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ABSTRACT

Recently the electorate in some states in the United States has voted to eliminate the use of racial preferences in college admissions. However, many voters still favor fair and just means for promoting ethnic diversity in higher education. In light of these new conditions, researchers are interested in finding alternative measures of merit that can be used in the admissions process. One approach to admissions that holds promise is to construct a "merit index" by subtracting the average test score for the individual's high school from their individual score. When this method is used in admissions in addition to the SAT (or other admissions tests), then it is easier to screen a diverse applicant pool. This study assessed the effects of the merit index on persistence in the first year of college. It compared the predictive capacity of the SAT and the merit index using a set of sequential logistic regressions. It found that the merit index predicts first-year college persistence about as well as the SAT. (Contains 34 references.) (Author/EV)

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Policy Research Report

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Abstract

Recently the electorate in some states has voted to eliminate the use of racial preferences in college admissions. However, many voters still favor fair and just means for promoting ethnic diversity in higher education. In light of these new conditions, researchers are interested in finding alternative measures of merit that can be used in the admissions process. One approach to admissions that holds promise is to construct a "merit index" by subtracting the average test score for the individual's high school from their individual score. When this method is used in admissions in addition to the SAT (or other admissions tests), then it is easier to screen a diverse applicant pool. This paper assesses the effects of the merit index on persistence in the first year of college. We compare the predictive capacity of the SAT and the merit index using a set of sequential logistic regressions. We found that the merit index predicts first-year college persistence about as well as the SAT.

Aptitude versus Merit: What Matters in Persistence

The new debate about the use of racial preferences in college admissions has raised questions about the measures of merit used in the admissions process. In the states of Washington and California the electorate has voted to eliminate the use of racial preferences in admissions. In Texas, the *Hopwood* decision has eliminated the use of racial preferences in college admissions in public universities. The University of Michigan is being sued over the use of race as a factor in the admissions process (*Gratz and Hamacher v. Bollinger, et al.*) (Schmidt, 1998). These developments have sparked a new wave of efforts to find other measures, in addition to standardized tests, that can be used to provide a fair and just approach to college admissions that will also promote diversity. As colleges experiment with different measures of merit that can be used in college admissions, it is also important to consider the potential effects of using these measures on persistence, given that attaining a degree is one of the most important outcomes of higher education (Pascarella &Terenzini, 1991).

The "merit-aware index," derived from the differential of individuals' standardized test (SAT or ACT) scores and the average score for all college-going students in their high schools, provides an alternative measure of merit that can be used to increase diversity in college admissions (St. John, Simmons, & Musoba, 1999). This paper compares the effects of SAT and the merit-aware index on within-year persistence of first year college students. First, we describe the new policy context that has influenced efforts to find alternative measures of merit that also promote diversity in the admissions process. Then we describe the research approach and present our analyses of the effects of one alternative measure of merit on persistence. Finally, we consider the

implications of the analysis for the new policy debates about affirmative action and diversity.

A Changing Policy Context

Legal challenges to racial preferences in college admissions raise serious questions for the entire higher education community. Historically, standardized admissions tests were used to provide neutral measures of ability, or aptitude, for assessing the quality of applicants (Stewart, 1999). At the very least, the Scholastic Aptitude Test (SAT) and the American College Test (ACT) provide standardized measures of achievement that colleges can use to rate students from different high schools. For decades, colleges have used these tests as part of the admissions screening process and more recently, these tests have been used as indicators of college selectivity (Hossler & Litten, 1993). However, a new legal context is influencing the need to rethink the use of merit measures in enrollment and raises questions about the long-term effects of alternative measures of merit.

A New Legal Context

The use of racial preferences in addition to standardized tests in undergraduate admissions emerged as a legal issue at the same time the first round of litigation over college segregation was completed in all states with a history of separate but equal systems of higher education. A brief review of both developments helps set the stage for this analysis.

Although college desegregation began, in West Virginia at least, after the 1954 *Brown v. Board of Education* decision by the U. S. Supreme Court, most states did not take action until after the initial *Adams* decisions in the middle 1970s. In response to

these decisions, the Office of Civil Rights in the U. S. Department of Education required the southern and border states with historically segregated systems to develop plans for systemwide desegregation. Most states developed plans that were eventually approved (Williams, 1977). By 1989, court decisions had been reached in Tennessee; Alabama, Louisiana, and Mississippi were still litigating; and the rest had approved plans.

In 1989, the Mississippi case reached the U.S. Supreme Court, which reviewed a 5th Circuit Court decision that declared Mississippi desegregated because students had a choice about where they attended. In its *Fordice* decision, the U.S. Supreme Court decided that although student choice played a role in the desegregation process, the state also needed to eliminate the vestiges of *de jure* segregation. The cases in Mississippi and Alabama were fully litigated, and the Louisiana case was settled under the parameters set by the *Fordice* decision. These cases included mission-related remedies to promote desegregation of historically Black systems, including use of scholarships for Whites to attend historically Black colleges.

