STAFF
REPORTS

NO. 641
SEPTEMBER 2013

REVISED
JANUARY 2022

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Federal Reserve Bank of New York Staff Reports, no. 641
September 2013; revised January 2022
JEL classification: H4, H7, I2

Abstract

In this paper, we investigate the role of college selectivity in college choice decisions (both in-state and out-of-state) of freshmen students following Georgia's HOPE scholarship program. How did HOPE affect the selectivity of colleges attended by Georgia's freshmen students? Did it induce Georgia's freshmen students who would have otherwise attended more selective out-of-state colleges to instead attend less selective in-state ones? Or was there movement to more selective ones, both in-state and out-of-state? Using student residency and enrollment data from IPEDS and selectivity data from Barron's and Peterson's, we find that in the aftermath of HOPE, Georgia freshmen attended relatively more-selective colleges overall. Disaggregating further, we find that Georgia freshmen attending in-state colleges attended more selective ones. Georgia freshmen attending out-of-state colleges were also more likely to attend more selective colleges, most likely due to an increase in the reservation price to go to out-of-state colleges following HOPE. Our results are robust to a variety of sensitivity checks and have important policy implications. In particular, Peltzman had observed in his classic 1973 paper that in-kind subsidies can induce individuals to invest in less quality-adjusted human capital than they might otherwise. The fact that Georgia freshmen attended relatively more selective colleges in the post-HOPE period allays, to some extent, the concern that state merit aid programs can adversely affect long term outcomes and human capital formation.

Key words: merit aid, HOPE, college choice, college selectivity, subsidy, college cost

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This paper presents preliminary findings and is being distributed to economists and other interested readers solely to stimulate discussion and elicit comments. The views expressed in this paper are those of the author(s) and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System. Any errors or omissions are the responsibility of the author(s).

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https://www.newyorkfed.org/research/staff_reports/sr641.html.

1 Introduction

In 1993 the state of Georgia implemented a large merit aid program for college students, the "Helping Outstanding Pupils Educationally" (HOPE) scholarship program. Since then, merit aid programs have become increasingly popular and have been adopted by a large number of other states. An indicator of the popularity of these programs is that in the five years between 1998-99 and 2003-04, the value of merit-based state grants more than doubled in real terms, from $0.7 billion to nearly $1.5 billion (Scott-Clayton, 2008). The federal government has also instituted similar programs—the American Competitiveness Grants (ACG) program offers scholarships to freshmen and sophomores who complete a rigorous secondary school program and maintain a 3.0 GPA in college. Another federal program—the HOPE Scholarship and Lifelong Learning Credit—is also modeled after the Georgia HOPE program.

The objectives of HOPE-type merit aid scholarships are first, to increase college enrollment by promoting access to higher education; second, to provide a greater incentive for students to remain in state for their post-secondary schooling; and third, to reward and promote academic achievement (Cornwell, Lee and Mustard (2005)). Most merit aid scholarship programs award aid for attending both private and public in-state colleges, and both 2-year and 4-year colleges. However, the awards are often lower at private colleges than in public ones.

This paper studies the effect of state merit aid programs on student mobilities to both in-state and out-of-state institutions, with an emphasis on the role of the selectivity of an institution. We focus on Georgia's HOPE program for our analysis. A rich literature investigates the effect of merit aid programs on enrollment patterns. The findings are mixed. On the one hand, there is evidence that state merit aid programs lead to increases in college enrollment (Dynarski (2000), Cornwell, Mustard and Sridhar (2006), Zhang and Ness (2010)). On the other, some literature finds no meaningful effects of merit aid programs on enrollment (Sjoquist and Winters (2012, 2014)).[1] Moreover, there is evidence that students are often willing to tradeoff school quality for scholarship if this scholarship relates to lower

[1] If the supply of higher education is less than perfectly elastic (Bound and Turner (2007)), this might lead to a crowding out of other students and/or lowering of per capita resources for the existing students.

quality colleges (Goodman (2008), Cohodes and Goodman (2014)).[2] In addition to these relatively short term effects, merit aid programs have been found to increase longer term retention of these students in the home state (Groen (2004), Fitzpatrick and Jones (2013), Bettinger et al. (2019)), although these effects are typically modest.

A related strand of literature studies the impact of merit aid programs on academic outcomes. While there is some evidence in favor of a positive impact on academic outcomes (Dynarski (2008), Pallais (2009), Scott-Clayton (2011), Bruce and Carruthers (2014), Carruthers and Fox (2016), Carruthers and Ozek (2016)), there is also some evidence to its contrary (Cohodes and Goodman (2014), Sjoquist and Winters (2014, 2015, 2016)). In related research, Cornwell, Lee and Mustard (2005) finds that HOPE decreased full-load enrollments and increased course withdrawals among Georgia freshmen.[3]

However, an important question, both from policy and scholarly perspectives, is the extent to which college selectivity influences these enrollment and mobility patterns. Did HOPE affect the overall selectivity of colleges attended by Georgia's freshmen students? Further, was the post-HOPE gain in in-state college enrollment in Georgia mainly contributed by an increase in enrollment in the more-selective colleges, or the less-selective ones? Similarly, did Georgia's freshmen students who still continued to attend out-of-state institutions enroll in the more-selective ones, or the less-selective ones?

It is possible that merit aid scholarship programs, tied to attending in-state colleges, might lead to a substitution of more-selective but expensive out-of-state colleges for less-selective and less expensive in-state ones. Enrolling at in-state colleges is now much more attractive in terms of relative tuition

[2] This is perhaps not surprising and is consistent with previous literature that has found that students respond significantly to costs of college and financial aid (Avery and Hoxby (2003)).

[3] A large literature has studied the effects of merit aid programs on other outcomes, such as high school attainment (Henry and Rubenstein (2002)), college drinking habits (Cowan and White (2015)), K-12 school district spending (Chakrabarti, Gorton and Roy (2018)), labor force participation (Frisvold and Pitts (2018)), long term financial outcomes (Scott-Clayton and Zafar (2019)) and long term labor market outcomes (Bettinger et al. (2019)). Frisvold and Pitts (2018) finds that merit aid programs lead to small declines in teenage labor force participation, while Cowan and White (2015) finds that merit aid programs increase high school drinking habits. Looking at effects of merit aid on long term outcomes, Scott-Clayton and Zafar (2019) finds evidence in favor of improved financial outcomes of students, while Bettinger et al. (2019) finds evidence in favor of increases in long run earnings for some sub-groups. Henry and Rubenstein (2002) and Chakrabarti, Gorton and Roy (2018) investigate responses to merit aid programs in the K-12 sector. Henry and Rubenstein (2002) finds that merit aid programs increase high school grades while Chakrabarti, Gorton and Roy (2018) finds that merit aid programs lead to increases in local funding of students, both suggestive of increases in quality in the K-12 sector.

costs—these potential out-of-state students might be willing to sacrifice college selectivity and attend a less selective in-state college at a relatively lower price. This is consistent with the Peltzman (1973) hypothesis that in-kind subsidies can potentially reduce the consumption of an indivisible public good.

However, it is also possible that students who would have otherwise gone to an out-of-state college (presumably because of its high quality), care a lot about college quality and hence would be willing to go to only the more selective colleges in the state. This would increase demand for in-state selective colleges. So it is not clear, apriori, whether a merit aid program like HOPE would lead to a relative increase or decrease of enrollment in selective in-state colleges. A related question is whether students who still choose to go out-of-state go to more-selective colleges or less-selective ones, compared to their counterparts from previous cohorts who migrated out. One might argue that since the in-state options are now cheaper, the reservation quality for going out-of-state is now higher, and that students would be willing to go out-of-state only if they are able to go to relatively more-selective colleges than earlier.[4] Each of these is an empirical question, and we address these questions empirically in the sections that follow.

With the recent focus on the importance of college education in today's world, a possible change in educational attainment (or quality) and human capital can have far-reaching consequences. Note that a transfer—particularly from a selective but more-expensive out-of-state college to a less-selective in-state college—may be an optimal choice in the short run from the individual student's point of view. However, it may not be optimal from the long run perspective if it leads to lower future income streams for the student. Most studies find that there is a wage premium associated with receiving a degree from a more elite institution (Brewer, Eide and Ehrenberg (1999), Hoxby (2001, 2009), Black and Smith (2006), Long (2008, 2010), Saavedra (2008), Hoekstra (2009), Dale and Krueger (2002, 2014)). Further, as Hoxby (2001) shows, not only do students who invest in education at a more selective college

[4] There is some evidence in the literature that college selectivity is a predominant factor in out-of-state migration of college students (Mixon and Hsing (1994), Baryla and Dotterweich (2001)). Dickson (2006) shows that when under the Texas Top Ten plan high school seniors graduating in the top ten percent of their class could choose which public in-state college they enroll at, an overwhelming majority (60 percent) chose one of the state's two most selective colleges—University of Texas-Austin and Texas A & M University, although there are thirty five public universities in Texas. This underscores the general importance of selectivity in a student's college choice process.

generally earn back their investment several times over during their careers, but since 1972, the returns to attending a more selective college have been rising over time.[5] Studies have pointed out that most of the merit aid money goes to infra-marginal students (Dynarski (2000), Cornwell, Mustard and Sridhar (2006)), which casts doubt on the value of such programs. It might be an added drawback if it was true that some of these students attended less selective colleges as a result of these merit aid programs.

We use freshmen residency and enrollment data from the IPEDS data system matched with selectivity measures obtained from Barron's and Peterson's undergraduate database, and a difference-in-differences estimation strategy for our analysis. We find that in the post-HOPE period, Georgia freshmen were enrolling in more selective institutions overall. Consistent with the previous literature (Dynarski (2000) and Cornwell, Mustard and Sridhar (2006)), we also find that there was a significant decline in the incidence of out-migration by Georgia's freshmen students. Further, we find that this decline was considerably smaller for more-selective out-of-state colleges compared to less-selective out-of-state ones. Interestingly, within Georgia there was a significant relative surge in enrollment of Georgia's freshmen students in the more selective institutions. Notably, we do not find any such patterns for non-Georgia freshmen (from the control states) in the post-HOPE period.

Thus, there is no evidence that HOPE led Georgia's freshmen students to substitute more selective colleges in favor of less selective ones, and this is true for both in-state and out-of-state college enrollment. In other words, we do not find evidence in favor of the Peltzman hypothesis—in fact, if anything, Georgia freshmen were more likely to enroll in more selective post-secondary institutions in the aftermath of the HOPE program. Our results are reasonably robust in that they hold both for all freshmen students and for students graduating from high school within the preceding twelve months, and also withstand a plethora of sensitivity checks. These include use of alternate control groups and alternate measures of college selectivity; taking into account any pre-existing differences in enrollment trends by region and by selectivity; controlling for several state-level time-varying factors; exclusion of states that adopted merit aid programs of their own as well as more direct tests to identify and eliminate their role in the

[5] On the other hand, such a scholarship program can also impact the educational attainment of the future workforce in the enacting state (Fitzpatrick and Jones (2013)).

mobility patterns; and ruling out change in college selectivity in the post-HOPE period as a potential confounding factor.

The existing merit aid literature takes the implementation of merit aid programs as exogenous and uses that plausibly exogenous variation to study effects on various outcomes. Regardless, it is worth pointing out that a concurrent paper studies this question in detail (Chakrabarti, Gorton and Roy (2018)). That paper finds no evidence that the timing of the programs (or the programs themselves) are related to the state's educational scenario, economic conditions, the composition of the state legislature or the party that controlled the governorship. Neither can the timing (or the program state) be predicted by a rich variety of observable characteristics of the state, the paper further finds. Drawing on the previous literature as well as findings of that paper, we treat the timing of the HOPE scholarship program as exogenous in this paper. Consistent with this assumption, later in this paper, we find no evidence of differences in pre-program enrollment trends of Georgia freshmen by region or by selectivity. Nor do we find any increasing (or declining) trends in Georgia freshmen enrollment preceding the HOPE program.

Our results are important in understanding the effect that the structure of U.S. higher education has on student enrollment. Almost all public universities in the U.S. are managed and largely financed by the respective state governments, resulting in a significant wedge in tuition between in-state (resident) students and out-of-state (nonresident) students. Under this existing scenario, students might have an incentive to trade off better but more expensive out-of-state colleges for cheaper but academically inferior in-state colleges. In other words, the price difference between in-state and out-of-state colleges has the potential to affect college investment decisions significantly, perhaps persuading students to invest in less quality-adjusted human capital than they would have otherwise and thus reducing their aggregate consumption of higher education (Peltzman (1973)). However, measuring the incidence and size of such potential tradeoff is difficult because of confounding omitted variables bias (Long (2004) is a notable exception).[6] A merit aid policy like the HOPE scholarship program in Georgia, which

[6] Long (2004) uses a conditional logistic choice model to analyze the effect of state tuition subsidies on college choice. She finds that if the resulting financial aid could instead be applied to any in-state college, up to 29% more students would

further increases the cost of migrating out-of-state, acts as a 'natural experiment' and affords us a unique opportunity to understand the effect of this wedge between in-state and out-of-state tuition on enrollment and migration decisions of the state's students. In recent years there has been renewed interest in understanding the nature and consequences of this out-of-state wedge (Knight and Schiff (2019)); the current paper further adds to our understanding of this pivotal issue.

Finally, our results have relevance for the college cost literature and the "free-college" debate (Baum and Johnson (2015)). Rising college cost triggered by falling state appropriations trends have both short and long term implications (Deming and Walters (2017), Chakrabarti, Gorton and Lovenheim (2019)). Merit aid programs serve to reduce net college cost. Studying the effect of merit aid programs on college choice and college selectivity patterns gives us a unique window into the potential effects of college cost subsidies and the "free college debate". The findings of our paper suggest that college cost subsidies have the potential to increase the selectivity of the college attended, both in-state and out-state.

2 The HOPE program

The "Helping Outstanding Pupils Educationally" (HOPE) program was implemented in Georgia in 1993. It was the second such program instituted by a U.S. state (after a smaller Arkansas program implemented in 1991), and shares features of typical merit aid scholarship programs in the U.S. Such programs give generous discounts for attending in-state colleges. The awards are available irrespective of income[7], and all those who meet specified criteria (usually based on residency and high school GPA) are eligible. Note that this is in sharp contrast to traditional forms of student aid—historically, state and federal aid for college students have strongly focused on low-income students and have been need-based.[8] Third, the scholarships have a multi-year coverage and the awards are available as long as students continue to meet certain criteria in college.

prefer to attend private four-year colleges.

