in education,<sup>2</sup> while a recent study from Stanford University (the "Stanford Study") found that states like Massachusetts which have a commitment to investing in better K-12 public schools, have realized "dramatic" economic gains.<sup>3</sup>

Given what the evidence says about the role education plays in building both an individual's and a state's economic competitiveness, the questions for policymakers become: Can the value of adequately investing in K-12 education be quantified? Is it possible to identify how making appropriate investments in specific, evidenced based educational practices today, can generate quantifiable economic and other benefits to society tomorrow? The answers, as it turns out, are yes and yes. There are numerous metrics available that allow decision makers to measure the economic value of both investing adequately in public education overall, as well as the value proposition associated with investing appropriately in various specific, evidence based educational practices. This paper summarizes the existing credible research on this subject.

In Illinois, it is particularly crucial that the actual evidence of how appropriate investments in education can enhance the state's economy be used to inform policy choices. For, at the very time when educational attainment is more closely correlated to economic viability than ever before, too many Illinois schools lack the fiscal resources necessary to provide the level of educational quality required to meet the needs of their students, which in turn impedes the state's overall economic growth.

And the shortfall in Illinois' investment in education is significant. Consider that, according to the state's own school funding standards, Illinois' current investment in K-12 education is some \$5 billion short of what's needed for most non-at-risk children to succeed academically.<sup>4</sup> As eye opening as that shortfall is, it doesn't tell the whole story, because the lack of adequate capacity is especially prevalent in those Illinois schools with a significant number of "at-risk" students. A student is considered to be "at-risk" of academic failure, if she or he: is low-income or attends a school that has a significant portion of its student population coming from low-income backgrounds; is an English language learner; and/or has special needs.<sup>5</sup> Given that currently, over half of the students in Illinois' public schools qualify as at-risk, it is imperative the state follow an evidence based approach to reforming its education funding system, to ensure all students who graduate from its public schools, as well as the state itself, have a bright future.<sup>6</sup>

## 2. KEY FINDINGS

### 2.1. Economic Value

- The research shows that those states which have made the greatest investment in building the capacity of their public school system to meet the educational needs of all their children, from the poorest on up, have experienced stronger economic growth than states that did not.<sup>7</sup>
  - Indeed, the high-investing states also had larger increases in worker wages over the same time period.<sup>8</sup>

- Researchers who conducted a cost-benefit analysis of education expenditures in Tennessee found that, “for every \$1.00 expended on secondary and post-secondary education, \$5.37 is returned to the state economy in direct earnings as well as through indirect and induced employment and industry outputs, additional labor income and taxes.”<sup>9</sup>
  - The total number of Tennessee jobs created or impacted by these education expenditures was over 16,000.<sup>10</sup>
  - For instance, Tennessee’s population is roughly half the size of Illinois.<sup>11</sup> If Illinois were to see the same results that Tennessee did, the impact on the number of new jobs in Illinois could be in the range of 32,300.
- The Federal Reserve of Cleveland found that differences in personal income between states could be explained in large part by differences in educational attainment.
  - Specifically, it found states that had a greater percentage of their population attaining high school degrees than other states, also had a 1.5 percent higher per capita personal income.<sup>12</sup>
  - Overall, the states with the greatest high school and college graduation rates have the highest per capita personal incomes.
- Between 1979 and 2012, the states that realized the greatest increase in productivity also had the largest share of adults with at least a college degree.
- Investing in those educational practices which have statistically meaningful correlations to enhancing student achievement is particularly important from an economic standpoint:
  - From 1970-2010, there was a strong relationship between the academic achievement of a state’s adult workers and economic growth in that state, with states like Massachusetts, Minnesota, Texas, and North Dakota having both significantly greater levels of achievement and rates of economic growth, while states like Alabama, Mississippi, Utah, and Nevada lagged the nation in both achievement and rate of economic expansion.<sup>13</sup>
  - According to the Economic Policy Institute, in 2011, high school dropouts on average made 29 percent less (\$8,330) in annual earnings than those with a high school degree.<sup>14</sup>
  - In 1979, college graduates earned 23.5 percent more than those with a high school diploma; by 2011 the gap had grown to 46.9 percent, a 23 percentage point increase.
  - Bottom line, the states with the highest overall “knowledge stocks” (i.e. with the highest high school and college attainment rates) have the highest per capita personal incomes.<sup>15</sup>
- Enhanced educational attainment also correlates positively to employment rates—that is, those without a high school diploma are nearly three times as likely to be unemployed than those with a Bachelor’s degree.<sup>16</sup>
- If American schools performed comparable to higher-performing nations (e.g. Canada) in math (scoring approximately 40 points higher on the Programme for International Student Assessment), our higher skilled students would produce a faster growing economy, improving GDP over the next 80 years by an amount with a present value of \$70 trillion.<sup>17</sup>
  - This equates to a 20 percent boost in lifetime earnings for each U.S. worker.
  - If Illinois were to boost student achievement on math to the level of Minnesota, the highest achieving state in the nation, Illinois’ state GDP would be some 400 percent greater by 2095.<sup>18</sup>
- The federal Equity and Excellence Commission found that eliminating the achievement gap between white students on the one hand and African-American and Hispanic students on the other, would add “some \$50 trillion (in present value terms) to our economy” over the next 80 years.<sup>19</sup>
  - Simply achieving a 90 percent graduation rate for students of color would add as much as \$6.6 billion in annual earnings to the U.S. economy.<sup>20</sup>

- Given that Illinois accounts for around 4.4 percent of the nation’s GDP, a similar improvement in graduation rates for students of color in Illinois could be expected to add \$264 million more annually to our state’s economy.
- According to a recent study in Iowa, the benefits of a highly educated workforce extend beyond the worker individually and go to society overall. Indeed, in Iowa, college-educated workers in their 50s on average pay over \$2,000 more annually in state taxes than do individuals of the same age with only a high school diploma.<sup>21</sup> College educated workers also consume significantly fewer social services, thereby reducing public sector costs.<sup>22</sup>
- CTBA used Census data to analyze per pupil spending in all 50 states and Washington, D.C., and found that those states that did the best job investing in K-12 education have higher median and mean wages and income than other states, with per pupil spending being strongly correlated with median income (.668), mean hourly wage (.635), median hourly wage (.668), and annual mean wage (.634).<sup>23</sup>

## 2.2. Social Impacts

- In 2006, the economic loss associated with child poverty cost Illinois \$20.4 billion annually, according to the Human Services Policy Center.<sup>24</sup>
- Research demonstrates that high school graduation reduces criminal activity.<sup>25</sup>
  - Nationally, a 1 percent reduction in the male dropout rate would save as much as \$1.4 billion per year in reduced correctional costs, or about \$2,100 per additional high school graduate.<sup>26</sup>
- Across the United States, the smoking rate for individuals with college degrees is one-third of the rate for those who are less educated.<sup>27</sup>
- Obesity and heavy drinking rates are half as high among the more educated, which helps, in part, explain why college graduates had a life expectancy that was eight years longer than high school dropouts in 1990.<sup>28</sup>

## 2.3. Evidence of What Works: School Specific Programs

- In Tennessee, Project STAR completed a longitudinal evaluation of the impact of small class sizes on students. The study found that:
  - Students in grades K-3 who were assigned to small classes were 1.8 percentage points (6.7 percent) more likely to be enrolled in college at age 20 than their peers who were educated in larger classrooms.
  - African-American students who were assigned to small classes in Kindergarten through 3<sup>rd</sup> grade scored 6.9 percentage points higher on their entry-grade tests and were 5.3 percentage points more likely to attend college than their peers in larger classes.
  - Reducing the class size by one student in Kindergarten has a net benefit of \$1,633 per pupil, while the cost to administer the program is only \$204 per pupil.<sup>29</sup>
- Schools that took part in the “Positive Action” program—a comprehensive, school-wide social-emotional and character development program designed to improve student achievement, behaviors, and character, scored significantly higher in reading (9.8 percent) and math (8.8 percent) on standardized tests, while reporting significantly lower absenteeism (-15.2 percent) and suspensions (-72.6 percent), compared to a control group of schools that did not take part in the program.<sup>30</sup>

- Schools which provide “wrap around services” (e.g. healthcare and social services) generate a net benefit of \$5,252 per pupil, while costing only a fraction (4.7 percent) of that amount—\$248 per pupil.<sup>31</sup>

## 2.4. Improving K-12 Education in Illinois Has the Potential to Impact the State’s Economy Positively

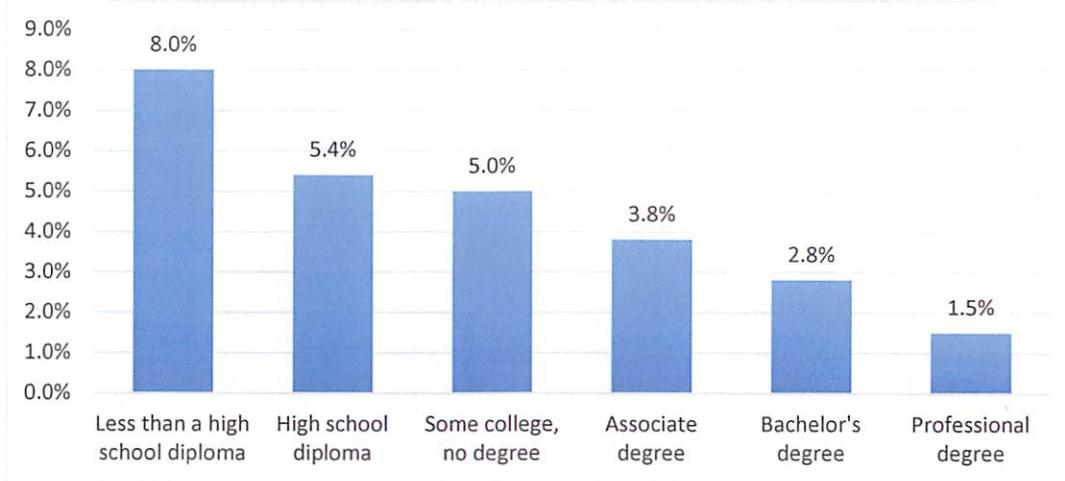
- In Illinois, 73 percent of high school graduates enrolled in college within 16 months of graduating from high school.<sup>32</sup>
  - That said, only 46 percent of Illinois’ high school graduates are actually prepared for college. Hence, over half, 54 percent, of all Illinois high school graduates are not college ready—including a significant portion of those who enroll in college.
- In 2012, there were 167,463 freshman enrolled in high school in Illinois. If the state were able to increase the high school graduation rate to 90 percent—an increase of eight percent over current levels—the state would have 13,397 more high school graduates, who collectively would earn an additional \$111.6 million in annual wages, to benefit the state’s economy—even if none of those graduates went on to achieve an associate’s or bachelor’s degree.<sup>33</sup>
- If Illinois were to increase the percentage of people who have a college degree from its current rate of 30.6 percent, to the rate of Massachusetts which is currently at 38.2 percent, it would increase the number of college graduates in Illinois by 10,436, and those new college graduates would earn \$219 million more in wages annually.<sup>34</sup>
  - If Illinois were to increase its high school graduation rate to 90 percent and its college graduation rate to 38 percent, the total increase in state-wages would approach \$450 million annually.
- A worker with a bachelor’s degree is projected to earn \$3.5 million over his or her lifetime, which is 97 percent more than what someone with only a high school diploma is projected to make.
  - If Illinois were to increase high school and college graduation rates as aforesaid, the state would add 15,500 new college graduates annually, who would earn an aggregate of \$26.6 billion more over their lifetimes than if they were to only graduate high school.
  - These new graduates would increase tax revenue in Illinois by \$1.19 billion annually.
- Using current tax rates, a 50 year old worker with a bachelor’s degree pays about \$2,095 more in Illinois taxes, annually, than a worker with only a high school degree.<sup>35</sup>
  - A 25 year old worker with a bachelor’s degree is projected pay \$76,600 more in taxes to Illinois than someone with only a high school degree over his or her lifetime.
  - According to the Stanford Study, if Illinois were to improve the math performance of its K-12 students to the level of achievement in Minnesota, the highest performing state, in real terms its economy would realize an additional \$3.138 trillion in GDP growth through 2095.<sup>36</sup>

## 3. THE IMPORTANCE OF A QUALITY K-12 EDUCATION: FROM AN INDIVIDUAL PERSPECTIVE – LOWER UNEMPLOYMENT AND HIGHER WAGES

There is no question that higher levels of educational attainment make it far more likely that an individual will prosper economically. And while attaining a college degree does not guarantee landing a high paying, good benefit job, what the data reveal is unambiguous: failure to graduate high school and/or ending educational attainment with a high school diploma almost certainly guarantees a life of economic struggles.<sup>37</sup>

For instance, consider the now long-standing correlation between the level of an individual’s educational attainment and his or her unemployment rate. Consistently over the last three decades, those without a high school diploma were far more likely to be unemployed than those with a college degree.<sup>38</sup> Figure 1 shows that in 2015, a worker with a Bachelor’s degree was 2.85 times more likely to be employed than was a high school drop-out.

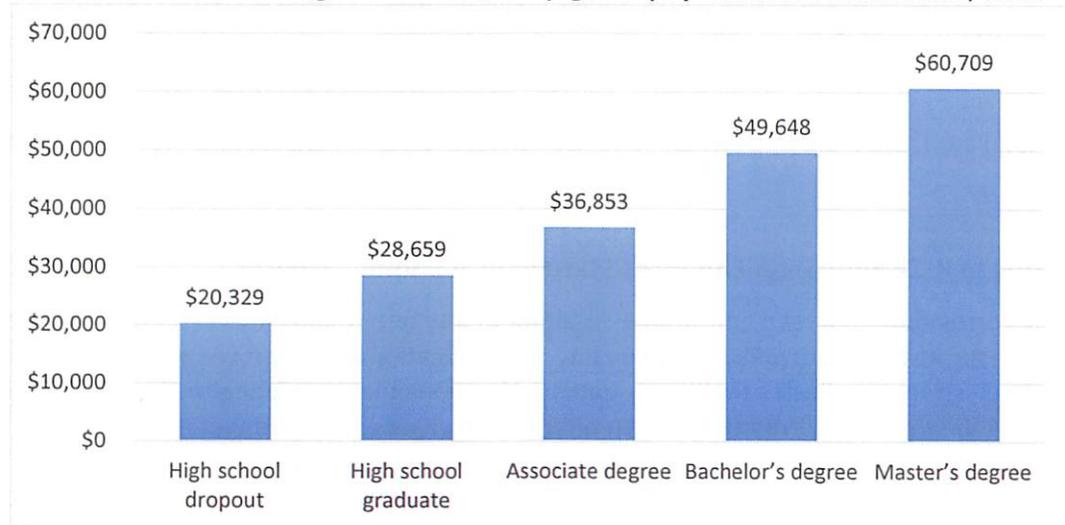
**Figure 1**  
**Unemployment Rates of U.S. Workers, by Education Attainment, 2015**



Source: Bureau of Labor Statistics, [http://www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm) (Last modified March 16, 2016)

Moreover, in today’s labor market, educational attainment is not only key to gaining employment, but it is also a route to a better job and higher earnings. According to research done by the Economic Policy Institute, in 2011, high school dropouts on average made **29 percent less (\$8,330)** in annual earnings than those with a high school degree.<sup>39</sup> And this discrepancy in earnings between dropouts and others in the workforce rises as educational attainment increases, as illustrated in Figure 2.