During the same period, the use of race-based scholarships was being litigated in other states. *Podberesky v. Kirwan* in Maryland (4th circuit) modified the use of race-based scholarships in Maryland (1994), and the *Hopwood* decision in Texas upheld a 5th Circuit Court decision to eliminate race-based admissions and scholarships in Texas (1996). These decisions began to dismantle the use of student aid, one element of the prior desegregation settlements that promoted desegregation through student choice. However, knowledge of this litigation did not deter the 5th Circuit Court judges in Mississippi, Alabama, and Louisiana from including scholarships for Whites as part of the settlements for the Mid South desegregation cases.

At virtually the same time that the 5th Circuit Court was beginning to dismantle race-based scholarships and admissions standards for minorities in Texas, the citizens of California were beginning to question the use of racial preferences in college admissions. In 1996, they passed Proposition 209 to eliminate racial preferences in college admissions. In 1998, the citizens of the State of Washington passed a similar measure, Initiative 200 (Gutiérrez-Jones, 1999). Even more recently, Florida announced that state universities would no longer consider race in admissions decisions, admitting instead the top 20% of graduating classes from all high schools in the state (Selingo, 1999).

The Courts have also begun to respond to new legal challenges to the use of racial preferences in college admissions. Recently, the University of Michigan has been sued for using racial preferences in its admissions process (Schmidt, 1998; Sugrue, et al., 1999). While the case could be settled on a technical issue, it could be difficult for the Federal Courts to uphold the use of racial preferences. Most recently, *Tompkins*, a student in Alabama, has challenged the use of race-based scholarships for Whites at Alabama State University (a historically Black institution), a strategy that was implemented as part of the *Knight v. Alabama* decision in 1995 (Center for Individual Rights, 1999).

This new legal context complicates admissions processes in selective public universities. If they use racial preference in admissions, then they either face a need to rethink their admissions practices, or are susceptible to legal challenge. While it is possible that the Courts will uphold the use of racial preferences in admissions, such decisions would run counter to the current direction of federal court decisions, if not to the will of the majority of voters. There is growing evidence that voters would like to see

colleges maintain and improve diversity, but to do so without using racial preferences (Ford Foundation, 1999; Newcomb, 1998).

Rethinking Merit Measures

The position individuals take about the use of racial preferences depends in part on their view of social justice. Many in higher education have argued that there is still reason to use racial preferences (Sugrue, et al., 1999). Some public universities are taking a public position that they want to defend the use of racial preferences (Bollinger & Cantor, 1998; Schmidt & Healy, 1999). However, given the new legal challenges, many higher education leaders have begun to rethink the use of tests and other measures of merit in college admissions.

States that have already been faced with the elimination of racial preferences have begun to make innovative adaptations. In Texas, a deliberate analytic approach was used to develop a new set of empirical criteria that could be used to redirect student financial aid to a larger percentage of minority students (Hanson & Burt, 1999). The University of Texas has increased diversity back to pre-*Hopwood* levels (Carnevale, 1999; Hanson & Burt, 1999). And in California, the University of California Board of Regents recently decided to use in admissions decisions high school class rank rather than test scores, and to admit to the UC system the top 4% of high school classes (Healy, 1999). However, the University of California system still has a substantially lower percentage of African American students than it did before Proposition 209, particularly on the flagship campuses at Berkeley and Los Angeles (Sharlet, 1999).

The use of high school rank offers one way to approach racial parity. The distribution of underrepresented minorities suggests the reasons for this. American

schools are now more segregated than they were before the *Brown* decision (Fossey, 1998; Orfield & Easton, 1996). Further, average achievement test scores are consistently lower in rural and urban school districts (Snow, et al., 1998), a consequence of lower socioeconomic status and poorer quality schools. Many urban high schools are predominantly Black.[1] Thus, if the top ranking students from each high school enrolled, a more diverse group of students would result from using high school rank as compared to the exclusive use of test scores.

However, the use of class rank or grades overlooks the original purposes of admissions testing. Historically, the college admissions tests were created to assist in comparing students from different high schools (Lemann, 1999). This situation challenges us to look more creatively at the use of tests in admissions.

The testing community has also begun to explore new ways of using standardized tests to measure merit for college. In a *Wall Street Journal* article, Amy Dockser Marcus (1999a) broke the story of the Educational Testing Service's attempts to develop a "Strivers" index. This method would identify students with SAT scores that were at least 200 points higher than would be expected from their background. The Strivers approach would identify a higher percentage of Black and other minority students than relying exclusively on the SAT. In theory, the Strivers approach could be used to identify high-achieving students as part of the admissions process. However, the method has been controversial (Gose, 1999) and has been criticized by the College Board, which sponsors the SAT (Dockser Marcus, 1999b).

[1] And most rural high schools outside of the South are predominantly White, which means that efforts to expand access for minorities using new merit measures could also expand access for low-income Whites.

