

Does Free College Influence Underrepresented Student Enrollment?

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Abstract

Educational equity has long been an important issue that the U.S. government has paid great attention to in past decades. To address the issue, the federal government and state governments have successively promulgated policies to reduce the equity gap between well-represented and underrepresented students. Established in 2017, New York's Excelsior Scholarship program is an innovation in free college policy. We utilize difference-in-difference modeling to explore the link between underrepresented students' (minority students such as African American, Hispanic, and American Indian students and low-income students) enrollment in public two-year and four-year colleges and the free college effect based on the analysis of the program. We find that the enrollment of Hispanic (full-time first-time and total) and Native Hawaiian (full-time first-time) undergraduates decreased after the implementation of the Excelsior Scholarship in public two-year colleges. The enrollment of low-income (full-time first-time and total), American Indian (full-time first-time and total), and African American (full-time first-time and total) undergraduates increased after the implementation of the Excelsior Scholarship in public four-year colleges.

Thanks to financial aid policies, the college enrollment gap between students from the lowest- and highest-income families has been reduced significantly in the past half century (Cahalan et al., 2020); however, a significant inequity still exists. The enrollment rate of students in the highest income quartile is 75%, whereas the enrollment rate of students in the lowest income quartile is 51% (Cahalan et al., 2020). Scholars in the field are concerned that high student debt can limit low-income students' willingness to go to college (Gándara & Li, 2020; Gurantz, 2020; Nguyen, 2019). Federal Reserve statistics indicate that by March 2021, student debt in the United States had reached \$1.7 trillion (Federal Reserve Board, 2021). To address these concerns, policymakers have implemented a number of policies designed to narrow the opportunity gap (Blumenstyk, 2014; Gurantz, 2020; Perna & Leigh, 2017).

To continue expanding access to college, free college or Promise Programs have become a popular tool in the higher education financial aid system (Gándara & Li, 2020; Gurantz, 2020; Perna & Leigh, 2018). Although there have been a number of free college programs in the two-year sector, in 2017 New York State created the Excelsior Scholarship, the first four-year statewide free college program, in an effort to increase the enrollment of underrepresented students and promote educational equity. Only one study has examined the effects of Excelsior on enrollment outcomes, and it only used data from the first year following the announcement of the program (Nguyen, 2019). This is likely too early to observe full program effects.

Additionally, it is crucial to understand how free colleges in both sectors affect enrollment in each sector separately. Free college programs in the two-year sector have been shown to significantly increase two-year enrollment at the expense of four-year enrollment (Bell, 2021; Gándara & Li, 2020; Nguyen, 2020), but universal free college could shift students from community colleges to four-year institutions because tuition is covered in both sectors. This important question has yet to be fully examined in the literature.

This study uses difference-in-difference (DiD) estimation to explore whether underrepresented students' (minority students such as African American, Hispanic, and American Indian students and low-income students) enrollment changed in New York postsecondary institutions relative to control institutions in states that do not implement any statewide Promise Program.

We raised the following research question, with different hypotheses by sector: To what extent is there a relationship between New York State implementing the Excelsior Scholarship and the college enrollment of underrepresented undergraduate students (e.g., low-income and/or racial minority), and does this relationship vary across two-year and public four-year colleges?

Hypothesis 1: The Excelsior Scholarship's implementation decreases enrollment of low-income and racial minority students in public two-year colleges.

Hypothesis 2: The Excelsior Scholarship's implementation increases enrollment of low-income and racial minority students in public four-year colleges.

Literature Review

Financial aid systems are a major area of study in higher education policy. Based on the U.S. Department of Education's Federal Student Aid website (n.d.), the main types of financial aid may include grants, student loans, and work-study. The financial aid system is not perfect and has, to some extent, failed to keep up with the price of higher education. That is why a new funding policy, the free college policy, has been introduced. What is the effect of this policy? Determining that is the purpose of this study. The most well-known programs that today reflect the free college movement in the United States are called *Promise Programs* or *tuition-free programs*.

More and more researchers are paying attention to the topic of Promise Programs. The typology and design of college Promise Programs are generally considered to fall into four categories: program implications level (local or state), aiding type (first dollar or last dollar), eligible institutions, and students' eligibility criteria (Bell, 2021; Billings, 2018; Perna & Leigh, 2018; Willard, Vasquez & Lepe, 2019). A statewide college Promise Program is a specific type of free college policy. Students who are potentially eligible for free tuition are typically residents of the state with total family income of less than a certain amount (usually covering lower-income to middle-income families).

