

# Funding At-Risk Students: Re-examining Indiana's Approach

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## Overview

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- Lake Central lawsuit in 1980s compelled Indiana to provide more funding to districts for at-risk students.
- Foundation program modified in 1993 with At-Risk Index (ARI) – categorical funding
- ARI replaced by the Complexity Index. Per-pupil foundation level weighted by CI. No longer categorical funding.



# Performance Gaps Persist in Indiana

Table 1: ISTEP+ Pass Rates for 3<sup>rd</sup> and 6<sup>th</sup> Grade Students by Category, Fall 2006

Student Category	Percentage Passed 3 <sup>rd</sup> Grade English	Percentage Passed 3 <sup>rd</sup> Grade Mathematics	Percentage Passed 6 <sup>th</sup> Grade English	Percentage Passed 6 <sup>th</sup> Grade Mathematics
<b>General Education</b>	79%	76%	78%	86%
<b>Special Education</b>	48%	51%	30%	46%
<b>Proficient in English</b>	75%	73%	72%	81%
<b>Limited Proficiency in English</b>	45%	51%	37%	59%
<b>Paid Lunch</b>	83%	81%	80%	87%
<b>Free or Reduced price lunch</b>	62%	61%	56%	68%
<b>Non-Hispanic White</b>	79%	77%	76%	84%
<b>Asian</b>	79%	82%	79%	90%
<b>Hispanic</b>	54%	57%	52%	68%
<b>Non-Hispanic Black</b>	56%	53%	51%	61%

Source: Indiana Department of Education. Results show the percentages of students in each category scoring either "pass" or "pass +" on the statewide ISTEP+ test.

## Research Questions

1. Does the CI include the right factors?
2. Does the CI use the correct weights for each factor?
3. Does the state's foundation program effectively distribute revenues for at-risk factors?

The answer to each question is decidedly "no"



## Indiana's Complexity Index

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1. NoHS = % of adults in the district with less than a HS ed
2. OneP = % of single-parent families in the district
3. Pov = % of adults in the district below poverty level
4. FreeL = % of students in the district receiving free lunch
5. LEP = % of students with limited English proficiency
  - First three variables identified by state lawmakers in 1993
  - FreeL and LEP added in 2003
  - CI ↑ as % at-risk students ↑

$$CI_j = 1 + \beta_1 * NoHS_j + \beta_2 * OneP_j + \beta_3 * Pov_j + \beta_4 * FreeL_j + \beta_5 * LEP_j$$



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## Correlations

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**Table 3. Correlations between Complexity Index Factors and ISTEP+ Pass Rate**

Factor	<i>ISTEP+</i>	<i>NoHS</i>	<i>OneP</i>	<i>Pov</i>	<i>FreeL</i>	<i>LEP</i>
<i>ISTEP+</i>	1.00	-----	-----	-----	-----	-----
<i>NoHS</i>	-0.50	1.00	-----	-----	-----	-----
<i>OneP</i>	-0.70	0.30	1.00	-----	-----	-----
<i>Pov</i>	-0.64	0.55	0.67	1.00	-----	-----
<i>FreeL</i>	-0.82	0.54	0.79	0.81	1.00	-----
<i>LEP</i>	-0.27	0.28	0.24	0.18	0.35	1.00

- Negative correlations of CI factors and ISTEP+ pass rates
- Positive correlations among CI factors



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**Table 4. Estimated Relationships between Complexity Index Factors and ISTEP+ Pass**

**Rates, Fall 2005**

Variable	Model A	Model B	Model C	Model D	Model E	Model F	Model G	Model H	Model I	Model J
<i>NoHS</i>	-0.635** (.065)	-----	-----	-----	-----	-0.332** (.058)	-0.312** (.060)	-0.136** (.051)	-0.140** (.052)	-0.183** (.053)
<i>OneP</i>	-----	-0.785** (.047)	-----	-----	-----	-0.589** (.057)	-0.573** (.058)	-0.198** (.061)	-0.197** (.061)	-0.221** (.061)
<i>Pov</i>	-----	-----	-1.111** (.079)	-----	-----	-0.253** (.101)	-0.271** (.102)	-----	-----	0.279** (.104)
<i>FreeL</i>	-----	-----	-----	-0.633** (.026)	-----	-----	-----	-0.482** (.048)	-0.487** (.048)	-0.567** (.056)
<i>LEP</i>	-----	-----	-----	-----	-0.574** (.121)	-----	-0.111 (.086)	-----	0.050 (.075)	0.103 (.077)
<b>Intercept</b>	76.76** (1.28)	83.01** (1.13)	74.42** (.77)	77.77** (.59)	66.24** (.54)	86.80** (1.30)	86.42** (1.33)	81.78** (1.21)	81.84** (1.21)	82.31** (1.21)
<b>F-ratio</b>	94.15**	277.71**	199.45**	604.56**	22.43**	137.91**	104.09**	214.82**	160.91**	133.02**
<b>R-squared</b>	0.25	0.49	0.41	0.68	0.07	0.59	0.59	0.69	0.69	0.70

Notes: \*\* significant at the 1% level. \* significant at the 5% level. Data are for 289 public school corporations in Indiana.

