

# AMENDMENT 73

## The Economic Impacts of a \$1.6 Billion Tax Increase to Spend on Education

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Conducted by





## ABOUT THE REMI PARTNERSHIP

A partnership of public and private organizations announced in July 2013 the formation of a collaboration to provide Colorado lawmakers, policy makers, business leaders, and citizens, with greater insight into the economic impact of public policy decisions that face the state and surrounding regions. The parties involved include the Colorado Association of REALTORS®, the Colorado Bankers Association, Colorado Concern, Common Sense Policy Roundtable and Denver South Economic Development Partnership. This consortium meets monthly to discuss pressing economic issues impacting the state and to prioritize and manage its independent research efforts.



# Amendment 73: The Economic Impacts of a \$1.6 Billion Tax Increase to Spend on Education

## CONTENTS

Overview .....	4
Tax Increases .....	6
Expenditure Changes .....	8
Impacts on Performance .....	11
Net Economic Impacts .....	15
Net impacts if there are no improvements in performance .....	15
Net impacts if the Colorado graduation rate grew to that national average .....	16
Net impacts if the Colorado graduation rate grew to the best in the country .....	16
Conclusion .....	17
References .....	18



## OVERVIEW

This November, Coloradans will vote on Amendment 73. The initiative would change the current flat individual income tax rate in the Colorado constitution by imposing a progressive rate for individual and joint income filers who earn over \$150,000. It would also increase the corporate income tax rate, and significantly change residential and commercial property tax rates. The revenue generated from the higher taxes would be placed into a new fund, designated for PK-12 education.

This paper evaluates the impacts to the Colorado economy, should Amendment 73 pass. The analysis was conducted using the REMI Tax-PI model. Tax-PI is an economic forecasting and simulation model built to resemble the Colorado economy. The inputs to the model represent the direct changes of the measure including the increase in taxes, and the increase in spending on PK-12 education. While there will be immediate impacts resulting from the higher taxes and higher spending on education, it is uncertain what performance impacts, such as improved graduation rates, Coloradans can expect over the long-term.

The following sections of the report are broken into four categories to describe the impacts in more detail:

- 1 Tax increase
- 2 Spending increase
- 3 Performance impacts
- 4 Net economic impacts

Isolating just the economic impacts of the roughly \$1.6 billion tax increase only, would mean an average annual reduction in gross state product (GSP) by \$2.3 billion, and 22,900 fewer jobs over the next 20 years. The primary contributor to the negative impacts is over \$4 billion lower consumer demand on average annually, resulting from lower after-tax disposable income, and slower population and job growth due to relatively higher personal and business taxes. The top marginal personal tax rate in Colorado would grow by 80% and shift in the national ranking from 37th lowest to 8th highest (Scarboro, 2018) among states with an income tax. The corporate tax rate would increase by 30%, shifting Colorado's tax rate ranking from 43rd to 31st (Pomerleau, 2018). For the average corporation with a tax liability, this translates to an \$11,000 annual increase in costs.

Estimating the economic impacts of the increase in school spending proved to be more challenging given the lack of clarity in the text of the initiative. While the initiative dictates how much money will be available to school districts, it is not clear exactly how that money would be spent once received.

86% of the estimated \$1.1B increase in expenditures in the first full-year of implementation (2020) goes to increasing funds available for the existing school funding formula. The remaining 14% is set aside to be used for categorical programs including special education, gifted, English language learning and preschool. This study examined several scenarios to gauge the impacts of spending alternative amounts on existing spending patterns versus increases in existing workers' salaries. If just 20% of new revenue goes to increase across-the-board spending according to existing patterns, including hiring new staff, it would translate to roughly 2,800 annual new jobs in the public education sector. If instead 80% of the new revenue goes to existing across-the-board spending, it would result in a gain of 11,100 public education sector jobs. Ultimately, how the new money would be spent that may partially offset the negative impacts of the tax increase is unclear.



