Research Proposal: The Academic Impact of Merit-Based Scholarships on College Access

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07B:222 – Intro to Policy Analysis and Evaluation

Section 1: Introduction

In 1972, the gap in enrollment rates between Caucasian and African-American individuals between the ages of 18-24 stood at 9% (27.2% of Caucasians enrolled in a postsecondary educational institution; compared to 18.3% of African-Americans). This gap in enrollment has not declined. In fact, by 2003, the gap in enrollment rates increased slightly to 9.3% (NCES, 2003). This disparity in college enrollment rates is due, in part, to differences in the four factors that influence an individual's decision to attend college:

1. Psychological Factors (self-esteem, self-confidence)
2. Social Factors (family characteristics, peer influence)
3. Academic Factors (perceived and actual preparation for college courses)
4. Financial Factors (family income, financial aid) (Massey, 2003)

Financial aid is of particular importance. Data from a recent report from the U.S. Census Bureau (2005) show that in 2004, the median income of Caucasian households ($48,977) was 63% higher than for African-American households ($30,134). To help address the impact of financial disparities on postsecondary educational enrollment, publicly funded grant programs were created. These grants, like the 1972 Pell Grant amendment to the Higher Education Act, are awarded on the basis of financial need. By offsetting the cost of tuition for those eligible, these grants increase college enrollment rates among low-income and minority students.

Unfortunately, funding for Pell Grants has not been able to keep up with rising tuition costs. In 1975, maximum grant awards covered 84% of the total cost of attendance at a four-year public institution. By 2000, the Pell Grant maximum covered only 39% of the total cost of attendance (Lechuga, 2002). Because of this, many states used financial incentives from the federal government to develop their own state-funded grant programs. These grants, originally

awarded primarily on the basis of financial need, have become extremely important in addressing the gap in enrollment rates. From 1980 – 2000, spending on state-sponsored grant programs increased 447% compared to a 214% increase in federal Pell Grant funding over the same period. (NASSGP, 2002)

Over time, states shifted these funds from needs-based grants (awarded to students based on their financial need) to merit-based grants (awarded to students based on their academic performance). From 1991 to 2001, the percentage of state grants awarded to students based on academic merit grew from 11% to 24% and the percentage of state grants awarded on the basis of financial need decreased from 89% to 76% (NASSGP, 2002). Fifteen states currently offer merit-based scholarship programs. During the 2000-01 academic year, these states spent $863 million on merit-based grants and only $308 million on needs-based grants (NASSGP, 2002). The following table summarizes the funding sources and award criteria for the merit-based grant programs offered by each state. (Heller, 2001; California and Nebraska websites). As the table shows, these states award grants to students with high GPAs or standardized test scores.

Program (Implemented)	Funding Source	Award Criteria
Alaska Scholars Award (1999)	Land leases & sales	Class rank
California STAR (2001)	General Revenues	State test
Florida Bright Futures (1997)	Lottery	GPA, SAT/ACT
Georgia HOPE (1993)	Lottery	GPA
Kentucky Educational Excellence (1999)	Lottery	GPA
Louisiana TOPS (1998)	General Revenues	GPA and ACT
Massachusetts	General Revenues	GPA
Michigan Merit Award (2000)	Tobacco Settlement	State test
Mississippi Eminent Scholars (1996)	General Revenues	GPA, SAT/ACT
Nebraska SSAP (2001)	Lottery	GPA
Nevada Millennium (2000)	Tobacco Settlement	GPA
New Mexico Lottery Success (1997)	Lottery	GPA in College
New York	General Revenues	GPA
South Carolina LIFE (1998)	General Revenues	GPA, SAT/ACT, Class Rank
West Virginia PROMISE (2002)	Lottery & taxes on gambling	GPA, SAT/ACT

According to the individual states' websites, there seems to be three motivations for developing merit-based grant programs. The first motivation is to increase access to college for all students. For example, according to the Michigan Department of Education, the stated goal of the state's Merit Award program is to "increase access to postsecondary education…" The second motivation cited by states is to increase academic achievement. This is illustrated by Florida's stated goal "to reward any Florida high school graduate who merits recognition of high academic achievement." The third motivation is to retain high-ability citizens within the state. This can be seen in the stated goal of the Alaska Scholars Program "to help reduce the number of Alaska's high school graduates who leave the state for education and jobs elsewhere" (Heller & Rasmussen, 2001).