Some recent studies on statewide and local Promise Programs in the two-year sector support the finding of an enrollment shift to two-year colleges (Bell, 2021; Gándara & Li, 2020; Nguyen, 2020). Other studies show particular surges in underrepresented student enrollment (Bartik, Hershbein, & Lachowska, 2021; Gándara & Li, 2020; Gurantz, 2020; Page et al., 2019; Perna & Leigh, 2018). Bell (2021) identified that statewide Promise Program design might help minority students have more educational opportunities. Bell also found that “in-state enrollment increased significantly at public Promise eligible institutions (mainly public two-year) and in-state enrollment decreased at public four-year colleges that are ineligible to receive Promise funds” (Bell, 2021, p. 1).

It is well known that price can influence students’ willingness to pursue higher education. Scholars found that local programs like Kalamazoo Promise, which provide universal scholarships, encouraged the college-going culture in the local and especially low-income community (Gurantz, 2020; Miller-Adams, 2015; Perna & Leigh, 2018). Another local program, Pittsburgh Promise, witnessed a significant rise in low-income students’ enrollment and persistence rate (with 14% and 17%, respectively) as well (Page et al., 2019).

Guided by Pierre Bourdieu’s (1986) forms of capital theory, we focus on these underrepresented students. They are generally from working-class families, which we consider as “grassroots.” Bourdieu believed that students with highly cultural backgrounds could generally inherit valuable cultural activity patterns from their parents whereas students from grassroots are more dependent on the school education (Bourdieu, 1986). Hence, we need to understand how the policy may influence these students.

As mentioned previously, free-college policy and Promise Programs will influence college enrollment. Enrollment is a core element and important issue in the theory and practice of educational equity. Just as Husén (1972) emphasized when describing the concept of educational equity, starting point equity ensures that every student can start their learning career in college without any discrimination.

In 2017, New York State announced the implementation of the Excelsior Scholarship, which allows first-time students to attend a public college tuition-free as long as they attend full time, have family incomes below a certain amount (\$125,000 per year in 2021–22), and satisfy residency requirements. As a last-dollar Promise Program, the New York Excelsior Scholarship program requires eligible students to exhaust all other forms of grant aid before giving financial support for the rest of their tuition charges. Nguyen (2019) conducted a DiD analysis to explore the enrollment changes by using Integrated Postsecondary Education Data System (IPEDS) data on fall 2017 enrollment. The result shows that the Excelsior Scholarship did not have a significant impact on postsecondary enrollment within New York State during the first year of implementation, and the same results are also represented in the Black and Hispanic group analysis and state-level analysis. We expanded on this study by using additional years of post-Promise data, which allows both institutions and students to better respond to the availability of the program.

Data and Sample

Based on annual IPEDS data for the years 2010–2019, we utilized a quasi-experimental design to examine how the Excelsior Scholarship affected underrepresented student enrollment and whether this effect varied across public two-year and four-year colleges (i.e., SUNY and CUNY) in New York (compared with colleges in 37 other states that did not implement a statewide Promise Program before the 2019–2020 academic year).¹ With respect to public two-year colleges, the treatment group (New York) included 36 public colleges whereas the control group

consisted of 573 public colleges. With respect to public four-year colleges, the treatment group included 34 public colleges whereas the control group consisted of 424 public colleges.

The underrepresented (low-income) undergraduate enrollment measure is the number of students receiving Pell Grants, which was obtained from the IPEDS. Pell Grants are limited to students with financial need based on the Free Application for Federal Student Aid (FAFSA).

We measured the underrepresented (racial minority) undergraduate enrollment using the number of racial minority undergraduates (e.g., American Indian, African American, Hispanic, and Native Hawaiian students) enrolled in a given year. As a comparison, we obtained the data regarding the number of enrolled White and Asian students at the undergraduate level (Ginder, Kelly-Reid & Mann, 2017) to also examine whether non-racial minority groups' enrollment changed after the Excelsior Scholarship was implemented. Following the guidance of Gándara and Li (2020), all these racial subgroups are separate (not combined) in our data analysis.