Earlier this year, the REMI Partnership along with Colorado Succeeds released a study, “What if Colorado Schools Were #1?” which detailed the value to students and the Colorado economy of not only improving the state’s 12th grade graduation rate, but also ensuring Colorado graduates can meet the educational and training needs of the state’s job market. The results are clear: Colorado is in dire need of making significant changes to the way it educates its youth. Ranking 46th in the country for 12th grade graduation rates, while having the 2nd highest percent of jobs that require some form of postsecondary education (Carnevale, Smith, & Strohl, 2013), only means that thousands of Coloradans are falling behind every year. If Colorado were able to close the gap in its 12th grade graduation rate and achieve the highest rate in the country, it would mean over 6,600 more students would graduate each year on average over just the next decade. The additional earnings generated by the additional graduates would total more than \$1.5 billion, and lead to the creation of an additional 14,500 jobs.

While solutions are needed to improve the state’s graduation rate, after significant statistical testing across Colorado school district data and state-by-state data, and a review of existing literature we found that there is no basis to assume that an increase in per-pupil funding alone will ultimately lead to an improvement in graduation rates.

The recent history of education finances also raises some questions about the ability of new money to reach classrooms to truly make a positive difference. Over the past 6 school years, the total number of P-12 public education staff in Colorado has grown by 14,517 new jobs, while the number of students has grown by 56,015 students. Education staff includes principals, administration, paraprofessionals, counselors, aids and teachers. In other words, for every 3.9 students, the Colorado education system has added one new staff member. Over the past 3 years that ratio has been 1 new staff for every 2.8 students. Of that growth, teachers have accounted for just 33% of total new jobs. The growth in all non-teacher staff has been 20% since 2011 while the number of teachers has grown just 8%, one percent above the growth rate in students. Colorado currently ranks 27th in per-pupil expenditures (National Education Association, April 2018) yet ranks 43rd in percentage of spending on instruction and 5th on percent of per-pupil spending on administration as calculated from US Census Education Finance data.

Compounding this issue, due to legislative changes in 2004 and 2006 school districts now contribute an additional \$470 million annually to PERA, the public employee’s pension fund. And during the 2018 legislative session what was originally proposed as an additional 2.5%, or \$115 million annual increase for school districts, was shifted to be removed directly from the state’s general fund. All of these increases, which amount to roughly \$645 per-pupil, are used to pay down the unfunded liability or the higher costs of retirement commitments already made, rather than go to the retirement cost of the individual the money is being contributed on behalf of. Therefore, while the initiative provides a substantial increase in per-pupil funding, it is not clear where exactly the money will be spent. And given the significant impact to the state’s thriving economy, the question that is left unanswered is whether Amendment 73 really can make a difference.

## TAX INCREASES

Amendment 73 would represent a sizable increase in Colorado tax revenue. Currently, Colorado has a flat individual income tax rate and corporate tax rate of 4.63%. This single rate applies to all individual income earners and generated \$6.75 billion in tax revenue in 2017. With that same tax rate, corporate tax revenue was \$528 million in 2017. The initial fiscal impact statement developed by the Colorado Legislative Council and released January 3, 2018 estimates \$1.4 billion will be raised by the increase in the individual income tax in the 2019-2020 fiscal year, while the corporate income tax will raise \$180 million. These increases represent a roughly 18% and above 30% increase in revenue per respective category. Passage of this measure would shift Colorado's tax ranking among states significantly. The tax rate on our highest income earners would shift from the 37th, to 8th among 43 states with an income tax (Scarboro, 2018). And the corporate income tax would jump from 43rd to 31st (Pomerleau, 2018).

Along with the economic impacts of higher taxes, there could be several unintended consequences of the measure. First, given the tax brackets are fixed dollar amounts, due to general inflation as incomes naturally increase over time, more and more filers will be impacted by the \$150,000 threshold. Therefore, it is possible that significantly more revenue will be generated in the future than can easily be spent in education. And as the fund is exempt from Tabor, there are no protections for taxpayers. Second, given the Amendment would create two property tax jurisdictions, one for school districts and one for all others, it is possible that while the school district assessment rate remains fixed, the assessment rate for all other districts would need to drop even faster to compensate for the restrictions of Gallagher. This point is explained further in the below property tax section.

### PERSONAL INCOME TAX INCREASE

The burden of the increase in revenue will not be evenly distributed, as the tax increase falls exclusively on higher income earners. Amendment 73 changes the state constitution to allow for a graduated income tax rates as shown in the below table. The initial fiscal impact statement produced by the Colorado Legislative Council also estimated how much additional tax each filer will pay by new tax bracket.

