Design Considerations: Establishing a Foundation Formula for Vermont
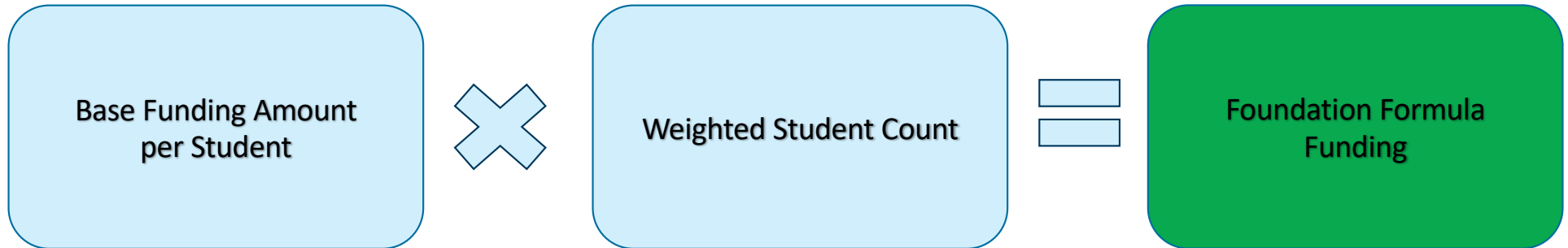
Presentation to the Vermont General Assembly| January 2025

Tammy Kolbe, Principal Researcher, American Institutes for Research

tkolbe@air.org

How does a foundation formula work?

How it works …

Base Funding Amount per Student	×	Weighted Student Count	=	Foundation Formula Funding

An (oversimplified) example ...

Hypothetical Foundation Formula:

(A) Base funding amount =$10,000

(B) Economically disadvantaged student weight = 0.6

Hypothetical school district:

(C) 100 students

(D) 20% students experiencing poverty

Step 1: Calculate Weighted Student Count

	Calculation	Student Count
Student Count	(C*1)	100
Poverty Weighted Student Count	(C*D*B)	12
Total Weighted (WTD)Student Count		112

Step 2: Calculate Funding Amount

WTD Student Count * Base Funding = 112*$10,000 = $1,120,000

Policy Design Considerations

State foundation funding formula are like apples: No two are exactly alike.

F

AIR®

Policy design considerations …

1. What should be the base funding amount per student?

2. What weights should be incorporated in the formula?

3. What count of students should be used to calculate a district's membership before weighting?

4. How might an initial foundation amount be adjusted for efficiencies gained through school district consolidation?

5. How should funding be allocated to schools within potentially new and larger districts?

AIR®

Base Funding Amount & Weights in Foundation Formula

Base Funding in a Foundation Formula

- **Provides a baseline**
  - The base is the **standard funding amount**, regardless of other cost factors, that every student receives. It acts as a floor so that **all students receive "foundational" support** to ensure equal educational opportunities or educational adequacy.

- **Cost based**
  - The base funding amount should reflect the **cost of the resources** necessary to educate a typical student with average needs to common outcomes.

- **Allows for targeted adjustments**
  - **Weights can be applied to a common base amount** to adjust for different cost factors, including differences in student needs and local context.

◆AIR®

Design Considerations for Establishing a Base Funding Amount

1. **How will you define and measure equal educational opportunity or educational adequacy?**

   - The base funding amount should reflect the cost of the resources needed to ensure a typical student, with no additional needs and who is educated in a common context to common standards to common standards

     - *Most studies incorporate some common measure(s) of student academic performance, such as achievement or proficiency*

2. **What approach(es) will you use to estimate a base funding amount and weights?**

   - Two general categories:

     1. *Input-based*: Assigns a dollar value to a list of resources that are intended to yield desired outcomes

     2. *Outcomes-oriented:* Statistically models the spending needed for students with different needs and in different educational contexts to achieve specific outcomes

3. **How will the base amount be adjusted over time to reflect changes in educational costs?**

   - *For instance*:

     - Escalator/inflation factor defined in statute

     - Requirements for recurring cost studies or recalibration

◆AIR®

Weights in a Foundation Formula

- **Adjust for differences in education costs.**

  - *Should:* Adjust for things that affect the level of spending required to achieve desired educational outcomes *and* are outside the control of local school districts.

