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Cover Page Footnote
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By Dee Hill-Zuganelli, Nolan L. Cabrera, and Jeffrey F. Milem

Established in 2008, the Arizona Assurance Scholars Program (AASP) channeled institutional need-based aid to in-state, low-income students. Rapidly growing costs prompted three changes to the AASP eligibility requirements in 2011. We examined how these new requirements—a 3.0 or higher high school grade point average and the submission of the Free Application of Federal Student Aid (FAFSA) and admission paperwork by March 1—would affect the gender, racial, and socioeconomic composition of the program's first three cohorts if they were in effect. Results revealed disproportionate impacts on racial and ethnic minorities and widened gender gaps. Male, Latina/o, and Native American students would be at statistically greater risk for ineligibility relative to female, Asian, and White students. These findings signal the need to model the consequences of policy change, particularly when it reduces college access and undermines the equity of institutional need-based financial aid programs.

Keywords: *financial aid policy, institutional aid, need-based aid, college access, diversity, equity, policy drift*

The University of Arizona (UA) launched the Arizona Assurance Scholars Program (AASP) in 2008. Targeted to in-state, low-income, first-generation students, AASP paid full tuition and fees, books and supplies, and on-campus housing for up to four years. It packaged generous need-based aid with college transition programming; promoted faculty and peer mentorship, career preparation, and individualized success planning; and created regular social gatherings to facilitate students' connection with campus networks (Office of Scholarships and Financial Aid [OSFA], 2012).

Administrators built AASP in accordance to best practices identified in the financial aid literature. Combining generous need-based aid with ongoing social and interpersonal integration would maximize the recruitment, retention, and persistence for underrepresented students[1] admitted into its ranks (Berger & Braxton, 1998; Braxton & Lien, 2000; Cabrera, Nora, & Castañeda, 1992; Engle & Tinto, 2008; Hossler, Ziskin, Gross, Kim, & Cekic, 2009; Hurtado & Carter, 1997; McGlynn, 2011; Pascarella & Terenzini, 1983; Tinto, 1975). However, the fanfare was short-lived. Rapid program growth in the midst of aggressive state budget cuts prompted by the Great Recession taxed AASP's budget to its limits. Administrators enacted more restrictive eligibility requirements to get costs under control.

Hacker, Pierson, and Thelen (2013) coined the term *policy drift* to explain the failure of laws, institutions, and policies to adapt to major environmental shifts. We extend this logic to institutional need-based financial aid policy in the face of economic constraint. To date, few studies have connected the well-documented changes to federal and state financial aid policies since the 1960s to the particular and, we

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argue, compensatory institutional efforts to serve diverse student populations (Hannah, 1996; Hansen, 1983; Hossler & Kwon, 2015). This is of concern because student affairs officials report receiving little guidance on navigating financial aid policy through budgetary crises or balancing cost control with equitable access and enrollment management strategies (Romano, Hanish, Phillips, & Waggoner, 2010).

This study explores how changing eligibility requirements may negatively affect diversity among institutional need-based aid recipients at a large, public state university. To the extent that they reduce access for underrepresented students, the changes risk compounding existing barriers that prevent these students from attaining higher education. This study proposes an empirical method for preserving the equity of institutional financial aid policy in the midst of economic challenges.

Conceptual Framework

Hacker (2004) developed the concept of policy drift to refute a longstanding assumption of political theory that change is possible only through deliberate legislative means. Prior studies of the American welfare state during the Reagan administration emphasized its stability in the face of retrenchment. In contrast, Hacker (2004) described how a minor clause in the Employee Retirement Income Security Act undermined state regulation of employer-financed health insurance plans. The failure to regulate these plans allowed insurers to charge higher premiums and offer less coverage, which priced out low-income workers from attaining adequate protection against injury or job loss. Although other social protections remained intact, "their ability to achieve the goals embodied in them… noticeably weakened" (Hacker, p. 256, as cited in Béland, Rocco, & Waddan, 2016).

Hacker's (2004) study illustrated the consequences of political *inaction*. In his case, stakeholders took advantage of exemptions and legal carve-outs to satisfy their own economic interests. Inaction can also refer to the failure of legislators to respond to changing economic or environmental conditions once laws have been put into effect. This is of concern if changing conditions weaken the effectiveness of these laws. Thus, Hacker, Pierson, and Thelen (2013) extended policy drift to include legislators' failures in remedying the shortcomings of laws and policies should they arise.

