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Evaluating the "Concrete Link" between Professional Judgment Analysis, New Jersey's School Finance Reform Act and the Costs of Meeting State Standards in Abbott Districts

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The central question addressed in this report is whether funding provided through SFRA by its argued linkage to professional judgment panel analysis, should be presumed constitutionally adequate for achieving state mandated input and outcome goals specifically for students in Abbott school districts.

When evaluating the CEIFA formula, the court noted: "Because CEIFA does not in any concrete way attempt to link the content standards to the actual funding needed to deliver that content, we conclude that this strategy, as implemented by CEIFA, is clearly inadequate and thus unconstitutional as applied to the special needs districts." The court further explained that CEIFA failed to provide the concrete link between standards and the funding needed to achieve those standards in special needs districts in part because "the model district also was not based on the characteristics of the special needs districts. Not one of the twenty-eight SNDs conforms with the model district, and CEIFA does not provide the funding necessary to enable those districts to achieve conformity."

Defendants now argue that the School Finance Reform Act, unlike CEIFA is based on an empirical analysis which explicitly identifies funding levels necessary to achieve state mandated input and outcome standards in all of the state's school districts, including Abbott districts. Defendants argue further that any and all changes made in the translation from the original Professional Judgment Panel (PJP) cost analysis were changes that served only to enhance funding for children attending higher poverty school districts.

In this report, I address whether the professional judgment panel analysis conducted by the NJDOE in collaboration with John Augenblick and colleagues sufficiently establishes a "concrete link between standards and the funding needed to achieve those standards." Further, I address specifically whether the model districts used in the PJP process were "based on the characteristics of the special needs districts." Finally, I address whether the supposed "enhancements" to the original PJP models were, in fact, enhancements.

If NJDOE had conducted a rigorous, well designed professional judgment analysis, the analysis might have identified a reasonable set of schooling inputs to achieve mandated outcomes, but that the link between those proposed inputs and outcomes would still remain tenuous. That link should have been validated through analysis of actual performance levels, schooling inputs and aggregate expenditures of districts having the characteristics of Abbott districts and achieving mandated outcome levels. Without such validation, the linkage between PJP proposed resource levels remains unsubstantiated.

Further, the NJDOE PJP process was highly irregular and methodologically flawed in numerous ways. Most relevant to the court standards laid out above is my finding herein that the PJP process, much like the CEIFA model, was based on hypothetical schools and districts that were not representative of Abbott districts. The NJDOE PJP process included no analysis and no estimates of additional costs of programs for very high poverty moderate to large K-12 school districts, or for school districts near the size of Newark. Finally, I show that many of the changes made by NJDOE staff when translating cost analyses into SFRA systematically disadvantage higher poverty school districts in general and Abbott school districts in particular.

1.0 Uses of PJP and Other *Costing Out* Methods

      While many authors and consultants choose to list "costing out" methods in education as falling into four or more groups (cost function, successful schools, professional judgment, evidence based), the various strategies can be boiled down to two groups – input oriented and outcome oriented, or bottom up and top down methods – where at the bottom are the individual "resources" including teachers, books, supplies, administrators, etc. and at the top are students' educational outcomes. Bottom up methods involve the identification of resource inputs to schooling in order to provide specific educational services, programs, curriculum, etc. Bottom up methods apply a general approach called the Resource Cost Model (RCM), where resource are identified, prices assigned to resources costs determined by multiplying prices times resources (Henry Levin referred to this approach as the Ingredients Method). RCM can be used to measure the costs of programs and services as they presently exist, or can be used to estimate hypothetical programs and services that are desired. Using RCM to estimate the costs of a statutorily or judicially mandated set of programs and services is one such example.

      Professional Judgment Panels and Evidence Based strategies are simply alternative ways to identify the resource inputs that comply with the aforementioned mandates. In the professional judgment strategy, panels of education professionals (teachers, administrators) prescribe the quantities of teachers, support staff, materials, supplies and equipment needed to comply with specified standards. In the "Evidence Based" strategy, external consultants provide the initial model school based on their evaluation of existing empirical research on specific reform models, programs, services and teaching strategies. Problems with this latter approach in the context of state specific standards is that external consultants may not be sufficiently knowledgeable of state specific standards and models and strategies tested in a different educational environment and policy context may not align well to the specific state standards in question.

      The appropriate use of either strategy – professional judgment or evidence based – is identification of educational inputs including programs and services, with the evidence based strategy claiming a research based linkage between inputs and outcomes (tested in different settings). In our forthcoming book chapter, Dr. Green and I note:

> *The central assumption in identifying the "costs of adequacy" is that one can identify the minimum financial input needed for achieving a level of outcomes defined as adequate in a specific state context. In professional judgment RCM studies, panels suggest resource configurations they assume to be reasonable toward achieving desired outcomes in the state context, drawing on their experiences in that context. But, any specific connection between inputs and outcomes is only speculative.* (Baker and Green, in press, p. 443)

While a well designed professional judgment study may lead to a basic cost figure that is sufficient for achieving specific educational outcome objectives, this assumption must be validated with additional empirical tests - for example, evaluating whether actual school districts having the characteristics and resource levels of prototypical districts, actually achieve the outcome levels under investigation. That is, does the hypothetical cost figure generated from PJP analysis, provide sufficient resources such that actual schools districts most comparable to the underlying hypothetical model can, in reality, achieve the stated outcomes?

      As noted, previously, however, more problematic is the use of professional judgment analysis for estimating differences in resource inputs needed in different settings for different children to achieve desired outcomes. In our forthcoming book chapter, Dr. Green and I note

> *Under professional judgment strategies for identifying how resources vary from one child to the next and one school to the next, panels propose alternative resource configurations—primarily staffing ratios—based on their understanding of best practices*

and based on personal experiences, all while considering the common outcome goal. As with setting "adequate" funding, the relationship between these proposed staffing ratios and desired outcomes remains somewhat speculative. (Baker and Green, in press, p. 444)

It may be reasonable to ask professional judgment panels or external consultants to estimate the costs of providing specific educational interventions either assumed or empirically tested to improve or achieve specific educational outcomes for specific student populations. But again, the focus of the task is on input cost estimation. The interventions may be applied to schools or districts having students more likely requiring those interventions. However, when identifying and proposing such interventions, targeted at higher poverty schools or schools with greater concentrations of limited English proficient students, professional judgment panels may only hypothesize the sufficiency of those resources toward achieving actual state outcome standards. **Again, validation is in order - using actual higher poverty districts, their resource levels and outcome levels, to determine the adequacy of PJP recommendations.**

This is not to suggest that a *well designed* PJP process cannot provide useful guidance on additional programs and services for children in higher poverty districts, but rather, that the PJP process cannot - **without additional validation procedures** - establish a concrete link between the aggregate levels of resources proposed in different settings and for different children, and the common outcomes expected of those children.

The PJP process must be well designed across at least these 3 dimensions:

1) PJP panelists must bring to the table extensive professional experience and expertise and panels must be balanced such that they adequately represent the widely varied schooling contexts across the state;

2) a sufficient number of prototypical school settings must be provided to PJP panelists to capture the full range of variation of student needs and educational contexts of the state; and

3) curricular input and student outcome standards provided to PJP panelists must represent the full range of constitutional, statutory and regulatory mandates, educational goals and objectives, with sufficient specificity to guide PJP panelists in the identification and general and specialized educational resource inputs.

2.0 Evaluation of the New Jersey "PJP Model"

In this section, I provide a review of the PJP process as employed by NJDOE with John Augenblick and Justin Sliverstein.

1. As noted previously, PJP panels should be provided with sufficiently detailed standards and the full range of input and outcome standards (statutory, regulatory and judicial). PJP panelists in the NJDOE/Augenblick study were provided a list of core curricular standards, math and reading assessment outcome targets and graduation standards (see Appendix 4-5 of the NJ PJP report). PJP panelists were not provided judicially mandated standards, specifically those judicially mandated standards for supplemental programs to meet the needs of children in high poverty primarily urban educational settings.

2. That the panels were provided selective standards in this particular case may be of little consequence, because the role of the panels in the NJDOE/Augenblick study was merely to react to initial models proposed by NJDOE staff. This approach is highly irregular for PJP

1   analysis and inconsistent with every other Augenblick PJP study I have had the opportunity
2   to review.
3
4   3. Further, the first set of panel reactors to initial models (round 2 panels) involved significant
5   over-representation of district level representatives from middle to upper middle income
6   districts (DFGs GH and I) and under-representation of individuals from poorer urban districts
7   in general and Abbott districts in particular.
8
9   4. Prototype school districts were selected along three dimensions – grade range, enrollment
10   size and poverty (free lunch %). Among the K-12 districts, selected prototype size and
11   poverty ranges ill-represented the actual characteristics of many Abbott districts.
12
13   a. No prototypes represented high poverty moderate sized K-12 districts, yet several
14   Abbott districts fall into this category.
15   b. The upper bound for poverty among large and very large K-12 prototypes also
16   fell below the actual poverty level of many Abbott districts.
17   c. Newark school districts falls well outside of the enrollment size range addressed
18   by any prototype.
19

20   In summary, the NJDOE PJP process involved prototypical schools and districts that do not look
21   like Abbott districts, being discussed by panelists less likely to be from Abbott districts and
22   generally lacking immediate professional experience in or knowledge of Abbott districts. Further,
23   those panelists were not provided with the available specific set of standards established and
24   required by the court to address the unique needs of students in high poverty urban schools and
25   their communities.
26   NJDOE staff appears to share some of the same concerns regarding the application of PJP
27   analysis to early childhood programs. Regarding application of PJP analysis to early childhood
28   programs *A Formula for Success Notes* that PJP "costs were inconsistent across the models, and
29   the resources were not as rich as those present in existing programs." (p. 17). They attribute this
30   finding to the fact that "early childhood experts were not represented on the panels." (p. 17)
31   Subsequent panels were convened to propose revised resources for early childhood programs, but
32   those panels failed because of "confusion over specifying additional costs for at-risk and LEP
33   programs," which was particularly problematic because the programs were to be designed
34   specifically to address the needs of at risk children. The department's resolution to these concerns
35   was to replace the PJP proposals with analyses of actual resources in Abbott pre-school programs.
36   "The Department used detailed line item data available for Abbott districts to estimate the costs
37   of high quality preschool programs for at-risk students." (p. 18)
38   In short, the early childhood PJP analysis was faulty in many of the same ways as the K-
39   12 PJP analysis, due to failure to address the needs of districts comparable to Abbott districts and
40   due to lack of appropriate representation among panel participants. But unlike early childhood,
41   NJDOE officials conducted no additional analysis of the actual programs and services being
42   provided in Abbott districts in order to revise or replace PJP models.
43   In a previous ruling, CEIFA early childhood and demonstrably effective program
44   categorical aids were deemed "inadequate because the streams were not based on 1) a study of the
45   additional needs of Abbott students or supplemental programs, and identification of programs
46   required to address those needs and 3) a determination of the cost associated with each of the
47   required programs, and 4) a plan for the implementation of those programs." Again, this time by
48   way of a biased and seriously flawed PJP process, NJDOE has failed to actually study the
49   additional costs of specific supplemental program needs in Abbott districts or to study regular and
50   supplemental program needs and costs in prototypical settings that closely resemble them.