[7] Exceptions are Kentucky and Maryland programs that have means-tested components.

[8] As Dynarski (2000) reports, 90 percent of dependent students who receive either of the two largest federal grants—the Pell Grants and the Stafford Loans—grew up in families with incomes less than $40,000.

Since the HOPE program has been described in detail elsewhere (see e.g., Dynarski (2000), Dynarski (2004), Cornwell, Mustard and Sridhar (2006)), we restrict ourselves to its main features, which are as follows. There are two components of the program—the merit-based HOPE scholarship and the HOPE grant. The former covers tuition, fees, and book expenses for all eligible high school graduates attending degree-granting public post-secondary institutions in Georgia. Comparable subsidy is available for students attending in-state private institutions. The HOPE grant can only be applied to non-degree programs at 2-year colleges. In this paper we focus on the HOPE scholarship program, which is by far the larger and more important of the two.[9] To be eligible for the scholarship program, a student must be a Georgia resident and must have graduated from a Georgia high school in 1993 or thereafter with at least a B average. Also, to continue receiving the scholarship, a student must maintain at least a 3.0 grade point average in college.

3 Data

The primary source of data for the empirical analysis is the Integrated Post Secondary Education Data System (IPEDS) of the National Center for Education Statistics. We use data on residence and migration patterns of college freshmen from IPEDS to examine whether Georgia freshmen exhibited any differential mobility before and after the introduction of the HOPE scholarship, and whether this varied with the selectivity of the institutions. We then do a parallel analysis using the control states to examine whether they show similar differential mobility patterns (overall and by selectivity) in the post-HOPE period relative to the pre-period. The IPEDS data on residency and migration are available biennially. Our data span school years 1986-87 through 2000-01 for Georgia and the control states (see section 4 for more on control states).[10] These data are at the institution level—for each institution and for each year, IPEDS reports residency data for freshmen. Specifically, for students enrolling at each

[9] For example, between 1993 and 1999, HOPE scholarships accounted for 78 percent of total aid disbursed, see Cornwell, Mustard and Sridhar (2006). Also, students generally do not enroll in 2-year institutions out-of-state—Dynarski (2000) reports that students attending 4-year colleges are eight times more likely to attend an out-of-state college compared to students attending 2-year institutions.

[10] These data pertain to the fall of the corresponding year (i.e., Fall 1986 through Fall 2000). No migration data are available for Fall 1990. In this paper, school years are represented by the year corresponding to the spring semester.

institution, IPEDS reports state of residence for both (i) freshmen with any high school graduation date ("All Freshmen") and (ii) freshmen who graduated in the past twelve months. We use both these measures of freshmen residency and migration in this study.

We also use annual data on college rankings (proxy for college selectivity) obtained from Barron's Annual Profile of American Colleges for the school years 1985-86 through 1999-2000[11]. Based on factors like median entrance examination (SAT and ACT) scores for freshman class, percentage of freshmen who ranked at the top of their high school graduating classes and percentage of applicants who were accepted, Barron's ranks colleges into six categories - non-competitive, less competitive, competitive, very competitive, highly competitive, and most competitive. Since the latter two categories and especially the last have relatively fewer colleges, we pool these two categories together and construct a variable "selectivity" that takes the respective values 1, 2, 3, 4, and 5. Some representative college rankings in 1993 (the immediate pre-program year) are presented in Table A1. Since college rankings are likely to affect mobility patterns in the following year (not the same year), we match the IPEDS data on residency and migration in a certain year with Barron's ranking in the previous year. Previous literature employing data on selectivity of colleges has often relied on Barron's rankings (Brewer, Eide, and Ehrenberg (1998), Long (2008, 2010), Griffith and Rothstein (2009)). We supplement the Barron's selectivity measures with two other alternative measures of selectivity for the period 1985-86 through 1999-2000. These data are obtained from the Peterson's undergraduate database, and include the following two measures:—percentage of students admitted with above 500 SAT math score and percentage of students admitted with above 500 SAT reading score.

Consistent with the existing literature, we use various state-level covariates to control for state economic circumstances, eligible population or cohort size (and hence demand for college), and differences of opportunity costs of attending colleges across states. We use per capita personal income obtained from the Bureau of Economic Analysis to control for economic conditions, number of high school graduates obtained from the Common Core of Data (CCD) of the National Center for Education Statistics

[11] We are grateful to Mark Long for sharing his Barron's College rankings data for 1992 and 1996 with us.

(NCES) to control for the size of the eligible population in states, and unemployment rate obtained from the Bureau of Labor Statistics to control for the opportunity cost of college. Per capita personal income is expressed in real 1987 dollars in our estimations.

4 Empirical Strategy

The objective of this paper is to investigate the role of college selectivity in mobilities and enrollment (both in-state and out-of-state) of freshmen students induced by Georgia's HOPE scholarship program. We use freshmen from non-Georgia SREB states as a comparison group in our analysis. To set the stage, we first investigate whether HOPE had any effect on the overall selectivity of institutions attended by Georgia's freshmen students. Controlling for college fixed effects, year fixed effects, and the set of state-level control variables outlined in section 3, we look for relative shifts in enrollment patterns of Georgia freshmen in the post-HOPE period, and investigate whether (and how) selectivity factored in such shifts.[12]

Next, delving deeper, we distinguish between students attending in-state colleges and those attending out-of-state colleges, and study whether there was a change in the type of college attended by any of these two groups. Specifically, did HOPE induce Georgia freshmen who would have otherwise attended more selective out-of-state colleges to attend less selective in-state ones? Or was there a relative movement in to more selective in-state ones? How about out-of-state mobility—did HOPE lead to a skewing of out-of-state mobilities of Georgia freshmen in favor of more selective colleges?

We employ a difference-in-differences estimation strategy, using neighboring states as a control group for Georgia. Following existing literature (Cornwell, Lee and Mustard (2005), Cornwell, Sridhar and Mustard (2006)), we use the non-Georgia Southern Regional Education Board (SREB) states as control

[12] Specifically, we estimate the following equation:

$$lnE_{ijt} = \sum_{1989}^{2001} \theta_{0t} D_t + \theta_1 . Sel_{ijt} + \theta_2 . (HOPE_t * Sel_{ijt}) + \psi_i + \chi . X_{jt} + \varepsilon_{ijt}$$

for Georgia. Founded in 1948, the SREB is a nonprofit, nonpartisan organization that works with leaders and policy-makers in 16 member states to improve pre-K through post-secondary education. These states are collectively known as the SREB states and include Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia. These states are represented in different shades of green in Figure 1 (more on the different shades later). Given their regional focus on education, the SREB has been considered as a natural control group for Georgia—see Cornwell, Mustard and Sridhar (2006) for detailed discussion and justification of the appropriateness of this control group for Georgia. The control group used in Dynarski (2000) is also very similar—it included states in the South Atlantic and East South Central Census divisions, and correspondingly excluded Arkansas, Louisiana, Oklahoma and Texas from the SREB and included Washington DC. Our results are robust to using this control group of states instead of the SREB. The results from this alternative control group analysis are not reported here for lack of space, but are available on request.

We use data from 1986-87 to 2000-01 school years (that is fall enrollment 1986 through fall enrollment 2000) for our analysis.[13] These years straddle 1993, the year of the HOPE program. First, we use the following regression to examine whether there has been a change in in-state and out-of-state college attendance for Georgia freshmen students in the post-HOPE period, and whether this varied with the selectivity of the respective institutions.

$$lnE_{ijt} = \sum_{1989}^{2001} \alpha_{0t} D_t + \sum_j \alpha_{1j} S_j + \alpha_2 . HOPE_t + \alpha_3 . Sel_{ijt} + \sum_j \alpha_{4j} . (S_j * Sel_{ijt}) + \alpha_5 . (HOPE_t * Sel_{ijt})$$
$$+ \sum_{j>1} \alpha_{6j} (S_j * HOPE_t) + \sum_j \alpha_{7j} . (S_j * HOPE_t * Sel_{ijt}) + \psi_i + \chi_1 . X_{jt} + \varepsilon_{ijt} \quad (1)$$

where E_{ijt} is freshmen enrollment in college i in state j in year t who are residents of Georgia (GA), D_t denotes year dummies for the different years, $HOPE_t$ is an indicator for post-HOPE years, Sel_{ijt}

[13] We limit to fall 2000 cohort to avoid the recession that immediately followed, as a recession can potentially affect college going, and differentially so between states.

is a measure of selectivity of college i in state j in year t, S_j ={GA, notGA}, ψ_i denotes institution fixed effects, and X_{jt} are state-level control variables.The GA dummy takes a value of 1 if the college is located in Georgia and 0 otherwise; notGA takes a value of 1 if the college is located in an SREB state outside Georgia and 0 otherwise. (See below for alternate ways in which we classify colleges located in the SREB states outside Georgia). As discussed in section 3, the state-level control variables include real per capita personal income, number of high school graduates, and unemployment rate. We are interested in the interaction terms $(S_j * HOPE_t)$ and $(S_j * HOPE_t * Sel_{ijt})$—the coefficients of these interactions show whether there was a change in in-state and out-of-state college enrollment for Georgia freshmen in the post-HOPE years, and whether this varied with the selectivity of the colleges. (Note that S_j is absorbed as we have institution fixed effects, $HOPE_t$ is absorbed as we have a full set of post-program year dummies; Sel_{ijt} is absorbed since we have a full set of $(S_j * Sel_{ijt})$ variables; $(HOPE_t * Sel_{ijt})$ is absorbed since we have a full set of $(S_j * HOPE_t * Sel_{ijt})$ variables.) As in the existing literature (Cornwell, Lee and Mustard (2005), Cornwell, Mustard and Sridhar (2006), Zhang and Ness (2010)), we use logarithm of E_{ijt} for ease of interpretation, so that the coefficient estimates can be more easily interpreted as percentage effects. Also, note that throughout the paper we use robust standard errors that are adjusted for clustering by state.

The college-specific fixed effects control for all time-invariant factors associated with a particular college—for example, its location (including distance from Georgia), initial selectivity level, and other institutional features. An added advantage of a college-level fixed effect is that it absorbs all state-specific factors that are stable over time. For example, states differ greatly in their higher education systems, including the level of state funding, public and private sectors, number and types of institutions, etc.—most of these characteristics are stable over time and will be captured by the fixed effects. The year dummies control for any national (or regional) economic, political or demographic factors that might affect year-to-year college enrollment—for example, it controls for the secular trend in increased college attendance in the U.S. during this period as well as business cycle conditions.

Note that while the above equation, and equations (2)-(3) below, focus on GA freshmen to analyze

post-Hope enrollment of GA students in in-state and out-of-state institutions that vary by selectivity, in section 6.4 we conduct a symmetric analysis using non-GA freshmen from our control group (non-GA SREB states). In that counter-factual analysis we analyze whether in the post-Hope period non-GA freshmen from the control states exhibited similar enrollment patterns as GA freshmen. That control group analysis serves to shed light on whether the post-HOPE enrollment patterns of GA freshmen (captured in results for equations (1) and (2)-(3) below) are contributed by HOPE or rather, by secular trends.

Continuing to consider equation (1), we define institutions in 'notGA' in two different ways. In the first version, we define a 'notGA' dummy that takes a value of 1 for all institutions located in the SREB states outside Georgia. The interaction of the notGA dummy with the HOPE dummy shows whether the average institution in the non-Georgia SREB region witnessed any differential pattern in college attendance of Georgia freshmen in the post-HOPE period. The coefficient of the three-way interaction term $S_j * HOPE_t * Sel_{ijt}$ shows whether this differential pattern varied with the selectivity of the institutions.

In the second version, we break down the non-Georgia colleges in the SREB region into two groups—those that are located in the five states bordering Georgia—North Carolina, South Carolina, Florida, Alabama and Tennessee—and those that are located in the other SREB states not bordering Georgia. The various groups of SREB states are represented in different shades of green in Figure 1. Georgia appears in dark green, the surrounding bordering states are represented in medium-green color, while the non-bordering SREB states are presented in light green. In this version of the equation, S_j ={GA, bordering, notbordering}, where bordering takes a value of 1 for colleges located in the states bordering Georgia, and notbordering takes a value of 1 for colleges in non-Georgia SREB states that do not border Georgia. Inclusion of separate dummies for colleges in bordering states and those in non-bordering states, their interactions with the HOPE dummy, and their interactions with the HOPE dummy and the selectivity indicator separately identify the effects on mobility patterns to colleges in SREB states bordering Georgia and those in SREB states not bordering Georgia.

Equation (1) constrains the HOPE-effects to be the same over the various post-HOPE years. But that may very well not have been the case—it would be instructive to see whether the HOPE effect varied across the various post-program years.

$$lnE_{ijt} = \sum_{1989}^{2001} \beta_{0t} D_t + \sum_j \beta_{1j} S_j + \beta_2 . Sel_{ijt} + \sum_j \beta_{3j} . (S_j * Sel_{ijt}) + \sum_{j>1} \sum_{1995}^{2001} \beta_{4jt} . (S_j * D_t)$$

$$+ \sum_j \sum_{1995}^{2001} \beta_{5jt} (S_j * D_t * Sel_{ijt}) + \psi_i + \chi_2 . X_{jt} + \varepsilon_{ijt} \quad (2)$$

The coefficients of interest here are β_{4jt} and β_{5jt}. The former captures whether Georgia freshmen in the post-HOPE period differentially went to Georgia (or not-Georgia) institutions, β_{5jt} shows whether such differential mobilities (if any) varied by the selectivity of the institutions. (Note that, here S_j will be absorbed by institution fixed effects, Sel_{ijt} will be absorbed because we have a full set of $(S_j * Sel_{ijt})$; $(D_t * Sel)$ will be absorbed because we have a full set of $(S_j * D_t * Sel)$ interaction variables.)