  - *Should not:* Adjust for differences in educational cost that are the result of *preferences* for higher spending

    Cost factors considered in Vermont's existing formula:

    Student economic disadvantage, English learner status, student grade level, school size, and population density.

- **Generate a specific amount of additional funding.**

  - Weights are applied to a base funding amount and calibrated to generate a certain level of additional funding, over-and-above the base funding amount

  - Weights cannot "stand alone" – they are always relative to some base funding amount
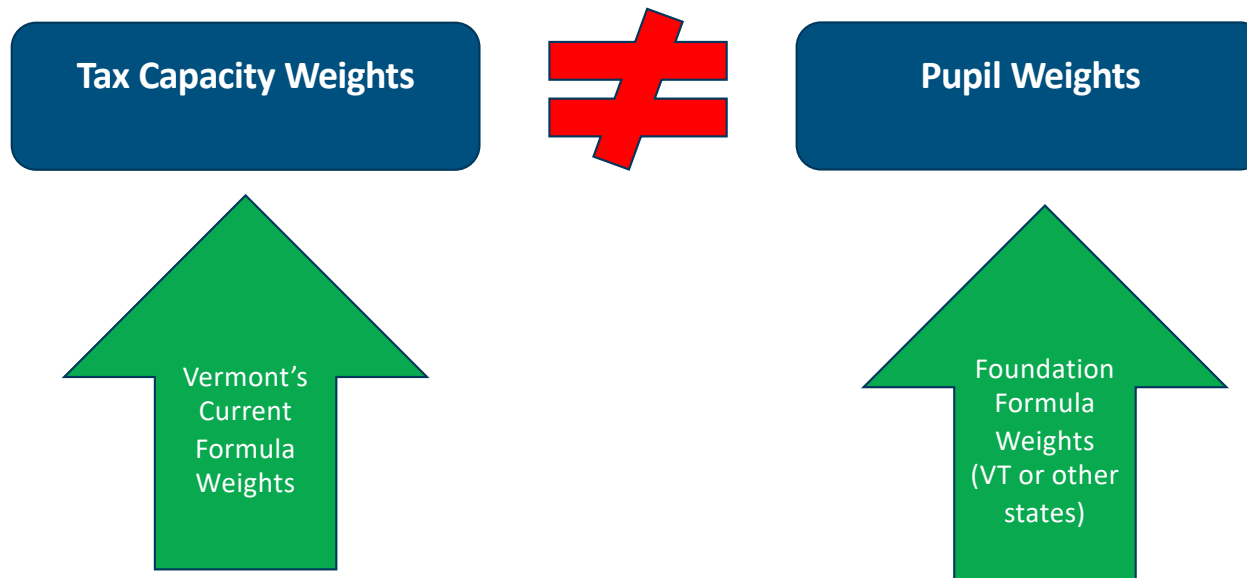
- **Can be incorporated in different ways.**

  - Weights can be additive or multiplicative in a formula

  - The magnitude of the weight can depend on how it is used in a formula

AIR®

Reasons to be careful about comparing base amounts and weights used in different states …

- **Different states, different costs.**

  - *Consideration:* States vary in terms of their outcome goals, governance structures, labor markets, educational costs, when they last updated their weights, and…

- **States apply weights differently in their formula**

  - *Consideration:* Weights can be multiplicative or additive in a formula and as a result can be calibrated in ways that make them difficult to compare to another state with a different formula.

- **Differences in the relationship between the base spending amount and weights.**

  - *Consideration:* Weights are proportional to a stipulated base funding amount.

- **Politics.**

  - *Consideration:* States may have "negotiated" weights that are not empirically derived.

♦AIR®

Problematic comparison …

Tax Capacity Weights ≠ Pupil Weights

Vermont's Current Formula Weights

Foundation Formula Weights (VT or other states)

AIR

How do you determine a base funding amount and weights for a foundation formula?