Since most of these merit-based scholarship programs have been created in the past 6 years, little research has been conducted to determine if the goals of access, academic achievement, and retention are being met. Most of the research focuses on the financial impact of an individual grant programs on college access. This research includes Heller & Rasmussen's (2001) analysis of the programs in Michigan and Florida, Binder & Ganderton's (2001) study of New Mexico's grant program, Ness & Noland's (2004) detailed look into the Tennessee Education Lottery scholarships, Smother's (2004) dissertation studying the Louisiana TOPS program, the Kremer et. al (2005) study of a merit-based program in Kenya, and several studies of the Georgia HOPE scholarship program (Cornwell & Mustard, 2001; Dynarski, 2001; Long, 2001). A recent study by Farrell (2004) compared the financial impact of merit-based scholarships in 12 different states.

These observational studies, along with a more general study into merit-based scholarship programs (Marin, 2001), all look at the end result of the merit-based scholarship programs and attempt to attribute any changes in enrollment rates to the financial impact of the scholarships. They do this by examining the impact of scholarships through the frameworks of Human Capital Theory and Student Price Responsiveness. While some of the research does attempt to determine if these programs aid in retention (keeping students in the state after graduation), they all ignore the potential impact these scholarships have on the academic preparation of students.

Since these programs are so new (the first program began in 1993), costly (diverting money from needs-based grants or other state programs), and tempting to implement (who would argue with providing financial incentives to high achieving students?), it is imperative that we understand all the intended and unintended outcomes of state merit-based scholarship programs. If the mere existence of these programs leads to an increase in the academic achievement of all high school students, then these programs could be worth their cost. Increasing academic achievement for all students would increase the number of students who are academically prepared for college and would also lead to a higher number of students receiving financial support (since a higher number of students will be eligible to receive the merit-based scholarships). If, on the other hand, these scholarships simply serve as financial awards to students who would have gone to college anyway, then the programs may, in fact, increase the gap in enrollment rates among students of different socioeconomic backgrounds. The purpose of this proposed research is to investigate the impact of state-funded merit-based scholarship programs on the academic preparation of high school students. Once the outcomes of these merit-based scholarship programs are known, the effectiveness of the programs can be compared

to the effects of other potential uses of state funds, such as in offering needs-based grants to high school students.

Framework

As was stated earlier, the vast majority of research into the impacts of state-funded merit-based grant programs examines only the financial impact of these programs. These impacts are oftentimes viewed using the frameworks of Human Capital Theory and Student Price Responsiveness. Since this study proposes to examine the academic impact of these merit aid programs, this study works under an additional conceptual framework.

Perna (2005) cites research showing that an increase in academic achievement leads to an increase in the likelihood that a student chooses to attend college. More specifically, Perna describes the positive relationship between a student's decision to attend college and the combination of the student's high school grade point average, standardized test scores, and enrollment in advanced courses (especially advanced math courses). Perna & Titus (2005) show that for every unit increase in standardized test scores, the odds that a student chooses to attend college increase by 13.5%. They also show that the odds of enrolling in college increase by a factor of 25.406 for students who take advanced math courses in high school. This relationship between academic preparation and college access can be understood through econometric and cognitive psychological frameworks.

The econometric framework of Human Capital Theory states that a student weighs the perceived costs and benefits of enrollment when choosing to attend college. Students with higher academic achievement perceive greater benefits from attending college than lower achieving

students (Perna 2005). Thus, if a policy increases academic achievement for all students, the policy increases the likelihood that a student will choose to attend college.

The realm of cognitive psychology also provides a lens through which to examine the academic impact of merit aid programs. Hagedorn (2002) explains how the constructs of self-efficacy (confidence in one's abilities to accomplish tasks), mastery orientation (individuals who engage in learning activities to improve their competency), and performance orientation (individuals who engage in learning activities to gain a favorable judgment of their ability) interact to affect a student's decision to attend college. Simply stated, a student needs to have the traits of confidence and persistence in order to choose to attend college.