Note that in equations (1)-(2), selectivity is constructed as a variable that is linear in the various selectivity categories. This is a restrictive assumption—it would be instructive to see whether there is a non-linear relationship between student mobility after HOPE and selectivity. So we construct 5 selectivity indicators, $Sel_{k,ijt}$ where $k = \{1, .., 5\}$, corresponding to the five selectivity categories, and distinguish mobility patterns to the various categories of selective institutions in Georgia and outside.

$$lnE_{ijt} = \sum_{1989}^{2001} \gamma_{0t} D_t + \sum_j \sum_{k>1} \gamma_{1jk} . (S_j * Sel_{k,ijt}) + \sum_{j>1} \gamma_{2j} (S_j * HOPE) + \sum_j \sum_{k>1} \gamma_{3jk} . (S_j * HOPE * Sel_{k,ijt})$$

$$+ \psi_i + \chi_3 . X_{jt} + \varepsilon_{ijt} \quad (3)$$

The coefficients of interest are γ_{2j} and γ_{3jk}. While the first indicates whether HOPE led to changes in college enrollment of Georgia freshmen inside and outside Georgia, γ_{3jk} indicates whether these differential mobilities varied by selectivity categories of the colleges. (Note that $HOPE$, S_j, $\sum Sel_{k,ijt}$,

$\sum(HOPE * Sel_{k,ijt})$ will be absorbed and hence not listed in the above equation.) While estimating each of the above equations, we treat non-Georgia states in two alternate ways. The first pools all non-Georgia SREB states together, while the second distinguishes between bordering and non-bordering states.

We also conduct a variety of sensitivity checks and analyze the robustness of the above estimates to potential confounding factors. First, we investigate the presence of (and accordingly control for) pre-existing trends in freshmen enrollment by region and selectivity, as the presence of differential pre-existing trends might bias our results. Second, we analyze whether the mobility patterns of Georgia freshmen in the post-HOPE period were impacted by the adoption of merit aid programs later in some of the other SREB states. Third, using non-Georgia SREB freshmen (that is, freshmen from the control states), we estimate the same specifications as above. The purpose is to investigate whether non-Georgia SREB freshmen exhibited patterns similar to Georgia freshmen in terms of in-state and out-of-state mobilities and by selectivity in the post-HOPE period. This analysis serves to get rid of national and regional secular trends during the period under consideration that might otherwise bias our results. Note that the presence of similar patterns for non-Georgia SREB freshmen would indicate that (any) impacts for Georgia freshmen were caused by common secular trends rather than the HOPE scholarship program. In the fourth place, we test the robustness of our findings to alternative measures of selectivity. Finally, we explore whether changes in college selectivity might have served as a confounding factor.

5 Results

Tables 1A and 1B present the summary characteristics of our data from the pre-program period (1987-93). Table 1A Panel A focuses on Georgia freshmen, while Panel B focuses on non-Georgia SREB freshmen. The left hand side of each panel presents characteristics of the "All Freshmen" category, while the right hand side presents patterns for freshmen who graduated in the past twelve months. Focusing first on "All Freshmen", freshmen from both Georgia and other SREB states overwhelmingly

enrolled in in-state institutions, as might be expected. Among Georgia freshmen, 35% enrolled in less selective Georgia institutions (Barron's selectivity tiers 1-2), 34% in Georgia institutions belonging to selectivity tier 3, and 11% in Georgia institutions in selectivity tiers 4-5. In the other SREB states, 35% of the freshmen enrolled in less selective in-state institutions (selectivity tiers 1-2), 34% enrolled in in-state tier 3 institutions, and 19% in in-state institutions belonging to selectivity tiers 4-5.

Out-of-state migration patterns are presented in columns (2) and (10) for Georgia and other SREB freshmen respectively. Approximately 6.5% of Georgia freshmen enrolled in less selective institutions in the other SREB states, 7.6% in institutions belonging to selectivity tier 3 in the other SREB states, and 6% in institutions belonging to the highest selectivity tiers 4-5 in the other SREB states. Among non-Georgia SREB freshmen, 3.5% enrolled in less selective out-of-state SREB institutions, 2.7% in out-of-state SREB institutions belonging to tier 3, and 3.9% in institutions belonging to selectivity tiers 4-5 in other SREB states. In other words, in the pre-HOPE period, both Georgia and other SREB freshmen choosing in-state were more likely to go to less selective institutions. Out-of-state migration patterns in the pre-program period reveal that enrollment was more evenly split between the less selective institutions, institutions in selectivity tier 3, and those in the highest selectivity tiers 4-5 for both Georgia and other SREB freshmen. Migration and enrollment patterns of freshmen who were more recent graduates (right hand part of panels A and B) are similar to those for "All Freshmen" above.

Table 1B looks at the distribution of colleges by selectivity during the pre-program period (1987-93). Panel A uses Barron's selectivity measure, Panel B uses the SAT math selectivity measure (% admitted with above 500 in SAT math), while Panel C uses the SAT reading selectivity measure (% admitted with above 500 in SAT reading). Panel A finds that 50% of the institutions in Georgia belonged to selectivity tiers 1-2, while 36% belonged to selectivity tier 3 and 14% belonged to selectivity tiers 4-5. In the non-Georgia SREB states, approximately 45% of the institutions belonged to selectivity tiers 1-2, 40% belonged to selectivity tier 3, and 15% in selectivity tiers 4-5. Average selectivity of institutions in Georgia was similar to that in the other SREB states (2.76 and 2.72 respectively). On the other hand,

Panels B and C show that freshmen enrolling in Georgia institutions had somewhat lower SAT reading and math scores than freshmen enrolling in institutions in other SREB states.

It is worth noting here that Barron's rankings pertain to four-year institutions only. The Peterson's SAT reading and math measures also overwhelmingly capture the four year institutions, although there are some less than four year institutions. Appendix Table A2 compares the samples of institutions covered in the Barron's and Peterson's databases respectively that match with our IPEDS database. The sample in the first column pertains to the Barron's selectivity measures, while the samples in columns (2)-(3) correspond to the Peterson's selectivity measures (SAT math and SAT reading respectively). As can be seen, 99.7% of the institutions covered by Barron's are "four (or more) years" institutions. While Peterson's SAT math and reading measures overwhelmingly pertain to four-year colleges, a small proportion of the colleges (9%) were "at least 2 but less than 4 years". In the Barron's (Peterson's) sample, 43% (37%) of the institutions were public, while 57% (62%) were private not-for-profit. For-profit institutions constituted a negligible proportion in both samples. Consistent with the above discussion, Panel C shows that the Barron's institutions offered Bachelor's or higher degrees. While Peterson's measures also pertain overwhelmingly to institutions offering bachelor's or higher degrees, a small proportion (9%) catered to associate's degree and less than four year degrees. It follows from the above discussion that this study essentially pertains to four-year institutions. However, this does not appear to be a overly stringent restriction as far as studying impacts of HOPE are concerned. This is because more than 80% of the HOPE scholars attended four-year institutions, and these four-year institutions collectively absorbed 90% of the merit-aid (Cornwell, Mustard and Sridhar (2006)).

Before moving on to the formal regression analysis, Figure 2 plots the raw data to illustrate enrollment patterns of Georgia freshmen in Georgia and in other SREB states by selectivity. The top left graph shows that there was a decline in Georgia's freshmen enrollment in the less selective Georgia institutions (selectivity tiers 1-2), while there was an increase in enrollment in the more selective Georgia institutions (selectivity tiers 3-5) following HOPE. The upper right graph illustrates a steep decline in migration of Georgia freshmen to non-Georgia SREB states after HOPE. This was associated with a

decline in enrollment in less selective out-of-state institutions (selectivity tiers 1 and 2), and an increase in enrollment in the more selective out-of-state institutions (selectivity tiers 4 and 5). The lower panel presents enrollment trends of Georgia freshmen in colleges in the bordering and non-bordering SREB states; the patterns are similar to the patterns in non-Georgia SREB seen above.

Table 2 estimates the specification in footnote 12; it analyzes the impact of HOPE on the overall selectivity of colleges attended by Georgia's freshmen students. Columns (1)-(2) present the results for all freshmen students, while columns (3)-(4) are restricted to freshmen who have graduated within the last twelve months. Regressions reported in the paper (unless otherwise stated) include year dummies and college fixed effects. The second column in each set in this paper includes state level covariates as outlined in section 3. The results in this table are obtained from regressions that include the selectivity indicator, interaction of the selectivity indicator with HOPE dummy, in addition to college and year fixed effects (see footnote 12). Columns (1)-(2) find that Georgia freshmen were more likely to enroll in more selective colleges in the post-HOPE period. A unit increase in college selectivity increased Georgia's freshmen enrollment in the college by 6% in the post-HOPE period. The effects for freshmen graduating within the past twelve months are qualitatively similar, although they are relatively muted and not statistically different from zero. In contrast, there is no evidence of any change in overall selectivity of colleges attended by non-Georgia SREB freshmen (the control group) in the post-HOPE period (Table A3).

Table 3A presents the results from estimating specification (1) on data for Georgia freshmen. Consider columns (1)-(2) first. Not surprisingly, and in line with previous results in the literature (Dynarski (2000), and Cornwell, Sridhar and Mustard (2006)), we find that there was a significant decline in the incidence of out-migration by Georgia freshmen in the aftermath of the HOPE scholarship program—the percentage of Georgia freshmen who enrolled in out-of-state institutions fell by 22 percent. Further, there is significant evidence that this decline was different for colleges with different selectivity rankings. Inside Georgia, the HOPE program led to a relative increase in enrollment of Georgia's freshmen students in the more selective institutions. Similarly, freshmen students who still continued to pursue

out-of-state options enrolled in more selective colleges than earlier. This makes intuitive sense as with more-highly-subsidized in-state colleges, students choosing colleges on the basis of quality (net of cost) would be willing to go out-of-state only if they are able to go to more selective colleges. More specifically, a unit increase in in-state (out-of-state) college selectivity increased Georgia's freshmen enrollment in the college by 6% (7%) in the post-HOPE period.

The results in column (3)-(4), where we restrict the sample to freshmen graduating from high school within the preceding twelve months, are qualitatively similar. However, the effects are again more muted in each case, suggesting that HOPE led to a greater enrollment response from freshmen who graduated more than a year back. This is in line with results in Cornwell, Mustard and Sridhar (2006) who found that there was a more significant enrollment response from freshmen who delayed their matriculation a year past their high school graduations.

Table 3B disaggregates the non-Georgia colleges into two groups—those located in the five states bordering Georgia (North Carolina, South Carolina, Florida, Alabama, and Tennessee) and those located in the other SREB states. As earlier, columns (1)-(2) show the results for all freshmen students, while the sample in columns (3)-(4) is restricted to those who have graduated within the last twelve months. The results reveal that the HOPE program led to a decline in freshmen enrollment in colleges in both bordering and non-bordering states.

As earlier, this was associated with a relative, and highly statistically significant, increase in enrollment in the more selective in-state institutions. One potential mechanism for this is that students who would have otherwise enrolled in out-of-state institutions are now deciding to remain in-state and attend selective colleges in-state. Consistent with the results above, we again find that in the aftermath of the HOPE program, freshmen moving to out-of-state colleges were more likely to enroll in more selective colleges, and this is true for institutions in both bordering and non-bordering states. While the magnitude of this effect is slightly higher for out-of-state colleges in the five bordering states versus those in non-bordering states for the "All Freshmen" group, this effect for the bordering states is no longer statistically significant once state level covariates are included. Nor is the effect for the bordering

states statistically different from that for the non-bordering states. The effect for non-bordering states is more robust and continues to be statistically significant with the inclusion of controls. As in Table 3A, the effects are smaller in magnitude and sometimes statistically insignificant when we restrict the sample to freshmen graduating high school during the previous twelve months.

Tables 4A and 4B display the results from estimating specification (2) which allow for heterogeneous year effects after the program. Table 4A pools all non-Georgia SREB states together, while Table 4B disaggregates them into those bordering Georgia and those not bordering Georgia.

Table 4A confirms again that after the HOPE program, Georgia freshmen were less likely to enroll in a college out-of-state. However, the results show that the HOPE effect seems to have petered out over the years, and some of the year effects are also statistically different from the corresponding effects in the immediately prior year. For example, there were large and statistically significant declines in the percentages of Georgia freshmen enrolling in out-of-state colleges in both 1995 and 1997. Thereafter, however, the effects were modest, and sometimes statistically insignificant. Some of the year effects are statistically different from the corresponding effect in the previous year, as indicated in the table (using dagger signs).

The coefficients on the triple interaction terms suggest some differences across the post-HOPE years for enrollment patterns by selectivity. Except in the first year after HOPE (1995), freshmen electing to stay in-state were more likely to attend more-selective colleges. The results show an increasing trend in movement to more selective in-state colleges over the first few years, and this seems to have peaked in the 1998-99 school year. The 2001 effect is both economically and statistically smaller than the 1999 effect. Note that each of these year effects is statistically different from that in the immediately prior year. For freshmen moving out-of-state, they were more likely to enroll in more-selective colleges than freshmen moving out-of-state in the pre-HOPE period. The coefficients are relatively large and statistically significant for 1997 and 1999. But, this effect too seems to have petered out in 2001—while the effect is still positive, it is smaller in magnitude and no longer statistically different from zero. Note that while the effects for the recent graduates in columns (3)-(4) are broadly similar, they are relatively

muted, consistent with the results seen above.

The results in Table 4B, where we separate out the non-Georgia SREB states into those bordering Georgia and those not so, are similar. First, there is a hierarchy in the changes in enrollment of Georgia freshmen in the post-HOPE years. Both for colleges located in bordering states and those located in non-bordering states, the effects—initially often negative, large, and statistically significant—seem to have petered out over time. Second, Georgia freshmen moving to either bordering states or to non-bordering states were both more likely to enroll in more selective colleges than earlier. So was the case for Georgia freshmen attending colleges located inside Georgia—in fact, the effect seems to have been stronger and more lasting for this group. For more-selective colleges located in non-bordering states, the enrollment effect seems to have petered out by 2001. For more-selective colleges located in bordering states, there is still a positive enrollment effect for Georgia freshmen in 2001—however, this is not statistically significant. Also of note here is that some of the year effects, especially the relative movements to Georgia's more selective colleges are statistically different from the corresponding year effect in the previous year, as indicated in Table 4B.