**Figure 2**  
**Median Annual Earnings of U.S. Workers (Age 25+) by Education Attainment, 2011**

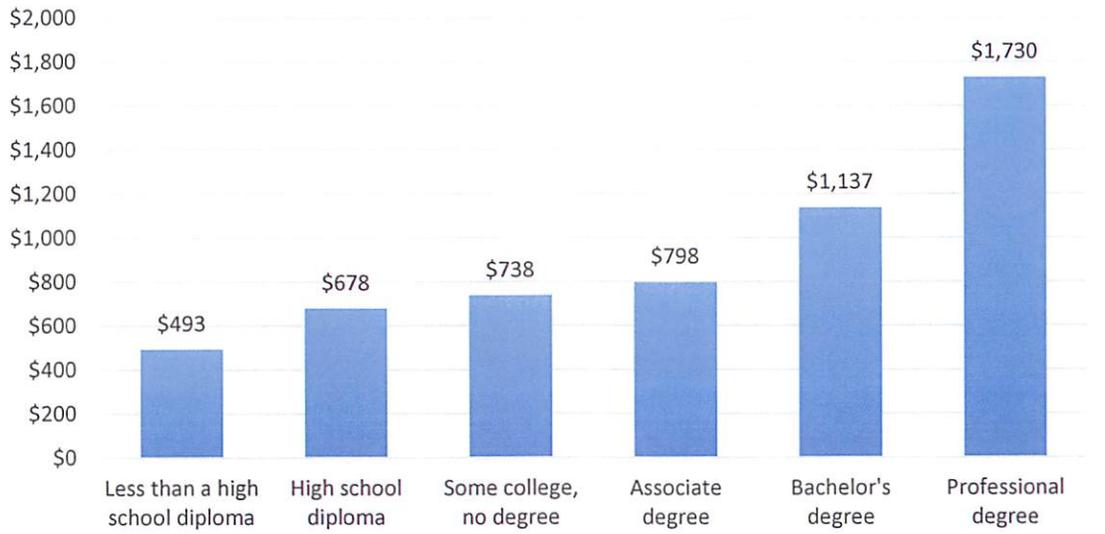


Source: Economic Policy Institute, Berger and Fisher, “A Well-Educated Workforce Is Key to State Prosperity”

Figure 2 and Figure 3, which display median annual and weekly earnings by educational attainment respectively, lead to one, simple but inescapable conclusion: from an individual’s perspective, going further in school

enhances the opportunity not only to gain employment, but to gain employment that will pay higher wages than jobs typically taken by those who end their educations prior to graduating college. Of course, one does not spring from the womb college and career ready. An individual’s path to becoming college and career ready is made far more facile when he or she has access to both quality early childhood programs and a quality K-12 education.<sup>40</sup>

**Figure 3**  
**Median Weekly Earnings of U.S. Workers by Education Attainment, 2015**



Source: Bureau of Labor Statistics, [http://www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm) (Last modified March 16, 2016)

As observed by Eric Hanushek, while there is a relationship between educational attainment and future earnings, it says nothing about the quality of the education students are receiving. And the quality of instruction a student receives very much matters. Students who are attaining more years of schooling but, at the same time, not receiving the necessary instruction needed to improve their skills, may not end up reaching the earning potential that is currently observed in Figures 2 and 3. Therefore, it is necessary that policymakers ensure that students receive an education which is high-quality and meets best practices. To achieve this, it is crucial that state policymakers first identify what the evidence indicates are those practices which collectively create a quality K-12 education system, and then fund those practices sustainably and equitably over time.

## 4. THE IMPORTANCE OF INVESTING IN K-12 EDUCATION FROM A STATE POLICY PERSPECTIVE

### 4.1. Investing In K-12 Education Enhances Statewide Economic Growth

Given the strong correlations between educational attainment and better individual economic circumstances, it should come as no surprise that providing a high quality K-12 education also improves a state’s economy. Indeed, the research strongly indicates that those states and nations that have done the best job of investing in the education of all their children, from the poorest on up, have experienced stronger economic growth than states or nations that did not.<sup>41</sup> Moreover, the data strongly indicate that a state stimulates economic activity by putting public sector expenditures towards services that are valued by businesses and employees.<sup>42</sup> Education is one of those public services.

The failure of state policymakers to make adequate investment in evidence based educational practices has consequences. For instance, it is one of the primary reasons many U.S. students are no longer competitive with students across the developed world. The federal Equity and Excellence Commission found that if American

schools performed comparable to higher-performing nations (e.g. Canada) in math (scoring approximately 40 points higher on the OECD’s Programme for International Student Assessment (PISA)), our higher skilled students would produce a faster growing economy, improving GDP over the next 80 years by an amount with a present value of \$70 trillion.<sup>43</sup> That would constitute a 20 percent increase in lifetime earnings for every U.S. worker.

Indeed, according to the Stanford Study, “if all states improved their schools to the point where average student achievement matched that of Minnesota”, the state with the highest student achievement, the overall economic gain “would be \$76 trillion” by 2095.<sup>44</sup>

One core reason for these correlations between education and the economy is clear: a quality K-12 system is crucial for a state’s businesses, because the local labor force is the primary pool from which most employers hire people. From an individual’s viewpoint, while having a high quality K-12 education may not guarantee a bright economic future, not receiving a quality K-12 education almost certainly guarantees long-term economic struggles, from both wage and employability perspectives.<sup>45</sup> Hence, it is no wonder a study that analyzed state economic competitiveness from 1963-1997 found that increased real, inflation-adjusted funding of public education had a statistically significant and positive correlation to a state’s personal income growth<sup>46</sup> and economic development.<sup>47</sup>

Similarly, researchers who conducted a cost-benefit analysis of education expenditures in Tennessee found that, “for every \$1.00 expended on secondary and post-secondary education, \$5.37 is returned to the state economy in direct earnings as well as through indirect and induced employment and industry outputs, additional labor income and taxes.”<sup>48</sup> The number of jobs that were created or impacted by education expenditures in Tennessee totaled over 16,000.<sup>49</sup> In 2010, Tennessee’s population was 6.3 million, roughly half the size of Illinois.<sup>50</sup> If Illinois were to see the same results that Tennessee did, the impact on the number of new jobs in Illinois could be in the range of 32,300.

Of course, higher levels of educational attainment are difficult to reach for students who attend low quality K-12 schools, and fail to develop the numeracy, literacy, and other skills needed to credential themselves at the next level. When a greater proportion of a state’s or nation’s population achieve higher levels of educational attainment, more higher skill, higher paying jobs tend to be created therein. This in turn results in faster job growth across the board. Indeed, workers with higher levels of educational attainment adapt better during negative economic shifts, are more creative, and adjust better to new technologies.<sup>51</sup> The net result: states with the greatest high school and college attainment rates have the highest per capita personal incomes.<sup>52</sup>

Moreover, those states that have done the best job investing in K-12 have higher median and mean wages and income. CTBA analyzed all 50 states’ (and Washington, D.C.) per pupil spending, high school graduation rates, percentage of people with a bachelor’s degree or higher, mean/median income, mean/median wages, and state GDP. A state’s per pupil spending is strongly correlated with median income (.668), mean hourly wage (.635), median hourly wage (.668), and annual mean wage (.634) in 2012 as shown in Figure 4.<sup>53</sup>

**Figure 4**  
**Correlations of Per Pupil Spending, 2012**

	Per Pupil Spending	Median Hourly Wage	Median Income	Mean Hourly Wage	Annual Mean Wage	State Per Capita GDP	% Bachelor's Degree +	% High School Graduate	State GDP (\$ Millions)
Mean	\$11,094	\$16.65	\$34,632	\$21.31	\$44,333	\$49,876	0.2893	0.8801	\$316,493
Standard Deviation	\$3,108	\$2.67	\$5,546	\$3.29	\$6,842	\$19,088	0.0591	0.0312	\$387,415
Correlation Coefficient	1.000	0.668	0.668	0.634	0.634	0.561	0.542	0.317	0.009

Sources: CTBA analysis of BLS, U.S. Census, and BEA data

Note, this analysis is only for 2012, and further analysis is necessary to draw more concrete conclusions, but Figure 4 does show that there is a relationship between per pupil spending and wages and income.

#### 4.2. A Well-Educated Workforce is a High-Wage Workforce That Generates Demonstrable Benefits For Both the Private Sector and the Fiscal Systems of a State

The U.S. economy has changed over the last four decades, moving from a goods-based economy to one that is service-focused. Therefore, the need for and premium placed on workers’ skills—for which educational attainment is a proxy—have increased. A more skilled workforce leads to a more productive one, and historically, as productivity rises, so too do wages.<sup>54</sup> The most effective route to gaining a more skilled workforce is investing in developing the capacity of a state’s public education system, so that every child receives a meaningful opportunity to learn, think critically, and develop the numeracy, literacy and technology skills which are so valued in the modern economy.

This is not speculation. According to research conducted by Noah Berger and Peter Fisher, “states that increase the level of education of their workforce see greater productivity.”<sup>55</sup> Between 1979 and 2012, the states that saw the greatest increases in productivity also had the largest share of adults with at least a college degree.<sup>56</sup> On top of that, over the same time period, states with larger increases in productivity also experienced larger increases in worker pay.<sup>57</sup> In states with the highest percentage of the population with at least a bachelor’s degree, median wages are \$19 to \$20 an hour, which is about \$5 an hour or 36 percent more than in the states with the least-educated workforces.<sup>58</sup> These findings should not be surprising, since over the last 40 years, the earnings gap between college and high school graduates has increased. In 1979, college graduates earned 23.5 percent more than those with a high school diploma; by 2011 the gap had grown to 46.9 percent, a 23 percentage point increase as illustrated in Figure 5.<sup>59</sup> The gaps were even greater for those who had an advanced degree compared to those with only a high school diploma.

**Figure 5**  
**Education Wage Gaps Over Time**

Education wage gaps	1979	1995	2007	2011	Percentage Point Change
College/high school	23.5%	42.5%	46.4%	46.9%	23.4%
Advanced degree/high school	32.4%	62.3%	66.6%	69.6%	37.2%

Source: The State of Working in America

Indeed, the link between a state’s per capita income and the educational attainment levels of its workforce have been prevalent for decades. For instance, a recent study by the Federal Reserve of Cleveland examined state-by-state historical data, going back to the 1930’s. This study analyzed a number of factors, including tax burden, educational attainment, and economic industries in the respective states, in an attempt to explain differences in personal income. It found that educational attainment explained the differences in per capita personal income between states throughout much of the 20<sup>th</sup> century.<sup>60</sup> In fact, the study found that overall, those states with the highest percentage of their populations having attained a high school degree, had per capita personal incomes that were 1.5 percent greater than states with a lower percentage of their populations graduating high school.<sup>61</sup> The impact on personal income was roughly the same (1.4 percent greater) for states with a higher percentage of college graduates.<sup>62</sup> According to the Federal Reserve of Cleveland’s study, those states with the highest number of patents issued enjoyed the largest percentage increase in per capita personal income (3 percent).<sup>63</sup> Thus, “the knowledge variable, particularly patents, are the key to understanding how some states persistently outperform others in terms of per capita income.”<sup>64</sup> The data are clear, a well-educated workforce is a high-wage workforce.

A highly educated and skilled workforce not only earns more but is also employed at a higher rate. And since highly educated workers earn more in wages, they also pay more in taxes, while relying less on state assistance programs. This provides multiple fiscal benefits to the public sector—simultaneously increasing tax revenue

while decreasing costs. Generating such a multi-faceted benefit is not just desirable, it is fiscally meaningful. Indeed, the data show that programs that lead to more students obtaining higher levels of education can pay for themselves.<sup>65</sup> For instance, a recent study in Iowa found that by the time a college-educated worker reached age 50, he or she paid over \$2,000 more annually in state taxes than an Iowa citizen of the same age with only a high school diploma.<sup>66</sup> The additional tax revenue from a worker with a bachelor’s degree over the course of his or her work life was roughly \$60,000, which is greater than Iowa’s cost of funding a college tuition scholarship.<sup>67</sup>

Of course, the key to attaining those positive outcomes is ensuring the public, K-12 education system has adequate capacity to provide every child who attends a public school with the educational, social, and emotional services that child needs to graduate high school college and career ready. Building that capacity in an adequate, equitable and sustainable manner will not only create a highly functioning educational system overall, but will also help close achievement gaps between students from different demographic backgrounds.

According to the Equity and Excellence Commission, the average 8<sup>th</sup> grade African-American student scores at the 19<sup>th</sup> percentile of white students in math; the average Hispanic student is at the 26<sup>th</sup> percentile.<sup>68</sup> Eliminating the achievement gaps between white students on the one hand and African-American and Hispanic students on the other, would add \$50 trillion to the economy over the next 80 years (in present value terms).<sup>69</sup> Simply achieving a 90 percent graduation rate for students of color would add as much as \$6.6 billion in annual earnings to the U.S. economy.<sup>70</sup>

### 4.3. The Societal Impact

In addition to the clear economic benefits that are associated with a state investing in a high quality K-12 education, the data also show that increasing high school graduation rates creates a number of social benefits. According to a study conducted by Lance Lochner and Enrico Moretti, published by the National Bureau of Economic Research, “high school graduation significantly reduces criminal activity”.<sup>71</sup> At the national level, even a 1 percent reduction in the male dropout rate could save as much as \$1.4 billion per year, or about \$2,100 per high school graduate.<sup>72</sup> When the average increase in annual wages earned by high school graduates over dropouts is added to the \$2,100 savings in annual criminal costs, the aggregate benefit of increasing high school graduates is over \$10,000 per additional graduate annually. In Illinois, a one percentage point reduction in the dropout rate (from 2.2 percent to 1.2 percent) would lead to 1,675 fewer dropouts annually, and savings to the state would be \$13.9 million annually as illustrated in Figure 6.

**Figure 6**  
**Potential Annual Increase in Wages and Savings if High School Dropout Rate is Reduced**

	Increase in Wages	Savings (due to Graduation from High School)
<b>Reduce the Dropout Rate by One Percentage Point</b>	\$3,516,723	\$13,949,668

Source: CTBA analysis, Lochner and Moretti “The Effect of Education on Crime: Evidence From Prison Inmates, Arrests, and Self-Reports”

Additional benefits associated with higher levels of educational attainment include better health outcomes and lower mortality rates. For example, in the United States, the smoking rate for those with higher educational attainment is one-third the rate for those who are less educated.<sup>73</sup> Meanwhile, obesity and heavy drinking rates are half as high among the more educated. This helps, in part, explain why college graduates had a life expectancy that was eight years longer than high school dropouts in 1990.<sup>74</sup> For the most part, the education gradient in health behaviors is a result of access to material resources (gyms, methods to quit smoking), cognitive ability, and social-emotional support.<sup>75</sup> Researchers Gabriella Conti, James Heckman, and Sergio Urzua found that, “education has an important causal effect in explaining differences in many adult outcomes and healthy behaviors”.<sup>76</sup>

## 5. IDENTIFYING K-12 EDUCATIONAL PRACTICES THAT BUILD CAPACITY AND GENERATE LONG TERM SOCIETAL AND ECONOMIC VALUE

### 5.1. Evidence Based Practices

Recognizing that there are no guarantees, the body of evidence pervasively shows that a well-educated workforce earns more in wages, improves a state's economy, reduces criminal activity, and is healthier. This in turn generates quantifiable economic and societal benefits. But to gain those benefits a high quality K-12 system is needed. Which begs the question: which practices are most likely to create the type of K-12 educational system that has the capacity to generate these value adds? Here, there is ample research to guide policymakers in choosing practices which collectively result in a high quality education. These include everything from class size, tutoring, professional development, and school culture, to lengthening the school day, enrichment programs, social-emotional learning, and availability of wrap around services. When implemented comprehensively and sustainably, these practices have been shown to improve student achievement on tests, lower absenteeism, and eventually lead to improved high school graduation rates and college and career readiness. The following sections examine **SOME** of the evidence based programs that research has shown to boost student outcomes. It is not, and is not intended to be, an exhaustive or definitive list of all such practices. It is included mainly to provide insight as to the value propositions that can be attained when policymakers pay for value by investing in best educational practices.