1

Figure 1: Comparison of PJ Sequence Used in Augenblick Studies
(Abbreviated. See Appendix A for more detail)

State	Year	Round 1	Round 2	Round 3	Round 4	Round 5
New Jersey	**2006**	**NJDOE**	**District/ School Reactors**	**District Reviewer Panel**		
Montana	2007	School Panels	Special Needs Panels	District Panels	Statewide Review Panel	
Pennsylvania	2006	School Panels	Special Needs Panels	District Panels	Philadelphia/ Urban Panels	State Review Panel
Nevada	2006	School Panels	District & Specialist Panels	Overview/ Review Panel		
Connecticut	2005	School Panels	District Panels	Overview/ Review Panel		
South Dakota	2005	School Panels	District Panels	Overview/ Review Panel		
Tennessee	2003	School Panels	District Panels	System-wide Review panel		
North Dakota	2004	School Panels	District Panels	System-wide Review panel		
Nebraska	2004	School & Elem. District Panels	District Panels	Expert review panel		
Kansas	2002	School Panels	District Panels	Expert review panel		
Colorado	2003	School Panels	District Panels	Expert review panel		
Missouri	2003	School Panels	District Panels	Expert review panel		

Bruce D. Baker, 2009

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4   Figure 1 provides an abbreviated comparison of the sequence of Professional Judgment
5 Panel composition and activities across all available Augenblick professional judgment studies
6 released since 2002 (Kansas).[1] In Figure 1, I show that that the "costing out" professional
7 judgment study conducted by Augenblick and Colleagues in New Jersey followed very different
8 methods than professional judgment studies conducted by Augenblick in all other cases for which
9 I have report copies. The basic premise of PJP is that panel participants, representing a well
10 balanced group of stakeholders and well balanced set of professional knowledge of schooling, use
11 their judgment to identify the resource quantities (teachers, other staff, materials, supplies,
12 equipment) needed in prototypical schools in order to provide specific curricula and/or achieve
13 specific educational outcomes. In all other Augenblick PJP studies, panels of school level
14 professionals were convened at the first stage in order to do this. By contrast, in New Jersey, the
15 Department of Education provided to panels a preliminary model to which panels were asked to
16 react and modify. Because the New Jersey prototype resource quantities were not built on the
17 judgment of education professionals, but rather proposed by the NJDOE, the process was not a
18 professional judgment process.
19

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[1] Augenblick's Maryland study which preceded the Kansas study (released in 2001) was the first major PJP study conducted by Augenblick - Parallel to Management Analysis and Planning, Inc's Maryland study and the first set of such studies following the Wyoming studies conduced by MAP. The Kansas study represents the first case in which multiple prototypes, of varied size, were addressed by PJP panels. Also excluded above is the Augenblick Minnesota study of 2006, which merely followed up on prior work done by MAP and did not independently estimate a base cost via PJP. The full report was not available for Indiana, a study also released in 2002. The procedures for the Indiana study mirrored those of the Kansas study.

1   A notable feature of Augenblick studies, over time, is that the methods of those studies
2   have frequently been adapted in order to better address specific state policy context issues. For
3   example, early PJP studies in Wyoming and in Maryland addressed costs for only a single
4   prototype elementary, middle and secondary school and attempted to draw statewide conclusions
5   from those single prototypes. In Kansas, Augenblick and Colleagues (John Myers and Justin
6   Silverstein) addressed, by request of a legislative panel, costs in varied sizes of prototypes. This
7   was done because the question of actual costs associated with varied school district sizes had
8   been a contentious issue in that state in previous rounds of school finance litigation.[2]

9   Similarly, in their more recent studies in 2006 and 2007, greater attention has been paid
10   to estimating more precisely the costs associated with needs of special student populations, and
11   additional panels added in the first and/or second stages of analysis including panel members with
12   expertise in working with special populations. Most recently, in Pennsylvania, Augenblick and
13   colleagues also included a special panel to discuss the unique urban context needs of the City of
14   Philadelphia.

15   Yet, no such attempts were made in New Jersey, either to address more precisely high
16   poverty urban context or student special needs, both issues being central to school finance policy
17   deliberations over the past several decades in New Jersey and both having been addressed in prior
18   court rulings.
19
20   More detailed descriptions of panel composition and goals can be found in Appendix A

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[2] Unified Sch. Dist. No. 229 v. State, 885 P.2d 1170, 1192 (Kan. 1994)

1

Figure 2: Importance of Panel Selection

Furthermore, analyses that rest on the judgment of a panel of professionals are vulnerable to the blind spots and biases of individual panel members. **If the panel is poorly drawn or unaware of cost effective educational practices, their cost estimates will be biased.**

Baker, Taylor and Vedlitz (for the National Research Council, Spring 2008)

Bruce D. Baker, 2009

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4   The quote above comes from my work with Lori Taylor and Arnold Vedlitz of Texas
5 A&M prepared last spring (2008) for the National Research Council, as follow to our previous
6 work for the Texas Legislature. The point is plain and simple, and reiterates issues I've laid out in
7 the introduction to this report. For PJP panelists to accurately identify resources needed for
8 specific student populations, those panelists must have fresh experiences in those settings. If the
9 panel is substantially imbalanced, cost estimates will likely be biased.

Figure 3: Distribution of District & School-Based Round 2 Panelists

DFG 2000	Districts Not Represented	Represented by Principal Director or Supervisor	Represented by Supt.	Represented by Business Admin.	Total
A	36	3	0	0	39
B	64	3	0	0	67
CD	64	2	2	0	68
DE	82	0	0	1	83
FG	86	3	0	0	89
GH	65	**3**	**4**	**3**	75
I	94	**4**	**2**	**3**	103
J	23	2	0	0	25
Total	514	20	8	7	549

Total District & School Based Panelists = 35
Total from GH & I districts = 19
Total Superintendent or Business Admin = 15
Total Superintendent or Business Admin from GH or I = 12

Data Source: Appendix 7 (NJ PJP Report), with SFRA profile Data   Bruce D. Baker, 2009

Figure 3 shows that Round 2 PJP panels were substantially imbalanced.[3] Figure 3 shows that 19 of 35 district-based round 2 panel members or 54% of district based panel members were based in districts in factor groups GH and I (upper middle class districts). But, those districts serve only approximately 33% of the children.

District superintendents and business administrators might be considered "strong" representatives in a panel discussion, compared to their subordinates, including building principals. 80% of the superintendents and business administrators on the round 2 panel were from districts in factor groups GH and I.

Round 2 panelists were significantly imbalanced, with representation strongly biased toward GH and I districts and with little representation of Abbott districts. It is difficult if not entirely implausible to conceive how such a panel could adequately address the needs of children in poorer urban districts.

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[3] To the best of my knowledge, we know from the Appendix of the cost study only the names of those individuals who were invited to participate. We do not know who attended for any or all of the time allotted.

> **Figure 4:** Importance of having prototypes that accurately represent actual districts
>
> **For practical reasons, bottom-up analyses rely on a limited set of prototypical districts, which can lead to problems when actual school districts differ from the prototypes. For example, it can be difficult to estimate the costs of operating a district with 600 pupils, when prototypes have been estimated with 200 pupils and 1000 pupils. Similar issues exist in the accommodation of student needs, where only a limited range of possibilities may be feasibly represented in the prototypes. The greater the difference between the prototypes and the actual schools, the greater is the margin for error. It can be particularly problematic to estimate costs when the actual schools differ from the prototypes in more than one dimension, as would occur when schools both were smaller and served more disadvantaged students than the most similar prototype. Even apparently subtle differences in applying the prototypes to the real world (such as choosing to interpolate between prototypes linearly instead of nonlinearly) can lead to significantly different cost estimates.**
>
> **Baker, Taylor and Vedlitz (for the National Research Council, Spring 2008)**
>
> Bruce D. Baker, 2009

Figure 4 provides another quote from my recent work for NRC with Lori Taylor and Arnold Vedlitz. In research design terms this issue and the previous issue of panel member selection are issues of *sampling* and *sampling frames.* When one is trying to develop a research study or perhaps a focus group exercise, one starts by identifying the context to which the findings should generalize. In the case of the New Jersey PJP study that context would include all school districts, and the children they serve, across the state of New Jersey. Then, one must identify those critical dimensions across which the population and or institutions of interest vary - like poverty, urbanicity and size. In the cases o PJP analysis, both the focus group participants (panelists) and the hypothetical scenarios must be distributed across the relevant dimensions such that they represent the actual population they were intended to represent. Figure 3 showed that the focus groups, or panelists, were substantially imbalanced.

The quote in Figure 4 addresses two concerns with selection of the hypothetical scenarios to be addressed by PJ panels. First, if too few hypothetical scenarios are chosen, the distances between hypothetical scenarios on dimensions of size or poverty might be too far to make reasonable judgments about how costs vary for all of those actual districts whose characteristics lie somewhere in that middle ground. However, **far more problematic is the case where individual districts or large groups of districts lie well outside the range of any hypothetical scenario discussed.**

Figure 5: Distribution of Prototypes by Size and Poverty Relative to Abbott Districts (Enrollment <10,000)

Data Source: Table 4 (NJ PJP Report), with SFRA Profile Data & Enrollment 2007-08 (Free Lunch %)
http://www.state.nj.us/education/data/enr/enr08/

Bruce D. Baker, 2009
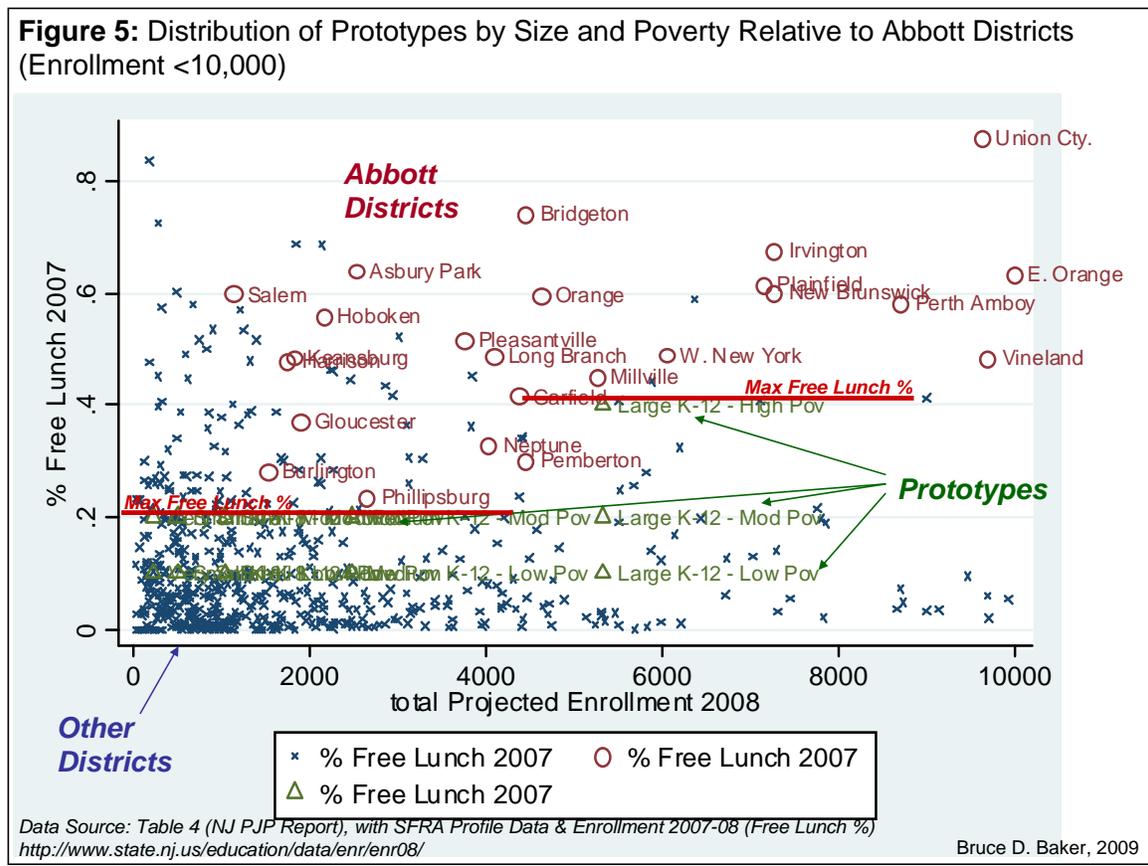
Figure 5 above focuses on districts having fewer than 10,000 students. Prototypes are shown in Green (triangles), Abbott districts in Red (circles) and other districts in Blue. The red horizontal lines indicate the maximum poverty levels address by prototypes. Prototypes indicated above are based on those in Table 4, page 9 of the *Report on the Cost of Education.* While the prototypes range in size and grade configuration, the smaller prototypes in particular, do not vary beyond 20% Free Lunch in poverty rate. Yet, many Abbott districts are relatively small and have much higher poverty rates than addressed by any relevant prototypes.

In the NJDOE PJP process, no analysis was conducted for high poverty, small districts. No marginal costs are reported for these higher poverty smaller districts in Table 5 page 11. They were simply excluded outright.

Even among "large" districts, the highest poverty prototype addressed is near the lower bound of actual poverty rates of Abbott districts. The needs of these districts were also excluded outright from analysis in the PJP process.

