

AMENDMENT 23

ECONOMIC MODELING FOR DECISION MAKERS

FEBRUARY 2001

TABLE OF CONTENTS

	<u>Page</u>
A. Executive Summary	2
B. The Model	18
C. Education Spending Decisions	27
D. Discussion of Model Components	38
E. Sensitivity Analysis of Economic Components	63

A. EXECUTIVE SUMMARY

BACKGROUND

In November 2000, the voters of Colorado approved Amendment 23 to the Colorado Constitution. The Amendment affects the State's contribution to the spending for public schools, as well as the overall funding of public schools. The Amendment has the following four provisions:

- Increases per pupil spending by at least inflation plus one percent for the next ten years and by at least the rate of inflation thereafter.
- Increases spending for Categorical Programs (i.e., education of children with disabilities, public school transportation, gifted and talented programs, etc.) by at least inflation plus one percent for the next ten years and by at least the rate of inflation thereafter.
- Creates a new State Education Fund to receive “all state revenues collected from a tax of one third of one percent on federal taxable income, as modified by law, of every individual, estate, trust, and corporation.” Sales taxes are not part of federal taxable income and, therefore, not part of the State Education Fund. The money in the State Education Fund can be used to support the inflation plus one percent mandate mentioned above and/or to pay for additional categorical or new programs.

- Requires that State General Fund appropriations for Total Program increase by at least 5% per year for the first 10 years. The only exception to this would be in any fiscal year in which Colorado personal income grows less than 4.5% between the two previous calendar years. Total Program is a common school finance term that means the sum of pupil count times adjusted base per pupil funding plus funding for at-risk students. For the Fiscal Year (FY) 2000-01, Total Program costs for the State of Colorado were \$3.6 billion.

Below we provide a summary of our analysis of the impact of funding and spending decisions that will need to be made by the General Assembly, along with recommendations for legislative considerations.

Our analysis benefited from the insight of a working group comprised of representatives of the *Office of the State Auditor, Joint Budget Committee Staff, Legislative Council Staff, Office of State Planning and Budgeting*, and the *Departments of Education and Treasury*. The input, guidance, and advice of the working group was critical to the success of this project. We will make the model discussed herein available through the *Office of the State Auditor* to legislative and executive branch staff for use in the public school finance decision making process.

FUNDING

Amendment 23 takes existing revenue from a tax of one-third of one percent on federal taxable income (as modified by law) and directs that it be placed in a new fund entitled the "State Education Fund."¹ Allowable expenditures from the State Education Fund are specifically identified in Amendment 23 and include:

- Compliance with new spending requirements for public schools (per Amendment 23);
- Accountable education reform;
- Accountable programs to meet State academic standards;
- Class size reduction;
- Expansion of technology education;
- Improvements in student safety;
- Expansion of the availability of preschool and kindergarten programs;
- Performance incentives for teachers;
- Accountability reporting; and/or
- Public school building capital construction.

¹The existing revenue comes from individual, trust, estate, and corporate taxes. Currently, this revenue would comprise part of the excess revenue under TABOR. Alternatively, in years when State revenue is less than allowed under TABOR, deposits into the State Education Fund would be from the general pool of monies available for State appropriation.

Monies in the State Education Fund are exempt from limits established under TABOR. Amendment 23 creates additional spending requirements and a source of revenue for funding those requirements plus, if revenues allow, for funding new programs.

It is important to note that Amendment 23 does not change the basic appropriations process for preschool through 12th grade funding. In fact, Amendment 23 contains two “Maintenance of Effort” requirements:

- First, “Monies appropriated from the State Education Fund shall not be used to supplant the level of General Fund appropriations existing on the effective date of this section for Total Program education funding under the Public School Finance Act of 1994...and for Categorical Programs...”
- Second, through FY 2010-11, the General Assembly must, at a minimum, “annually increase the General Fund appropriation for total program under the “Public School Finance Act of 1994...by an amount not below five percent of the prior year General Fund appropriation for Total Program...”

Amendment 23 requirements raise questions regarding what is the appropriate level of General Fund monies for public education and what are the impacts on the State Education Fund of various General Fund appropriation decisions. Greater General Fund appropriations will enable the State Education Fund to grow at a faster rate, but this will affect monies available for other competing State programs. The General Assembly is faced with a difficult balancing act. Therefore, it will be critical for decision-makers to consider the implications of Amendment 23 funding and spending decisions.

To provide decision-makers with information on the impact of various funding alternatives, we developed a basic model. The model takes into account a large number of factors, including funded pupil count, average per pupil funding, inflation, level of State and local funding, taxable income, rates of return, and timing of deposits/withdrawals from the State Education Fund. The basic model is complex because of the number of components involved and the inherent difficulty of predicting future conditions. As a result, this report emphasizes the importance of periodically testing the assumptions in the model.

The model is used to illustrate the impact of different spending and funding decisions on the State Education Fund balance over a period of years. We initially analyze three scenarios (The Appendix provides year to year quantitative analysis for each scenario):

- 1) General Fund appropriation increases for Total Program of 6% annually;
- 2) General Fund appropriation increases of 5.6% (a mid-range estimate); and
- 3) General Fund appropriation increases of 5% (the minimum allowed by Amendment 23 at least for the first 10 years).

Using our baseline economic indicators, holding General Fund appropriations for Categorical Programs at the FY 2000-01 level, and assuming no additional education spending from the State Education Fund beyond Amendment 23 requirements, we found the following: (See also Chart B-I and Table B-II)

- o If the Legislature provides increases of 6% per year in General Fund appropriations for Total Program (with our baseline economic indicators), the State Education Fund balance would become substantial, amounting to \$3.2 billion in FY 2010-11 and \$15.5 billion by FY 2025-26.
 - Expected revenues into the State Education Fund are \$348.5 million in FY 2001-02 growing to \$631.1 million in FY 2010-11 but anticipated shortfalls (i.e., the difference between traditional funding sources and required and additional education spending) are \$44 million and \$558.9 million, respectively leaving \$304.6 million and \$72.1 million to be added to the State Education Fund balance in FY 2001-02 and FY 2010-11.
- o If the Legislature provides for increases of 5.6% per year for General Fund appropriations for Total Program, the State Education Fund balance will be just under \$2.5 billion by FY 2010-11 and would grow to just under \$4.7 billion by FY 2025-26.
 - Expected revenues would be the same as identified above but anticipated shortfalls are \$51.9 million in FY 2001-02 and \$690.7 million in FY 2010-11 leaving \$296.6 million and <\$59.6>, respectively to be added to the State Education Fund balance in those years. (As can be seen from the above numbers, in FY 2010-11 the expected revenues are not large enough to cover the shortfall.)

- o If the Legislature only increases General Fund appropriations for Total Program by 5% per year, the State Education Fund will be depleted by FY 2016-17. That is, the additional tax revenues accruing from Amendment 23 will not be sufficient to pay for the spending requirements as outlined in Amendment 23. Given that the Legislature would be required to fund the increases regardless of the monies available in the State Education Fund, increases in General Fund appropriations for Total Program of an additional 10% in FY 2016-17, rising to an additional 18% by FY 2025-26 would be needed to meet the requirements of Amendment 23. (See the Appendix for the specific yearly amount.)

If market conditions are such that the economy experiences a greater than anticipated slowdown over the next 5 years than already considered in the baseline economic indicators, then given the same three funding models described above, (i.e., without any additional education spending from State Education Fund and holding General Fund appropriations for Categorical Programs at the FY 2000-01 level) our analysis demonstrates: (See also Chart B-I and Table B-II)

- o General Fund appropriations for Total Program increasing at 6% per year is the only one of the three scenarios under which the State Education Fund will remain healthy and solvent. The State Education Fund balance would be \$1.8 billion in FY 2010-11 and increases to \$5.8 billion by FY 2025-26.
- o If General Fund appropriations for Total Program are increased at 5.6% per year, the State Education Fund will become depleted by FY 2016-17. The Legislature would be required to increase General Fund appropriations for Total Program by an additional 1.5% increasing to 7.2% over the subsequent decade to meet the requirements of Amendment 23.
- o Since the State Education Fund becomes depleted by FY 2016-17 under a 5% per year increase in General Fund appropriations for Total Program, an additional slowdown scenario is not considered.

Of some comfort is the baseline economic indicators are expected to be the more reasonable criteria as they already take into account an anticipated slowdown in the Colorado economy. [The slowdown scenario (over the next 5 years) would suggest rather severe recessionary conditions that are not generally expected by economic forecasters although

the likelihood of a recessionary period at some other time during the forecast period is possible and would have similar consequences for the State Education Fund.]

Naturally, increasing General Fund appropriations for Categorical Programs beyond the FY 2000-01 level will improve the balance of the State Education Fund in all models. However, even with additional Categorical Program funding, no additional significant spending programs can be initiated if General Fund appropriations for Total Program remain at 5.6% per year.

SPENDING

The amount of spending out of the State Education Fund is integrally tied to the level of General Fund appropriations. As can be expected, the greater the level of increase in General Fund appropriations, the greater the State Education Fund balance and the greater the funds available for new programs and for increases in Categorical Programs. Because of the required spending for Total Program and Categorical Programs (inflation plus one percent for the first 10 years), amounts not covered by General Fund appropriations must be covered by the State Education Fund.

In the past, General Fund appropriations have generally covered the State share of Total Program. However, with the new spending requirements of Amendment 23, a shortfall¹ is generated as the General Fund appropriations plus the local share contributions are not large enough to cover Total Program costs. The State Education Fund is designed, in part, to “backfill”, i.e., cover shortfalls in required funding. Since spending requirements now exceed the historical levels, shortfalls accrue immediately for all models. As can be seen in the Appendix, even the 6% Funding Model will require \$44 million in the first year (FY 2001-02) from the newly created State Education Fund. As noted above, covering shortfalls is one of the allowable and expected uses of the State Education Fund.

Our analysis shows that if the General Assembly chooses to increase General Fund appropriations for Total Program by the minimum 5%, the State Education Fund balance could become depleted by approximately FY 2016-17. This would mean that the Legislature would be required to increase General Fund appropriations by \$422 million (or an additional 9.5%) in that year.

¹ Shortfall is defined in this report as the difference between traditional funding sources and required and additional education spending.

Because the 5% Funding Model results in the depletion of the State Education Fund by FY 2016-17, we focused our analysis on spending scenarios under the 6% and 5.6% Funding Models. The spending scenarios are as follows:

- 1) Use State Education Fund monies to cover capital construction requirements under Senate Bill 00-181 (*Giardino v. State Board of Education*). *Giardino* requires spending of \$10 million and \$15 million in the next two fiscal years and \$20 million for the following eight fiscal years.
- 2) Spend an additional \$100 million per year (with annual inflationary increases) for new education programs not tied to school enrollment. (Programs tied to school enrollment have a multiplying effect on funding requirements.)
- 3) Spend funds on programs tied to school enrollment. The example used is a full-time kindergarten program (estimated at approximately \$125 million in the first year with increases for pupil count and inflation in subsequent years).

We found that if the General Assembly decides to increase General Fund appropriations for Total Program by 5.6% per year and General Fund appropriations for Categorical Programs remain funded at the FY 2000-01 level, spending for new programs is viable, but rather limited. The General Assembly could fund:

- o The requirements of *Giardino v. State Board of Education* plus \$25 million per year (with inflationary increases) but this leaves a small margin in the State Education Fund balance. Programs less ambitious than \$25 million per year (with inflationary increases) can be initiated which would allow for a larger margin in the State Education Fund.

If the General Fund appropriations for Total Program are increased by 6% annually and the General Fund appropriations for Categorical Programs remain at the FY 2000-01 level, the General Assembly can fund:

- o Senate Bill 00-181 (*Giardino v. State Board of Education*) from the State Education Fund and the fund balance will remain positive throughout the 25 year forecast period (even with a severe economic slowdown in the next 5 years).
- o \$100 million per year (with annual inflationary increases) for new education spending which is not tied to school enrollment (without an economic slowdown in the first 5 years) will provide a healthy fund balance. Under these circumstances, the State Education Fund balance will be \$1.6 billion in FY 2010-11 and \$6.6 billion by FY 2025-26. Although, with the more severe economic slowdown, the fund balance would be \$161.6 million in FY 2010-11 but after FY 2010-11 becomes negative.
- o If the Legislature decides on new funding tied to school enrollment (using a full-time kindergarten program in this analysis estimated at \$125 million in the initial year), the fund balance will fall to \$1.1 billion by FY 2010-11 but, without any significant recessionary periods in the later years of the forecast period, will return to a balance of \$2.5 billion by FY 2025-26.

With higher levels of General Fund appropriations, school enrollment related programs can be initiated or large grant-type expenditures can be approved; however, at lower levels of General Fund appropriations, programs must either be delayed several years to allow State Education Fund balances to accrue or be less ambitious than the full-time kindergarten program or spending \$100 million per year (with annual inflationary increases).

The General Assembly has very significant decisions to make this year regarding spending. Important considerations to keep in mind are:

- o Spending on programs based on school enrollment will have a greater, long-term impact on the State Education Fund. This is because funding requirements would be driven not only by the increase in pupil count, but also by the requirement under Amendment 23 to fund the program at inflation plus 1%. Even in the 6% Funding Model a pupil count program (such as full-time kindergarten) leaves a narrow margin in the fund balance in the first 15 to 20 years of the forecast period. That is not to say that spending on pupil count programs is undesirable. In fact, a number of the allowable Amendment 23 State Education Fund program expenditures would be based on pupil count. We are, therefore, recommending that the General Assembly consider a more cautious approach to establishing such programs – e.g., piloting programs, building up fund balance before initiating programs, initiating smaller programs, etc.
- o Spending on programs not tied to school enrollment provides decision-makers with more flexibility over time to alter spending amounts. Of course, decisions regarding the implementation of any programs must weigh both the short and long-term impacts on the public school system. Naturally, depending on the size of the expenditure, there are any number of options the Legislature can consider.