Figure 1: Individual Income Tax Brackets

Individual Income Tax Rates Under Amendment 73			
Taxable Income between ...	... is taxed at a marginal rate of ...	Change in the Tax Rate Under the Amendment	% Increase from Current Rate
\$0 – \$150,000	4.63%	No Change	0.00%
\$150,000 – \$200,000	5.00%	0.37%	7.99%
\$200,001 – \$300,000	6.00%	1.37%	29.59%
\$300,001 – \$500,000	7.00%	2.37%	51.19%
Over \$500,000	8.25%	3.62%	78.19%

Figure 2: Change in Income Tax by Bracket

Individual Income Taxpayer Impacts Under Amendment 73			
Taxpayers with taxable income ranging from ...	Estimated Number of Filers Impacted	Average 2019 Tax Increase Per Taxpayer	Total Amount from Tax Increase
\$0 – \$150,000	None	No Change	\$0
\$150,000 – \$200,000	73,156	\$81	\$5,925,636
\$200,001 – \$300,000	56,536	\$729	\$41,214,744
\$300,001 – \$500,000	31,900	\$3,456	\$110,246,400
Over \$500,000	24,070	\$42,528	\$1,023,648,960
<b>Total</b>	<b>185,662</b>	<b>\$6,361</b>	<b>\$1,181,035,740</b>

The increase in tax rates will be applied to each tax filer including those who file as individuals as well as those who file jointly. Therefore, while it is estimated that 185,662 or 8% of income tax filers will be impacted, as many of those returns are joint returns, the number of Coloradans who will face a higher tax rate is larger.

According to a report produced by the Council on State Taxation, in 2016, \$800 million, or 12% of the individual income tax revenue was paid from pass-through income. Pass-through income is largely generated by small businesses and a portion would reach the \$150,000 earnings threshold. Therefore, a sizable portion of the additional tax revenue collected from the higher graduated rates, would come from small business owners. At this time, given the lack of clear information on the share of the impact on small businesses, all income tax revenue was assumed to cause an increase in personal taxes and was represented as such in the economic simulation.

## CORPORATE INCOME TAX

Under Amendment 73, the corporate tax rate would jump from 4.63% to 6%. As stated earlier, this would represent a roughly 30% increase in tax revenue and costs and would increase the tax burden on c-corporations with a tax liability by an average of \$11,085 in the first full year. The overall tax burden of companies is a key driver in decisions surrounding where to locate, invest and hire. It is also the case that increases in corporate taxes are often passed on to consumers and are felt throughout the firm. A working paper published by the National Bureau of Economic Research suggested that 60% of a change in corporate taxes are felt by the employees and property owners (Suarez Serrato & Zidar, Updated 2016).

Colorado has benefited greatly from relatively lower costs, including taxes, which has led to significant economic growth in recent years. By changing the ranking of the state’s corporate tax rate, it may significantly change the calculation for future companies looking to call the Centennial state home.

## PROPERTY TAX

The initiative also changes how property taxes are treated in the state. While still unclear exactly how the language will be interpreted, it appears to create two different assessment rates for both residential and commercial properties. The text of the measure sets an assessment rate for school districts, of 7% for residential property and 24% for commercial property and suggests it can't change in the future to adjust for the provisions of Gallagher. That seems to indicate that there will be a separate assessment rate for commercial and residential property for all other property tax jurisdictions. The initial fiscal note indicates that initially property taxes will be lowered as the school district assessment rates are set lower than current assessment rates. However, it also indicates that property taxes will also likely increase in the future as the new school district assessment rates will not fall as the value of property grows meaning residential and commercial property owners will pay more in the future that they would have otherwise. This seems to be only one possible outcome. The other possibility is that as the school district assessment rates will remain fixed, the assessment rates for all other property tax districts will have to fall to compensate as prices rise. This will mean that such tax districts as water, fire and police will face much lower revenues as their assessment rate falls while the school district rate remains constant. The fiscal note estimates an initial net \$62.4 million reduction in property taxes. However, currently it is also expected that assessment rates will drop over the next several years. Therefore, the economic impacts only include a reduction in property taxes for the first 5-years of the simulation.