Figure 6: Distribution of Prototypes by Size and Poverty Relative to Abbott Districts (Enrollment >10,000)

Data Source: Table 4 (NJ PJP Report), with SFRA Profile Data & Enrollment 2007-08 (Free Lunch %)
http://www.state.nj.us/education/data/enr/enr08/

Bruce D. Baker, 2009
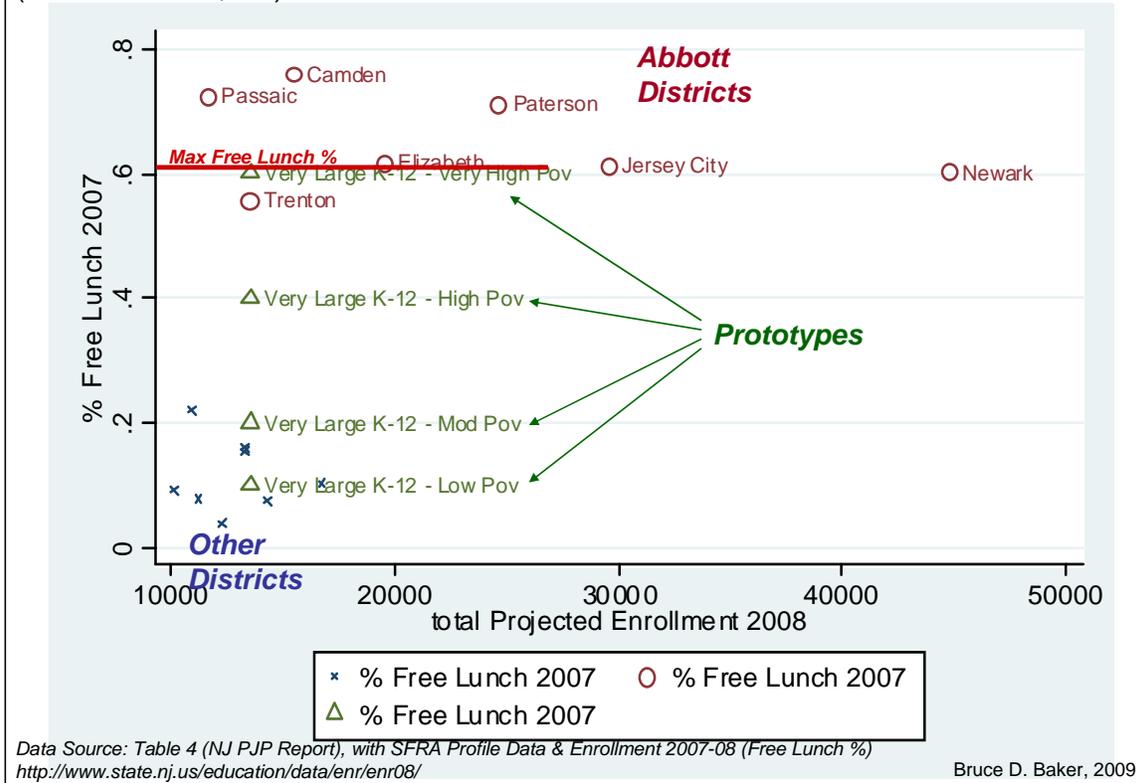
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3   Figure 6 provides a continuation of Figure 5, showing the largest districts by comparison
4 with prototypes selected. First, the largest of Abbott school districts are much larger than the
5 maximum prototype addressed. Second, Passaic, Camden and Paterson in particular, exceed the
6 maximum poverty level addressed by prototypes.
7   Cost estimating procedures necessarily require some "interpolation" and "extrapolation,"
8 where interpolation within the PJP framework means estimating the costs for an actual district
9 that lies somewhere between existing prototypes and extrapolation means estimating the costs of
10 districts that lie outside the range of the prototypes. The former – interpolation – is more precise.
11 Prototypes should be selected such as to minimize the need for extrapolation. In the case of the
12 New Jersey analysis and prototypes selected, substantial extrapolation is required for nearly all
13 Abbott districts.

Figure 7: Mean, Minimum and Maximum Free Lunch% in Abbott versus PJP Prototype Districts

Data Source: Table 4 (NJ PJP Report), with SFRA Profile Data & Enrollment 2007-08 (Free Lunch %)
http://www.state.nj.us/education/data/enr08/   Bruce D. Baker, 2009
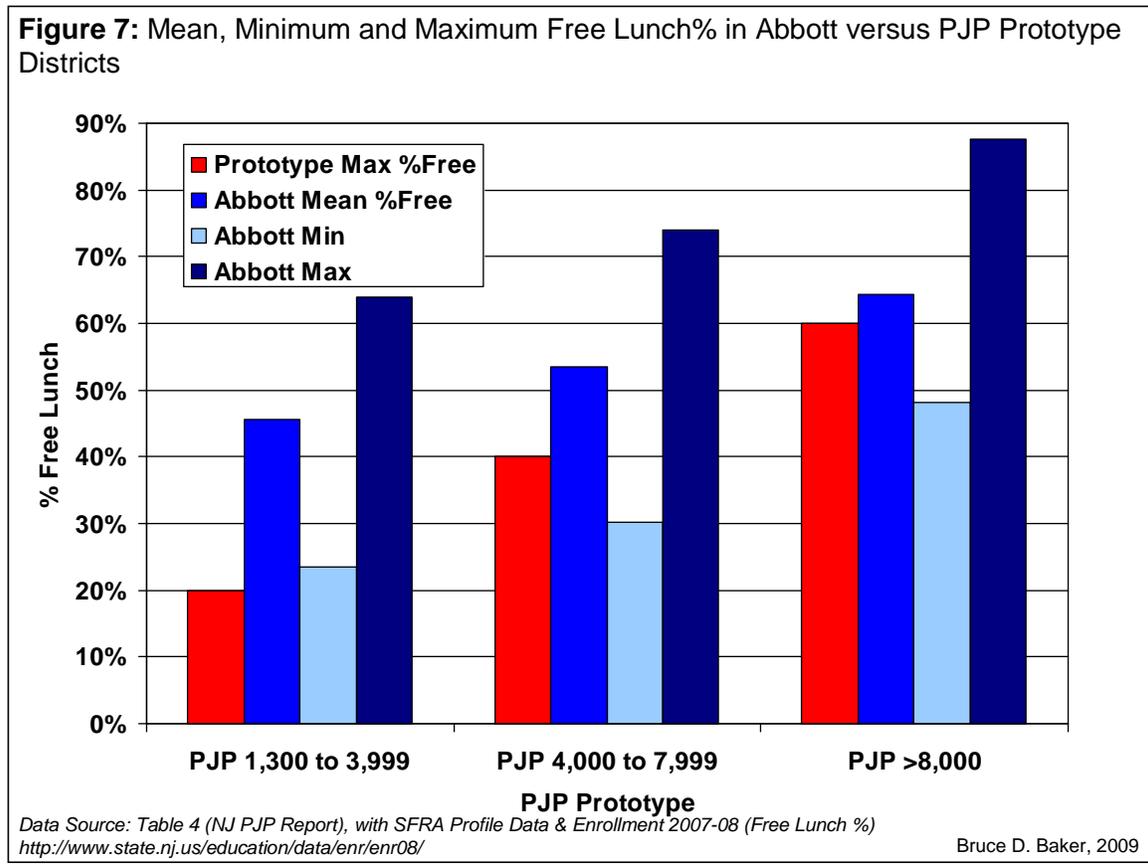
1
2
3   Figure 7 shows the average, maximum and minimum characteristics of Abbott districts
4   compared to prototypes used in PJP analysis. Among K-12 districts enrolling 1,300 to 3,999
5   students, Abbott districts on average had over twice the Free Lunch percent of the highest Free
6   Lunch % level addressed and reported for the PJP analysis. Even the lowest Free Lunch % Abbott
7   district in this size range had higher Free Lunch % than the highest prototype addressed.
8   For the prototype representing districts with 4,000 to 7,999 students, again the actual PJP
9   average percent free lunch exceeded by more than 10%, the highest prototype free lunch percent
10 and the maximum Abbott Free Lunch % was nearly double the maximum prototype addressed.
11 Only the minimum Free Lunch % Abbott district in this size category fell below the maximum
12 Free Lunch % prototype. Issues are similar with the largest PJP prototypes, even though the
13 maximum Free Lunch % was increased. Still, the average Abbott district had higher Free Lunch
14 percent addressed by the maximum prototype and the highest Abbott Free Lunch % district in this
15 category had more than 20% (nearly 30%) more children on Free Lunch than the maximum
16 Abbott district.
17   Abbott district characteristics fell well outside of the ranges of characteristics addressed
18 across the two dimensions of the prototypes.

3.0 Summary of DOE Changes to NJ PJP when Creating SFRA[4]

In this section, I review and critique the changes made by NJDOE officials in the process of translating PJP findings into the School Finance Reform Act – school finance formula. These changes are referred to by NJDOE staff as "enhancements" in the explanatory document *A Formula for Success.* Specifically, it is argued that the "enhancements" serve to enhance the resources available to high poverty school districts in general, and Abbott districts in particular, such that there should be little doubt that resource levels provided to those districts via SFRA are sufficient to meet any and all relevant standards.

Recall, however, that the PJP process itself was deeply flawed, providing no underlying concrete link between initial regular or supplemental funding and outcome standards - especially in Abbott districts. As such, these changes, or enhancements, even if largely positive with respect to poverty would in the best of cases have only a tenuous connection to the needs of children attending high poverty and Abbott districts. I point out herein that while the move to a sliding scale poverty weight increasing from 47% to 57% as poverty rate increases drives more funding to higher poverty school districts, if we assume the alternative was to provide only a 47% weight to all. However, I lay out herein, how the majority of other changes made by NJDOE officials erase most if not all of this differential.

Those changes and their effects may be summarized as follows:

1. The move from 6 prototypes of varied size and grade range to 1 with weights on varied distributions of children, by grade level, is problematic in two ways:

    a) The move from 6 prototypes of varied grade range to a single model constitutes a move from 6 largely non-representative prototypes relative to Abbotts to 1, even less representative prototype, further weakening the link between any cost analysis of regular and supplemental programs that was done in the PJP process, and the actual needs of children attending high poverty and Abbott school districts;

    b) The choice to use a grade level weighting, derived from school level cost estimates within one of the original prototype districts, disadvantages high poverty Abbott districts. This effect amounts to about $50 per pupil for Abbotts when considering base and at risk totals.

2. The creation of the combination category, which reduced the LEP weight (which was already low in relation to other Augenblick PJP studies, the average being about 71%), was based on an assumption of eliminating "non-overlapping" resources. Yet, there was no evidence from PJP process itself that those resources were redundant and no analysis of the newly proposed configurations to determine their link to the needs of LEP in poverty in Abbott districts.

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[4] Due primarily to time constraints, this section evaluates only those factors which influence estimation of the "adequacy budgets" for grades 1 through 12. In addition, only those factors which are identifiable and separable as specific factors or formula *policy levers* within SFRA are evaluated. Other supposed enhancements included additional resources for maintenance and capital improvements (allocated flatly across districts, per pupil to the best of my understanding), additional resources for professional development, and marginal increases to security staff targeted to higher poverty settings.

