Executive summary

The 1965 passage of the Elementary and Secondary Education Act marked an increased role for the federal government in ensuring equal opportunity in education. Title I, Part A of the act is the centerpiece of this federal role in elementary and secondary education. The law authorizes substantial grants—almost $14 billion for the fiscal year that ended in 2008—to augment the education of children living in areas where low-income families are concentrated. Yet the funding formulas that determine the amount of money granted to each school district are not necessarily compatible with the law’s intent.1

Since the Elementary and Secondary Education Act’s initial authorization, a number of technical and political decisions have led to a set of four formulas that determine the amounts and destinations of grants under Title I, Part A. Concern for the law’s goal of improving equal educational opportunity by targeting children in concentrated poverty has guided the formulas’ evolution, but the funding formulas are still found wanting in three main ways:

• The formulas use state average per-pupil expenditures as a proxy for the cost of providing education, causing them to target funds to poor children in wealthy states. This is a different proposition than targeting concentrations of poor children.

• A combination of clunky eligibility criteria and multiple counting schemes produce some bizarre and unfair results: large districts with low concentrations of poor students are heavily funded, and virtually identical school districts that fall on the cusp of cutoffs can be treated differently.

• States with small populations and low concentrations of poor children receive radically larger grants on a per-poor-child basis than states with larger populations, including those with substantial rural poverty.

Improving the match between the intent of Title I, Part A and the formulas driving its grants is technically feasible, but an aura of mystery around the formulas inhibits informed debate and reform. This paper systematically unpacks the formulas to reveal the specific causes of targeting failure. It also highlights the sensible, progressive notions embraced by the current formulas:
• Honoring states’ efforts to leverage their revenue capacity for the purpose of funding education.
• Partly correcting for inequity in education funding within states.
• Safeguarding districts and states against precipitous drops in funding.
• Respecting funding challenges peculiar to small states.

Children living in concentrated poverty are poorly served by a labyrinthine funding scheme comprising four separate formulas. This paper exposes the technical considerations that should inform a smarter, fairer approach to funding grants under Title I, Part A. An upcoming paper will further detail this approach and chart the political course toward it.
The federal role in elementary and secondary education

The federal government’s role in children’s education was relatively small before the American Recovery and Reinvestment Act of 2009 promised a one-time injection of scores of billions of dollars. Until now, federal grants have supplied less than a tenth of the funds spent on elementary and secondary education. Yet the federal government has been a major player in educating students from low-income families since the passage of the Elementary and Secondary Schools Act of 1965. In particular, Title-I, Part A, also known as Title I-A, the single largest elementary and secondary education program operated by the U.S. Department of Education, allocates funds explicitly meant to enhance educational opportunity for children in concentrated poverty.

### TABLE 1
State Title I-A allocations in terms of dollars per poor pupil for fiscal year 2008, grouped by similarity of fiscal effort and cost of providing education.

<table>
<thead>
<tr>
<th>Fiscal efforts</th>
<th>Very low</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Very high</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>ME 1875</td>
<td>VT 3306</td>
<td>AK 2792</td>
<td>OH 1676</td>
<td>NJ 1847</td>
</tr>
<tr>
<td></td>
<td>WV 1759</td>
<td>WI 1639</td>
<td>MI 1568</td>
<td>NY 2107</td>
<td></td>
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<td></td>
<td>RI 2056</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>AR 1270</td>
<td>IN 1465</td>
<td>NH 2180</td>
<td>GA 1402</td>
<td>CT 1966</td>
</tr>
<tr>
<td></td>
<td>WV 3168</td>
<td>NE 1344</td>
<td>PA 1889</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NM 1434</td>
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<td></td>
<td>SC 1435</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Medium</td>
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<td>KS 1519</td>
<td>MO 1391</td>
<td>DE 2099</td>
<td>IL 1700</td>
</tr>
<tr>
<td></td>
<td>MS 1288</td>
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<td>TX 1344</td>
<td>MA 1833</td>
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</tr>
<tr>
<td></td>
<td>MT 1647</td>
<td>LA 1535</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Low</td>
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<td>AL 1217</td>
<td>OR 1515</td>
<td>MN 1331</td>
<td>CA 1566</td>
</tr>
<tr>
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<td></td>
<td>OK 1207</td>
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<td></td>
<td>VA 1472</td>
<td></td>
</tr>
<tr>
<td>Very low</td>
<td>SD 1928</td>
<td>-</td>
<td>-</td>
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<td>CO 1167</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>TN 1154</td>
<td></td>
</tr>
</tbody>
</table>

Note: Values presented here and throughout the paper are based on a sample of 13,853 Local Educational Agencies. The roughly one percent of all agencies omitted from the analysis tend to be very small. Reasons for omission include missing values on key indicators. Fiscal effort defined as the three year average of total spending (current expenditures less federal revenues) divided by the three year average of total per capita income, relative to the national average.

Source: Final Title I-A allocations for FY2008, by formula, were provided by the Budget Office, U.S. Department of Education; poverty estimates come from the 2007 Small Area Income and Poverty Estimates, Census Bureau, U.S. Department of Commerce; personal income data from Personal Income and Outlays, Bureau of Economic Analysis, U.S. Department of Commerce; education spending data from 2006 Public Elementary-Secondary Education Finance Data, Census Bureau; measures of cost from the 2005 Comparable Wage Index, National Center for Education Statistics; U.S. Department of Education; information on enrollment from the Common Core of Data, National Center for Education Statistics.
Targeting Title I-A grants to concentrations of children in poverty, however, is a challenging enterprise as the grants are allocated among the vast majority of school districts and determined by four complicated formulas. The political challenges to distributing federal funds to schools owned and operated by states and localities are formidable, and describing them is the subject of a forthcoming paper. This paper explains the technical challenges to targeting Title I-A grants, tracing chronic targeting failure to specific characteristics of the formulas that determine the amounts and destinations of grants.