The control variables in this study include average in-state tuition, ACT/SAT scores, and urbanicity. Prior research has found a strong relationship between tuition and enrollment (Denning, 2017; Hemelt & Marcotte, 2011), and students from historically underrepresented backgrounds are particularly sensitive to tuition prices (Heller, 1999). We controlled for test score (ACT/SAT concordance) in four-year colleges, because test scores are frequently used as an admission criterion and also are strongly correlated with race/ethnicity and family income (Dixon-Roman et al., 2013; Perry, Brown & Sawrey, 2013; University of California, 2020). The ACT and SAT are usually not required for two-year college admission; thus, we did not use them as a control for two-year colleges. Finally, urbanization may influence the student's willingness to travel to attend a particular college (Jepsen & Montgomery, 2009; Roderick, Coca & Nagaoka, 2011). Guided by the IPEDS categories, we transferred four categories of urbanization (rural, town, suburb, city) to three dummy variables coded as 0 or 1 (reference group is "Rural").

Table 1 contains the descriptive statistics of focal variables (outcomes and controls) for public two-year colleges. Regarding the low-income group characteristic, the average number of full-time first-time undergraduates receiving a Pell Grant was 392.5 (SD = 445.6). The total number of undergraduates who received a Pell Grant was 2435.1 (SD = 3006.5). Regarding the racial minority group characteristic, the average undergraduate enrollment of full-time first-time American Indian students was 8.1 (SD = 22.1). The total undergraduate enrollment of American Indian students was 25.2 (SD = 76.6). The average undergraduate enrollment of full-time first-time African American students was 115.2 (SD = 184.2). The total undergraduate enrollment of African American students was 355.8 (SD = 603.3). The average undergraduate enrollment of full-time first-time Hispanic students was 119.4 (SD = 270.6). The total undergraduate enrollment of Hispanic students was 333.2 (SD = 784.9). The average undergraduate enrollment of full-time first-time Native Hawaiian students was 1.3 (SD = 3.2). The average total undergraduate enrollment of Native Hawaiian students was 1.8 (SD = 2.1). The average in-state tuition was \$3632.10 (SD = \$1898.60).

Table I. Summary Statistics of the Public Two-Year College Sample

Characteristic	N	Mean	SD
State characteristic			
Average in-state tuition	6040	3632.10	1898.60
Low-income group characteristic			
Full-time first-time undergraduate received Pell Grant	6046	392.5	445.6
Total undergraduate received Pell Grant	6048	2435.1	3006.5
Racial minority group characteristic			
Full-time first-time American Indian undergraduate enrollment	6048	8.1	22.1
Full-time first-time African American undergraduate enrollment	6048	115.2	184.2
Full-time first-time Hispanic undergraduate enrollment	6048	119.4	270.6
Full-time first-time Native Hawaiian undergraduate enrollment	6048	1.3	3.2
Total American Indian undergraduate enrollment	6050	25.2	76.6
Total African American undergraduate enrollment	6050	355.8	603.3
Total Hispanic undergraduate enrollment	6050	333.2	784.9
Total Native Hawaiian undergraduate enrollment	5490	1.8	2.1
Non-minority group characteristic			
Full-time first-time White undergraduate enrollment	6048	363.7	386.2
Full-time first-time Asian undergraduate enrollment	6048	20.7	64.0
Total White undergraduate enrollment	6050	1128.9	1246.6
Total Asian undergraduate enrollment	6050	73.4	226.3

Source: IPEDS.

Table 2 contains the descriptive statistics (outcomes and controls) for public four-year colleges. Regarding the low-income group characteristic, the average number of full-time first-time undergraduates receiving a Pell Grant was 593.4 (SD = 469.1). The average enrollment rate of low-income students was 3399.0 (SD = 3164.3). Regarding the racial minority group characteristic, the average undergraduate enrollment of full-time first-time American Indian students was 10.0 (SD = 24.0). The total undergraduate enrollment of American Indian students was 50.3 (SD = 119.8). The average undergraduate enrollment of full-time first-time African American students was 204.2 (SD = 263.6). The total undergraduate enrollment of African American students was 927.1 (SD = 1168.5). The average undergraduate enrollment of full-time first-time Hispanic students was 212.6 (SD = 392.9). The total undergraduate enrollment of

Hispanic students was 932.2 (SD = 1839.7). The average undergraduate enrollment of full-time first-time Native Hawaiian students was 2.2 (SD = 4.0). The total undergraduate enrollment of Native Hawaiian students was 10.9 (SD = 17.7). The average in-state tuition was \$6996.85 (SD = \$3204.46).