- Each factor separately has a negative association with ISTEP+
- In Model J, only 3 of 5 factors have negative and significant associations
- Model with FreeL fits data better than Pov (Model H)
- FreeL accounts for most of the explained variance in ISTEP+

**Table 5: Relationships of Additional Factors with ISTEP+ Pass Rates, Fall 2005**

Variable	Model K	Model L	Model M	Model N	Model O	Model P
<i>NoHS</i>	+0.146** (.056)	-----	-----	-----	-----	-----
<i>OneP</i>	-0.226** (.055)	-0.249** (.054)	-0.174** (.057)	-0.171** (.057)	-0.128* (.056)	-0.127* (.056)
<i>FreeL</i>	-0.451** (.044)	-0.407** (.041)	-0.399** (.040)	-0.385** (.041)	-0.302** (.044)	-0.307** (.045)
<i>ReducL</i>	-0.208* (.099)	-0.199* (.100)	-0.196* (.098)	-0.189 (.097)	-0.248** (.095)	-0.247** (.095)
<i>NoBaMa</i>	-0.295** (.038)	-0.240** (.032)	-0.267** (.032)	-0.266** (.032)	-0.321** (.033)	-0.297** (.048)
<i>NoMI26</i>	-----	-----	-0.361** (.098)	-0.377** (.097)	-0.246* (.099)	-0.251* (.100)
<i>SpEd</i>	-----	-----	-----	-0.145* (.066)	-0.232** (.068)	-0.224** (.069)
<i>Minor</i>	-----	-----	-----	-----	-0.113** (.027)	-0.110** (.027)
<i>Asian</i>	-----	-----	-----	-----	-----	+0.197 (.281)
<b>Intercept</b>	103.40** (2.80)	100.99** (2.67)	105.32** (2.86)	107.79** (3.06)	111.68** (3.11)	109.41** (4.49)
<b>F-ratio</b>	177.63**	216.02**	183.24**	155.50**	143.92**	125.76**
<b>R-squared</b>	0.76	0.75	0.76	0.77	0.78	0.78

Notes: \*\* significant at the 1% level. \* significant at the 5% level. Data are for 289 public school corporations in Indiana.

## Complexity Index Weights

Complexity Index Factor	Weight	Formula for Weight
Percent of adults w/o a high school education ( <i>NoHS</i> )	0.2256	= \$1,019 / \$4,517
Percent of single-parent families ( <i>OneP</i> )	0.1233	= \$557 / \$4,517
Percent of families below the poverty level ( <i>Pov</i> )	0.0768	= \$347 / \$4,517
Percent of students receiving free lunch ( <i>FreeL</i> )	0.2747	= \$1,260 / \$4,517
Percent of students with limited English proficiency ( <i>LEP</i> )	0.1001	= \$452 / \$4,517

- Weights set each biennium by Legislature – not based on adequacy or associations with performance
- Weights in CI differ substantially from original weights in ARI (*OneP* and *Pov* had largest weights in ARI)
- Weights in CI for factors differ from associations with performance (exception: *FreeL*)



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## Weights Using “Proportionality Rule”

Table 8: Illustration of Setting of Complexity Index Weights Using Proportionality Rule

Factors in Complexity Index	Association with ISTEP+ Pass Rates	Association with ISTEP+ Pass Rates Relative to <i>NoBaMa</i>	Weight in Complexity Index if <i>MDP</i> = \$1000	Weight in Complexity Index if <i>MDP</i> = \$2000
<i>NoBaMa</i>	0.321	1.000	0.2000	0.4000
<i>FreeL</i>	0.302	0.941	0.1882	0.3763
<i>ReduL</i>	0.248	0.773	0.1545	0.3090
<i>NoMI26</i>	0.246	0.766	0.1533	0.3065
<i>SpEd</i>	0.232	0.723	0.1445	0.2891
<i>OneP</i>	0.128	0.399	0.0798	0.1595
<i>Minor</i>	0.113	0.352	0.0704	0.1408
Foundation Level Per Pupil ( <i>FL</i> ) =			\$5000	\$5000
Maximum Dollar Premium ( <i>MDP</i> ) =			\$1000	\$2000
Maximum Percentage Premium ( <i>MDP/FL</i> ) =			20%	40%



