

Remediation Cost in Higher Education: An Exploratory Study Using the National Assessment of Educational Progress (NAEP)



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Abstract

The cost of remedial instruction continues to be a volatile topic in public postsecondary education (Evelyn, 2004; NCSL, 2005). Stakeholders, including legislators and trustees, want to know why the public is "paying twice" for student learning that was supposed to occur at the secondary level (Arney & Pappas, 2005; Soliday, 2002). Using a purely exploratory schema, this study tests for a statistical relationship between state remediation cost and test scores from the National Assessment of Educational Progress (NAEP). Although fraught with limitations, results from this study could be used as a place to begin looking for ways to reduce remediation costs. Correlations were found between state spending on remediation and the percentage of students performing at grade level in both writing and reading. No such relationship was found for math or science scores.

The Study

Breneman and Haarlow (1998) did a study that found several states spending 2-3% of their postsecondary budget on remedial education. Based on their data and work by others (Hebel, 2000; IHEP, 1998; NCSL, 1997), a list of 16 states and their estimated spending on remediation was assembled. This is a topic worth studying: In 2000, the Board of Trustees of the City University of New York voted to phase out most remedial education at the system's eleven colleges (Breneman & Haarlow, 1999).

Remediation spending, as a percentage of the total budget for higher education in each state, was compared with 8th grade test scores for each state in math, science, reading, and writing from the National Assessment of Educational Progress (NAEP). The hypothesis here is that pre-high school state test scores may show a statistical relationship with spending on higher education remediation in that same state.

Findings

Table 1 results show significant correlations between the percentage of state spending on remediation and the percentage of students performing at grade level in writing ($r = -.607$, $p < .05$) and reading ($r = -.564$, $p < .05$). Interestingly, no such correlations were found for math or science scores. The direction of the correlation suggests that states with a higher percentage of students writing and reading at grade level spend less on remediation as a percentage of their budget.

This relationship is further explored using a rudimentary regression analysis, with "% of state higher education budget spent on remediation" as the dependent variable. Regression results given in Table 3 are mixed and, likely due to small sample size, nothing of statistical significance emerged. However, writing does contribute (inversely) the most to the predictor equation for the dependent variable, remedial costs. For example, a 5% increase in "%-at-grade-level" writing scores decreases remedial cost percentage of budget by 20%, a 10% increase decreases cost percentage by 40%! Goodness of fit (R^2) for the regression analysis was .632.

Discussion

Perhaps the best contribution that this study makes to the topic of postsecondary remediation is it gives clues to researchers and policy makers about where to begin looking. It shows that reading and writing scores have the strongest relationship with remediation costs. Certainly not at the expense of math and science, but reading and writing may be academic areas for K-12 leaders to take a closer look at when considering college preparation. Most interesting is the impact that writing scores had on remediation costs in the regression formula: Increased writing proficiency in eighth-graders led to the biggest decrease in remediation cost later on.

Of course, this study is only exploratory in nature and is fraught with limitations. Its usefulness is in raising more questions than answers at this point. One problem stems from a dearth of accurate data on state's cost of remediation. Are there sources for better data about remediation costs in the states? Results from this study and the specific questions raised should help inform future investigators about issues surrounding the cost of remediation in postsecondary education.

References

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Table 1.

Estimated state postsecondary remediation cost as a percentage of total higher education budget and "%-at-grade-level" 8th grade NAEP scores for the 90s.

	Remedial Cost %	% -at-grade-level			
		Math	Reading	Science	Writing
AL	2.0%	50.5%	51.2%	50.6%	53.6%
AK	3.0%	53.6%	54.2%	53.9%	53.4%
CA	1.0%	69.4%	73.1%	75.0%	75.8%
CO	2.1%	56.1%	55.8%	57.5%	55.0%
FL	2.3%	54.2%	53.2%	50.9%	51.0%
GA	1.5%	46.7%	51.6%	50.3%	52.2%
IL	1.1%	66.8%	n/a	57.6%	n/a
KY	2.0%	53.2%	52.3%	55.5%	56.4%
MD	1.2%	75.2%	79.7%	82.3%	79.9%
NJ	1.2%	66.3%	n/a	n/a	n/a
NY	1.7%	69.4%	71.3%	73.4%	70.9%
OH	1.4%	52.2%	n/a	52.3%	n/a
TX	1.8%	46.5%	50.5%	52.6%	50.3%
VA	1.7%	65.2%	62.4%	66.3%	63.6%
WA	1.0%	53.0%	56.7%	55.9%	55.9%
WY	2.8%	52.8%	51.7%	50.6%	49.9%

Table 2.

Intercorrelations between postsecondary remedial costs and NAEP scores.

	Remedial Cost	Math Score	Reading Score	Science Score	Writing Score
Remedial Cost	--	-.463	-.564*	-.473	-.607*
Math Score	--	--	.965**	.917**	.950**
Reading Score	--	--	--	.987**	.984**
Science Score	--	--	--	--	.986**
Writing Score	--	--	--	--	--

*Correlation is significant at the .05 level (two-tailed)

**Correlation is significant at the .01 level (two-tailed)

Table 3.

Summary of regression analysis for variables predicting cost of remediation.

	B	SEB	β	Sig.
(Constant)	3.285	.980		.010
Math	.127	.059	1.906	.062
Reading	-.036	.098	-.567	.724
Science	-.024	.096	-.427	.808
Writing	-.087	.088	-1.439	.347

Note: R^2 for the model = .632