Another approach to adapting the way test scores are used in admissions was proposed by William Goggin (1999). He proposed that colleges use a merit index constructed by subtracting the mean SAT score of the student's high school from the student's own score. This method would produce an index that is sensitive to socioeconomic and racial differences in high schools, similar to high school rank. However, it is consonant with the use of standardized tests in college admissions and K-12 education policy, if not with the historic use of standardized tests in college admissions. Goggin argued that the merit index provides a fair and just approach to admissions:

> Why not create a measure of the extent to which a student's achievement exceeded what could reasonably have been expected given his or her academic background? In particular, why not use a measure of the extent to which the actual test score exceeds the predicted score? Make no mistake, incorporated in the right admissions model, such a merit measure would be as powerful as race and ethnicity in achieving the goals of affirmative action. (p. 9)

The merit-aware index, the differential between individuals' SAT scores and the averages for their high schools, also provides a way of linking college admissions to K-12 education policy. In the past two decades, states have moved toward using the average scores of high school students or the percentage of students passing standardized tests as measures of high school quality. The merit-aware index is consonant with this logic. It provides a means of evaluating the performance of high school students in relation to their high school peers by adjusting test scores to the quality of high schools.

The merit-aware index was only recently introduced and has not yet been used in college admissions. However, an empirical test of the model has revealed that use of the merit-aware index can increase the number and percentage of Black students who are screened into an applicant pool for more complete review (St. John, Simmons, & Musoba, 1999). This means that colleges could adopt the index as a means of selecting meritorious students and increasing diversity. Indeed, it is possible to use the merit index to identify a group of students who merit more complete review as part of a selective admissions process. The process could be used to supplement the use of standardized test scores as a part of the process of selecting a more diverse freshman class without even considering race in the admissions process. However, this method of admissions, like the use of high school rank or high school grades, is potentially subject to criticism for not providing an adequate measure of potential success in college. Therefore, it is important to consider how well the merit-aware index predicts college persistence.

Implications for Persistence

The theory behind the development of standardized tests has been that tests can be used to select students who have a high probability of success in college. If an alternative to standardized test scores is used in the admissions process, then the litmus test is whether the alternative approach predicts persistence as well as standardized tests. If this were the case, then there would be fewer reasons to resist using the merit-aware index as a means of promoting diversity in selective public universities. In this study, we compare the predictive value of SAT scores and the merit-aware index on persistence during the first year of college in a set of analyses of first-year persistence.

Given that most persistence research focuses on year-to-year persistence rather than within-year persistence, it is appropriate to question the wisdom of examining within-year persistence. However, the reader is reminded that year-to-year persistence is a measure of how well students integrate into a particular college, rather than a measure of how well they achieve academically. Typically, persistence studies find that academic integration, including college grades, has an impact on persistence (Braxton, et al., 1997; Pascarella & Terenzini, 1991). Since our concern is the ability to complete the first year of college, the year-to-year approach is less appropriate. Indeed, after the freshman year, college grades provide a better predictor of subsequent persistence than does test score (i.e., SAT or ACT), an issue we address in this paper. Thus, while the focus on within-year persistence may be appropriate for this initial test of the merit-aware approach, future research should examine the ability of the merit-aware index to predict year-to-year persistence.

Research Approach

This study examines the impact of three approaches to measuring student ability in predicting persistence during the first year of college, the SAT test, the merit-aware index, and whether students have a positive score on the merit-aware index (a dichotomous version of merit). Below we describe the method for constructing the merit-aware index, the specifications of the persistence model, the statistical methods, and the study limitations.

The Merit-Aware Index

One of the more difficult issues we faced in the current study was to develop a merit-aware index that we could use in a persistence analysis. Constructing a merit-aware

index requires a more complete data set than is available from institutional admissions records. In some states, high school SAT averages are available to the general public. For example, in Indiana where this study was conducted, the Indiana Department of Education disseminates on the web high school SAT averages for all students taking the SAT. However, we decided to compute a high school average SAT score for this study a little differently.

This study used a random sample of full-time freshmen enrolled in the public system of higher education in Indiana in 1997-98 drawn from the population of students enrolled in state higher education institutions. The sample of students was drawn from the universe of students enrolled in the state system. The sample was drawn after the merit index was imputed for the full data set. For each student, we imputed the average SAT scores for their high school, calculated from the SAT scores of all students from that high school who attended a public higher education institution in the state. Students were sorted by high school code, and high school averages were matched with student records via the high school code. These high school averages then were used as the base for calculating the merit index. The merit index for each student was calculated by subtracting the average SAT score for his or her high school from the student's SAT score.

We decided to use this locally constructed set of high school averages rather than averages from published sources in order to reflect the range of scores for students who attended institutions within the state system. Had we used the published scores, then the merit-aware index would have included students who attended private colleges or public colleges in other states. Many of these other students would have higher scores than

students who remained in public institutions in the state. Since our focus is on state residents who attend the public system of higher education, we decided it was more appropriate to focus on average scores for students enrolled in public colleges and universities. The primary difference between the two measures is that, using the locally constructed mean, a larger percentage of students have positive merit scores because of the restriction to in-state residents in the public system data set. This was an important adjustment, given that Goggin (1999) suggests that only positive merit scores be considered in the admissions screening process. In this study we used a continuous measure of merit, from the lowest score to the highest score, in one test of the merit-aware index. In a separate analysis we assess the effects of having a positive merit score.