Applying this logic to financial aid policy, drift may occur because external economic conditions disrupt the effectiveness of funding and distribution mechanisms. We find two historical examples for this. First, targeting sufficient aid to a growing number of constituencies in the 1970s proved too burdensome for legislators to coordinate and manage (Dannenberg & Voight, 2013; Gladieux, 1995). Second, even when targeting student aid to specific constituencies was successful by the 1980s, the failure to index awards to inflation or rising college costs depleted their value over time (Dynarski & Scott-Clayton, 2013; Fitzgerald, 2004). Unlike Hacker's (2004) profit-driven insurance providers, financial aid policymakers may be willing but unable to address the social and economic stratifiers that hinder low-income students' access to higher education (Lynch, Engle, & Cruz, 2011; McGlynn, 2011). The consequences of drift worsen as federal policymakers defer corrective measures to states and to individual colleges and universities. We discuss this further in the literature review.

Literature Review

Drift in Federal Policy

After World War II, the U.S. government took measures to democratize higher education. Congress passed financial aid legislation in the 1940s and 1950s to reward students whose pursuit of advanced studies aligned

with national interests (Kimball, 2011). The GI Bill in 1944 helped veterans pay tuition and living expenses as a reward for completing military service (Hansen, 1983). In response to Sputnik, Congress passed the National Defense Education Act of 1958, which offered low-cost loans to students studying mathematics, science, and technology (Harris & Miller, 2005).

The Higher Education Act of 1965 (HEA), by contrast, created a robust financial aid system that combined guaranteed student loans and need-based grants (Hannah, 1996; Hossler & Kwon, 2015). Families with annual incomes of less than $15,000 could receive low-interest, subsidized loans. Colleges could also distribute Educational Opportunity Grant funds to financially needy students with "academic or creative promise" (Gladieux, 1995; Hansen, 1983, p. 88). Low-income students had not enjoyed such widespread access to higher education since the land grant movements of the early 20th century (Gladieux, 1995).

Congress passed federal financial aid reform after its supporters cast new loan and grant programs as a way for youth to achieve equal opportunity. Such reframing appealed to broader American democratic values, and though concerns about redistribution did not fade entirely, legislators agreed that investing in education could reduce poverty (Hannah, 1996; Ripley & Franklin, 1990; St. John & Asker, 2003). The 1972 HEA amendments expanded the existing need-based grant programs (now known as Federal Pell Grant and Federal Supplemental Educational Opportunity Grants) and channeled those funds directly to students and families (Hannah, 1996). Congress also incentivized states that developed need-based financial aid programs with matching federal funds (St. John & Asker, 2003). The amendments "represented a profound deepening of the commitment of the federal government to remove financial impediments to attending college" (Cervantes et al., 2005, p. 35).

Rapidly rising median incomes prevented middle-class families from accessing federal aid. Congress resolved this issue through the Middle Income Student Assistance Act (MISAA) of 1978 (Hossler & Kwon, 2015). However, this created two unintended consequences for low-income students. First, MISAA reinstated federal loans as the most expedient approach to pay college costs for a rapidly growing college-ready population (Cervantes et al., 2005; Gladieux, 1995). Second, MISAA had no provisions for indexing award amounts to rising college costs (Dynarski & Scott-Clayton, 2013). Federal legislation entrusted states to not only take the lead on providing grant-based aid, but also to moderate economic shifts beyond their control (Weerts & Ronca, 2012).

Drift in State Policy

Policymakers appropriate state funds to reduce tuition across all public institutions and subsidize remaining costs based on students and families' abilities to pay (Curs & Singell, 2010; Johnstone, 1996). Low-tuition/low-aid states pay the lion's share of appropriations to institutions directly, leaving smaller funding for grants to address unmet need. Should low-tuition/low-aid states offer both merit- and need-based grants, merit-based grants are often more generous, and institutional awards tend to be lower in value than in high-tuition/high-aid states (Doyle, Delaney, & Naughton, 2009; Heller, 2003). After 1980, a key political change involved the "shift from a low-tuition policy to one based on the notion of cost-sharing between the states and students and their families, using need-based aid to equalize opportunity" (Chen & St. John, 2011, p. 630). As this idea gained traction, states reduced appropriations (Archibald & Feldman, 2010; Callahan & Perna, 2015; Chen & St. John, 2011; Cheslock & Gianneschi, 2008; Toutkoushian & Shafiq, 2010; Weerts & Ronca, 2012) and developed competitive merit-based aid programs (Bettinger & Williams, 2014; Chen & St. John, 2011; Doyle, Delaney, & Naughton, 2009; Dynarski, 2004; Horn, Peter, & Carroll, 2003). By the early 1990s, state legislators seemed convinced that colleges and universities would rein in their costs, and low-income students who struggled to qualify for merit aid could request loans or institutional funds to satisfy unmet need (Orfield, 1992).