### 5.2. Improving School Culture

Some of the most effective educational programs in K-12 schools are not curriculum based, but rather focused on improving school-wide student behavior. As Richard Rothstein of the Economic Policy Institute points out, "Decades of social science research have demonstrated that differences in the quality of schools can explain about one-third of the variation in student achievement. But the other two-thirds is attributable to non-school factors."<sup>77</sup> Therefore, it is necessary to look at services and programs which help close achievement gaps and can be provided inside a school, but are not strictly curriculum based. Here, the data, again are clear: comprehensive elementary school social-emotional and character programs improve achievement, lower absenteeism, reduce suspensions, and decrease the number of children retained at the same grade level from year to year.<sup>78</sup>

Of the many social/emotional programs available, the most effective have been programs that encourage positive social behaviors for all students, rather than those focused solely on interventions that target problem behaviors among troubled students. One such program, the Responsive Classroom Approach, is intended to create an environment that is productive and focused on learning, thus integrating social and academic learning.<sup>79</sup> This approach espouses a number of principles to guide teachers, including: placing equal emphasis on the social and academic curriculum; using social interaction to facilitate cognitive growth; emphasizing cooperation, affirmation, responsibility, empathy, and self-control as critical social skills for children to learn; and gaining a better understanding and knowledge of the family background and culture of students.<sup>80</sup> The research demonstrates this approach is effective, showing that the Responsive Classroom Approach has contributed to gains in test scores for both reading and math, with the results becoming greater the longer a student stayed in the program.<sup>81</sup>

Another program recently studied and found to be effective is called "The Positive Action". It incorporates a similarly comprehensive, school-wide, social-emotional and character development program, intended to improve academics, student behaviors, and character.<sup>82</sup> Schools that took part in the study of this program focused on providing a positive school-wide climate, including teacher and staff training, a school counselor's program, and family- and community-involvement programs.<sup>83</sup> The curricula utilizes an approach encouraging interaction between teacher and student through structured discussions and activities, and interaction between students that is facilitated via small group activities, including games, and role playing. Students are asked how

they would like to be treated, and those values are then adopted as the classroom code of conduct. Regardless of age, socioeconomic status, gender, and culture, the same top values of respect, fairness, kindness, honesty, and understanding/empathy are consistently suggested.<sup>84</sup> Schools that took part in the Positive Action program scored significantly higher in reading (9.8 percent) and math (8.8 percent) on standardized tests while reporting significantly lower absenteeism (-15.2 percent) and suspensions (-72.6 percent) compared to a control group of schools that did not take part in the program.<sup>85</sup>

A cost-benefit analysis of the school culture and positive school behavior programs found that these programs are some of the most economically beneficial, providing a benefit of over \$31,000 per student while the costs are low (\$221 per pupil).<sup>86</sup>

### 5.3. Wrap Around Services

Wrap around services are programs that provide a number of resources to children and their families that are usually not focused on academics. These services frequently include, for instance, access to health services—including emotional or mental health resources; access to dental services; family engagement; life skills—like personal health and hygiene, job attainment, money management; food; clothing; transportation; housing; mentoring and much more.<sup>87</sup> In many cases, a social worker or counselor at the school helps identify and work with at-risk students and their families to connect them with necessary and relevant services. In many instances the services themselves are provided outside of the school setting. These programs improve the social climate at the school and, often, the perceptions about the school's academic climate.

One example of an effective approach to coordinating wrap around services is called “Communities In Schools”. This program focuses on dropout prevention by connecting schools with the community resources which help at-risk students stay in school. These resources include connecting students to mentors and tutors, after-school programs, mental health counseling, family strengthening initiatives, drug and alcohol education, medical services and exams, career counseling, and college preparation and scholarship opportunities.<sup>88</sup> It works by having a school counselor leverage existing community organizations and resources to work in collaboration with educators to benefit students and their families.

A similar program which focuses on out-of-school challenges that impact the ability of low income children to succeed academically is “City Connects” in Boston. Designed to respond to the unique strengths, needs, and interests of each student, City Connects coordinates coordinate families and students with the academic, social/emotional, and health services available within the community. It also monitors the effectiveness of the services being provided by collecting and analyzing data.<sup>89</sup> The benefits of programs like Communities In Schools and City Connects are \$5,252 per pupil, while costs are low (\$248 per pupil).<sup>90</sup> That is a remarkable return of just over 21 to one.

### 5.4. Class Size

Much of the evidence in favor of smaller class sizes stems from an analysis of the Tennessee Student Teacher Achievement Ratio (STAR) Program, which began in 1985. Fundamentally, that research found that reduced class sizes produced positive impacts on student outcomes, particularly at the K-3 grade levels.<sup>91</sup> STAR randomly assigned a large number of K-3<sup>d</sup> grade students to small- and normal-sized classrooms to see if there was a correlation between class size and student performance. Over time, children assigned to smaller classes of 13-17 students had higher academic achievement on math and reading standardized tests than their peers who were in standard size classrooms of 22-25 students.<sup>92</sup> The STAR study also showed that low income students, who are generally considered to be at-risk of academic failure, saw the largest benefit from being in smaller classes. Achievement gains were also greater for African-American students. Hence, the STAR study strongly indicates that reduced K-3 class sizes are an effective way to help reduce racial and income based achievement gaps.<sup>93</sup>

Since the STAR Program began in the late 1980s, researchers have been able to follow the students who participated in the study as they continued their education and entered the workforce. Researchers looked at the effects of class size on future earnings by linking data from STAR participants and tax returns to see whether small class sizes lead to positive outcomes in adulthood. They found that students who were assigned to small classes were 1.8 percentage points (6.7 percent) more likely to be enrolled in college at age 20 than their peers who were educated in larger classrooms during the K-3 grades.<sup>94</sup> The researchers also found a strong correlation between Kindergarten test scores and having a 401(k), which is a proxy for having a decent job with good benefits.<sup>95</sup>

The impacts of class size on adult outcomes are greater for groups that exhibit the largest test scores increases. For example, African-American students who were assigned to small classes in Kindergarten through 3<sup>rd</sup> grade scored 6.9 percentage points higher on entry-grade tests and were 5.3 percentage points more likely to attend college than their peers in larger classes. The impact on wages was also significant for African-American males assigned to small classes, as those students had an average annual earnings that was \$798 greater than their peers who were assigned larger classes.<sup>96</sup>

Using data from the STAR program, researchers Dynarski, Hyman, and Schanzenbach, found that being assigned to a small class increased the rate of college attendance by 2.7 percentage points and earning a college degree by 1.6 percentage points.<sup>97</sup> This effect was considerably higher among populations with traditionally low rates of post-secondary attainment. For African-American students, post-secondary attendance increased by 5.8 percentage points, more than five times the effect on whites. At elementary schools with the greatest concentration of poverty (measured by the percentage of students receiving a free or reduced lunch), smaller classes increased the rate of post-secondary attendance by 4.4 percentage points.<sup>98</sup>

Cost-benefit analyses have found that reducing class size has a high economic benefit—meaning it is a policy that, in the long run, pays for itself. As shown in Figure 7, reducing the class size by one student in Kindergarten has a net benefit (the positive economic impact to the student and society combined) of \$1,633 per pupil, while the cost is only \$204 per pupil according to the Washington State Institute for Public Policy.<sup>99</sup>

**Figure 7**  
**Economic Benefits and Costs to State of Reducing Class Size by One Student**

Grade	Benefit	Cost
<b>Kindergarten</b>	\$1,633	\$204
<b>1<sup>st</sup></b>	\$737	\$204
<b>2<sup>nd</sup></b>	\$479	\$204
<b>3<sup>rd</sup></b>	\$344	\$204

Source: Washington State Institute for Public Policy

According to the Washington study, policymakers can anticipate that, for a total additional cost of \$816 per student, reducing class size during grades K-3 can generate a taxpayer benefit in the range of \$3,193 per student, or a return of almost four to one. Returns in this range help demonstrate how making adequate investment in evidence based practices is truly paying for value.

### 5.5. Tutoring

Well-designed tutoring programs have proven to be an excellent strategy in improving academic achievement.<sup>100</sup> Tutoring programs typically provide additional instruction to students who are struggling academically. Generally provided outside of school hours, students are tutored either in very small groups of three or four students or, more often, each student is paired with either an adult or another student for one-on-one additional instruction. Tutoring programs usually provide up to 40 hours of additional instruction during the school year for students struggling in math, science, and/or language arts.

There are numerous types of tutoring programs, but the following two specific programs are particularly effective:

- **Peer tutoring**—which matches a struggling student with a peer, who frequently is a number of grades higher than the student being tutored. These interactions are mostly one-on-one, and show very positive results via improved test scores. Even more compelling, cost-benefit analyses have found these peer-based tutoring programs provide very high benefits, about \$15,800 per student, while being fairly inexpensive to administer, costing \$111.<sup>101</sup>
- **Tutoring provided by adults**—who are either certified teachers or volunteers who receive approximately ten hours of training, has also shown excellent results. Like peer tutoring, struggling students are placed in very small groups or work with an adult one-on-one focusing on core curriculum like language arts or math skills. These programs lead to improved test scores for the students in the program. However, the costs are much higher and the economic benefits are not as great as effective peer tutoring programs.<sup>102</sup> The benefits of adult tutoring programs provided by volunteers are \$6,678 per student while the costs are \$917.<sup>103</sup> Still, that represents a return in excess of seven to one, which is significant.

While the costs of volunteer tutoring programs are lower than those that use certified teachers, the academic results are not as impressive. Tutoring that is provided by certified teachers who are trained in specific tutoring strategies and on a one-on-one basis have the most positive effects for students.<sup>104</sup>

## 5.6. Teacher professional development

The consensus among scholars is that teacher quality is one of the most important school-based factors affecting student achievement.<sup>105</sup> Indeed, the body of evidence shows that highly effective teachers are capable of generating greater learning gains amongst their students than their less skilled colleagues.<sup>106</sup> Researcher Eric Hanushek found that 7.5 percent of the variation in student achievement resulted directly from teacher quality, and possibly more.<sup>107</sup> And teachers with greater content-area knowledge have a larger impact on student achievement, especially in math.<sup>108</sup>

Hence it behooves a state to invest in improving teacher quality. One of the most effective means of improving teacher quality is professional development. When high quality in design, professional development effectively helps teachers improve their skills, content knowledge, classroom management, and instructional delivery—which in turn leads to better student performance.<sup>109</sup>

There are a number of professional development programs for classroom teachers which vary in benefits, costs, effectiveness, and intensity. Cost-benefit analyses found that the most effective professional development curricula are data focused, helping teachers use academic assessment data to identify a student's weaknesses and strengths, target interventions, and improve instruction. Professional development that helps teachers learn to utilize assessment data effectively to guide instruction is a definite value-add, generating benefits of over \$13,500 per student and cost of only \$107 per student.<sup>110</sup>

## 5.7. Lessons from International Systems

While policymakers should draw upon best practices from high performing school districts in the United States, there is also much that can be learned from best practices developed internationally. Finland, for instance, has developed a very high performing K-12 public education system through implementation of a number of best practices that translate to the U.S. Since the publication of the first PISA results in 2001, Finland's scores have consistently ranked near the very top of all countries on the assessment. But perhaps more impressively, Finland has the least amount of variance in outcomes between its schools serving demographically different populations.<sup>111</sup>

Much of Finland's success is attributable to various, replicable public education policies and strategies. Consider Finland's approach to the teaching profession. Individuals who ultimately become teachers in Finland are among the best and brightest in their country. That's why in Finland, 100 percent of teachers come from the top 30 percent of college graduates. Contrast that to the US, where only 23 percent are from the top third—while just 14 percent of teachers in high poverty American schools graduated in the top third.<sup>112</sup> The reasons for this are varied, but researchers Andy Hargreaves and Michael Fullan found that top nations: (i) invest in better working conditions for their teachers; (ii) provide salaries that compare favorably to other professionals, like engineers; and (iii) teachers are seen as being “builders of their nation” and teaching is seen as a high status profession in Finland.<sup>113</sup>

In addition, Finland has implemented a clear but flexible national framework for school-based curriculum planning, which allows teaching and learning to be customized, so that local and individual solutions are used to attain national goals.<sup>114</sup> This national framework augmented by local flexibility is successful because it is predicated on a shared responsibility and trust within the Finnish public education system. Teachers are valued by the public and administrators, while principals are given the autonomy to judge what is best for students, and thus, can target the resources and supports needed to help their school and the students who are most at risk.<sup>115</sup>

Moreover, Finland has focused on building the capacity of its entire K-12 system, rather than merely turning around the poorest performing schools. This focus on capacity building incorporates a number of replicable best practices, such as providing teachers time outside of the classroom to collaborate with other teachers. This enhanced collaboration builds the pedagogical and instructional skill sets of the teaching profession as a whole, by permitting highly successful and/or innovative teachers to share successful strategies.<sup>116</sup> Finland also encourages teachers to be creative, and focus on promoting deeper student learning.

The Finnish educational system also stresses learning from the past. As Finnish educator and scholar Pasi Sahlberg writes, the “main sources of school improvement are proven good educational practices from the past.”<sup>117</sup>

Finland's success can be attributed to having a K-12 public education system which has the fiscal and professional capacity to implement these best practices and policies. This has led Finland to not only being one of the leading countries in student performance on the PISA, but also having the narrowest achievement gap in the world.<sup>118</sup>

## 5.8. Lessons from Charter Schools

The initial impetus behind the charter school movement was simple. Allow them to experiment with various recognized and emerging best practices, to see which had the greatest potential to enhance student achievement in all public schools by being brought to scale. The current focus of many who support charters is using them to “compete” with neighborhood schools, which was not the initial purpose of charters and is actually counter-productive.<sup>119</sup> That said, Will Dobbie and Ronald Fryer, were able to utilize data from Promise Academy, a charter school in Harlem, for its intended purpose: that is assessing whether the experience at Promise Academy identified any educational best-practices that could be scaled up system-wide. These practices included an extended school day, an emphasis on the recruitment and retention of high-quality teachers, close monitoring of student progress, assigning students who need more support to small group tutoring sessions, and making an effort to change the culture of achievement.<sup>120</sup> Since students are admitted to Promise Academy through a lottery system, the researchers were able to use the lottery winners as the treatment group and lottery losers as the control group. As it turned out, lottery winners were 14.1 percent more likely to attend a four-year college and performed better on assessments than the lottery losers.<sup>121</sup>

Positive outcomes for students enrolled in the Promise Academy went beyond the classroom—and included significant social benefits. For instance, female lottery winners were 12.1 percentage points less likely to report becoming pregnant during their teenage years than lottery losers. Meanwhile, male lottery winners were 4.3 percentage points less likely to be incarcerated.<sup>122</sup>

Fryer followed up the study of the Promise Academy by reviewing whether the best-practices used in high-achieving charter schools can lead to the same improved outcomes when implemented in traditional public schools. First, Fryer identified the five best practices he observed across charter schools: (i) increased instruction time, (ii) better human capital, (iii) more student-level differentiation, (iv) use of data to alter classroom instruction, and (v) a culture of high expectations.<sup>123</sup> Next, these best practices were implemented in twenty low-performing elementary and secondary schools in Houston, Texas. Fryer found that students in these elementary schools performed better on math achievement tests relative to comparison samples (0.184σ (standard deviation)). Continued gains like this would be enough to eliminate the racial achievement gap in three years. However, while the math results were extremely positive, using these best practices had little statistical impact on reading achievement tests for both elementary and secondary students.<sup>124</sup>

### 5.9. Summary of the Return on Investment from Utilization of Best Practices

There are a number of other important programs which have shown to have a positive impact on student learning. For instance, summer programs have shown to enhance student achievement, since they focus on either prevention of summer learning loss or remediation of identifiable shortcomings in specific skills. But they can also be as simple as providing low-income students with access to books for free over the summer months.<sup>125</sup> Programs designed to help English Language Learners read also boost achievement. Figure 8 summarizes the return on investment associated with the evidenced based programs highlighted in this report. Nearly all of the evidence based programs have a net positive value.