Recall from section 4 that our selectivity indicator is constructed to order different Barron's selectivity categories linearly. Here we relax this linearity assumption, and allow the enrollment and mobility effects to vary non-linearly with the different selectivity categories. Selectivity(1) takes a value of one for the non-competitive (lowest tier) colleges, and zero otherwise. Similarly selectivity(2)–selectivity(5) are dummies for the other four selectivity categories. Selectivity(5) represents the top tier (tier 5) of colleges in terms of selectivity, and selectivity(1) the bottom tier (tier 1).

There are some interesting patterns in the results. First, consider Table 5 Panel A. Relative to tier 1 colleges (the omitted category), Georgia freshmen attending in-state colleges in the post-HOPE period were more likely to enroll in more-selective colleges (tiers 2, 3, 4, and 5). However they were most likely to enroll in tier 4 colleges followed by tier 3, and these effects are also statistically different from each other. They were not as likely to go to the most selective colleges in tier 5. This may have been because of capacity constraints in the most selective colleges.

We find a similar picture if we look at colleges located outside Georgia (within the SREB states). Compared to tier 1 colleges, Georgia freshmen students enrolling out-of-state were more likely to go to the more selective colleges (tiers 2, 3, 4, 5) in the post-HOPE period. But they were most likely to go to tier 4 colleges, followed by tier 3, and these effects are again statistically different from each other. They were less likely to go to tier 5 colleges. Further, though the general trends are similar if we restrict our attention to recent high school graduates, the effects are somewhat smaller.

Table 5 Panel B disaggregates the comparison states in SREB into those bordering Georgia and those not bordering Georgia. For colleges located in bordering states, Georgia freshmen were significantly more likely to attend non-tier 1 colleges in the post-HOPE period. The probability of attending each of tier 2, tier 3, tier 4 and tier 5 colleges (relative to tier 1 colleges) is large and highly statistically significant—in fact, they were most likely to attend tier 3 and 4 colleges. While Georgia freshmen enrolling in non-bordering states were most likely to attend tier 4 colleges in the post-HOPE period—the coefficients are relatively small and not statistically different from zero.

To sum, the analysis suggests that following the implementation of the HOPE program, Georgia freshmen students were attending relatively more selective institutions overall. There was a significant decline in Georgia's freshmen enrollment in out-of-state institutions in the post-HOPE period. Moreover, the results suggest that this decline was considerably higher for less-selective out-of-state colleges compared to more-selective ones. Within Georgia too, freshmen enrollment of Georgia residents went up relatively more in more-selective institutions. Thus, we do not find support for the Peltzman concern that HOPE-type scholarship programs tied to attending particular institutions might lead to a substitution of more-selective institutions in favor of less selective ones. When we allow the mobility patterns to vary by the different selectivity categories, we find that after the program, Georgia freshmen were generally most likely to enroll in tier 4 colleges, both within Georgia and outside. However, this effect is stronger for in-state colleges.

6 Testing Robustness of the Results to Potential Confounding Factors

We employ several robustness checks, to make sure our results reflect the causal impact of the HOPE program and are not driven by idiosyncratic shocks.

6.1 Are the Results Robust to Other Alternate Selectivity Measures?

In this section, we employ alternate measures of selectivity, to ensure that our results are not an artifact of the reliance on Barron's college rankings. We exploit Peterson's undergraduate database for these selectivity measures—we use the percentage of the freshman class with above 500 scores on SAT reading and SAT math respectively as two alternative selectivity measures. The first set of results are presented in Table 6 Panel A. They use the same specification (specification (1)) as was used in Table 3A for the Barron's selectivity measure. The first four columns in Table 6 Panel A correspond to regressions using SAT math scores as the selectivity measure, while columns (5)-(8) use SAT reading scores as the selectivity measure.

Though the magnitude of the coefficients are different (as is expected), the results reported in Table 6 Panel A are qualitatively similar to those in Table 3A. Considering first the selectivity measure based on SAT math score, we find that after the program there was a large decline in the probability of Georgia freshmen migrating out-of-state, as we found earlier.[14] Also, mirroring earlier results, Georgia freshmen attending in-state colleges after the HOPE program were more likely to enroll in more-selective institutions. Georgia freshmen attending out-of-state colleges also enrolled in more-selective institutions at a higher rate—however, this effect is not statistically different from zero.

Columns (5)-(8) report results from using SAT reading scores as the selectivity measure. The broad contours are similar. By this yardstick, once again, the probability of Georgia freshmen attending more selective in-state colleges shot up in the post-HOPE period. The decline in the propensity of Georgia

[14] It is interesting that just like in Table 3A, the effects for recent high school graduates in columns (3)-(4) are lower, and not statistically significant.

freshmen to enroll in out-of-state colleges in the post-HOPE era is somewhat muted, but it is still true that when they do so, they have a higher propensity to enroll in more-selective colleges (though this effect is not statistically significant).

Table 6 Panel B disaggregates non-Georgia into bordering and non-bordering states. Once again, columns (1)-(4) use SAT math as the selectivity measure, while columns (5)-(8) use SAT reading as the selectivity measure. Results reveal that HOPE led to a decline in Georgia's freshmen enrollment in both bordering and non-bordering states. These effects are stronger and statistically significant for non-bordering states and not statistically significant for the bordering states (similar to above).

As is expected from Panel A, Georgia freshmen were more likely to enroll in more selective Georgia institutions after HOPE. While Georgia freshmen enrolling in out-of-state institutions were once again more likely to enroll in more selective institutions, this effect is larger for non-bordering states and also statistically different from the corresponding effect for the bordering states in each column. This makes intuitive sense—since migrating farther from home (to institutions in non-bordering states) is more costly, Georgia's freshmen students are willing to do so if that leads to enrollment in more selective institutions. We also carried out estimations corresponding to those reported in Tables 4A-4B (that is, estimations of specification (2)) using these alternative selectivity measures. Here we allowed the post-HOPE year effects to vary by years and selectivity. The results are qualitatively similar to above and hence are not reported here, but are available on request.

The robustness of the results to alternative selectivity measures adds confidence to our findings. Recall that this sample is slightly different from that used in section 5 with Barron's selectivity measure. While this sample still overwhelmingly consists of 4-year institutions, there are some "less than four years" institutions in this analysis (Appendix Table A2). The carry over of the above patterns to a slightly broader sample is reassuring.

6.2 Are the Results being Driven by Differences in Pre-existing Trends?

In this section, we investigate whether there were differences in pre-existing migration and enrollment trends of Georgia freshmen by selectivity and region. In the presence of such trends, the results above could be biased. Table 7 studies this issue. In this table, we pool all non-Georgia SREB states together as "notGA". Note that the results where we allow for different trends in bordering and non-bordering states and by selectivity are similar—they are not reported to save space, but are available on request.

In Table 7, columns (1)-(4) use the Barron's selectivity measure, columns (5)-(8) use SAT math as the selectivity measure, and columns (9)-(12) report results where selectivity is measured by SAT reading scores. Irrespective of the measure of selectivity used, there is no evidence of any differences in enrollment patterns by region or selectivity in the pre-HOPE period. Therefore, differences in pre-existing trends are unlikely to have driven the patterns obtained above.

6.3 Are Other Merit Aid States Driving Results?

In the post-HOPE period under consideration in this paper, four SREB states initiated merit aid programs of their own. These states are Florida, Kentucky, Louisiana and Mississippi—the programs began in fall of 1997, 1999, 1998, and 1996 respectively. One of the main effects of the HOPE program in Georgia is the decreased out-migration of Georgia freshmen. If such an effect also holds true for the other states adopting merit-aid programs, then the resulting increase in demand for in-state college enrollment in these states might crowd out Georgia freshmen who would have otherwise attended college in these states. In other words, a negative effect for Georgia freshmen in this group of states may reflect not so much the decrease in demand from Georgia freshmen to attend colleges located in these states but rather the increase in difficulty in obtaining admission to colleges in these states in the post-HOPE period. And it is possible that the above state merit aid programs will differentially affect in-state enrollment in the selective institutions in their states, which will in turn affect Georgia's freshmen enrollment differentially in these institutions. To see if these merit-aid adopting states are driving the above results, we follow two strategies.

First, we repeat our earlier analysis after dropping all colleges located in these four states. The results are in Table 8. In columns (1)-(4), we pool all non-Georgia SREB states to construct "notGA". In columns (5)-(8), we distinguish between SREB states that border Georgia versus those that do not, and allow for different effects by bordering and non-bordering states. The results in Table 8 follow very closely those seen earlier in Tables 3A and 3B. The respective coefficients are almost exactly the same—both in sign and magnitude—suggesting that the results obtained in section 5 are not artifacts of including states that subsequently introduced merit aid programs of their own. This is true whether we look at all freshmen students or restrict the sample to those graduating from high school within the last twelve months. Results for specifications (2) and (3), that is, allowing for heterogeneous post-HOPE effects by year and selectivity are also similar to the corresponding results in section 5 and are omitted here, but available on request.

We also use another strategy to assess the importance of other merit aid states as a potential confounding factor. We estimate the following regression where we allow for additional effects in other SREB merit aid states after the merit aid programs were implemented in these states. We also allow the effects to vary according to the number of years the merit aid programs have been in effect in these respective states.

$$lnE_{ijt} = \sum_{1989}^{2001} \delta_{0t} D_t + \sum_j \delta_{1j} S_j + \delta_2 . Sel_{ijt} + \sum_j \delta_{3j} . (S_j * Sel_{ijt}) + \sum_{j>1} \sum_{1995}^{2001} \delta_{4jt} (S_j * D_t)$$
$$+ \sum_j \sum_{1995}^{2001} \delta_{5jt} (S_j * D_t * Sel_{ijt}) + \sum_n \delta_{6n} . (n) + \sum_n \delta_{7n} . (n * Sel_{ijt}) + \psi_i + \chi_4 . X_{jt} + \varepsilon_{ijt} \qquad (4)$$

where n denotes the number of years after implementation of a merit aid program for the corresponding non-Georgia SREB state. For example, the Florida merit aid program was initiated in the Fall of 1997, so n would take a value of 1 in the academic year 1997-98 for Florida institutions, 2 in the academic year 1998-99 for Florida institutions, and 3 and 4 respectively in the academic years 1999-2000 and 2000-01 for the Florida institutions. Similarly, the Louisiana merit aid program was initiated in

the Fall of 1998, so n would take a value of 1 in the academic year 1998-99 for Louisiana institutions, 2 in the school year 1999-2000, and 3 in the school year 2000-01.

The results from this analysis are presented in Tables 9A-9B. Table 9A pools all other SREB states into one group calling them "notGA", while 9B differentiates between bordering and non-bordering states. Notably, there is no evidence of any differential mobility patterns of Georgia freshmen in the other merit aid states after these programs were implemented in any of the years after implementation in these states. Consistent with these, the coefficients of interest remain very similar (almost identical) to those obtained earlier in Tables 4A-4B. Therefore, the other merit aid states do not seem to have driven the results obtained above.

6.4 Investigating the Role of Secular Trends: Do Enrollment Patterns of Freshmen from Other SREB States show similar patterns after HOPE?

In the presence of national or regional secular trends, the results obtained above may be biased. To investigate the role of such secular trends, in this section we investigate whether freshmen from other SREB states exhibited similar mobility patterns by region (in-state and out-of-state) and selectivity in the post-HOPE period. More specifically, pooling the non-Georgia SREB states, we investigate whether after HOPE, freshmen from these states were more likely to enroll in in-state institutions and less likely to enroll in out-of state institutions, and whether after HOPE they were more likely to enroll in more selective institutions in-state as well as more selective institutions out-of-state.

Before moving on to this analysis, we first investigate whether non-Georgia SREB freshmen exhibited differential pre-existing enrollment trends in in-state and out-of-state institutions and by selectivity. It is imperative that we undertake this investigation as presence of such pre-existing trends would bias the impact analysis of HOPE on SREB freshmen mobility patterns. Also, presence of such trends would necessitate controlling for them in any such impact analysis. Table 10A presents results for these pre-existing trends. Panel A considers the Barron's selectivity measure, Panel B considers SAT math as the selectivity measure, and Panel C considers SAT reading as the selectivity measure. In each panel,

the first four columns include all non-GA SREB states, while the last four columns exclude the merit aid states. The results in Panels A and C show that there was a differential positive (and statistically significant) pre-existing trend of the SREB freshmen to enroll in the more selective in-state institutions. The results in Panel B (for SAT math selectivity measure) shows evidence of a differential pre-existing enrollment trend to out-of-state more selective institutions, and in some cases to more selective in-state institutions too. These in turn underscore the importance of controlling for pre-existing trends while investigating the non-Georgia SREB freshmen mobility patterns.

Table 10B presents the results of the analysis where we essentially estimate specification (1) above after substituting Georgia freshmen by freshmen from other SREB states and analyzing their enrollment patterns in in-state and out-of-state institutions after controlling for pre-existing trends. There is no evidence that HOPE led to a shift in enrollment patterns of these freshmen in either in-state or out-of-state institutions (selective or otherwise). This implies that the patterns obtained above are unique to Georgia freshmen. Hence this analysis gives more confidence that the patterns obtained above are driven by Georgia's HOPE program.

6.5 Interpreting and Assessing the Role of Selectivity Trends

In this section, we analyze whether Georgia institutions exhibited a differential change in selectivity in the post-HOPE period. Note that any such change can serve as a potential confounding factor—such changes (if any) could potentially contribute to the above shifts in mobility and enrollment patterns, rather than the HOPE program, by making institutions in Georgia more (or less) attractive compared to out-of-state institutions. Therefore, it is important to investigate the presence of such differential selectivity shifts in the post-HOPE period.

To set the stage, Figures 3, 4, and 5 present cumulative distribution functions (CDFs) of selectivity measures in 1993 (the immediate pre-HOPE period) and 2001. Figure 3 considers Barron's selectivity measure, while Figures 4 and 5 consider Peterson's SAT math and SAT reading measures respectively. Note that the CDFs in Figure 3 take the form of step functions as Barron's selectivity measure is discrete.

In Figure 3, the CDFs for both Georgia and non-Georgia SREB in 2001 dominate the corresponding distributions in the pre-HOPE period, though it is not clear whether there is a differential shift in college selectivity between the two regions.