Table 2. Summary Statistics of the Public Four-Year College Sample (Source: IPEDS)

Characteristic	N	Mean	SD
State characteristic			
Average in-state tuition	4452	6996.85	3204.46
College student characteristic			
ACT/SAT concordance	3859	24.3	4.4
Low-income group characteristic			
Full-time first-time undergraduate received Pell Grant	4338	593.4	469.1
Total undergraduate received Pell Grant	4417	3399.0	3164.3
Racial minority group characteristic			
Full-time first-time American Indian undergraduate enrollment	4361	10.0	24.0
Full-time first-time African American undergraduate enrollment	4361	204.2	263.6
Full-time first-time Hispanic undergraduate enrollment	4361	212.6	392.9
Full-time first-time Native Hawaiian undergraduate enrollment	4361	2.2	4.0
Total American Indian undergraduate enrollment	4442	50.3	119.8
Total African American undergraduate enrollment	4442	927.1	1168.5
Total Hispanic undergraduate enrollment	4442	932.2	1839.7
Total Native Hawaiian undergraduate enrollment	4442	10.9	17.7
Non-minority group characteristic			
Full-time first-time White undergraduate enrollment	4361	1083.8	1181.3
Full-time first-time Asian undergraduate enrollment	4361	100.1	213.9
Total White undergraduate enrollment	4442	5067.2	5402.37
Total Asian undergraduate enrollment	4442	442.2	924.6

Source: IPEDS.

Note: ACT/SAT concordance means a new score that concurs the original ACT scores to SAT scores based on the published ACT/SAT concordance chart.

<https://www.act.org/content/act/en/products-and-services/the-act/scores/act-sat-concordance.html>

Methods

We conducted our research through a canonical DiD design (Furquim, Corral & Hillman, 2019). The purpose of this design was to examine how the enrollment outcome differed among minority and low-income students in treatment versus control states after the implementation of the Excelsior Scholarship program. To conduct this methodological design, we set up a traditional regression (including the interaction term of post and treatment) that can estimate the difference in postimplementation outcomes for the treatment group and the control group. The panel dataset (IPEDS) includes years before and after the Excelsior Scholarship was adopted, providing a suitable data structure with which to conduct DiD modeling. Thus, we conducted generalized DiD regressions to answer our research question. Here is the estimate equation for our study:

$$Y_{it} = \beta_0 + \beta_1(\text{Treat})_i + \beta_2(\text{Post})_t + \beta_3(\text{Treat} * \text{Post})_{it} + x'_{it} + \epsilon_{it}$$

Y represents the enrollment of underrepresented undergraduate students (e.g., low-income and/or racial minority) in public colleges. Treat_i is a program dummy variable. Post_t is a time dummy variable. The interaction ($\text{Treat} * \text{Post}$) coefficient (β_3) is what we focus on in this study. β_1 reflects institutional effects, and β_2 reflects year effects. x'_{it} represents the time-varying college-level covariates.

In order for the results from the DiD modeling to be plausible, we tested the parallel trends assumption (Angrist & Pischke, 2009) by examining whether institutions in New York and states without Promise Programs had similar pretreatment trajectories. The results can be found in Appendix A.

Limitations

This study has two limitations. First, there are inherent limitations in how the student groups are defined in the outcomes. The number of students receiving Pell Grants is an imperfect measure of financial need because students who do not file the FAFSA may be from low-income families and could have received a Pell Grant if they applied. A significant share of students, especially at community colleges, do not receive Pell Grants for this reason (e.g., Kofoed, 2017). But because the Excelsior Scholarship program required students to file the FAFSA as a condition of being eligible for the grant, New York could have seen an increase in the number of reported Pell Grant recipients without actually increasing the number of students from lower-income families. Second, it is too early as of this writing to fully consider the effects of the Excelsior Scholarship program on graduation outcomes by race or family income, which is why we focused on enrollment. We used three years of posttreatment data, which is too soon to observe graduations in the four-year sector in particular.

