THE EFFECT OF STATE SPONSERED HOPE-LIKE SCHOLARSHIPS ON STATE SPONSERED NEED-BASED AID

by

MACIEJ MISZTAL

(Under the Direction of DAVID MUSTARD)

ABSTRACT

A frequent criticism of state-sponsored HOPE-like merit-aid programs is that they "crowd out" need-based aid within the state. If these programs were strong substitutes for need-based aid, they would adversely affect low-income and historically disadvantaged minority students. This paper intends to empirically test this claim using state-level panel data from 1988 through 2002. Since the adoption of merit programs is not related to the amount of need-based aid, this paper uses a natural experiment framework that compares the level of funding for need-based aid in states with merit programs to other states. Merit programs are shown to have no effect on funding with a model that accounts for state and year fixed effects. Even when only merit programs funded from general, as opposed to dedicated, funds are compared to the control states, there is no indication that merit-based programs are directly or indirectly crowding out need-based aid.

INDEX WORDS: need-based aid, merit-based aid, HOPE, Scholarship, higher education funding

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DEDICATION

To my parents, who gave me the opportunity.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

Chapter 1 Introduction

Large undergraduate scholarship programs are traditionally divided between need-based aid, which is based on family income, and merit-based scholarships, which use academic criteria to limit their recipients. During the 1960's and 1970's, states mostly limited their large scholarship funding to need-based aid, but in the 1980's merit-based scholarships grew at comparable rates to the established need-based aid. However, since the 1990's large scale merit-based scholarship programs such as Georgia's HOPE have mushroomed. Given the unprecedented growth rates of such scholarships, there is fear that funds may be diverted from need-based aid. Thirteen states have adopted programs based on Georgia's flagship HOPE scholarship, which by 1993 had awarded 2.7 billion dollars to over 850,000 students.

There is a stark contrast in the purpose of merit scholarships and need-based scholarships. Need-based aid is aimed specifically at helping those who would otherwise face financial barriers to higher education. Such programs have proven marginally successful not only in encouraging low-income students to attend college, but also for minorities that tend to be disproportionately low-income. As a large amount of funding is spent on merit-based aid, interest in providing need-based aid may wane, and therefore low-income students' college prospects would be negatively impacted. Where merit-based scholarships, which tend to be received mostly by middle class individuals, are funded by lotteries, which tend to derive income primarily from lower income individuals, criticism of "robbing the poor to pay the rich" becomes even more distinct.

Criticism of these merit-based programs for "crowding out" funding for needy students is pronounced. Marin (2003) claims that "because of the definitions of 'merit' employed, as well as the logistics of these programs, many of the students who have the greatest financial need are passed over, effectively increasing existing disparities in college participation for minority and low-income students." If such a statement is true, it raises questions about the justice and fairness of merit-based programs, especially since the criteria for awarding such scholarships, frequently GPA and standardized test scores, seem to favor wealthy, non-minority students. Given the research relating the demographics of the students participating in merit-based vs. need-based programs, Donald E. Heller asserts that large-scale, merit-based programs "are likely to exacerbate existing gaps in college participation, causing poor and minority students to fall further behind their wealthier and white peers" (2003). All this ultimately results in "crowd[ing] out students who would have had a shot" (Kronholz 2003). This may be exacerbated by the largest form of need-based aid, the federal Pell grant, having undergone cuts which have not allowed it to keep track with inflation (Li 1999).

Some are now calling for this great increase in merit-based aid to be redirected towards the needy. Kirwan (2004) asserts that "aid based only on merit is now crowding out funding for meritorious students who have real need for scholarships." More specifically, one proposed solution is for state legislatures to reform their programs to "create eligibility standards that promote equitable access to an increasingly large share of student financial aid expenditures" (Heller 2001). One example is California's CalGrant program, which combines lower merit-based qualifications and an income cap, although the program is much more limited in scope and size than programs such as HOPE.