1   3. The decision to disregard the special education weighting derived from the PJP analysis
2   and instead allocate a flat amount of funding, based on prior fiscal year average spending,
3   and to allocate a flat amount based not on the actual distribution of children in need but
4   instead on the average classification rate of 14.69%.
5
6   4. The department chose to disregard the NCES Geographic Cost of Education Index
7   discussed in the original PJP report and adopt a flawed variation of the newer NCES
8   Education Comparable Wage Index. Whereas the NCES Education Comparable Wage
9   Index (ECWI) estimates variation in wages across *labor markets* (primarily metropolitan
10   areas), the NJDOE Geographic Cost Adjustment (GCA) adopts portions of the ECWI
11   method to estimate wage variations across counties, leading to a wage adjustment that
12   rewards the state's most affluent counties and penalizes poor districts in neighboring
13   counties.
14

15 The final two concerns above are particularly intriguing because NJDOE officials hang these
16 decisions on evidence produced in external sources, including links to those reports on the
17 *Formula for Success* web site. First, department officials invoke the New Jersey Special
18 Education Expenditures Project (SEEP) report by Chambers, Parrish and Brock (2000) as the
19 basis for adopting a Census Based approach to financing special education programs.
20 Specifically, *A Formula for Success* cites the SEEP finding that as many as 40% of students with
21 disabilities were being misclassified by Tier under the current funding model. The implication is
22 therefore, that a census-based approach will inhibit the over-identification of students into
23 marginal special education categories to begin with and into higher tiers (as under the existing
24 system) in order to obtain greater special education revenue. A Formula for Success fails to
25 mention however, that the NJ SEEP study found that students were being misclassified into a
26 lower (Tier 2), not higher tier, thwarting the usual logic that a census based funding system
27 should be adopted to contain costs by limiting fiscally incentivized misclassification.
28   Chambers, Parrish and Brock explain:
29

30   *In regard to the state's tier funding system, one of the most striking findings from the*
31   *data presented in this report is the apparent lack of understanding of school district staff*
32   *in regard to eligibility by funding tier. When the New Jersey DOE reviewed the tier*
33   *assignments for sample students as submitted by districts for the purposes of this study,*
34   *their best estimate was that over 30 percent of them were wrongly assigned. Many of*
35   *these errors were students incorrectly assigned to Tier 2 funding, which seems surprising*
36   *as districts benefit financially when students are classified in a higher tier. This suggests*
37   *that misunderstanding is at least as big a cause for incorrect tier assignments as any*
38   *systematic attempts to maximize revenues.* (NJ SEEP, page ii)
39 .
40 Further, while NJ SEEP reviews formula options for financing special education programs the
41 report provides no decisive recommendation regarding census-based financing and no empirical
42 analysis regarding whether the true distribution of students with disabilities is sufficiently
43 uniformly distributed such that census based funding is feasible.
44   Similarly, NJDOE invokes the work of Lori Taylor and William Fowler as the
45 methodological basis for the design of the SFRA Geographic Cost Adjustment (GCA), and
46 include a link on the *Formula for Success* web site to the technical documentation on the National
47 Center for Education Statistics Education Comparable Wage Index (NCES ECWI). The claim of
48 NJDOE staff is that the GCA replicates the methodology employed by NCES in estimating the
49 ECWI. The original NJDOE/Augenblick PJP report cited the earlier NCES geographic cost of
50 education index (GCEI) from 1993-94, estimated by Jay Chambers. This index was an hedonic

wage index, which differs conceptually and empirically from a comparable wage index like the NCES ECWI. In previous work I have described these index approaches as follows:

> **Competitive (Comparable) wage** adjustments are estimated for teachers by evaluating regional variations in wages among non-teachers. To the extent that competitive wages for non-teachers in specific occupations and industries (at similar levels of experience, education, age, etc.) vary across regions or school districts within a state, so too, it is assumed, that competitive wages for teachers must vary. Because local labor markets vary, competitive teacher wages must vary.[5] If, after controlling for degree levels and age, occupation and industry, non-teachers on average earn 10% more in Region A than in Region B, so too it is assumed that teachers should be paid a higher wage in Region A than Region B. It is assumed that the 10% differential reflects a legitimate labor cost differential between the two regions, including among other things, differences in the cost of living for otherwise similar workers, as well as preferences to live and work in one location versus another at any given wage.
>
> A related assumption is that the relative competitive wage of teachers should be similar across regions within state, reducing the likelihood that in some markets more than others, teachers will migrate to non-teaching professions. However, little is known about the mobility of teachers into other supposedly comparable or competitive professions and vice versa, and less is known about the potential role of wages in influencing mobility into and out of the teaching profession from other professions. Podgursky, Monroe & Watson (2004) note: "Examination of non-teaching earnings for exiting teachers finds little evidence that high-ability teachers are leaving for higher pay." (p. 507)
>
> **Hedonic wage** adjustments focus specifically on teachers' employment choices within the field of education and attempt most directly to provide each school district with comparable opportunity to recruit and retain teachers of similar quality. A vast body of educational research indicates that teachers' job choices are driven primarily by location and work conditions including but not limited to student population characteristics. Neither cost of living indices nor competitive wage indices addresses work conditions of teachers. Among those work conditions that are typically considered outside of the control of local school administrators are student population characteristics, crime and safety issues and to some extent facilities quality and age. A well estimated hedonic wage index should capture the negative effects of difficult work conditions on teacher choices, resulting in higher index values for the cost of recruiting a teacher of comparable quality into more difficult working conditions, assuming all else equal. This is easier said than done. Other factors beyond the control of local school administrators may include the remoteness of a school district and access to local amenities. Hedonic wage indices also include consideration of cost of living factors. Where cost of living adjustments alone may simply serve to support a better quality of life (rather than similar quality of life) for teachers in more affluent school districts, a hedonic approach can counter some of this effect with work condition and location factors that often contrast with cost of living measures.
>
> Shortcomings of the hedonic approach most often relate to the availability of sufficient, detailed data to capture expected patterns of competitive wage variation in relation to teacher quality. Presently, teacher wages vary both within and across school districts primarily as a function of years of service and degree level, due to the single salary schedule used in nearly every public school district. Yet, there is little evidence that either years of service or degree level (as typically compensated in the single salary

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[5] For a more thorough discussion of Comparable Wage Indices, See Taylor (2005)

schedule) alone are good measures of teacher quality. In most cases, the best one can do in estimating a hedonic wage model is to control for these two major factors and then discern the extent that work condition factors and costs of living influence the differences in wages across districts for teachers at similar experience and degree levels. Ideally, available data would include measures of teachers own test scores and/or the selectivity of the undergraduate institutions attended by teachers – two "teacher quality" factors more frequently associated with improved student outcomes. Even when better teacher quality measures are available, if few or no teachers with strong academic backgrounds work in schools with adverse working conditions it can be difficult to estimate what it would take to get them there. (from Baker, 2008, AERA Wage Paper - Attached)

In short, a Comparable Wage Index is a macro level adjustment and an Hedonic Index addresses both macro level differences in wages and micro level differences. That is, a comparable wage index is intended to capture the average differences in wages from one labor market to the next, whereas an hedonic index may also capture differences in wages necessary to compensate for differences in working conditions from one school district to the next.

Instead of applying the hedonic approach to individual districts or a comparable wage approach to labor markets (metropolitan areas or "core based statistical areas"), NJDOE decided to apply the data and other covariates (control variables) used in a comparable wage framework to achieve a county level wage index. But a county is neither a labor market nor a school district (in New Jersey), nor any conceptually appropriate geographic unit for indexing wage variation via either hedonic or comparable wage modeling. Using a county unit of analysis is particularly problematic in comparable wage modeling because separating individual counties from their labor markets often means pulling affluent, predominantly white counties away from their poorer, higher minority urban core. The end result is a wage index that suggests the need for the highest wages in affluent suburban counties. This problematic end result was achieved in the New Jersey GCA, awarding Morris and Somerset counties the highest wage adjustments by separating them from Essex, Union and Middlesex counties (respectively). Similar effects occur by separating Bergen and Passaic counties.

In the comparable wage model in particular, "dummy variable" indicators on the geographic units of interest are the primary independent variable of interest. That is, the research fits a statistical model of non-teacher wages as a function of (a) geographic area (labor market place of work), while controlling for (b) personal attributes of workers and (c) occupation and industry of workers. That is, the geographic unit itself is the variable of interest in the model, and the other variables (age, race, gender, degree level, occupation, industry) are controls, or background variables (albeit important ones). While NJDOE appears to have kept in place the major background variables used by Taylor and Fowler, they changed entirely the primary variable of interest – the geographic area. As such, NJDOE did not follow the protocol of Taylor and Fowler that they claim to have followed and did not estimate a comparable wage index.

Summary of Analysis of DOE Changes to NJ PJP models

Model "enhancement" due to the NJDOE decision to scale up at risk weights from .47 up to .57 (relative to a constant .47) is an estimated $666 per pupil for Abbott districts; $375 for non-Abbott A&B; $53 for CD to GH; and $0 for I&J. However reductions due to other NJDOE changes are estimated to be $543 per pupil for Abbott districts; $327 per pupil for non-Abbott AB; $60 per pupil for CD to GH; and a gain of $154 for I&J districts. Losses nearly offset gains for poorer districts, and changes that lead to losses for poorer districts create gains in more affluent districts. These reductions do not include the distortions created by the county level GCA.

1   In addition to the reductions noted above, under the original GCEI, Abbotts would have
2   received $149 per pupil more than IJ districts (among K-12 districts). Under the Taylor/Fowler
3   NCES ECWI, Abbotts would have still received $24 per pupil more than IJ (among K-12
4   districts). But, under the GCA, Abbotts receive $231 per pupil less than DFG IJ because of the
5   distortive effect of using county level analysis. The effect is to disadvantage Abbott districts,
6   relative to their more affluent neighbors in terms of critical efforts to recruit and retain high
7   quality staff in their respective labor markets.
8
9   <u>Conclusions regarding DOE Changes to NJ PJP models</u>
10
11   1. Changes made by DOE, when considered as a package and not in isolation, are largely
12   offsetting in terms of the effect on funding for Abbott districts; and
13
14   2. The package of changes made by DOE do not provide an appreciable, or "generous,"
15   advantage in funding to Abbott districts, as State claims in its SFRA report.

1

Figure 8: Differences between the PJ Cost Study and SFRA

Component	PJ Study	SFRA
Base Cost	By prototype (District grade range and size)	**By grade range of students**
At Risk Adjustment	46% for low concentration very large K-12 to 51.5% for high concentration very large K-12	**Sliding scale from 47% to 57% based on concentration**
Limited English Proficiency Adjustment	42% for very large K-12 (3381/8016) up to 85% (8570/10057) for very small K-8	.50 weight
Combined weight		**At-risk weight + ¼ LEP weight**
Special Education Adjustment	Varied costs by disability (mild, moderate, severe) with moderate at 143% ($11,455) of base (very large K-12)	**Assume 14.69% classification rate, pay $10,898 average excess cost of special education**
Geographic Cost Adjustment	No specific analysis. Included NCES 1993-94 Hedonic Index (p. 17)	**County level Geographic Cost Adjustment (claimed to be based on NCES ECWI)**
Vocational Education		Vocational Education
Pre-School		Pre-School
Security		Security

Data Source: A Formula for Success http://www.state.nj.us/education/sff/reports/AllChildrenAllCommunities.pdf Bruce D. Baker, 2009

2
3
4   Figure 8 provides a brief summary list of differences between the School Finance Reform
5 Act and the PJP study conducted by NJDOE with John Augenblick. Major changes include: the
6 shift from multiple, grade range prototypes of varied size to a single model using student grade
7 level weighting; the shift from poverty weightings that were specific to prototype schools by
8 grade range and free lunch percent to a sliding scale poverty weight which increases from 47% to
9 57% as district poverty rate increases; the shift to a reduced, combined weight for those children
10 qualifying for both the poverty weight and weight for limited English language proficiency; the
11 choice to finance special education on an assumed flat percentage of students qualifying for
12 special education programs (census based funding at 14.69% of enrollment); the choice to
13 abandon the Augenblick recommended NCES geographic cost of education index, and to
14 abandon the NCES comparable wage index itself and its underlying methodologies in favor of
15 constructing a New Jersey specific, county level wage index.