Our model will be available for use through the *Office of the State Auditor* so that different legislative scenarios can be quickly analyzed.

OTHER LEGISLATIVE CONSIDERATIONS

In addition to significant funding and spending decisions, the General Assembly has implementation issues to consider. Through our work on the models and discussions with Legislative and Executive branch staff, we identified areas where the General Assembly may want to provide clarifying language to ensure that Amendment 23 is implemented in accordance with voter intent.

- 1) **Establishing the Base:** Presently, our analysis incorporates \$142.1 million for the total spending on Categorical Programs on the basis of figures provided by *Joint Budget Committee Staff*. However, because of the significance of establishing baseline figures for Categorical Programs, we believe that the programs included in Categorical Programs should be clearly identified in law. Likewise, the base for General Fund appropriations for Total Program should be established. There is approximately \$3 million in the General Fund appropriated through a separate line item, "Additional State Aid Related to Locally Negotiated Business Incentive Agreements". For purposes of this analysis, we included the \$3 million in the base. If the General Assembly decides not to include the \$3 million, the effect on the State Education Fund balance will be nominal over the long-term.

- 2) **Clarifying Fund Distribution:** The Department of Education currently distributes education funds to school districts in equal monthly installments throughout the year. Typically, General Funds are distributed first, with cash funds distributed later in the year. Because of the substantial dollars that will go to districts from the State Education Fund, we believe it is important to clarify in law the order in which funds will be distributed. We recommend continuing the pattern established by the Department of Education (i.e. distribute State Education Funds last). This is the pattern we

used in our model. Should the General Assembly decide differently, the models will and can be adjusted. It should be noted that while spending General Funds first allows for more interest build-up in the State Education Fund, it does result in less interest accruing to General Funds.

- 3) **Identifying TABOR Exempt Funds:** Amendment 23 exempts State Education Fund revenue and expenditures from State and local TABOR limits. In order to account for State Education Fund funds under TABOR requirements, and to ensure that they are expended in compliance with Amendment 23's specific purposes, school districts must be able to clearly identify the funds. We recommend that enabling legislation include general guidance on identification of State Education Fund funds distributed to districts.

- 4) **Investments:** At some point, the State Education Fund could be substantial. Without additional spending, the 5.6% Funding Model could result in a State Education Fund balance of \$2.5 billion by the FY 2010-11 while the more generous 6% Funding Model could result in a State Education Fund balance of \$3.2 billion in FY 2010-11. The State will want to carefully monitor the fund balance in light of opportunities for extending maturities in the State Education Fund portfolio and adding new categories of investments. While we are not recommending any statutory changes at this time, depending on the size and stability of the State Education Fund, the Legislature may want to consider broadening the types of investments currently allowable. (See the *Office of the State Auditor Report* entitled "*Performance Audit of the Colorado Department of Treasury's Investment Program-October 1999*" for additional information.)

5) **Controls over the Financial Condition of the Fund:** Because of the complexity of the basic model and the critical nature of spending decisions, we recommend that the General Assembly require at least a biennial evaluation and updating of the model and related projections. Projections developed in this report should be compared to actual data, assumptions revisited, and the model revised as appropriate. We are concerned that small changes in certain components (such as inflation and funded pupil count) can significantly impact the State Education Fund balance, and therefore the options available to the State.

B. THE MODEL

To evaluate the impact of various funding and spending decisions on the balance of the newly created State Education Fund, the model takes into account:

- TRADITIONAL AND NEW SOURCES OF FUNDING: includes General Fund appropriations and cash funds for Total Program and Categorical Programs, local share contributions, and State Education Fund tax revenues.

AND

- EDUCATIONAL SPENDING FOR BOTH REQUIRED AND NEW PROJECTS: outlines and forecasts the required Total Program spending (i.e., estimating the average per pupil funding and forecasting pupil count), spending on Categorical Programs, plus any Legislative decisions to spend additional monies on new programs or projects.

The components that are critical to evaluating the implications of Amendment 23 are identified below. The explanation and reasoning for each component is described in Section D: Discussion of Model Components.

Sources of funding which have traditionally determined the level of funds available for school districts include:

- General Fund Appropriations for Total Program Costs
- General Fund Appropriations for Categorical Programs
- Cash Funds
- Local Share

Spending for education requires forecasting the following:

- Funded Pupil Count
- Average Per Pupil Funding
- Statutory Adjustment for "J" Curve
- Consumer Price Index (inflation)
- Level of Commitment to Categorical Programs
- Additional Education Spending

Projecting additional revenue from Amendment 23 and determining the State Education Fund balance given the withdrawals to cover any shortfalls requires the following factors:

- Taxable Income
- Rate of Return

In addition to the funding and spending components, the balance of the State Education Fund also depends upon the procedures utilized for the following:

- Timing of the deposits into the State Education Fund
- Timing of withdrawals from the State Education Fund

Finally, since the State will be legally obligated to cover any "shortfalls" should the State Education Fund balance be depleted (become insolvent), our model further identifies the additional monies and the percentage increase in General Fund appropriations that would be necessary (given spending decisions which result in this outcome).

The balance in the newly created State Education Fund depends primarily upon the Legislature's decisions regarding General Fund appropriations for Total Program and Categorical Programs plus the forecast of certain economic indicators. To demonstrate the impact of Amendment 23, Pacey Economics Group forwards five basic models which incorporate different General Fund appropriation levels and/or different economic assumptions as identified below. These initial five models assume no additional education spending beyond the requirements outlined in Amendment 23. Once the outcomes from these models are discussed, we then analyze the balance of the State Education Fund given additional education spending decisions.

- The first model assumes the Legislature provides increases in General Fund appropriations for Total Program at 6% per year with no increases in General Fund appropriations to Categorical Programs and also incorporates what Pacey Economics Group considers to be the baseline economic indicators. The baseline economic indicators for the first 5 years are in the range of indicators developed by *Legislative Council Staff* and *Office of State Planning and Budgeting (OSP)* and are also consistent with other government and private agency forecasts. All of these agencies, recognizing that the 1990s were an exceptionally high growth period for the Colorado economy, forecast slower economic activity for the State over the next 5 years. (In this report, our first model is referred to as the "6% Funding Model".)
- The second model continues to assume the Legislature will increase General Fund appropriations for Total Program at 6% per year with no increases in General Fund appropriations to Categorical Programs, but incorporates less optimistic expectations than the baseline economic indicators by assuming at least an additional 10% slower growth in all of the key economic components over the next five years triggering what

would generally be considered a substantial economic downturn. (This model is referred to in our report as the "6% Funding Model - Slowdown".)

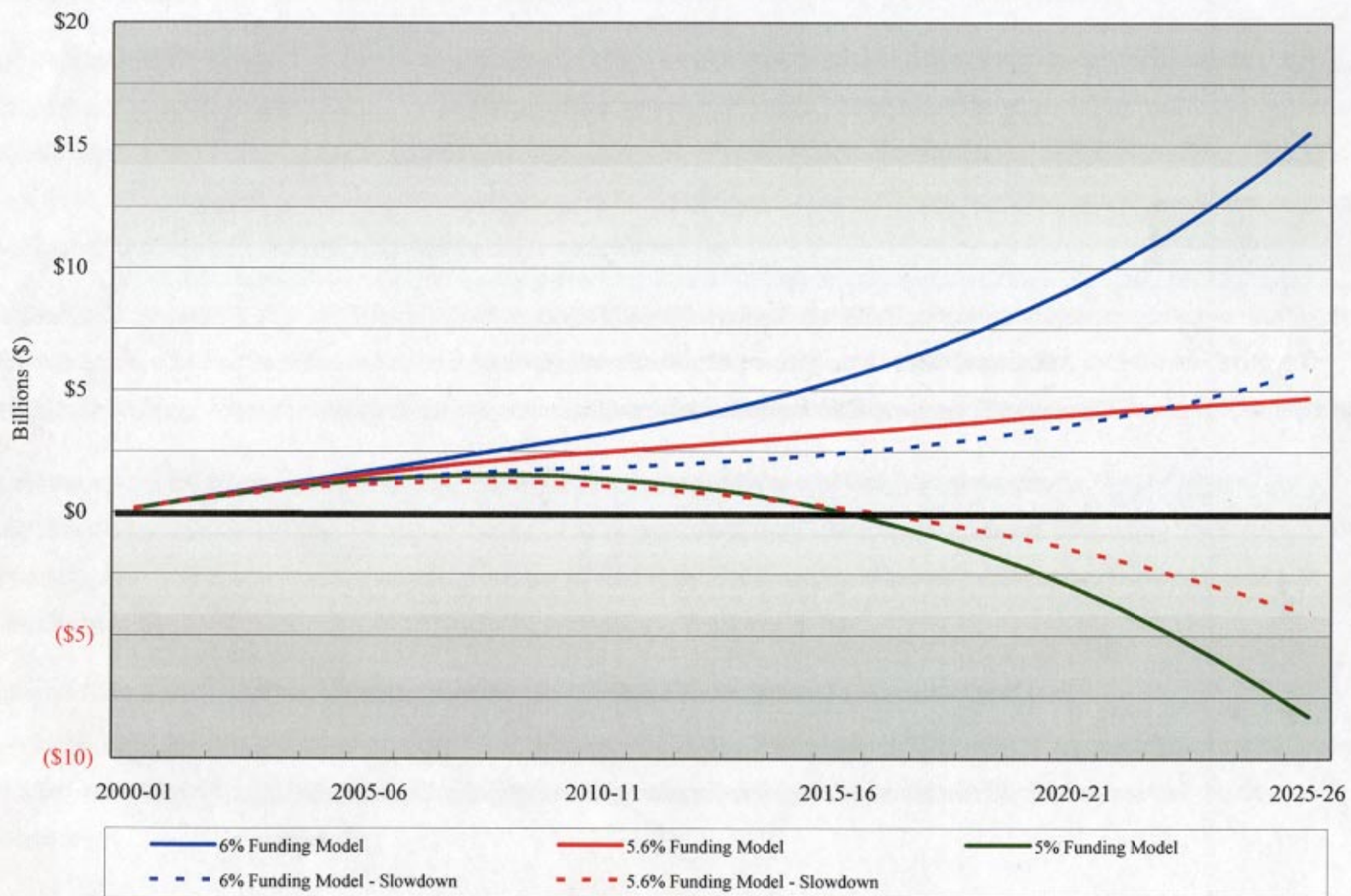
- The third model incorporates 5.6% per year increases in General Fund appropriations for Total Program with no increases in General Fund appropriations for Categorical Programs and incorporates the baseline economic indicators. (Referred to as the 5.6% Funding Model).
- Our fourth model continues to assume 5.6% per year increases in General Fund appropriations for Total Program with no increases in General Fund appropriations for Categorical Programs but incorporates the less optimistic expectations than the baseline economic indicators. (Referred to as the 5.6% Funding Model – Slowdown.)
- The fifth model demonstrates the impact on the State Education Fund balance if the Legislature increases General Fund appropriations for Total Program at 5% per year and no increases in General Fund appropriations for Categorical Programs and incorporates the baseline economic indicators. (Referred to as the "5% Funding Model".) Because the State Education Fund balance is depleted by FY 2016-17, an economic slowdown model is not considered.

The economic assumptions considered in each of the models are identified on Table B-I (on the page after the chart). (As noted earlier, the explanation and reasoning for each component is discussed in detail in Section D: Discussion of Model Components.)

Chart B-I illustrates the outcomes on the State Education Fund balance from the various legislative decisions regarding funding levels in combination with the specific economic scenarios. The chart clearly demonstrates:

- If the Legislature commits to increases of 6% per year for General Fund appropriations for Total Program without any increases in the General Fund appropriations for Categorical Programs, there will be an opportunity for additional spending out of the State Education Fund balance even with an economic slowdown. With 5.6% increases in General Fund appropriations for Total Program, limited opportunities for additional spending are available, although not with an economic slowdown.
 - Although Chart B-I suggests the State Education Fund balance becomes increasingly more healthy over time, caution must be exercised as the forecast is subject to more uncertainty and variability (in the components) in the out years as described in Section E: Sensitivity Analysis of Economic Components.
- If the Legislature provides 5% per year increases for General Fund appropriations for Total Program (as required by Amendment 23 for the first 10 years) or even 5.6% per year increases in funding level but with the slowdown in the economic components, the State Education Fund balance will not be sustainable and both will become insolvent in FY 2016-17. An insolvent fund means that:
 1. No additional programs can be funded from the State Education Fund; and
 2. Additional support from the General Fund will be required with as much as an additional 10% increase in General Fund appropriations for educational spending commencing in the year that the fund is depleted.

CHART B-I
State Education Fund Balance
General Fund Appropriation Levels



**TABLE B-I
ECONOMIC ASSUMPTIONS UTILIZED IN THE FIVE MODELS**

Component	6% Funding Model	6% Funding Model-Slowdown	5.6% Funding Model	5.6% Funding Model-Slowdown	5% Funding Model
General Fund Appropriations for Total Program	increases at 6% per year	increases at 6% per year	increases at 5.6% per yr	increases at 5.6% per yr	increases at 5% per year
General Fund Appropriations For Categorical Programs	no increase from 2000-01 level	same	same	same	same
Cash Funds Available for Total Program ¹	\$66.8 million in 1 st year decreasing to \$57.3 million thereafter	same	same	same	same
Local Share Assessment Yr	95% } of TABOR max	[95% 90 % of {	95% } of TABOR max	[95% 90 % of {	95% } of TABOR max
Nonassessment Yr	55%]	[55%	55%]	[55%	55%]
Taxable Income ²	85% (CPI, productivity and population growth)	decrease in 1 st 5 years	same as 6% Funding Model	same as 6% Funding Model- Slowdown	same as 6% Funding Model
Years 1 – 5	range: 6.5% to 7.8%	ranges from 4.9% to 6.0%			
Years 6 – 25	range: 6.4% to 6.9%	same			
Inflation ²		10% increase (range: 3.2% to 4.0%)	same as 6% Funding Model	same as 6% Funding Model- Slowdown	same as 6% Funding Model
Years 1 – 5	range: 2.9% to 3.7%				
Years 6 – 10	3.2% increasing to 3.6%	same			
Years 11 – 25	3.6%	same			
Pupil Count Growth					
Years 1 – 10	range: 0.9% to 1.8%	same	same	same	same
Years 11 – 25	range: 1.1% to 1.7%	same	same	same	same
Rate of Return	6.75%	same	same	same	same

¹ Decrease for FY 2002-03 forward based on information from the *Colorado Department of Education*.

