Isabelle Boes

# An Economic Analysis of HB18-1232

Professor Jeffrey Zax

House Education

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HB18-1232 proposes a new funding formula for all early childhood, primary and secondary schools in the state. If passed, this *New School Funding Distribution Formula* will replace the existing school finance formula, established in 1994. The proposed formula aims to promote a "fair and equitable distribution of funds." This analysis examines the economic validity of the bill.

Prior to 1994, state-level funds accounted for about a third of public school funding in the state, leaving the other two thirds to local property tax revenues and mill levies (Colorado School Finance Project, 2015). The 1994 School Finance Act changed the ratio of state to local public school funding. With a current total state-generated budget for school funding of about $7 billion, state-level revenues contribute to about 64% with the remaining 36% left to local property taxes and vehicle registration taxes (Colorado Department of Education, 2017). The 1994 formula determines the allocation of state funds according to district size, the cost of living in each district, the costs of personnel, the percent of "at-risk" students as determined by the percent of students that qualify for free-and-reduced-lunch, and the percent of on-line students.

The new formula proposed by HB18-1232 expands the state's role in school finance and broadens the eligibility for supplemental per-pupil funding. Following the 1994 model, the state government will contribute the majority of funds to public and charter schools via a state-wide funding base. Additional socio-economic and student group characteristics, referred to as "district factors," will supplement the state-provided base in an attempt to distribute funds to the districts that most need them. The supplements will be provided according to district size based on enrollment, poverty as measured by the amount of students with free-and-reduced-lunch, an English-language-learners factor, a special education factor, a gifted children factor, and a cost of living factor.

The bill increases the total state level of funding by about $1.3 billion. The amount allocated to school funding from local revenues will not change, so the state-to-local ratio overall will increase.

According to the bill's fiscal note, of the proposed $8.4 billion dedicated to school funding, state revenues will account for about 70% of funds, with the remaining 30% coming from local tax revenues. If passed, the legislation will await voter approval of a ballot measure to increase state taxes to contribute to state-level school funding.

This paper first considers the justification for the expansion of the state government's role in education funding by considering if the current level of involvement is insufficient. Next, this analysis examines the economic reasoning for and impact of increasing the state-to-local-funding ratio, in terms of both efficiency and equity. Further, this paper considers the efficiency behind using the supplements to redistribute money to particular student groups. Ultimately, this paper finds economic justification for HB18-1232 and encourages its passage.

Several situations justify government intervention in the provision of a good or service. To promote economic efficiency, the government should provide public goods and positive externalities for society as a whole. When not correcting for an inefficiency, government intervention in a market is redistribution. Redistribution interrupts normal market forces and therefore requires a strong justification and specific goal.

Education is a private good, because it is rivalrous and excludable in consumption, as each school and classroom has a limited capacity. However, at the primary, and secondary levels, it presents positive externalities for society. Students who receive a complete k-12 education are more likely to engage efficiently in society and the economy.

One study found an association between high school graduation and reduced crime rates, valuing the social value of an individual's education at 14-26% of the individual's personal return to education (Lochner and Moretti, 2004). Several studies have found correlations between education and civic participation, volunteering and voting (Hall, 2006). Further, some research indicates that an individual employee's education and skills can spillover to others in a close-knit working environment, improving workplace productivity overall (Moretti, 2004). These type of externalities justify government involvement in education provision, for the good of society in Colorado.

The bill seeks to expand upon and modernize the state government's role in education provision, implying an inadequacy or market failure in its current role. Although Colorado ranks as the 14th wealthiest state in the United States, it places 42nd in terms of per-pupil funding, far below the national average (Deruy, 2016).  These low per-pupil funding levels correlate to poor outcomes for Colorado students and indicate failures in the quality of k-12 education. Colorado's graduation rates prove these failures. In 2015, the state's graduation rate was 77%, lower than the national rate of 83.2% and ranking Colorado as the 7th worst in the nation for graduation rates (Kelley, 2017). This means that fewer students in Colorado generate the positive externalities associated with their education, harming society as a whole. Increasing funding levels as proposed by the bill will help to correct for this inefficiency.

It is also important to consider equity issues present in the state's approach to school finance. Within the generally low level of per-pupil funding across the state, discrepancies exist between districts, disadvantaging particular students. Local property-tax based school funding promotes inequitable resources and outcomes in schools. Wealthier neighborhoods generate higher revenues on property taxes based on home values, allocating more funds per pupil to students in economically advantaged areas (Semuels, 2016). This makes lower-income students less likely to receive quality education.

This problem is present in Colorado, as demonstrated by the discrepancies in high school graduations rates by income level. Only 65.5% of students from low-income families graduate from high school in 4 years, making Colorado the third-worst in the nation in supporting these students (Kelley, 2017). This means that low-income students, who account for 46% of Colorado high school students, are less likely to generate the positive externalities associated with education. This justifies redistribution of school funds in their favor. Raising the state to local funding ratio decreases poor districts' reliance on their own resources, reducing their disadvantage. This will improve the quality of education in these areas and widen the spread of the positive externalities associated with education

Further, HB18-1232 proposes a redistribution of government funds that will benefit particular students and groups. Particularly, it suggests providing more funding beyond the district level base to schools with higher English-language learner enrollment (ELL), special education enrollment, and gifted and talented (GT) enrollment levels, alongside the other factors already included in the 1994 formula. Justification exists for the supplemental focus on these groups for the sake of economic efficiency.

Non-native English speaking students face significant disadvantages in their school experiences and outcomes. In Colorado, a state with a 77% graduation rate, only about 59% of students in ELL programs graduate. The California Dropout Research Project found that "the economic costs for EL students who fail to earn a high school diploma are 'steep'" to both the individual and economy (Amos, 2013). This is because these students are less likely to generate positive externalities than their peers with high school diplomas.

Economic evidence also justifies distributing high funding levels towards special education. Several international studies indicate that special education provides a social return 2-3 times higher than the investment in the education of traditional students (Myers, 2016). These positive externalities arise in the form of high employment rates and crime reduction. In 2016, only about 57% of students with disabilities in Colorado graduated high school, meaning fewer of these students will produce the positive externalities of education. This is inefficient.

Gifted and talented programs can also provide positive social benefits. Students identified as gifted and talented provide high returns to society following their education. One study found that 2400 high performing students produced 817 patents by age 38 (Park et al, 2007). This suggests that GT students produce public goods like research and development at extremely high rates. Funding their education can be seen as social investment with a high return.

However, the students in Park's study did not receive special enrichment. This indicates that students in GT programs generally do well in school naturally and do not face disadvantages in producing the positive externalities associated with their education. Supplementing GT funding diverts funds away from other student groups who might require extra support in order to graduate and realize these externalities.  Redistribution to students already identified as GT and placed in specialized programs is not economically justified.

In Colorado, a low percentage of students in GT programs are low-income, EL students or students of color, indicating the inaccessibility of GT programs to talented minority students (CDE, 2017). Legislation should help gifted minority students access programs that will help them to generate positive externalities for society. This paper proposes an amendment to clarify that this supplemental subsidization of GT programs focuses on identifying more disadvantaged students who are gifted and making these programs more accessible to them.

Overall, the State's current level of involvement in education is insufficient. By prioritizing state funding of education, this bill will maximize the positive externalities of education by supporting the students that most need help in completing their education and generating its benefits. The expansion of per pupil funding for under supported groups with significant economic potential will uncover additional positive externalities. Therefore, this paper encourages the passage of HB18-1232 in order to promote accessible quality education and economic prosperity for the state of Colorado.

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