Results

The results of difference-in-difference modeling are presented in Table 3. In public two-year colleges, full-time first-time low-income undergraduate enrollment significantly increased by 8.3 percentage points ($\text{diff_estimate} = 0.083$, $p < 0.01$) after the implementation of the Excelsior Scholarship. The comparison results of low-income (total) undergraduates' enrollment were not

significant (diff_estimate = 0.035, ns). These findings suggested that the Excelsior Scholarship generally made two-year college education accessible to more students from low-income families, but these benefits were limited to only full-time first-time students rather than all students (because the program itself required full-time enrollment of students).

Table 3. Results of Difference-in-Difference Modeling

Outcome Variables	DiD Estimate (SE)	R-Square
Two-year college		
Low-income enrollment total	0.035 (0.030)	0.244
Low-income full-time first-time enrollment	0.083*** (0.025)	0.349
American Indian full-time first-time enrollment	0.044 (0.066)	0.056
African American full-time first-time enrollment	0.106 (0.075)	0.165
Hispanic full-time first-time enrollment	-0.265*** (0.053)	0.252
Native Hawaiian full-time first-time enrollment	-0.404*** (0.088)	0.085
White full-time first-time enrollment	-0.123*** (0.043)	0.089
Asian full-time first-time enrollment	0.060 (0.058)	0.310
American Indian total enrollment	0.058 (0.081)	0.074
African American total enrollment	0.112* (0.062)	0.199
Hispanic full-time total enrollment	-0.190*** (0.037)	0.279
Native Hawaiian total enrollment	-0.003 (0.120)	0.083
White total enrollment	-0.086** (0.034)	0.104
Asian total enrollment	0.146*** (0.056)	0.385
Four-year college		
Low-income enrollment total	0.200*** (0.039)	0.186
Low-income full-time first-time enrollment	0.093*** (0.025)	0.218
American Indian full-time first-time enrollment	0.221* (0.115)	0.082
African American full-time first-time enrollment	0.379*** (0.055)	0.132
Hispanic full-time first-time enrollment	0.064 (0.059)	0.236
Native Hawaiian full-time first-time enrollment	-0.532*** (0.149)	0.088
White full-time first-time enrollment	0.012(0.045)	0.180
Asian full-time first-time enrollment	-0.027 (0.070)	0.336
American Indian total enrollment	0.207** (0.099)	0.152
African American total enrollment	0.162*** (0.039)	0.162
Hispanic full-time total enrollment	-0.012 (0.043)	0.246
Native Hawaiian total enrollment	-0.141 (0.121)	0.127

White total enrollment	-0.045 (0.037)	0.197
Asian total enrollment	0.028 (0.063)	0.370

Full-time first-time Hispanic and Native Hawaiian undergraduate enrollment (respectively, $\text{diff_estimate} = -0.265, p < 0.01$; $\text{diff_estimate} = -0.404, p < 0.01$) significantly decreased in the treatment group of public two-year colleges (versus the control group of public two-year colleges) after the implementation of the Excelsior Scholarship. The effect of the Excelsior Scholarship on full-time first-time American Indian and African American undergraduates' enrollment was not significant (respectively, $\text{diff_estimate} = 0.044, \text{ns}$; $\text{diff_estimate} = 0.106, \text{ns}$). This suggested that the full-time first-time American Indian and African American undergraduates' enrollment did not change at a significant level after the implementation of the Excelsior Scholarship. Thus, the program did not increase the attractiveness of two-year colleges for racial minority students. In fact, it might lead to the Hispanic and Native Hawaiian undergraduate enrollment going down.

We also presented the results of non-minority enrollment after the implementation of the Excelsior Scholarship to examine whether institutions focused more attention on enrolling White and Asian students. In the non-minority group, full-time first-time White undergraduate enrollment ($\text{diff_estimate} = -0.123, p < 0.01$) significantly decreased in the treatment group of public two-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. However, the effect of the Excelsior Scholarship on full-time first-time Asian undergraduate enrollment was not significant ($\text{diff_estimate} = 0.060, \text{ns}$).