Consistent with this, Figures 4 and 5 also show that the 2001 CDFs dominate the 1993 CDFs for both the SAT measures in both Georgia and in non-Georgia SREB (and in both bordering and non-bordering SREB). This indicates that in both Georgia and in non-Georgia SREB, freshmen in 2001 were more likely to have higher SAT reading and math scores than in 1993. To summarize, Figures 3-5 indicate that there was an overall increase in selectivity in both Georgia and in the SREB states during this period.

To investigate whether there were any differential (intercept/trend) shifts in selectivity in Georgia in the post-HOPE period, we estimate the following specification.

$$Sel_{ijt} = \phi_0 S_j + \phi_1 t + \sum_{j<1} \phi_{2j}(S_j * t) + \phi_3 HOPE_t + \phi_4(HOPE_t * t) + \sum_{j<1} \phi_{5j}(S_j * HOPE_t) + \sum_{j<1} \phi_{6j}(S_j * HOPE_t * t) + \psi_i + \chi_5 . X_{jt} + \epsilon_{ijt} \quad (5)$$

where t denotes time trend. We estimate two versions of this specification: (1) where S_j={GA, notGA} and (ii) S_j={GA, bordering, notbordering}. GA is treated as the omitted category in each case.

Table 11 presents results from estimation of this specification. Regressions in columns (1)-(4) pertain to the Barron's selectivity measure, columns (5)-(8) to the SAT math measure and columns (9)-(12) to the SAT reading measure. In each set, the first two columns pool all non-Georgia SREB states as "notGA", while the latter two columns distinguish between bordering and non-bordering states. There is no evidence of any common or differential shift in selectivity using the Barron's measure. Using SAT reading and SAT math as alternative selectivity measures (columns (5)-(12)), we find evidence of a statistically significant common trend shift in selectivity in the post-HOPE period. Of note here is that there is no evidence of *any differential intercept or trend shifts* in selectivity in the non-Georgia

institutions (relative to Georgia institutions) after HOPE. This analysis suggests that differential shift in selectivity was not a contributing factor behind the patterns observed above.

However, one might argue that because colleges became on average more selective in the post-HOPE period, some of the enrollment patterns we saw above—in particular, Georgia freshmen enrolling in more selective colleges both in-state and out-of-state in the aftermath of the HOPE program—maybe just an artifact of overall increasing selectivity of SREB colleges. Note that this is not a problem when Barron's ranking is used as the selectivity measure, as there is no evidence of any shift in Barron's selectivity ranking in the post-HOPE period (Table 11). However, to look more closely at this issue, we re-estimated our specifications above holding college selectivity—as defined by each of our three measures—fixed at the immediate pre-program (1993) level. The results (not reported here to save space but available on request) are very similar to those obtained above, ruling this factor out as a driver of the results above.

7 Conclusion

The widespread adoption of merit aid programs in recent years, particularly by states located in the U.S. South, has significantly changed the higher education landscape. Prior literature has documented the significant enrollment effects of such programs. In this paper we focus on whether and how college selectivity played a role in these enrollment and mobility patterns. Taking cue from Peltzman's (1973) classic observation that in-kind subsidies can induce individuals to invest in less quality-adjusted human capital than they might otherwise, we argue that merit aid programs can in principle lead to the substitution of a more expensive but more-selective institution in favor of a less expensive but less-selective one. This is because the relative decline in price at in-state colleges can trigger a move to home state by students who in the pre-merit aid scenario would have attended out-of-state colleges. More importantly, now they may not be as averse to less-selective in-state colleges, because of their relative price advantage.

However, it is also possible that students who would have earlier attended an out-of-state college,

presumably because of its high quality and selective nature, care a lot about college quality and hence would be willing to attend only the more selective colleges in the state. On the other hand, if they still opted for an out-of-state college, given the increase in the reservation prices of out-of-state colleges, they might be willing to go to only the more selective ones. These are ultimately empirical questions, and in this study we analyze which of these patterns actually hold in the data. We focus on the Georgia HOPE scholarship program, one of the first and most important of its kind, for our analysis. We use data from the IPEDS data system, supplemented with information about college rankings from Barron's and Peterson's undergraduate databases, to analyze any changes in selectivity of colleges attended by Georgia freshmen after the HOPE program.

Our results suggest that following the implementation of the HOPE scholarship program, Georgia freshmen students attended out-of-state colleges at a lower rate, a finding consistent with the previous literature. Moreover, we find robust evidence that this decline was significantly smaller for more-selective out-of-state colleges compared to less selective ones. We also find that among Georgia colleges in the post-HOPE period, enrollment of Georgia freshmen students went up by much more in the more selective institutions compared to the less selective institutions. Overall, in the aftermath of HOPE, Georgia freshmen were attending institutions that were more selective. No such patterns were observed for non-Georgia freshmen (from the control states) in the post-HOPE period. Our results are robust to a variety of sensitivity and falsification tests.

These findings have important policy implications, as they throw light on one important potential consequence of popular merit aid programs. With recent mushrooming growth of such programs across U.S. states, it is important to understand whether such programs can lead to a substitution of a better and more-selective out-of-state institution in favor of a less selective in-state institution. We found no evidence that HOPE led to such mobility patterns. In fact, it led to relative movements into more selective in-state colleges and the decline in out-migration by Georgia freshmen was lower at more-selective out-of-state institutions. In other words, we do not find support for the Peltzman concern that in-kind transfers can lead to a reduction of consumption of an indivisible public good.

Our results also shed light on the effect of the tuition policy, as currently practiced across U.S. public universities, on the decision to enroll in different types of colleges. Unlike most other developed countries, almost all public universities in the U.S. are managed and funded by the respective state governments, resulting in a significant wedge in tuition between in-state (resident) students and out-of-state (nonresident) students. A concern in this scenario, a la Peltzman (1973), is whether the subsidy implicit in lower in-state tuition rates results in a substitution of less-expensive but less-selective in-state colleges for more-expensive but more-selective out-of-state colleges. The fact that the HOPE program in Georgia led to an increase in the existing wedge between in-state and out-of-state tuitions affords us an opportunity to understand the effect of such a wedge on the distribution of college students across states, with respect to residence and selectivity of colleges. As outlined above, the results in this study show that while enrollment at in-state colleges went up in the post-HOPE period in Georgia, there is no evidence of shifts away from more selective out-of-state colleges to less selective in-state ones. Rather there is robust evidence to the contrary. These findings suggest that while Georgia students were sensitive to the cost savings of attending in-state colleges as exhibited by the sharp decline in out-of-state enrollment, they did not move away from more selective out-of-state colleges to less selective instate colleges. This finding, at least to some extent, allays the concern that state merit aid programs can adversely affect long term outcomes and human capital formation of affected students.

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Table 1A: Distribution of Georgia and non-Georgia SREB Freshmen in SREB Colleges Ranked by Selectivity, 1987-1993

Panel A:	% GA Freshmen				% GA Freshmen Graduating in past 12 months			
	Georgia	Not GA	Bordering	Not Bord.	Georgia	Not GA	Bordering	Not Bord.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	79.73	20.27	16.17	4.10	79.47	20.53	16.40	4.13
Selectivity 1	0.71	1.44	1.06	0.38	0.44	1.52	1.12	0.40
Selectivity 2	34.22	5.07	4.20	0.86	32.34	4.44	3.66	0.78
Selectivity 3	34.08	7.57	6.40	1.18	34.42	7.96	6.70	1.27
Selectivity 4	5.07	3.37	2.58	0.79	5.79	3.44	2.66	0.78
Selectivity 5	5.66	2.83	1.94	0.89	6.48	3.17	2.26	0.91
Panel B:	% non-GA SREB Freshmen				% non-GA SREB Freshmen Graduating in past 12 mo.			
	In-state		Out-of-state		In-state		Out-of-state	
	(9)		(10)		(11)		(12)	
Total	87.88		12.12		87.27		12.73	
Selectivity 1	12.43		0.80		11.18		0.81	
Selectivity 2	22.34		2.73		21.78		2.68	
Selectivity 3	33.91		4.68		33.03		4.87	
Selectivity 4	16.42		2.14		18.06		2.29	
Selectivity 5	2.78		1.76		3.23		2.08	

Table 1B: Distribution of Colleges by Selectivity in 1987-1993

Panel A:	Selectivity Measure: Barrons's College Ranking % of Colleges in Different Selectivity Categories			
	Georgia	Not Georgia	Bordering	Not Bordering
	(1)	(2)	(3)	(4)
Selectivity 1	1.1	12.2	5.84	16.6
Selectivity 2	48.9	32.4	35.5	30.4
Selectivity 3	35.9	39.6	41.6	38.2
Selectivity 4	8.7	11.5	12.8	10.7
Selectivity 5	5.4	4.1	4.3	4.1
Mean Selectivity	2.76	2.72	2.74	2.55
Panel B:	Selectivity Measure: % Admitted with Above 500 on SAT Math			
	Georgia	Not Georgia	Bordering	Not Bordering
	(1)	(2)	(3)	(4)
Mean Selectivity	34.33	44.23	40.83	47.69
25th Percentile Selectivity	18	23	20	29
75th Percentile Selectivity	69	65	60	69
Panel C:	Selectivity Measure: % Admitted with Above 500 on SAT Reading			
	Georgia	Not Georgia	Bordering	Not Bordering
	(1)	(2)	(3)	(4)
Mean Selectivity	26.08	32.52	29.37	35.71
25th Percentile Selectivity	10	14	13	17
75th Percentile Selectivity	50	45	40	50

Table 2: Did HOPE Affect the Overall Selectivity of Institutions Attended by Georgia Freshmen?

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
HOPE * Selectivity	0.06**	0.06**	0.03	0.03
	(0.02)	(0.02)	(0.03)	(0.03)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

Table 3A: Effect of HOPE Scholarship Program on Enrollment of Georgia Freshmen in Selective and Non-Selective Institutions in Georgia and Outside

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
notGA * HOPE	-0.21**	-0.22**	-0.07	-0.07
	(0.09)	(0.09)	(0.10)	(0.12)
GA * HOPE * selectivity	0.06***	0.06***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
notGA * HOPE * selectivity	0.06**	0.07**	0.03	0.04
	(0.02)	(0.02)	(0.03)	(0.03)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

Table 3B: Effect of HOPE Scholarship Program on Enrollment of Georgia Freshmen in Selective and Non-Selective Institutions in Georgia, Bordering States, and Non-Bordering States

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
bordering * HOPE	-0.25	-0.26	-0.06	-0.06
	(0.16)	(0.16)	(0.13)	(0.14)
notbordering * HOPE	-0.18*	-0.17	-0.09	-0.08
	(0.09)	(0.13)	(0.14)	(0.19)
GA * HOPE * selectivity	0.06***	0.06***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
bordering * HOPE * selectivity	0.08*	0.08	0.03	0.04
	(0.04)	(0.05)	(0.04)	(0.04)
notbordering * HOPE * selectivity	0.05*	0.05*	0.03	0.04
	(0.02)	(0.03)	(0.05)	(0.05)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

Notes for Tables 2-3B: *, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies and institution fixed effects. Regressions in Table 2 include the selectivity indicator; regressions in Tables 3A-3B include interactions of selectivity indicator with S_j (see Specification (1)). Controls include state-level per capita income, unemployment rate, and number of high school graduates. These tables use Barron's selectivity measure.

Table 4A: Effect of HOPE on Enrollment of Georgia Freshmen in Selective and Non-Selective Institutions by year, in Georgia and Outside
(Allowing for Heterogeneous Year Effects)

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
notGA * 1995	-0.45***	-0.46***	-0.03	-0.04
	(0.15)	(0.15)	(0.18)	(0.18)
notGA * 1997	-0.37**	-0.38**	-0.50***††	-0.50***†††
	(0.14)	(0.15)	(0.13)	(0.15)
notGA * 1999	-0.05††	-0.04††	-0.02†††	0.01†††
	(0.08)	(0.08)	(0.08)	(0.11)
notGA * 2001	0.14	0.14	0.25*†††	0.27*††
	(0.12)	(0.12)	(0.12)	(0.15)
GA* 1995 * selectivity	-0.01***	-0.01***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1997 * selectivity	0.05***†††	0.05***†††	-0.04***†††	-0.04***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1999 * selectivity	0.12***†††	0.12***†††	0.11***†††	0.11***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 2001 * selectivity	0.11***†††	0.11***†††	0.07***†††	0.07***†††
	(0.00)	(0.00)	(0.00)	(0.00)
notGA* 1995 * selectivity	0.07	0.07	0.04	0.04
	(0.04)	(0.04)	(0.05)	(0.05)
notGA* 1997 * selectivity	0.07*	0.08*	0.05	0.06
	(0.04)	(0.04)	(0.04)	(0.04)
notGA* 1999 * selectivity	0.07**	0.08***	0.05	0.05*
	(0.02)	(0.03)	(0.03)	(0.03)
notGA* 2001 * selectivity	0.04	0.05	-0.01††	-0.00††
	(0.04)	(0.04)	(0.04)	(0.04)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. †, ††, †††: statistically different from the previous year effect at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with S_j (see Specification (2)). Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 4B: Effect of HOPE on Enrollment of Georgia Freshmen in Selective and Non-Selective Institutions by year, in Georgia, Bordering States, and Non-Bordering States
(Allowing for Heterogeneous Year Effects)