Targeting failure hurts some states more than others, and produces results not always consistent with common sense. Table 1 highlights this failure by showing states’ Title I-A allocations per poor child, grouped by similarity in states’ fiscal effort, the extent to which they leverage public resources to fund education, and the cost of providing education. The categories of fiscal effort represent statistical quintiles on the distribution of a refined version of the measure of fiscal effort currently used by one of the Title I-A formulas. The categories of cost represent statistical quintiles on the distribution of states’ values on the most recent Comparable Wage Index.

Several comparisons emphasize the point:

- California and Maryland both face very high costs and exert low fiscal effort, yet California received $1,566 per poor child to Maryland’s $2,067.
- Georgia and Pennsylvania both face high costs and exert high fiscal effort, yet Georgia received $1,402 per poor child to Pennsylvania’s $1,889.
- Idaho and North Dakota both face very low costs and exert low fiscal effort, yet Idaho received $1,180 per poor child to North Dakota’s $2,761.

What’s worse, in each of these pairs of states, the state with the higher concentration of children in poverty received the lower allocation. And while these per poor child differences may seem small, they matter a great deal when scaled up to the school or state level. Take California, which has more children in poverty than any other state and runs larger schools than all but five, with an average enrollment of 651 pupils. A high-poverty school in California could easily receive more than $200,000 less than it would receive if it were in Maryland. The cumulative shortfall for California amounts to $532 million, a sum worthy of concern. Clearly, the formulas producing these allocations are out of sync with fairness and common sense.

Given such bizarre allocation patterns, it is little wonder that an aura of mystery surrounds the Title I-A funding formulas. And the mystery is perhaps greatest at the district level, where the receipt of a lump sum Title I-A grant shields officials from even knowing that four separate formulas exist. Furthermore, lag time between collection of the data driving the formulas and current allocations makes connecting precise local funding needs to Title I-A grants virtually impossible. Nor do policymakers necessarily have a clear understanding of the formulas. Title I-A funding formulas bear less resemblance to clear mathematical statements like E=MC² than they do to recipes. And obscure ingredients and unfamiliar procedures can make recipes difficult to follow, even for the best of chefs.
With increased funding, an enhanced role

Regardless of how its role is characterized, the federal government does invest large sums of money to elementary and secondary education. For the most recently completed fiscal year—FY2008, from October 1, 2007 to September 30, 2008—Title I-A grants approached $14 billion. All other Department of Education grants for elementary and secondary education amounted to just over $24 billion, roughly half of which is devoted to funding the Individuals with Disabilities in Education Act.

Title I-A allocations also tend to become more generous over time. Figure 1 shows inflation-adjusted allocations for Title I-A and all other Department of Education funding for elementary and secondary education from FY1980 through FY2008. Grants for elementary and secondary education grew in real terms—their growth outstripped inflation—during two periods, from 1986 to 1992 and from 1996 to 2004. The tendency toward real funding growth, combined with the American Recovery and Reinvestment Act commitments—approximately $100 billion over FY2009, FY2010, and FY2011—is evidence that the federal role in elementary and secondary education has escalated. This increase naturally invites greater scrutiny, especially in light of only marginal improvements in targeting funds to the highest poverty districts.

First passed in 1965, ESEA has been reauthorized seven times, always with a reaffirmation of the original intent of Title I-A:

... to provide financial assistance to local education agencies serving areas with concentrations of children from low-income families to expand and improve their educational programs by various means ...

The intent is laudable, but it is tempered by the technical challenges to targeting funds to concentrations of children in poverty. Two questions summarize these challenges: Where are these children, and how much money should be sent their way?

Where are the poor children?

In order to locate children in poverty, the Department of Education relies on the talents of the U.S. Census Bureau. The Bureau’s annual Small Area Income and Poverty Estimates, or SAIPE, include numbers of children between the ages of 5 and 17 years living in families with incomes below the poverty level, by Local Educational Agency—LEA, or more familiarly, school district. The number of these so-called “formula children” and their concentration—the corresponding percentage of all children within an LEA—serve as key determining factors in the Title I-A formulas.

As a basis for directing Title I-A allocations, the SAIPE data are not perfect. First, estimates lag behind current program needs in time. The FY2008 allocations, for example, were based on 2005 poverty estimates. This lag means that allocations are not sensitive to recent fluctuations in the numbers of low-income students served by states or LEAs, and year-to-year fluctuations on the order of 10 percent, a significant amount, are common. Second, estimates are based on district boundaries that are somewhat dynamic. District consolidation and the opening or closing of charter schools create discrepancies between the list of LEAs used by the Census Bureau and the one used by the Department of Education in calculating Title I-A allocations. Third, the correspondence between children living in a district and those attending its public schools is not perfect. In 2003, approximately 5.1 million children attended private schools and 1.1 million were homeschooled. These children, however, are not uniformly distributed across LEAs. Thus, in LEAs where residents not living in poverty have strong preferences for private or home school, measures of the concentration of formula children may understate the percentage of such children actually served by public schools.

Despite these problems, SAIPE data represent a significant improvement over decennial census data, which were used until the mid-1990s. Furthermore, the legislation allows states, by petition, to use their own poverty estimates when refining the Department of Education’s preliminary allocations.

How much money should be sent?