² See Section D: Discussion of Model Components for full explanation of taxable income and inflation (CPI) and also see Appendix for specific year to year delineation of forecasts of taxable income and CPI.

Table B-II compares the differences in the State Education Fund balances across the models for selected years.

TABLE B-II STATE EDUCATION FUND BALANCES <i>[in billions]</i>					
Forecast Period	6% Funding Model	6% Funding Model- Slowdown	5.6% Funding Model	5.6% Funding Model- Slowdown	5% Funding Model
5 years	\$1.7	\$1.3	\$1.6	\$1.2	\$1.3
10 years	\$3.2	\$1.8	\$2.5	\$1.1	\$1.4
15 years	\$5.4	\$2.4	\$3.2	\$0.2	\$0.0
20 years	\$9.2	\$3.6	\$4.0	<\$1.5>	<\$3.0>
25 years	\$15.5	\$5.8	\$4.7	<\$4.1>	<\$8.3>

Table B-II demonstrates that the difference in the State Education Fund balance in the five models increases over time. Naturally, with additional spending beyond that required by Amendment 23, the State Education Fund would experience additional decreases in the fund balance. It is also apparent that the 5% Funding Model, even without the economic slowdown, may result in fund balances moving into the negative 15 to 20 years into the future, therefore, we focused our modeling efforts on the 5.6% and 6% Funding models. In the next section, we show the effect of spending under the 5.6% and 6% scenarios.

C. EDUCATION SPENDING DECISIONS

If the Legislature continues to increase General Fund appropriations for Total Program at 6% and/or 5.6% and maintains General Fund appropriations for Categorical Programs at the FY 2000-01 level, the State Education Fund would have positive balances sufficient to fund additional programs. We have identified three different projects and/or expenditure patterns that have been discussed as potential policy options:

- Funding the requirements of Senate Bill 00-181 (*Giardino v. State Board of Education*);
- Spending \$100 million per year with inflation increases on programs that are not based on student population;
and
- Spending on an enrollment driven program using statewide, full-time kindergarten as an example.

These programs are representative of issues associated with the timing of expenditures, how such expenditures are likely to increase over time, and their impact on the State Education Fund balance. [It should be noted that while we identify several specific programs, we are not making recommendations as to whether or not they should be implemented.]

Funding the requirements of Senate Bill 00-181 (*Giardino v. State Board of Education*)

Senate Bill 00-181 was passed due to the settlement of the *Giardino v. State Board of Education*. The bill requires the State to provide \$190.0 million over the FY 2000-01 to 2010-11 time frame. This money was to be split, per the terms of the settlement, between the School Capital Construction Expenditure Reserve and the School Construction and Renovation Fund. In FY 2000-01, \$5 million was transferred to the School Capital Construction Expenditure Reserve per the settlement, with \$10 million and \$15 million in the next two fiscal years and \$20 million for the remaining eight fiscal years.

This scenario shows how a relatively small amount of education spending will affect the balance of the State Education Fund. As noted on Chart C-I and Table C-I on the following pages:

- Because the costs of this settlement are relatively small and of short duration, using State Education Fund monies to fund such matters as the *Giardino* settlement will have a nominal impact on the fund balance over the long-term. By the 10th year (FY 2010-11), the difference in the State Education Fund balance would be approximately \$263 million. (See Table C-I).
- Although only the 6% Funding Model and the 5.6% Funding Model are illustrated on Chart C-I, the implications are similar for all five basic models.

CHART C-1
State Education Fund Balance
General Fund Appropriation Levels
With Giardino Settlement

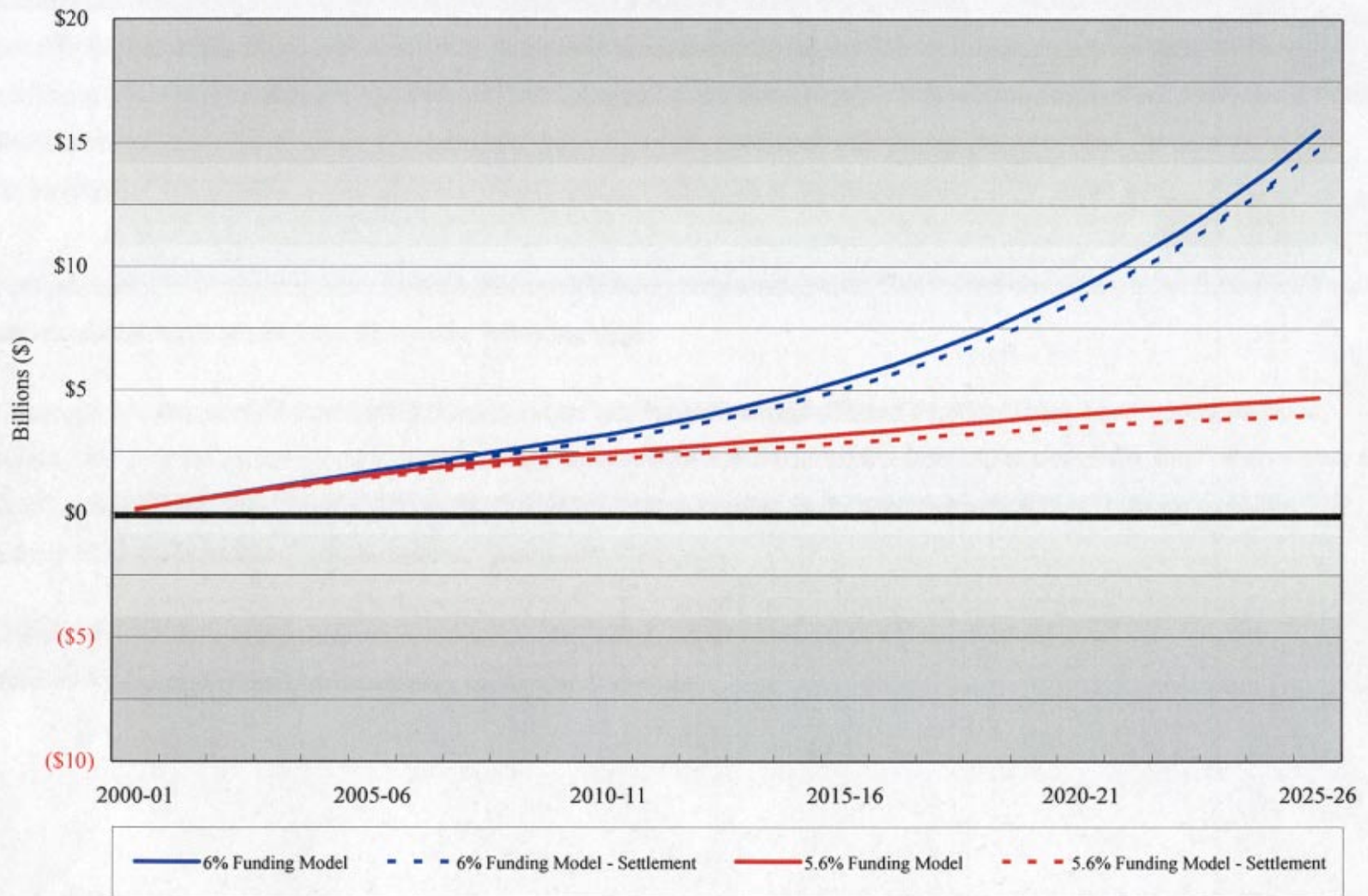


TABLE C-I STATE EDUCATION FUND BALANCES <i>[WITHOUT AND WITH GIARDINO SETTLEMENT]</i> <i>(in billions)</i>				
Forecast Period	6% Funding Model	6% Funding Model-With Settlement	5.6% Funding Model	5.6% Funding Model With Settlement
5 years	\$1.7	\$1.6	\$1.6	\$1.5
10 years	\$3.2	\$3.0	\$2.5	\$2.2
15 years	\$5.4	\$5.1	\$3.2	\$2.9
20 years	\$9.2	\$8.7	\$4.0	\$3.5
25 years	\$15.5	\$14.8	\$4.7	\$4.0

\$100 million per year of expenditures (non-enrollment driven program)

The next scenario considers the use of the State Education Fund to pay for a substantial, but non-enrollment related, program on an ongoing basis. We used \$100 million to demonstrate the impact on the fund balance.

- The \$100 million of spending under this scenario includes annual inflationary increases (but again as noted above, assumes the monies are provided for programs that are not driven by student population).
- This scenario should be considered when analyzing any expenditure that might require inflation adjustments such as equipment, computers, safety expenses, teacher performance incentives, etc.

From Chart C-II and Table C-II we find:

- The State Education Fund would be able to support additional expenditures of \$100 million per year (with inflationary increases) if the Legislature is willing to commit to 6% per year increases in General Fund appropriations for Total Program and no increases in General Fund appropriations for Categorical Programs.¹
- The 5.6% Funding Model cannot sustain additional yearly expenditures at the \$100 million per year (with inflationary increases) over the long-term and would become insolvent by FY 2016-17.

¹ Other levels of General Fund appropriation increases (such as 5.9% or 5.8%, etc.) may also support this level of spending.

TABLE C-II STATE EDUCATION FUND BALANCES <i>[WITHOUT AND WITH \$100 MILLION PER YEAR EXPENDITURE (PLUS INFLATION)]</i> <i>(in billions)</i>				
Forecast Period	6% Funding Model	6% Funding Model- With \$100 million	5.6% Funding Model	5.6% Funding Model With \$100 million
5 years	\$1.7	\$1.1	\$1.6	\$0.9
10 years	\$3.2	\$1.6	\$2.5	\$0.8
15 years	\$5.4	\$2.2	\$3.2	\$0.0
20 years	\$9.2	\$3.7	\$4.0	<\$1.4>
25 years	\$15.5	\$6.6	\$4.7	<\$3.4>

Enrollment Driven Spending Decisions (e.g. Full-Time Kindergarten)

The third spending scenario considers a program which is not only ongoing but also has enrollment driven costs. Because of the expressed interest in a full-time kindergarten program, we consider the implications on the State Education Fund balance if this program was implemented on a statewide basis.

- This proposal would provide funding for a full day of kindergarten instead of only one-half day and thus, kindergarten students would count as one full-time equivalent (FTE) instead of 0.5 FTE.
- This scenario was chosen because the expense associated with it will increase not only by inflation plus one percent in the first 10 years and inflation thereafter but also by increases in the number of students.
- Information from the *Department of Education* indicates that full-time kindergarten would add approximately 23,000 FTE to the funded pupil count which would then increase by the growth rate already incorporated for funded pupil count.
- Therefore, we estimate that full-time kindergarten would add approximately \$125 million to Total Program in the first year.

For purposes of this discussion, it has been assumed that local share funding will not change if full-time kindergarten is implemented but rather the State would pay for the entire increase.

From Chart C-III and Table C-III we find:

- Under the 6% Funding Model, the State Education Fund could support full-time kindergarten but with limited margins in the fund balance.
- Under the 5.6% Funding Model, the State Education Fund would not be able to fully pay for the shortfall in Total Program and Categorical Programs spending, plus full-time kindergarten.
- In the other models forwarded, the impact of funding full-time kindergarten (or another program with similar expenditure levels and tied to number of students enrolled) on the State Education Fund will, over time, become increasingly more financially demanding and ultimately result in a "negative" State Education Fund balance.