Arizona ranked 30th in state appropriations for higher education in 1998; by 2004, it had fallen to 44th place. Between 2002 and 2004, Arizona's Leveraging Educational Assistance Partnership (LEAP) program awarded up to $2,500 per year to financially needy students. LEAP could do this with the backing of a one-time $1.2 million federal gift. After the gift expired, legislators grew aggravated with rising tuition costs (in response to declining state aid) but failed to consider modest sales or tax increases to bolster grant awards (Phipps, Santos, & Merisotis, 2005). Exhausted by gridlock, the Arizona Board of Regents (ABOR) asked presidents from Arizona's three public universities to offer guidance in unifying appropriations, tuition, and financial aid policies. The presidents agreed to cap tuition increases at 40% in exchange for a promise to help financially needy students if the state continued to falter on its obligations (Bell, Blanco, King, Lingenfelter, & Longanecker, 2003).

Can Institutional Aid Serve Everyone Left Behind?

Colleges and universities may develop institutional need-based financial aid programs in response to drifting federal and state policies. Institutions *can* serve underrepresented students, especially if their overarching missions or values call on them to do so (Weisbrod, Ballou, & Asch, 2008). On the other hand, institutions must also allocate aid in an equitable fashion, mindful of structural inequalities that constrain college choice and access (McGlynn, 2011).

Structural inequality may partially explain racial and gender differences in college attendance among low-income students vis-à-vis receiving financial aid. Labor force inequality and differential earnings may encourage women to pursue bachelor's and advanced degrees (Doyle, 2010; King, 2006). Kewel Ramani and colleagues (2007, ch. 6) found that Asian and Pacific Islander and White students received larger grant-aid awards than other ethnic minorities, though their study did not test whether those differences were statistically significant. Low-income students may also face difficulties applying for aid in a timely fashion. If students or their parents have not filed taxes early enough, then they may have to fill out the Free Application for Federal Student Aid (FAFSA) without the benefit of online IRS data transfer tools. Delayed FAFSA submissions may reduce access to other first-come, first-served state financial aid programs (Dynarski & Wiederspan, 2015).

Even if institutions cannot satisfy all college-goers' economic needs, equity entails using resources to close achievement gaps—however structurally ingrained they are—for underrepresented students (McGlynn, 2011). When facing budgetary constraints, higher education administrators should balance cost cutting with a promise not to overburden students for whom considerable barriers already exist (Carnevale & Strohl, 2011; Clawson & Leiblum, 2008; Dickert-Conlin & Rubenstein, 2007).

Context

UA established AASP in 2008 after the state consistently failed to target adequate need-based aid to low-income students (Bell et al., 2003). AASP surged in popularity after its establishment. Participant cohort sizes increased from 468 to 1,101 within its first three years of operation. UA President Robert Shelton (2010) explained the role AASP played in fulfilling the university's mission:

> As a land-grant university, the University of Arizona has an unwavering commitment to serving the people and economy of Arizona. One of the primary areas of emphasis over the past 10 years has been to increase university access to students of all economic and ethnic backgrounds…. [AASP] is based on the premise that all Arizona students should be able to pursue the best educational opportunities the state has to offer (p. III).

State legislators cut $68.9 million from the permanent general education budget and planned an additional $20 million in one-time reductions as a response to the Great Recession. Adjusted for inflation, Arizona led the nation in higher education budget cuts, averaging $3,125, or 50.4%, per student for fiscal years 2008-13 (Oliff, Palacios, Johnson, & Leachman, 2013). With no renewed state support in sight, the university's administrators knew AASP's long-term survival required substantial cost cutting. They devised three new eligibility requirements for AASP cohorts in academic year 2011-12. Future recipients would need to: 1) earn a high school grade point average (GPA) of 3.0 or higher, 2) submit the FAFSA by March 1, and 3) file university admission paperwork by the same deadline. Failure to meet any rule would result in program ineligibility (OSFA, 2012).

Changes to AASP's eligibility requirements prompted three research questions. First, how might newly adopted eligibility requirements affect gender, racial/ethnic, and socioeconomic representation in the first three AASP cohorts if they were in effect? Second, which gender, racial/ethnic, and socioeconomic groups would be at greater risk for ineligibility due to the new requirements? Third, should disproportionate impacts occur, how might administrators of institutional need-based financial aid programs avoid them when enacting policy changes? Our analysis resolves the first two questions, and we address the third in the conclusion.

Hypotheses

First, we expected losses in diversity in the AASP program across the three cohorts. Expectations included fewer students of color; fewer of the poorest students within the low-income population; and widened gender gaps, as these groups have been historically left behind in securing sufficient aid (King, 2006; Lynch, Engle, & Cruz, 2011; McGlynn, 2011).