The Department of Education faces three challenges when answering the question of how much money to send to LEAs serving concentrations of children in poverty. First, the cost of providing education varies among districts and states. Cost is primarily driven by prevailing salaries for public employees, which differ across states, but population size and density also play a role. In particular, small states may face special funding challenges, including high fixed-costs per poor student.
Currently, the Department of Education handles the cost challenge by basing the Title I-A grants on states’ average per-pupil expenditures, found among the Census Bureau’s Public Elementary-Secondary Education Finance Data. Like poverty estimates, expenditure data lag behind current allocations. More importantly, per-pupil expenditures are a poor proxy for the cost of providing education. The problem is not that expenditures are divorced from costs. Rather, it’s that expenditures tend to mirror levels of wealth (fiscal capacity) better than they do costs. The strong positive relationship between expenditures and wealth undercuts efforts to steer money toward children in poverty.

The second challenge is that states vary in their preferences around funding public education. Federal funding decisions, sensibly, respect a state’s fiscal effort, the extent to which it leverages its capacity to muster revenue to fund public education. Toward this end, a measure of fiscal effort plays a minor role in one of the Title I-A formulas. The ratio of a state’s per-pupil expenditures to its per capita personal income—relative to the national average—provides an index of fiscal effort, though perhaps not the best one available, for use in one of the formulas.

The third challenge involves the contours of state and local funding into which federal funds flow. Some states have enacted policies ensuring that high-poverty districts receive aid comparable to that received by low-poverty districts. In other states, despite an enormous amount of litigation, disparity between districts in fiscal capacity—as in property tax base—leads to serious differences in financial resources available for education. The intent of Title I-A is consistent with the goal of bolstering intra-state funding equity. Toward this end, one of the formulas uses a measure of funding equity constructed from district average per-pupil expenditures, the local analogue of the state per-pupil expenditure averages.
The formulas

Currently, four formulas determine Title I-A allocations to LEAs, but this has not always been the case. Congressional concern with aspects of the funding system, especially targeting funds toward concentrations of poor children, spurred the development of additional formulas to complement the original Basic Grant formula. In 1978, the Concentration Grant formula entered the picture, and the 1994 reauthorization of ESEA, the Improving America’s Schools Act, added the Targeted Grant and the Education Finance Incentive Grant formulas.

Figure 2 shows inflation-adjusted allocations, by formula, from FY2001 to FY2008. Three observations stand out: First, the real annual total of Title I-A grants rose dramatically between 2001 and 2004; second, relative to Basic Grants, Concentration Grants are small—this has been the case since Concentration Grants were first awarded; and third, though authorized in 1994, Targeted and Education Finance Incentive Grants were not funded until FY2002, and since that year, their appropriations have increased at the expense of Basic Grants. Supplemental Title I-A grants funded in the American Recovery and Reinvestment Act amounting to $10 billion will be allocated by way of the two newest formulas.

Formula components

All four Title I-A formulas employ eligibility criteria based on the number of formula children in an LEA, their concentration within an LEA, or both. Table 2 offers a breakdown of the eligibility criteria, determining factors, and adjustment procedures for each of the four Title I-A formulas. The extent to which a formula targets concentrations of poor children is partially revealed in these criteria, which vary from lax to stringent. Limiting allocations to districts with high concentrations of formula children is an effective if coarse way to ensure funds target such children. The Concentration Grant formula sets itself apart in this sense. Yet it is still somewhat imperfect, since many districts serving an enormous number of children but a low concentration of poor ones meet the numerical eligibility threshold.
Two driving factors that determine preliminary grant allocations also affect how well the formulas target children in concentrated poverty. The first is a child count. The Basic and Concentration Grant formulas rely on a simple count of formula children; the Targeted and Education Finance Incentive Grant formulas use weighted child counts, which have the potential to enhance targeting. Weighted child counts essentially inflate observed levels of poverty, ensuring that districts with more poverty receive more funding per poor child than districts with less poverty.23 Second, states’ average per-pupil expenditures drive allocations in all formulas, a situation guaranteed to retard targeting efforts because expenditures track wealth, not the actual cost of providing education.

Lastly, all four formulas contend with the same set of adjustment procedures. First, the formulas must reconcile authorized allocations with annual appropriations actually furnished by Congress.24 Conceptually, this procedure, known as ratable reduction, is similar to scaling a recipe, and Congress has never provided the authorized level of funding for Title I-A. Second, recognizing the special funding challenges faced by small states, the formulas provide for minimum allocations.25 In other words, small states are guaranteed a non-trivial slice of the pie. Since small states tend not to serve concentrations of children in poverty, this adjustment provision detracts from the proper targeting of funds. Third, because year-

### Table 2

<table>
<thead>
<tr>
<th>Eligibility criteria</th>
<th>Basic Grant</th>
<th>Concentration Grant</th>
<th>Targeted Grant</th>
<th>Education Finance Incentive Grant</th>
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<tr>
<td>Number of formula children</td>
<td>At least 10</td>
<td>More than 6,500</td>
<td>At least 10</td>
<td>At least 10</td>
</tr>
<tr>
<td>and/or</td>
<td>and</td>
<td>and</td>
<td>and</td>
<td></td>
</tr>
<tr>
<td>Percentage of formula children</td>
<td>More than 2%</td>
<td>More than 15%</td>
<td>At least 5%</td>
<td>At least 5%</td>
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<th>Basic Grant</th>
<th>Concentration Grant</th>
<th>Targeted Grant</th>
<th>Education Finance Incentive Grant</th>
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<tr>
<td>Child count</td>
<td>Number of formula children</td>
<td>Number of formula children</td>
<td>Number of formula children and percentage of formula children</td>
<td>Number of formula children and percentage of formula children</td>
</tr>
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<td>Cost of providing education</td>
<td>State per-pupil expenditure</td>
<td>State per-pupil expenditure</td>
<td>State per-pupil expenditure</td>
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<td>n/a</td>
<td>n/a</td>
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<td>n/a</td>
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<th>Concentration Grant</th>
<th>Targeted Grant</th>
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<td>Ratable reduction</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State minimum</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hold-harmless</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>
to-year fluctuations in funding levels, especially downward ones, can frustrate districts’ efforts to staff and run programs that enhance educational opportunities for poor students, “hold harmless” provisions in the Title I-A formulas protect LEAs from precipitous drops in funding.26 Thus, the hold-harmless provisions extend the shelf-life of targeting failure originating elsewhere in the formulas.