Model Specifications

Persistence was defined as enrollment of freshmen students in the fall and in following spring term, that is whether students enrolled for the full academic year. Our analyses use a three-step logical model for comparing the effects of the SAT and the merit-aware index on persistence. Below we describe the specification of variables included in each step (see also Table 1), then we describe the multiple versions of the analysis included in this paper.

In the first step we examine the effect of selected social background variables plus the SAT score (in one version) or the merit-aware index (in the other versions) on within-year persistence. The SAT and merit-aware scores were rescaled by dividing by 100 in the logistic analyses to make it easier to interpret the delta-p for the SAT and the merit index. We also included gender (males were compared to females), age, ethnicity (Blacks and students from other ethnic groups were compared to Whites), whether students were

self-supporting aid applicants, and income (aid applicants were divided into four quartiles and compared to students who did not apply for aid). These variables provide an indication of how student background plus test scores (or merit) influence persistence. Further, this set of variables represents the type of precollege information that a university would have when making admissions decisions.

In the second step, we added college grades to the model. Students with below-C grades (below 2.0), mostly-C grades (2.0 to 2.5), and mostly-A grades (above 3.5) were compared to students with mostly B grades (above 2.5 to 3.5). By including college grades in the second step, we were able to estimate the effects of academic achievement in college, beyond the effects of precollege tests and other background variables.

In the third step we entered a set of variables related to the college experience. These included whether students were enrolled in a research university or two-year college (compared to being enrolled in another type of four-year institution), whether students were enrolled in an associate program, and whether students were living on campus. This analysis provides insight into whether there were any interactions between the direct effects of test scores and student background, and the effects of attending different types of public postsecondary institutions.

This paper includes six versions of the three-step analysis. We analyze the effects of the SAT (Table 2), then the effects of the merit-aware index (Table 3), and finally we examine the effects of a dichotomous variable of having a higher SAT score than an otherwise average cohort member (Table 4). These analyses provide a comparison of the effects of three different ways of using test scores in the admissions process. Then we predict persistence using a model without SAT or merit index (Table 5). Finally, we

repeat all four of these analyses without considering the direct effects of ethnicity (Tables A-1 to A-4). This final set of analyses was considered to test whether there was an interaction between ethnicity and either the SAT or the merit-aware index. In light of the policy debates about the use of ethnicity in college admissions, this is an important consideration.

Statistical Methods

This study uses logistic regression, an appropriate statistical method for dichotomous outcomes (Cabrera, 1994; Hosmer & Lemeshow, 1989). We present three model indicators for each step of the analysis. We use a pseudo R^2, the Cox and Snell R^2, which provides a proxy for the percentage of variance explained by the model. The Cox and Snell R^2 is a more conservative estimate of variance explained than some other possible measures (and thus will be smaller), but it does provide an indication of the improvement of one model over another. The Cox and Snell R^2 represents, at most, the proportion of error variance that an alternative model reduces in relation to a null model. Second, we also present a –2 log likelihood (or –2 Log L), which provides an indication of the fit of the model. A lower –2 log L indicates a better fit. We also present the percentage of cases correctly predicted, which provides a direct indicator of the model's predictive quality.

In addition, we present the change in probability measures (delta-p statistics) for the predictor variables in each of the analyses using a method developed by Petersen (1985) and recommended by Cabrera (1994). The delta-p statistic indicates the change in the baseline probability of persistence attributable to a unit change in a given predictor. For the dichotomous variable persistence, the delta-p indicates the change in persistence

attributable to having a particular characteristic compared to the comparison group. For example, a positive delta-p of .040 for living on campus means that students who live on campus are 4 percentage points more likely to persist than first-year students who do not live on campus.

Limitations

This study has a few limitations that readers should consider. First, we use a policy-oriented model of persistence rather than an institutional-fit model. This policy-oriented model is partially consistent with the current discourse within the higher education community about academic integration processes and does include related measures (e.g. college grades). However, no measures of social integration are used. Nevertheless, we think the model does include the variables needed to assess the persistence effects of shifting from the use of the SAT to the use of a merit-aware index and is consistent with public policy models used to assess the effects of state (St. John, 1999) and federal (St. John, Kirshstein & Noell, 1991) finance policies. Further, the variables included in the analysis are logically structured and consistent with the types of indicators that public officials routinely assess. It may be appropriate to conduct studies using the institutional fit model in the future, if the merit-aware index is actually used in admissions in selective public colleges and universities.

Second, we have not included cases with missing variables. In particular, not all freshmen students in the Indiana public system of higher education had SAT scores reported. However, since our purpose was to compare the effects of two distinct approaches to the use of the SAT, this limitation was not problematic for our purposes. We conducted a supplemental analysis without test scores (see Table A.4 in the

appendix) which confirms that test scores improve prediction of persistence when grades are not known, but do not add to the prediction of persistence when test scores are known.