Approaches to estimating education costs …

1. **Professional Judgment Panels (PJPs; Input-based)**

   - Involves convening focus groups with practitioners and experts in the field to propose resource types and quantities for hypothetical schools to achieve specific outcomes

     - *Strengths:* Incorporates field-based input/knowledge

     - *Limitations:* Input may be limited to individual experiences, and not evidence-based

2. **Evidence-based model schools (EB; Input-based)**

   - Involves compiling published research into model schools

     - *Strengths:* Cost estimates reflect evidence-based practices

     - *Limitations:* No school exists that incorporates all the identified practices; difficult to differentiate according to state standards and requirements

3. **Education Cost Function (ECF; Outcomes-oriented)**

   - Statistically models the level of spending necessary for students to attain desired outcomes and how spending varies according to differences in student need and educational context

     - *Strengths:* Provides estimates for a base spending amount and weights that are calibrated to that base amount

     - *Limitations:* Does not provide information on "how" dollars should be spent; requires sufficient data for modeling

Accepted practice is to pair EB <u>with</u> PJPs to estimate costs.

Recent studies show that cost estimates from ECF and PJPs generate comparable estimates.

See Appendix A at end of presentation for additional description of and comparison among approaches.

◆AIR®

Vermont Study of Pupil Weighting Factors (2019)

UVM/AIR used ECF to:

1. **Identify cost factors.**
   - Empirically identified "need" factors that have the strongest predictive validity for differences in student outcomes (economic disadvantage, ELL, and student disability) and aspects of school context that explained differences in school spending (size, grade levels served, and population density).

2. **Estimate a spending amount for an average student with no additional needs and the dollar adjustments to this base for identified cost factors.**
   - Statistically modeled a <u>base spending amount</u> for an average student with no additional needs to meet common outcomes (equal educational opportunity), and the <u>additional spending</u> necessary to adjust for differences in student need and school context (cost factors).

3. **Develop <u>tax capacity</u> weights.**
   - Used base and additional spending amounts to develop weights that equalized tax capacity among districts using equalized pupils.

> The same information is needed to develop pupil weights for a foundation formula.

AIR

Base Funding Amount & Pupil Weights From Vermont's ECF

We used the ECF from the **Study of Pupil Weights in Vermont to project a base funding amount and pupil weights** for the 2024/25 school year.

Key assumptions:

- **Base amount is <u>projected</u> using spending data through 2018 and a linear time trend for future years**; this should be updated with more recent data

- Weights are **additive**
  - For example:
    - A secondary student experiencing economic disadvantage would equal 2.0 weighted students (1+0.75+0.25)

- **ELL weights incorporate cost estimates from separate ELL cost study (2024),** which reflect different WIDA language proficiency levels

  Note. The projected base funding amount and corresponding weights should be confirmed by incorporating additional years of data into the ECF prior to use in policy.

Weight Categories	Updated Projections from ECF (Study of Pupil Weights, Kolbe et al., 2019)	ELL Weights by Language Category & SLIFE (ELL Cost Study, Kolbe, 2024)
Student Needs		
Economic disadvantage	1.75	
ELL (Overall)	2.33	
By Language Proficiency		
Level 1		2.16 ($17,946)
Levels 2/3		2.16 ($17,946)
Level 4		2.07 ($16,636)
Levels 5/6		1.11 ($1,755)
Students with limited or interrupted formal education (SLIFE)		1.39 ($6,113)
Grade Range		
Secondary	1.25	
School Enrollment		
<100 students	1.36	
101-250 students	1.16	
Base Funding	**$15,500**	

◆AIR®

Other possible cost factors …

1. **Special education.**

   - Multiple need-based weights for students receiving special education

2. **Cost of living adjustments.**

   - Educational costs can differ across labor markets and regions.

3. **Concentration factor.**

   - The cost adjustment for student economic disadvantage may vary according to the "concentration" of students (with similar needs) in a district or school.