**Figure 8**  
**Benefits and Costs of Evidenced Based K-12 Education Programs**

Program	Total Benefits	Total Costs	Benefits – Costs	Benefit Return Per \$ of Cost
School-wide Positive Behavior Programs	\$31,741	(\$221)	\$31,521	\$143.98
Tutoring: By peers	\$15,876	(\$111)	\$15,765	\$143.20
Professional Development: Use of Data to Guide Instruction	\$13,546	(\$107)	\$13,439	\$126.97
Summer Programs: Book Program	\$11,191	(\$212)	\$10,979	\$52.94
ELL Literacy Instruction	\$7,638	(\$291)	\$7,347	\$26.37
Professional Development: Literacy Collaborative	\$18,566	(\$730)	\$17,836	\$25.44
Case Management in Schools (Wrap Around Services)	\$5,252	(\$248)	\$5,005	\$21.21
Class Size: Kindergarten; Reduce Average Class Size by One	\$1,633	(\$204)	\$1,430	\$8.02
Tutoring: Certified Teachers, Small-Group	\$11,211	(\$1,406)	\$9,804	\$7.98
Summer Programs: Academically Focused	\$5,345	(\$1,132)	\$4,213	\$4.73
Tutoring: With Adults, One-on-One	\$9,956	(\$2,290)	\$7,667	\$4.36
Class Size: 1 <sup>st</sup> Grade; Reduce Average Class Size by One	\$737	(\$204)	\$534	\$3.62
Class Size: 2 <sup>nd</sup> Grade; Reduce Average Class Size by One	\$476	(\$204)	\$272	\$2.34
Class Size: 3 <sup>rd</sup> Grade; Reduce Average Class Size by One	\$344	(\$204)	\$141	\$1.69

Source: Washington State Institute for Public Policy

While Figure 8 summarizes the benefit of particular evidence based practices considered on their own, policymakers have to recognize other factors become relevant when these practices are considered in the aggregate. For instance, while some districts and students could find very large benefits from the programs

referenced in Figure 8; not all of these programs make sense for all schools in all situations. Hence, policymakers should provide districts enough flexibility to determine which specific evidence based programs are best for the schools and students they serve.

Moreover, the estimates in Figure 8 do not take into account the potential impact of diminishing returns. Diminishing returns simply means the positive impact of a program will likely decrease as it becomes larger. This can occur for a number of reasons, for example, as more teachers are hired, the quality of the instruction provided may decrease ever so slightly. Hence, while still beneficial, the impact of any one program is likely to be diminished in part when that program along with others are scaled up significantly.

Yet another cause for lower returns is due to the overlapping of programs. For example, if students are tutored by both a peer and a certified teacher, the combined impact of both sessions can be expected to be lower than the simple sum of the benefits indicated therefor in Figure 8, because of redundancy in subject or skill coverage. However, neither diminishing returns nor overlapping of programs should dissuade policymakers from pursuing the path of investing in evidence based educational practices—because the overall net impact will remain positive and beneficial.

The bottom line here, however, is clear: while choosing the perfect combination of programs that yield the highest benefit is not possible, and there will inevitably be some diminishment of returns, **the data convincingly demonstrate that paying for value by investing in high quality, evidence based practices throughout a state’s K-12 education system, will result in enhanced student outcomes as well as economic, social and taxpayer benefits.** Of course, adequate funding is needed to build a K-12 system that has the capacity to meet the needs of all its students.

## 6. USING THE EVIDENCE BASED MODEL OF EDUCATION FUNDING TO CREATE A K-12 SYSTEM THAT GENERATES ECONOMIC AND SOCIAL BENEFITS

Providing a quality K-12 education to all students—one that includes high quality teachers, rigorous academic programming, reduced class sizes, tutoring, a positive school and classroom culture, enrichment classes like art, music, sports, summer school, and wrap around services—irrespective of student income level, race, ethnicity, English language proficiency, special needs, or geographic location, requires resources. Unfortunately, since at least the Nixon Administration, most states have failed to identify the cost of a quality education before setting school funding levels. Frequently, the base level for education funding established is predicated far more on what elected officials believe a particular state can afford given its extant fiscal capacity, rather than the actual cost of funding a K-12 education system that has the capacity to meet the needs of all students.

Fortunately, however, a school funding model exists—appropriately dubbed the “evidence based model”, which affords decision makers the opportunity to identify with some accuracy the cost of funding those educational practices which the data show work to enhance student achievement, reduce drop-out rates, improve school culture, and create a K-12 system that has the capacity to provide an education of sufficient quality to allow all children to graduate high school college and career ready.<sup>126</sup>

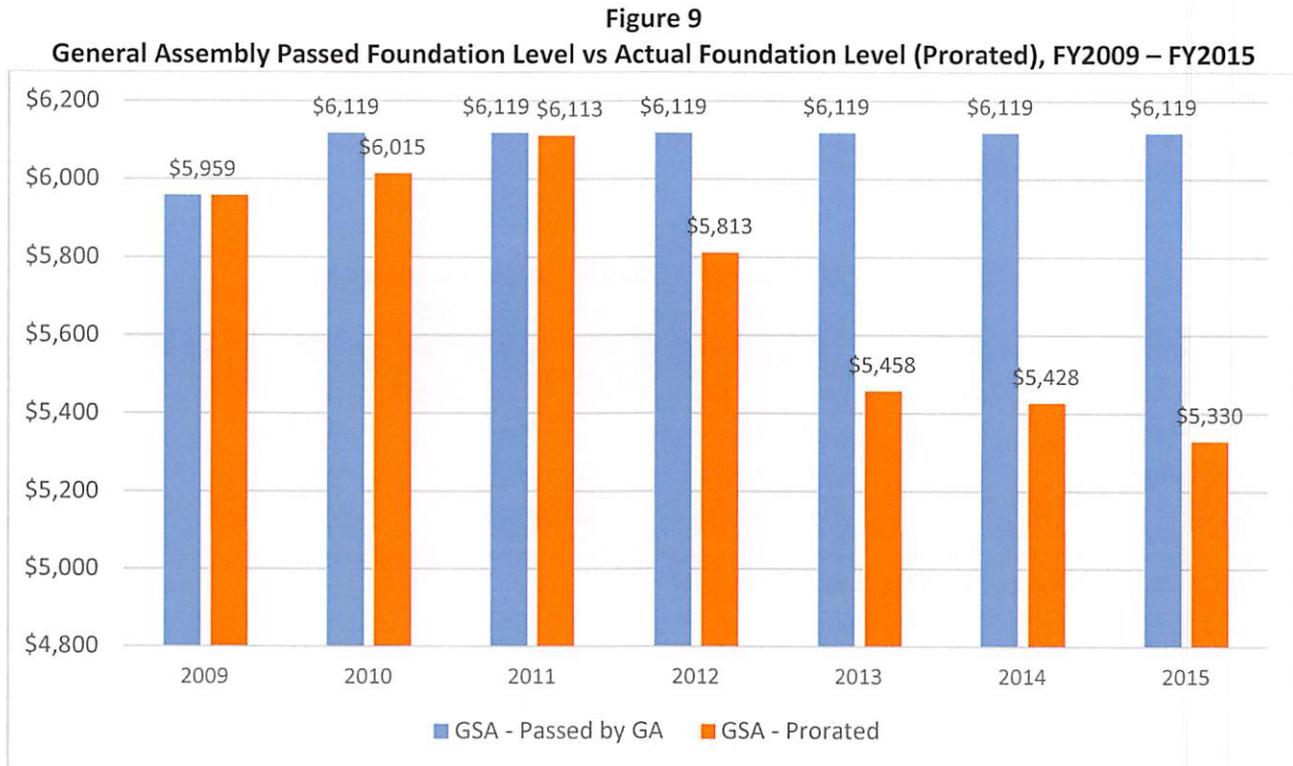
The “evidence based” model ties funding of best educational practices to the individual student needs and the costs associated with meeting those needs. It accomplishes this by funding the administrative, faculty and support staff positions, materials, and technology, which the research indicates are necessary to create the educational capacity needed for students to achieve academically, based on the regional cost factors within a given state, as well as the fiscal resources, socio-economic demographics, and special needs populations of each school.<sup>127</sup> In essence, the funding model links funding to evidenced based best practices—discussed previously—and then directs the necessary resources to meet the needs of students.<sup>128</sup>

## 7. ILLINOIS: CURRENT STATE

The basic, per-student amount of K-12 public education funding in Illinois is called the “Foundation Level” which is set by law each year. Made up of a combination of both state and local resources, the “Foundation Level” is supposed to include most of the basic costs of educating a “non-at-risk” child, that is, a child with a reasonable likelihood of academic success.

The FY2016 Foundation Level of \$6,119 is the same as it was in FY2010; Illinois has held the Foundation Level flat—with no adjustments even for inflation—for more than half of a decade. The Foundation Level is one of two funding streams which are collectively referred to as “General State Aid” (GSA). The second is the “Low-Income Grant”. The Low-Income Grant is intended to provide additional resources to schools charged with educating low-income children. The state also provides a poverty grant to districts, which varies based on the percentage of children in each district who are low-income as defined by law. Illinois supplements the GSA by funding through a series of mandated categorical items, such as transportation and special education. As the name implies, school districts must use “mandated” categorical funding solely for expenses incurred in the applicable funding categories.

Over the last few fiscal years, the General Assembly has failed to fund education even at the Foundation Level set by law. Effectively, the General Assembly has simply failed to appropriate sufficient revenue to cover the state’s share of the Foundation Level. This has resulted in the Illinois State Board of Education (ISBE) “prorating” GSA funding to school districts. This means that rather than receiving 100 percent of the Foundation Level and Low-Income Grant funding a school district is entitled to by law, each school district receives a lesser percentage of such funding, based on the final amount of revenue the General Assembly allocates to ISBE for GSA funding. Over the past four fiscal years, this proration has varied from 87 to 95 percent, as shown in Figure 9.



Source: Illinois State Board of Education, General State Aid Historical, <http://www.isbe.state.il.us/Funding/pdf/gsa-historical.pdf>

The state’s divestment in K-12 education is actually worse than conveyed in Figure 9, because the dollar amounts in Figure 9 are all nominal, meaning they have not been adjusted for inflation.

After adjusting for inflation, Illinois has decreased actual funding of the Foundation Level by **\$928** per pupil in real terms (**-14.6 percent**) since FY2002, as illustrated in Figure 10.

**Figure 10**  
**Real Foundation Level (Prorated); FY2002 – FY 2015**



Source: CTBA analysis of Illinois State Board of Education, General State Aid Historical, <http://www.isbe.state.il.us/Funding/pdf/gsa-historical.pdf>; Inflation data from BLS using ECI: <http://www.bls.gov/ncs/ect/data.htm>

Indeed, education funding set by Illinois’ General Assembly fails to reach even the modest increases suggested by ISBE, as shown in Figure 11.

**Figure 11**  
**Proposed PreK-12 Education Appropriations Compared to ISBE Board Recommendation (\$ Thousands)**

Category	FY15 ISBE Board Recommendation	FY2015 Enacted	Difference	% Difference
Early Childhood	\$325,123.5	\$300,192.4	-\$24,931.1	-7.7%
K-12 Education	\$7,445,719.5	\$6,505,077.7	-\$940,641.8	-12.6%
<b>Total</b>	<b>\$7,770,843.0</b>	<b>\$6,805,270.1</b>	<b>-\$965,572.9</b>	<b>-12.4%</b>

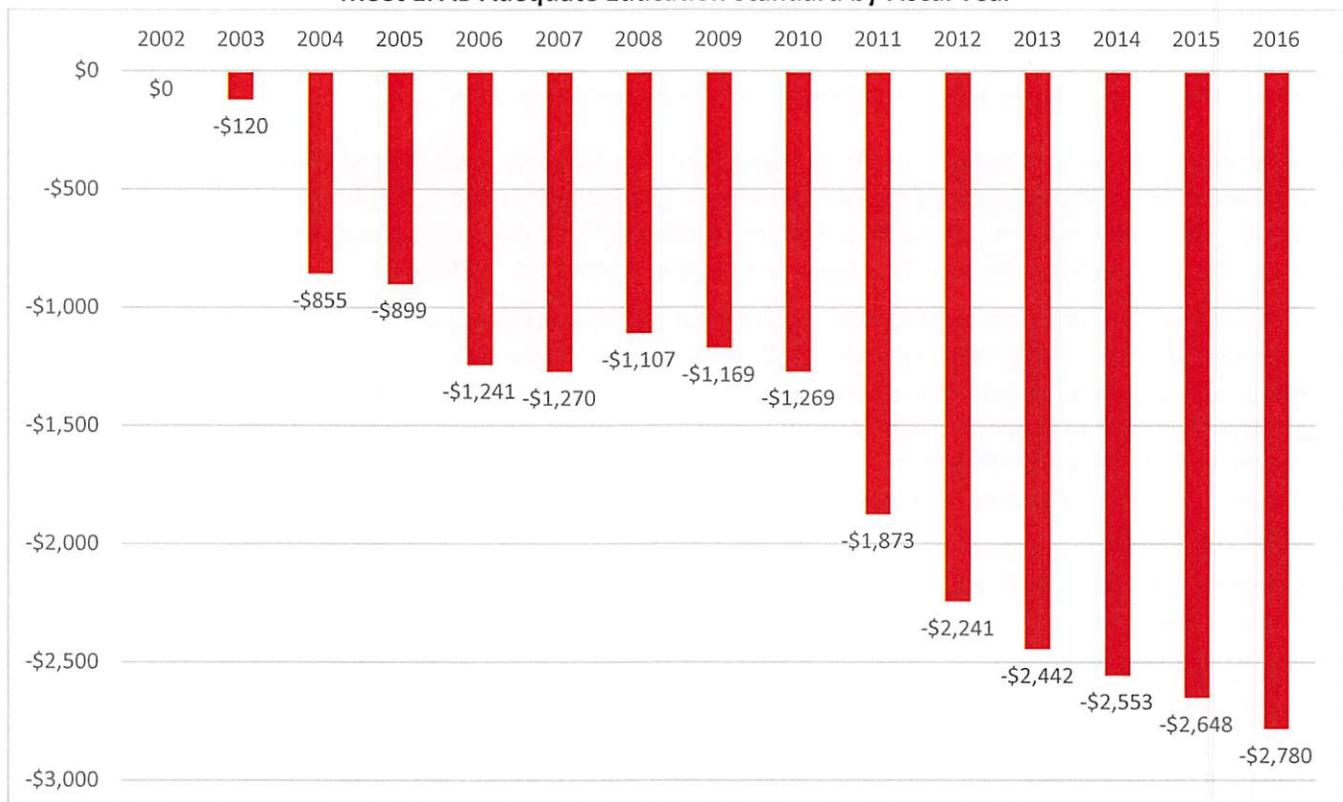
Source: Illinois State Board of Education, *FY 2015 Budget Request Comparison to FY2015 Governor's Recommended Budget*, <http://www.isbe.net/budget/fy15/FY15-budget-compare-gov-rec.pdf>

Illinois’ consistent underfunding of K-12 education affects the state’s at-risk student population the most. Unlike wealthier districts, which do not rely on the state for significant K-12 funding, most low income districts do not have the local resources to replace the state’s underfunding of GSA. Indeed, many are subject to property tax caps. The net result is, school districts in low to middle income communities statewide try to compensate for the reduced state funding either by increasing local property taxes—which is very difficult in property tax capped communities—or scaling back the quality of education provided to students. In many cases, school districts have been forced to do both.<sup>129</sup>

While the Foundation Level is the basis of K-12 funding in Illinois, decision makers have acknowledged that it has generally not been adequate. To gain an understating of what would be an adequate per student funding level, Governor Edgar established the nonpartisan Education Funding Advisory Board (EFAB). EFAB is charged with recommending a “Foundation Level” of per pupil spending that would be sufficient to cover the cost of providing an education of adequate quality so that taxpayers can expect two-thirds of non-at-risk students statewide to pass the state’s standardized tests. EFAB does not consider the cost of educating Illinois’ at-risk children, who come from poverty, are English language learners, or have special needs. Hence, the EFAB recommended Foundation Level is less than what would be needed to educate a large portion of students in Illinois. For context, fully 51% of the children who attend public school in Illinois today are low income, placing them in the “at-risk” category not considered by EFAB.