Second, we expected losses due to arbitrary institutional requirements. Prior empirical research has shown a link between high school GPA and academic success in college (Hoffman & Lowitzki, 2005; Mattson, 2007). We deemed this requirement as justifiable. However, institutional deadlines for receipt of the FAFSA and other applications reflect institutional preferences not mandated by federal or state policymakers (U.S. Department of Education, 2010). Late FAFSAs and university applications may screen out otherwise talented students.

Third, we expected statistically significant between-group differences in program eligibility. We framed this hypothesis as insulation; that is, we expected some student groups to be better insulated (i.e., fewer ineligibilities) against policy changes than others (Kewel Ramani et al., 2007).

Methodology

Data

We gathered data from three institutional sources: demographic information from the Office of Institutional Research Planning and Support (2009, p. 17; 2010; 2011), application and financial aid records from the Division of Student Affairs, and, AASP cohort membership for years 2008-11. We matched records across sources by students' e-mail addresses. Merging several data sources allowed us to analyze changes to cohort diversity as fully as possible. We then created dichotomous variables for the three new eligibility requirements.

Table 1 indicates variables of interest and coding schemes. We simplified some race and ethnicity categories in order to make cases consistent across sources. We collapsed students who identified as Asian or Hawaiian/ Pacific Islander into a single category as we did for students who marked "other" or two or more races. These actions created sufficiently large cell sizes for Chi-square analysis.

Table 1

Variables of Interest

Variable	Scale
Gender	1 = female; 2 = male
Race and ethnicity	
Black	0 = no; 1 = yes
Native American	0 = no; 1 = yes
Asian/Pacific Islander	0 = no; 1 = yes
Latina/o	0 = no; 1 = yes
White	0 = no; 1 = yes
Other/multiracial	0 = no; 1 = yes
Parental income	
≤ $10,599	0 = no; 1 = yes
$10,600-21,199	0 = no; 1 = yes
$21,200-31,799	0 = no; 1 = yes
$31,800-42,400	0 = no; 1 = yes
> $42,400	0 = no; 1 = yes
New eligibility requirements	
High school GPA ≥ 3.0	0 = no; 1 = yes
FAFSA by March 1	0 = no; 1 = yes
Application by March 1	0 = no; 1 = yes
Eligible for AASP (meets all 3 rules)	0 = no; 1 = yes

Method

We conducted a two-step process for measuring the equity of changing institutional financial aid policy. First, we coded each AASP student as eligible or not by current standards based on high school GPA and paperwork submission dates. Chi-square tests determined if eligibility rates were consistent across gender, race and ethnicity, and parental income. This method is consistent with previous studies on gender and racial differences in college access and enrollment (Guramatunhu-Mudiwa, 2015; Hurtado, Inkelas, Briggs, & Rhee, 1997; Kim, 2004; Perna, 2000).

The second step involved examining whom policy changes appeared to target. We used Agresti's (2007; see also Sharpe, 2015) procedure for calculating and evaluating standardized residuals.[2] Positive residuals signaled groups that were overrepresented among students who would be denied AASP aid; negative residuals signaled groups better insulated against policy changes.

Therefore, if changing policies reduced the proportions of males, students of color, and students from the lowest socioeconomic backgrounds in AASP, then we would find support for our first hypothesis. If reductions were due to FAFSA or university application timeliness independent of high school GPA, then we would find support for our second hypothesis. If underrepresented students showed positive standardized residuals, then we would find support for our third hypothesis and, more broadly, a cause for concern regarding program equity.

Limitations

The retrospective approach to our study cannot account for behavioral responses from AASP program administrators or prospective students. Administrators may overlook a requirement based on the strength of a student's application materials or letters of recommendation, demonstration of exceptional financial need, or some other factor. Low-income students who know about AASP benefits in advance may work harder to improve GPA scores and ensure timely submission of FAFSA and university paperwork.

Sample

Administrators awarded AASP benefits to 2,300 students in academic years 2008-11. We matched demographics, high school GPA, and timeliness of paperwork submission for 2,199 cases.[3] Table 2 compares the demographic characteristics of the AASP cohorts with university and national fall headcount enrollments.

Female students outnumber males in all three populations. Females made up approximately 62% of all new entrants to AASP versus 53% and 57% in all university and national cohorts, respectively. Since AASP serves in-state, low-income students, the program had greater representation among Latina/o and Native American students than in the general student body. Asian students made up a larger share of AASP cohorts as well, but their proportion converged with other minority groups by the 2010-11 cohort. By contrast, AASP features more Black students than the university, but trails eight points behind national figures for university enrollment. White students also make up the racial minority in all three cohorts. The demographics suggest that AASP recruits more students of color than the university and the nation at large.