CHART C-III
State Education Fund Balance
General Fund Appropriation Levels
With Full Time Kindergarten (FTK)

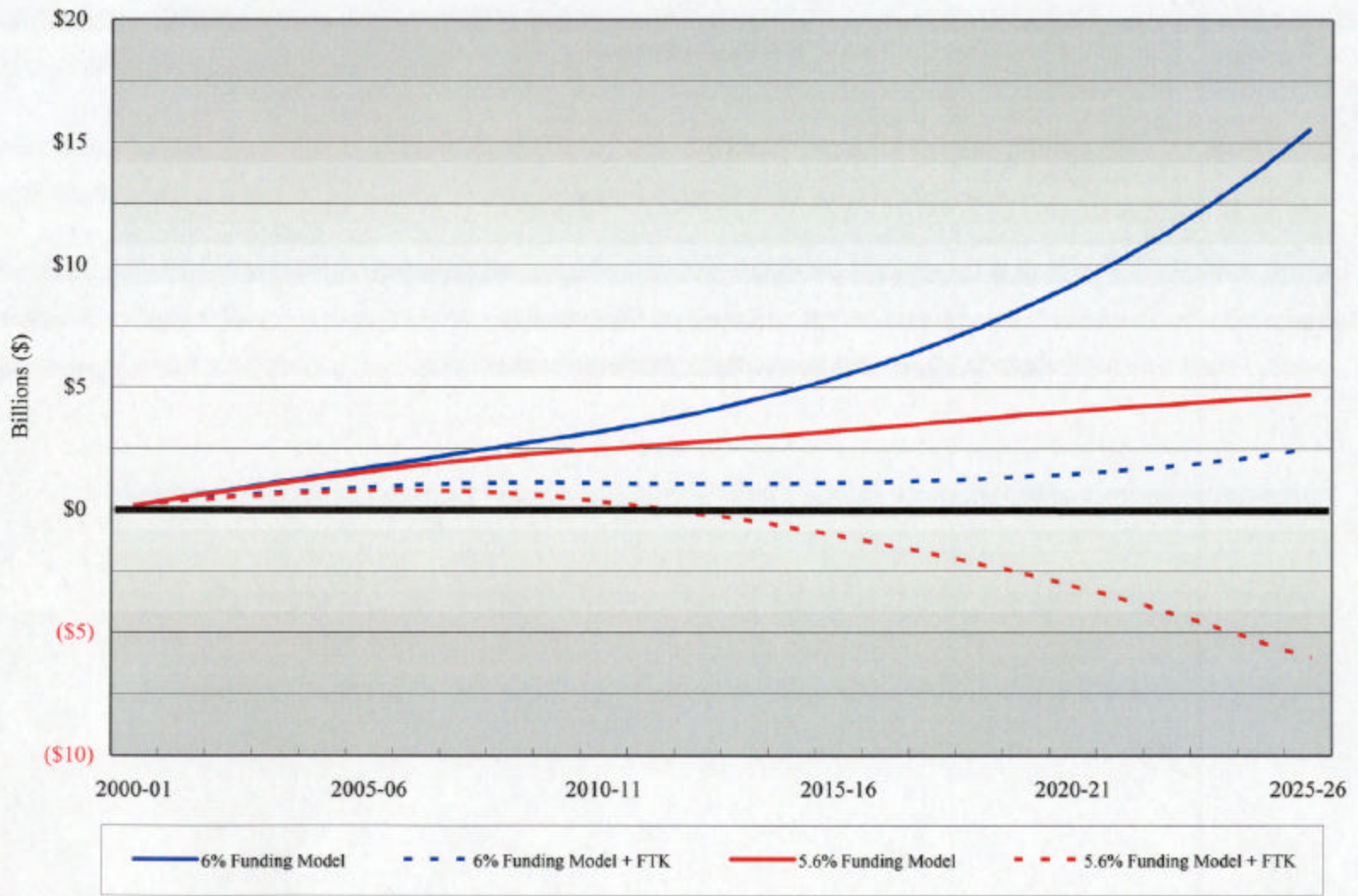


TABLE C-III STATE EDUCATION FUND BALANCES <i>[WITHOUT AND WITH FULL-TIME KINDERGARTEN]</i> <i>(in billions)</i>				
Forecast Period	6% Funding Model	6% Funding Model- With FTK	5.6% Funding Model	5.6% Funding Model- With FTK
5 years	\$1.7	\$0.9	\$1.6	\$0.8
10 years	\$3.2	\$1.1	\$2.5	\$0.3
15 years	\$5.4	\$1.1	\$3.2	<\$1.1>
20 years	\$9.2	\$1.4	\$4.0	<\$3.1>
25 years	\$15.5	\$2.5	\$4.7	<\$6.0>

D. DISCUSSION OF MODEL COMPONENTS

TRADITIONAL SOURCES OF FUNDING

General Fund Appropriations for Total Program Funding

The vast majority of the State's share of public school funding comes from General Fund appropriations for Total Program costs. Amendment 23 requires a minimum increase in the appropriation from the General Fund of 5% per year (for the first 10 years) with the notable exception that this requirement shall not apply in any fiscal year in which Colorado personal income grows less than 4.5% between the two previous calendar years. Table D-I shows the increases in General Fund appropriation since the passage of the Public School Finance Act of 1994.

TABLE D-I		
Fiscal Year	General Fund Appropriations for Total Program Funding	Percentage Increase
1994-95	\$1,393,562,842	
1995-96	\$1,469,655,920	5.46%
1996-97	\$1,594,123,930	8.47%
1997-98	\$1,689,946,178	6.01%
1998-99	\$1,776,015,806	5.09%
1999-00	\$1,887,449,285	6.27%
2000-01	\$1,982,638,862	5.04%
Source: <i>Joint Budget Committee Staff.</i>		

Per *The Joint Budget Committee Staff*, the General Fund appropriation for the State's share of districts' Total Program funding for the FY 2000-01 is currently \$1,982,638,862. [We are aware that there may be an issue regarding our inclusion of the \$3 million appropriation through the separate line item, "Additional State Aid Related to Locally Negotiated Business Incentive Agreements". If it is determined this \$3 million should not be included in the base for General Fund appropriations, the fund balance in all models would be slightly lower than identified in this report.]

The model has the flexibility to consider a constant rate of increase over the entire time frame or provide a different rate of increase for even and odd years. This flexibility was incorporated to reflect the possibility of changes in General Fund appropriations in response to varying levels of local funding resulting from the assessment cycle and/or availability of other cash funds. [Also, the model recognizes that the State's General Fund appropriations will not exceed the requirements of education spending. That is, if the model projects that total funding is greater than total education spending, the surplus funds will not be deposited into the State Education Fund, but rather will result in a decrease in contributions from the State's General Fund appropriations. However, none of the forecasts identified in this report anticipate any such surpluses.]

General Fund Appropriations for Categorical Programs

In addition to the appropriation for districts' Total Program funding, the State also provides funding for Categorical Programs. These are programs designed to serve particular groups of students or particular student needs and include education of children with disabilities, public school transportation, gifted and talented programs, and the English language proficiency program, among others. Table D-II lists the FY 2000-01 appropriations of State funds for programs considered to be within the Amendment 23 definition of Categorical Programs.

TABLE D-II	
Appropriations of State Funds for Categorical Programs, FY 2000-01	
(in millions)	
Special education - children with disabilities	\$71.5
Public school transportation	\$36.9
Colorado Vocational Act distributions [currently appropriated to the Department of Higher Education]	\$17.8
Special education – gifted and talented children	\$5.5
Expelled and at-risk student services grant program	\$5.3
English language proficiency program	\$3.1
Small attendance center aid	\$0.8
Grant program for in-school or in-home suspension programs	\$0.5
Comprehensive health education	\$0.6
Total (numbers do not add due to rounding)	\$142.1
<i>Source: Joint Budget Committee Staff.</i>	

The Amendment does not specifically require General Fund appropriations for Categorical Programs to increase above the FY 2000-01 level nor does it identify the specific programs under the Categorical Program definition. Yet the Amendment does require that total State spending on Categorical Programs increase annually by inflation plus one percent for the next ten years and by inflation thereafter. In the past, appropriations of State funds for Categorical Programs have experienced some year to year variations although on average they have increased at a rate somewhat below the Denver-Boulder inflation rate. The model allows three alternatives for General Fund appropriations for Categorical Programs:

- Remain at FY 2000-01 level
- Increase with Denver-Boulder inflation rate (but not the additional one percent above inflation)
- Cover the entire required increases for Categorical Programs

Cash and Cash Exempt Funds

It is understood that cash and cash exempt funds provide an additional source of monies for the State share of districts' Total Program funding. These are separate funds which have been created in the past under specific circumstances and include revenues generated from mineral leases, interest earned on the principal in the Permanent School Fund from the sale of public school lands, etc. Historically, money from these sources has been used to supplement the years when the local share does not increase as rapidly due to the assessment cycle.

Since FY 1994-95, the annual appropriations for the State share of districts' Total Program funding from the cash and cash exempt funds ranges quite significantly, from a low of approximately \$34 million in FY 1994-95 to a high of \$74.8 million in 1998-99. Approximately \$20 million is derived from interest earned on the Permanent School Fund and is fairly predictable with relatively small increases over time. Documents show that between 1995 and 1998, the *Department of the Treasury* book yield was 6.92% per year (per the *Office of the State Auditor's* 1999 Audit Report prepared by Callan Associates), an above average rate of return from the Permanent School Fund given relevant market indices (see discussion under rate of return). Since this audit, similar rates have continued to be earned on this fund. Because of its limited contribution to overall funding levels, this component of cash funds will have little impact on the State Education Fund. The second major component of the cash funds is derived from mineral lease payments, which have varied substantially over the years but are currently larger than interest earned from the Permanent School Fund (\$23.2 million in FY 1999-00).

We have relied upon the estimates provided by the *Colorado Department of Education* (October 17, 2000) regarding the amount of cash and cash exempt revenues available for public schools. These amounts are \$73.4 million for FY 2000-01,

decreasing to \$66.8 million for FY 2001-02 and estimates for FY 2002-03 of \$57.3 million are used for the remainder of the 25 year forecast. This constant amount of \$57.3 million was incorporated although more year to year variability is likely given the General Assembly's historical use of these funds. Also, the future availability of these funds is likely to be diminished if the General Assembly decides to protect the value of the *corpus* of the Permanent School Fund by requiring an inflation adjustment to the fund principal, hence, restricting the cash available from interest earnings. If the General Assembly indexes the value of the Permanent School Fund to inflation, the forecast level is likely to decrease by approximately \$10 million in the initial year, but in subsequent years will return to former levels and even increase beyond this point. Our analysis indicates that this decision would not be detrimental in the short-term and over the long-term would actually improve (though minimally) the balance in the State Education Fund.

Local Share

Local share is a key component in the model as it directly impacts the State's share of public school financing, but due to its complex nature it is difficult to forecast, especially on a long-term basis. There are two major sources of local funding: property and specific ownership (vehicle registration) tax revenues with property taxes representing approximately 90% of total local funding. One would anticipate that local share increases would be highly correlated to increases in the State's total assessed property value; however, because of changes in assessment criteria in the 1980s, plus the subsequent passage of Section 20 of Article X of the Colorado Constitution, commonly known as the Taxpayer's Bill of Rights (TABOR), and the Public School Finance Act of 1994, increases in local funding have not necessarily been correlated with increases in assessed property values. The Public School Finance Act of 1994 requires that a district certify a mill levy that results in property tax revenues that do not exceed the district's TABOR property tax limit. Thus, school districts' property tax revenue increases are limited. Therefore, the TABOR maximum becomes a reasonable parameter to estimate future levels of local funding.

For purposes of this analysis, we compared local share funding increases (property taxes and specific ownership taxes) to an estimated TABOR maximum based on CPI increases and statewide enrollment growth. It should be noted that the TABOR limit is calculated for each school district and not on a statewide basis as done for this analysis. However, as a long-term forecast for the TABOR maximum for each school district is not feasible, we consider our analysis to be reasonable proxy for the relationship that defines local share funding increases.

When comparing the historical local share increases to the maximum increase allowable under TABOR as noted on Table D-III, we find that in the assessment years (odd years such as FY 1999-00), the local share increases were, as expected, at or near

the TABOR maximum. The only exception to the pattern of local share increasing at the TABOR maximum in the assessment years is FY 1995-96, when the local share increase was significantly lower than the TABOR maximum. After investigating this anomaly, we discovered that there were several legislative decisions in FY 1995-96 that altered the local share increase. Therefore, we have concluded that absent any significant changes in current law, or a major or extended recession in the economy, local share increases should increase at or near 100% of the estimated TABOR maximum in the assessment (odd) years. The model incorporates a somewhat more conservative measure by increasing these revenues at 95% of the estimated TABOR maximum for assessment years.

During the non-assessment (even) years (FY 1996-97, 1998-99 and 2000-01), the local share increase was, again as expected, less than the TABOR maximum. Since properties are not reassessed in the even years, only new construction is incorporated in increases in the district's assessed values. Given that the recent historical data does not indicate any consistent percent relationship, as local revenues varied from 50% to 80% of the TABOR maximum, our model incorporates 55% of the estimated TABOR maximum for local share increases in the future non-assessment years. In light of the very healthy growth and expansion of new construction throughout the 1990s, it is our view that the non-assessment year increases may slow in the future and the lower level of the historical range is more appropriate. Moreover, the sensitivity analysis provides a fuller appreciation of the impact of variations in local share contributions on the State Education Fund balance and is discussed in more detail in Section E of this report.

TABLE D-III		
Fiscal Year	Local Share Funding Increases (over prior year)	Estimated Statewide TABOR Maximum
1995-96	3.81%	6.90%
1996-97	3.73%	6.92%
1997-98	5.71%	5.56%
1998-99	3.27%	5.32%
1999-00	4.11%	4.03%
2000-01	4.16%	4.65%

Legislative Council Staff has a 5 year forecast for local share based on projections from enrollment, assessed values, and specific ownership taxes. Our model does not specifically identify the increases on specific ownership and property taxes. If specific ownership taxes, which are not limited, increase faster than property taxes, whose growth is specifically limited by TABOR and the Public School Finance Act of 1994, local share funding may increase slightly faster than incorporated in the model. Although Pacey Economics Group employs a different methodology, our forecast is consistent with, although slightly lower than, the 5 year projections by *Legislative Council Staff*. Hence, utilizing our forecast provides a more conservative approach.

EDUCATION SPENDING

Funded Pupil Count

Forecasting Total Program Funding costs, which is the product of funded pupil count times the average per pupil funding, is critical in evaluating the potential yearly balances in the State Education Fund. *Legislative Council Staff* forecasts full-time equivalent enrollment (FTE) which then requires conversion to funded pupil count figures. (In the past, funded pupil count is typically somewhat higher than FTE because the averaging of funded pupil counts over a previous three year period for school districts with declining enrollments is allowed.) When the historical funded pupil counts were analyzed with the historical data for school age children (age 6 to 17) from the demography section of the *Colorado Department of Local Affairs*, the correlation between these two sets of data was exceptionally high. Thus, to forecast funded pupil count, Pacey Economics Group performed a regression model utilizing historical funded pupil count data from the *Colorado Department of Education* in combination with historical and forecast demography data of school age children (ages 6 to 17) from the *Colorado Department of Local Affairs*. This regression analysis provided funded pupil counts and percentage changes in funded pupil counts for the future years. Our estimates of funded pupil count growth rates are consistent with *Legislative Council Staff's* 5 year forecast of this component. Consequently, our model incorporates *Legislative Council Staff's* forecasts through FY 2005-06 and the Pacey Economics Group forecast for the rate of change in funded pupil count for the remainder of the 25 year forecast period.