However, the claim that merit-based aid harms the needy is controversial. Being low-income does not directly disqualify a student from a large merit-based scholarship. Need-based scholarships may be added to or subtracted from merit-based aid for which the student is already eligible, depending on the program. For example, in response to criticism, Georgia recently allowed certain need-based scholarships to compliment HOPE, rather than requiring low-income students to apply for such programs solely to reduce the burden on the state. Moreover, most states with large merit-based programs have not eliminated their need-based scholarships and continue to increase them. Some proponents claim that merit-based scholarships merely increase the total amount of financial aid, and if they do not help those with lower incomes they at least do not inflict harm. However, the disproportionate funding of need-based aid and merit-based aid is still "increasing concern among higher education administrators and policy makers that needy students do not have access to a college education." (Singell et. al 2004). Some also argue that since the percentage of total funding going to need-based scholarships is being reduced, need-based programs have suffered. One news report asserts that merit-based programs are largely in the South because the large number of low-income African Americans in the region requires need-based aid to bear the cost of education (JBHE 2005). In such cases, implicit allegations of racism can be added to the criticisms of HOPE-like programs. Given the persistence of such allegations, it is beneficial to evaluate the relationship between merit and need aid empirically. There are public policy implications that depend on whether such unintended consequences are real or imagined.

Chapter 2 Merit Aid Programs

2.1 The Hope Scholarship

In 1993 Georgia created the HOPE Scholarship, which distributes money for in state undergraduate studies on a merit-basis at an unprecedented level. The program pays for public-college tuition, mandatory fees, and a book allowance for any student graduating from a Georgia high school with 3.0 grade point average, and continues paying as long as the student maintains that same average in college. It also provides up to $3,000 towards tuition at a private in-state university for students meeting this criteria. This program remains the largest such program in the country, and is the main example for other states seeking to begin similar programs. There are three stated purposes of the HOPE scholarship and its imitators. The first is to increase access to college by giving students an opportunity to attend who would otherwise not be able to do so. The second purpose is to affect college choice by retaining the brightest and most promising students in-state. The third is to promote and reward academic achievement. Although students with significant financial need can and do benefit from such programs, they are not necessarily the primary target of this aid since merit aid tends to be awarded primarily to students from non-minority, middle class families (Heller 2002).

2.2 Large State-based Merit-based Scholarships

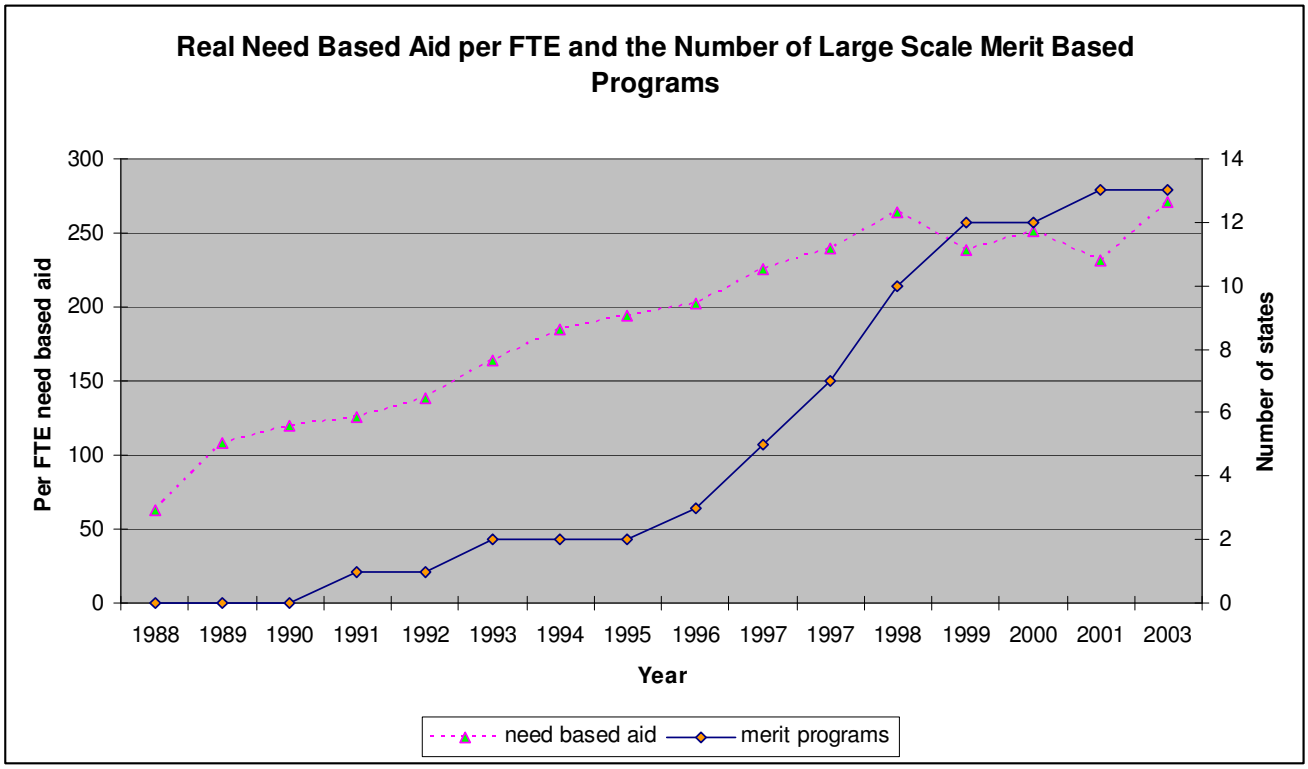
Cornwell, Leidner, and Mustard (2005) established three criteria to identify large scale or HOPE-like programs. Fourteen states meet these criteria. The first criterion is that anyone eligible for the award who applies is guaranteed to receive it. Second, there must not be a cap on number of students who receive the award in any year. Finally, it must be available over a number of years, as long as eligibility requirements are maintained. This last criterion excludes one-time grants. The fourteen states that meet these guidelines are University of Alaska Scholars Program (first awarded in 1999), Arkansas Academic Challenge (1991), Florida Bright Futures (1997), Georgia Helping Outstanding Pupils Educationally (HOPE, 1993), Kentucky Educational Excellence Scholarship (KEES, 1999), Louisiana Tuition Opportunity Program for Students (TOPS, 1998), Maryland HOPE (2000), Mississippi Resident Tuition Assistance Grant (2000), Nevada Millennium Scholarship (2000), New Mexico Lottery Success Scholarship (LSS, 1997), New Mexico Scholars Award (1997), South Carolina (LIFE, 1998), Tennessee HOPE (2004), Washington Providing Real Opportunities for Maximizing In-state Student Excellence (PROMISE, 1999), and West Virginia PROMISE (2002).