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
bordering * 1995	-0.41**	-0.42**	-0.02	-0.03
	(0.15)	(0.16)	(0.23)	(0.24)
bordering * 1997	-0.38	-0.40	-0.40*††	-0.40*††
	(0.26)	(0.26)	(0.19)	(0.20)
bordering * 1999	-0.12	-0.12	-0.02††	-0.02††
	(0.09)	(0.08)	(0.05)	(0.08)
bordering * 2001	0.01	0.01	0.19**††	0.21*††
	(0.20)	(0.20)	(0.09)	(0.12)
notbordering * 1995	-0.49*	-0.49*	-0.04	-0.05
	(0.24)	(0.26)	(0.26)	(0.28)
notbordering * 1997	-0.35***	-0.34***	-0.61***†	-0.60***††
	(0.08)	(0.08)	(0.15)	(0.16)
notbordering * 1999	0.03††	0.07††	-0.01†††	0.03†††
	(0.14)	(0.15)	(0.16)	(0.19)
notbordering * 2001	0.26*	0.29	0.32††	0.34†
	(0.15)	(0.19)	(0.22)	(0.28)
GA* 1995 * selectivity	-0.01***	-0.01***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1997 * selectivity	0.05***†††	0.05***†††	-0.04***†††	-0.04***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1999 * selectivity	0.12***†††	0.12***†††	0.11***†††	0.11***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 2001 * selectivity	0.11***†††	0.11***†††	0.07***†††	0.07***†††
	(0.00)	(0.00)	(0.00)	(0.00)
bordering* 1995 * selectivity	0.06	0.07	0.04	0.04
	(0.04)	(0.04)	(0.07)	(0.07)
bordering* 1997 * selectivity	0.08	0.08	0.03	0.04
	(0.07)	(0.07)	(0.06)	(0.06)
bordering* 1999 * selectivity	0.09***	0.09**	0.05***	0.06***
	(0.03)	(0.03)	(0.01)	(0.02)
bordering* 2001 * selectivity	0.08	0.09	0.01†	0.02
	(0.06)	(0.06)	(0.03)	(0.04)
notbordering* 1995 * selectivity	0.07	0.07	0.03	0.04
	(0.08)	(0.08)	(0.09)	(0.09)
notbordering* 1997 * selectivity	0.06**	0.07**	0.07	0.08
	(0.03)	(0.03)	(0.05)	(0.05)
notbordering* 1999 * selectivity	0.05	0.05	0.04	0.04
	(0.04)	(0.04)	(0.05)	(0.05)
notbordering* 2001 * selectivity	-0.00	0.00	-0.03†	-0.02†
	(0.04)	(0.04)	(0.06)	(0.06)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. †, ††, †††: statistically different from the previous year at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with S_j (see Specification (2)). Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 5: Effect of HOPE on Enrollment of Georgia Freshmen by Selectivity Level
(Allowing for Non-linear Selectivity Effects)

Panel A:	All Freshmen		Freshmen graduating in past 12 mo.	
GA and not GA	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
GA * HOPE * selectivity(2)	0.64***	0.66***	0.48***	0.50***
	(0.04)	(0.04)	(0.05)	(0.04)
GA * HOPE * selectivity(3)	0.72***	0.73***	0.53***	0.54***
	(0.04)	(0.04)	(0.04)	(0.04)
GA * HOPE * selectivity(4)	0.83***	0.84***	0.66***	0.67***
	(0.03)	(0.02)	(0.03)	(0.03)
GA * HOPE * selectivity(5)	0.50***	0.52***	0.26***	0.28***
	(0.04)	(0.04)	(0.06)	(0.05)
notGA * HOPE * selectivity(2)	0.15	0.15	0.10	0.11
	(0.11)	(0.12)	(0.14)	(0.16)
notGA * HOPE * selectivity(3)	0.27**	0.28**	0.22*	0.23*
	(0.10)	(0.10)	(0.11)	(0.13)
notGA * HOPE * selectivity(4)	0.30***	0.33***	0.18	0.22
	(0.10)	(0.11)	(0.11)	(0.13)
notGA * HOPE * selectivity(5)	0.20	0.21	0.12	0.13
	(0.12)	(0.12)	(0.15)	(0.16)

Panel B:	All Freshmen		Freshmen graduating in past 12 mo.	
GA, Bordering, and not Bordering	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
GA * HOPE * selectivity(2)	0.64***	0.66***	0.48***	0.50***
	(0.04)	(0.04)	(0.05)	(0.04)
GA * HOPE * selectivity(3)	0.72***	0.73***	0.53***	0.54***
	(0.04)	(0.03)	(0.04)	(0.04)
GA * HOPE * selectivity(4)	0.83***	0.84***	0.66***	0.67***
	(0.03)	(0.02)	(0.03)	(0.03)
GA * HOPE * selectivity(5)	0.50***	0.52***	0.27***	0.28***
	(0.04)	(0.04)	(0.05)	(0.05)
bordering * HOPE * selectivity(2)	0.47***	0.47***	0.35**	0.35**
	(0.12)	(0.12)	(0.14)	(0.15)
bordering * HOPE * selectivity(3)	0.57***	0.57***	0.44**	0.44**
	(0.14)	(0.14)	(0.17)	(0.17)
bordering * HOPE * selectivity(4)	0.56***	0.59***	0.35**	0.39**
	(0.08)	(0.10)	(0.13)	(0.14)
bordering * HOPE * selectivity(5)	0.50***	0.49***	0.33*	0.32*
	(0.15)	(0.15)	(0.16)	(0.17)
notbordering * HOPE * selectivity(2)	-0.04	-0.04	-0.10	-0.08
	(0.13)	(0.15)	(0.21)	(0.23)
notbordering * HOPE * selectivity(3)	0.13	0.14	0.08	0.10
	(0.08)	(0.09)	(0.13)	(0.16)
notbordering * HOPE * selectivity(4)	0.20	0.22	0.11	0.14
	(0.14)	(0.15)	(0.19)	(0.21)
notbordering * HOPE * selectivity(5)	0.07	0.09	0.02	0.04
	(0.13)	(0.15)	(0.22)	(0.24)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, interactions of selectivity indicators with S_j, and interactions of HOPE dummy with S_j (see Specification (3)). Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 6: Effect of HOPE on Enrollment of Georgia Freshmen in Selective and Non-Selective Institutions
(Using Percent Admitted with Above 500 on SAT as the Selectivity Measure)

Panel A: GA and not GA	SAT Math				SAT Reading			
	All Freshmen		Freshmen grad in past 12 mo.		All Freshmen		Freshmen grad in past 12 mo.	
	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
notGA * HOPE	-0.2942*	-0.3023*	-0.2432	-0.2430	-0.1561	-0.1608	-0.1217	-0.1169
	(0.1603)	(0.1687)	(0.1635)	(0.1759)	(0.1018)	(0.1136)	(0.0983)	(0.1158)
GA * HOPE * selectivity	0.0012***	0.0011***	0.0011***	0.0011***	0.0018***	0.0018***	0.0017***	0.0017***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
notGA * HOPE * selectivity	0.0025	0.0025	0.0022	0.0022	0.0017	0.0017	0.0016	0.0016
	(0.0021)	(0.0022)	(0.0022)	(0.0023)	(0.0017)	(0.0019)	(0.0017)	(0.0018)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	1441	1441	1375	1375	1445	1445	1379	1379
R^2	0.96	0.96	0.95	0.96	0.96	0.96	0.95	0.96

Panel B: GA, Bordering, and not Bordering	SAT Math				SAT Reading			
	All Freshmen		Freshmen grad in past 12 mo.		All Freshmen		Freshmen grad in past 12 mo.	
	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
bordering * HOPE	-0.1733	-0.1743	-0.1308	-0.1256	-0.0790	-0.0794	-0.0462	-0.0407
	(0.2114)	(0.2126)	(0.2193)	(0.2241)	(0.1348)	(0.1449)	(0.1330)	(0.1484)
notbordering * HOPE	-0.5282**	-0.5646**	-0.4608**	-0.4897**	-0.3105*	-0.3335**	-0.2688*	-0.2787**
	(0.2140)	(0.1919)	(0.1898)	(0.1747)	(0.1678)	(0.1525)	(0.1326)	(0.1263)
GA * HOPE * selectivity	0.0012***	0.0011***	0.0012***	0.0011***	0.0018***	0.0018***	0.0017***	0.0017***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)
bordering * HOPE * selectivity	0.0003	-0.0000	0.0002	-0.0000	-0.0002	-0.0005	-0.0004	-0.0006
	(0.0027)	(0.0026)	(0.0027)	(0.0027)	(0.0028)	(0.0029)	(0.0026)	(0.0026)
notbordering * HOPE * selectivity	0.0059**	0.0063**	0.0054*	0.0058**	0.0045**	0.0048**	0.0043**	0.0046***
	(0.0024)	(0.0022)	(0.0026)	(0.0023)	(0.0020)	(0.0020)	(0.0016)	(0.0015)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	1441	1441	1375	1375	1445	1445	1379	1379
R^2	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with S_j (see Specification (1)). Controls include state-level per capita income, unemployment rate, and number of high school graduates.

Table 7: Investigating Pre-Program trends in mobility of Georgia Freshmen by Region and Selectivity

	Selectivity: Barron's				Selectivity: % Above 500 SAT Math				Selectivity: % Above 500 SAT Verbal			
	All Freshmen		Freshmen graduating in past 12 mo.		All Freshmen		Freshmen graduating in past 12 mo.		All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
t	0.1488	-0.0076	0.0119	-0.1639	0.0780	-0.0129	0.0154	-0.1138	0.0991	0.0100	0.0359	-0.0914
	(0.1702)	(0.1749)	(0.1792)	(0.1863)	(0.0593)	(0.0853)	(0.0646)	(0.0948)	(0.0662)	(0.0904)	(0.0719)	(0.1002)
notGA * t	-0.0426	-0.1080	0.1061	0.0370	0.0140	0.0096	0.0604	0.0447	-0.0127	-0.0244	0.0491	0.0205
	(0.1780)	(0.1742)	(0.1879)	(0.1846)	(0.0689)	(0.0686)	(0.0756)	(0.0749)	(0.0784)	(0.0783)	(0.0862)	(0.0856)
GA * selectivity * t	-0.0396	-0.0373	-0.0063	-0.0048	0.0001	0.0000	0.0009	0.0009	-0.0006	-0.0006	0.0001	0.0001
	(0.0612)	(0.0596)	(0.0647)	(0.0633)	(0.0019)	(0.0019)	(0.0021)	(0.0021)	(0.0016)	(0.0016)	(0.0018)	(0.0018)
notGA * selectivity * t	0.0327	0.0473	-0.0033	0.0119	-0.0006	-0.0004	-0.0005	-0.0003	-0.0004	-0.0001	-0.0005	-0.0002
	(0.0636)	(0.0620)	(0.0674)	(0.0659)	(0.0008)	(0.0008)	(0.0009)	(0.0009)	(0.0007)	(0.0007)	(0.0008)	(0.0008)
Controls	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
Observations	855	855	768	768	551	551	514	514	551	551	514	514
R^2	.05684	.1112	.05741	.106	.05932	.08601	.03397	.07567	.05818	.08499	.03252	.0741

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with GA and notGA dummies respectively. Controls include state-level per capita income, unemployment rate, and number of high school graduates.

Table 8: Were Other Merit Aid States Driving Results? Examining Effect of HOPE after Dropping Other Merit Aid States, in Georgia and Outside

	All Freshmen		Freshmen graduating in past 12 mo.		All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
notGA * HOPE	-0.19*	-0.19*	-0.06	-0.04				
	(0.10)	(0.10)	(0.12)	(0.15)				
notGA * HOPE * selectivity	0.06*	0.06**	0.03	0.03				
	(0.03)	(0.03)	(0.04)	(0.04)				
GA * HOPE * selectivity	0.06***	0.06***	0.05***	0.05***	0.06***	0.06***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
bordering * HOPE					-0.20	-0.21	-0.00	0.00
					(0.16)	(0.15)	(0.13)	(0.15)
notbordering * HOPE					-0.19	-0.13	-0.16	-0.08
					(0.13)	(0.18)	(0.21)	(0.28)
bordering * HOPE * selectivity					0.06	0.06	0.02	0.01
					(0.04)	(0.04)	(0.03)	(0.03)
notbordering * HOPE * selectivity					0.05	0.05	0.05	0.04
					(0.03)	(0.03)	(0.07)	(0.07)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	1665	1665	1560	1560	1665	1665	1560	1560
R^2	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94

Note for tables 7 and 8 *, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with S_j (see Specification (1)). Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 9A: Did Other Merit Aid States drive results?
Allowing for additional effects for post-HOPE merit aid states

	All Freshmen		Freshmen graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
notGA * 1995	-0.45***	-0.46***	-0.04	-0.04
	(0.15)	(0.15)	(0.18)	(0.18)
notGA * 1997	-0.36**	-0.36**	-0.48***††	-0.49***††
	(0.14)	(0.15)	(0.15)	(0.13)
notGA * 1999	-0.04††	-0.00††	0.05†††	-0.00†††
	(0.09)	(0.06)	(0.11)	(0.09)
notGA * 2001	0.16	0.19	0.31**††	0.26**††
	(0.12)	(0.12)	(0.14)	(0.11)
GA* 1995 * selectivity	-0.01***	-0.01***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1997 * selectivity	0.05***†††	0.05***†††	-0.04***†††	-0.04***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1999 * selectivity	0.12***†††	0.12***†††	0.11***†††	0.11***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 2001 * selectivity	0.11***†††	0.11***†††	0.07***†††	0.07***†††
	(0.00)	(0.00)	(0.00)	(0.00)
notGA* 1995 * selectivity	0.07	0.08	0.05	0.04
	(0.04)	(0.04)	(0.05)	(0.05)
notGA* 1997 * selectivity	0.07*	0.08*	0.06	0.05
	(0.04)	(0.04)	(0.04)	(0.04)
notGA* 1999 * selectivity	0.06**	0.07**	0.04	0.04
	(0.03)	(0.02)	(0.03)	(0.03)
notGA* 2001 * selectivity	0.02	0.02	-0.02††	-0.02††
	(0.03)	(0.03)	(0.03)	(0.03)
1 years since program	-0.14	-0.14	-0.24**	-0.24**
	(0.10)	(0.10)	(0.09)	(0.09)
2 years since program	0.23	0.26	0.34**	0.31*
	(0.31)	(0.25)	(0.12)	(0.16)
3 years since program	-0.03	-0.06	-0.28	-0.26
	(0.33)	(0.33)	(0.23)	(0.21)
4 years since program	0.09	0.22	0.21*	0.09
	(0.13)	(0.13)	(0.10)	(0.09)
(1 years since program) * selectivity	0.04	0.04	0.07	0.07
	(0.08)	(0.08)	(0.10)	(0.09)
(2 years since program) * selectivity	-0.04	-0.03	-0.05	-0.06
	(0.07)	(0.07)	(0.05)	(0.05)
(3 years since program) * selectivity	0.04	0.05	0.10	0.09
	(0.12)	(0.12)	(0.11)	(0.11)
(4 years since program) * selectivity	0.03	0.04	0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. †, ††, †††: statistically different from the previous year at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of selectivity indicator with GA and notGA dummies respectively. Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 9B: The Role of other Merit Aid States: Allowing for additional post-HOPE year effects for other Merit Aid States (Distinguishing between bordering and non-bordering states)