Average Per Pupil Funding

Amendment 23 requires that the base per pupil funding increase by at least inflation plus one percent for the first ten years and by at least inflation thereafter. The Legislature controls both the level of base per pupil funding and also any additional adjustments to the base for district size, cost of living factor, at-risk student factor, etc. Once these adjustments are made, the Total Program is determined by multiplying each school district's adjusted per pupil funding by their funded pupil count. Thus, for modeling purposes an average per pupil funding figure is utilized to capture these adjustments. A detailed district by district analysis was performed to confirm that, with minor variations, a percentage increase in the base per pupil funding will result in a corresponding increase to the average per pupil funding. (However, due to changes in policy over time especially as it relates to changes in the at-risk rate, district size factors, etc. a simple comparison will not always reveal this relationship.)

Per information from the *Colorado Department of Education*, the estimated average per pupil funding for the FY 2000-01 is \$5,167.92. For future years, this figure is increased by the requirement in Amendment 23, i.e. inflation plus one percent for the first ten years and inflation thereafter, but with the flexibility to increase at an additional rate, if so desired.

Adjustment for "J" Curve

Per pupil funding is adjusted for a "Size Factor" which is an adjustment to compensate districts for cost pressures that are beyond their control, specifically the differences in per pupil costs attributable to economies of scale. In the past, this size factor increased the per pupil funding for all school districts, but the smaller and larger school districts received a larger increase than the medium-size school districts. This size adjustment became commonly known as the "J" curve because of the shape the curve produced when the size factor was graphed by pupil count.

House Bill 00-1159 phases out the "J" curve over three years so that medium-sized and large districts all have the same size factor. (The graph then resembles an "L".) Over the three year period, the size factor for the medium-sized districts is raised to the level of the larger school districts. To accomplish this phase-out, the minimum size factor was increased for two years and then in the third year the formula will be restructured. In FY 1999-00, the minimum size factor was 1.012. In FY 2000-01, the first year of the phase-out, the minimum size factor increased to 1.0194 and in FY 2001-02 it increases to 1.0268. In FY 2002-03, the formula for the size factor is changed per the House Bill 00-1159.

This change in the structure of the size factor is important because if all other components of the funding formula remain constant, it increases the average per pupil funding. To quantify this change in average per pupil funding, we utilized the FY 2000-01 *Colorado Department of Education* worksheet, which already adjusts for the first part of the phase-out, and recalculated the average per pupil spending integrating the new requirements for the size factor outlined in House Bill 00-1159. Table D-IV outlines the changes in the average per pupil funding when adjusting for the changes in the size factor.

TABLE D-IV PERCENTAGE INCREASE IN AVERAGE PER PUPIL SPENDING WHEN ADJUSTING FOR PHASE-OUT OF "J" CURVE	
Fiscal Years	Percent increase in Average Per Pupil Spending
FY 2000-01 to FY 2001-02	.180%
FY 2001-02 to FY 2002-03	.227%

Therefore, the average per pupil funding increases a total of .408% over the next two years. These increases in the average per pupil funding are incorporated into the model. Consequently, average per pupil funding increases are at a slightly greater rate than inflation plus one percent for the first two years of the model to account for the structural change from a "J" curve to an "L" curve.

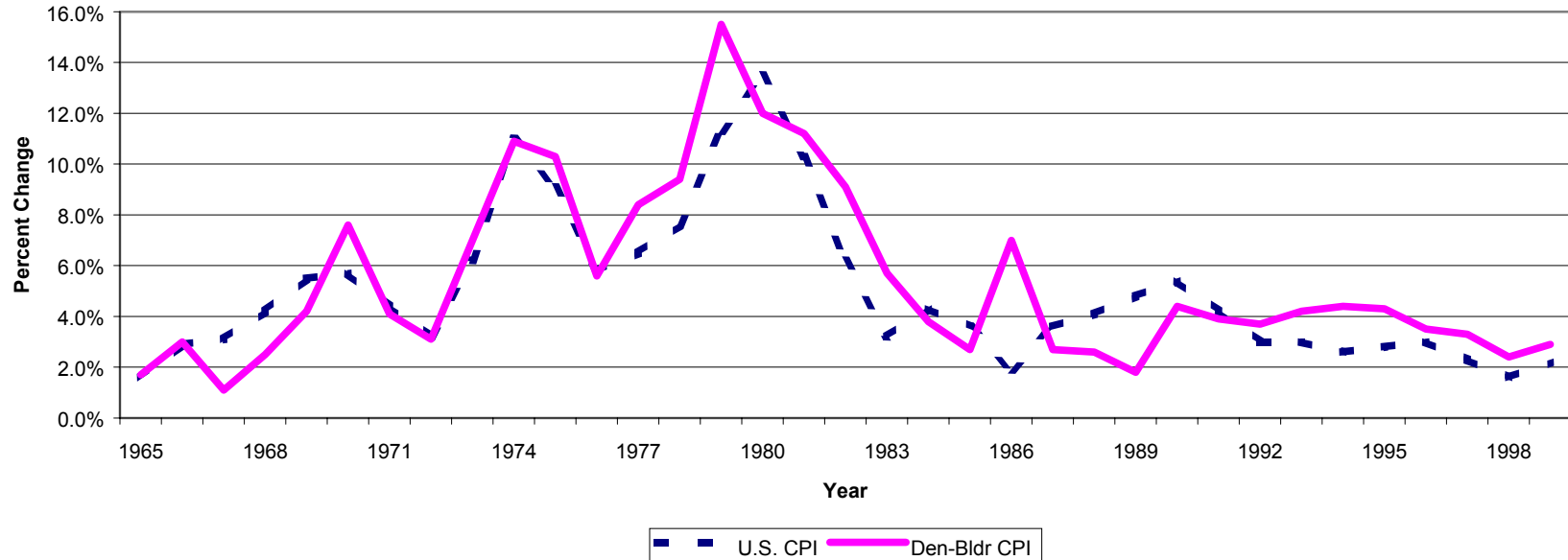
Table D-V summarizes historical as well as the first 5 year forecast data as it relates to funded pupil count, percent change in the funded pupil count, average per pupil spending and total program costs. (Future Total Program costs include the inflation plus 1% criteria while historical reflects actual costs.)

TABLE D-V HISTORICAL AND FORECAST FIGURES OF FUNDED PUPIL COUNT, AVERAGE PER PUPIL SPENDING AND TOTAL PROGRAM				
Year	Funded Pupil Count	Percent Change in FPC	Average Per Pupil Spending	Total Program (in billions)
1994-95	612,489		\$4,332	\$2.7
1995-96	627,797	2.5%	\$4,428	\$2.8
1996-97	644,233	2.6%	\$4,573	\$2.9
1997-98	657,495	2.1%	\$4,707	\$3.1
1998-99	670,782	2.0%	\$4,867	\$3.3
1999-00	681,743	1.6%	\$4,994	\$3.4
2000-01	693,659	1.7%	\$5,168	\$3.6
2001-02	705,767	1.7%	\$5,418	\$3.8
2002-03	717,809	1.7%	\$5,655	\$4.1
2003-04	729,316	1.6%	\$5,875	\$4.3
2004-05	740,914	1.6%	\$6,104	\$4.5
2005-06	752,383	1.5%	\$6,352	\$4.8

Consumer Price Index (CPI)

The Amendment dictates that base per pupil funding and total State funding for Categorical Programs increase by at least inflation plus one percent for ten years and by at least the rate of inflation thereafter. Increases in inflation also affect the levels of taxable income, local share (by affecting property values) and the rate of return (interest earned) on the State Education Fund balance. Therefore, the forecasting of the inflation rate is another key component in the model. The Denver-Boulder CPI is required by Amendment 23 as the CPI measure. For purposes of the model, we have defined the term "inflation" as it was outlined in the legislation implementing TABOR. That is, the applicable inflation rate is the one of the prior calendar year. Reviewing the historical change in inflation between the United States and Denver-Boulder provides a foundation for forecasting the annual percent change in the CPI.

U.S. v. Denver-Boulder CPI



The historical information shows that the Denver-Boulder inflation rate was relatively similar to the U.S. inflation rate until the mid-1980s. After the mid-1980s, the Denver-Boulder CPI has been relatively stable with an annual increase between 2% and 4% per year. This trend appears to continue for the near-term per forecasts obtained from *Legislative Council Staff* and the *Office of State Planning and Budgeting (OSP)* through 2005. Both of these forecasts were issued in December 2000 and, as shown in the following Table D-VI, vary only slightly.

TABLE D-VI						
DENVER-BOULDER CPI FORECASTS				NATIONAL FORECASTS		
Year	Legislative Council Staff	OSPB	Pacey Economics Group	DRI	CBO	Economy.com
2000	3.7%	3.6%	3.65%	3.2%	3.1%	2.9%
2001	3.1%	3.2%	3.15%	2.0%	2.7%	2.3%
2002	2.9%	2.9%	2.9%	1.3%	2.7%	2.5%
2003	3.0%	2.8%	2.9%	1.6%	2.7%	2.3%
2004	3.2%	2.9%	3.05%	2.1%	2.7%	2.2%
2005	3.3%	3.1%	3.2%	2.4%	2.7%	2.3%

The forecasts continue to expect the Denver-Boulder area to experience greater inflation rates than the national economy. The national economy forecasts for the U.S. CPI were obtained from the *Congressional Budget Office (CBO)*, *Data Resources, Inc. (DRI)* and *Economy.com*. Table D-VI identifies the near-term forecasts but these agencies also provide longer term projections of the national CPI. Differences among these forecasts over the long-term are greater with an approximate 2 percentage point difference in the last 10 years of the 25 year forecast period. Based on these forecasts, the historical Denver-Boulder CPI, and discussions with key personnel at *Legislative Council Staff* and *Office of State Planning and Budgeting*, we used a consensus of this information as representation of the short-term forecast while the long term forecast is predicated upon the Denver-Boulder CPI remaining above the national rate. Our inflation rate increases from its presently forecasted 3.2% in 2005 up to 3.6% by 2010 and continues at this rate (3.6%) for the remainder of the forecast period.

Categorical Programs

Amendment 23 requires that State funding for Categorical Programs increase annually by at least the rate of inflation plus one percent for the first ten years and by at least the rate of inflation thereafter. It should be noted that Amendment 23 requires an overall percentage increase but no specific requirements are included for individual programs. As noted earlier in this report, Categorical Programs include education of children with disabilities, public school transportation, gifted and talented programs, English language proficiency program, etc. Information from the *Joint Budget Committee Staff* indicates that for the FY 2000-01 the appropriation from State funds amounted to \$142.1 million. In the models, the spending level is increased at the level required by Amendment 23 but has the flexibility to be increased based on Legislative decisions to add new programs or additional monies.

Additional Education Spending

The models also include a category referred to as "additional education spending" which identifies spending decisions beyond Amendment 23 requirements and which are not specifically tied to a program impacted by increases in funded pupil count. For example, spending an additional amount of money per year, whether it is a non-recurring expense or a recurring expense with a cost of living increase could include decisions to fund settlement monies for Senate Bill 00-181, technology expenses, student safety programs, public school capital construction, performance incentives for teachers, etc. Other potential spending on new programs, which require integrating increases of student population, are accommodated elsewhere within the model rather than under this category.

STATE EDUCATION FUND

Taxable Income

Amendment 23 requires that 1/3 of 1% of taxable income (defined as individual, estate, trust, and corporate income) be deposited into the newly created State Education Fund. This fund can be utilized to pay for the increases in per pupil funding beyond the minimum requirement from the General Fund and contributions from local share. *Legislative Council Staff* and the *Office of State Planning and Budgeting (OSP)* derived a 5 year forecast for deposits into the State Education Fund by utilizing their respective forecasts for personal and corporate tax receipts to determine projections of taxable income for FY 2000-01 through FY 2005-06. Our analysis found a high correlation in the historical relationship of taxable income (using personal income as a proxy for taxable income) to the Denver-Boulder inflation, national productivity, and total population growth for the State of Colorado. (We recognize that employment growth would be the more appropriate measure of taxable income changes than population growth. However, because employment and population growth are highly correlated and we could obtain a long-term forecast of population, we used population increases as a reasonable proxy for employment growth.) Consequently, the method for forecasting taxable income forwarded by Pacey Economics Group utilizes the consensus information from *Legislative Council's Staff* and the *Office of State Planning and Budgeting (OSP)* for the taxable income base for FY 2000-01, and based on the historical relationship, incorporates 85% of the estimated taxable income as defined by the sum of these three forecasted economic indicators (Denver-Boulder inflation, national productivity, and population growth). These taxable income figures are then simply translated to State Education Fund deposits by taking 1/3 of 1%. As

noted on Table D-VII, the near term forecasts derived from our model and translated arithmetically into fund deposits are consistent with the 5 year forecasts forwarded by *Legislative Council Staff* and *Office of State Planning and Budgeting (OSP)*.

TABLE D-VII FORECAST OF EDUCATION FUND DEPOSITS (in millions)			
Fiscal Year	Legislative Council Staff	OSP	Pacey Economics Group
2000-01	\$160.3	\$163.0	\$161.7
2001-02	\$346.6	\$345.4	\$348.5
2002-03	\$377.5	\$369.7	\$375.7
2003-04	\$407.3	\$395.1	\$402.6
2004-05	\$436.0	\$421.0	\$428.5
2005-06	\$465.3	\$447.9	\$456.2

Rate of Return

The rate of return provides the level of interest earnings that any balances in the State Education Fund will likely generate. The actual rate of return on the State Education Fund balance will depend on the timing of the relevant deposit of the monies and the investment strategy followed by the *Department of the Treasury*. As set forth in the Investment Policy, "The Treasury's primary objectives for managing its investment portfolios are legality, safety, liquidity, yield, and the provision of a capital base for statewide economic development." A review of the *Office of the State Auditor's* 1999 Audit Report prepared by Callan Associates found that the *Department of the Treasury* has typically outperformed the relevant market indexes and/or the peer group active managers in similar funds. Obviously, the rate of return on the State Education Fund balance will depend upon the amount of money allocated to various investment vehicles within the fund and also the duration (maturity) of those investments.