The total enrollment of Hispanic undergraduates ($\text{diff_estimate} = -0.190, p < 0.01$) significantly decreased in the treatment group of public two-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. The total enrollment of African American undergraduates ($\text{diff_estimate} = 0.112, p < 0.1$) marginally increased in the treatment group of public two-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. The effect of the Excelsior Scholarship on total enrollment of American Indian and Native Hawaiian undergraduates was not significant (respectively, $\text{diff_estimate} = 0.058, \text{ns}$; $\text{diff_estimate} = -0.003, \text{ns}$). These results suggested that African American students (in total) enjoyed some benefits (two-year college education) associated with the implementation of the Excelsior Scholarship whereas members of other racial minority groups (in total) were not incentivized to attend two-year colleges.

In the non-minority group, the total enrollment of White undergraduate students ($\text{diff_estimate} = -0.086, p < 0.05$) significantly decreased in the treatment group of public two-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. The total enrollment of Asian undergraduate students significantly increased ($\text{diff_estimate} = 0.146, p < 0.05$) in the treatment group of public two-year colleges (versus the control group) after the implementation of the Excelsior Scholarship.

Both full-time first-time and total low-income undergraduate enrollment (respectively, $\text{diff_estimate} = 0.093, p < 0.01$; $\text{diff_estimate} = 0.200, p < 0.01$) significantly increased in the treatment group of public four-year colleges (versus the control group of public four-year colleges) after the implementation of the Excelsior Scholarship. This suggested that the program encouraged more students from low-income families to access four-year higher education, supporting the incentive effect of the Excelsior Scholarship on educational equity.

Full-time first-time American Indian and African American undergraduate enrollment (respectively, $\text{diff_estimate} = 0.221, p < 0.10$; $\text{diff_estimate} = 0.379, p < 0.01$) significantly increased in the treatment group of public four-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. The effect on Hispanic undergraduate enrollment ($\text{diff_estimate} = 0.064, \text{ns}$) was not significant. The effect on Native Hawaiian undergraduate enrollment ($\text{diff_estimate} = -0.532, p < 0.01$) was negative (i.e., enrollment decreased).

These data suggested that the Excelsior Scholarship expanded educational access for full-time first-time racial minority group students at public four-year colleges, but only for American Indian, African American, and Hispanic students. Native Hawaiian students did not respond favorably to the Excelsior Scholarship.

In the non-minority group, full-time first-time White and Asian undergraduate enrollment (respectively, $\text{diff_estimate} = 0.016, \text{ns}$; $\text{diff_estimate} = -0.027, \text{ns}$) did not increase in the treatment group of public four-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. These data suggested that enrollment effects occurred entirely among historically underrepresented students. From the perspective of equity, the Excelsior Scholarship has played a role in improving the enrollment performance of underrepresented students, which shows that the effect of this program is obvious. However, it did not have the expecting results on all ethnic groups, indicating that further policy improvements were needed.

The results showed that total American Indian and African American undergraduate enrollment (respectively, $\text{diff_estimate} = 0.207, p < 0.05$; $\text{diff_estimate} = 0.162, p < 0.01$) significantly increased in the treatment group of public four-year colleges (versus the control group) after the implementation of the Excelsior Scholarship. The effect of the Excelsior Scholarship on total enrollment of Hispanic and Native Hawaiian undergraduates was not significant (respectively, $\text{diff_estimate} = -0.012, \text{ns}$; $\text{diff_estimate} = -0.141, \text{ns}$). These findings suggested the Excelsior Scholarship benefited the American Indian and African American groups of students in total. The Hispanic and Native Hawaiian groups of students were not incentivized by the program.

In addition, we explored the relationship between non-minority group enrollment and the implementation of the Excelsior Scholarship. In the non-minority group, total White and Asian undergraduate enrollment (respectively, $\text{diff_estimate} = -0.045, \text{ns}$; $\text{diff_estimate} = 0.028, \text{ns}$) did not increase in the treatment group of public four-year colleges (versus the control group) after the implementation of the Excelsior Scholarship.

We summarized the results of the DiD models in Table 4. Regarding racial minority groups in public two-year colleges, the enrollment of Hispanic undergraduates (full-time first-time and total) and Native Hawaiian undergraduates (full-time first-time) decreased whereas the enrollment of African American undergraduates (total) increased after the implementation of the Excelsior Scholarship. Regarding the low-income group, the enrollment of total low-income undergraduates increased in public two-year colleges.