There seems to be no pattern among the states and their level of need-based funding which began their respective programs. Table 1 presents the level of need-based grant funding per full-time-enrolled student the year before each state began its merit-based program. To put these numbers in perspective, the state's rank relative to other states' funding that year is included. Florida scored highest by being the tenth largest granter of need-based aid per full-time-enrolled student the year before it implemented its program, and Georgia scored lowest with a rank of thirty-seventh. A cursory glance at these numbers suggests that the states which

implemented these merit-based programs were neither particularly generous nor especially miserly with need aid.

The following graph suggests a different story. As the number of states with HOPE-like programs mushroomed in the late nineties, the growth in total need-based funding per year seemed to level off. One can understand how some proponents of need-based funding could predict lean times for needy students whether or not merit programs continue to be adopted. It seems the presence of these programs on a national scale has discouraged need-based funding. However, this conclusion stems from a superficial analysis and should be examined more rigorously.

Figure 1



2.3 Possible Effects of Merit-Based Aid on Need–Based Aid

This paper examines the effect of the presence of a HOPE-like scholarship program on the amount of need-based aid provided by a state. Since financial aid is scarce, it is unlikely that need-based funding would increase dramatically upon the implementation of a large merit-based program. The literature that presumes merit-based aid will "crowd out" need-based aid. The state legislature may treat the two different types of aid as substitutes, in which case need-based aid will be cut to provide for the more politically popular merit-based scholarship. This process could reflect an explicit reduction in one scholarship fund to supply funding to the other, or it could be more subtle. Given the vast growth in merit-based aid, need-based aid may simply be less politically attractive and its growth may be halted for a certain time. In this case, the increase in inflation and students applying to need-based programs may decrease the real amount of aid per student without an explicit cut in the need-based budget. The constant amount of nominal funds would represent a decrease in real per capita funding over time.

On the other hand, politicians may understand that the two different programs address fundamentally different problems, have different goals, and are likely to target two separate groups. This is not to say that there is no overlap between the two recipient populations. Students can and do receive both merit-based scholarships and need-based scholarships if they are eligible for both.

The sources of the merit-based aid may be different than previous scholarship programs. Some states have secured funding for such popular programs by tapping new sources of revenue rather then using general funds. In states that use video gambling revenue or lottery funds, it seems unlikely that those funds would be allocated to need-based aid had the merit-based

program not been established. If the funding is drawn from the same general source as need-based aid, then the likelihood of substitution is higher. In these cases, the budgetary rivalry between need-based aid and merit-based aid is more direct. Since there is not a new source of funding dedicated specifically to the cause of merit-based aid, a concern of fiscal responsibility could pose a threat to need-based aid as it may be designated as similar or redundant. The hypothesis that merit-based aid derived from general funds has a greater effect on need-based aid than merit-based aid derived from dedicated sources will be tested. Even if a decrease in the level of need-based aid or its growth can be proven in either case, it is possible that this trend may be coincidental and unrelated to the growth in merit-based aid.