Illinois’ actual Foundation Level of funding has been significantly less than the EFAB recommendation every year over the past decade, as shown in Figure 12. For FY2016, the EFAB recommendation of \$8,899 per child is \$2,780 greater per child, than the enacted Foundation Level of \$6,119.<sup>130</sup>

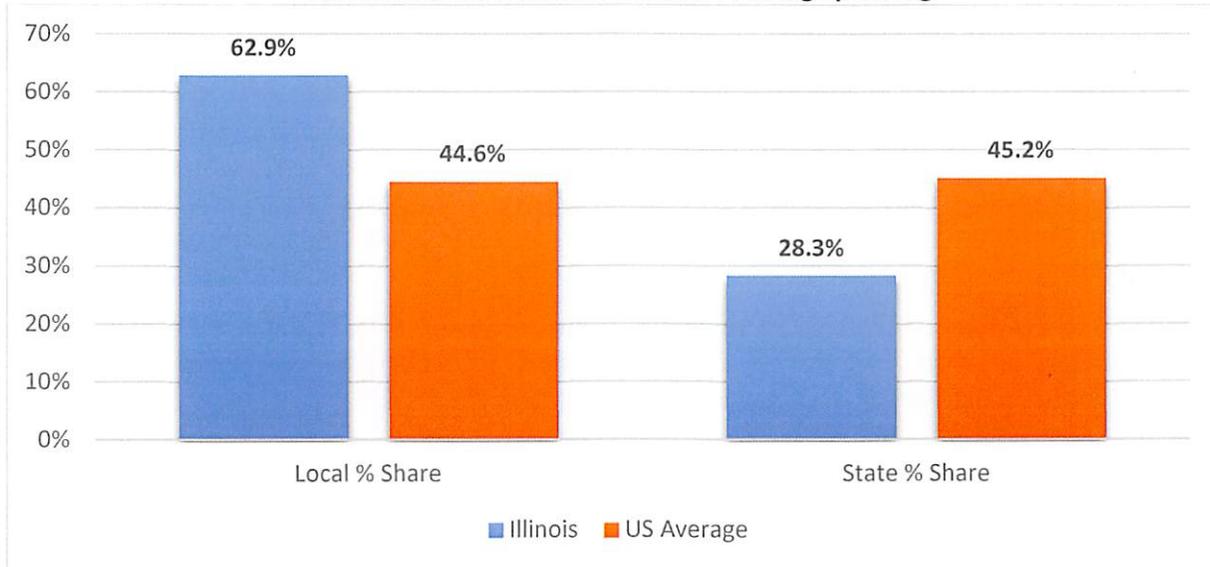
**Figure 12**  
**Dollar Shortfall in State Per-Pupil K-12 Education Funding to Meet EFAB Adequate Education Standard by Fiscal Year**



Sources: CTBA analysis of Education Funding Advisory Board, “Illinois Education Funding Recommendations”

Because the state Foundation Level is so low, and more recently not even fully funded, a significant portion of the cost of public education in Illinois is borne by local property taxes. Indeed, as shown in Figure 13, in FY2015 only 28.3 percent of K-12 education costs were covered by state based funding, while fully 62.9 percent was covered by local property taxes.

**Figure 13**  
**Local and State Share of Education Funding Spending**



Source: CTBA analysis of U.S. Department of Education, National Center on Education Statistics, 2015. “Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2011-2012 (Fiscal Year 2012)”

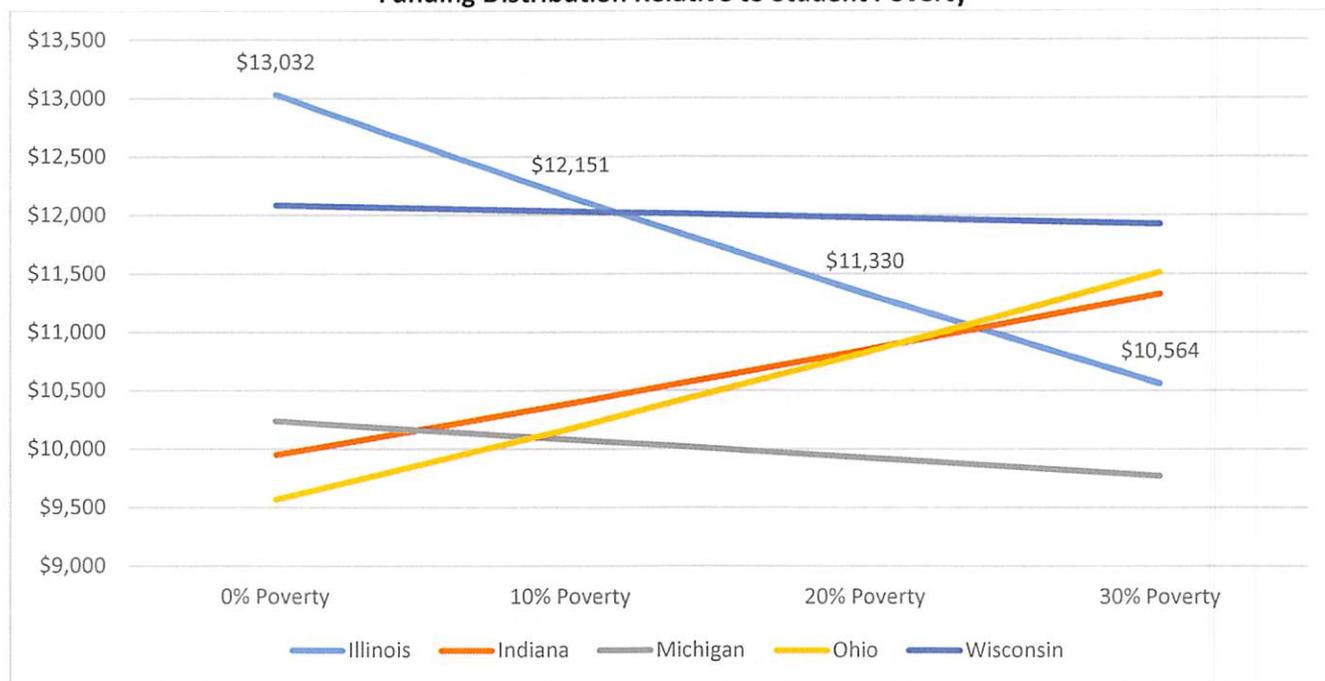
Illinois is not just an outlier among states in its overreliance on property taxes to fund schools, it is the most reliant state in the country on using property taxes for K-12 education funding. This has created one of the most inequitable education systems nationally. In fact, the quality of the public education a child receives in our state depends almost entirely on the wealth of the community in which that child lives.

Indeed, some of the wealthiest communities in Illinois fund their schools at over \$20,000 per student, while others, often just miles away, can barely afford \$7,000 per-pupil.<sup>131</sup> Low and middle-income students thus receive poorer quality education than do their wealthier peers. Because of how Illinois funds public education, only children who live in property wealthy communities are assured of receiving a high quality, rigorous education from their local public school, complete with rewarding enrichment programs like art, music, sports, and theater. Children who come from low-income and increasingly middle class backgrounds, however, face a very different reality.

As the significant differential between the state’s actual Foundation Level and the EFAB recommendation makes clear, Illinois has never set its Foundation Level based on any actual costs of educating children.

The confluence of these factors—underfunding of K-12 education from state-based resources and the concomitant overreliance on local property taxes to fund schools—means that in Illinois the opportunity to receive a high quality public education is simply not available to all children. Twenty-six percent of all Illinois students attend fiscally disadvantaged school districts—the highest percentage in the U.S.<sup>132</sup> In fact, the overreliance on local taxes to fund education in Illinois has led to the state having one of the most regressive funding systems in the country.<sup>133</sup> This simply means that unlike most states, as the number of low-income students increases, per-pupil spending falls in Illinois, as illustrated in Figure 14.

**Figure 14**  
**Funding Distribution Relative to Student Poverty**



Source: Education Law Center, “Is School Funding Fair? A National Report Card”, January 2014, 15

Figure 14 graphically shows that school districts with low-income student populations of 30 percent or greater receive only 81 percent of the per-pupil funding that districts with no poverty receive.<sup>134</sup> Illinois’ poorest districts have nearly \$2,500 less per-pupil to invest in education than do the wealthiest districts.<sup>135</sup>

This regressive funding structure also impacts pupil-to-teacher ratios. Once again, unlike most states across the country, in Illinois as the concentration of low-income students in a district increases, the pupil-to-teacher ratio also increases. Despite empirical evidence that shows that student achievement increases in smaller classes, especially for students from disadvantaged backgrounds,<sup>136</sup> class sizes in Illinois’ poorest districts increase beyond the range indicated as effective by the evidence.<sup>137</sup> Recall Figure 8 which illustrated the benefits of reducing class size by one student in grades K-3; sadly our students in our low-income schools are being placed in larger classes, which will likely lead to lower educational attainment.

It should be no wonder, then, that when the Education Law Center at Rutgers University in New Jersey examined the fairness of education funding in each state in the U.S., Illinois’ regressive funding system earned our state an “F” for fairness of distribution.

## 8. THE COST AND POTENTIAL ECONOMIC IMPACT IN ILLINOIS OF PROVIDING A QUALITY K-12 EDUCATION FOR ALL STUDENTS

While state funding for K-12 education has remained nominally stagnant over the last half-decade in Illinois, the number of at-risk students in the state has risen. Today, over half of all public education students in Illinois—51.5 percent—are considered low-income, up from 43 percent in 2009.<sup>138</sup> In raw numbers, that means over one million children attending a public school in Illinois are low-income.<sup>139</sup> At the same time, nearly one in seven students in the state has a disability and receives special education services through an Individualized Education Plan.<sup>140</sup> While 9.5 percent of all students in Illinois are English Language Learners.<sup>141</sup> All told, well over half of the students in Illinois are considered at-risk of academic failure, because of their income status, English language fluency, or disability status.<sup>142</sup> Being at-risk often correlates to poor attendance, high mobility, social/emotional

dysfunction, and academic under preparedness.<sup>143</sup> In 2006, the economic loss associated with child poverty cost Illinois \$20.4 billion, according to the Human Services Policy Center.<sup>144</sup>

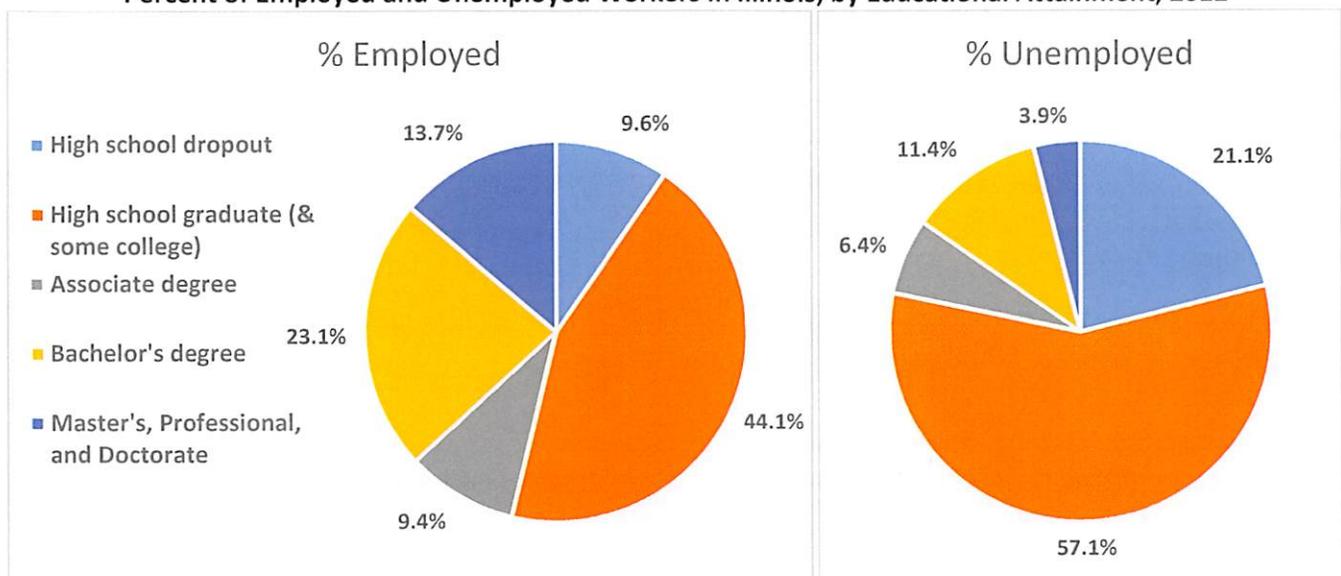
Given what is known about the overall value of providing a quality education to all children it would be beneficial for decision makers to determine what it would cost to implement an evidence based approach to school funding in the state. Fortunately, in 2010, researchers at National-Louis University and the University of Wisconsin-Madison actually applied an evidence based model for K-12 public education to Illinois, using data from 2008. They found that for Illinois to fund a quality education for all students in 2008, it would have to increase funding in that year by \$3.54 billion. Since that study was completed using 2008 data, its findings have to be updated to FY2016 to account for inflationary changes, population changes, and the real cuts to K-12 education funding implemented in Illinois since 2008. Estimates are that the actual cost of moving to the evidence based model in Illinois today would exceed \$6.5 billion. For comparison, EFAB has issued a Foundation Level recommendation that would require an influx of some \$5 billion in K-12 funding from the state—which is more than double the \$4.5 billion the state appropriated for GSA in FY2016.<sup>145</sup>

## 9. THE POTENTIAL VALUE TO ILLINOIS OF PROVIDING A QUALITY K-12 EDUCATION FOR ALL STUDENTS

What if Illinois were to reform how it funds public education and provide the necessary resources for schools and students to thrive? What value could that be expected to generate for the state? We can, using previous studies as a baseline, calculate the economic impact of improving graduation rates, boosting student preparation for college, and increasing the number of college graduates in Illinois.

First, let’s examine the importance of educational attainment to employment and unemployment rates in Illinois. In 2012, workers who did not complete high school made up less than 10 percent of the Illinois workforce; however, they accounted for 21 percent of the unemployed population.<sup>146</sup> All told, 78 percent of all unemployed workers in Illinois had a high school diploma or less. Meanwhile, employment rates for workers who had at least a bachelor’s degree were significantly greater, as illustrated in Figure 15.