Third, our analysis does not include high school grades and other precollege indicators of merit. While the state database includes a few additional precollege measures of student achievement[2], we thought it was more appropriate to limit this analysis to a comparison of the SAT and the merit-index. This limitation was important because of our focus on the alternative uses of tests as predictors of persistence. It would be appropriate for future studies to undertake these analyses that compare the effects of a wider range of measures of merit and achievement on college persistence.

Findings

The analyses below compare the effects of different approaches to using standardized tests on the continuous enrollment of students during their first year of college. First we provide a brief overview of the population, then describe the five logistic regression analyses.

Population Characteristics

The population of in-state first-year students (Table 1) in Indiana public higher education in 1997-98 was mostly White (90.8%), but there were substantial percentages of Blacks (5.0%) and other minorities (4.2%). The average age was 18.6. Most students had applied for student aid, as evidenced by the fact that only 38.9% had no income reported. A slight majority of the students (50.4%) were females. Students were spread across the spectrum of income levels with 4.9% being low income, 11.2% lower middle

[2] The state collected information about the type of high school program taken, but not high school grades.

income, 21.2% upper middle income, and 23.8% upper income, with 38.9% not reporting their income levels. In their first semester of college, 30.8% of the students had a grade point average (GPA) below C, 19.8% earned a C average, 38.6% had a B average and 10.8% had earned mostly A's. The majority of students (60.2%) attended four-year institutions that were not research universities. Only 1.5% attended two-year colleges, and 38.4% attended research universities. Eighteen percent were in associate degree program, and 82% were pursuing a baccalaureate degree. The majority (69.3%) lived on campus; 30.7% lived at home or in other off-campus housing.

The Effects of the SAT

The analysis of the effects of SAT test on persistence (Table 2) reveal that SAT scores alone had only a modest direct effect on persistence. In the first step, age was negatively associated with persistence, and SAT scores were positively associated with persistence. Each year of age differential decreased the probability of persistence by first-year students by about 10 percentage points across the three steps of the analysis. In contrast, each 100 points of differential in the SAT test increased the probability of persistence by 1.8 percentage points before grades were considered, but not at all after grades were added.

In the second step, first-year college grades predicted persistence substantially better than the SAT. Earning below-C grades during the first semester reduced the probability of persisting in the spring term by more than 40 percentage points, while earning C grades reduced this probability by about 10 percentage points. However, SAT test scores were not significant after grades were considered. Further, when grades were

entered, the quality of the model improved: the R^2 increased substantially, from .044 to .126, and the –2 log L decreased modestly.

In addition, males were more likely to persist in the second step but not in the third. Since this variable was no longer significant when college experiences (institutional type, degree program and housing) were considered, it is apparent that males have some advantage compared to females because of the type of college attended or the increased probability of living on campus. Clearly, gender differences in persistence is a topic that merits further investigation.

In the third step, a set of variables related to the college experience was added. Attending a research university improved the probability of persistence by 6.2 percentage points, and living on campus improved this probability by 4.3 percentage points. The quality of the model also improved slightly compared to the first model.

It is noteworthy that ethnicity was not statistically significant in any step of the analysis. This finding indicates that in Indiana in 1997-98, minorities had the same probability of persistence as Whites, all other characteristics being equal. The reasons why there was a relatively equal probability of persistence merit further investigation.

The Effects of the Merit-Aware Index

The effects of the merit-aware index on persistence (Table 3) were virtually identical to the effects of the SAT (compare to Table 2). The SAT and the merit-aware index had similar delta-p statistics (.018 for a 100 point change in the SAT to .016 for a 100 point change in the merit-aware index). Also, the model indicators were similar for the first step. They were slightly lower for the merit-aware index but not enough to have

an obvious impact. Further, the delta-p statistics and model indicators for each of the subsequent steps were virtually identical in the two analyses.

Thus, we conclude that the merit-aware index predicts college persistence *about as well* as the SAT. This means that selective colleges would not lose any quality as measured by the percentage of students persisting if the merit-aware index were used in the application screening process. However, they could gain diversity in the student population.

The Effects of Having Merit

The third persistence analysis (Table 4) examined the effect on persistence of a positive score on the merit index (i.e., a dichotomous variable with positive values indicating an SAT score greater than the average score in the student's high school). All statistics, except the delta-p for the alternative merit measure, were virtually identical to those using the merit-aware index, inclusive of positive and negative merit scores (compare to Table 3). Achieving an SAT score higher than the average for the student's individual high school improved the probability of persistence by 4.6 percentage points indicating that students whose SAT scores exceeded their high school peers were more likely to persist in college their first year. This finding opens a range of alternative uses of the merit-related measures in the admissions process.

The Limits of Standardized Tests

The fourth persistence analysis presents the sequence without any measure of merit (Table 5). Interestingly, this model predicted persistence as well as all other versions of the model once grades are considered. In the first step, the Cox and Snell R^2 is .037 compared to .042 in the two models using the merit index (Tables 3 and 4) and

.044 in the model with the SAT (Table 2). Thus both the SAT and merit index predicted persistence better than background variables, but the difference between using the SAT and merit index was very modest.