If merit aid does not substantially reduce need aid, even low-income recipients may benefit in that they have more aid from which they may draw. Singell et al (2003) finds such a result. If the level of need-based aid and merit-based aid are determined independently, there could be more funding available for needy students. Since needy students are also eligible for merit-based scholarship if they meet the academic standards, they could have access to a new source of funding. In many cases, merit funding is either partially or completely provided in addition to any need-based funding they receive. If regulations were written in a way such that all the need-based funding was canceled out by a higher level of need-based funding, the student would still receive more funding than without the merit-based program and therefore would be better off. For instance, Georgia once insisted that Hope recipients who are also eligible for the Pell grant apply for that program. Georgia would then cut their HOPE grant so as to leave the combined level of scholarship at the HOPE grant level. Although the student received no money from the Pell grant and was forced to fill out the paper work for the Pell grant, he or she was still better off, because their level of funding was significantly higher than without the HOPE

program. After legislation was passed allowing Pell grants and other need-based funds to be awarded in addition to any HOPE money received, needy students are potentially even better off. Need-based students may be adversely affected by HOPE-like programs in indirect ways, but they may also benefit on the balance because of the new source of funding.

Given that each state implements a HOPE-like program differently and independently of others, and given that many states have not implemented such programs and therefore constitute a control group, there is a natural experiment within the data. I expect the overall trends in education to be similar as there is evidence that the market for higher education is nationwide, as is the job market for college graduates. Smaller, idiosyncratic characteristics of regions and individual states can be controlled for with dummy variables. The data set is fairly rich since funding information is well monitored and classified, and the time span ranges over 50 states and 15 years. I, therefore, use a fixed-effects model to control for state and year effects, and regress the amount of need-based funding on various state characteristics, including the presence or absence of a merit-based program.

Chapter 3 Empirical Strategy

3.1 The Data

The National Association of State Student Grant and Aid Programs (NASSGAP) provided data on state-funded expenditures on post-secondary student financial aid.. These data range from 1988 until 2003 for every state and Washington D.C., and provide information on the number of full-time-enrolled students, the amount of grant money per full-time-enrolled student, the amount off need-based aid per full-time-enrolled student, total expenditure on higher education and the total expenditure on grants. These data differentiate between need-based aid, which has an income cap and non-need-based aid, which would include but not be limited to merit-based aid[1]. The Bureau of Economic Analysis, a division of the U.S. Department of Commerce, provides data over the same time span on per capita personal income, and the Bureau of Labor Statistics provides data on the demographic characteristics of the workforce, unemployment, and the Consumer Price Index.

I am also very grateful to receive the very thorough McLendon-Hearn higher education data set that includes various state data on political, demographic, and higher education characteristics for the period between 1975 and 2002. Appropriateness, nonredundancy and completeness determined the variables chosen for the analysis. Political variables include Democratic control of the governorship, house, and senate. Although this specification groups independents with Republicans in the governorship and does not take into account "ties" in the

[1] NASSGAP recently began reporting levels of merit aid by itself, although at this time these data are not fully available. The designation for what funding constitutes merit aid may not follow these paper's criteria for HOPE-like merit aid, and it is uncertain how early NASSGAP began differentiating between merit aid, although they do not begin reporting such aid until some time after 1994. The author has contacted NASSGAP and is hopeful that specifically merit-based aid levels per state will be accessed and used in the near future.

house, I felt that a strong binary measure of a partisan control could be more easily interpreted. Since merit programs have traditionally been supported initially by the democrats, they were chosen as the indicator category. I therefore expect a positive effect of these variables of democratic control on need aid. Democrats have historically been more concerned with low-income constituencies and low-income access to higher education. In addition, William Berry's most current measures of government ideology were used (Berry et al, 2001). Since party principles have greater variance at the state than national level, this uniform measure of ideology may capture more subtle political preferences in a state. I also included public and private enrollment figures from the National Center for Education Statistics (NCES) digest of education statistics as well as the Southern Regional Education Board.

There are shortcomings in the data. First of all, non-need aid data from NASSGAP cannot be used as a proxy for merit-based aid as there is a clear distinction between the two. Merit aid is defined as financial assistance given out in the large merit programs described above, while the available data defines non-need aid as any grant money not strictly need-based. For example, the HOPE grant is an award given to certain Georgia students pursuing technical diplomas. There is no income cap and therefore the program would be classified as non need. However, this program does not have merit requirements and is distributed mostly to low-income students.