	All Freshmen		Freshmen graduating in past 12 mo.	
	(1)	(2)	(3)	(4)
bordering * 1995	-0.40**	-0.42**	-0.03	-0.02
	(0.15)	(0.15)	(0.24)	(0.23)
bordering * 1997	-0.38	-0.39	-0.39*††	-0.39*††
	(0.26)	(0.25)	(0.20)	(0.19)
bordering * 1999	-0.12	-0.11	-0.03	-0.05†
	(0.09)	(0.08)	(0.09)	(0.06)
bordering * 2001	0.01	0.02	0.23**†††	0.20**††
	(0.21)	(0.20)	(0.10)	(0.07)
notbordering * 1995	-0.49*	-0.48*	-0.04	-0.05
	(0.24)	(0.26)	(0.27)	(0.25)
notbordering * 1997	-0.32***	-0.29***	-0.56***††	-0.59***††
	(0.09)	(0.10)	(0.17)	(0.15)
notbordering * 1999	0.10††	0.2†††2	0.16†††	0.06†††
	(0.19)	(0.17)	(0.21)	(0.21)
notbordering * 2001	0.36**	0.45**	0.43	0.38
	(0.13)	(0.18)	(0.31)	(0.24)
GA* 1995 * selectivity	-0.01***	-0.01***	0.05***	0.05***
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1997 * selectivity	0.05***†††	0.05***†††	-0.04***†††	-0.04***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 1999 * selectivity	0.12***†††	0.12***†††	0.11***†††	0.11***†††
	(0.00)	(0.00)	(0.00)	(0.00)
GA* 2001 * selectivity	0.11***†††	0.11***†††	0.07***†††	0.07***†††
	(0.00)	(0.00)	(0.00)	(0.00)
bordering* 1995 * selectivity	0.06	0.07	0.04	0.04
	(0.04)	(0.04)	(0.07)	(0.06)
bordering* 1997 * selectivity	0.07	0.08	0.04	0.03
	(0.07)	(0.07)	(0.06)	(0.06)
bordering* 1999 * selectivity	0.08**	0.08**	0.06**†	0.06***
	(0.03)	(0.03)	(0.02)	(0.02)
bordering* 2001 * selectivity	0.07	0.06	-0.00††	-0.00††
	(0.06)	(0.06)	(0.02)	(0.01)
notbordering* 1995 * selectivity	0.07	0.08	0.04	0.03
	(0.08)	(0.07)	(0.08)	(0.09)
notbordering* 1997 * selectivity	0.06*	0.07**	0.08	0.07
	(0.03)	(0.03)	(0.05)	(0.05)
notbordering* 1999 * selectivity	0.03	0.03	0.02	0.02
	(0.04)	(0.04)	(0.06)	(0.06)
notbordering* 2001 * selectivity	-0.03	-0.03	-0.04	-0.05
	(0.02)	(0.03)	(0.06)	(0.06)
1 years since program	-0.23	-0.27	-0.28	-0.25
	(0.19)	(0.18)	(0.20)	(0.20)
2 years since program	0.19	0.21	0.33*	0.29
	(0.25)	(0.17)	(0.16)	(0.17)
3 years since program	-0.21	-0.27	-0.39	-0.36
	(0.37)	(0.37)	(0.33)	(0.31)
4 years since program	0.19	0.37*	0.27***	0.14
	(0.19)	(0.19)	(0.09)	(0.09)
(1 years since program) * selectivity	0.06	0.06	0.08	0.08
	(0.09)	(0.09)	(0.12)	(0.12)
(2 years since program) * selectivity	-0.02	-0.00	-0.04	-0.06
	(0.06)	(0.06)	(0.05)	(0.05)
(3 years since program) * selectivity	0.08	0.08	0.11	0.11
	(0.14)	(0.14)	(0.13)	(0.13)
(4 years since program) * selectivity	0.00	0.02	0.02	0.00
	(0.05)	(0.05)	(0.03)	(0.04)
Controls	N	Y	N	Y
Observations	2130	2130	1982	1982
R^2	0.93	0.93	0.93	0.93

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. †, ††, †††: statistically different from the previous year at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and interactions of the selectivity indicator with GA, bordering, and notbordering dummies respectively. Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table 10A: Looking for differences in pre-existing mobility trends by region and selectivity for non-Georgia SREB freshmen

Panel A:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
Barron's	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t	-0.05***	-0.06***	-0.04*	-0.04**	-0.05***	-0.06***	-0.04**	-0.04**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
outofstate * t	0.04**	0.04**	0.04	0.04	0.04**	0.04**	0.04	0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
outofstate * t * selectivity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
instate * t * selectivity	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***	0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	58988	58988	54127	54127	44810	44810	41236	41236
R^2	0.47	0.47	0.46	0.46	0.46	0.46	0.46	0.46

Panel B:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
% Above 500 in SAT Math	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t	0.0041	0.0015	0.0114	0.0113	-0.0224	-0.0357*	-0.012	-0.0218
	(0.0212)	(0.026)	(0.0298)	(0.0307)	(0.0157)	(0.0167)	(0.0269)	(0.0274)
outofstate * t	-0.0246	-0.0245	-0.0303	-0.0302	-0.0027	-0.0031	-0.0118	-0.0122
	(0.0172)	(0.0171)	(0.0224)	(0.0224)	(0.015)	(0.0152)	(0.0211)	(0.0213)
outofstate * t * selectivity	0.0003*	0.0003*	0.0003	0.0003	0.0003*	0.0003*	0.0003	0.0003
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
instate * t * selectivity	0.0006	0.0006	0.0006	0.0006	0.0010**	0.0010**	0.0009**	0.0009**
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0004)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	38218	38218	35746	35746	30948	30948	28864	28864
R^2	0.44	0.44	0.43	0.43	0.44	0.44	0.43	0.43

Panel C:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
% Above 500 in SAT Verbal	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
t	-0.0116	-0.0105	0.0005	0.0027	-0.0286	-0.0391**	-0.0184	-0.0259
	(0.0181)	(0.0206)	(0.0304)	(0.0294)	(0.0164)	(0.0166)	(0.0291)	(0.0288)
outofstate * t	0.0002	0.0002	-0.0103	-0.0104	0.015	0.0149	0.0055	0.0053
	(0.0178)	(0.0178)	(0.027)	(0.027)	(0.0169)	(0.017)	(0.0259)	(0.026)
outofstate * t * selectivity	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
instate * t * selectivity	.0016***	.0016***	.0014***	.0014***	.0019***	.0019***	.0018***	.0018***
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	38251	38251	35772	35772	30972	30972	28881	28881
R^2	0.44	0.44	0.43	0.43	0.44	0.44	0.43	0.43

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, out-of-state dummy, and interactions of selectivity with in-state and out-of-state dummies respectively. Controls include state-level per capita income, unemployment rate, and number of high school graduates.

Table 10B: Did Freshmen from other SREB States show similar mobility patterns after HOPE?

Panel A:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
Barron's	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
outofstate * HOPE	-0.17	-0.17	-0.23	-0.23	-0.04	-0.04	-0.14	-0.14
	(0.18)	(0.18)	(0.20)	(0.20)	(0.21)	(0.20)	(0.25)	(0.25)
outofstate * HOPE * selectivity	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
instate * HOPE * selectivity	-0.08	-0.08	-0.08	-0.08	-0.04	-0.04	-0.06	-0.06
	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.07)	(0.07)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	58988	58988	54127	54127	44810	44810	41236	41236
R^2	0.47	0.47	0.46	0.46	0.46	0.46	0.46	0.46

Panel B:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
% Above 500 in SAT Math	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
outofstate * HOPE	0.1342	0.1355	0.1005	0.1011	0.2635	0.2658	0.1870	0.1891
	(0.1824)	(0.1825)	(0.1781)	(0.1782)	(0.1990)	(0.1994)	(0.2000)	(0.2006)
outofstate * HOPE * selectivity	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	-0.0001	-0.0001
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0010)	(0.0010)	(0.0010)	(0.0010)
instate * HOPE * selectivity	0.0009	0.0008	0.0006	0.0006	0.0026	0.0026	0.0013	0.0013
	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0026)	(0.0026)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	38218	38218	35746	35746	30948	30948	28864	28864
R^2	0.44	0.44	0.43	0.43	0.44	0.44	0.43	0.43

Panel C:	All SREB States except GA				Dropping Merit Aid States			
Selectivity Measure:	All Freshmen		Grads from past 12 mo.		All Freshmen		Grads from past 12 mo.	
% Above 500 in SAT Verbal	FE	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
outofstate * HOPE	0.1671	0.1686	0.1289	0.1296	0.2813	0.2828	0.2089	0.2101
	(0.1512)	(0.1512)	(0.1385)	(0.1385)	(0.1571)	(0.1572)	(0.1542)	(0.1544)
outofstate * HOPE * selectivity	0.0003	0.0001	0.0002	0.0001	0.0001	0.0000	-0.0002	-0.0002
	(0.0007)	(0.0007)	(0.0008)	(0.0008)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
instate * HOPE * selectivity	0.0027	0.0026	0.0023	0.0023	0.0047*	0.0047*	0.0032	0.0032
	(0.0026)	(0.0027)	(0.0022)	(0.0023)	(0.0025)	(0.0025)	(0.0023)	(0.0024)
Controls	N	Y	N	Y	N	Y	N	Y
Observations	38251	38251	35772	35772	30972	30972	28881	28881
R^2	0.44	0.44	0.43	0.43	0.44	0.44	0.43	0.43

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, out-of-state dummy and its interaction with trend, interactions of the selectivity indicator with instate and out-of-state dummies respectively, and allows for differential trends in selectivity for in-state and out-of-state enrollment. Controls include state-level per capita income, unemployment rate, and number of high school graduates.

Table 11: Were there Differential Shifts in Selectivity after HOPE by Region?

	Barron's Selectivity Measure				Selectivity Measure: % Freshmen scoring above 500 on SAT Math				Selectivity Measure: % Freshmen scoring above 500 on SAT Verbal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
HOPE	0.06	0.08	0.06	0.09	1.89	1.75	1.89	1.87	-5.55*	-9.88***	-5.55*	-9.71***
	(0.14)	(0.15)	(0.15)	(0.15)	(2.20)	(2.58)	(2.20)	(2.59)	(2.96)	(3.32)	(2.96)	(3.32)
HOPE * t	0.04	-0.01	0.04	-0.02	2.73***	3.25***	2.73***	3.30***	8.74***	11.79***	8.74***	11.86***
	(0.06)	(0.07)	(0.06)	(0.07)	(0.92)	(1.25)	(0.92)	(1.25)	(1.24)	(1.60)	(1.24)	(1.61)
notGA * HOPE	0.00	0.02			-1.44	-2.74			0.39	-2.51		
	(0.15)	(0.15)			(2.35)	(2.75)			(3.16)	(3.54)		
notGA * HOPE * t	0.01	0.00			-1.26	-0.49			0.46	1.80		
	(0.06)	(0.06)			(0.99)	(1.31)			(1.32)	(1.68)		
bordering * HOPE			-0.03	-0.03			-1.34	-2.95			0.03	-3.43
			(0.16)	(0.16)			(2.49)	(2.91)			(3.35)	(3.74)
notbordering * HOPE			0.03	0.06			-1.58	-2.62			0.68	-1.75
			(0.15)	(0.16)			(2.49)	(2.93)			(3.34)	(3.76)
bordering * HOPE * t			0.02	0.04			-0.95	0.01			1.05	2.64
			(0.07)	(0.07)			(1.05)	(1.38)			(1.40)	(1.77)
notbordering * HOPE * t			-0.00	-0.02			-1.56	-1.13			-0.16	0.88
			(0.07)	(0.07)			(1.05)	(1.42)			(1.40)	(1.82)
Controls	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
Observations	3030	3030	3030	3030	1928	1573	1928	1573	1933	1573	1933	1573
R^2	0.04	0.04	0.04	0.04	0.45	0.41	0.45	0.41	0.63	0.61	0.63	0.61

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. All regressions include institution fixed effects, time trend, and interactions of time trend with region dummies (notGA, bordering, notbordering). Robust standard errors adjusted for clustering by state are in parentheses. Controls include state-level per capita income, unemployment rate, and number of high school graduates. This Table uses Barron's selectivity measure.

Table A1: Some Representative College Rankings by Barron's selectivity index, 1993

Selectivity 1	Selectivity 2	Selectivity 3	Selectivity 4	Selectivity 5
Alabama State University (AL)	Bowie State University (MD)	University of Arkansas (AR)	Florida Atlantic University (FL)	Wake Forest University (NC)
Kentucky State University (KY)	George Mason University (VA)	University of Florida (FL)	University of Kentucky(KY)	Vanderbilt University (TN)
Southern Wesleyan University (SC)	Georgia State University (GA)	University of Louisville (KY)	Clemson University(SC)	Washington & Lee University (VA)
Texas Southern University (TX)	Tennessee State University (TN)	University of Texas at Dallas (TX)	Southern Methodist University (TX)	Georgia Institute of Technology (GA)
University of Louisiana - Lafayette (LA)	University of Central Arkansas (AR)	Mercer University (GA)	University of Georgia (GA)	Emory University (GA)

Table A2: Comparing Barron's and Peterson's Samples

Panel A: Level of Institution	Sample of Institutions		
	Barron's	% Above 500 in SAT Math	% Above 500 in SAT Verbal
	(1)	(2)	(3)
Four or more years	99.70	91.13	91.10
At least 2 but less than 4 years	0.30	8.87	8.90
Panel B: Control of Institution	**Sample of Institutions**		
	Barron's	% Above 500 in SAT Math	% Above 500 in SAT Verbal
	(1)	(2)	(3)
Public	42.54	37.29	37.35
Private not-for-profit	57.03	62.45	62.39
Private for profit	0.43	0.26	0.26
Panel C: Highest Level of Offering	**Sample of Institutions**		
	Barron's	% Above 500 in SAT Math	% Above 500 in SAT Verbal
	(1)	(2)	(3)
Associate's degree	-	7.37	7.40
At least 2 but less than 4 years	0.30	1.40	1.40
Bachelor's Degree	30.36	26.66	26.69
Postbaccalaureate certificate	0.63	0.73	0.72
Master's degree	33.40	32.05	32.02
Post-master's certificate	8.61	5.91	5.90
Doctor's degree	23.40	22.98	22.97
Other and Unknown	3.30	2.90	2.90

Table A3: Did HOPE Affect the Overall Selectivity of Institutions Attended by Non-Georgia SREB Freshmen?