This research proposes to determine what impact state-funded merit-based grant programs have on the academic preparation of students who must choose to attend college. More specifically, this study proposes to address the following questions:

(1) What impact did the merit-based grant programs have on the grade point averages and standardized test (ACT or SAT) scores of high school students?

(2) What impact did the merit aid programs have on the course selection of high school students? Did the programs correspond with an increase in enrollment in more rigorous courses (advanced mathematics and advanced placement courses)?

(3) Do teachers perceive an increase in the academic ability or achievement of high school students because of the existence of the merit aid programs?

(4) Do high school students believe that the existence of merit aid programs has caused them to put more effort into their studies?

If these merit aid programs increase both perceived and actual student achievement, then it may be assumed that they increase the likelihood that students choose to attend college, thus helping address the college access program.

Section 2: Previous Research

After implementing these merit-based grant programs, most states simply gathered and reported changes in enrollment rates without attempting to determine how much, if any, of the changes could be attributed to their new programs. The first systematic research into the effects of merit-based grants came from the Harvard University Civil Rights Project (CRP). On December 8, 2001, the CRP commissioned research into state merit aid programs at a conference called *State Merit Aid Programs: College Access and Equity*. This research was then published in a CRP report, *Who Should We Help? The Negative Social Consequences of Merit Scholarships* (http://www.civilrightsproject.harvard.edu/research/meritaid/fullreport.php).

In the 2001 CRP report, Heller & Rasmussen (2001) examined the impact of the merit aid programs in Florida and Michigan through the lenses of Human Capital Theory (students make postsecondary educational decisions by weighing their perceptions of the costs and private benefits associated with college attendance; therefore, offering grants to students will increase demand for enrollment) and Student Price Responsiveness (minority and low-income students tend to be more responsive than white, higher-income students to increases in perceived tuition costs). Using simple bivariate analyses, the researchers attempted to determine (1) the characteristics of scholarship recipients at the two states, (2) the impact of each state's eligibility criteria on the characteristics of recipients, and (3) if merit-based grants reach a population similar to those who would be reached by needs-based grants. The researchers did this by comparing the distributional characteristics of scholarship recipients to the distributional characteristics of the state populations. Although this observational study only examined two states over a two-year period and looked at the changes in enrollment rates without attempting to determine how much

of the changes could be attributed to the state merit aid programs, the researchers concluded that there is a strong relationship between socioeconomic status and eligibility for scholarships in Florida and Michigan. They state that because of differences in academic achievement and gaps on standardized test scores, populations historically underrepresented in college (minorities and low-income students) are the least likely to be eligible for state merit scholarships. They conclude that merit-based scholarship programs do not help address the gaps in access to college.

In a similar study, Binder & Ganderton (2001) examined the financial impact of New Mexico's scholarship program. Analyzing enrollment rates immediately before and after the implementation of the state merit aid program, the researchers find that the program did not increase enrollment in New Mexico colleges. The researchers also concluded that merit aid does not increase the number of students who choose to stay in New Mexico. Like Heller & Rasmussen (2001), the researchers found that high-income students were more likely to receive financial aid from these merit-based scholarship programs. Furthermore, Binder & Ganderton concluded that the merit program actually led to a decrease in grade point averages for college freshmen in New Mexico (the program attracted lower-ability students to attend college). The researchers admit these findings might be due to New Mexico's unique merit aid program and weaknesses in the research design. While most states award merit aid to students who demonstrated high achievement in high school, the New Mexico program rewards students who are successful in their first semester in college. Therefore, this program can only have a limited impact on the choice to attend college (student eligible for the aid are *already* in college). The researchers also state that because of the low cost of tuition in New Mexico, they did not believe the merit aid would have a significant impact on a student's decision to attend college.