Figure 9: Distribution of Students by Grade Level by Group

Data Source: SFRA Profile Data
(includes only operating type 3 districts)   Bruce D. Baker, 2009
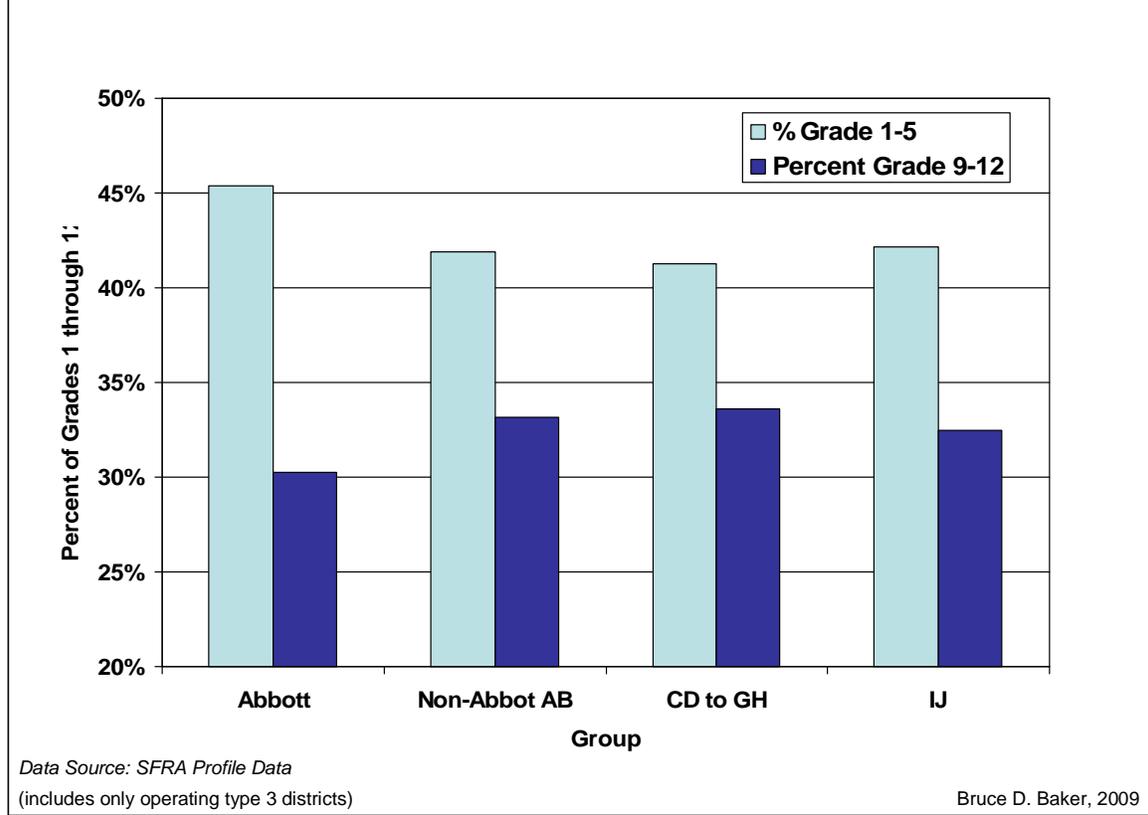
Figure 9 addresses a concern related to the shift to a single underlying model with grade level weighting. Figure 9 addresses only Operating Type 3 (K-12) school districts. Under the original PJP models a K-12 unified school district would receive a specific base figure for all of its students and a K-8 district would receive a different base figure. But, the base figures among unified K-12 districts would not vary by the grade level of students served. The choice to move to a grade level weighting disadvantages higher poverty unified school districts, which tend, on average to have lower percentages of students in upper grades and higher percentages of students in lower grades.

Figure 10: Marginal Costs for ELL in New Jersey from the PJP Study were Very Low

Data Source: Baker compilation of Adequacy Studies Estimates, from Baker, Taylor and Vedlitz, 2008
For National Research Council (Paper and Data Attached)

Bruce D. Baker, 2009
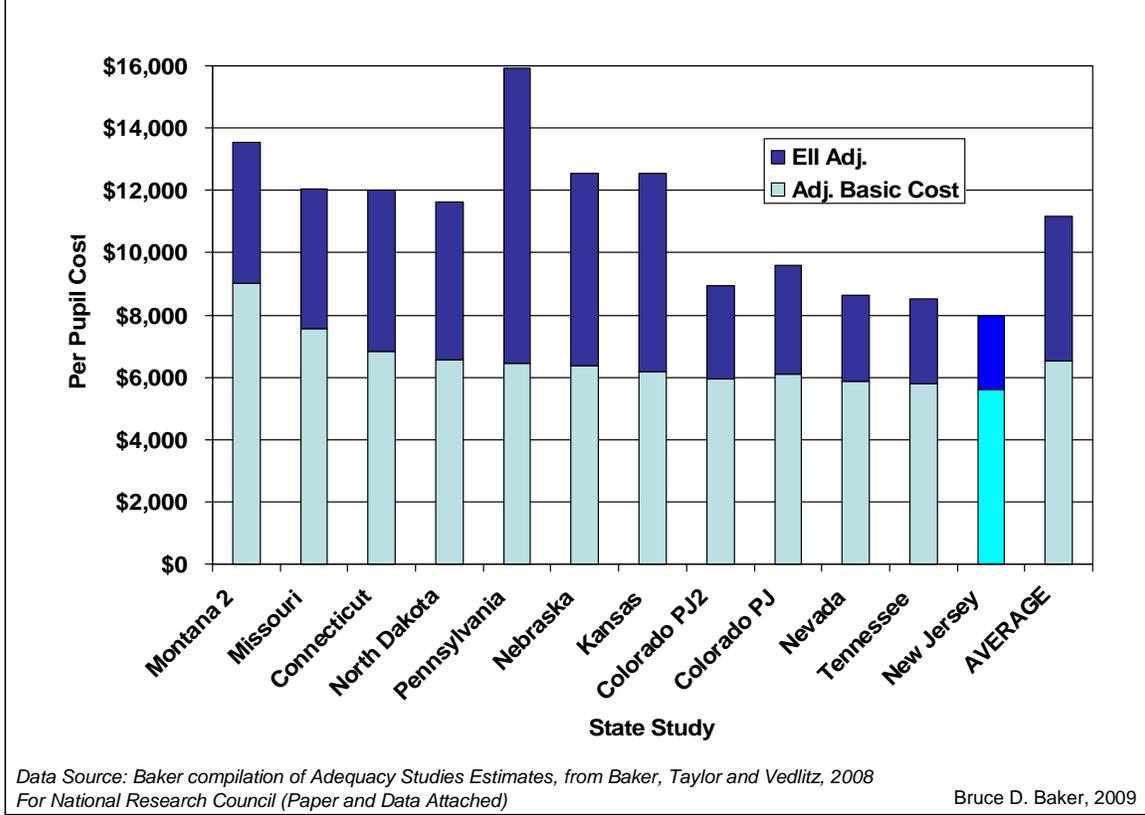
Figure 10 shows that when compared with other Augenblick PJP studies (adjusting for regional and inflationary cost variation using the NCES comparable wage index), the New Jersey findings for base costs and additional costs for limited English proficient children are very low. Yet, despite this low PJP marginal cost estimate for limited English proficient students, NJDOE officials decided to further lower the cost figure for children who would have otherwise qualified for both the LEP weighting and the at risk weighting.

Figure 11: Abbott Districts Have the Largest Numbers of Children Subjected to the Reduced "Combination" Weight

Data Source: SFRA Profile Data

Bruce D. Baker, 2009
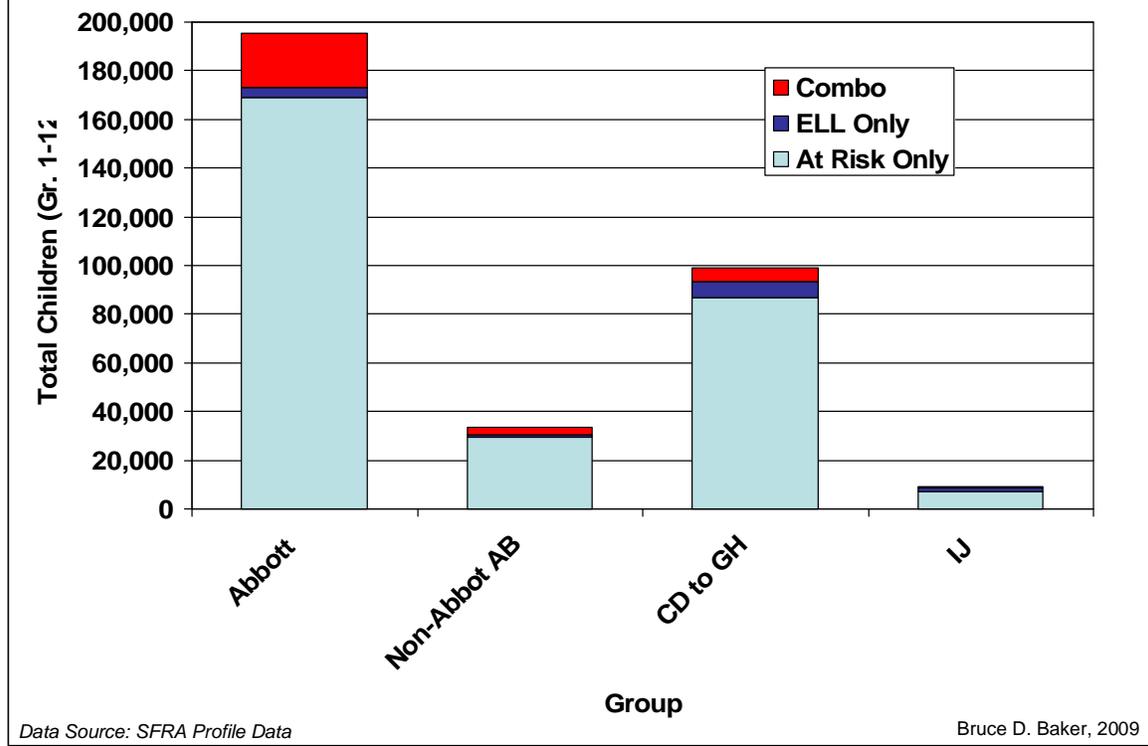
1
2
3   Creating a combined weight for children who would otherwise qualify for both the at-risk
4 and LEP weighting has a disproportionately negative effect on Abbott districts because those
5 districts have the largest numbers of overlapping children.

Figure 12: Abbott Districts Have the Largest Shares of Needy Children Subjected to the Reduced "Combination" Weight

Data Source: SFRA Profile Data   Bruce D. Baker, 2009
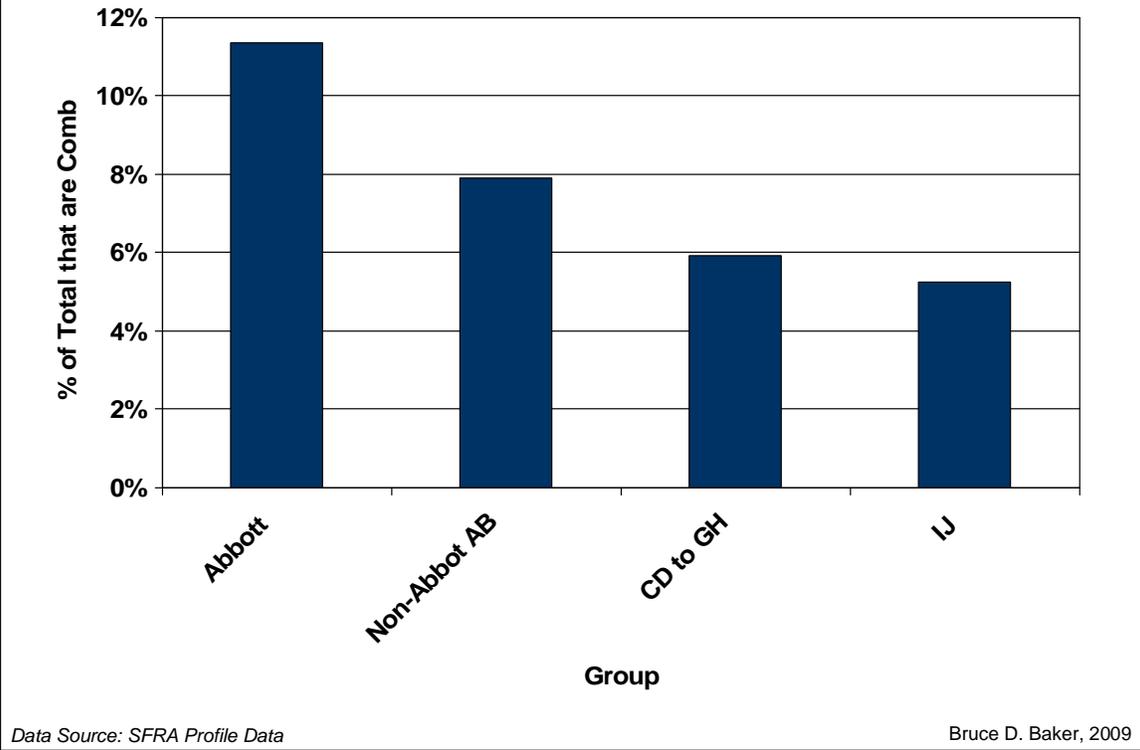
1
2
3   In addition to having the largest numbers of children overlapping at-risk and LEP
4   categories, Abbott districts also have the large shares of total LEP and At Risk children that are
5   re-classified by NJDOE changes as "combination" students. The share of total needy students that
6   fall into the combination intersection declines systematically with district wealth. As such, the
7   disadvantage yielded by the creation of the combination category increases systematically as
8   district wealth declines and poverty increases.