Table 2 reveals a bimodal distribution of socioeconomic status. Students from the lowest (less than $10,599) and middle ($21,200-$31,799) quintiles made up the largest distribution of recipients of AASP aid. We cross-tabulated race with parental income. Most Latina/o and White AASP students came from families with an annual income up to $31,700. Black students reported parental income in the lowest income range for the first two cohorts; the third cohort resembled the aforementioned bimodal pattern. We also found fewer students in the highest quintile receiving AASP aid over time. Forty-three students in the first cohort received AASP aid versus 37 in the second cohort and two in the third cohort.

Table 3 shows the mean and standard deviation values for AASP eligibility requirements by cohort. Mean GPAs ranged between 3.38 and 3.50, and differences were statistically significant: $F(2, 2200) = 13.11$, $p < .001$. Although mean GPAs declined over time, all cohorts exceeded ABOR's minimum 2.0 GPA requirement for attending the state's public universities (Arizona Board of Regents, 2015).

The data show that, on average, students submitted FAFSAs by January and February of the new academic year. University applications arrived between November of the previous year and February of the academic year. We verified the different timeframes for submitting paperwork and the reverse standard deviation pattern in the 2010-11 cohort in the original administrative record.

Table 2

AASP, University, and National Demographics in Percentages, 2008-11

	2008-09			2009-10			2010-11		
Demographics	AASP *n* = 468	UA *n* = 27,837	National *n* = 16.365m	AASP *n* = 695	UA *n* = 28,623	National *n* = 17.464m	AASP *n* = 1,137	UA *n* = 28,576	National *n* = 18.082m
Gender									
Male	37.6	47.0	43.2	37.2	47.0	43.3	38.1	47.2	43.3
Female	62.4	53.0	56.8	62.8	53.0	56.7	61.9	52.8	56.7
Race and ethnicity									
Black	5.0	3.7	13.9	6.5	3.9	14.6	6.2	4.2	14.8
Native	6.1	2.7	1.1	4.8	2.8	1.1	2.5	3.0	1.0
Asian	12.0	7.2	6.8	10.4	7.6	6.5	7.3	7.2	6.0
Latina/o	40.2	17.9	12.9	41.7	18.9	13.5	48.3	20.6	14.1
White	35.4	68.7	63.2	36.3	66.9	62.2	30.0	65.1	60.3
Other	1.3	--	--	0.3	--	--	5.8	--	1.6
Parental income									
$0	12.4	--	--	9.8	--	--	11.4	--	--
≤ $10,599	29.5	--	--	27.5	--	--	28.5	--	--
$10,600-21,199	17.1	--	--	21.0	--	--	25.2	--	--
$21,200-31,799	25.4	--	--	25.6	--	--	26.0	--	--
$31,800-42,400	18.6	--	--	20.4	--	--	20.1	--	--
> $42,400	9.4	--	--	5.5	--	--	0.3	--	--

Note. Lead author's calculations of U.S. Department of Education (2013, 2015) fall enrollment counts.
Percentages may not sum to 100% due to rounding. Percentage of $0 income relative to ≤ $10,599 category.
-- = unavailable data; m = million

Table 3

AASP Eligibility Requirements by Cohort

	2008-09		2009-10		2010-11	
Requirements	*M*	*SD*	*M*	*SD*	*M*	*SD*
High school GPA	3.50***	0.41	3.45***	0.52	3.38***	0.38
FAFSA submission	02/12/2008	27 days	02/10/2009	23 days	01/17/2010	58 days
UA submission	11/16/2007	57 days	11/09/2008	60 days	02/09/2010	30 days

*$p < .05$, **$p < .01$, ***$p < .001$

Key Findings

Tables 4, 5, and 6 model changes in the gender, racial, and socioeconomic representation among the first three AASP cohorts if current eligibility rules were in effect. We model changes within each cohort separately and for the entire sample (i.e., a pooled cohort).

Males make up approximately 40% of each cohort. Table 4 shows greater reductions among male recipients, particularly in the first and third cohorts. The data also show greater reductions due to late FAFSAs, relative to low GPA and late applications. Gender differences in FAFSA submissions were not significant. By contrast, more males than females would not qualify for AASP aid due to low high school GPA: $\chi^2(1, N = 2{,}199) = 11.348$, $p = .001$.