Figure 3: Macroeconomic Impacts Isolating Just the Tax Increases

Scenario 1 – Economic Impacts of Just Tax Increases			
Economic Indicator	Average Annual Impacts		
	Year 1 – 10	Year 11 – 20	20 – Year
Employment	-22,700	-23,200	-22,900
Private Sector Employment	-20,600	-20,500	-20,600
Public Sector Employment	-2,100	-2,700	-2,400
State GDP (\$M 2018)	-\$2,161	-\$2,519	-\$2,340
Personal Income (\$M 2018)	-\$1,678	-\$2,368	-\$2,023
Disposable Personal Income (\$M 2018)	-\$2,895	-\$3,830	-\$3,363

## EXPENDITURE CHANGES

According to the initial fiscal note released by the Colorado Legislative Council, the net increase in taxes would provide an additional \$1.5 billion dollars to a newly created fund called the Quality Public Education Fund. However, an estimated minimum of only \$1.1 billion would be spent in the first full year. The fund would be used to allocate additional dollars to school districts beyond what is currently provided through the existing state school funding formula. Here is the expected amount of expenditure based on the allocations determined in Amendment 73.

Figure 4: Estimated Expenditure Increase

Minimum Expenditure Increase Required by Amendment 73	
Measure Requirements	FY 2019 – 20
<b>Formula Funding</b>	
Base per pupil funding to \$7,300	\$619 million
Full Day Kindergarten (1.0 FTE)	\$223 million
Expansion of At-Risk (Include reduced price lunch students)	\$77 million
<b>Subtotal</b>	<b>\$918 million</b>
Interactive Impacts*	\$25 million
<b>Formula Total</b>	<b>\$943 million</b>
<b>Categorical and Preschool Programs</b>	
Special Education	\$120 million
Gifted and talented programs	\$10 million
English language learning	\$20 million
Preschool funding	\$10 million
<b>Program Subtotal</b>	<b>\$160 million</b>
<b>Total</b>	<b>\$1.1 billion</b>
*Interactive impacts result from a higher base per pupil level for students projected under current law, and the additional at-risk and kindergarten students required to be funded by the measure.	

The primary source of expenditures is an increase in the base per-pupil funding to \$7,300. The FY 2018-2019 base per-pupil funding amount is \$6,768.77. This base amount is then adjusted for each school district based on a range of factors that can increase the funding amount. Those factors include such things as number of at-risk students and relative cost of living. In 2016, after accounting for additions to the base funding amount from the state and additional sources of revenue from local and federal government, the average total per-funded-pupil expenditure was \$13,814. The average per-pupil expenditure considering only total support services and total instruction services, while excluding other expenditures was \$10,842. According to a recent study released by the National Education Association, Colorado ranks 27th in expenditures per-student (National Education Association, April 2018).

The next largest increase in funding goes to have the state cover 100% of the costs of full-day kindergarten. Currently, that state funds kindergarten at .58 FTE (Full-time equivalent). So, while 78% of all kindergarten students are currently enrolled in full-day kindergarten, the state would now fund all full-day programs at the equivalent of 1 FTE. This would presumably free up funding currently used by school districts who offer full-day kindergarten to be used elsewhere. In the 2017-2018 school year, roughly 13,730 children were enrolled in half-day kindergarten. For many families with working parents, having the option of keeping their child in full-day kindergarten could free up a significant amount of disposable income that otherwise would have gone to pay for child care. If you were to assume that all of these students were now enrolled in full day kindergarten and each family saved \$50 a day on childcare, the total saving over the course of the school-year would be roughly \$120,000,000. When including this dynamic in the economic modeling there is a slight negative impact on the economy as while this money will be freed-up to spend on other household items, it will also mean less spending on child care services.



Just under 15% of the total expenditure would go to categorical and pre-school programs. That includes 11% to go to special education, 1% to go to gifted and talented, 2% to go to English language learning and 1% to go to preschool funding.

While the measure specifically directs certain amounts of the additional revenue to different parts of Preschool through 12th grade, it is unclear how that money will be used given each school district will have discretion over how the new funds get spent. When measuring the economic impacts, it matters whether the money is spent on hiring new workers, paying existing staff more, buying new technology for classrooms or spending on building improvements or expansions, as each of these activities has a potentially very different impact on the Colorado economy.