Figure 13: NJ Special Education Expenditures Project (NJ SEEP) Findings

"In regard to the state's tier funding system, one of the most striking findings from the data presented in this report is the apparent lack of understanding of school district staff in regard to eligibility by funding tier. When the New Jersey DOE reviewed the tier assignments for sample students as submitted by districts for the purposes of this study, their best estimate was that over 30 percent of them were wrongly assigned. **Many of these errors were students incorrectly assigned to Tier 2 funding, which seems surprising as districts benefit financially when students are classified in a higher tier. This suggests that misunderstanding is at least as big a cause for incorrect tier assignments as any systematic attempts to maximize revenues."** **(NJ SEEP, page ii)**

Bruce D. Baker, 2009

While NJDOE claims that the decision to move toward a census based funding formula is driven by the findings of the SEEP report prepared several years earlier, the findings of the SEEP report do not justify use of a Census Based formula. As noted previously, A Formula for Success specifically points to the SEEP finding that many children are misclassified by tier under the current (previous) special education finance model. Yet, the quote above, from the SEEP study, points out that many of the classification errors were into lower, not higher tiers. As shown in subsequent slides, moving to a Census based formula means choosing to knowingly fund at less than currently identified need, some school districts, and also to knowingly fund at greater than currently identified need, a roughly equal number of school districts.

Aside from the general illogic of choosing to knowingly overfund some districts while underfunding others, the more offensive effect of such a decision is the pattern of overfunding and underfunding with respect to student population characteristics. See subsequent slides.

Figure 14: Abbott districts will have large numbers of children "unfunded" by a Census Based Special Education formula, but IJ districts will have sizeable portions of children overfunded

Data Source: SE Population Data from Ed Law Center, Enrollment Data from SFRA Profile Data
(includes only operating type 3 districts)   Bruce D. Baker, 2009
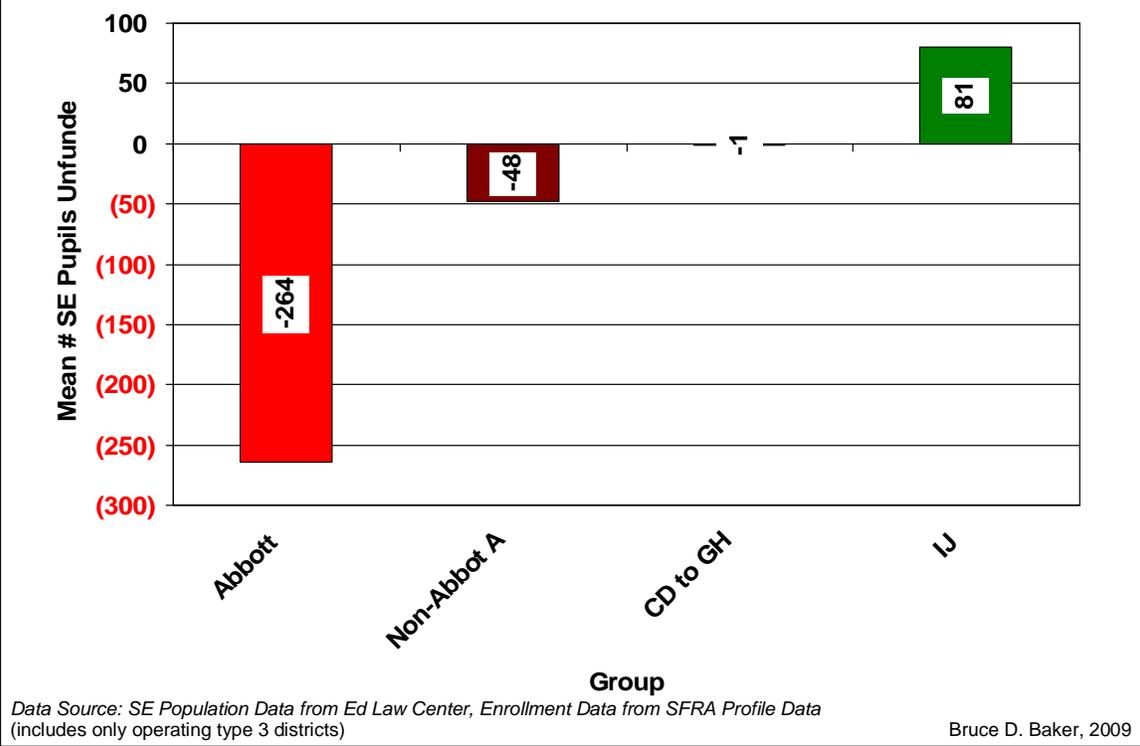
Figure 14 shows that the move to a census based funding system, assuming 14.69% of children to qualify for special education services (excluding speech) systematically disadvantages children with disabilities and other children in higher poverty and Abbott school districts while systematically advantaging children with disabilities and other children in low poverty districts. Applying the 14.69% threshold, the average Abbott school district will have 264 children with disabilities whose special education services are no longer funded under the state school finance formula. As such, Abbott districts will need to find those resources elsewhere in their budgets (on average, about 264 x \$10,898[6] = \$2,877,072). Meanwhile, districts in factor groups I&J will receive special education funding for, on average, 81 children who do not have already identified special educational needs (on average, about 81 x \$10,898 = \$882,738).

---

[6] Assuming this "average marginal expenditure" figure to be correct.

1

> **Figure 15:** Taylor and Fowler Definition of a "Labor Market"
>
>
> "All labor markets are based on "place-of-work areas" defined by the Census Bureau. Census place-of-work areas are geographic regions designed to contain at least 100,000 persons. The place-of-work areas do not cross state boundaries and generally follow the boundaries of county groups, single counties, or census-defined places (Ruggles et al. 2003). Counties in sparsely-populated parts of a state are clustered together into a single Census place-of-work area.
>
> Whenever possible, **places of work have been aggregated into metropolitan areas using the Office of Management and Budget's 2003 definitions for Core-Based Statistical Areas (CBSAs)** (U.S. Department of Education 2005, pp. 205–211).12 Places of work that straddled more than one CBSA were treated as separate labor markets. After the aggregation, there were 800 CBSAs or place-of-work areas in the 2000 census. All parts of the United States are included in either a CBSA or a place-of-work area."
>
> Taylor and Fowler, 2005 (p. 7)
>
> Bruce D. Baker, 2009

2
3
4   Figure 15 provides Taylor and Fowler's definition of the geographic units used for
5 constructing the NCES Comparable Wage Index. The unit itself is referred to as a **Labor Market**
6 and is built on "place of work" data from the Integrated Public Use Microdata System. In
7 metropolitan areas the Core Based Statistical Area is the default definition of a labor market. The
8 definition of a labor market is the centerpiece of the NCES comparable wage analysis. By using
9 counties as the geographic unit of interest, NJDOE did not use this definition, and therefore did
10 not follow the methods of the NCES comparable wage index of Taylor and Fowler. Had NJDOE
11 used a labor market unit of analysis, more affluent counties such as Bergen County would have
12 been combined with Passaic County, Somerset with Middlesex County and Morris with Essex
13 County.

Figure 16: Relationship between NCES Comparable Wage Index (Taylor & Fowler, 2005), NCES Geographic Cost of Education Index (Chambers, 1993-94), NJDOE's GCA and District % Free & Reduced Lunch

	NCES GCEI '93-94	NCES 2005 ECWI	NJ GCA
Unweighted Correlations			
NCES 2005 ECWI	0.847		
NJ GCA	0.797	0.722	
At Risk Percent	-0.063	-0.154	-0.181
Weighted (Enrollment) Correlations			
NCES 2005 ECWI	0.768		
NJ GCA	0.792	0.653	
At Risk Percent	0.177	0.061	-0.043

Districts with higher at risk percent would, on average, receive higher GCEI or ECWI, but instead receive lower GCA

Data Source: GCA and "At Risk Percent" from SFRA Profile Data. NCES ECWI and NCES GCEI from National Center for Education Statistics, Education Finance Statistics Center http://www.nces.ed.gov/edfin/adjustments.asp. See also attached conference paper (Baker, AERA 2008)

(includes only operating type 3 districts)   Bruce D. Baker, 2009

The result of the NJDOE decision to use county level analysis is seen most vividly in the bottom portion (pupil weighted analysis) of the correlation table above. It is not uncommon for a regional CWI to be inversely associated with poverty across regions within a state. In some states (typically more rural states), higher poverty school districts are located in lower wage regions of the state. In New Jersey, however, the NCES CWI is slightly positively correlated with poverty rates because the largest poor districts operate in high wage labor markets in New Jersey. The NCES GCEI, which accounts for localized working conditions, is more positively associated with district poverty rates because it accounts, at least partially, for the difficulties of recruiting and retaining teachers in higher poverty urban settings.

However, the New Jersey Geographic Cost Adjustment is negatively correlated with poverty and has a much weaker correlation with the NCES ECWI than one would expect if the underlying method was "replicated." This occurs because, while high poverty districts in New Jersey are in higher wage labor markets, they tend to be in lower wage counties within those labor markets. Using the county as unit of analysis for comparable wage adjusted led to a geographic cost adjustment that favors the state's wealthiest counties, including Bergen, Morris and Somerset, and disfavors poorer neighboring counties that otherwise share the same labor market.

Figure 17: Cumulative Effects of NJDOE Changes in Translating Cost Analysis into SFRA

	Abbott	Non-Abbot A&B	CD to GH	IJ
Children	252,662	60,950	444,856	170,413
Districts	31	23	123	43
Loss to Base from GL Adj.[1]	-$38	$12	$19	$2
Loss to At Risk from GL Adj.	-$10	$5	$4	$2
Loss to LEP from GL Adj.	$1	$2	$0	-$1
Loss by Creating Combo (& GL) [2]	-$332	-$161	-$49	-$11
Loss to SE Categorical from CB [3]	-$55	-$61	-$11	$54
Loss to SE Equalized from CB	-$109	-$123	-$22	$108
Cumulative Loss per Pupil	-$543	-$327	-$60	$154
Cumulative Total Loss	-$137,292,431	-$19,909,897	-$26,548,272	$26,282,060
Poverty Weight Enhancement (per pupil)	$666	$375	$53	$0

GL = Grade Level Adj. & Single Prototype

CB = Census Based (versus Actual Rate, non-Speech)

[1] Relative to "what if" scenario where all districts have same distribution of elem, middle and secondary

[2] Relative to using full cumulative weight for at risk and LEP, and using uniform grade level distribution of combo kids

[3] Relative to providing 1/3 of 10,898 per actual SE pupils excluding speech

Data Source: SFRA Profile Data (Simulated "what if" scenarios attached). Special Education population data provided by Education Law Center (attached)

(includes only operating type 3 districts)   Bruce D. Baker, 2009

Figure 17 above shows the cumulative effect of NJDOE "enhancements" for Abbott Districts, Non-Abbott A&B districts, districts in factor groups CD through GH and districts in factor groups I and J. The analysis includes Operating Type 3 districts - K-12 school districts that would receive the same basic aid per pupil were it not for the introduction of grade level weighting.

First, if one assumes that the poverty weight would have otherwise been 47% for all districts, the potential average gain for Abbott districts by scaling up the weight would be $666 per pupil (all per pupil amounts are *per all enrolled pupils*). For non-Abbott A&B districts, the poverty weight enhancement yields $375 per pupil and for DFG I&J districts there is no gain from the scaled poverty weight because none of these districts have elevated poverty levels.