Table 4. Summary of the Results (Using DiD Analysis)

Outcome	Undergraduate Type	Public College		
		Two-Year	Four-Year	
Enrollment	Low-income full-time first-time	↑	↑	
	Low-income total		↑	
	Racial minority full-time first-time	American Indian		↑
		African American		↑
		Hispanic	↓	
		Native Hawaiian	↓	↓
		American Indian		↑
	Racial minority total			
		African American	↑	↑
		Hispanic	↓	
	Native Hawaiian			

Note: ↓ indicates decrease; ↑ indicates increase.

Regarding the underrepresented group in public four-year colleges, the enrollment of low-income (full-time first-time and total), American Indian (full-time first-time and total), and African American (full-time first-time and total) undergraduates increased but enrollment of Native Hawaiian (full-time first-time) undergraduates decreased in public four-year colleges after the implementation of the Excelsior Scholarship. Notably, the overall enrollment of racial minority undergraduates (full-time first-time and total) increased.

Discussion

The study's research question focused on whether the Excelsior Scholarship program increased the enrollment of lower-income and underrepresented minority students in public two-year and four-year colleges. First, we found that through the Excelsior Scholarship, full-time first-time undergraduate students from low-income families were more likely to enroll in both public two-year and four-year colleges. The Excelsior Scholarship provided free-tuition opportunities for students from low-income families, assuaging their concern about the financial burden associated with higher education regardless of the sector of attendance. Financial factors are among the crucial determinants of low-income families' education opportunities (Gándara & Li, 2020; Gurantz, 2020; Nguyen, 2019). The Excelsior Scholarship addressed this concern of low-income families by clearly signaling free educational opportunity to them, which can reduce their concerns about their financial inability to attend college.

However, the results are less consistent when considering different racial and ethnic groups, with some positive and some negative results across groups. Specifically, the enrollment of full-time first-time Hispanic and Native Hawaiian students and total Hispanic students in New York State decreased after the implementation of the Excelsior Scholarship. The enrollment of total African American students, nevertheless, increased after the program's implementation. Interestingly, although our finding regarding African American students is consistent with

previous research findings that proved the positive effect of Promise Programs on enrollment for racial minority groups (Bartik et al., 2021; Gándara & Li, 2020; Gurantz, 2020; Perna & Leigh, 2018), our study's findings regarding Hispanic and Native Hawaiian students are different from prior arguments. The decreasing trend indicated that two-year community colleges' attractiveness and competitiveness went down in absorbing some minority students (such as Hispanic and Native Hawaiian) when the Excelsior Scholarship gave them more alternative opportunities for free college education. However, we did not see these groups increasing in the four-year sector, raising concerns about whether these students enrolled anywhere following the Excelsior Scholarship.

Finally, we identified an increase in the enrollment of students from racial minority groups in the four-year public colleges in New York State, compared with those in states that have not implemented any statewide Promise Programs. Specifically, most subgroups of racial minorities, including American Indian and African American, experienced great benefits from the Excelsior Scholarship, such that they were able to enroll in public four-year higher education as full-time first-time students with the support of the program. Of note, the enrollment of total American Indian and African American students also increased after the implementation of the Excelsior Scholarship. As such, we expect that because the policy covers all public sectors, the Excelsior Scholarship plays a crucial role in reducing the equity gap between racial minority groups and other groups in public four-year institutions (i.e., SUNY and CUNY). Overall, our findings supported the implications of the Excelsior Scholarship for educational equity in racial minority groups.

Although we found some interesting results regarding the implications of the Excelsior Scholarship program for educational equity, there still exist some points that future research could address and advance. First, the role of information equity in shaping the implications of the Excelsior Scholarship program could be explored. In the United States, young Americans in the low-income quartile do not have equal access to gaining information about college access compared to their counterparts in the high-income quartile (Brown, Wohn & Ellison, 2016). Low-income high school students are limited in receiving information, because their families do not have the opportunity to access this type of information (Bourdieu, 1986). As for the state governors, it is important not only to have the Promise Program policies in place, but also to make detailed information about free college easier for low-income families to understand and clearer for the students in need.

Many financial aid policies have been implemented, and only by comparison can we identify whether the tool is easy to use and which is the best tool to use. The comparison of these programs is relevant because the focus of these programs is still on the improvement of educational equity. They seek to find the most appropriate policy tool to promote equity in higher education and can find the policy balance between state government and federal government to improve policy tools over time. Further, future studies could also explore what kinds of roles the state government and federal government play in financial aid policy for college students, and how they might work together to make financial aid policy more effective. With the further development of financial aid policies such as Promise Programs, what will be the change in education outcomes in two-year and four-year colleges?