The Influence of Ethnicity

The entire debate about the use of merit measures in admissions is situated in a new political context that focuses on ethnicity. One side of the debate claims that admissions practices should not explicitly consider race (Center for Individual Rights, 1999; Greve, 1999). Given this position, it is also important to consider whether including ethnicity in the analyses influenced the study findings. Therefore, in the appendix (Table A.1, A.2, A.3, and A4) we present a set of persistence analyses that replicate the prior analyses, but exclude the ethnicity variable from the models. These analyses indicate that the effects of the SAT and the merit-aware index are very similar whether or not ethnicity is explicitly considered in the analysis.

Conclusions and Implications

These analyses of the effects of the merit-aware index on college persistence take place within a changing policy context. Clearly there is evidence that the history of racial discrimination in the United States has not been remedied (St. John, 1998; Williams, 1997). Yet, because the current practice of using racial preferences is being challenged, alternative ways of measuring merit that might improve diversity are particularly appropriate and timely. Alternative measures of merit can be used to increase diversity in admissions, whether or not racial preferences hold up in Federal court.

The merit-aware index (Goggin, 1999), a measure of an individual's test score relative to others in his or her high school, provides a powerful indicator of merit.

Previous analyses indicate that this measure can improve ethnic diversity in admissions compared to the use of the SAT alone (St. John, Simmons, & Musoba, 1999). This analysis further extends the debate into the domain of college persistence by demonstrating that the merit-aware index is as effective as SAT scores in predicting within-year persistence in college.

The analyses presented here indicate that the merit-aware index predicts persistence about as well as the SAT. Specifically, we considered both the use of a continuous measure of merit – the merit-aware index derived from the SAT – and a dichotomous measure of whether a student achieved a greater-than-average SAT score compared to classmates. Both measures were positively associated with persistence and were as successful as absolute scores on the SAT in predicting persistence. This opens the door more widely to alternative ways of approaching college admissions decisions.

Essentially, these results could be used to rationalize two different approaches to college admissions. One approach would be to use a merit-aware index as proposed by Goggin (1999). This involves first computing a merit-aware index, then assigning weights to the index that ensure consideration in the screened applicant pool. An alternative approach might be to assign extra points to students with positive scores on the merit-aware index. Both approaches would identify students, who based on their achievement test scores relative to their peers, would have an increased probability of college success.

The primary advantage of shifting to the use of the merit-aware index compared to the use of absolute SAT scores, at least in part of the college admissions process, is that it could change the mixture of diverse students who receive serious considerations in

admissions (St. John, Simmons, & Musoba, 1999). When the merit-aware index is used, more students from urban and rural high schools would be screened into the initial pool of applicants receiving more complete consideration in admissions. This would include more diverse students in selective public colleges and universities, more Blacks from the inner city, and more Whites and minorities from rural high schools. However, this approach might exclude some minority students in suburban high schools whose SAT scores are higher than the national average, but lower than the average for their high schools. Thus, the merit-aware approach could increase opportunity for high achieving students who attend low performance high schools.

The findings also raise a number of research questions. If selective public universities begin to experiment with different approaches to admissions, then it will be important to study the impact of these changes. In particular, it is important to consider how well the more diverse students integrate into their new academic environments. It is also important to consider how these universities can better adapt their academic programs and cultures to support the success of diverse students. Therefore, there is also reason to compare alternative measures of persistence in year-to-year persistence models that focus on social and academic integration processes as well as the effects of different measures of merit.

In conclusion, there is sound evidence to support the efforts of selective public universities that experiment with alternative measures of merit in college admissions. While the merit index is not a perfect solution to the legal challenges facing admissions offices in public colleges, it may be more workable than many of the alternatives. Indeed,

using the merit index in admissions would not only improve diversity, but it would maintain persistence rates.

Table 1. Descriptive Statistics

VARIABLE	First-year Student Sample	
Coding	%	Mean
GENDER		
Male	49.6	
Female @	50.4	
AGE		
Age (years)		18.6
ETHNICITY		
African American	5.0	
Other Ethnicity	4.2	
White @	90.8	
DEPENDENCY		
Self-supporting	1.3	
Dependent & non-aid applicants @	98.7	
INCOME		
Low Income	4.9	
Lower Middle	11.2	
Upper Middle	21.2	
Upper Income	23.8	
Non-aid applicant @	38.9	
SAT		
SAT (range: 350-1,550)		986
MERIT INDEX		
Merit Index (range: -618-533)		-2.95
DICHOTOMIZED MERIT INDEX		
Dichotomized Merit Index	49.2	
COLLEGE GPA		
Below C	30.8	
C Average	19.8	
B Average @	38.6	
A Average	10.8	
INSTITUTION TYPE		
Two-Year C.	1.5	
Other Four-Year U. @	60.2	
Research U.	38.4	
DEGREE PROGRAM		
Associate	18.0	
Baccalaureate @	82.0	
HOUSING STATUS		
On-campus	69.3	
Other @	30.7	
Persisting	84.7	
N	2,500	

Note: 1) Some columns may not total 100% due to rounding;

2) @ indicates the uncoded comparison variable in the sets of design variables used in the logistic regression models.