There is also a lack of proper demographic data. Ethnic demographic data are unavailable because the Census changed the format for ethnic self-reporting in 2000. Therefore, the data from the decade of the 90's are, strictly speaking, not consistent with earlier data. Unfortunately, even more basic demographic distinctions such as the breakdown in percentages of citizens by age are unavailable because the Census only calculates such data once a decade.

Therefore, all relevant population composition data end in 2000. These are two oversights that will certainly be the focus of further research into this question.

3.2 The Empirical Model

To determine the effect merit-based programs have on need-based aid, I model a simple fixed effects regression controlling for various state characteristics. The basic model specification is

$$Y_{it} = \beta_{it} \cdot merit + \alpha'_{it} \cdot \mathrm{X} + \delta_1 T_t + \delta_2 S_i + e_{it} . \qquad (1)$$

Y_{it}, the dependent variable, is defined as the amount of need-based aid awarded per full-time-enrolled student by state (i) in year (t) adjusted for inflation. NASSGAP provides these data, and CPI deflators from the Bureau of Labor Statistics are used to normalize them in real 2003 dollars. The presence of a merit-based program is determined by the Cornwell, Leidner, and Mustard (2005) criteria and is coded to begin in the first year of funding in each respective state. X donates a vector of control variables specific to each state for each time period. Included are the political variables specifying Democratic control of the executive and legislative houses of each state (where applicable), and a measure of government and citizen ideology. A complete list of all the variables is included in the summary statistics in Table 2. All of the above are designated by state (t) and year (i). I then control for state (S_i) and year (T_t) using fixed effects. For the year fixed effects, 1988 was omitted. I allow correlation within states over time to obtain correct, robust standard errors.

3.3 Endogeneity

To properly identify the effort of merit programs on need aid the states that adopt merit programs cannot be systematically different in need aid compared to non-adopting states. If they do differ systematically then I must account for this endogeneity

Our approach relies on a natural experiment framework which tests whether states with merit-based funding are systematically different from the control states. If there is a pattern in the level of need-based funding among these states before the programs are implemented, then these states may be fundamentally different, and other states cannot serve as controls for direct comparison. Endogeneity would then be a direct concern, as our dependent variable would have a causal effect on our main independent variable.

To test for this type of endogeneity I estimate the basic regression and include three years of leads and lags on the merit program. These variables are binary dummy variables for each of the three years before and after the start of the program. I limit the time frame to three years because this is both a credible amount of time to capture the immediate political climate before and after implementation. Also, this allows a significant portion of the states to be included in the four year lead and lag. The year the program started is omitted. Since each year is measured separately, there is no implied imposition of a specific trend model. If these leads are not statistically significant, then one concludes that states that implement merit programs do not systematically differ in terms of need aid from those who do not start such programs. In such a case, implementation of the program could be determined to be unrelated to need-based aid and therefore exogenous to the model. I find such a result and are less concerned with endogeneity. I also contrast this with a reverse regression approach, which measures the effect of the level of

need-based aid on the presence of a merit program. The results do not suggest reverse causality and further lessen our concern.

Funding sources for merit-based programs vary, as seen in table 1. I divide merit based funding into two types, those with a dedicated source of revenue such as a state lottery, and those who draw funds from a general source. If the source of a merit program's funding is dedicated, then it is drawn from a source separated from that of the rest of the education budget and, specifically, the source of need-based aid. The funding for both types of programs would be less directly related and may not be subject to the same budgetary trends. When such merit programs are funded from a more general source, then merit-based aid and need-based aid are more likely to face similar or the same budget constraints and be more closely related. If merit-based programs are drawn from a general source, need-based aid is more likely to be effected. I estimate the model with the states with programs drawing from dedicated sources omitted and then with the general-funded program states omitted. In both cases, the effects of the merit-based programs remain similar to the more general case.

Chapter 4 Results

The most important result appears in the basic regression estimates presented in table 3. Column 1 reports the results for very simple regression, controlling for state fixed effects but not year fixed effects. I find a sizable yet statistically insignificant negative effect on merit-based aid of almost thirty dollars per full time equivalent student. The coefficient on real income per capita has a relatively high t statistic, and implies that for every thousand-dollar increase in per capita income, need-based aid increases by almost ten dollars per student. Perplexingly, the coefficients on Democratic legislative controls are negative. This runs counter to the reputation Democrats have for funding need-based aid programs. However, these estimated coefficients are not statistically significant.