Table 5 models changes in cohorts' racial and ethnic composition. Late FAFSAs account for the largest losses in all three cohorts relative to low GPA and late applications. Curiously, more students in the second cohort turned in late applications; only a few Latina/o students had GPAs below 3.0. Chi-square tests indicate racial differences in ineligibility due to low GPAs: $\chi^2(5, N = 2{,}200) = 25.727$, $p < .001$. Racial differences also exist regarding late FAFSA submissions in the second and third cohorts: $\chi^2(5, N = 2{,}200) = 19.273$, $p = .002$. Black (22%), Latina/o (22%), and Native American (37%) students in the third cohort failed to meet either GPA or FAFSA requirements. Native American students make up the smallest racial minority group in AASP, yet a majority (63%) of them in the third cohort would no longer receive AASP aid.

Table 6 models changes in the socioeconomic composition of cohorts. Our data showed variation among low-income students' financial backgrounds (see also Corrigan, 2003). Consistent with previous findings, late FAFSAs result in the largest reductions, followed by low GPAs and late applications. No statistically significant differences emerged across parental income. Even if gender and racial differences exist, the new requirements do not appear to deny AASP aid to poorer students relative to their low-income peers.

The findings reveal gender and racial differences in AASP eligibility vis-à-vis high school GPAs and late FAFSA submissions, but not university application timeliness. Table 7 features the standardized residuals for all significant Chi-square tests. The new rules appear to screen out males and select racial and ethnic minority groups as expected. Male, Latina/o, and Native American students are overrepresented among those who fail to meet the GPA requirement. Native American students are also overrepresented among those who submit late FAFSAs. Female, Asian, and White students are underrepresented against the GPA rule, and Asian students are less likely to be disqualified due to late FAFSAs.

Table 4

Reductions to AASP Cohorts by Gender

			Current requirements							
Cohort	Gender	Original	GPA 3.0+		FAFSA 3/1		App 3/1		AASP eligible	
2008-09	Male	172	150	(12.8)	145	(15.7)	165	(4.1)	122	(29.1)
	Female	285	263	(7.1)	234	(17.9)	274	(3.9)	211	(25.7)
	χ^2			4.183*		0.366		0.013		0.616
2009-10	Male	241	239	(0.8)	213	(11.6)	230	(4.6)	205	(14.9)
	Female	406	397	(1.5)	349	(13.8)	380	(6.1)	326	(18.9)
	χ^2			0.534		0.652		0.743		1.649
2010-11	Male	420	333	(20.7)	317	(24.5)	348	(17.1)	240	(42.9)
	Female	681	586	(13.8)	542	(20.1)	585	(13.7)	440	(35.2)
	χ^2			8.968**		3.036		2.384		6.452*
	Pooled χ^2			11.348**		0.504		1.092		3.046

Note. Percent reduction in parentheses, excluding missing data; *$p < .05$, **$p < .01$, ***$p < .001$

Table 5

Reductions to AASP Cohorts by Race and Ethnicity

			Current requirements							
Cohort	Race	Original	GPA 3.0+		FAFSA 3/1		App 3/1		AASP eligible	
2008-09	Black	23	20	(13.0)	19	(17.4)	22	(4.3)	15	(34.8)
	Native	28	25	(10.7)	23	(17.9)	26	(7.1)	19	(32.1)
	Asian	55	50	(7.4)	46	(16.4)	51	(7.3)	41	(25.5)
	Latina/o	184	168	(8.2)	159	(13.6)	178	(3.3)	141	(23.0)
	White	162	144	(11.1)	128	(21.0)	157	(3.1)	112	(30.9)
	Other	6	6	(0.0)	5	(16.7)	6	(0.0)	5	(16.7)
	χ^2			2.151		3.373		3.173		4.207
2009-10	Black	42	42	(0.0)	37	(9.8)	40	(2.4)	36	(12.2)
	Native	31	31	(0.0)	23	(25.8)	28	(9.7)	23	(25.8)
	Asian	67	65	(0.0)	60	(10.4)	66	(1.5)	57	(12.3)
	Latina/o	270	261	(3.0)	239	(11.5)	251	(7.0)	221	(17.8)
	White	235	235	(0.0)	203	(13.6)	223	(5.1)	194	(17.4)
	Other	2	2	(0.0)	0	(100.0)	2	(0.0)	0	(100.0)
	χ^2			11.293*		19.273**		5.193		12.990*
2010-11	Black	68	53	(22.1)	53	(22.1)	61	(10.3)	42	(38.2)
	Native	27	17	(37.0)	17	(37.0)	22	(18.5)	10	(63.0)
	Asian	80	73	(8.8)	71	(11.3)	70	(12.5)	58	(27.5)
	Latina/o	532	426	(19.9)	403	(23.8)	455	(14.0)	317	(40.2)
	White	330	296	(10.0)	261	(20.9)	269	(18.5)	211	(36.1)
	Other	64	54	(15.6)	54	(15.6)	56	(12.5)	42	(34.4)
	χ^2			27.898***		11.765*		5.707		12.824*
	Pooled χ^2			25.727***		9.001		3.770		11.367*