Monies received from taxable income are placed in investment vehicles on a daily basis but procedures will need to be established to identify and redistribute the monies to the various investments within the State Education Fund. As changing market conditions will impact returns (yields) available for any investment strategy, the *Department of the Treasury* will not necessarily be able to respond instantaneously to these opportunities. Consequently, the average yield for any asset allocation decision for the State Education Fund balance is not likely to experience much variance, at least in the short-term. The sensitivity analysis (that will be outlined in Section E) will demonstrate little volatility in the State Education Fund balances with small changes in the overall average rate of return. Naturally, larger swings in the average rate of return could be critical and, therefore, it is important to be vigilant in the selection and duration of fund assets.

Pacey Economics Group reviewed various historical and forecast information provided by *Legislative Council Staff, Office of State Planning and Budgeting (OSP)*, *Congressional Budget Office (CBO)*, *Data Resources, Inc. (DRI)* and *Economy.com*, in addition to more recent academic literature on this topic and determined that using an average fixed rate of return rather than incorporating a varying rate of return was a reasonable approach. In our models, we have utilized a 6.75% annual rate of return over the 25 year forecast period. However, to maintain this level of return (6.75 % per year) will require at least some of the fund balances to be invested in longer-term assets. Typically, the longer the duration for an investment the greater the rate of return and consequently, if the General Assembly provides lower levels of General Fund appropriations a lower rate of return may result and/or a build-up of the State Education Fund balance would be necessary before additional spending disbursements could be considered. Alternative rates of return and the potential impact on the State Education Fund balance are identified in the sensitivity analysis of this report.

SPECIAL PROCEDURES

Timing of Deposits to State Education Fund

- Per information from the *Department of the Treasury*, deposits into the State Education Fund occur on a year-round basis.
- These deposits are placed, on a daily basis, initially into a more liquid investment vehicle with somewhat lower interest earnings opportunity. However, once the monies to be allocated to the State Education Fund are identified, the funds are assumed to be transferred into a combination of short, medium and/or long-term financial instruments and interest earnings accrue on a monthly basis at a higher expected average rate of return.
- For purposes of the models, it is anticipated that money accruing into the State Education Fund will occur evenly over the twelve months and will enter into the fund at the end of each month; however, the majority of tax payments are typically collected within the first months of the calendar year.

Timing of Withdrawals from the State Education Fund

- Per information from the *Colorado Department of Education*, it is understood that payments from the State to the school districts occur on a pro-rata monthly basis throughout the year.
- For purposes of the models, the last monies to be spent each fiscal year will be from the State Education Fund.
- Allowing the monies to remain in the State Education Fund for as long as possible, maximizes the interest earnings on the fund monies and provides the State Education Fund more solvency protection over the long-term.
- An exception to this procedure is incorporated when Legislative decisions to fund specific programs or projects out of the State Education Fund (noted as "Additional Education Fund Spending" in the model) require these monies to be withdrawn from this fund at the beginning of the fiscal year (July 1st).
- The model was developed with the flexibility to allow the monies to be withdrawn from the State Education Fund evenly over the year recognizing this procedure will result in lower fund balances.

If State Education Fund Is Depleted

- As has been demonstrated, under various spending decisions, the State Education Fund could be depleted before the end of the 25 year period.
- If the State Education Fund balance became insolvent, the State would be legally obligated to cover any shortfalls with appropriations from the General Fund.
- The model identifies the additional monies and the percent increase needed in General Fund appropriations if spending decisions result in a depletion of the State Education Fund.
- However, in circumstances where the State Education Fund balance is depleted, the model identifies the year to year accumulative losses without payment of the negative balance (to demonstrate the relative impact of funding and spending decisions).

E. SENSITIVITY ANALYSIS OF ECONOMIC COMPONENTS

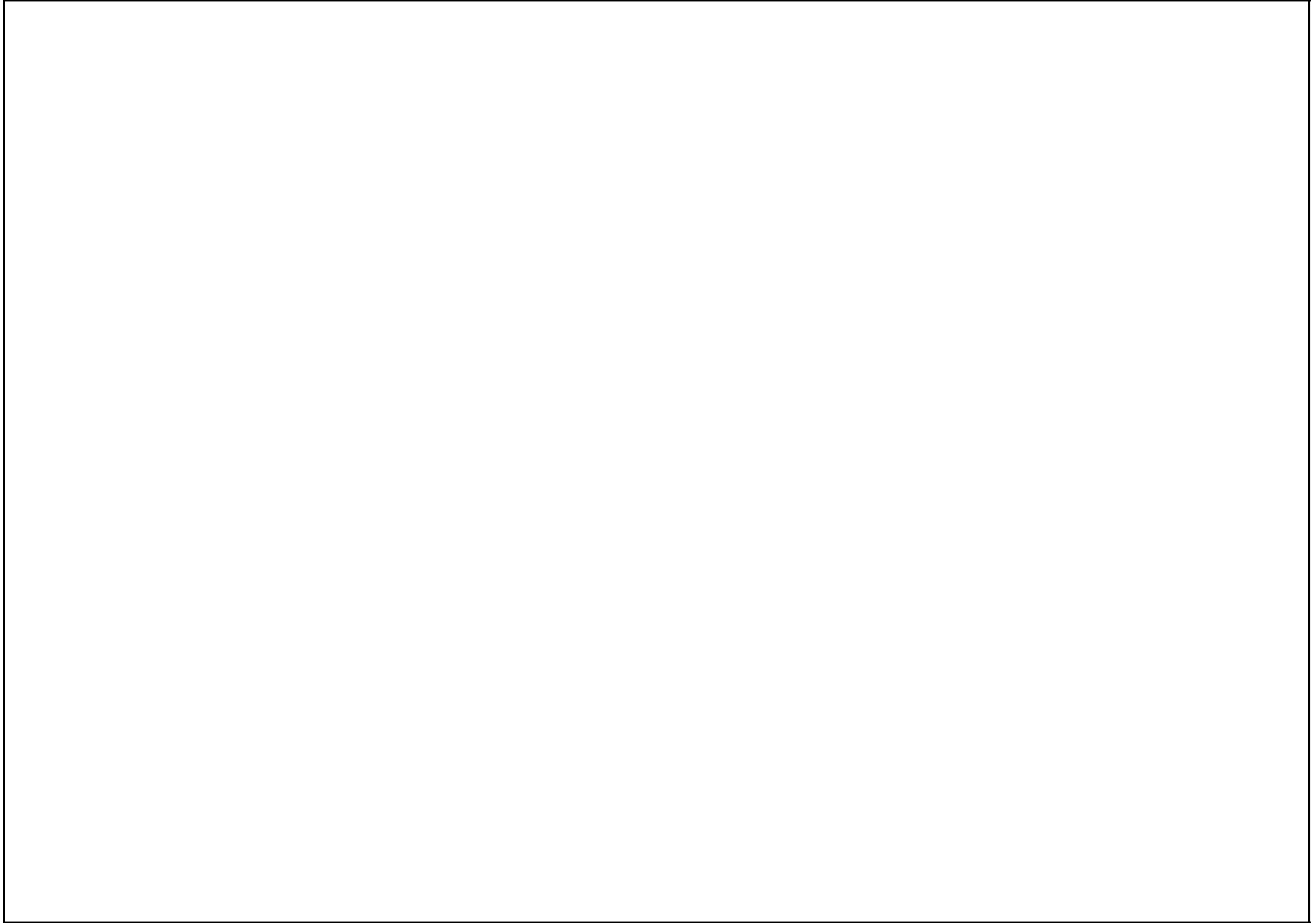
In this section, we review the relative sensitivity of the funding, timing, and economic assumptions. Our goal is to provide the General Assembly with information on which assumptions most significantly impact estimates on the State Education Fund balances. We discuss the sensitivity of the model to changes in specific economic components (when all other components are held constant). We consider the impact of a 10% change in each component of our model and use the 5.6% Funding Model (with no increases in General Fund appropriations for Categorical Programs) for comparative purposes. For example, if General Fund appropriations for Total Program increase by 5.6% per year and inflation increases by 10% (e.g., from 3.65% to 4.02% in FY 2001-02, 3.15% to 3.47% in FY 2002-03, etc.) what would be the impact on the State Education Fund? Changes to each economic component are discussed independently of changes to any other component, although, interactions between several of the components will be discussed later in this section.

We first consider the sensitivity of factors within the General Assembly's control by evaluating a 10% decrease in General Fund appropriations for Total Program in the 5.6% Funding Model (Referred to on Chart E-I as 5.04% Funding Model) and:

- An additional \$100 million per year spending;
- Increase in General Fund appropriations for Categorical Programs to provide inflation plus 1% for the first 10 years and inflation thereafter (Referred to on Chart E-I as Categoricals –All);
- Increase in General Fund appropriations for Categorical Programs to provide inflation (Referred to on Chart E-I as Categoricals-Inflation); and
- Decision to withdraw State Education Fund funds on a monthly (pro-rata) rather than (fiscal) year end basis to pay for shortfalls.

Overall, as shown on Chart E-I of these factors within General Assembly's control:

- The level of the commitment of General Fund appropriations for Total Program plays the most significant role in the determination of the State Education Fund balance;
- Using General Fund appropriations for Categorical Programs, either by fully providing for Amendment 23 requirements (Categoricals - All) or at least inflation (Categoricals – Inflation) will prove to have a very beneficial impact on the State Education Fund balance, especially over the long term;
- Not surprisingly, substantial (\$100 million) ongoing commitments (even if they are not tied to pupil count) will also have a significant impact on the State Education Fund balance and minimum funding requirements for Categorical Programs are also determining factors; and
- Finally, using the State Education Fund over the course of the year (rather than to supplement at year end) will negatively impact the State Education Fund balance as less interest can be accrued on the balance, especially over the long-term.

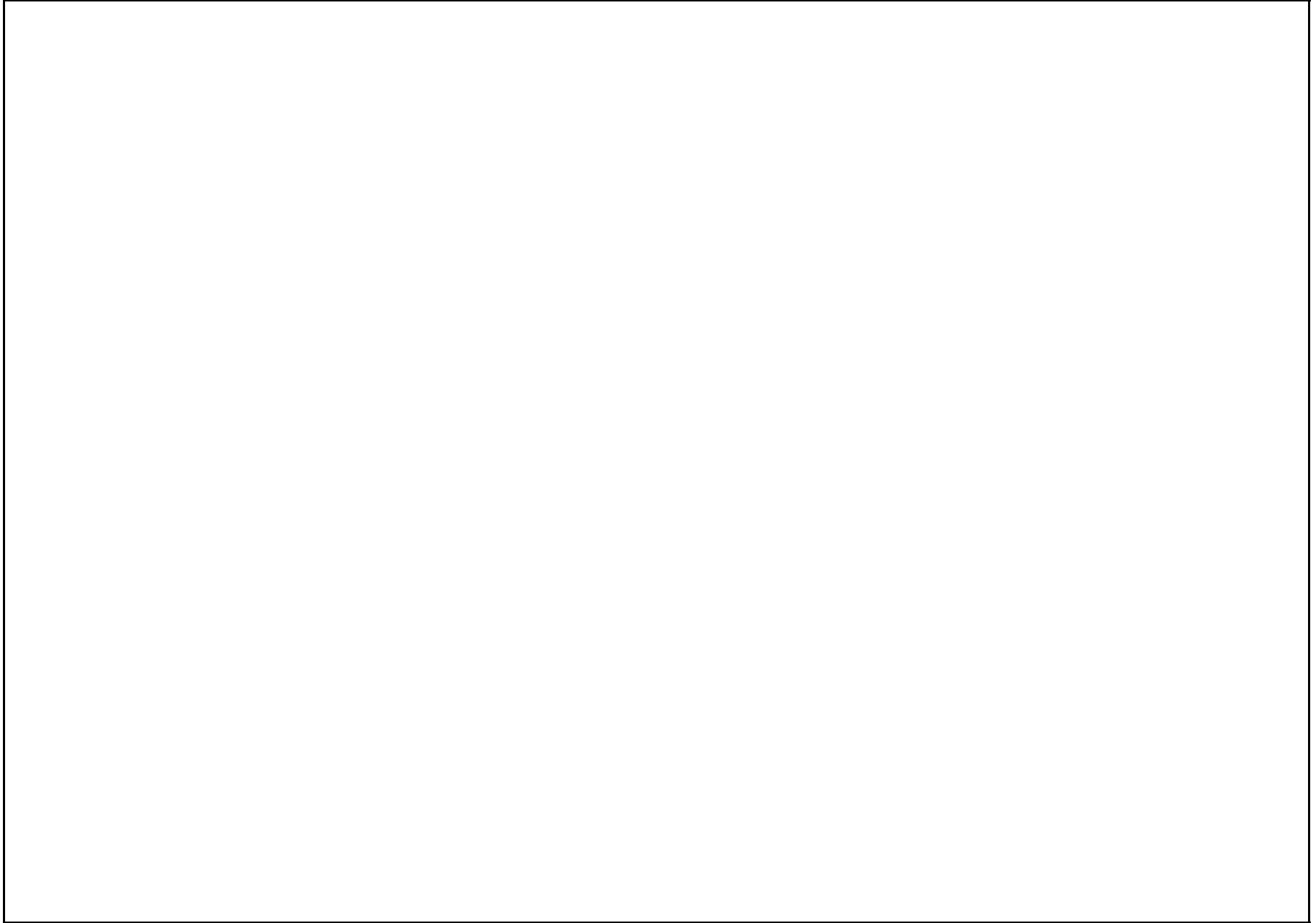


We next consider the key economic indicators which are integrated into our models to evaluate their sensitivity to market conditions. Again using the 5.6% Funding Model as our base, this sensitivity analysis determines the impact on the State Education Fund balance with a 10% change to reflect an economic downturn as noted on Chart E-II.