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## CI Factors and Per-Pupil Funding

May not be a one-to-one relationship between CI components and per-pupil funding:

1. Formula uses weighted average of past enrollments
2. FG had a cap and a floor (2% of previous year's \$/pupil times current enrollment)
3. Formula had two alternative options to FG:
  - Variable grant = last year's revenue/pupil times current enrollment
  - Minimum guarantee grant = last year's revenue plus 1%
  - Total revenue = Max[FG, VG, Min Guarantee]
  - Growing reliance on Min Guarantee (31% in 2000, 79% in 2004)

Changes were made in overlay provisions in 2005, but several remain in the state's formula



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## Correlations of CI Factors and Per-Pupil Revenues

**Table 9: Correlations of Per-Pupil Revenues with Indiana's Complexity Index Factors, 2005-07**

Complexity Index Factor	Correlation with Per-Pupil Revenues		
	2005	2006	2007
% Adults in 2000 who Did Not Graduate from High School ( <i>NoHS</i> )	+0.335	+0.362	+0.387
% Single-Parent Families in 2000 ( <i>OneP</i> )	+0.478	+0.505	+0.520
% Population in 2000 Below Poverty Level ( <i>Pov</i> )	+0.547	+0.580	+0.608
% Students Receiving Free Lunch in 2004 ( <i>FreeL</i> )	+0.528	+0.567	+0.593
% Students with Limited English Proficiency in 2005 ( <i>LEP</i> )	+0.102	+0.116	+0.121

*Notes:* Data are for 292 public school districts in Indiana. Per-pupil revenues for each year represent the total revenues designated for the General Fund of each school district through the state's foundation program, divided by actual or projected enrollments for the fall semester of each year. The data for the variables *NoHS*, *OneP*, and *Pov* were obtained from the 2000 U.S. Census. The data for the variables *FreeL* and *LEP* were obtained from each school district for the most current years available (2004 for *FreeL* and 2005 for *LEP*).



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**Table 9: Summary of Prescribed and Actual Associations between Complexity Index Factors and Per-Pupil Revenues, 2007**

<b>Complexity Index Factor</b>	<b>Weights Used in Complexity Index 2007</b>	<b>Prescribed Associations from the Complexity Index, 2007</b>	<b>Actual Association with Per-Pupil Revenues 2007</b>	<b>Ratio: Actual to Prescribed Association with Per-Pupil Revenues</b>
<i>NoHS</i>	0.2233 (= \$1,019 / \$4,563)	+10.19	+5.93	+58.2%
<i>OneP</i>	0.1221 (= \$557 / \$4,563)	+5.57	+9.47	+170.0%
<i>Pov</i>	0.0760 (= \$347 / \$4,563)	+3.47	+34.52**	+994.8%
<i>FreeL</i>	0.2761 (= \$1,260 / \$4,563)	+12.60	+10.54*	+83.7%
<i>LEP</i>	0.0991 (= \$452 / \$4,563)	+4.52	-7.85	-173.7%

*Notes:* \*\* statistically significant at the 1% level. \* statistically significant at the 5% level. *NoHS* = percentage of the school district's population in 2000 ages 25 and older with less than a 12<sup>th</sup> grade education. *OneP* = percentage of families in the school district in 2000 with a single parent. *Pov* = percentage of families in the school district in 2000 with incomes below the poverty level and with children under the age of 18. *FreeL* = percentage of students in the school district in 2004 who are receiving free lunch. *LEP* = percentage of students in the school district in 2005 who have been identified as having limited proficiency in English.

## Recommendations

1. Change factors used in the CI
  - Drop Pov, LEP
  - Simplify CI to only include FreeL
  - Add new components associated with ISTEP+
2. Make weights proportional to associations with performance
  - Pursue adequacy research to better estimate weights
3. Move CI factors to categorical funding items
  - At-risk funding would not be affected by overlay provisions



## Addendum

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- House version of budget bill calls for CI to be limited to FreeL+ReducL
- Weight for FreeL+ReducL in 2008 is \$2,800 per pupil or  $CI = 1 + 0.5895(\text{FreeL} + \text{ReducL})$
- Formula still retains several overlay provisions
- CI still part of foundation grant...but LEP may be moved to categorical funding
- The Senate will craft their own budget, and then must compromise with House on final budget