Basic Grants

The Basic Grant formula is limited in its ability to target concentrations of students in poverty for three reasons. First, neither its eligibility criteria nor the mechanics of the formula focus on substantial concentrations of poor students. Second, like all Title I formulas, this one relies on states’ average per-pupil expenditures as a proxy for cost. Because expenditures reflect wealth more than costs, the formula channels funds toward poor children in rich states, a different proposition than simply targeting concentrations of children in poverty. Finally, since small states have low rates of poverty and high wealth, on average, the small state provisions exacerbate faulty targeting of Basic Grants. Further examination of the formula reveals these weaknesses in greater detail.

True to their name, Basic Grants are ordinary and simple. They are ordinary because almost all LEAs receive them. Those LEAs serving at least 10 formula children, who must constitute more than two percent of children served, are eligible to receive Basic Grants.27 In FY2008, about 94 percent of LEAs were eligible,28 and three-quarters of the ineligible ones had total enrollments below 100 students.29

The Department of Education determines the preliminary Basic Grant allocations to LEAs in a multi-step procedure, illustrated in Figure 3. The first step in calculating the Basic Grant for an LEA is indeed simple. One multiplies the number of formula children in the LEA by a constrained version of the average per-pupil expenditure in its state, and then by 0.4. That’s it.

Every LEA within a state is initially authorized to receive the same allocation per poor child served. These funding rates vary between states in proportion to expenditure levels, which are constrained to a range between 80 and 120 percent of the national average.30 This constraint limits the damage to targeting caused by average per-pupil expenditures.31 Multiplying by 0.4 has the effect of trimming the expenditure to reflect the perceived additional costs of educating a low-income student versus another student from a family with higher income. This factor is imbued with a symbolic value in this sense,32 but its effective value evaporates during the adjustment procedures that follow.

The second step is to ratchet down or ratably reduce the preliminary allocations based on appropriations. Just as a chef may halve or double a recipe, Congress decides the levels of funding appropriations to be applied toward Basic Grants. To the chagrin of proponents

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**FIGURE 3**

The Basic Grant allocation process

Steps leading to preliminary Basic Grant allocations from the U.S. Department of Education to Local Educational Agencies

**STEP 1**
Simple count of formula children in LEA

Average-per-pupil expenditure in state* x 0.4

↓

Ratable reduction
Proportionally reduce authorized allocations based on funds appropriated for Basic Grants

↓

State minimum
Ensure that the total of LEA allocations to states meets prescribed minimum

↓

Hold-harmless
Increase allocation to appropriate percentage of prior year’s authorized allocation

* Per-pupil expenditures are constrained to a range between 80 and 120 percent of the national average.

Note: Represented here at a conceptual level, the steps translating authorized amounts into allocations are exceedingly complicated. A full specification of these steps is available from the National Center for Education Statistics (see http://nces.ed.gov/surveys/annualreports/allocations.asp).
of “full funding,” Congress has historically tended to halve the recipe. This step receives much attention, but it does not affect the targeting fidelity of the formula.33

The third step is to apply the state minimum provision. This provision guarantees that each state receives a nontrivial share of all funds appropriated for Basic Grants. This share amounts to roughly a quarter of 1 percent of funds nationwide,34 and affected states are roughly those whose share of formula children falls below a quarter of 1 percent of the national total35—small states, in other words. Because small states tend not to have high concentrations of formula children, the state minimum provision subverts targeting of funds to concentrations of children in poverty. One technical argument for tolerating this subversion is that small states wrestle with high fixed costs per poor student, such as salaries of state and district Title I administrators.

The fourth step in determining preliminary Basic Grant allocations is to apply the hold-harmless provision. Funds permitting, allocations to LEAs are adjusted upward, where necessary, so that they match a threshold percentage of the prior year’s allocation. The relevant threshold depends on the concentration of formula children within an LEA. For concentrations at or above 0.3, the threshold is 95 percent of the prior year’s allocation. For concentrations between 0.15 and 0.3, the threshold is 90 percent. And for concentrations at or below 0.15, the threshold is 85 percent.36

The final process of converting the Department of Education’s preliminary Basic Grant allocations to LEAs into actual allocations is handled by State Educational Agencies, or SEAs,37 where the distinct funding streams defined by the four formulas merge. It makes sense to describe this confluence briefly, since it affects districts’ perceptions of Title I funding. However, surveying the three other tributaries, the sources of targeting failure, is the first order of business.