- Inflation (CPI 10% higher);
- Decreased contributions from Local Share (LS 10% slower);
- Rate of Return on Investment (ROR 10% slower);
- Productivity (Productivity 10% slower);
- Taxable Income which measures tax receipts allowable by Amendment 23 (Taxable Income 10% slower);
- Funded Pupil Count to evaluate the impact of student population growth at rates 10% higher than anticipated (FPC 10% faster);
- State population growth at 10% per year lower than the forecasted (Colorado Population 10% slower)

Overall, we find from Chart E-II:

- Changes in the CPI will have the most dramatic impact on the State Education Fund balance while changes in contributions from Local Share and the level of funded pupils (FPC) will also prove to be important factors estimating the fund balance;
- Slowdowns in productivity and population growth are generally of less concern but a decrease in tax receipts (as measured via taxable income) will have a negative, but not substantial, impact on the State Education Fund balance. However, caution should be taken in any interpretation of these components given the highly dependent relationship among productivity and tax receipts, and Colorado population growth and funded pupil counts; and
- Finally, a 10% change in the rate of return will have little impact on the balance in the short-term and even the long-term; however, although, not shown on Chart E-II, our analysis indicates that if spending was deferred to allow for accrual of monies in the State Education Fund balance, the rate of return will become a relatively more significant factor.



Consumer Price Index (CPI)

The economic component that could have the largest impact in the State Education Fund balance is the consumer price index.

The consumer price index directly impacts several components in the model including:

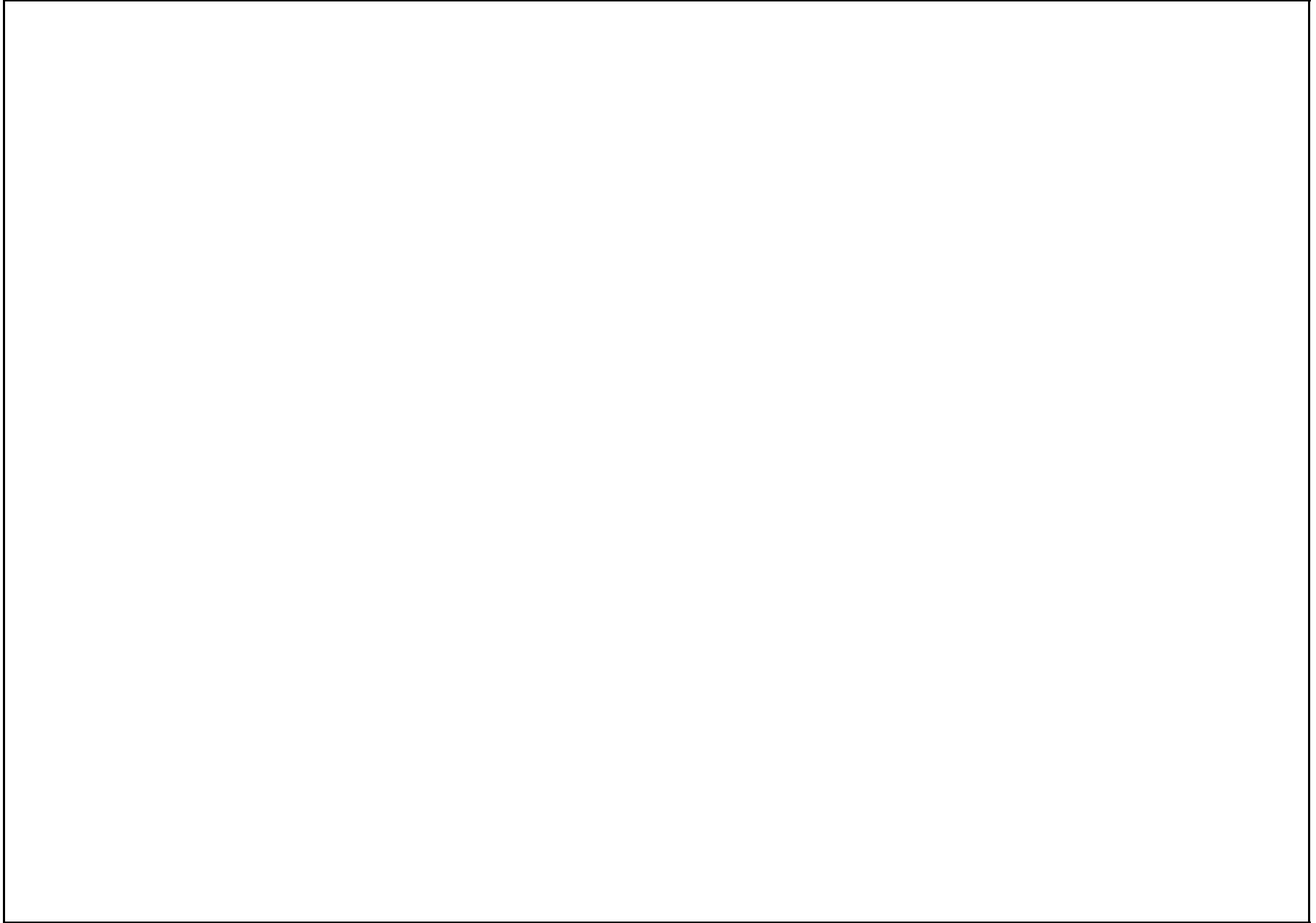
- Spending for Total Program and Categorical Programs;
- Appropriations of State Funds for Categorical Programs;
- Local Share Funding of Total Program; and
- Taxable Income.

To measure the impact of changes in the CPI, we developed two alternative levels of inflation, both of which we would consider to be dramatic changes in the long-term level of inflation. We obtained national forecasts of CPI from *Congressional Budget Office (CBO)*, *Data Resources, Inc, (DRI)*, and *Economy.com* and found more variances in these forecasts in the out years. Thus, for higher long-term level for CPI increases, we used either 10% higher than our baseline economic indicators or the forecast provided by DRI, whichever was higher. (The 10% increase in our forecast was used for the first 16 years while DRI's forecast was utilized thereafter.) Finally, *Economy.com*'s forecast of inflation was substantially lower than any other forecast and thus, we utilized their estimate of CPI as the probable floor for the long-term, average inflation.

Chart E-III identifies the effects these alternative levels of inflation have on the State Education Fund balance as described below.

- If inflation is as low as *Economy.com* estimates (e.g., nationally near 2.25%), the State Education Fund will maintain a strong balance and provide many additional spending opportunities. However, it should be noted that this low level of inflation would represent an approximate 35% decrease in the long-term rate of inflation and we would consider this scenario to be highly unlikely.
- Under the increased inflation scenario (e.g., a national level of just above 4.0% per year), the State Education Fund would not have a positive balance after FY 2018-19.
- However, these two alternatives would identify the two extremes that could potentially be encountered. With an annual review of the fund and its expenditures, the Legislature should be able to maintain the ability to adjust to extreme, long-term changes in not only CPI but all the economic variables discussed in this section.

Chart E-III further demonstrates that in the short-term differences in the CPI will have a smaller effect on the State Education Fund balance; however, due to the compounding nature of this component, the effect of changes in the CPI becomes more pronounced in the later years of the forecast period.



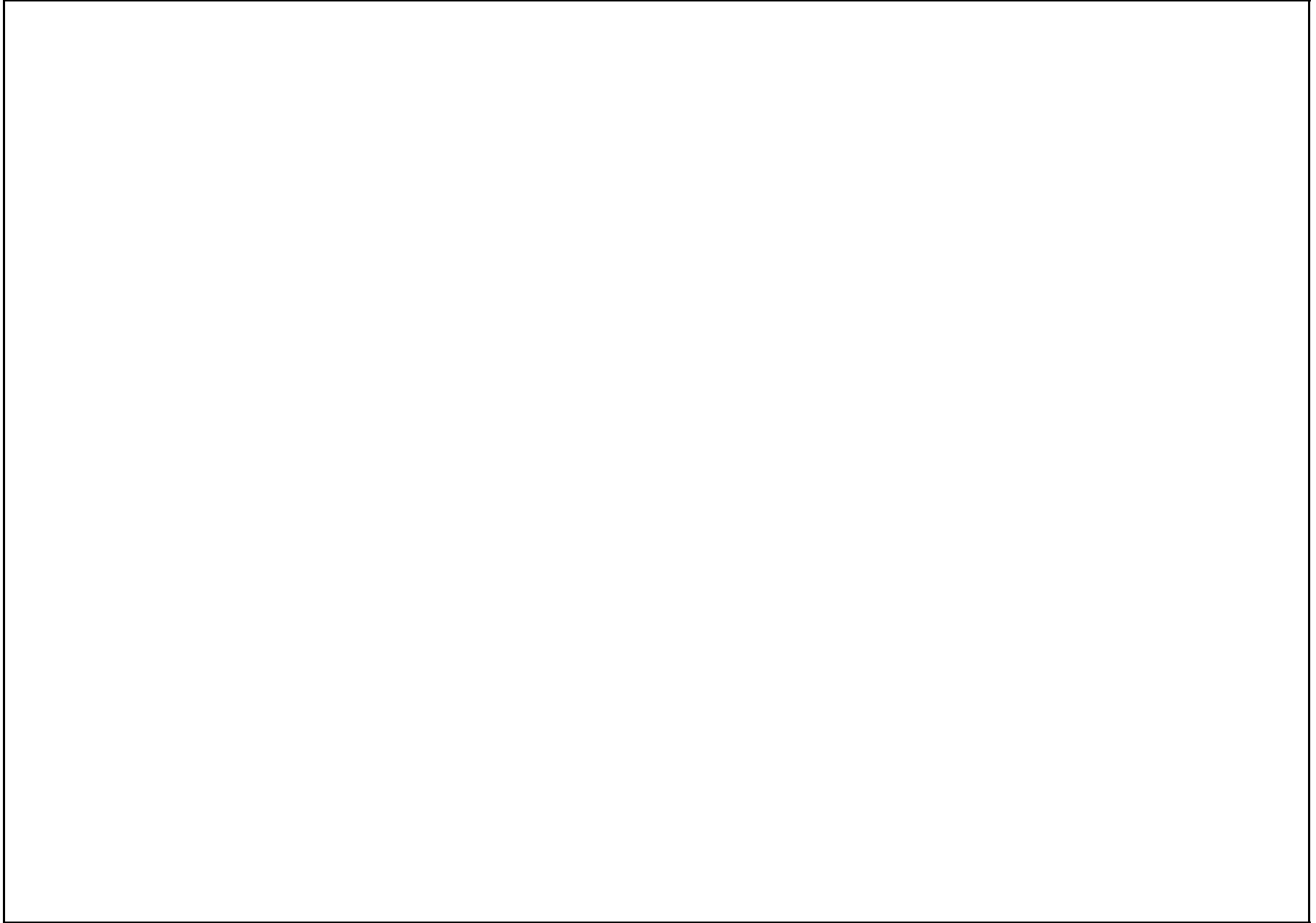
Local Share

As previously stated, the increase in local share funding is tied to the increase in property taxes collected by school districts allowed under TABOR. TABOR limits local property tax increases to a maximum of inflation plus student population growth. Therefore, because we have forecasts of inflation and increases in funded pupil count, we can estimate the maximum increase in local share funding that would be allowed under TABOR. Given the historical relationship information from key personnel and professionals, we have anticipated that local share funding will increase by 95% of the maximum allowed under TABOR in the years when property values are reassessed and by 55% of the TABOR maximum in the years when assessed value increases are due to new construction only.

To determine these levels, we examined the six years of historical increases in local share funding since the passage of the Public School Finance Act of 1994. Since the State of Colorado has experienced substantial economic growth over the past decade, it is not surprising that local share funding has increased as fast as allowed under TABOR in the reassessment years. However, what is not clear is how much local share funding will increase once property values stabilize and new construction across the State slows. Conceivably, with flat property values and no new construction, local share funding would not increase.

Chart E-IV identifies the State Education Fund balance if local share funding increases 10% slower or faster than in the 5.6% Funding Model. (When estimating local share increases at 10% faster than the 5.6% Funding Model, the TABOR maximum would apply in the reassessment years.)