AIR®

Determining the Count of Unweighted Students

Student count

- A foundation formula's calculations requires a **count** of:

  1. **Total students** enrolled in or attending a school in a district

  2. **Students with specific need characteristics** that are reflected in the formula

◆AIR®

Design considerations …

1. **Will a new formula continue to use the same approach to counting unweighted students?**

   - *Vermont's current approach:*

       - Average two-year enrollment for most recently completed two years

       - Enrollment = number of pupils enrolled in a school operated by the district on October 1

       - Pupil is counted as 1, whether the pupil is enrolled full or part time

2. **Will enrollment include students attending public PK at a school in a district?**

   - *Act 127:* PK students count as 0.46

3. **How will students who attend early college or career and technical education be considered in a district's student count?**

   - Interviews with district officials for the Study of Pupil Weights in Vermont identified concerns with the current approach to counting students who participate in the state's early college program and career and technical education programs (CTE)

◆AIR®

Efficiency Gains From
District & School Consolidation

AIR
Advancing Evidence.
Improving Lives.

Design considerations …

- **Cost-based estimates for gains in efficiency.**
  - There needs to be a systematic analysis of what efficiencies will be gained through consolidation, when the efficiencies will occur, and the dollars associated with the gains.
    - Anticipated efficiencies can be identified and costed-out using a resource-based approach, such as Resource Cost Modeling (RCM).

- **Phased-in approach.**
  - Efficiency gains will not occur overnight. Assuming an initial base amount that reflects "what could be" vs. "what is" poses a threat to educational opportunities for students.
  - Cost-based modeling can be used to create a stepped-in approach to reducing the base funding amount and cost adjustments according to a timeline for when efficiency gains should occur.

◆AIR®

Allocating Funding to Schools Within Districts

Intra-district funding …

- **Large districts need to equitable ways of allocating resources and funding to schools.**
  - *Challenges:*
    - Schools within large districts will have different student populations and contexts that will require different levels of spending to ensure equal educational opportunities.
    - School spending will depend on the extent to which districts provide common services, such as special education, and this could vary among schools in districts with large geographic areas.
    - Schools are unable to raise additional funding if their district allocations are inadequate.
    - If there is "choice" within districts, there needs to be a common amount $ amount that follows a child from one school to another (public and approved independent schools)

- **Intra-district funding formula.**
  - *Historically:* Districts distributed funding via uniform staffing formulas and program allocations. This approach assumes that all schools need about the same level of funding/resources per student.
  - *Emerging best practice:* Weighted student funding (WSF) formula that, like state formula, use pupil and other cost factor weights to allocate funding equitably across schools within districts.

AIR

Members of the Research Team

- Dr. Drew Atchison, AIR

- Dr. Bruce Baker, University of Miami

- Dr. Tammy Kolbe, AIR/UVM

- Dr. Jesse Levin, AIR

Appendix A: Comparison Among Costing Out Approaches

	Approach	Strengths	Limitations	Recent State Studies
Professional Judgment Panels (PJPs)	Involves convening focus groups with educators and other experts in the field to propose resource quantities for hypothetical schools to achieve specific outcomes.	• Reflects field-based input on what it takes to educate students to standards and operate effective schools	• Professional input may be limited to personal experience, and not necessarily evidence based	Delaware (AIR), Ohio (AIR, WestEd, APA), Colorado (APA), New Mexico (AIR), Vermont (Picus/Odden), Vermont (Kolbe)
Evidence-based (EB)	Researchers create model schools based on "evidence" in research literature and then identify and value the resources required to operate these schools.	• Describes and provides a cost for a set of evidence-based programs, practices, and resources implemented in a model school.	• Distinct research evidence is not easily aggregated into whole-school models; no school operates as a compiled set of evidence-based practices • Selective incorporation of research evidence in models • May not reflect state-specific requirements and goals	Arkansas (APA/WestEd, updating Picus/Odden); Vermont (Picus/Odden)
Education Cost Function (ECF)	Statistically models the level of resources necessary for students to attain targeted outcome.	• Identifies student need factors • Provides statistical estimates for a base spending amount that is equal to the cost of educating a typical student with no additional needs to common standards • Provides weights that are calibrated to the base amount	• Does not provide information on "how" resources were used to attain outcomes. • Requires sufficient information about spending, student outcomes, and student and district/school characteristics to generate precise estimates.	Delaware (AIR), New York (AIR), Oregon (AIR), Colorado (AIR), Ohio (AIR), New Hampshire (AIR), Vermont (AIR)

◈AIR®