Table 2. Logistic Regression Persistence Model: SAT and Race/Ethnicity Included

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.004		0.030	*	0.023	
AGE						
Age	-0.107	***	-0.111	***	-0.094	***
ETHNICITY						
African American	0.013		0.032		0.025	
Other Ethnicity	0.004		0.000		-0.010	
DEPENDENCY						
Self-supporting	0.008		0.025		0.023	
INCOME						
Low Income	-0.016		-0.021		-0.018	
Lower Middle	0.032		0.036		0.041	
Upper Middle	0.026		0.015		0.014	
High Income	0.026		0.019		0.019	
SAT						
SAT/100	0.018	***	-0.001		-0.007	
COLLEGE GPA						
Below C			-0.423	***	-0.410	***
Mostly C			-0.100	**	-0.098	**
Mostly A			0.026		0.026	
INSTITUTION TYPE						
Two-year					0.111	
Research U					0.062	***
DEGREE PROGRAM						
Associate					0.005	
HOUSING						
On-campus					0.043	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.044		0.126		0.137	
-2 Log L	2025.114		1800.361		1770.357	
Pct. Correctly Pred. (%)	84.7%		85.5%		85.2%	
N	2,500		2,500		2,500	

Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.

Table 3. Logistic Regression Persistence Model: Merit-Aware Index and Race/Ethnicity Included

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.005		0.031	*	0.024	
AGE						
Age	-0.110	***	-0.112	***	-0.095	***
ETHNICITY						
African American	0.000		0.031		0.027	
Other Ethnicity	0.001		-0.001		-0.011	
DEPENDENCY						
Self-supporting	0.012		0.024		0.022	
INCOME						
Low Income	-0.022		-0.021		-0.016	
Lower Middle	0.029		0.036		0.043	
Upper Middle	0.024		0.015		0.014	
High Income	0.025		0.020		0.019	
MERIT INDEX						
Merit Index/100	0.016	***	-0.003		-0.008	
COLLEGE GPA						
Below C			-0.426	***	-0.411	***
Mostly C			-0.102	***	-0.099	**
Mostly A			0.028		0.027	
INSTITUTION TYPE						
Two-year					0.111	
Research U					0.062	***
DEGREE PROGRAM						
Associate					0.004	
HOUSING						
On-campus					0.043	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.042		0.126		0.137	
-2 Log L	2029.825		1800.075		1769.699	
Pct. Correctly Pred. (%)	84.7%		85.5%		85.4%	
N	2,500		2,500		2,500	

Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.

Table 4. Logistic Regression Persistence Model: Dichotomous Merit Indicator and Race/Ethnicity Included

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.006		0.030	*	0.022	
AGE						
Age	-0.113	***	-0.111	***	-0.093	***
ETHNICITY						
African American	-0.006		0.033		0.030	
Other Ethnicity	-0.002		0.000		-0.008	
DEPENDENCY						
Self-supporting	0.010		0.025		0.024	
INCOME						
Low Income	-0.020		-0.021		-0.017	
Lower Middle	0.029		0.036		0.042	
Upper Middle	0.025		0.015		0.014	
High Income	0.026		0.019		0.019	
MERIT INDEX (DICHO)						
Merit Index	0.046	***	-0.004		-0.018	
COLLEGE GPA						
Below C			-0.423	***	-0.407	***
Mostly C			-0.100	**	-0.096	**
Mostly A			0.026		0.023	
INSTITUTION TYPE						
Two-year					0.112	
Research U					0.060	***
DEGREE PROGRAM						
Associate					0.007	
HOUSING						
On-campus					0.043	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.042		0.126		0.136	
-2 Log L	2030.669		1800.343		1770.844	
Pct. Correctly Pred. (%)	84.7%		85.4%		85.2%	
N	2,500		2,500		2,500	

Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.

Table 5. Logistic Regression Persistence Model: Merit-Aware Index and SAT Excluded

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.011		0.030	*	0.021	
AGE						
Age	-0.123	***	-0.110	***	-0.091	***
ETHNICITY						
African American	-0.019		0.033		0.032	
Other Ethnicity	-0.009		0.000		-0.005	
DEPENDENCY						
Self-supporting	0.013		0.025		0.023	
INCOME						
Low Income	-0.023		-0.021		-0.016	
Lower Middle	0.030		0.036		0.042	
Upper Middle	0.026		0.015		0.014	
High Income	0.028		0.019		0.018	
COLLEGE GPA						
Below C			-0.421	***	-0.400	***
Mostly C			-0.099	**	-0.092	**
Mostly A			0.025		0.019	
INSTITUTION TYPE						
Two-year					0.112	
Research U					0.058	***
DEGREE PROGRAM						
Associate					0.009	
HOUSING						
On-campus					0.043	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.037		0.126		0.136	
-2 Log L	2042.526		1800.404		1771.814	
Pct. Correctly Pred. (%)	84.7%		85.4%		85.1%	
N	2,500		2,500		2,500	

Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.