The previous study conducted by the REMI Partnership under Leeds Business School Research Division at the University of Colorado on Amendment 66 in 2013, collected information directly from the bill sponsor and school superintendents to make assumptions about how those funds would have been spent across the broad categories of;

- 1 Salary increase of existing staff
- 2 Purchase of new classroom technology
- 3 Expenditure on new capital improvements
- 4 Increase in all activities

As mentioned earlier, this issue is not clarified in the text of the measure. While the recent paper released by the Colorado Department of Higher Education concluded that teacher shortages is a significant problem throughout the state, it does not specifically site a figure as to how large that shortage is (Colorado Department of Higher Education, December 2017 ). Therefore, the impacts of the expenditure as it relates to job creation are difficult to judge. For the simulations presented in the later sections describing the economic modeling results, the net economic impacts reflect a 50/50 split between expenditure on increases in wages for existing staff along with an increase in overall spending.

For reference, for the 2017-2018 school years there are approximately 122,500 staff employed within the P-12th grade education system. If just 20% of the new revenue(\$1.5B) is spent according to existing spending patterns, including hiring new teachers, the model estimates an additional of 4,600 education staff would be added. If instead 80% of new revenue is spent according to existing spending patterns, the model estimates an additional 15,000 new staff. That represents a potential range of 3.5% to 12% additional staff. Since the 2013-2014 school year, total staff has increased by just over 12,000 or a 10% over four years. Over the same period, the total number of students only grew by 33,280, meaning 1 staff was added for every 2.8 students. This trend was not assumed to sustain and therefore a 50/50 split in spending was selected. In this final scenario, if just isolating the impacts of the spending increase alone, there are an estimated 7,300 additional public education sector staff on average above the baseline or an 8.3% increase.

Figure 5: Economic Impacts of Increase in Expenditure Only (\$1.1 billion 50/50 split\*)

Scenario 2 – Economic Impacts of Just Spending Increases			
Average Annual Impacts			
Economic Indicator	Year 1 – 10	Year 11 – 20	20 – Year
Employment	16,600	16,500	16,600
Private Sector Employment	9,700	8,700	9,200
Public Sector Employment	6,900	7,800	7,400
State GDP (\$M 2018)	\$1,422	\$1,550	\$1,486
Personal Income (\$M 2018)	\$1,611	\$1,522	\$1,566
Disposable Personal Income (\$M 2018)	\$1,362	\$1,076	\$1,219

\*\$1.1 billion is the minimum expenditure estimated in the initial fiscal impact statement developed by Legislative Council. It is not the case that all the tax revenue collected in a single year would be spent, and given the required expenditure is expected to increase, it is assumed some revenue will remain in the Quality Education Fund at the end of each year to anticipate gaps in the future. The 50/50 split refers to the assumption that half of the new spending will go to an across-the-board increase while the other half will go to increasing wages of existing staff.

## IMPACTS ON PERFORMANCE

The second stated purpose of Amendment 73 reads, “Quality public education is essential to the development of the quality workforce that will drive a vibrant Colorado economy for decades to come.” Given 95% of all K-12 students are enrolled in public schools it is fair to say that public education is and will continue to be essential to the development of Colorado’s youth. Along with the question of whether voters want to approve a significant tax and spending increase, there should also be a general understanding of whether the additional spending, will-fact lead to improved outcomes.

There is an extensive amount of research at a national and regional level, dedicated to understanding what makes a difference when it comes to improving school performance. The findings suggest that what makes a difference in student’s eventual school performance is complex and a combination of factors inside and outside the classroom influence performance. Those factors include;

- Family
- School Environment
- Teachers
- Socio–economic

Of the factors that are controllable at the school level, a 2014, report conducted by Hanover Research states that a systemic approach is required to improve graduation rates. Specifically, schools should simultaneously pursue a combination of targeted and school-wide initiatives. That targeted initiatives should focus on at-risk students through identifying them early and providing dedicated programs to prevent them from falling behind years before 12th grade. For all students in the school, multiple types of interventions should be carried out to ensure a rigorous and challenging learning environment while maintaining a strong relationship between students and teachers. (HanoverResearch, March 2014)



After surveying 23 North Carolina High Schools with markedly improved graduation rates, two professors from the University of North Carolina Wilmington, (Janna Siegel Robertson, 2016) conclude that changing school policy to address issues including tardiness, late work and suspensions in a way that suits the local community conditions have had the greatest impact on graduation rate improvement among the surveyed high schools.