Concentration Grants

The Concentration Grant formula is simply a more restrictive version of the Basic Grant formula.38 As such, its reliance on expenditures and small-state minimums impair its ability to target concentrations of poor students. Its comparative success in targeting is due to its stringent eligibility criteria. Eligible LEAs either serve more than 6,500 formula children, or formula children make up more than 15 percent of children served.39 Although nearly all LEAs were eligible to receive Basic Grants in FY2008, only 45.3 percent of them were eligible to receive Concentration Grants.40

Effectively, these criteria prevent Concentration Grants from flowing to many—but not all—districts with low concentrations of poor students. Very large districts with the necessary 6,500 formula children are eligible for Concentration Grants even though their formula children may not live in especially high concentrations. This deficiency in the for-
formula is compounded by the lack of subtlety inherent in sharp cut-offs, which can produce bizarre results. Consider an LEA serving 6,500 formula children out of 43,333 children (15.0001 percent) versus another LEA serving 6,499 formula children out of 43,333 children (14.9978 percent). The former LEA is eligible for a Concentration Grant; the latter is not. This unfortunate dichotomy can be prevented by shifting the burden of targeting from the eligibility criteria to the mechanics of the formula, an innovation embraced by the Targeted Grants formula.

Targeted Grants

The Targeted Formula does much to earn its name by increasing the rate of funding with the number or concentration of poor children served by an LEA. The formula still suffers from the targeting problems inherent in the use of state average per-pupil expenditures, and its state minimum provisions don’t help the case. Importantly, large districts with little poverty draw an inordinate share of Targeted Grants because the formula employs a number-based weighted child count in addition to the effective targeting tool of a concentration-based weighted child count.

The formula driving Targeted Grants is something of a hybrid. Its eligibility criteria resemble those of the Basic Grant formula: Only 10 formula children are required, though the necessary concentration threshold is 5 percent rather than 2 percent. These criteria are lenient in comparison to those of the Concentration Grant formula, and accordingly, they yield an eligibility rate of 85.6 percent41— much closer to the rate for Basic Grants than that for Concentration Grants. Because of the high eligibility rate, the mechanics of the formula do the bulk of the targeting work.

The sequence of steps involved in calculating Targeted Grants is much like that illustrated in Figure 3. The crucial difference is that instead of a simple count of formula children in Step 1, the formula uses a weighted child count.42 A weighted child count has the potential to further targeting goals, and the idea behind it is familiar from the realm of federal tax policy. Just as different tax rates apply to different brackets of a taxpayer’s income, different weights apply to different brackets of an LEA’s formula children. What complicates matters, however, is that poverty brackets are defined in two ways, one by the concentration of formula children within an LEA, one by the raw number of formula children.

As an example, consider a hypothetical district with 36,000 formula children representing 40 percent of all children served. Figure 4 illustrates how the concentration-based weighting scheme works. The stacked bars on the left correspond to the number of formula children in the various poverty brackets: 14,022 for the poverty bracket from 0 to 15.58 percent of the district’s population of low-income children; 5,877 for 15.58 percent to 22.1 percent; 7,245 for 22.11 percent to 30.16 percent; 7,851 for 30.16 percent to 38.24 percent; and 1,584 for above 38.24 percent. The stacked bars on the right correspond to
the same numbers multiplied, respectively, by the weighting factors of the brackets. The weighted total of 72,389 formula children is high relative to the raw total of 36,000 formula children because the LEA has a concentration of them extending into the highest bracket. It is worth noting that if these children represented less than 15.58 percent of students served by the LEA, the weighted count would remain 36,000.

In contrast, the number-based weighting scheme completely ignores the concentration of poverty within an LEA. Table 3 gives the weights and number brackets for this scheme. The combined product of the number of formula children falling into each bracket with its corresponding weight yields a weighted total of 84,841. Crucially, this would be the case for any LEA with 36,000 formula children.

Because the formula uses the higher of the two weighted counts, the difference between them represents a source of difficulty. This difficulty manifests itself in two ways. First, districts with comparable concentrations of poverty may be treated quite differently. Consider the districts in two Michigan cities, Detroit and Flint. Based on 2007 poverty data, these districts served concentrations of 39.4 percent and 37.9 percent formula children, respectively. But Detroit served 80,289 formula children; Flint, only 9,577. Its sheer size elevates Detroit’s weighted child count to a level 171 percent above its raw count, but Flint’s weighted count exceeds its raw count by just 94 percent. These different inflation factors translate to enormous differences in per poor pupil allocations of Targeted Grants, but does this make any sense?

Second, large districts with relatively low concentrations of poverty obtain Targeted Grants at the expense of small districts with high concentrations of poverty. Greenville and Williamsburg, SC, for example, serve 10,626 and 2,571 formula students at concentrations of 13.8 percent and 41.7 percent, respectively. Yet both wind up with weighted counts of formula children of roughly twice the size of their raw counts.

Figure 5 illustrates the landscape of difficulty created by the use of two versions of weighted child count. Each color represents a collection of districts for which the ratio of number-based to percentage-based weighted child count falls within the same interval. For districts near the border between the gray and red regions, for instance, the two weighting schemes produce roughly the same count (a ratio of 1). The blue region shows which kinds of districts are especially favored by the percentage based weighting scheme. These are very poor, small districts, exactly the kind which should be targeted. The black region, on the other hand,
shows that large districts with rather low concentrations of poor students are also favored by the Targeted Grant formula. This inappropriate targeting is due to the number-based weighting scheme.

Given the targeting difficulties presented by the use of two weighting schemes, it is hard to say whether the Targeted Grant formula really deserves its name. The adjustment steps, which proceed almost exactly as with Basic and Concentration Grants, do nothing to help its case.43

**Education Finance Incentive Grants**

The formula that determines Education Finance Incentive Grants, or EFIG, employs eligibility criteria identical to those used by the Targeted Grants formula, but it is completely unique in other ways. As its name implies, this formula explicitly rewards certain types of financing behaviors among states. These behaviors are fiscal effort—the extent to which a state leverages its resources to fund public education—and funding equity—the extent to which a state funds its school districts equally on a per-pupil basis. A further distinguishing feature of the formula is that it calculates allocations to LEAs in two discrete stages.