**Figure 15**  
Percent of Employed and Unemployed Workers in Illinois, by Educational Attainment, 2012



Source: Manzo and Bruno, "The State of Working Illinois 2013"

When it comes to K-12 student achievement in math, Illinois is somewhat of a laggard, ranking 30<sup>th</sup> among the states.<sup>147</sup> If Illinois could improve its K-12 student achievement in math to match that of Minnesota, the highest

performing state, Illinois' state-level GDP growth would be nearly 400 percent greater through 2095, an increase with a present value of that sequence of some \$3.1138 trillion in the aggregate.<sup>148</sup> Indeed, if all states improved to Minnesota's levels of student achievement, the national economy would gain an additional \$76 trillion in economic growth through 2095.<sup>149</sup>

With regard to high school graduation, Illinois is doing slightly better than the nation as a whole. According to the U.S. Department of Education, Illinois' high school graduation rate was 82 percent in 2012, which was slightly higher than the national average of 81 percent.<sup>150</sup> Meanwhile, Illinois' annual dropout rate of 2.4 percent was lower than the national average of 3.3 percent in 2012.<sup>151</sup> However, despite being slightly better than the national average, one out of every five freshman in Illinois will not graduate high school, creating a drag on the economy.

In 2012, there were 167,463 freshman enrolled in high school in Illinois. Assuming that 82 percent of those freshman do go on to graduate (in 2016), that would leave 30,143 students who would not complete high school.<sup>152</sup> If Illinois were able to increase the high school graduation rate (in 2015) to 90 percent that would mean an additional 13,397 high school graduates. Using the Berger and Fisher methodology, this alone could add around \$111.6 million in annual wages to the state's economy—even if none of those additional high school graduates go on to achieve an associate or bachelor's degree.<sup>153</sup>

Unfortunately in Illinois, graduating high school does not necessarily mean being college or career ready. According to the Illinois State Board of Education, only 46 percent of Illinois' high school graduates were actually prepared for college in 2013.<sup>154</sup> And that may be optimistic, given that only 26 percent of Illinois students met college readiness benchmarks in English, reading, math, and science on the ACT.<sup>155</sup> So, merely improving the state's high school graduation rate is not a fix-all in and of itself. The state also needs to devote adequate resources to ensuring its high school graduates are actually college and career ready.

As illustrated in Figure 16, less than half of Illinois high school graduates are ready for college course work in reading, math, and science.

**Figure 16**  
**Percent of 2014 ACT-Tested High School Graduates Meeting College Readiness Benchmarks Illinois vs National Average**

	Illinois	National Average
English	62%	64%
Reading	41%	44%
Mathematics	35%	43%
Science	37%	37%
All Four Subjects	26%	26%

Sources: 2014 ACT National and State Scores, <http://www.act.org/newsroom/data/2014/states/pdf/Illinois.pdf>

This creates a significant dilemma. On the one hand, within 16 months of graduating, 73 percent of Illinois' high school graduates enrolled in college.<sup>156</sup> On the other hand, however, only 46 percent were prepared for college, meaning there is a significant gap between college readiness and enrollment.

Students who are unprepared for college have to enroll in and pay for non-credit remedial courses. Nationally, nearly one-third of all college freshmen enroll in at least one remedial course.<sup>157</sup> And students who take remedial classes are less likely to graduate, since government funded aid and grants often run out before these students can complete the necessary credit courses for graduation.<sup>158</sup>

On the bright side, according to U.S. Census data, in 2009, 30.6 percent of Illinois residents 25 years of age or older, had at least a bachelor's degree. This is nearly three percentage points higher than the national average of 27.9 percent.<sup>159</sup>

Based on the 2012/2013 school-year enrollment data of 167,463 Illinois high school freshmen, and the state's current 82 percent high school graduation rate, 137,320 students are projected to graduate high school in 2016. If 30.6 percent of those high school graduates complete college, some 42,020 of these students will ultimately receive a bachelor's degree. If Illinois were to increase its college attainment rate to that of Massachusetts' (38.2 percent), which has the highest rate in the nation, the number of college graduates in Illinois would increase by 10,436.<sup>160</sup> Using the wage differentials identified in the Berger and Fisher study, college graduates earn, on average, \$20,989 more in salary annually than those with only a high school degree. Therefore, if Illinois were to increase its college attainment level to that of Massachusetts, those new college graduates could earn \$219 million more in wages annually. If Illinois were to increase its high school graduation rate to 90 percent and its college attainment to 38 percent, the total increase in wages could approach \$450 million annually, as shown in Figure 17.

**Figure 17**  
**Potential Increases in Annual Wages if High School and College Graduation Rates Increase**

	Estimated Increase in Wages	Estimated Increase in Graduates
<b>Increasing HS Graduation Rate to 90%</b>	\$111,597,343	13,397
<b>Increasing College Graduation Rate to 38.2%</b>	\$219,047,378	10,436
<b>Increasing Both</b>	\$438,059,482	(college) 15,554 <sup>161</sup>

Source: CTBA analysis, Berger and Fisher, "A Well-Educated Workforce is Key to State Prosperity"; Ryan and Siebens, "Educational Attainment in the United States: 2009"; U.S. Census "General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data: Illinois"

Increasing college completion would also significantly impact state revenue. As individuals make more in wages due to increased educational attainment, so too will the state collect more in tax revenue. Again, using previous high school enrollment data in Illinois, if Illinois were to attain a 90 percent high school graduation rate and a college graduation rate of 38.2 percent, this would add over 15,000 workers with a bachelor's degree to the Illinois economy annually.

Most of these graduates will be between the ages of 25-34 when they complete college or grad school. Nationally, those with a bachelor's degree had a mean annual earnings of \$46,900 in 2012, which is \$16,900 more than those with a high school diploma.<sup>162</sup> Earnings increase over the course of a worker's lifetime, and using average ratios from the Current Population Survey, CTBA projected what a worker between the ages of 25-34 will earn over their lifetimes by educational attainment, as illustrated in Figure 18.

**Figure 18**  
**Projected Annual Earnings Currently Aged 25-34 over Their Working Lives, by Educational Level (In 2012 Dollars)**

Median annual earnings (2012)	25-34	35-44	45-54	55-64
<b>High school graduate</b>	\$30,000	\$50,550	\$53,250	\$42,000
<b>Associate degree</b>	\$35,700	\$60,869	\$66,045	\$50,159
<b>Bachelor's degree</b>	\$46,900	\$93,566	\$109,277	\$97,318

Source: CTBA analysis, NCES "Annual Earnings of Young Adults", French and Fisher "Education Pays in Iowa"

Next, CTBA calculated what these workers would pay in taxes. As of January 1, 2015, the income tax rate in Illinois is a flat 3.75 percent. Applying the effective tax rates by income to the annual incomes shown in Figure 18 provides an estimate of annual state income tax revenue through the working years, as illustrated in Figure 19.

**Figure 19**

**Annual Direct State Income Taxes Paid in Illinois, by Educational Attainment and Age**

Income Taxes	25-34	35-44	45-54	55-64
High school graduate	\$660	\$1,415	\$1,491	\$1,176
Associate degree	\$785	\$1,704	\$1,915	\$1,404
Bachelor's degree	\$1,313	\$2,713	\$3,169	\$2,822

Source: CTBA analysis, NCES "Annual Earnings of Young Adults", French and Fisher "Education Pays in Iowa", ITEP, Who Pays (5th Edition)

The same was done for sales taxes, using the effective sales tax rate by income. Figure 20 provides an estimate of annual state sales tax revenue through the working years.

**Figure 20**

**Annual Direct State Sales Taxes Paid in Illinois, by Educational Attainment and Age**

Sales Taxes	25-34	35-44	45-54	55-64
High school graduate	\$900	\$1,264	\$1,331	\$1,050
Associate degree	\$1,071	\$1,522	\$1,387	\$1,254
Bachelor's degree	\$1,173	\$1,965	\$1,748	\$2,044

Source: CTBA analysis, NCES "Annual Earnings of Young Adults", French and Fisher "Education Pays in Iowa", ITEP, Who Pays (5th Edition)

An additional 15,500 new college graduates would have a major impact on the state's economy. A worker with a bachelor's degree is projected to earn \$3.5 million in their lifetime, which is \$1.7 million, or 97 percent, more than someone with only a high school diploma. Hence, an additional 15,500 college graduates in Illinois could earn an aggregate of \$26.6 billion more over their lifetimes than if they were to only graduate high school, as shown in Figure 21.

**Figure 21**

**Potential Lifetime Earnings by Increasing College Graduate Rate by 15,554 Students**



Source: CTBA analysis, NCES "Annual Earnings of Young Adults", French and Fisher "Education Pays in Iowa", ITEP, Who Pays (5th Edition)

That meaningful increase in earnings would also strengthen the tax base over time. Using current tax rates, a 50 year old worker with a bachelor’s degree pays about \$2,100 more in state taxes than someone with only a high school degree, annually, as shown in Figure 22. Extending that over the course of a lifetime for a 25 year old worker, a bachelor’s degree holder could pay some \$76,600 more in taxes to Illinois than someone with only a high school degree. If Illinois were to increase college attainment rates by 15,500 students, this would increase tax revenue by over \$1.19 billion annually.

**Figure 22**  
**Potential Annual State Taxes Paid Each Year by a College Educated Illinois Resident Compared to One with Only a High School Degree**

Income Taxes, Difference	25-34	35-44	45-54	55-64	Lifetime
<b>Associate’s degree</b>	\$296	\$547	\$480	\$432	\$17,557
<b>Bachelor’s degree</b>	\$926	\$1,999	\$2,095	\$2,640	\$76,599

Source: CTBA analysis, NCES “Annual Earnings of Young Adults”, French and Fisher “Education Pays in Iowa”, ITEP, Who Pays (5th Edition)

## 10. CONCLUSION

At a time when educational attainment is more closely correlated to economic viability and capacity to engage fully in civic life than ever before, shortchanging the education of our children shortchanges our future. Education gaps between at-risk and non-at-risk students manifest early and compound over the course of a child’s academic career. These gaps follow that child into adulthood and the workplace, and they affect economic opportunity, income, standard of living and overall quality of life.<sup>163</sup> Unfortunately, too many students in Illinois—particularly low and middle income children, children of color, and children who live downstate—attend schools reliant on state-based funding, which simply has not been sufficient to deliver a quality education.

What may be most frustrating is that policymakers know what it would take to improve student achievement in poor, low-income, and middle-income areas: ensure every class is taught by a high quality teacher; implement rich and rigorous academic programming that develops critical thinking; extend the school day and year; reduce class sizes, particularly in Kindergarten through third grade; make enrichment programs like art, music and sports available; enhance offerings in science, technology, engineering and math; make high quality early childhood education available to all children; implement high academic standards and expectations for all children; implement evaluation systems that accurately track the growth in learning of each child; have high quality and appropriate response to intervention programs available to support children in need of additional assistance; make high quality, data-based professional development available to all teachers and administrators; ensure principals are effective, skilled leaders; teach to the whole child; implement after-hours and adult programming in high-poverty communities; engage parents and guardians in the education of their children; utilize current technology to enrich instruction; create a positive school and classroom culture; have high expectations for all students; and ensure all appropriate wrap-around services are available, coordinated, and provided.

However, actually implementing reforms such as those identified above requires resources—specifically, fiscal resources—that most school districts—particularly those where many children come from low-income backgrounds—simply do not have.

Yet the research makes it clear that not making adequate investment in educating children diminishes their future potential as earners, and our collective economy and society which brings us to the one, inescapable conclusion compelled by the data: funding an evidenced-based, K-12 education, will generate meaningful economic, social, and fiscal benefits in Illinois.

## ENDNOTES

- <sup>1</sup> Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004), 281-298.
- <sup>2</sup> Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004), 297.
- <sup>3</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>4</sup> Education Funding Advisory Board, "Illinois Education Funding Recommendations", (Springfield, IL: January, 2015), 1. <http://www.isbe.net/EFAB/pdf/final-report-01-15.pdf>
- <sup>5</sup> The Glossary of Education Reform, "At-Risk", <http://edglossary.org/at-risk/>, accessed April 30, 2015.
- <sup>6</sup> Illinois State Board of Education, Illinois Report Card 2013-2014, "Low-Income Students", <http://illinoisreportcard.com/State.aspx?source=StudentCharacteristics&source2=LowIncome&Stateid=IL>
- <sup>7</sup> Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004), 297.
- <sup>8</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>9</sup> Harrison, Haskel D., Earnest, David, Grehan, Lee, Wallace, Jeffrey, "The Economic Impact of Secondary and Post-Secondary Career and Technical Education in Tennessee", The University of Memphis, Sparks Bureau of Business and Economic Research, (Memphis, TN: December 2006), 142.
- <sup>10</sup> Haskel D. Harrison, David Earnest, Lee Grehan, Jeffrey Wallace, "The Economic Impact of Secondary and Post-Secondary Career and Technical Education in Tennessee", The University of Memphis, Sparks Bureau of Business and Economic Research, (Memphis, TN: December 2006), 142.
- <sup>11</sup> U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Last Revised: Tuesday, July 8, 2014. <http://quickfacts.census.gov/qfd/states/47000.html>
- <sup>12</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 21.
- <sup>13</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>14</sup> Noah Berger & Peter Fisher, "A Well-Educated Workforce is Key to State Prosperity", Economic Analysis and Research Network, (Washington, DC, August 22, 2013), 8. <http://www.epi.org/files/2013/A%20well-educated%20workforce%20is%20key%20to%20state%20prosperity.pdf>
- <sup>15</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 4.
- <sup>16</sup> Bureau of Economic Analysis, "Employment Projections: Earnings and unemployment rates by educational attainment", [http://www.bls.gov/emp/ep\\_table\\_001.htm](http://www.bls.gov/emp/ep_table_001.htm)
- <sup>17</sup> George P. Shultz and Eric A. Hanushek, "Education Is the Key to a Healthy Economy: If We Fail to Reform K-12 Schools, We Will Have Slow Growth and More Income Inequality," *Wall Street Journal*, May 1, 2012.
- <sup>18</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>19</sup> U.S. Department of Education, *For Each and Every Child—A Strategy for Education Equity and Excellence*, (Washington, D.C.: 2013), 13.
- <sup>20</sup> U.S. Department of Education, *For Each and Every Child—A Strategy for Education Equity and Excellence*, (Washington, D.C.: 2013), 13.
- <sup>21</sup> Lily French and Peter S. Fisher, "Education Pays in Iowa: The State's Return on Investment In Workforce Education", The Iowa Policy Project, (Iowa City, IA: May 2009), 14.
- <sup>22</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>23</sup> CTBA analysis of U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements, <http://www.census.gov/hhes/www/income/data/statemedian/>; Bureau of Economic Analysis, Per capita real GDP by state (chained 2009 dollars), [https://www.bea.gov/newsreleases/regional/gdp\\_state/gsp\\_newsrelease.htm](https://www.bea.gov/newsreleases/regional/gdp_state/gsp_newsrelease.htm); U.S. Census Bureau, 2012 American Community Survey; U.S. Census Bureau, 2007, 2012 Census of Governments: Finance - Survey of School System Finances and 2008-2011 Annual Survey of School System Finances; Bureau of Labor Statistics, Quarterly Census of Employment and Wages
- <sup>24</sup> Lori Pflugst, "The Cost of Child Poverty State by State". Human Services Policy Center at the Evans School of Public Affairs – University of Washington, (Seattle, WA: 2011). [http://www.browncountyunitedway.org/files/Poverty%20Website/Poverty\\_state\\_costs.pdf](http://www.browncountyunitedway.org/files/Poverty%20Website/Poverty_state_costs.pdf)