When I take control for year fixed effects, both the coefficient on merit aid is almost a tenth of its previous value and is estimated considerably less precisely. Income retains its statistically significant effect and has more than twice the positive influence on need-based aid as before. Democratic control of the house implies a 34 dollar reduction in need-based aid, but is not statistically significant. The coefficients on the time variables are most telling. There is a consistently negative effect of years that grows both in absolute terms and in terms of statistical significance. If need-based aid is slowing in terms of growth or even decreasing in real terms, then the cause may be a byproduct of the passage of time and changing environment as opposed to the growth in merit-based aid. I find that the plight of need-based aid is across the board and not limited or even significantly greater in the states that have merit-based aid. Apparently, there is a secular reduction in need aid that affects merit and non merit states similarly.

The results of the reverse regressions on the presence of a merit program and the presence of the start of a merit program are reported in table 4. In both cases the estimated coefficient for real need based aid is neither statistically nor economically significant. This supports the claim that need based aid does not effect the likelihood of a need based program. This influences me to be less concerned with endogeneity. Per capita income does have a statistically significant effect on merit-based programs but this is neither especially large nor unexpected. Given the few instances of merit-based programs starting relative to the overall data and given the generality of the variables, it is not surprising that the adjusted R-squared term is small in the first year case.

Table 5 contains the regression with the lead and lag terms. The non-merit coefficient estimates have similar size and measures of precision to those in the fixed effects regression. However, none of the lead or lag coefficient estimates is estimated precisely enough to pass any reasonable test for statistical significance. The signs of the coefficient estimates, therefore, are not likely to indicate anything, although the leads are all positive and the last two lags are negative. There is no reason to suppose that any further lead specifications would result in a statistically significant effect one way or another, so our assumption about exogeneity of the presence of merit programs seems firmly reinforced. Introducing greater leads would pose a problem, as the number of states that would be included in a four or five year lag would drop precipitously.

The sources of funding for merit-based programs are separated in the regressions reported in table 6. If the dedicated funding merit programs were overshadowing the effect of merit-based funding on need-based funding in the states which fund both programs from general sources then this table would tease out that effect. To isolate the effects, I drop the programs that are funded

from one source, and then the other. The presence of only merit-based programs funded from dedicated sources is negative, but not nearly statistically or economically significant. The presence of programs with a general source of funding also has no explanatory power. Although the latter is unexpectedly positive, it is so statistically insignificant that the sign of the estimated coefficient is unlikely to indicate any effect.

Chapter 5 Conclusions

Some critics of merit-based programs blame them for reductions in need-based aid. Although need-based aid may be growing less rapidly or falling in real terms contemporaneously with the growth of merit-based programs, the two trends appear unrelated. Although there are many arguments for negative effects of merit aid on need-based programs, I find no evidence to support this claim. On the contrary, need-based programs are suffering across the board, regardless of the presence of a merit-based program in the same state. Currently non-need-based grants, not just merit aid, represent only 23% of total undergraduate aid expenditures from the state, while need-based grants represent 68%, according to NASSGAP's most recent annual report on state sponsored financial aid. Given that merit aid funding directly benefits academically qualified needy students while drawing from the different sources than, and therefore not diminishing, need-based aid, I conclude that the introduction of HOPE-like programs constitutes a net advantage to needy students living in the appropriate states.

In addition, the need-based funding is positively correlated with income per capita, but this is consistent with our current understanding of the effects of income on state-funded education and need-based aid in general. Democratic control of the house is negative, but given the lack of statistically significance, this is not a cause of concern. Traditionally, Democrats have been known for sponsoring and promoting need-based programs, especially in education. Further research into more precise political characteristics may isolate and better explain the relationship between the two parties and the two types of financial aid.

The contrast between the two different sources of funding from merit-based programs is surprising, but further supports the claim that there is no crowding out of need-based aid.

Apparently, even when the source of funding for a merit-based program is not dedicated, states do not seem to group the programs with need-based aid and do not sacrifice one program to fund the other. This is a very strong argument that states to not regard the two types of financial aid as compliments in any way, and that even as merit based aid grows in terms of costs, it does not pose a threat to the funding of established need-based aid grants.

This study is by no means complete, and there are many improvements to be incorporated in the future. Perhaps most obvious is the lack of a specialized measure for the level of merit-based funding. There is reason to believe that non-need aid encompasses aid that is not specifically for HOPE-like programs and therefore is quite noisy proxy for merit-based aid. These merit aid data should be available at the state level and eventually a consistent way of aggregating it will be developed.