The starting point in promoting specific financing behaviors among states is to measure existing behaviors. Accordingly, the EFIG formula defines measures of fiscal effort and funding equity. Its measure of fiscal effort is defined as the ratio of a state’s three-year average of per-pupil expenditure to its three-year average per capita personal income, relative to the national ratio.44 The higher the ratio, the harder a state is trying to fund public education, but this relationship could be improved under alternate specifications.45 Yet the need for any alternative is reduced because the raw values of fiscal effort are statutorily constrained to a range between 0.95 and 1.05. Figure 6 illustrates the distributions of both the raw and constrained estimates of fiscal effort.

Theoretically, the constraint dampens the formula’s ability to encourage states with extremely low fiscal effort to increase their effort.46 Practically, the constraint mitigates targeting failure caused by using a measure of fiscal effort that is positively correlated with state wealth.

The formula enters legally tricky territory with respect to measuring funding equity. Code and regulations around Title VIII of the Elementary and Secondary Education Act, which provides impact aid to states with a large federal presence, typically those connected to military bases and Native American lands, impose certain restrictions.47 Notwithstanding, the formula defines a state’s funding equity.
in two steps. First, a measure of inequity is furnished by the weighted coefficient of variation between per-pupil expenditures in each LEA and the state average per-pupil expenditure. Essentially, this measure indicates the average of the squared differences between local and state spending, where an LEA’s contribution to the average is based on the number of children it serves. A larger coefficient of variation means greater funding inequity.

Second, a measure of funding equity is constructed by simply subtracting the coefficients of variation from 1.3, thus reversing the scale so that greater equity corresponds with greater values of the measure. Figure 7 shows a frequency distribution of state funding equity for FY2008. At the extreme right, with perfect equity, lie Hawaii and the District of Columbia, each comprising a single LEA. At the extreme left lies Louisiana, a state whose funding patterns were profoundly distorted by Hurricane Katrina.

Figure 8 outlines the sequence of steps involved in producing preliminary EFIG allocations. In contrast to the other formulas, this formula has two discrete stages. The first stage has a main step followed by the familiar ratable reduction and state minimum provisions. The main step is to take the product of the number of formula children in a state, its fiscal effort, its funding equity, and a modified version of its per-pupil expenditure. Oddly, the latter factor is not the same as the constrained per-pupil expenditure used in the other three formulas. The difference is that per-pupil spending is constrained to a range from 85 to 115 percent of the national average rather than the 80 to 120 percent range used in the other formulas.

The second stage begins with dividing states’ allocations among their LEAs on the basis of weighted child counts. The weighting scheme is conceptually similar to the one used by the Targeted Grant formula, but no single scheme applies to all states. Instead, states are assigned a weighting scheme based on the estimated inequity (coefficient of variation) of their funding. These estimates are divided into three ranges: below 0.1 (most equity), at least 0.1 but less than 0.2, or at least 0.2 (least equity). The difference between the weighting schemes is that formula children in higher brackets, by number or concentration, are weighted more heavily in states with less equity. Thus, not only does the formula reward funding equity among states, since more equity translates to more money, but it works to correct funding inequity within states. The second stage concludes with a hold-harmless provision identical to the one used by the Targeted Grant formula.
Aftermath

Once the Department of Education has finished applying the Title I-A formulas to create preliminary allocations to LEAs, it falls to State Educational Agencies, or SEAs, to carry out a series of further adjustment steps. These steps are important for other reasons, but they have little effect on the overall targeting efficacy of the formulas.

First, SEAs resolves discrepancies between the U.S. Census Bureau’s list of LEAs and the one that the Department of Education uses to calculate grants, and they adjust counts of formula children accordingly. Second, SEAs that feel better equipped than the Department of Education to identify and locate children living in poverty may substitute their own poverty estimates before re-calculating allocations under each of the four Title I-A Grants. This step may be taken, by petition, either on behalf of small LEAs (districts with populations below 20,000) or in cases where many of a state’s LEAs overlap county boundaries. Third, after adding the adjusted grant allocations together, SEAs draw off a portion of funds to cover administration (up to 1 percent of current funds), school improvement activities (up to 4 percent of current funds), and state academic achievement awards programs (up to 5 percent of the balance above prior year’s total amount of Basic Grants). Remaining funds are transmitted to LEAs as unified Title I-A Grants.
Conclusion

It is little wonder that an aura of mystery surrounds the Title I-A funding formulas. The roles of the formulas are concealed from school districts because funds arrive as single lump sum. Officials in LEAs serving numbers or concentrations of formula children at the cusps of eligibility criteria are unlikely to appreciate the funding implications of small shifts in these numbers or concentrations. Moreover, the lag in time between current enrollment and the poverty estimates, the mismatch between these estimates and actual enrollment, and hold-harmless provisions further conceal the key defining steps of the formulas.

The sheer complexity of the Title I-A funding formulas is another reason that policymakers and education officials may hesitate to wade into discussions about them. Eligibility criteria, determining factors, and adjustment procedures all play roles in the formulas, and efforts to improve the targeting of Title I-A grants will have to deal with all the formulas’ facets. An upcoming paper will examine the political landscape that significant changes to the formulas would have to traverse. By demystifying the formulas and tracing the origins of faulty targeting, this paper has made it possible to map out this political landscape and chart a clear path toward greater fidelity to the purpose of Title I-A funds.
1 This report builds from the careful scholarship of Goodwin Liu. Specifically, his article, “Improving Title I Funding Equity Across States, Districts, and Schools,” Iowa Law Review, Vol. 93 No. 3 pp. 973-1013 (2008), documents the sections of U.S. Code pertinent to the Title I-A formulas, describes the data upon which the formulas depend, and offers novel analyses of them.