- <sup>25</sup> Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence From Prison Inmates, Arrests, and Self-Reports, National Bureau of Economic Research", Working Paper No. 8605, (Cambridge, MA, November 2001), 30-31.
- <sup>26</sup> Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence From Prison Inmates, Arrests, and Self-Reports, National Bureau of Economic Research", Working Paper No. 8605, (Cambridge, MA, November 2001), 31.
- <sup>27</sup> David M. Cutler and Adriana Lleras-Muney, Understanding Differences in Health Behaviors by Education, *Journal of Health Economics* 29, (July 2009), 3.
- <sup>28</sup> David M. Cutler and Adriana Lleras-Muney, Understanding Differences in Health Behaviors by Education, *Journal of Health Economics* 29, (July 2009), 3.
- <sup>29</sup> Washington State Institute for Public Policy, "Class size: reducing average class size by one student in kindergarten", (Olympia, WA, August 2014). <http://www.wsipp.wa.gov/BenefitCost/Program/204>
- <sup>30</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 1, 11. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>31</sup> Washington State Institute for Public Policy, "Case management in schools", (Olympia, WA: August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>
- <sup>32</sup> "Post-Secondary Enrollment", *Illinois Interactive Report Card 2013-2014*, Northern Illinois University. <http://www.illinoisreportcard.com/State.aspx?source=Trends&source2=PostSecondaryEnrollment&Stateid=IL#>
- <sup>33</sup> CTBA analysis used this data and the Berger & Fisher, "A Well-Educated Workforce is Key to State Prosperity", paper on annual earnings by degree.
- <sup>34</sup> One reason Massachusetts may have such a high college attainment rate is because of the number of universities located in the state which attract people from across the nation and world. Camille L. Ryan and Julie Siebens, "Educational Attainment in the United States: 2009", U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau, (Washington, DC: February 2012). <http://www.census.gov/prod/2012pubs/p20-566.pdf>
- <sup>35</sup> CTBA analysis of "Annual Earnings of Young Adults" National Center for Education Statistics, (Washington, DC: May 2014), 2. [https://nces.ed.gov/programs/coe/pdf/coe\\_cba.pdf](https://nces.ed.gov/programs/coe/pdf/coe_cba.pdf); French, Lily and Fisher, Peter S., "Education Pays in Iowa: The State's Return on Investment in Workforce Education", The Iowa Policy Project, (Iowa City, IA: May 2009); Carl Davis, Kelly Davis, Matthew Gardner, Harley Heimovitz, Sebastian Johnson, Robert S. McIntyre, Richard Phillips, Alla Sapozhnikova, Meg Wiehe, "Who Pays: A Distributional Analysis of the Tax Systems in All Fifty States", Institute on Taxation & Economic Policy, January 2015. <http://www.itep.org/pdf/whopaysreport.pdf>
- <sup>36</sup> Eric Hanushek, Jens Ruhose, and Ludger Woessmann, "Economic Impact of Student Performance Improvement: Illinois", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/economic-impact-student-performance-improvement-map-2016/>
- <sup>37</sup> Noah Berger and Peter Fisher, A Well-Educated Workforce is Key to State Prosperity (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>38</sup> Bureau of Labor Statistics, "Earnings and unemployment rates by educational attainment", (Washington, DC: April 2, 2015). [http://www.bls.gov/emp/ep\\_table\\_001.htm](http://www.bls.gov/emp/ep_table_001.htm)
- <sup>39</sup> Noah Berger & Peter Fisher, "A Well-Educated Workforce is Key to State Prosperity", Economic Analysis and Research Network, (Washington, DC: August 22, 2013), 8. <http://www.epi.org/files/2013/A%20well-educated%20workforce%20is%20key%20to%20state%20prosperity.pdf>
- <sup>40</sup> James J. Heckman, "Invest in early childhood development: Reduce deficits, strengthen the economy", The Heckman Equation, <http://heckmanequation.org/content/resource/invest-early-childhood-development-reduce-deficits-strengthen-economy>
- <sup>41</sup> Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004): 297.
- <sup>42</sup> Helms, L. J. 1985. "The effect of state and local taxes on economic growth: a time series-cross section approach," *Review of Economics and Statistics*, (1985) 581.
- <sup>43</sup> George P. Shultz and Eric A. Hanushek, "Education Is the Key to a Healthy Economy: If We Fail to Reform K-12 Schools, We Will Have Slow Growth and More Income Inequality," *Wall Street Journal*, May 1, 2012.
- <sup>44</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>45</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013), 1-2; Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004): 297.
- <sup>46</sup> Michelle T. Bensi, David C. Black, and Michael R. Dowd. "The Education/Growth Relationship: Evidence from Real State Panel Data." *Contemporary Economic Policy* 22, no. 2 (April 22, 2004): 297.
- <sup>47</sup> J. William Harden and William H. Hoyt, "Do States Choose Their Mix of Taxes to Minimize Employment Losses?", *National Tax Journal* Vol. LVI, No. 1, (March 2003), 19.

- <sup>48</sup> Harrison, Haskel D., Earnest, David, Grehan, Lee, Wallace, Jeffrey, "The Economic Impact of Secondary and Post-Secondary Career and Technical Education in Tennessee", The University of Memphis, Sparks Bureau of Business and Economic Research, (Memphis, TN: December 2006), 142.
- <sup>49</sup> Harrison, Haskel D., Earnest, David, Grehan, Lee, Wallace, Jeffrey, "The Economic Impact of Secondary and Post-Secondary Career and Technical Education in Tennessee", The University of Memphis, Sparks Bureau of Business and Economic Research, (Memphis, TN: December 2006), 142.
- <sup>50</sup> U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Last Revised: Tuesday, July 8, 2014. <http://quickfacts.census.gov/qfd/states/47000.html>
- <sup>51</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 2.
- <sup>52</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 4.
- <sup>53</sup> CTBA analysis of U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements, <http://www.census.gov/hhes/www/income/data/statemedian/>; Bureau of Economic Analysis, Per capita real GDP by state (chained 2009 dollars), [https://www.bea.gov/newsreleases/regional/gdp\\_state/gsp\\_newsrelease.htm](https://www.bea.gov/newsreleases/regional/gdp_state/gsp_newsrelease.htm); U.S. Census Bureau, 2012 American Community Survey; U.S. Census Bureau, 2007, 2012 Census of Governments: Finance - Survey of School System Finances and 2008-2011 Annual Survey of School System Finances; Bureau of Labor Statistics, Quarterly Census of Employment and Wages.
- <sup>54</sup> However, there may be a shift taking place in the US workforce at the current moment. Work involving complex but manual tasks, like driving trucks, have become more plentiful; meanwhile, the wage premium for college graduates has remained steady, but that is because of the rising premium earned by those with advanced degrees. How this will impact wages and employment rates moving forward is unclear. ("The World Economy", *The Economist*, (October 4, 2014), 10-11.)
- <sup>55</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>56</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>57</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>58</sup> Noah Berger and Peter Fisher, *A Well-Educated Workforce is Key to State Prosperity* (Washington, DC: Economic Policy Institute, August 22, 2013). <http://www.epi.org/publication/states-education-productivity-growth-foundations/>
- <sup>59</sup> Economic Policy Institute, "Trends in education wage gaps, key wage group wage gaps, and relative supply of education, 1979–2011", *The State of Working in America*, (Updated June 18, 2012). <http://www.stateofworkingamerica.org/chart/swa-wages-table-4-44-trends-education-key/>
- <sup>60</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 24.
- <sup>61</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 21.
- <sup>62</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 22.
- <sup>63</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 22.
- <sup>64</sup> Paul W. Bauer, Mark E. Schweitzer, and Scott Shane, "State Growth Empirics: The Long-Run Determinants of State Income Growth", Federal Reserve Bank of Cleveland, (Cleveland, OH, May 2006), 26.
- <sup>65</sup> Lily French and Peter S. Fisher, "Education Pays in Iowa: The State's Return on Investment In Workforce Education", The Iowa Policy Project, (Iowa City, IA: May 2009), 11.
- <sup>66</sup> Lily French and Peter S. Fisher, "Education Pays in Iowa: The State's Return on Investment In Workforce Education", The Iowa Policy Project, (Iowa City, IA: May 2009), 14.
- <sup>67</sup> Lily French and Peter S. Fisher, "Education Pays in Iowa: The State's Return on Investment In Workforce Education", The Iowa Policy Project, (Iowa City, IA: May 2009), 15.
- <sup>68</sup> U.S. Department of Education, *For Each and Every Child—A Strategy for Education Equity and Excellence*, (Washington, D.C.: 2013), 13.
- <sup>69</sup> U.S. Department of Education, *For Each and Every Child—A Strategy for Education Equity and Excellence*, (Washington, D.C.: 2013), 13.
- <sup>70</sup> U.S. Department of Education, *For Each and Every Child—A Strategy for Education Equity and Excellence*, (Washington, D.C.: 2013), 13.
- <sup>71</sup> Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence From Prison Inmates, Arrests, and Self-Reports", *National Bureau of Economic Research*, Working Paper No. 8605, (Cambridge, MA, November 2001), 30-31.
- <sup>72</sup> Lance Lochner and Enrico Moretti, "The Effect of Education on Crime: Evidence From Prison Inmates, Arrests, and Self-Reports", *National Bureau of Economic Research*, Working Paper No. 8605, (Cambridge, MA, November 2001), 31.
- <sup>73</sup> David M. Cutler and Adriana Lleras-Muney, "Understanding Differences in Health Behaviors by Education", *Journal of Health Economics* 29, (July 2009), 3.

- <sup>74</sup> David M. Cutler and Adriana Lleras-Muney, "Understanding Differences in Health Behaviors by Education", *Journal of Health Economics* 29, (July 2009), 3.
- <sup>75</sup> David M. Cutler and Adriana Lleras-Muney, "Understanding Differences in Health Behaviors by Education", *Journal of Health Economics* 29, (July 2009), 5.
- <sup>76</sup> Gabriella Conti, James Heckman, and Sergio Urzua, "The Education-Health Gradient", *American Economic Review: Papers & Proceedings* 100 (May 2010), 238.  
[https://heckman.uchicago.edu/sites/heckman2013.uchicago.edu/files/uploads/Conti\\_Heckman\\_Urzua\\_2010\\_%20Edu-Health%20Gradient.pdf](https://heckman.uchicago.edu/sites/heckman2013.uchicago.edu/files/uploads/Conti_Heckman_Urzua_2010_%20Edu-Health%20Gradient.pdf)
- <sup>77</sup> Richard Rothstein, "How to fix our schools" Economic Policy Institute, Issue Brief #286. (Washington, DC: October 14, 2010).  
<http://www.epi.org/publication/ib286/>
- <sup>78</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 1, 11. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>79</sup> Sara E. Rimm-Kaufman, Xitao Fan, Yu-Jen Chiu, Wenyi You, "The contribution of the Responsive Classroom Approach on children's academic achievement: Results from a three year longitudinal study", *Journal of School Psychology*, (April 2006), 403.
- <sup>80</sup> Sara E. Rimm-Kaufman, Xitao Fan, Yu-Jen Chiu, Wenyi You, "The contribution of the Responsive Classroom Approach on children's academic achievement: Results from a three year longitudinal study", *Journal of School Psychology*, (April 2006), 403.
- <sup>81</sup> Sara E. Rimm-Kaufman, Xitao Fan, Yu-Jen Chiu, Wenyi You, "The contribution of the Responsive Classroom Approach on children's academic achievement: Results from a three year longitudinal study", *Journal of School Psychology*, (April 2006), 417.
- <sup>82</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 3-5. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>83</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 5. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>84</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 5. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>85</sup> Frank Snyder, Samuel Vuchinich, Alan Acock, Isaac Washburn, Michael Beets, Kin-Kit Li, "Impact of the Positive Action program on school-level indicators of academic achievement, absenteeism, and disciplinary outcomes: A matched-pair, cluster randomized, controlled trial", *National Institutes of Health*, (January 2010), 1, 11. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857737/pdf/nihms-160325.pdf>
- <sup>86</sup> Washington State Institute for Public Policy, "School-wide positive behavior programs", (Olympia, WA, August 2014),  
<http://www.wsipp.wa.gov/BenefitCost?topicId=4>.
- <sup>87</sup> Communities in Schools, "Changing the Picture of Education Across America", Impact Report, (Spring 2015), 2.  
<http://www.communitiesinschools.org/about/publications/publication/national-impact-report-spring-2015>
- <sup>88</sup> "Communities In Schools National Evaluation Volume 5: Randomized Controlled Trial Study Austin, Texas", ICF International, (Fairfax, VA, October 2010), 1. [http://www.communitiesinschools.org/media/uploads/attachments/CIS\\_RCT\\_Study\\_Austin\\_Volume\\_5\\_final.pdf](http://www.communitiesinschools.org/media/uploads/attachments/CIS_RCT_Study_Austin_Volume_5_final.pdf)
- <sup>89</sup> City Connects, "The Impact of City Connects (Progress report 2012)", Boston College Center for Optimized Student Support, (Boston, MA: 2012), 6. [http://www.socialimpactexchange.org/files/CityConnects\\_ProgressReport\\_2012.pdf](http://www.socialimpactexchange.org/files/CityConnects_ProgressReport_2012.pdf)
- <sup>90</sup> Washington State Institute for Public Policy, "Case management in schools", (Olympia, WA: August 2014),  
<http://www.wsipp.wa.gov/BenefitCost?topicId=4>.
- <sup>91</sup> Tennessee State Department of Education, "The State of Tennessee's Student/Teacher Achievement Ratio (STAR) Project Technical Report", (1985-1990), 90.
- <sup>92</sup> Tennessee State Department of Education, "The STAR Project Technical Report" (1985-1990), 10, 90.
- <sup>93</sup> Diane Whitmore Schanzenbach, "Does Class Size Matter?", National Education Policy Center, (Boulder, CO, February, 2014), 3.
- <sup>94</sup> Raj Chetty, John N. Friedman, Nathaniel Hilger, Emmanuel Saez, Diana Whitmore Schanzenbach, Danny Yagan, "How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR," *The Quarterly Journal of Economics* 126.4 (March 2011).
- <sup>95</sup> Raj Chetty, John N. Friedman, Nathaniel Hilger, Emmanuel Saez, Diana Whitmore Schanzenbach, Danny Yagan, "How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR." *The Quarterly Journal of Economics* 126.4 (March 2011),
- <sup>96</sup> Raj Chetty, John N. Friedman, Nathaniel Hilger, Emmanuel Saez, Diana Whitmore Schanzenbach, Danny Yagan, "How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR." *The Quarterly Journal of Economics* 126.4 (March 2011), 19.
- <sup>97</sup> Susan Dynarski, Joshua Hyman and Diane Whitmore Schanzenbach, "Experimental Evidence on the Effect of Childhood Investments on Postsecondary Attainment and Degree Completion", *Journal of Policy Analysis and Management*, (October 16, 2011), 3.  
[http://users.nber.org/~dynarski/Dynarski\\_Hyman\\_Schanzenbach.pdf](http://users.nber.org/~dynarski/Dynarski_Hyman_Schanzenbach.pdf)