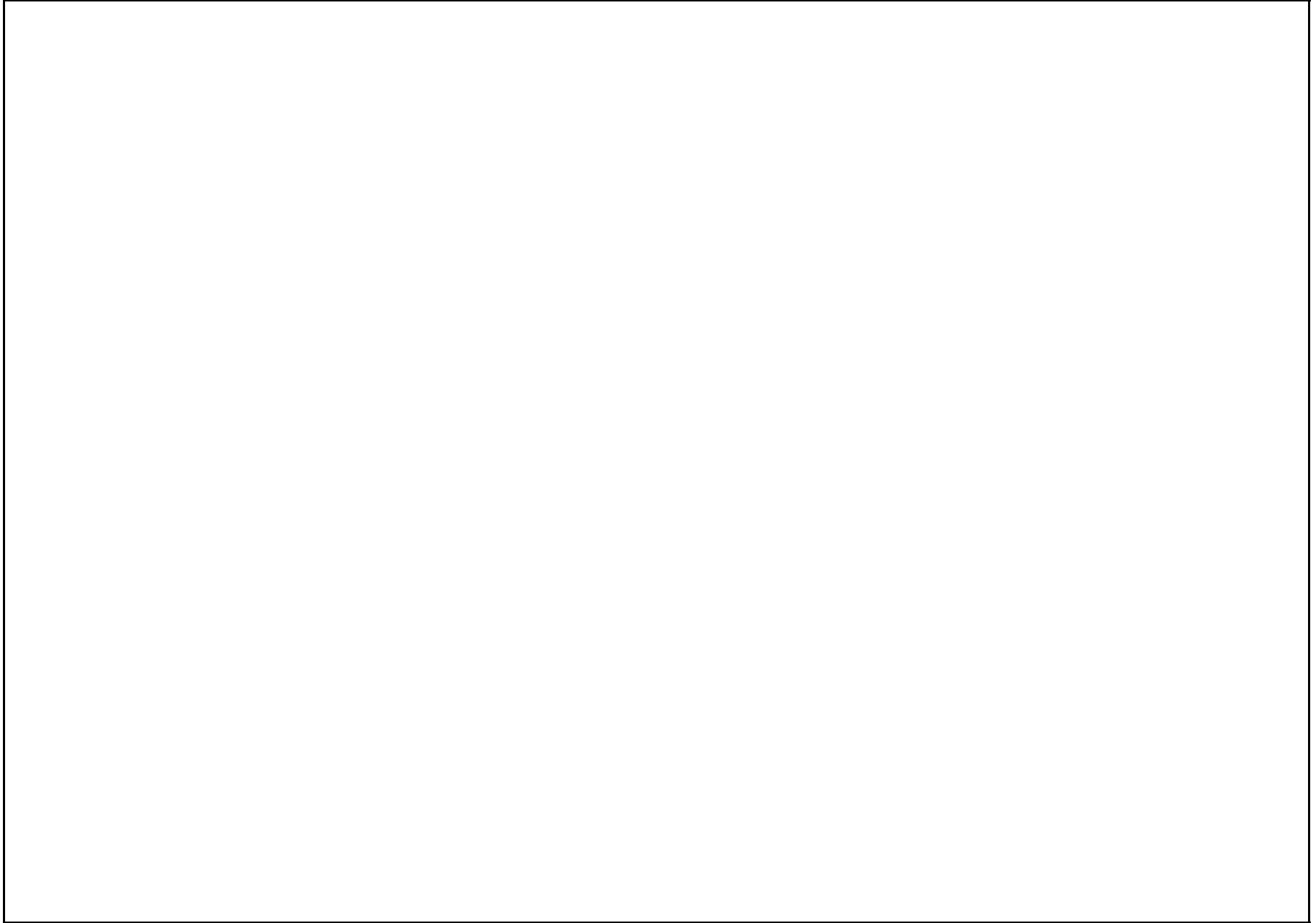
- If local share funding increases 10% faster (or at the TABOR maximum in assessment years) than the rate utilized in the 5.6% Funding Model, at the end of 25 years the State Education Fund balance will be approximately \$3.9 billion higher.
- If local share funding increases 10% slower than projected in the 5.6% Funding Model, the State Education Fund balance will be depleted by FY 2024-25.
- A decrease in the growth rate of local share funding has a more dramatic effect than an increase due to the maximum growth rate imposed by TABOR. Therefore, the Legislature needs to monitor changes in local share funding to ensure that the balance in the State Education Fund will remain positive.



Funded Pupil Count

Increases in funded pupil count (FPC) were estimated utilizing data from *Legislative Council Staff* and the demography section of the *Colorado Department of Local Affairs*. Population increases are very stable over the long-term and our view is that it is not likely that Colorado would experience population growth significantly different than anticipated by the demography section. However, for comparison purposes, Chart E-V identifies the balance in the State Education Fund with a 10% increase or decrease in the growth rate of funded pupil count and finds:

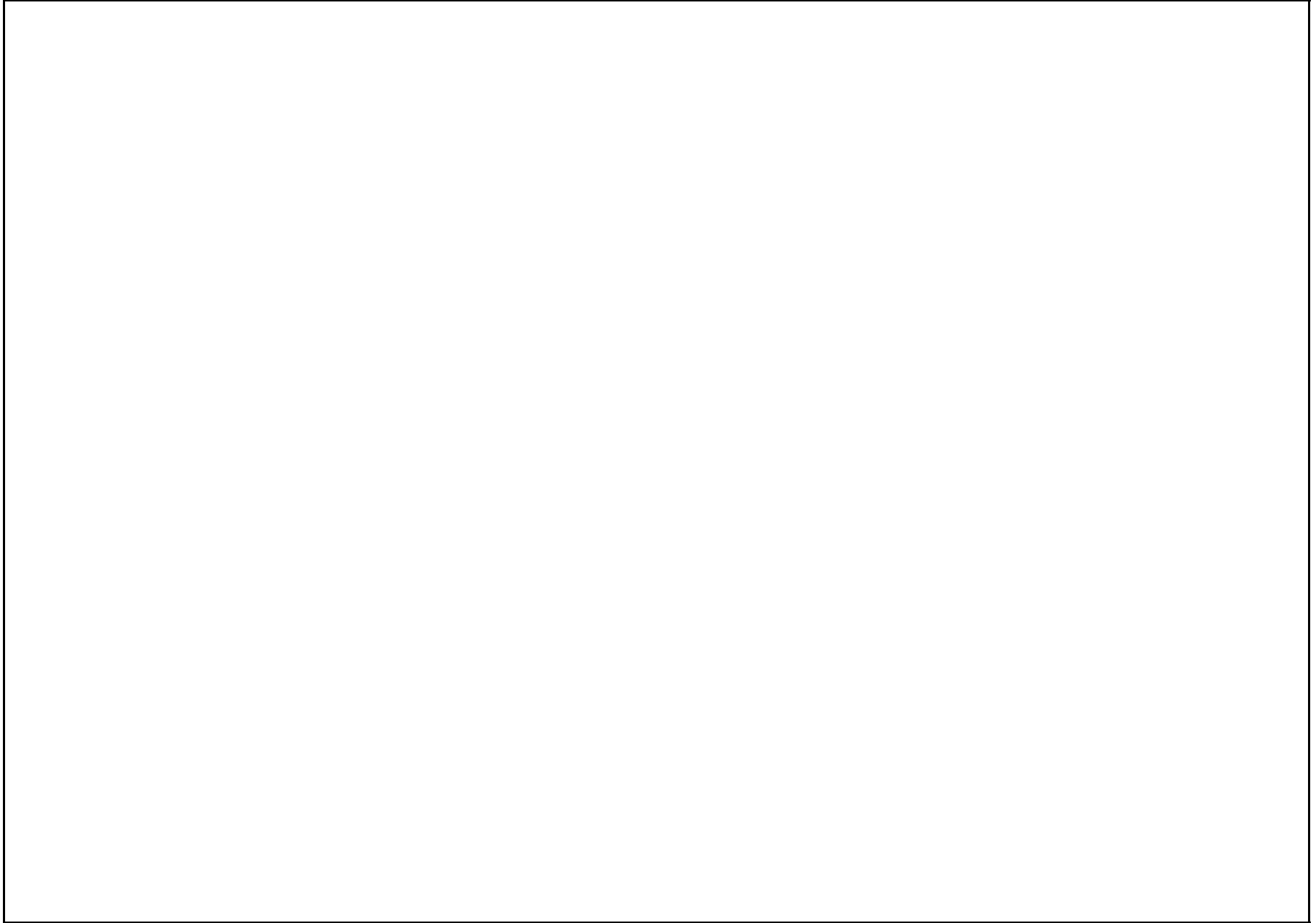
- 10% increase or decrease in the growth rate of funded pupil count would decrease the balance in the State Education Fund by approximately \$5.2 billion or increase the balance by approximately \$5.1 billion, respectively, at the end of the 25 year forecast period.
- While we do not consider such an increase or decrease to be likely over the entire period of the forecast, it is likely that Colorado will experience periods of growth that could cause the rate of increase in funded pupil count to reach these levels, affecting the balance in the State Education Fund, in the short-term.
- Changes in funded pupil count will be related to the change in overall Colorado population, which directly impacts taxable income and thus deposits into the State Education Fund. Although not specifically addressed in the model, the indirect relationship between funded pupil count and taxable income would lessen the impact of the change in funded pupil count on the balance of the State Education Fund.
- Again, a periodic review of the fund as well as the economic components that affect the fund balance will allow the Legislature to respond to significant changes in the underlying components.



Taxable Income

As stated earlier in this report, 1/3 of 1% of taxable income is deposited into the State Education Fund. In the model, taxable income is based upon inflation, productivity and population, all three of which affect the amount of taxable income in the State Education Fund. Chart E-VI identifies the implications for the State Education Fund due to changes in the growth rate of taxable income and thus, deposits.

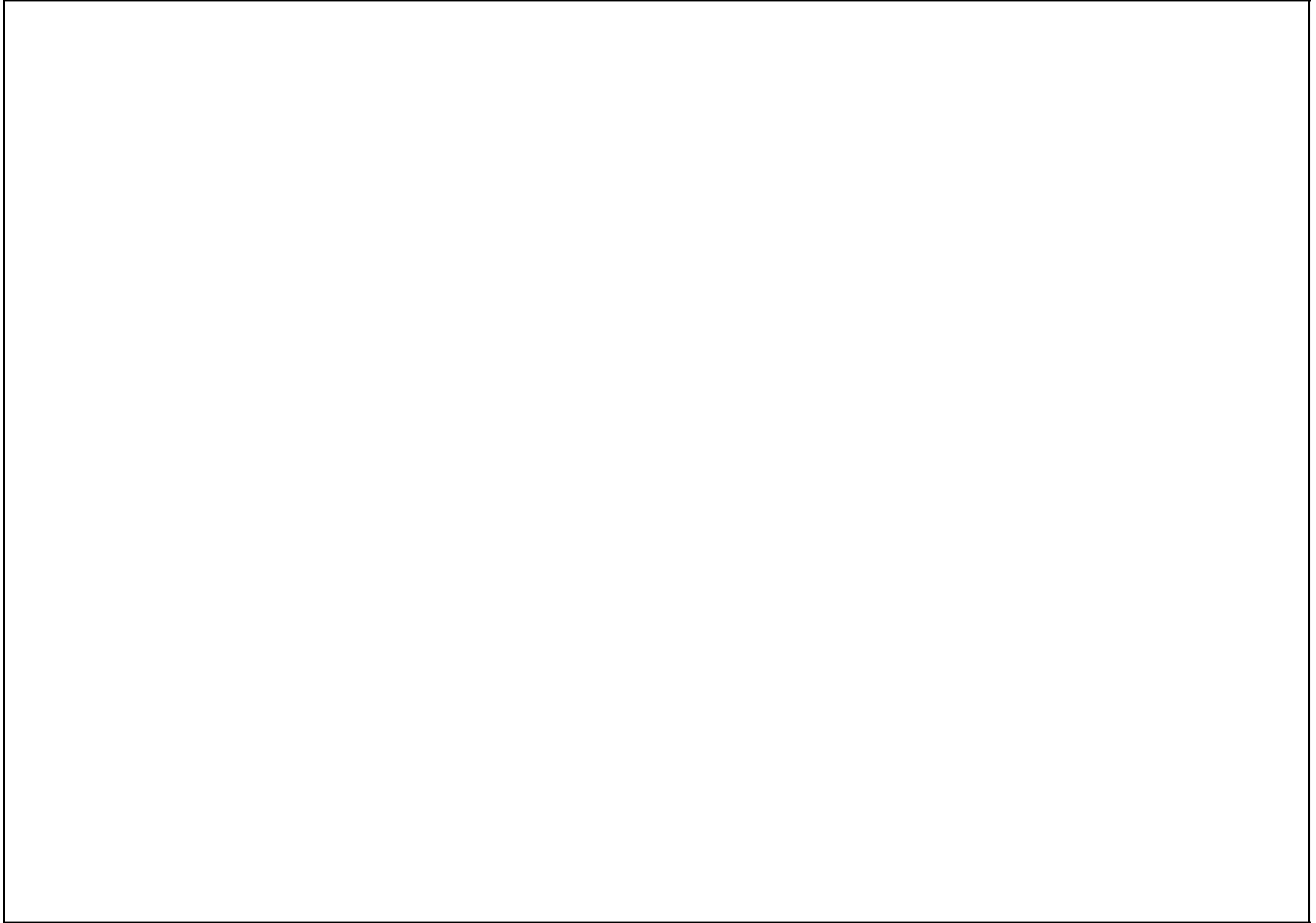
- 10% increase or decrease in the growth of taxable income will increase the State Education Fund balance by approximately \$3.8 billion or decrease the balance by approximately \$3.4 billion, respectively, over the 25 year forecast period.
- Identifies the likely range of the effect on the fund due to changes in taxable income.
- Given the more recent growth (1990s) in tax receipts, we anticipate that our estimate of taxable income growth utilized in the baseline economic indicators is somewhat conservative as these rates are just over those that the Colorado economy experienced during the mid-1980s.
- Again, a regular evaluation of the fund's deposits will allow the Legislature the opportunity to determine if deposits are in line with the estimates provided by our model.



Rate of Return

The 6.75% rate of return used in the models was based on an asset allocation similar to that utilized across the various (short, medium, and long term) funds already managed by the *Department of Treasury*. While changes in the rate of return on the State Education Fund have a limited effect on the long-term balance of the fund, it is the one economic component that the Legislature can control to a degree by allowing some monies in the fund to be dedicated to longer-term investments. That is, if the allowed asset allocation provides for investment vehicles of longer durations, it is likely the fund will be able to realize a greater rate of return. Chart E-VII identifies the effect of different rates of return on the State Education Fund.

- A 10% decrease on the rate of return utilized in the 5.6% Funding Model (from 6.75% to 6.08%) will decrease the balance in the State Education Fund by approximately \$127.9 million over the 10 year forecast period and \$897.3 million over 25 years.
- If higher rates of return can be realized by the *Department of the Treasury* with a commitment to longer term and/or change in market conditions such that the rate of return increases 10% (from 6.75% to 7.42%) then additional monies will be available in the State Education Fund balance.



APPENDICES