2 The concentrations of children in poverty in California, Maryland, Georgia, Pennsylvania, Idaho, and North Dakota are .158, .094, .177, .143, .135, and .115, respectively.

3 Following Education Trust in using 50 percent students in poverty as the lower threshold for high-poverty schools, an average California high-poverty school has between 326 and 651 poor students. Applying the $501 difference in per poor child funding between California and Maryland, this range translates into a funding shortfall of between $163,000 and $326,000.

4 The American Recovery and Reinvestment Act of 2009 (PL. 111-5) conspicuously augments the role of the Title I-A funding formulas in directing federal dollars to states. These formulas also affect regular programs: Even Start Family Literacy Program (Title I, Part B, Subpart 3), the Comprehensive School Reform Program (Title I, Part F), educational technology grants (Title II, Part D), 21st Century Community Learning Centers (Title IV, Part B), educational programs under the McKinney-Vento Homeless Assistance Act (42 U.S.C §§ 11431), and Safe and Drug-Free Schools and Communities (Title IV, Part A). See Liu (cited above) at note 11, or see Wayne Riddle, “Education for the Disadvantaged: ESEA Title I Allocation Formula Provisions” (Washington: Congressional Research Service, 2001).

5 These figures exclude programs funded by departments other than ED, notably the Child Nutrition Programs (CNP), which include the School Lunch and School Breakfast Program, operated by the Department of Agriculture. The CNP’s FY2008 appropriation was $14.6 billion. U.S. Department of Agriculture, FY2008 Budget Summary, available at http://www.obpa.usda.gov/budsum/fy08budsum.pdf (last accessed December 23, 2008)


7 Notable re-authorizations include the Education Consolidation and Improvement Act of 1982 (PL. 97-35), the Improving America’s Schools Act of 1994 (PL. 103-382), and the No Child Left Behind Act of 2001 (PL. 107-110).


10 Formula students also include other small groups of children, those living in publicly supported foster homes and those living in non-federal institutions for neglected or delinquent children, for example. See 20 U.S.C. § 6337(b).


12 In governance terms, charter schools typically represent school districts. This arrangement seems rather logical in the case where charter schools are operated by non-profit 501(c)(3) organizations. This is the only option for charter schools in Oregon, for example, unless they are operated by public school districts. See Or. Rev. Stat. § 338.035.


15 U.S. Census Bureau, Public Elementary-Secondary Education Finance Data, available at http://www2.census.gov/govs/school/06f33pub.pdf (last accessed on November 5, 2008). Analogous expenditure figures for LEAs also play a role in one of the newer formulas, as described below.

16 Without adjusting expenditure figures for local, state, or regional variation in costs (using Comparable Wage Index produced by the National Center for Education Statistics, for example), roughly one third of the variation in LEAs’ per-pupil expenditure lies between states, two-thirds within states.

17 There is a strong linear relationship between state average per-pupil expenditures and per capita personal incomes (r=.77), a measure of fiscal capacity or wealth. Expenditures tend to rise with income, just as they do for ordinary households. However, even after expenditures and per capita personal income are adjusted for differences among states in cost (using the Comparable Wage Index published by the National Center for Education Statistics), a fairly strong relationship is still evident (r=.50).

18 For a well crafted argument that a better measure of fiscal effort is available, see Goodwin Liu, “Improving Title I Funding Equity Across States, Districts, and Schools.” In particular, a state’s capacity to convert revenue into per-pupil spending should rescale income figures based on the population of children.

19 See, for example, the U.S. Department of Education, Office for Policy and Planning, “Reinventing Chapter 1: The Current Chapter 1 Program and New Directions,” Washington, DC, 1993. This report, the Final Report of the National Assessment of the Chapter 1, includes simulations of methods of enhancing the targeting accuracy of the formulas. Or see Riddle (cited above in note 2).


21 As of September, 2008, the President, the relevant House sub-committee, and the relevant Senate committee requested $5.597 billion for Basic Grants in FY2009. This figure is the same as the one corresponding to Basic Grants in FY2008, as pictured in Figure 3. See U.S. Department of Education Budget Tables, available at http://www.ed.gov/about/overview/budget/fy09action.pdf (last accessed on December 11, 2008).


23 The weighted child counts used in the Title I-A formulas should be distinguished from the notion of weighted student funding, a school financing strategy in which different amounts of per-pupil funding are assigned to students based on their status on indicators of English language proficiency, disability, or poverty. In particular, weighted child counts do two things differently: children counted are not necessarily students; different weights apply to different segments of the same quantity (either the number or the percentage of formula children).

24 20 U.S.C. §§ 6332(b)(1), 6332(b).

25 For state minimum provisions see 20 U.S.C. §§ 6333(d), 6334(b), 6335(e), 6337(b)(1)(B).
The term "hold harmless" has a general legal sense of preventing an entity from damage caused by forces outside of its control. For hold harmless provisions, see 20 U.S.C. §§ 6332(e), 6337(g)(3), but note that the Concentration Grant did not have a hold-harmless provision until FY2007. See Panel on Estimates of Poverty for Small Geographic Areas, "Small-Area Estimates of School-Age Children in Poverty: Evaluation of Current Methodology.