- <sup>98</sup> Susan Dynarski, Joshua Hyman and Diane Whitmore Schanzenbach, "Experimental Evidence on the Effect of Childhood Investments on Postsecondary Attainment and Degree Completion", *Journal of Policy Analysis and Management*, (October 16, 2011), 16. [http://users.nber.org/~dynarski/Dynarski\\_Hyman\\_Schanzenbach.pdf](http://users.nber.org/~dynarski/Dynarski_Hyman_Schanzenbach.pdf)
- <sup>99</sup> Washington State Institute for Public Policy, "Class size: reducing average class size by one student in kindergarten", (Olympia, WA, August 2014), <http://www.wsipp.wa.gov/BenefitCost/Program/204>.
- <sup>100</sup> R.T. Jacob, T.J. Smith, J.A. Willard, and R.E. Rifkin, "Reading Partners: The Implementation and Effectiveness of a One-on-One Tutoring Program Delivered by Community Volunteers", MDRC Policy Brief, (New York: June 2014), 1-2. [http://readingpartners.org/wp-content/uploads/2014/06/Reading-Partners\\_final.pdf](http://readingpartners.org/wp-content/uploads/2014/06/Reading-Partners_final.pdf)
- <sup>101</sup> Washington State Institute for Public Policy, "Tutoring: By peers", (Olympia, WA: August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>
- <sup>102</sup> Washington State Institute for Public Policy, "Tutoring: By certificated teachers, small-group, structured", (Olympia, WA, August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>
- <sup>103</sup> Washington State Institute for Public Policy, "Out-of-school-time tutoring by adults", (Olympia, WA, August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>
- <sup>104</sup> Allan Odden, Lawrence O. Picus, Sarah Archibald, Michael Goetz, Michelle Turner Mangan, Anabel Aportela, "An Evidenced-Based Approach to School Finance Adequacy in Wisconsin", Second Draft, The Wisconsin School Finance Adequacy Initiative, (Madison, WI: April 15, 2006), 61-62. [http://cpere.wceruw.org/finance/wi\\_sf\\_adequacy\\_report\\_april\\_15\\_06.pdf](http://cpere.wceruw.org/finance/wi_sf_adequacy_report_april_15_06.pdf)
- <sup>105</sup> U.S. Department of Education, For Each and Every Child—A Strategy for Education Equity and Excellence, Washington, D.C., 2013.
- <sup>106</sup> "Issues A-Z: Teacher Quality", Editorial Projects in Education Research Center, *Education Week*. July 8, 2011. <http://www.edweek.org/ew/issues/teacher-quality/>
- <sup>107</sup> Eric Hanushek, John Kain, Steven Rivkin, "Teachers, Schools, and Academic Achievement", National Bureau of Economic Research, Working Paper 6691, (Cambridge, MA: August 1998), 32. <http://www.nber.org/papers/w6691.pdf>
- <sup>108</sup> "Issues A-Z: Teacher Quality", Editorial Projects in Education Research Center, *Education Week*. July 8, 2011. <http://www.edweek.org/ew/issues/teacher-quality/>
- <sup>109</sup> Washington State Institute for Public Policy, "Benefit-Cost Results", (Olympia, WA, December 2014). <http://www.wsipp.wa.gov/BenefitCost>
- <sup>110</sup> Washington State Institute for Public Policy, "Teacher professional development: Use of data to guide instruction", (Olympia, WA, August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>.
- <sup>111</sup> Organisation for Economic Co-operation and Development, "Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States", (2010), 118. <http://www.edweek.org/media/gps-us-strong-performers-and-successful-reformers.pdf>
- <sup>112</sup> Andy Hargreaves and Michael Fullan, *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, (New York, New York, 2012), 16.
- <sup>113</sup> Andy Hargreaves and Michael Fullan, *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, (New York, New York, 2012), 16-17.
- <sup>114</sup> Pasi Sahlberg, *Finnish Lessons: What can the world learn from educational change in Finland?*, Teachers College Press, (New York, New York, 2011), 103.
- <sup>115</sup> Pasi Sahlberg, *Finnish Lessons: What can the world learn from educational change in Finland?*, Teachers College Press, (New York, New York, 2011), 103.
- <sup>116</sup> Andy Hargreaves and Michael Fullan, *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, (New York, New York, 2012), 144.
- <sup>117</sup> Pasi Sahlberg, *Finnish Lessons: What can the world learn from educational change in Finland?*, Teachers College Press, (New York, New York, 2011), 103.
- <sup>118</sup> Andy Hargreaves and Michael Fullan, *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, (New York, New York, 2012), 17.
- <sup>119</sup> Michael Fullan, "Choosing the wrong drivers for whole system reform", Centre for Strategic Education, (East Melbourne, Australia: April 2011), 5. <http://edsources.org/wp-content/uploads/Fullan-Wrong-Drivers1.pdf>
- <sup>120</sup> Will Dobbie and Roland G. Fryer, "Medium-Term Impacts of High-Achieving Charter Schools", National Bureau of Economic Research, Working Paper No. 19581, (September 2013), 2.
- <sup>121</sup> Will Dobbie and Roland G. Fryer, "Medium-Term Impacts of High-Achieving Charter Schools", National Bureau of Economic Research, Working Paper No. 19581, (September 2013), 21.
- <sup>122</sup> Will Dobbie and Roland G. Fryer, "Medium-Term Impacts of High-Achieving Charter Schools", National Bureau of Economic Research, Working Paper No. 19581, (September 2013), 3.
- <sup>123</sup> Roland G. Fryer, "Injecting Charter School Best Practices Into Traditional Public Schools: Evidence from Field Experiments" (April, 2014), 1. [http://scholar.harvard.edu/files/fryer/files/2014\\_injecting\\_charter\\_school\\_best\\_practices\\_into\\_traditional\\_public\\_schools.pdf](http://scholar.harvard.edu/files/fryer/files/2014_injecting_charter_school_best_practices_into_traditional_public_schools.pdf)
- <sup>124</sup> Roland G. Fryer, "Injecting Charter School Best Practices Into Traditional Public Schools: Evidence from Field Experiments" (April, 2014), 3. [http://scholar.harvard.edu/files/fryer/files/2014\\_injecting\\_charter\\_school\\_best\\_practices\\_into\\_traditional\\_public\\_schools.pdf](http://scholar.harvard.edu/files/fryer/files/2014_injecting_charter_school_best_practices_into_traditional_public_schools.pdf)
- <sup>125</sup> Washington State Institute for Public Policy, "Summer book programs: Multi-year intervention", (Olympia, WA, August 2014). <http://www.wsipp.wa.gov/BenefitCost?topicId=4>.

- <sup>126</sup> Eric Hanushek, who reviewed this paper, has concerns with the evidence based model for finance. He has written on the issue, "Is the 'Evidence-Based Approach' a Good Guide to School Finance Policy?" and can be found here: [http://hanushek.stanford.edu/sites/default/files/publications/Effective%20schools%20\(LKB,%202011\)%20\(2\).pdf](http://hanushek.stanford.edu/sites/default/files/publications/Effective%20schools%20(LKB,%202011)%20(2).pdf)
- <sup>127</sup> Allen Odden, Lawrence O. Picus, Michael Goetz, Michelle Turner Mangan, Mark Fermanich, "And Evidenced-Based Approach to School Finance Adequacy in Washington", (September 2006), 3.
- <sup>128</sup> Michelle Turner Mangan, Ted Purinton, Anabel Aportela, "Illinois School Finance Adequacy Study – Part I: A Comparison of Statewide Simulation of Adequate Funds to Current Revenues", (March, 2010), 9. [http://illinoisvision2020.org/wp-content/files/Funding\\_ILSchoolFinanceAdequacyStudyPartI.pdf](http://illinoisvision2020.org/wp-content/files/Funding_ILSchoolFinanceAdequacyStudyPartI.pdf)
- <sup>129</sup> Jamie Forsythe, "Belleville District 201 school board lays off teachers, staff members", *Belleville News-Democrat*, (March 17, 2014). [http://www.bnd.com/2014/03/17/3113482\\_belleville-district-201-school.html?rh=1](http://www.bnd.com/2014/03/17/3113482_belleville-district-201-school.html?rh=1)
- <sup>130</sup> Education Funding Advisory Board, "Illinois Education Funding Recommendations", (Springfield, IL: January, 2015), 9. <http://www.isbe.net/EFAB/pdf/final-report-01-15.pdf>
- <sup>131</sup> Michelle Turner Mangan, Ted Purinton, Anabel Aportela, "Illinois School Finance Adequacy Study – Part I: A Comparison of Statewide Simulation of Adequate Funds to Current Revenues", (March, 2010), 7. [http://illinoisvision2020.org/wp-content/files/Funding\\_ILSchoolFinanceAdequacyStudyPartI.pdf](http://illinoisvision2020.org/wp-content/files/Funding_ILSchoolFinanceAdequacyStudyPartI.pdf)
- <sup>132</sup> Bruce D. Baker, "America's Most Financially Disadvantaged School Districts and How They Got that Way: How State and Local Governance Causes School Funding Disparities", Center for American Progress, (Washington, DC: July 2014), 40.
- <sup>133</sup> Bruce D. Baker, David G. Sciarra, Danielle Farrie, Education Law Center, *Is School Funding Fair? A National Report Card*, (Newark, NJ: January 2014), 15.
- <sup>134</sup> Bruce D. Baker, David G. Sciarra, Danielle Farrie, Education Law Center, *Is School Funding Fair? A National Report Card*, (Newark, NJ: January 2014), 15.
- <sup>135</sup> Bruce D. Baker, David G. Sciarra, Danielle Farrie, Education Law Center, *Is School Funding Fair? A National Report Card*, (Newark, NJ: January 2014), 15.
- <sup>136</sup> Frederick Mosteller, "The Tennessee Study of Class Size in the Early School Grades", *The Future of Children*, (Summer/Fall 1995), 113. [https://www.princeton.edu/futureofchildren/publications/docs/05\\_02\\_08.pdf](https://www.princeton.edu/futureofchildren/publications/docs/05_02_08.pdf)
- <sup>137</sup> Bruce D. Baker, David G. Sciarra, Danielle Farrie, Education Law Center, *Is School Funding Fair? A National Report Card*, (Newark, NJ: January 2014), 34.
- <sup>138</sup> "Low Income Students", *Illinois Interactive Report Card 2013-2014*, Northern Illinois University, <http://www.illinoisreportcard.com/State.aspx?source=StudentCharacteristics&source2=LowIncome&Stateid=IL>
- <sup>139</sup> "Low Income Students", *Illinois Interactive Report Card 2013-2014*, Northern Illinois University, <http://www.illinoisreportcard.com/State.aspx?source=StudentCharacteristics&source2=LowIncome&Stateid=IL>
- <sup>140</sup> "Students With Disability", *Illinois Interactive Report Card 2013-2014*, Northern Illinois University, <http://www.illinoisreportcard.com/State.aspx?source=StudentCharacteristics&source2=IEP&Stateid=IL#>
- <sup>141</sup> "English Learners", *Illinois Interactive Report Card 2013-2013*, Northern Illinois University, <http://www.illinoisreportcard.com/State.aspx?source=StudentCharacteristics&source2=LEP&Stateid=IL>
- <sup>142</sup> Illinois State Board of Education, "Illinois PreKindergarten Program for Children At Risk of Academic Failure 2005-2006 Evaluation Report", (Springfield, IL: June 2007), 1.
- <sup>143</sup> City Connects, "The Impact of City Connects (Progress report 2012)", Boston College Center for Optimized Student Support, (Boston, MA: 2012), 5. [http://www.socialimpactexchange.org/files/CityConnects\\_ProgressReport\\_2012.pdf](http://www.socialimpactexchange.org/files/CityConnects_ProgressReport_2012.pdf)
- <sup>144</sup> Lori Pfingst, "The Cost of Child Poverty State by State", Human Services Policy Center at the Evans School of Public Affairs – University of Washington, (Seattle, WA: 2011). [http://www.browncountyunitedway.org/files/Poverty%20Website/Poverty\\_state\\_costs.pdf](http://www.browncountyunitedway.org/files/Poverty%20Website/Poverty_state_costs.pdf)
- <sup>145</sup> Education Funding Advisory Board, "Illinois Education Funding Recommendations", (Springfield, IL: January, 2015), 1. <http://www.isbe.net/EFAB/pdf/final-report-01-15.pdf>
- <sup>146</sup> Frank Manzo IV and Robert Bruno, "The State of Working Illinois 2013: Labor in the Land of Lincoln", Labor Education Program, University of Illinois at Urbana-Champaign (Chicago, IL: July 9, 2013), 8. [http://www.ler.illinois.edu/labor/images/State%20of%20Working%20Illinois\\_Final%20LEP%20Version.pdf](http://www.ler.illinois.edu/labor/images/State%20of%20Working%20Illinois_Final%20LEP%20Version.pdf)
- <sup>147</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>148</sup> Eric Hanushek, Jens Ruhose, and Ludger Woessmann, "Economic Impact of Student Performance Improvement: Illinois", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/economic-impact-student-performance-improvement-map-2016/>
- <sup>149</sup> Eric A. Hanushek, Jens Ruhose, and Ludger Woessmann, "It Pays to Improve School Quality", *Education Next*, Summer 2016 / VOL. 16, NO. 3. <http://educationnext.org/pays-improve-school-quality-student-achievement-economic-gain/>
- <sup>150</sup> Stetser, M., and Stillwell, R., "Public High School Four-Year On-Time Graduation Rates and Event Dropout Rates: School Years 2010–11 and 2011–12. First Look", National Center for Education Statistics, U.S. Department of Education. (Washington, DC, April 2014), 13. <http://nces.ed.gov/pubs2014/2014391.pdf>
- <sup>151</sup> Stetser, M., and Stillwell, R., "Public High School Four-Year On-Time Graduation Rates and Event Dropout Rates: School Years 2010–11 and 2011–12. First Look", National Center for Education Statistics, U.S. Department of Education. (Washington, DC, April 2014), 15. <http://nces.ed.gov/pubs2014/2014391.pdf>

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- <sup>152</sup> Illinois State Board of Education, 2011-12 Students Housed by Serving School, District Summary, (Springfield, IL). [http://www.isbe.net/research/htmls/fall\\_housing.htm](http://www.isbe.net/research/htmls/fall_housing.htm)
- <sup>153</sup> Berger & Fisher, "A Well-Educated Workforce is Key to State Prosperity".
- <sup>154</sup> "Ready for College Course Work", *Illinois Interactive Report Card 2012-2013*, Northern Illinois University. <http://www.illinoisreportcard.com/State.aspx?source=Trends&source2=ReadyforCollegeCourseWork&Stateid=IL> Students who scored at least a 21 (composite) on the ACT are considered ready for college course work.
- <sup>155</sup> "The Condition of College & Career Readiness 2014: Illinois", ACT, (August 2014), 4. <http://www.act.org/newsroom/data/2014/states/pdf/Illinois.pdf>
- <sup>156</sup> "Post-Secondary Enrollment", *Illinois Interactive Report Card 2013-2014*, Northern Illinois University. <http://www.illinoisreportcard.com/State.aspx?source=Trends&source2=PostSecondaryEnrollment&Stateid=IL#>
- <sup>157</sup> Alliance for Excellent Education, "Paying Double: Inadequate High Schools and Community College Remediation", (Washington, DC: August 2006), 1-2.
- <sup>158</sup> Spark, Kara, "Report: Over a third of students entering college need remedial help", *The Chicago Sun-Times*, May 27, 2011.
- <sup>159</sup> Camille L. Ryan and Julie Siebens, "Educational Attainment in the United States: 2009", U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau, (Washington, DC: February 2012). <http://www.census.gov/prod/2012pubs/p20-566.pdf>
- <sup>160</sup> One reason why Massachusetts may have such a high college attainment rate is because of the number of universities located in the state which attract people from across the nation and world. Camille L. Ryan and Julie Siebens, "Educational Attainment in the United States: 2009", U.S. Department of Commerce, Economics and Statistics Administration, United States Census Bureau, (Washington, DC: February 2012). <http://www.census.gov/prod/2012pubs/p20-566.pdf>
- <sup>161</sup> The additional 5,117 college graduates come from the new high school graduates if the graduation rate is increased to 90 percent. In short,  $(13,397 * .382) + 10,436 = 15,554$  after rounding.
- <sup>162</sup> "Annual Earnings of Young Adults" National Center for Education Statistics, (Washington, DC: May 2014), 2. [https://nces.ed.gov/programs/coe/pdf/coe\\_cba.pdf](https://nces.ed.gov/programs/coe/pdf/coe_cba.pdf)
- <sup>163</sup> Deborah Yaffe, "Addressing Achievement Gaps," *ETS Policy Notes* 16.3 (2008), 2.