The CRP also commissioned three studies of the impact of the nation's oldest and most expansive merit-based aid program, the Georgia Helping Outstanding Pupils Educationally (HOPE) program, on college access. Cornwell & Mustard (2001) provide a detailed description and history of the HOPE program before conducting descriptive analyses of the program's impact on students of different racial backgrounds. The researchers provide the following conclusions:

1. Total enrollment increased in Georgia colleges due to the HOPE program.
2. One-third of this increase in enrollment can be attributed to an increase in access; two-thirds of the increase in enrollment is due to the fact that more students chose to attend colleges in Georgia instead of other states.
3. Minorities were less likely to be eligible for the HOPE scholarships than white students.
4. Enrollment rates for African-American students increased after the HOPE program was implemented because of the large number of historically black colleges in Georgia.
5. The grade point averages of college freshmen (both students from Georgia and students who attended high school in other states) in Georgia colleges increased after the HOPE program was implemented.
6. The HOPE program encouraged the brightest Georgia high school students to enroll in Georgia colleges, thereby increasing the entrance requirements for all students attending these schools.
7. Low-income minority families disproportionately fund the HOPE program. This is because the HOPE program is funded by lottery revenues, and low-income minority

families spent a higher proportion of their income on the lottery than do higher-income Caucasian families.

The researchers conclude that the HOPE program does not help address the gap in enrollment rates between Caucasian and minority students. In fact, the researchers conclude that the HOPE program makes the problem even worse. By taking funds from low-income families and increasing the admissions requirements for other students, the HOPE program makes it more difficult for low-income minority students to attend college. These conclusions were stated even though the researchers admit their study examined college freshmen in Georgia (including students who attended high school in other states and were not eligible for the HOPE program), instead of only examining college freshmen who attended high school in Georgia.

Dynarski (2001) addressed some of the weaknesses in the Cornwell & Mustard study by by comparing pre- and post-HOPE enrollment rates in Georgia to enrollment rates from neighboring states. Being the first researcher commissioned by the CRP who did not seem to have a pre-existing bias against merit-based aid, Dynarski concluded that the HOPE program caused an increase in college enrollment for Georgia students (even after controlling for unemployment rates among the states). Like the previous study, Dynarski found that the HOPE program had very little impact on enrollment rates for low-income students. But unlike Cornwell & Mustard, Dynarski found that enrollment rates for minorities also did not change due to the HOPE program. The apparent contradiction in conclusions can be resolved by realizing that Cornwell & Mustard found an increase in minority enrollment in Georgia colleges, while Dynarski found no increase in college enrollment among Georgia students. Dynarski concludes one additional point: the HOPE program caused an increase in tuition prices at public

universities in Georgia. In seeing that the HOPE program disproportionately awards scholarships to higher-income Caucasian students and increases tuition costs for other students, Dynarski reached the same conclusion that the HOPE program made the college access problem worse in Georgia.

Long (2001) expanded upon Dynarski's study and attempted to determine if, in fact, the HOPE program caused public colleges to increase tuition prices. Using a similar method of comparing tuition costs pre- and post-HOPE implementation to other states under the framework of supply-side economics (colleges will attempt to capture the additional funding from the HOPE program), Long concluded that the program did indeed cause an increase in tuition costs. The researcher concluded that for every one dollar in aid awarded to students, public colleges increased tuition prices by $0.12.

Marin (2001) concluded the research for the CRP by summarizing the findings from the commissioned studies. It was the conclusion of the CRP that merit-based grant programs make the access problem worse for two reasons: (1) merit-based scholarships are awarded disproportionately to higher-income Caucasian students, and (2) merit-based scholarships are funded disproportionately to lower-income minority students (due to the regressive nature of state lotteries).

Not all research into merit-based aid programs reach such negative conclusions regarding the effect of such programs. Ness & Noland (2004) analyzed the impact of the Tennessee Education Lottery Scholarships (TELS) program on college enrollment. After describing other state merit aid programs and reviewing the research finding these programs have a negative impact on the gap in enrollment rates, the researchers attempt to determine if the Tennessee program

(which has more relaxed criteria for awarding scholarships) had the same negative impact. The researchers do this by applying the TELS scholarship criteria to other states (Florida, West Virginia, and Louisiana) and analyzing what impact this criteria would have on the characteristics of scholarship recipients in those states. The researchers found that under the Tennessee criteria, more students receive financial aid to go to college. Furthermore, the Tennessee criteria causes a higher proportion of low-income and minority students to receive financial aid. The researchers conclude that not all merit-based scholarship programs are bad; it all depends on the criteria used to award the scholarships.