For Abbott districts, the average effect on base funding of the grade level adjustment (relative to average grade level distribution of students), is a reduction of $38 per pupil. The ripple effect of grade level adjustment through at-risk funding eliminates an additional $10 per pupil. Creating the reduced "combined" weight (relative to cumulative at risk and LEP weight) with grade level effect also included subtracts an additional $332 per pupil from Abbotts. Further, funding special education per 14.69% pupils rather than per actual identified pupils subtracts another $164 per pupil (combining equalized and categorical special education).

Before accounting for distorted GCA effects, Abbotts experience a loss of $543 per pupil from arbitrary changes made by NJDOE officials. Notably, as one moves up in wealth class, the per pupil losses decline, to the point where districts in factor groups I&J actually gain $154 per pupil from these arbitrary changes.

1

Figure 18: Cumulative Effects of NJDOE Changes in Translating Cost Analysis into SFRA

Data Source: SFRA Profile Data (Simulated "what if" scenarios attached). Special Education population data provided by Education Law Center (attached)
(includes only operating type 3 districts)

Bruce D. Baker, 2009
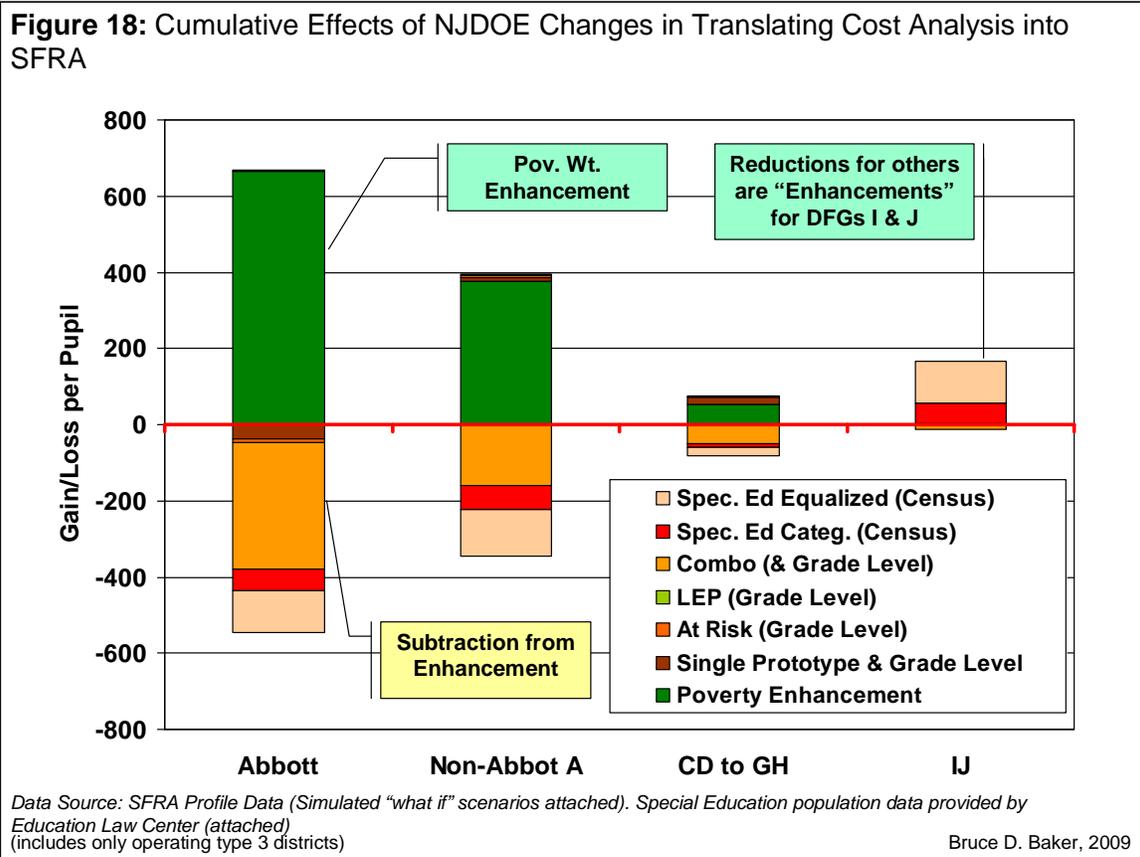
2

Figure 19: Differences in average Index Value by District Group

Index	NCES GCEI '93-94	NCES 2005 ECWI	NJ GCA
Type	*Hedonic*	*Comp. Wage*	*N/A*
Geog. Unit	District	Labor Market	County
Index Values			
Abbott	1.028	1.017	1.009
Non-Abbot A	0.995	0.991	0.989
CD to GH	1.000	1.003	0.998
IJ	1.013	1.015	1.031
Index x $10,277[a]			
Abbott	$10,561	$10,451	$10,368
Non-Abbot A	$10,224	$10,184	$10,162
CD to GH	$10,280	$10,311	$10,254
IJ	$10,413	$10,426	$10,599
Abbott to IJ Difference PP	$149	$24	-$231
Avg. Classroom Difference[b]	$2,701	$445	-$4,197

[a] base with average grade level distribution

[b] based on elem. prototype for Large K-12 having 400 students and 22 classroom teachers

Data Source: GCA from SFRA Profile Data. NCES ECWI and NCES GCEI from National Center for Education Statistics, Education Finance Statistics Center http://www.nces.ed.gov/edfin/adjustments.asp. See also attached conference paper (Baker, AERA 2008)

(includes only operating type 3 districts)   Bruce D. Baker, 2009

Figure 19 addresses the effects of the NJDOE Geographic Cost Adjustment. If the state had adopted the NCES GCEI as recommended by Augenblick, Abbott districts, on average would receive the highest wage index among these groups. If NJDOE had adopted the NCES ECWI the Abbott districts also would have received the highest average wage index. But, using NJDOE's own Geographic Cost adjustment, I&J districts receive the highest average wage adjustment.

These effects are best explored in relative terms. If we take the average base funding per pupil (using average grade level distribution for a K-12 large district), and apply the NCES GCEI, Abbott districts would receive a wage adjustment about $149 per pupil, or $2701 per classroom higher than DFG I&J districts. If we use the NCES ECWI instead, Abbott districts would receive a wage adjustment of $24 per pupil or $445 per classroom higher than DFG I&J districts. **But, when using the GCA, I&J districts receive, on average, a wage adjustment $231 per pupil and $4,197 per classroom higher than the Abbotts.**

This effect is simply backwards, and a result of technically bad and conceptually wrong analysis.

Figure 20: Effect of Grade Level Adjustment and GCA on Neighboring Districts in *Same NCES ECWI Labor Market – Franklin Twp. & New Brunswick*

District	FRANKLIN TWP	NEW BRUNSWICK CITY	New Brunswick at Same as Franklin	Effect of Arbitrary Decisions on New Brunswick
County Code	35	23		
County	SOMERSET	MIDDLESEX		
GCA	1.061	1.018	1.061	
DFG 2000	GH	A		
Base Funding per Pupil x GCA	$10,890	$10,319	$10,892	-$574
Base Funding x GCA	$78,409,244	$68,030,815	$71,812,446	-$3,781,631
Base No GCA per Pupil	$10,266	$10,136	$10,266	-$130
Base No GCA	$73,915,200	$66,827,913	$67,683,738	-$855,825
Enrollment gr 1-5	3,178	3,383	2,910	
Enrollment gr 6-8	1,718	1,637	1,573	
Enrollment gr 9-12	2,304	1,573	2,110	
% High School	32.0%	23.9%		
% Elementary School	44.1%	51.3%		

Reduction per Pupil from Grade Level Wt. Alone

Reduction per Pupil from Grade Level Wt. + GCA (rel. to Franklin Twp.)

Data Source: SFRA Profile Data   Bruce D. Baker, 2009

Figure 20 provides a localized view of the distortive effects of the grade level adjustment and NJDOE GCA on neighboring districts that would receive the same base funding if grade level weighting was not applied and would receive the same geographic cost adjustment if the NCES ECWI had been used. In this case, New Brunswick, the higher poverty district of the two has the much higher percentage of children in elementary as opposed to high school. If New Brunswick had the same distribution of children by grade level as Franklin Twp., New Brunswick would receive and additional $130 per pupil. If New Brunswick had both the same grade level distribution and received the same GCA as Franklin Twp., New Brunswick would receive $574 more per pupil. These two effects alone substantially disadvantage New Brunswick on the local labor market for teachers and other school staff relative to its neighbor across the county line to the west.

Figure 21: Effect of Grade Level Adjustment and GCA on Nearby Districts in *Same NCES ECWI Labor Market – Ridgewood Village and Paterson*

District	RIDGEWOOD VILLAGE	PATERSON CITY	Paterson at Same as Ridgewood	Effect of Arbitrary Decisions on Paterson
County Code	3	31		
County	BERGEN	PASSAIC		
GCA	1.031	0.999	1.031	
DFG 2000	J	A		
Base Funding per Pupil x GCA	$10,589	$10,185	$10,589	-$403
Base Funding x GCA	$56,227,328	$231,190,054	$240,345,766	-$9,155,712
Base No GCA per Pupil	$10,269	$10,199	$10,268	-$70
Base No GCA	$54,526,113	$231,490,992	$233,073,862	-$1,582,869
Enrollment gr 1-5	2,298	10,463	9,823	
Enrollment gr 6-8	1,316	6,052	5,625	
Enrollment gr 9-12	1,696	6,183	7,250	
% High School	31.9%	27.2%		
% Elementary School	43.3%	46.1%		

Reduction per Pupil from Grade Level Wt. Alone

Reduction per Pupil from Grade Level Wt. + GCA (rel. to Ridgewood)

Data Source: SFRA Profile Data   Bruce D. Baker, 2009

Figure 21 provides a second local effects example, using the affluent Ridgewood Village school district in Bergen County and nearby Paterson City schools in Passaic County. Again, the poorer urban district has the higher share of children in elementary school and receives $70 less per pupil than it would receive if its enrollment distribution was the same as Ridgewood.
Again, the more affluent district in the more affluent county receives the higher adjustment for competitive wages, even though the two would have received the same adjustment under the NCES ECWI. In this case, if Paterson City received both the same grade level adjustment and the same wage adjustment as Rigdewood, Paterson City would receive and additional $403 per pupil. These two effects alone substantially disadvantage Paterson City on the local labor market for teachers and other school staff relative to its neighbor across the county line to the northeast.

APPENDIX A
Augenblick Cost Studies - PJ Panel Configurations and Sequence

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5	NOTES
		Panel Composition	*Panel Goal*	*Panel Composition*	*Panel Goal*	*Panel Composition*	**Panel** *Goal*				
New Jersey	2003	State Officials	Department personnel provided recommendations of the resources needed in the six hypothetical schools.	School & District Representatives	panels, representing various types of school districts throughout the state, reviewed and modified the resources identified in round one.	one panel of district-level policy makers from various school districts to provide a final set of **recommendati**ons					

| State | Year | Round 1 | | Round 2 | | Round 3 | | Round 4 | | Round 5 | NOTES |
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal				
Pennsylvania	2007	School Representatives	Three panels were convened to address the school-level resource needs of the five hypothetical K-12 school districts. As mentioned previously, APA determined that school size was similar in the moderate, large, and very large districts so the school-level needs of these districts were addressed in a single panel. Each panel was charged with designing schools to accomplish a specific set of performance objectives and standards (which are described in detail in the next section on "Professional Judgment Panel Procedures").	Teachers of Special Populations	Two panels were held to look at resources needed to serve specific student populations. One panel looked at resources in the small districts while the other looked at resources in moderate, large, and very large districts. Each panel reviewed the resources specified by the previous school-level panel for poverty, gifted, and ELL students, then layered in resources for special education students. Each panel also built in the district-level resources needed for each special need student population and the moderate, large, and very large panel "built" three separate sets of district-level resources.		Four district-level panels were held at this stage, one each for small, moderate, large, and very large districts. Each panel reviewed the work of the previous school-level and special needs panel for their size group, and then added in district-level resources for all students.	Two additional panels were held to look at resources needed to serve students in Philadelphia. One panel looked at K-8 schools commonly found in Philadelphia, and the other reviewed the work of the very large panel at the school and district level to decide if the resource allocation would be different because of the district's much larger size and urban setting.		The statewide panel reviewed the work of all earlier panels, discussed resource prices, examined preliminary cost figures, and attempted to resolve some of the inconsistencies that arose across panels.	All panels had 5-8 participants, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials. In total, 66 panelists participated **in the five roun**ds of panels.