This calculation and many others presented in this report were produced by the author, who assembled a dataset including FY2008 Title I-A allocations to school districts, by formula, and information upon which these allocations are based. A total of 13,853 districts were retained in an analytic sample.

Enrollment data were drawn from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data. Data from the 2005-06 school year, the most recent available, were matched with Title I-A allocations using a common identifier.


For a fuller treatment of the relationship between expenditures, cost, and wealth, see Liu, "Improving Title I Funding Equity Across States, Districts, and Schools."

This symbolic statement is potentially important, as districts moving towards weighted-student funding schemes seek guidance around which weights are appropriate for students from low-income families, students who are English language learners, or students with disabilities. See Matt Hill, "Funding Schools Equitably: Results-Based Budgeting in the Oakland Unified School District" (Washington: Center for American Progress, 2008).


The actual calculation ensures that the sum of allocations to LEAs within a state exceeds the lesser of 0.25 percent of all Basic Grant allocations in FY2001 ($7,937,690,000), or the average of this amount and the product of the number of formula children in the state and 150 percent of the national average per-pupil Basic Grant in FY2001. The statute actually specifies 0.25 percent of the FY2008 amount plus 0.35 percent of total allocations for Basic Grants in excess the FY2008 amount in any later year. This language was rendered moot, however, because of the downward trend in Basic Grant allocations illustrated in Figure 2.

The District of Columbia, which would otherwise trigger the state minimum provisions, is explicitly regarded as an LEA, not a state. See 20 U.S.C. § 6333(c)(2). Due to slight differences in the language of state minimum provisions, some states qualify under one formula but not another. Alaska, Delaware, New Hampshire, North Dakota, South Dakota, Vermont and Wyoming trigger the provision for all four formulas, while Hawaii, Idaho, Maine, Montana, and Nebraska each trigger one or two of the provisions. See The Rural School and Community Trust, "Title I Small State Minimums: Rural Education Matters, April 2008, available at http://www.ruraledu.org/sites/c:beJMZDCMr/vb.497215s/CBA7/Home.htm (last accessed December 12, 2008).

The hold-harmless provision is responsible for the fact that 93.8 percent of LEAs received Basic Grants in FY2008, while only 93.6 percent of them were formally eligible to receive them.

Until FY1999, ED actually determined allocations to counties, and SEAs were charged with deciding these allocations among LEAs. In FY2000, largely due to the data improvements represented by SAIFE, ED began calculating preliminary allocations to LEAs directly. The legacy of counties’ role in the calculation, however, lives on. Namely, states with many districts overlapping county boundaries or with many small districts may petition to more or less revert to the two-step system, employing their own poverty data. See Panel on Estimates of Poverty for Small Geographic Areas, "Small-Area Estimates of School-Age Children in Poverty: Evaluation of Current Methodology.

Two differences concern small states. A state’s minimum share of all Concentration Grants is determined in a slightly different way, and SEAs of small states re-calculate Concentration Grants after applying new eligibility criteria, under which LEAs with numbers or concentrations of formula children in excess of the state average are eligible for Concentration Grants. See 20 U.S.C. § 6334(a)(1)(B)(ii).


The hold-harmless provision ensured that 49.7 percent of LEAs received Concentration Grants for FY2008.

85.6 eligible; 86.6 received.

The weighting scheme for calculating allocations to counties differs from that pertaining to LEAs. This difference is operationalized by SEAs who petition to re-calculate grants due to concerns over the numbers of formula students in LEAs overlapping counties or small LEAs.

The exception is in the state minimum step. Targeted Grants, unlike Basic Grants, were not funded in FY2001, so the formula cannot reference the total Targeted Grant appropriation in that year. See U.S.C. 20 § 6335(e).


This statutory approach to calculating fiscal effort differs from the arguably better one used in Table 1. See Goodwin Liu, “Improving Title I Funding Equity Across States, Districts, and Schools.”

Any hope of a causal relationship between a change in state fiscal effort and a change in LEA allocation is dubious at best, as explained by Liu, “Improving Title I Funding Equity Across States, Districts, and Schools.”

20 U.S.C. §6337(b)(3)(B). Alaska, Kansas and New Mexico are assigned a fixed value of funding inequity. This value is 0.1, which seems to differ little from the computed value. For a map portraying states’ funding equity, see New America Foundation’s Federal Education Budget Project, available at http://www.newamerica.net/education_budget_project/school_finance_equity (last accessed December 17, 2008).

20 U.S.C. § 66337(b)(3)(A)(ii)(IV). Only LEAs with enrollment greater than 200 students are used in the calculation of the funding of the equity, and the number of formula children used for weighting purpose is scaled by a factor of 1.4.

Confusingly, the legislation refers to the coefficient of variation as an “equity factor.”

It is likely that Louisiana will stand out for exceptional treatment by federal funding formulas for years to come because of the large influx of federal relief funds to specific parishes in the aftermath of Hurricane Katrina.


The average state funds high-poverty schools at lower rates than low-poverty schools. In terms of state and local revenue, the gap was $825 per student for the 2003-04 school year. In this sense, most state funding systems are regressive. The EITG formula does not discriminate among states on this basis. See Ross Wiener and Eli Pristoop, "How States Shortchange the Districts That Need the Most Help" (in Funding Gaps 2006, Education Trust, Washington, DC, 2006).


In practice the 4 percent set-aside for school improvement is drawn only from funds in excess of those guaranteed by hold-harmless provisions. In recent years, during which appropriations have not increased dramatically, the set-aside has absorbed all or most of the increases in state Title I-A allocations. See Thomas W. Fagan, "Title I Funds—Who’s Gaining and Who’s Losing School Year 2008-09 Update."
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