Note. Percent reduction in parentheses, excluding missing data; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Reductions to AASP Cohorts by Parental Income

			Current requirements							
Cohort	Income	Original	GPA 3.0+		FAFSA 3/1		App 3/1		AASP eligible	
2008-09	≤ $10,600	138	125	(7.4)	114	(17.4)	134	(2.9)	100	(26.5)
	$10,600-21,200	80	69	(11.5)	66	(17.5)	79	(1.3)	57	(27.8)
	$21,200-31,800	119	102	(12.1)	99	(16.8)	110	(7.6)	80	(31.6)
	$31,800-42,400	87	76	(9.5)	76	(12.6)	84	(3.4)	66	(21.4)
	> $42,400	44	41	(4.7)	34	(22.7)	42	(4.5)	30	(30.2)
	χ^2			3.149		2.233		5.959		2.792
2009-10	≤ $10,600	191	178	(0.6)	163	(14.2)	176	(7.4)	145	(19.9)
	$10,600-21,200	146	132	(2.2)	131	(10.3)	141	(3.4)	112	(17.0)
	$21,200-31,800	178	160	(1.8)	154	(13.5)	167	(6.2)	132	(20.0)
	$31,800-42,400	142	129	(0.8)	119	(16.2)	134	(5.6)	107	(19.5)
	> $42,400	38	37	(0.0)	37	(2.6)	37	(2.6)	35	(5.4)
	χ^2			2.917		6.150		3.167		4.987
2010-11	≤ $10,600	324	256	(17.9)	249	(22.4)	274	(14.6)	179	(43.4)
	$10,600-21,200	286	236	(15.1)	223	(21.8)	239	(16.1)	177	(37.2)
	$21,200-31,800	296	233	(17.7)	231	(22.0)	253	(14.5)	180	(37.7)
	$31,800-42,400	228	192	(14.7)	174	(23.7)	191	(16.2)	142	(37.4)
	> $42,400	3	2	(0.0)	3	(0.0)	3	(0.0)	2	(0.0)
	χ^2			2.094		1.183		1.094		4.593
	Pooled χ^2			7.409		2.162		4.321		8.264

Note. Percent reduction in parentheses, excluding missing data; *$p < .05$, **$p < .01$, ***$p < .001$

Table 7

Analysis of Standardized Residuals

		2009-10 cohort			2010-11 cohort			Pooled cohorts		
Demographic	Requirement	χ^2	Group	*SR*	χ^2	Group	*SR*	χ^2	Group	*SR*
Gender	GPA 3.0+				8.968**	Male	+2.2	11.348***	Male	+2.5
Race	GPA 3.0+	11.293*	Latina/o	+2.5	27.898***	Native	+2.6	25.727***	Latina/o	+2.5
						Latina/o	+2.0			
	FAFSA	19.273**	Native	+2.0						
	AASP Eligible	12.990*		--	12.824*	Native	+2.1			
Gender	GPA 3.0+							11.348***	Female	-2.0
Race	GPA 3.0+				27.898***	White	-2.9	25.727***	White	-2.9
									Asian	-2.2
	FAFSA				11.765*	Asian	-2.0			
	AASP Eligible							11.367*	Asian	-2.0

Note. SR = standardized residual; -- = significant residual for category with low cell count (< 5); *$p < .05$, **$p < .01$, ***$p < .001$

Significant Chi-square tests and differential impacts appear concentrated in the second and third cohorts. Increasing cohort sizes likely contribute to these effects. As cohorts grew, the data show increased variance in high school academic performance and paperwork timeliness. We can speculate that increased awareness of a new, generous need-based financial aid program may have encouraged more low-income students to apply. We will take up this point in the conclusion.

Given risks of disproportionate impact, how might administrators cut AASP costs more equitably? We re-ran simulations with incremental changes to AASP requirements (e.g., decreasing GPA by .05, changing deadlines by one week per iteration) until standardized residuals fell within the critical range. We found that setting the GPA requirement to 2.75 and the FAFSA submission deadline to March 15 removed many differential impacts we observed in the data.

Therefore, the data support all three hypotheses as expected. New AASP requirements risk reducing gender and racial diversity among future cohorts, but these requirements appear not to target the poorest students over their working-class peers. When comparing high school achievement and institutional preferences, students are as likely to lose AASP eligibility due to late FAFSAs as they are to low high school GPAs. The new requirements also call equity into question. Males and some racial minority groups whom AASP purports to serve in its mission risk being blocked from such aid in the future (Shelton, 2010).