A second weakness of the paper is the lack of demographic data. Among the variables that may be relevant are ethnicity, age, and highest education level attained. Some of these variables should eventually be available through the Census data. Such data may also be useful in answering the tangential question of which types of states are likely to adopt need-based funding.

In the future, I may also want to test further for endogeneity. Although our results seem conclusive in the matter of need-based aid changes leading to merit-based programs, it may be beneficial to find out what characteristics actually trigger the adoption of such programs. This may lead to an instrumental variables approach that could further separate the simultaneous decision about how much funding to provide.

There will also be benefits from simply allowing time to pass. It is not surprising that our results reflect the reality of a budget crisis in higher education at the turn of the millennium. This

recession was especially hard on state budgets, many of which were under great pressure. This is especially true of those states that were relatively generous with their grant funding. As time progresses and the data moves beyond the most recent recession, it will be interesting to see what effect an upswing in state budgets will have on higher education funding. There may be more merit-based programs adopted and that those currently in place will continue to provide more data. Every additional year allows for another credible lag variable.

I look forward to continuing research on this developing question. The research must continue to try to find possible effects of merit-based programs on need-based aid. The opponents of merit-based aid may claim that the burden of proof is on showing no harm. However, this paper shows that it may be worthwhile to seek out new explanations for the relative decline in the growth of need-based aid. As higher education becomes increasingly important and states continue to offer various scholarships to encourage and help college students, the rhetorical battle between need-based and merit-based aid will undoubtedly rage on.

Table 1
Summary of Level of Need-based Aid the Year Before HOPE-like Programs were Adopted by Each State

State which has adopted HOPE-like program	Primary Source of funding	Year the program was implemented	Need-based aid per full-time-enrolled student from year before implementation (rounded to the nearest dollar)	Rank of State in terms of need aid per FTE in year before implementation (out of available data, which includes DC)
Alaska	**Land lease**	**1999**	**NA**	**NA**
Arkansas	**General**	**1991**	**46.00**	**34th (out of 51)**
Florida	**Lottery**	**1997**	**401.00**	**10th (out of 51)**
Georgia	**Lottery**	**1993**	**34.00**	**37th (out of 51)**
Kentucky	**Lottery**	**1999**	**353.00**	**23rd (out of 49)**
Louisiana	**General**	**1998**	**154.00**	**27th (out of 49)**
Maryland	**General**	**2000**	**390.00**	**24th (out of 49)**
Mississippi	**General**	**1997**	**354.00**	**16th (out of 51)**
Nevada	**Tobacco**	**2000**	**253.59**	**31st (out of 49)**
New Mexico	**Lottery**	**1997**	**432.00**	**12th (out of 51)**
South Carolina	**Lottery**	**1998**	**217.00**	**22nd (out of 49)**
Tennessee	**Lottery**	**2004**	**NA**	**NA**
Washington	**General**	**1999**	**448.00**	**14th (out of 49)**
West Virginia	**Video gambling**	**2002**	**318.98**	**26th (out of 51)**

Table 2
Summary Statistics

Variable	Mean	Standard Deviation	Min	max
Amount of need-based aid per full-time-enrolled student	**181.6707**	**203.5471**	**0**	**986.9776**
Presence of a HOPE-like merit-based program	**.0901961**	**.2866499**	**0**	**1**
Income per capita in thousands of dollars	**186.490**	**207.0123**	**0**	**1093.54**
Presence of a Democratic Governor	**.4509804**	**.4979168**	**0**	**1**
Presence of a democratic state senate	**.5424837**	**.4985178**	**0**	**1**
Presence of a democratic state lower house	**.5895425**	**.4922386**	**0**	**1**
William Berry's measure of state government ideology where higher numbers indicate more liberal	**48.70339**	**25.05879**	**0**	**97.92**
Public enrollment in higher education in thousands	**223276.9**	**307695.1**	**13218**	**2043182**
Private enrollment in higher education in thousands	**54844.08**	**64022.17**	**355**	**336908**