A couple of dissertations also conclude that state-funded merit-based aid programs might be beneficial. Smothers (2004) examined the impact of the Louisiana Tuition Opportunity Program for Students (TOPS). While the researcher once again found that low-income and minority students were less likely to receive financial aid under the merit aid program, the researcher went one step further and examined the *perceived* impact of the TOPS program. Using a mixed-methods analysis with questionnaires and interviews, the researcher found that legislators, administrators, and students all perceive the TOPS to have a positive impact on college enrollment and academic achievement of high school students. Noting the limited generalizability of the study (studying only one state with a limited sample size), the researcher also states that merit-based grant programs *might* result in academically stronger students graduating from high school.

Farrell's (2003) dissertation compared the impact of the merit-based grant programs from 12 states (Alaska, Florida, Georgia, Kentucky, Louisiana, Michigan, Mississippi, Missourri, Nevada, New Mexico, South Carolina, and West Virginia). Using quantitative descriptive

analyses of enrollment rates pre- and post-implementation of the merit aid programs, the researcher concluded that such programs have a small, but positive, impact on college enrollment for all students.

A weakness in all the previous studies is that they are, at best, quasi-experimental. Due to the nature of the education system in the United States, it would be extremely difficult to conduct a true randomized experimental study into the impact of state merit aid programs on college enrollment. Fortunately, two researchers were able to conduct such studies in other countries.

Kremer et al (2005) went to Kenya to study the impact of merit-based scholarship programs. In an attempt to improve the educational system in Kenya, a privately funded scholarship program was designed and implemented. The program awarded scholarships to high-achieving female students in Kenya to continue their education in public schools. The researchers were able to randomly assign schools to participate in this merit scholarship program, thus allowing for comparisons between an experimental and a control group. Utilizing this experimental design, the researchers reached the same conclusion that merit-based scholarships were awarded primarily to students coming from advantaged families. The researchers also found that the existence of the scholarship program caused an increase in achievement for all students across all subjects. This increase in achievement was found in all students, including male students who were aware that they were not eligible for the scholarships. Furthermore, the increase in achievement was not only found in the "tested" subjects (reading and mathematics), but in all the other subjects as well. The researchers in this study clearly state that they believe merit-based aid programs cause students to increase in achievement.

Angrist & Lavy (2002, 2004) conducted similar studies with similar conclusions. Using a randomized experimental design, the researchers assigned schools in Israel to participate in merit-based scholarship programs. The researchers concluded that academic incentives, in the form of merit-based scholarships, cause an increase in student achievement.

Generalizations from previous research

In reviewing the previous research into merit-based grant programs, the following themes emerge:

1. Merit-based grant programs may cause a small increase in college enrollment due to their financial impact.

2. Merit-based grant programs are popular among legislators and the public. The grants are perceived to increase college enrollment.

3. Merit-based grant programs may increase the gap in enrollment rates between Caucasian and minority students. There are two reasons for this:
    a. Low-income and minority students are less likely to receive merit aid than higher-income Caucasian students, because they are less likely to have high GPAs or standardized test scores.
    b. Merit-based grant programs may make it more difficult for underrepresented populations to attend college, either by increasing tuition costs or by increasing the admissions requirements.

4. The impact of the merit aid programs depends on the criteria used to determine which students are eligible to receive the scholarships.

5. At least in experimental studies conducted in other countries, it appears as though merit aid programs increase student achievement (academic preparation for college).