Note

1. By 2020, 13 states in the United States, had implemented statewide Promise Programs: Arkansas, California, Hawaii, Kentucky, Maryland, Montana, Nevada, New Jersey, New York, Oregon, Rhode Island, Tennessee, and Utah. New York is the only state that provides Promise funds to both two-year and four-year sectors.

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APPENDIX

Table A1. Parallel Trend and Falsification Tests for Public Two-Year Colleges

Outcome Variables	Control (Mean)	Treat (Mean)	Diff	P-Value	Falsification Tests	
					One-Year Lead	Two-Year Lead
Full-time first-time undergraduate received Pell Grant	5.572	6.611	1.040	0.000***	0.043	0.062
Total undergraduate received Pell Grant	9.775	10.305	0.530	0.033**	0.079**	0.065
Full-time first-time American Indian undergraduate enrollment	1.433	1.818	0.384	0.000***	0.053	0.015
Full-time first-time African American undergraduate enrollment	3.803	5.004	1.201	0.000***	0.119	0.130
Full-time first-time Hispanic undergraduate enrollment	3.411	4.941	1.530	0.000***	– 0.266***	– 0.229***
Full-time first-time Native Hawaiian undergraduate enrollment	0.608	1.258	0.650	0.000***	– 0.313***	– 0.251***
Total American Indian undergraduate enrollment	2.285	2.705	0.420	0.000***	0.107	0.108
Total African American undergraduate enrollment	4.752	5.893	1.141	0.000***	0.125**	0.140**

Total Hispanic undergraduate enrollment	4.318	5.793	1.475	0.000***	–	–
Total Native Hawaiian undergraduate enrollment	0.793	0.949	0.155	0.015**	–0.078	–0.081
Full-time first-time White undergraduate enrollment	5.459	6.183	0.724	0.000***	–	–
Full-time first-time Asian undergraduate enrollment	1.856	3.076	1.221	0.000***	0.070	0.045
Total White undergraduate enrollment	6.557	7.192	0.634	0.000***	–0.094**	–0.105**
Total Asian undergraduate enrollment	2.752	4.081	1.329	0.000***	0.154***	0.152***

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A2. Parallel Trend and Falsification Tests for Public Four-Year Colleges

Outcome Variables	Contro l (Mean)	Treat (Mean)	Diff	P-Value	Falsification Tests	
					One- Year Lead	Two- Year Lead
Full-time first-time undergraduate received Pell Grant	6.036	6.269	0.232	0.030**	0.260** *	0.253***
Total undergraduate received Pell Grant	7.708	7.930	0.223	0.028**	0.275**	0.322***
Full-time first-time American Indian undergraduate enrollment	1.619	1.239	– 0.380	0.003***	0.426** *	0.317
Full-time first-time African American undergraduate enrollment	4.504	4.823	0.319	0.039**	0.421** *	0.345***
Full-time first-time Hispanic undergraduate enrollment	4.499	5.356	0.857	0.000***	0.180**	0.166
Full-time first-time Native Hawaiian undergraduate enrollment	0.829	0.535	– 0.294	0.005***	0.031	–0.002
Total American Indian undergraduate enrollment	2.916	2.609	– 0.307	0.022**	0.184	0.178
Total African American undergraduate enrollment	5.968	6.380	0.412	0.008***	0.273** *	0.237**
Total Hispanic undergraduate enrollment	5.820	6.873	1.053	0.000***	0.130	0.104
Total Native Hawaiian undergraduate enrollment	1.801	1.955	0.154	0.195	0.072	0.020

Full-time first-time White undergraduate enrollment	6.203	6.118	$\bar{-}$ 0.086	0.605	0.111**	0.106**
Full-time first-time Asian undergraduate enrollment	3.313	4.403	1.089	0.000***	0.068	0.103
Total White undergraduate enrollment	7.723	7.714	$\bar{-}$ 0.009	0.955	0.071**	0.066**
Total Asian undergraduate enrollment	4.612	5.939	1.327	0.000***	0.164	0.155

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$