Table 3
Basic Regression Results With and Without Year Fixed Effects

	Effects without year FE		Effects with year FE	
Variable	**Coefficient**	**T-stat**	**Coefficient**	**T-stat**
Merit Program	**-27.4513**	**-1.20**	**-3.138**	**-0.14**
Real Per Capita Income in Thousands	**9.641**	**6.32**	**24.645**	**3.66**
Democratic Governor	**2.154**	**- 0.11**	**.3886**	**0.02**
Democratic Senate	**-18.18**	**-0.69**	**-24.08**	**-0.93**
Democratic House	**-35.56**	**-1.63**	**-34.128**	**-1.44**
Government Ideology	**-.5280**	**-1.18**	**-.4069**	**-0.78**
Public Enrollment	**-.0175**	**-1.75**	**.0103**	**0.65**
Private Enrollment	**.0961**	**.1.78**	**-.0648**	**-1.44**
Constant	**59.609**	**1.49**	**-130.56**	**-1.68**
1989			**15.711**	**1.61**
1990			**-6.924**	**-0.36**
1991			**-23.26**	**-0.59**
1992			**-25.68**	**-0.93**
1993			**-38.81**	**-1.14**
1994			**-46.393**	**-1.13**
1995			**-82.456**	**-1.60**
1996			**-105.739**	**-1.82**
1997			**-108.11**	**-1.56**
1998			**-143.488**	**-1.82**
1999			**-140.68**	**-1.52**
2000			**-229.92**	**-2.00**
2001			**-256.41**	**-2.17**
2002			**-297.94**	**-2.46**
Adjusted R squared	**0.8183**		**-0.8322**	
State fixed affects	**yes**		**yes**	
N	**681**		**681**	

Table 4
Reverse Regression on the Presence of Merit-Based Program and the Presence of the First Year of a Merit-Based Program

Variable	Effects on the Presence of HOPE-like Merit -Based Program in State		Effect on Presence of First Year of Merit-Based Program in State	
	Coefficient	T-stat		
Real Need-Based Aid per FTE in Thousands	-.0167	-0.14	.0407	1.07
Real Per Capita Income in Thousands	-.0450626	-2.11	-.0020	-0.42
Democratic Governor	-.01867	-0.22	.0206	0.73
Democratic Senate	.0264	0.62	.0196	-0.93
Democratic House	-.04817	-0.71	.0124	0.95
Government Ideology	.00056	0.21	-.0009	-1.21
Public Enrollment	-.0000	0.818	..0000	1.04
Private Enrollment	.0002	0.291	-.0000	-0.20
Constant	.4620	1.83	.0342	0.57
Adjusted R squared	0.4933		0.0577	
State and year fixed effects	yes		yes	
N	681		681	

Table 5
Regression with Three Year Lead and Lag of the Start of a Merit Based Program

variable	coefficient	t-statistic
Lead 3	**13.67**	**0.70**
Lead 2	**6.76**	**0.34**
Lead 1	**3.90**	**0.16**
Lag 1	**-15.25**	**-0.59**
Lag 2	**-12.76**	**-0.43**
Lag 3	**9.25**	**0.29**
Real Per Capita Income in Thousands	**24.72**	**3.63**
Democratic Governor	**-.1660**	**-0.01**
Democratic Senate	**-24.45**	**-0.94**
Democratic House	**-32.95**	**-1.43**
Government Ideology	**-.404**	**-0.77**
Public Enrollment	**.0098**	**0.64**
Private Enrollment	**-.068**	**-1.53**
Constant	**-131.37**	**-1.66**
Adjusted R Squared	**0.8255**	
Year Fixed Effects	**Yes**	
State Fixed Effects	**Yes**	
N	**681**	

Table 6
Regressions with Merit Programs with
Only Dedicated funding and Only General Funding

Variable	Effects of Only Merit Programs with Dedicated Funding		Effects of Only Merit Programs with General Funding	
	Coefficient	T-stat		
Presence of Merit Funding by Type	**-5.121943**	**-0.15**	**3.662955**	**0.13**
Real Per Capita Income in Thousands	**27.25793**	**-3.78**	**25.93429**	**3.63**
Democratic Governor	**-28.81688**	**-1.35**	**-3.014715**	**-0.14**
Democratic Senate	**.-34.68251**	**0.62**	**-35.36385**	**-1.34**
Democratic House	**-52.16852**	**-1.91**	**-29.64949**	**-1.23**
Government Ideology	**.394436**	**.0.78**	**-.2933798**	**--0.54**
Public Enrollment	**.078**	**0.68**	**.0136**	**0.91**
Private Enrollment	**-.0309**	**-0.67**	**-.0642**	**-1.37**
Constant	**-173.7466**	**-2.05**	**-146.3955**	**-1.73**
Adjusted R Squared	**0.8343**		**0.8271**	
State and year fixed effects	**yes**		**yes**	
N	**576**		**610**	

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