So while the financial impact of merit-based grants on college access seems fairly clear, we still do not have an understanding of the <u>academic</u> impact these programs have access in the United States. It may be the case that these state-funded merit aid programs provide an effective

financial incentive for students to increase their academic achievement. If academic achievement is increased because of the grant programs, then more students will be academically prepared for college. This could, in turn, lead to an increase in the number of students who choose to attend college. In other words, even though higher-income students receive the financial aid, perhaps these state-funded merit-based grant programs help address the access problem by increasing the number of students who are academically prepared for the rigors of college coursework. This paper proposes a study to determine the level of impact these state programs have on the academic achievement of high school students. It is important to do this, because as Massey stated, "In the absence of sound academic preparation, other dimensions of college readiness [financial, social, psychological] are probably moot" (Massey, 2003).

Section 3: Methodology

The purpose of this proposed research is to investigate the impact of state-funded merit-based scholarship programs on the academic preparation of high school students. More specifically, this research proposes to address the following questions:

(1) What impact did the merit-based grant programs have on the grade point averages and standardized test (ACT or SAT) scores of high school students?

(2) What impact did the merit aid programs have on the course selection of high school students? Did the programs correspond with an increase in enrollment in more rigorous courses (advanced mathematics and advanced placement courses)?

(3) Do teachers perceive an increase in the academic ability or achievement of high school students because of the existence of the merit aid programs?

(4) Do high school students believe that the existence of merit aid programs has caused them to put more effort into their studies?

To address these questions, students from a total of four states will be selected: two experimental states who have implemented merit aid programs (Florida and Michigan) and two nearby control states with no merit aid programs (North Carolina and Wisconsin). Data will be analyzed for two years immediately before and after the grant aid programs were implemented. Thus, changes after the grant aid programs have been implemented will be compared to changes in the control states over the same time period. The methodology will be briefly described for each research question:

(1) What impact did the merit-based grant programs have on the grade point averages and standardized test (ACT, SAT, NAEP) scores of high school students?

To address this question, average grade point averages (and average standardized test scores) for all high school freshmen in the experimental states will be compared for two years before and two years after the grant aid programs were implemented. Any change in GPA or test scores will be compared to changes in freshmen GPA for the nearby control state. The following table demonstrates this analysis for Florida and North Carolina. A similar study would be conducted for Michigan and Wisconsin.

<table>
<tr><th></th><th>Florida</th><th>North Carolina</th></tr>
<tr><td>1995-1996</td><td rowspan="2">Average GPA
Average ACT/SAT score
(Florida Pre)</td><td rowspan="2">Average GPA
Average ACT/SAT score
(NC Pre)</td></tr>
<tr><td>1996-1997</td></tr>
<tr><td>1997-1998</td><td colspan="2">(Program Implemented in Florida)
1. Compare Florida Pre to NC Pre</td></tr>
<tr><td>1998-1999</td><td rowspan="2">Average GPA
Average ACT/SAT score
(Florida Post)</td><td rowspan="2">Average GPA
Average ACT/SAT score
(NC Pre)</td></tr>
<tr><td>1999-2000</td></tr>
<tr><td></td><td colspan="2">2. Calculate the change in Florida (Florida Post – Florida Pre)
3. Calculate the change in NC (NC Post – NC Pre)
4. Compare the change in Florida to the change in NC</td></tr>
</table>

The GPA data is readily available from the state Departments of Education and the test scores can be gathered from ACT or ETS. Another source of data comes from the National Assessment of Educational Progress (NAEPP). 11th grade NAEP scores from the control states can be compared to the scores from the states with implemented merit aid programs. A simple descriptive analysis of this data will be used to see if any meaningful changes in achievement may be attributed to the merit aid program. While this study is not specifically interested in comparing the impact of the program on different racial/ethnic groups, the data will be disaggregated by race to see if the program has a disparate impact on different racial groups. Obviously, one weakness of this design is that changes in GPA or test scores cannot be attributed directly to the implementation of the merit aid program, but this will give a simple indication of whether or not the programs have any impact.

(2) What impact did the merit aid programs have on the course selection of high school students? Did the programs correspond with an increase in enrollment in more rigorous courses?