	All students		Students graduating in past 12 mo.	
	FE	FE	FE	FE
	(1)	(2)	(3)	(4)
HOPE * Selectivity	0.02	0.02	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Controls	N	Y	N	Y
Observations	58988	58988	54127	54127
R^2	0.07	0.07	0.07	0.07

*, **, ***: significant at the 10, 5, and 1 percent level, respectively. Robust standard errors adjusted for clustering by state are in parentheses. All regressions include year dummies, institution fixed effects, and the selectivity indicator. Controls include state-level per capita income, unemployment rate, and number of high school graduates.

Figure 1: Map of the SREB States

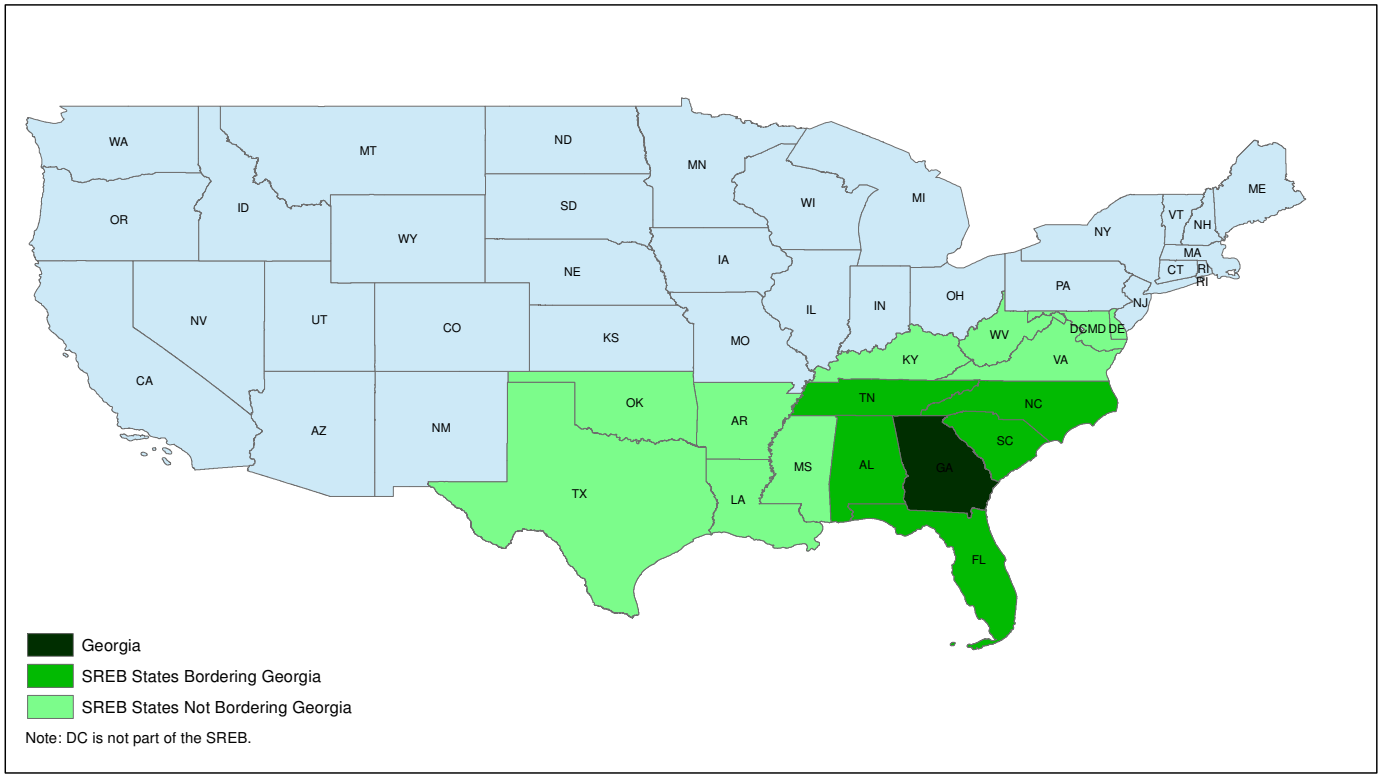

Figure 2: Enrollment Patterns of GA Freshmen by Selectivity in GA and other SREB States

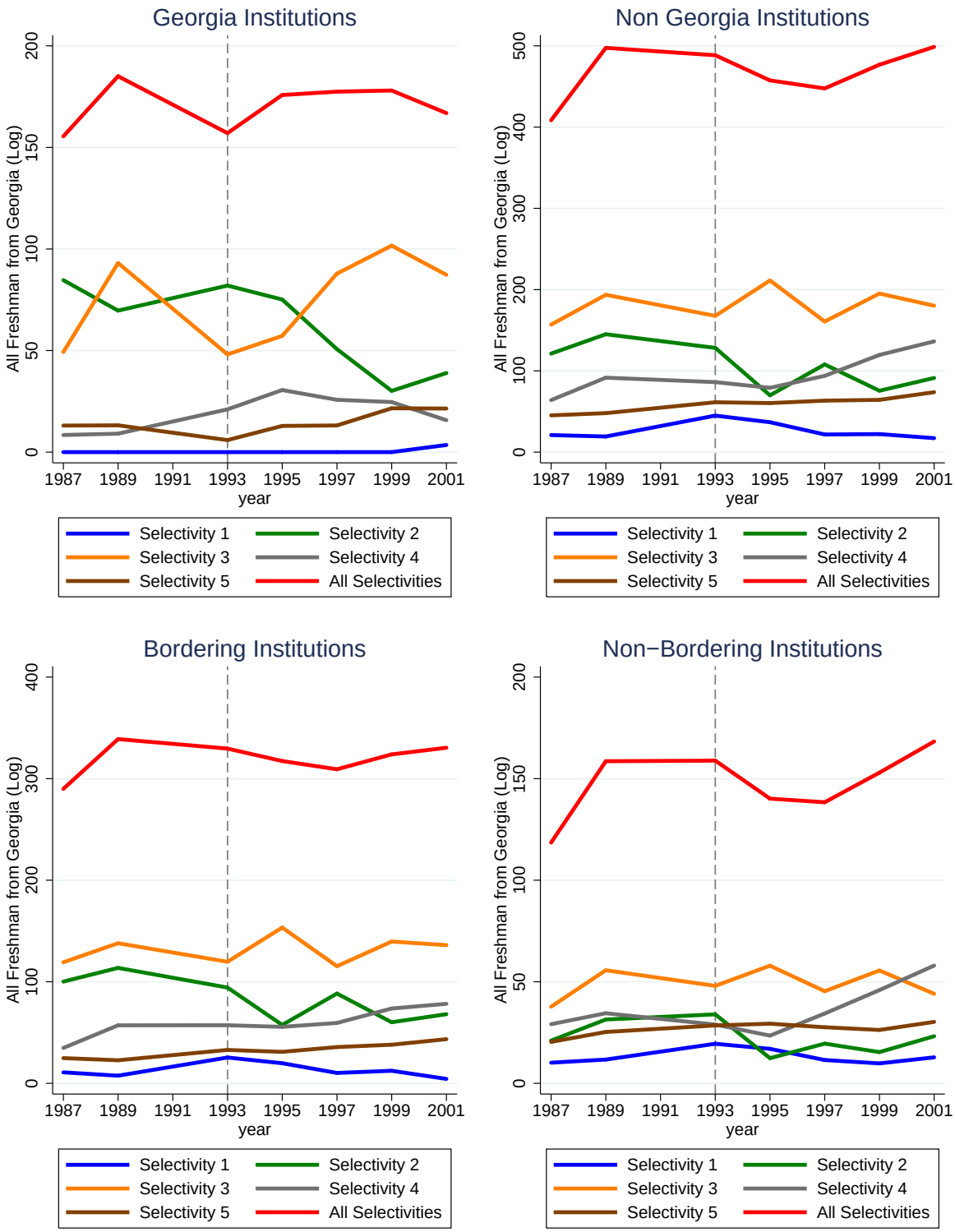

Figure 3: CDFs of College Selectivity, Georgia and other SREB States (1993 and 2001): Barron's Selectivity Measure

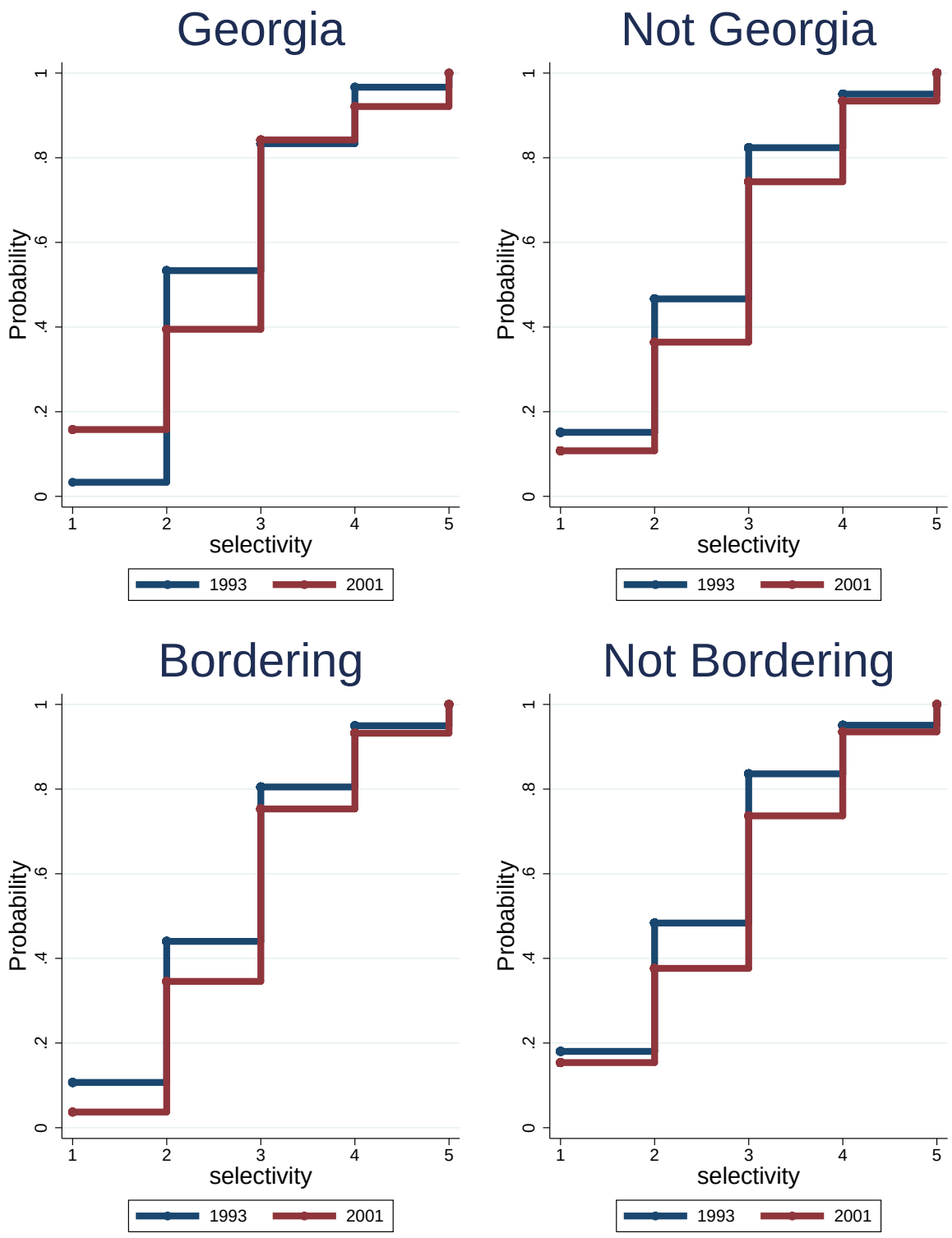

Figure 4: CDFs of College Selectivity, Georgia and other SREB States (1993 and 2001): % of Students Scoring Above 500 in SAT Math

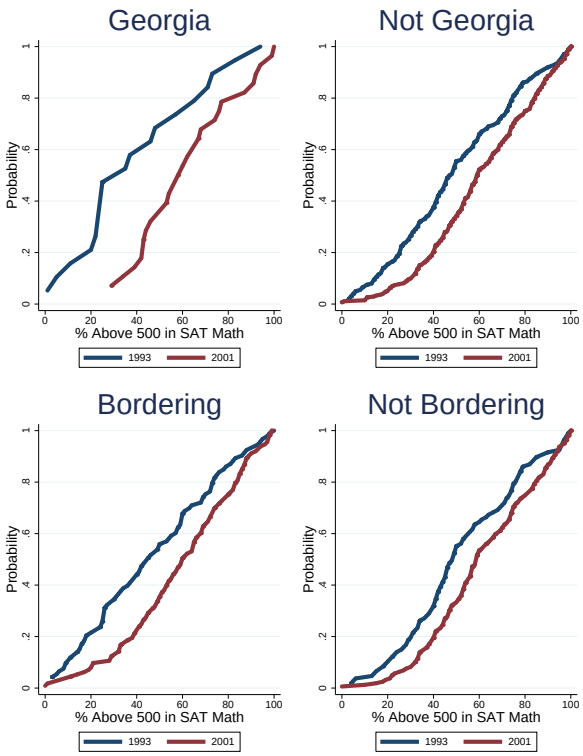

Figure 5: CDFs of College Selectivity, Georgia and other SREB States (1993 and 2001): % of Students Scoring Above 500 in SAT Verbal