Discussion

Today's public universities continue to face challenges in providing affordable education, enrolling bright and talented students, and promoting access among underrepresented groups. Immerwahr, Johnson, and Gasbarra (2008) interviewed college presidents who described competing concerns of cost, access, and quality as locked in an iron triangle. Ongoing disinvestment in higher education by federal and state governments and increasing pressure for institutional fiscal management represent the new normal in higher education policy. Therefore, we propose three recommendations that leverage *existing* institutional resources.

First, financial aid administrators should simulate how proposed policy changes may affect current beneficiaries before enacting them. Our study follows a simple method for doing this. Statistical software packages can create variables for new policies, cross-tabulate changes in receiving benefits, and test whether policy changes would create disproportionate impacts. If disproportionate impacts occur, then administrators can identify which policies create them and make adjustments as necessary. These steps reframe equity beyond a normative ideal and into a simple, straightforward method for policy evaluation.

Second, colleges can strengthen outreach initiatives. Public colleges have a responsibility to go into the schools and communities they purport to serve and give students the information they need to make informed decisions about continuing their education. Such work helps colleges put their mission statements into practice (Bergerson, 2009; Weisbrod, Ballou, & Asch, 2008). Tebbs and Turner (2006) found that outreach not only promoted opportunities at a selective flagship university, but also corrected mistaken assumptions about its cost, which encouraged more students to apply. University representatives and guidance counselors could team up to educate students about institutional need-based aid opportunities, explain how to apply for them, and give hands-on assistance in accessing, filling out, and submitting forms.

Third, administrators should regularly integrate discussions of institutional financial aid, diversity, and outreach into reviews of enrollment management strategies. AASP appears to be an effective vehicle for promoting gender, racial, and socioeconomic diversity beyond traditional recruitment efforts. Universities should capitalize on the successes of institutional need-based aid in diversifying student bodies.

Conclusion

This study examined how changes in eligibility requirements for institutional need-based financial aid may affect the gender, racial, and socioeconomic diversity of students receiving such benefits. Federal and state policy drift make it difficult for colleges and universities to channel sufficient need-based aid to low-income students while balancing cost and economic pressures both in and out of their control. This study contributes to the financial aid literature by combining empirical methods for evaluating institutional need-based aid with equitable approaches for managing cost and access.

Future research should continue to examine how institutional financial aid policies change in response to federal and state contexts. Postsecondary administrators require guidance in coordinating institutional financial aid, enrollment management, and commitments to serve underrepresented students. This balance is particularly crucial for public universities: large and resource-rich institutions with a stake in educating state citizens and creating opportunities for the next generation.

Nexus: Connecting Research to Practice

- Higher education administrators can put equity into practice by simulating the effects of financial aid policy change before putting it into practice. Statistical software can measure and test the impact of policy changes and identify policies that create unintended barriers to college access.
- Colleges and universities can target outreach toward low-income and underrepresented students. They can inform students about institutional need-based aid initiatives, explain eligibility requirements, and provide assistance in completing and submitting forms. Demystifying these processes helps students make informed decisions about where to attend college and how to pay for it.
- Higher education administrators should integrate financial aid policy, outreach initiatives, and diversity measures into broader student enrollment discussions. Administrators should regularly assess how and to what extent institutional programs promote gender, racial, and socioeconomic diversity in student bodies. Regular discussion of university mission statements can facilitate evaluation proceedings.

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Endnotes

[1] "Underrepresented students" refer collectively to students with membership in racial and ethnic minority groups and those from lower socioeconomic strata (see McGlynn, 2011).

[2] Chi-square tests generate an omnibus indicator of differences in means or values across a set of k categories. The null hypothesis is that the mean values m_k for k categories are equal (i.e., $m_1 = m_2 = \ldots m_k$). A standardized residual improves the omnibus test by identifying which categories have the greatest departure from the grand mean. It is calculated as the difference between the observed and expected values of a two-by-two contingency table, divided by the square root of the expected value. Residuals resemble F statistics. The critical value for a 95% confidence interval is $\pm$ 1.96 (Agresti, 2007; Sharpe, 2015).

[3] Data were missing from 13 cases in the 2008-09 cohort, 51 cases in the 2009-10 cohort, and 37 cases in the 2010-11 cohort. However, gender, racial and ethnic classification, and eligibility requirements were missing at random; no socioeconomic information was missing. We also excluded two other/multiracial students in the 2009-10 cohort due to low cell counts.