Another simple descriptive analysis will address this question. Using the same research design used to answer the previous question (comparing pre/post policy changes between an experimental state and a control state), the changes in the percentage of high school students enrolled in advanced placement courses will be examined. Once again, the data (available from the state Departments of Education, usually from their websites) will be disaggregated by race to see if the program impacts racial groups differently. A chi-square test for independence may be conducted on the data to test for significance, although the descriptive analysis will provide evidence to determine if the merit aid programs could have lead to an increase in the percentage of

students taking rigorous coursework in high school. Again, a weakness in this design is that changes in enrollment in academically rigorous courses can only be associated with state merit aid programs; changes cannot be attributed directly to those merit grant programs.

(3) Do teachers perceive an increase in the academic ability or achievement of high school students because of the existence of the merit aid programs?

(4) Do high school students believe that the existence of merit aid programs has caused them to put more effort into their studies?

While the first two research questions attempt to describe the possible impact merit aid programs had on academic achievement, these final two research questions attempt to discover teacher and student *perceptions* of the state merit aid programs. Do teachers and students believe the merit aid programs have caused an increase in student achievement?

To answer this question, a large random sample of high schools from each of the four states (2 states with merit aid programs and 2 control states) will be selected. These high schools will then be asked to participate in this study. Schools that agree to participate will be asked to administer a short survey to their teachers and students. The number of schools and students sampled will be limited only by the budget for this study (how much it costs to mail and collect the surveys). In exchange for participating in this study, these schools will receive the results of their surveys. While this sampling procedure is not completely random (and it asks for volunteers), it should be able to get a representative sample of high schools from each state.

Teachers in each participating school will be asked to complete a short survey regarding their perceptions of the impact of state merit aid programs on student achievement. These

surveys will be developed and administered to focus groups to determine their clarity and content validity. After administration, the survey results will be analyzed for internal reliability and a factor analysis may be conducted to determine the number of underlying factors in the survey responses. The surveys will attempt to determine if teachers believe the implementation of their state merit-based scholarship program has increased student achievement (or academic preparation for college).

To do this, two surveys will be created: one survey for the treatment states (Florida and Michigan – the states with merit aid programs) and another survey for the control states (North Carolina and Wisconsin). Rather than attempting to describe these surveys, it may be easier to provide some examples of the questions on these surveys. The following table displays some potential survey questions for teachers in both the treatment and control states.

Teacher Surveys		
Treatment States (States with merit aid programs)	**Control States** (States without merit aid programs)	Explanation of the survey question
How long have you taught in this state?	How long have you taught in this state?	This question will help determine if teachers are able to compare current student achievement to the achievement of students before the merit aid program was implemented
(a brief description of the merit aid program in the state)	(a brief description of a merit aid program that could potentially be implemented in the state)	This will remind teachers in the treatment states of their merit aid program. For the control states, it will allow teachers to consider what impact they believe a merit aid program would have on student achievement)
I believe the merit aid program in this state has caused students to… 1. put more effort into studying 2. care more about learning 3. earn higher grades 4. increase in achievement 5. enroll in more rigorous courses 6. more seriously consider college 7. Improve their attitudes towards school	I believe the program described above would cause students to… 1. put more effort into studying 2. care more about learning 3. earn higher grades 4. increase in achievement 5. enroll in more rigorous courses 6. more seriously consider college 7. Improve their attitudes towards school	This will not only determine the perceptions of the impact of the merit aid program in the treatment states; it will also determine the perceived benefit of merit aid programs in states that do not have such programs already in place.

I believe the merit aid program in this state has improved the level of parental support students receive	I believe the program described above would improve the level of parental support students receive	This will determine if merit aid programs may have an impact on the level of support students receive from their parents.
I believe the merit aid program in this state has had a positive impact on students of all races and income levels	I believe the program described above would have a positive impact on students of all races and income levels	This will determine if teachers perceive merit aid programs to have a disparate impact on students of different income levels or races
I believe the merit aid program in this state has led to grade inflation among teachers	I believe the program described above would lead to grade inflation among teachers	This will determine if teachers perceive merit aid programs cause actual increases in achievement or if they simply cause grade inflation
I support the merit aid program in this state.	I would support the program described above in this state	This question will be analyzed along with the other questions to see if there is any bias against or for these programs
I believe the merit aid program in this state has increased student access to higher education	I believe the program described above would increase student access to higher education	This will determine if merit aid programs are perceived to have an impact on college access.