In another study researchers from the University of Toronto found that family has a strong effect on student's performance in school. They believe that "Students are more likely to drop out if they are from a divorced family, a lone-parent family, or if their mother was a teenager when they were born." (Derek Messacar, September 2012) By the time high school students decide to drop out, there is typically a long history of observed behavioral problems that extend to much earlier in their school careers. (Barrington, 1989.) Therefore, tracking student grade records and other possible indicators such as truancy rate may be able to provide insights on whether they will graduate high school. At the same time, Messacar and Oreopoulos suggest that all states should increase their minimum school-leaving age to eighteen and allow more resources for enforcement of new and existing compulsory-schooling laws, to maximize the impact of the school policy change. More effort is also needed to keep students engaged in school, such as invest in effective support programs, even at an early age.

In a paper released of March 2018, Eric Hanushek, an economist from Stanford, analyzed data across 31 countries and pointed out that teacher's quality strongly correlates with student's performance. (Eric A. Hanushek, March 20, 2018)

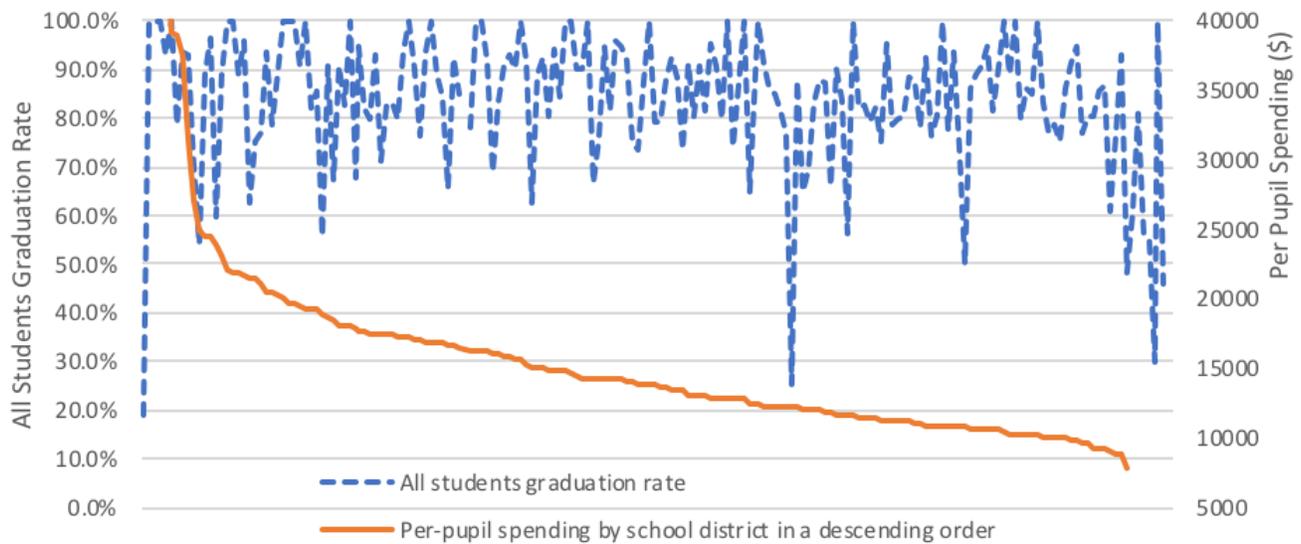
Along with a review of the existing literature, we also conducted a series of correlation and regression tests at the Colorado school district level and across states to determine if there is any basis that would allow for us to assume any specific amount of increase in performance from Amendment 73.

Here is a list of variables we tested for correlation against graduation rates at the Colorado school district level.

- a) Percentage of "highly effective" teachers in each school district
- b) Pupil/teacher ratio
- c) Economically disadvantaged students as a percentage of the total class
- d) Truancy rate
- e) Teacher's average salary
- f) Per-pupil expenditure
- g) The ratio of economically disadvantaged students as a percent of entire student body

The results of the tests indicate several variables including, Pupil/teacher ratio, truancy rate, teacher’s effectiveness have a moderate correlation with graduation rates. However, teacher’s average salary, per-pupil spending and the ratio of economically disadvantaged students appear to have very little correlation with graduation rates. This means that they explain very little of the variation in graduation rates. The following figure showing per-pupil spending versus graduation rates also shows no observable pattern.