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State	Year	Round 1			Round 2		Round 3		Round 4		Round 5	NOTES
		Panel Composition	Panel Goal		Panel Composition	Panel Goal	Panel Composition	Panel Goal				
Connecticut	2005	Each panel had 6-8 people, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials. Multiple panels were used to deal with schools and districts of varying sizes so that APA could determine whether size had an impact on cost.	School-level panels "built" hypothetical elementary, middle, and high schools designed to accomplish a specific set of performance objectives and standards (which are described in the next section on "Professional Judgment Panel Procedures")		District-level panels reexamined the work of the school-level panels and added personnel and other costs that tend not to be school-based (such as costs for district business staff or for an alternative school)		The overview panel reviewed the work of the district panels, discussed resource prices, examined preliminary cost figures and attempted to resolve some of the inconsistencies that arose across panels					

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5		NOTES
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal					
Nevada	2006	combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials	Two panels were convened to address school-level needs in three hypothetical K-12 school districts (small, moderate, and large). Schools in moderate and large districts were addressed in a single moderate/large panel. Both the small panel, and the moderate/large panel "built" hypothetical elementary, middle, and high schools designed to accomplish a specific set of performance objectives and standards (which are described later in this chapter in the section on "Professional Judgment Panel Procedures")	combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials	Three panels were held at this stage: one districtlevel panel, a panel for special needs populations, and a panel for CTE	State Officials	This panel reviewed previous panel work, discussed resource prices, examined preliminary cost figures and attempted to resolve some of the inconsistencies that arose across panels					
South Dakota	2005	Panels had 6-8 participants, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials.	School-level panels. Three panels addressed the school-level needs in different district configurations.	District-level panels. Three panels handled different size K-12 districts. Very small and small districts were addressed in a single panel, while moderate and large districts each had a separate panel.	Overview panel. The overview panel reviewed the work of all other panels.							

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5	NOTES
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal				
Montana	2007	School level panels. Four separate panels were convened to identify schoollevel resource needs in each of the four hypothetical K-12 school districts. All panels "built" hypothetical elementary, middle, and high schools designed to accomplish specific performance objectives and standards (which are described in the next section on "Professional Judgment Panel Procedures"). All panels looked at school-level resources needed for "regular" education students (students with no special needs), as well as for at-risk and LEP students. These four panels did not, however, identify resources for special education students (these were examined by the special needs student panels, see below)		Special Needs panels. Two panels were convened: one to focus on special needs populations for small/moderate sized districts; and the other to focus on the special needs populations of large/very large sized districts. The special needs panels reviewed the resources identified by the school-level panels for at-risk and LEP students then also discussed and identified added resources needed for special education students. Once school-level resources were identified both panels built in any additional district-level resources required for special needs students.		District panels. Two district-level panels were conducted, one for small and moderate size districts and one for the large and very large districts. The district panels first reviewed the work of the school-level and special needs panels. Then they added any district-level resources needed for regular students.		Statewide overview panel. The statewide overview panel reviewed the work of all previous panels. The overview panel looked to resolve any inconsistencies in the school or district findings of previous panels and provided input regarding salary comparisons with other states.			
Tennessee	2003	A school-level panel was created to specify the resource needs of elementary, middle, and high schools in small districts. A school-level panel was created to specify the resource needs of elementary, middle, and high schools in moderate size districts. A school-level panel was created to specify the resource needs of elementary, middle, and high schools in large districts. A school-level panel was created to specify the resource needs of elementary, middle, and high schools in very large districts.		A district-level panel was created to review the school-level costs of small districts and to specify the district resource needs of small districts. A district-level panel was created to review the school-level costs of moderate size districts and to specify the district resource needs of moderate size districts. A district-level panel was created to review the school-level costs of large districts and to specify the district resource needs of large districts. A district-level panel was created to review the school-level costs of very large districts and to specify the district resource needs of very large districts.		A system-wide panel was created to review the work of all of the districtlevel resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.					

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5		NOTES
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal					
North Dakota	2004	A panel was created to specify the resource needs of a single school/district for both very small and small K-8 school districts. A school-level panel was created to specify the resource needs of single school buildings in very small and small K-12 districts. A school-level panel was created to specify the resource needs of elementary and secondary schools in moderate size K-12 districts. A school-level panel was created to specify the resource needs of elementary, middle, and high schools in large districts.		A district-level panel was created to review the school-level costs of both very small and small K-12 districts and to specify the district resource needs of very small and small districts. A district-level panel was created to review the school-level costs of moderate size districts and to specify the district resource needs of moderate size districts. A district-level panel was created to review the school-level costs of large districts and to specify the district resource needs of large districts.		A system-wide panel was created to review the work of all of the districtlevel resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.						

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5	NOTES
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal				
Nebraska	2004	An elementary district panel was created to specify the school-level and districtlevel resource needs of elementary districts. A school-level panel was created to specify the resource needs of schools in very small and small k-12 districts. A school-level panel was created to specify the resource needs of schools in moderate size k-12 districts. A school-level panel was created to specify the resource needs of schools in large k-12 districts.		A district-level panel was created to review the school-level costs of small k-12 districts and to specify the resource needs of small k-12 districts. A district-level panel was created to review the school-level costs of moderate size k-12 districts and to specify the resource needs of moderate size k-12 districts. A district-level panel was created to review the school-level costs of large k-12 districts and to specify the resource needs of large k-12 districts.		We use the term"expert" to designate a small group of people with a broader set of responsibilities than the school-level or district-level panels; in fact, all panel participants were experts based on their education, experience, knowledge, reputation, and/or recognition.	An "expert" panel was created to review the work of all of the district-level resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.				The panels developed an underlying philosophy and specified the resource needs of prototype schools (and, in the case of elementary districts, district-level needs). Resources included the number of staff needed during the school year, the availability of supplemental learning opportunities (during the regular school year and during the summer), the availability of services for some children before kindergarten, equipment, professional development, technology, support services, **and n**on-academic activities.

		Round 1			Round 2			Round 3			Round 4		Round 5	NOTES
State	Year	Panel Composition	Panel Goal		Panel Composition	Panel Goal		Panel Composition	Panel Goal					
Kansas	2002	We organized four prototype school panels to identify the resource needs of elementary, middle, and high schools in four different size school districts. Because we felt that the moderate size school district would be particularly important, we had two separate panels focus their attention on schools associated with that size school district. Because we felt that it would be relatively easy to focus on the resource needs of small school districts, we had a single panel deal with the small and very small size school districts. Finally, a single panel focused attention on the needs of schools in the large school district.			We created two prototype school district panels, one of which focused on the two small school districts and one of the moderate size districts, while the other focused on the large school district and the other moderate size district. The panels reviewed the work of the prototype school panels, amended the list of resources for the prototype schools, and created a resource list for central district activities that had not been included in the prototype schools.			An "expert" panel was created to review the work of all of the district-level resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.						

State	Year	Round 1		Round 2		Round 3		Round 4		Round 5		NOTES
		Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal					
Colorado	2003	A school-level panel was created to specify the resource needs of schools in very small and small districts. A school-level panel was created to specify the resource needs of schools in moderate size districts. A school-level panel was created to specify the resource needs of schools in large districts. A school-level panel was created to specify the resource needs of schools in very large districts.		A district-level panel was created to review the school-level costs of both very small districts and small districts and to specify the resource needs of very small and small districts. A district-level panel was created to review the school-level costs of moderate size districts and to specify the resource needs of moderate size districts. A district-level panel was created to review the school-level costs of large districts and to specify the resource needs of large districts. A district-level panel was created to review the school-level costs of very large districts and to specify the resource needs of very large districts.		An "expert" panel was created to review the work of all of the district-level resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.						The panels developed an underlying philosophy and specified the resource needs of prototype schools. Resources included the number and size of classes to be offered during the school year, the availability of supplemental learning opportunities (during the regular school year and during the summer), the availability of services for some children before kindergarten, equipment, additional amounts of professional development, technology, support services, and nonacademic activities.

		Round 1		Round 2		Round 3		Round 4		Round 5		NOTES
State	Year	Panel Composition	Panel Goal	Panel Composition	Panel Goal	Panel Composition	Panel Goal					
Missouri	2003	A school-level panel was created to specify the resource needs of schools in very small and small districts. A school-level panel was created to specify the resource needs of schools in moderate size districts. A school-level panel was created to specify the resource needs of schools in large districts. A school-level panel was created to specify the resource needs of schools in very large districts.		A district-level panel was created to review the school-level costs of both very small districts and small districts and to specify the resource needs of very small and small districts. A district-level panel was created to review the school-level costs of moderate size districts and to specify the resource needs of moderate size districts. A district-level panel was created to review the school-level costs of large districts and to specify the resource needs of large districts. A district-level panel was created to review the school-level costs of very large districts and to specify the resource needs of very large districts.		An "expert" (or systemwide) panel was created to review the work of all of the district-level resource panels and to discuss the prices (primarily salaries and benefits) needed to cost out personnel resources.						The panels developed an underlying philosophy and specified the resource needs of prototype schools. Resources included the number and size of classes to be offered during the school year, the availability of supplemental learning opportunities (during the regular school year and during the summer), the availability of services for some children before kindergarten, equipment, additional amounts of professional development, technology, support services, and non-academic activities.

APPENDIX B
Districts Represented in Round 2 Panels

District Code	District	County Code	County	Position	DFG 2000	OP TYPE
800	CHERRY HILL TWP	7	CAMDEN	Asst. Supt.	GH	3
1690	GALLOWAY TWP	1	ATLANTIC	Board	CD	2
2100	HAWTHORNE BORO	31	PASSAIC	Business Admin	DE	3
1245	EAST WINDSOR REGIONAL	21	MERCER	Business Admin	GH	3
1255	EASTERN CAMDEN COUNTY REG	7	CAMDEN	Business Admin	GH	5
3410	MOUNT ARLINGTON BORO	27	MORRIS	Business Admin	GH	2
990	CRESSKILL BORO	3	BERGEN	Business Admin	I	3
1840	GREENWICH TWP	41	WARREN	Business Admin	I	2
4860	SOUTH BRUNSWICK TWP	23	MIDDLESEX	Business Admin	I	3
2330	IRVINGTON TOWNSHIP	13	ESSEX	Director	A	3
5185	TINTON FALLS	25	MONMOUTH	Director	GH	2
5090	SUMMIT CITY	39	UNION	Director	I	3
5730	WESTFIELD TOWN	39	UNION	Director	I	3
2390	JERSEY CITY	17	HUDSON	Principal	B	3
5430	WALLINGTON BORO	3	BERGEN	Principal	B	3
2710	LITTLE FERRY BORO	3	BERGEN	Principal	CD	2
3290	MONROE TWP	23	MIDDLESEX	Principal	FG	3
3950	PARSIPPANY-TROY HILLS TWP	27	MORRIS	Principal	GH	3
1170	EAST BRUNSWICK TWP	23	MIDDLESEX	Principal	I	3
5400	VOORHEES TWP	7	CAMDEN	Principal	I	2
1900	HADDONFIELD BORO	7	CAMDEN	Principal	J	3
3460	MOUNTAIN LAKES BORO	27	MORRIS	Principal	J	3
5390	VINELAND CITY	11	CUMBERLAND	Supervisor	A	3
4910	SOUTH PLAINFIELD BORO	23	MIDDLESEX	Supervisor	FG	3
185	BARNEGAT TWP	29	OCEAN	Supt	CD	3
270	BELMAR BORO	25	MONMOUTH	Supt	CD	2
4460	RIVERTON	5	BURLINGTON	Supt	GH	2
4560	ROXBURY TWP	27	MORRIS	Supt	GH	3
5000	SPRINGFIELD TWP	39	UNION	Supt	GH	3
5680	WEST ORANGE TOWN	13	ESSEX	Supt	GH	3
240	BEDMINSTER TWP	35	SOMERSET	Supt	I	2
3360	MOORESTOWN TWP	5	BURLINGTON	Supt	I	3
2220	HOLLAND TWP	19	HUNTERDON	Teacher	FG	2
4010	PATERSON CITY	31	PASSAIC	WSR Facilitator	A	3
2770	LONG BRANCH CITY	25	MONMOUTH	WSR Facilitator	B	3