Once the surveys have been collected and the responses (in the form of a 5-point Likert scale – strongly disagree to strongly agree) have been coded, a simple descriptive summary of the results will be calculated. The percentage of respondents agreeing or disagreeing with each statement will be presented. Once again, this simple descriptive analysis will be useful in determining if more sophisticated research methods should be used in future studies.

Teachers in these schools will also administer surveys to their students. As with the teacher surveys, students will be presented with either a description of their state's merit aid program (for students in the treatment states) or a description of a merit aid program that could potentially be implemented in their state (for students in the control states). The following table presents an example of possible survey questions:

Student Surveys		
Treatment States (States with merit aid programs)	**Control States** (States without merit aid programs)	Explanation of the survey question
Grade level, race, gender	Grade level, race, gender	This demographic information will be used to determine if race or gender have an impact on the perceived impact of merit aid programs

(a brief description of the merit aid program in the state)	(a brief description of a merit aid program that could potentially be implemented in the state)	This will remind students in the treatment states of their merit aid program. For the control states, it will allow students to consider what impact they believe a merit aid program would have on their own achievement)
Because of the merit aid program, I feel as though I… 1. put more effort into studying 2. care more about learning 3. earn higher grades 4. increase in achievement 5. enroll in more rigorous courses 6. more seriously consider college 7. Improve their attitudes towards school	I believe the program described above would cause me to… 1. put more effort into studying 2. care more about learning 3. earn higher grades 4. increase in achievement 5. enroll in more rigorous courses 6. more seriously consider college 7. Improve their attitudes towards school	This will not only determine the perceptions of the impact of the merit aid program in the treatment states; it will also determine the perceived benefit of merit aid programs in states that do not have such programs already in place.
I believe the merit aid program in this state has caused my parents to give me more support in my studies	I believe the program described above would cause my parents to give me more support in my studies	This will determine if merit aid programs may have an impact on the level of support students receive from their parents.
I support the merit aid program in this state.	I would support the program described above in this state	This question will be analyzed along with the other questions to see if there is any bias against or for these programs
I believe the merit aid program in this state has increased my opportunity to attend college	I believe the program described above would increase my opportunity to attend college	This will determine if merit aid programs are perceived to have an impact on college access.

The percentage of students agreeing or disagreeing with each statement will be presented. The responses will be presented by both race and gender to see if the demographics had any impact on the responses. Multinomial logistic regression models and chi-square tests for independence may be conducted to determine the extent to which race and gender influenced survey responses.

Once both the teacher and student survey responses have been collected, a more detailed analysis can be conducted. First, the simple descriptive analyses will determine if merit aid programs are perceived to have an impact on student achievement. Second, a comparison can be made between the responses of teachers in the treatment states with the responses from teachers in the control states. A similar comparison can be made between the students in the treatment and control states. These comparisons will determine if the potential impact of state merit aid

programs (from the control group surveys) are perceived to have a greater impact than what actually occurs (from the treatment group surveys).

Another comparison can be made between the student and teacher responses from each state. If a majority of both teachers and students believe the merit aid programs increase student achievement, then it can be concluded that the merit aid programs are at least perceived to be effective. If both teachers and students overwhelmingly believe the merit aid programs have no impact, then it can be concluded that there is no perceived benefit in having these programs. If one group (teachers or students) believes merit aid programs work and the other group does not believe merit aid programs have an impact on student achievement, then it will point out areas for further research.

Summary

Through simple descriptive analyses of test scores, GPAs, and AP course enrollment; and through the administration and analysis of surveys, this study proposes to determine whether or not state merit-based grant programs impact the academic preparation of students who must make the decision to attend college. Prior research has found that merit-based grant programs may increase enrollment slightly, but they also may increase the gap in enrollment rates among racial and socioeconomic groups. If state scholarship programs do increase achievement, then maybe they are worth the cost to taxpayers. If the programs have no impact on achievement, then based on this and other studies, state scholarship programs should probably be replaced with needs-based grant programs.

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