Figure 6: Per-pupil spending and graduation rates by Colorado school district



After analyzing per-pupil spending and graduation rate data at the Colorado school district level, we then analyzed similar information on a state-by-state-basis. Due to data accessibility, the variables analyzed here include only pupil/teacher ratio, per-pupil spending, and median household income. Similar to the Colorado result, graduation rate is correlated to pupil/teacher ratio. Statistical values demonstrate that even though median household income has very weak correlation with graduation rates, it is a significant factor that would potentially affect graduation rates. However, per-pupil spending, again, is not statistically significant in the regression model. In other words, more per-pupil spending does not indicate a higher or lower graduation rate. To further understand this relationship between per-pupil spending and graduation rate, here are a few other points to consider:

- From 2010 to 2016, per pupil spending for each school district in Colorado has grown close to 12%. Graduation rates have only increased by 6%.
- For the 12 states that have lower per-pupil spending than Colorado, 11 of them have a higher graduation rate.

Although per pupil spending proves to have little impact on graduation rates, taking all facts into consideration, a hypothesis could be established that money does matter in terms of improving students' performance only if it is spent properly and most effectively. Nonetheless, it is very difficult to give a clear answer on what is the most efficient way to spend our education dollars. The data on current per-pupil spending shown in Figure 7 can provide the message that while Colorado's total per-pupil spending is ranked 27th among all states, the percent of spending on administration is ranked #5, and the percent of total spending on instruction is ranked #43. Figure 8 shows that from 2013 to 2017, the total number of teachers as a percent of all education related staff decreased 2.4%, while the non-teaching, supportive staff increased by the same amount. Over this five-year period, the percent growth in teaching jobs has always been less than supporting jobs. Subsequent studies should continue to focus on finding the answers for how to most effectively spend money on K-12 education.

Figure 7: Current Spending by Instruction vs Administration

Current Spending Per-Pupil Amounts for Public Elementary–Secondary School Systems (2016)						
Geography	Instruction			Administration		
	Subtotal	Salaries	Employee benefits	Subtotal	General administration	School administration
CO % of Total Spending on each Category	57%	39%	11%	40%	2%	7%
CO Ranking by % of spending by category	43	22	6	5	35	2
US % of total spending on each category	61%	39%	16%	35%	2%	6%

\*Source: Authors calculations from US Census: 2016 Public Elementary–Secondary Education Finance Data

Figure 8: Change in number of teachers (# and as % of total)

Current Spending Per-Pupil Amounts for Public Elementary–Secondary School Systems (2016)						
Job Classification	2013 – 2014		2017 – 2018		# of Additional Jobs	% Increased
Teachers	51,526	46.5%	54,031	44.1%	2,505	–2.4%
Other Support	59,308	53.5%	68,532	55.9%	9,224	2.4%
Total	110,834		122,563		11,729	

To conclude, some research suggests that there are clear steps schools can take to improve the outcomes for their students and achieve a higher percentage rate. Some of those programs such as earlier intervention with lagging students or improving teacher engagement require resources. But when evaluating whether Colorado schools that have higher amounts of per-pupil spending also have higher graduation rates, it appears there is little correlation. While Colorado ranks low in the per-pupil expenditure it ranks high in the percentage of spending that goes to areas outside of the classroom. So, while adequate funding is essential, it also appears that what money is being spent on matters more.

## NET ECONOMIC IMPACTS

To understand the net impacts of the economic trade-offs of Amendment 73, this analysis includes a series of policy simulations using the macroeconomic forecasting and simulation model called Tax-PI developed by REMI. The overall findings after factoring in the tax increase, the spending increase and potential performance improvements, indicate that without a substantial increase in student performance, Amendment 73 will be a significant drag on the Colorado economy, and the private sector specifically. The format of the findings is similar to the estimated impacts of Amendment 66, a previous ballot measure attempting to raise income taxes to increase funding for education. However, the near-term and long-term impacts differ as the two scenarios are not directly comparable given both the structure of the tax increase and proposed expenditures are different. (Wobbekind & Lewandowski, 2013)

The increase in taxes will cause reductions in personal consumer demand, and investment spending. The REMI model also partially captures the extent to which future income and investment will be displaced as the state becomes slightly less attractive relative to other regions of the country. At the same time, the increase in government spending on education will go directly to increasing wages for existing worker and create positions for new employees. It would also be spent on new building projects along with classroom materials.