APPENDIX

Table A.1. Logistic Regression Persistence Model: SAT Included, Race/Ethnicity Excluded

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.004		0.030	*	0.023	
AGE						
Age	-0.107	***	-0.112	***	-0.095	***
DEPENDENCY						
Self-supporting	0.009		0.026		0.024	
INCOME						
Low Income	-0.014		-0.017		-0.015	
Lower Middle	0.033		0.040		0.044	
Upper Middle	0.026		0.016		0.014	
High Income	0.027		0.020		0.019	
SAT						
SAT/100	0.018	***	-0.002		-0.008	
COLLEGE GPA						
Below C			-0.422	***	-0.409	***
Mostly C			-0.101	**	-0.098	**
Mostly A			0.026		0.026	
INSTITUTION TYPE						
Two-year					0.111	
Research U					0.062	***
DEGREE PROGRAM						
Associate					0.004	
HOUSING						
On-campus					0.044	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.044		0.126		0.136	
-2 Log L	2025.274		1801.356		1771.007	
Pct. Correctly Pred. (%)	84.7%		85.6%		85.2%	
N	2,500		2,500		2,500	

Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.

Table A.2. Logistic Regression Persistence Model: Merit-Aware Index Included, Race/Ethnicity Excluded

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.005		0.031	*	0.024	
AGE						
Age	-0.110	***	-0.113	***	-0.095	***
DEPENDENCY						
Self-supporting	0.012		0.025		0.023	
INCOME						
Low Income	-0.022		-0.016		-0.012	
Lower Middle	0.029		0.041		0.046	
Upper Middle	0.024		0.016		0.015	
High Income	0.025		0.021		0.020	
MERIT INDEX						
Merit Index/100	0.016	***	-0.004		-0.009	
COLLEGE GPA						
Below C			-0.424	***	-0.409	***
Mostly C			-0.102	***	-0.099	**
Mostly A			0.028		0.027	
INSTITUTION TYPE						
Two-year					0.111	
Research U					0.062	***
DEGREE PROGRAM						
Associate					0.004	
HOUSING						
On-campus					0.044	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.042		0.126		0.137	
-2 Log L	2029.826		1801.034		1770.473	
Pct. Correctly Pred. (%)	84.7%		85.6%		85.3%	
N	2,500		2,500		2,500	

Table A.3. Logistic Regression Persistence Model: Dichotomized Merit-Aware Index Included, Race/Ethnicity Excluded

	Step 1		Step 2		Step 3	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER						
Male	0.006		0.030	*	0.022	
AGE						
Age	-0.113	***	-0.111	***	-0.093	***
DEPENDENCY						
Self-supporting	0.009		0.026		0.024	
INCOME						
Low Income	-0.021		-0.016		-0.013	
Lower Middle	0.028		0.041		0.046	
Upper Middle	0.025		0.016		0.015	
High Income	0.026		0.020		0.019	
MERIT INDEX (DICHO)						
Merit Index	0.046	***	-0.006		-0.019	
COLLEGE GPA						
Below C			-0.421	***	-0.404	***
Mostly C			-0.100	**	-0.096	**
Mostly A			0.026		0.023	
INSTITUTION TYPE						
Two-year					0.113	
Research U					0.059	***
DEGREE PROGRAM						
Associate					0.006	
HOUSING						
On-campus					0.044	**
Baseline P (%)	84.7%		84.7%		84.7%	
COX & SNELL R^2	0.042		0.126		0.136	
-2 Log L	2030.702		1801.426		1771.785	
Pct. Correctly Pred. (%)	84.7%		85.6%		85.2%	
N	2,500		2,500		2,500	

Table A.4. Logistic Regression Persistence Model: SAT, Merit Index, and Race/Ethnicity Excluded

	Step 1		Step 2		Step 3		Step 4	
Variable	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.	Delta-P	Sig.
GENDER								
Male	0.011		0.029	*	0.021		0.021	
AGE								
Age	-0.123	***	-0.111	***	-0.091	***	-0.093	***
DEPENDENCY								
Self-supporting	0.012		0.026		0.024		0.023	
INCOME								
Low Income	-0.026		-0.015		-0.011		-0.072	
Lower Middle	0.028		0.041		0.046		0.010	
Upper Middle	0.025		0.016		0.015		-0.029	
High Income	0.028		0.020		0.019		-0.013	
COLLEGE GPA								
Below C			-0.418	***	-0.397	***	-0.399	***
Mostly C			-0.099	**	-0.092	**	-0.094	**
Mostly A			0.024		0.018		0.021	
INSTITUTION TYPE								
Two-year					0.113		0.113	
Research U					0.057	***	0.054	***
DEGREE								
Associate					0.008		0.010	
HOUSING								
On-campus					0.045	**	0.042	**
Baseline P (%)	84.7%		84.7%		84.7%		84.7%	
COX & SNELL R^2	0.037		0.126		0.136		0.137	
-2 Log L	2042.864		1801.535		1772.879		1768.309	
Pct. Correctly Pred. (%)	84.7%		85.4%		85.0%		85.1%	
N	2,500		2,500		2,500		2,500	

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