Given the uncertainty around the level of performance impacts, we chose to create three scenarios to better understand the range of impacts. For more details on the full methodology for estimating the economic impacts of improved graduation rates please visit our earlier paper, "What if Colorado Schools Were Number 1?" released May 2018.

The first scenario assumes no increase in overall graduation rates because of the initiative. This can be interpreted as just the economic impacts of the tax increase plus the spending increase.

### NET IMPACTS IF THERE ARE NO IMPROVEMENTS IN PERFORMANCE

The impacts from capturing the net effects of the tax and spending increase with no improvements in school performance indicate there will be negative employment, gross state product and disposable personal income over the next twenty years. As the total impacts on employment are relatively small, the second and third rows of the table show that while private sector employment sees a relatively large drop, public sector employment would see a significant increase. As discussed in an earlier section, the 7,300 public sector jobs would likely all be in education and represent a roughly 6% increase in all P-12 education jobs.

Figure 9: Current Spending by Instruction vs Administration

Scenario 3 – Net Economic Impacts – Tax Increase and Minimum Spending Increase			
Average Annual Impacts			
Economic Indicator	Year 1 – 10	Year 11 – 20	20 – Year
Employment	-6,300	-6,100	-6,200
Private Sector Employment	-11,100	-11,600	-11,400
Public Sector Employment	4,800	5,500	5,100
State GDP (\$M 2018)	-\$741	-\$969	-\$855
Personal Income (\$M 2018)	-\$110	-\$404	-\$257
Disposable Personal Income (\$M 2018)	-\$1,567	-\$2,180	-\$1,873

## NET IMPACTS IF THE COLORADO GRADUATION RATE GREW TO THAT NATIONAL AVERAGE

The current national state average graduation rate is 83%. From increasing the current 4-year graduation rate of 79% to 84%, it would mean an additional 3,500 students graduate on average annually over the next two decades.

Figure 10: Economic Impacts of Increase in Taxes, Spending and Graduation Rate to National Average

Scenario 4 – Net Economic Impacts Plus National Average Graduation Rate			
Economic Impacts of Tax Increase and Minimum Spending Increase			
Economic Indicator	Average Annual Impacts		
	Year 1 – 10	Year 11 – 20	20 – Year
Employment	-2,900	100	-1,400
Private Sector Employment	-8,000	-5,800	-6,900
Public Sector Employment	5,100	6,000	5,500
State GDP (\$M 2018)	-\$455	-\$310	-\$383
Personal Income (\$M 2018)	\$370	\$897	\$634
Disposable Personal Income (\$M 2018)	-\$1,163	-\$1,099	-\$1,131

## NET IMPACTS IF THE COLORADO GRADUATION RATE GREW TO THE BEST IN THE COUNTRY

In 2017, the highest statewide graduation rate was just over 91%. If the statewide graduation rate in Colorado were to increase to the best in the nation, it would mean an additional 8,300 students were graduating each year.

Figure 11: Economic Impacts of Increase in Taxes, Spending and Graduation Rate to Best in the Country

Scenario 5 - Net Economic Impacts Plus #1 State Average Graduation Rate			
Economic Indicator	Average Annual Impacts		
	Year 1 – 10	Year 11 – 20	20 – Year
Employment	2,000	9,300	5,600
Private Sector Employment	-3,400	2,600	-400
Public Sector Employment	5,400	6,700	6,000
State GDP (\$M 2018)	-\$38	\$651	\$306
Personal Income (\$M 2018)	\$1,234	\$3,021	\$2,127
Disposable Personal Income (\$M 2018)	-\$475	\$632	\$78



## CONCLUSION

The significant tax increase proposed by Amendment 73 represents a massive shift in the way Colorado taxes its citizens. Moving from a relatively low flat tax, where individuals and corporations pays the same rate, to a graduated income tax, and 30% higher corporate tax will set the state on a different economic path, from where it currently stands.

While it is an imperative that Colorado continue to address its lagging graduation rate, there is little evidence that an increase in funding through the existing school formula will help to improve the outcomes for those students who are falling behind. The economic ramifications of the tax increase proposed by Amendment 73 are significant for Colorado's private sector, while Colorado's youth need real change, not just more of the same.



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