Examining the Role of On-Campus Support Services in Facilitating the Transition to College

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Abstract. Postsecondary institutions are increasingly focused on ways to improve student retention and degree completion, particularly as more states shift to performance-based funding formulas. However, little is known about how on-campus support services currently facilitate students' transition to and through college. While there is theoretical reason to believe these services are positively associated with student outcomes, less is known empirically about which student access these resources, how use of these resources correlates to students' sense of belongingness and college persistence, or even how students learn of and interface with these services. In this paper, I look descriptively at students' use of on-campus support services using the nationally representative Beginning Postsecondary Students Longitudinal Survey in addition to a detailed, campus-specific survey from the University of Arkansas. Additionally, I conduct a series of interviews with current undergraduate students. My analyses indicate students' ability to access on-campus resources is correlated with their background characteristics and personality, and may be hindered by faculty and staff's lack of awareness of available services. Further, students face a variety of logistical, emotional, and social barriers to accessing these services. However, students who are able to utilize on-campus resources report higher levels of a sense of belonging and college persistence.

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I. Introduction

The share of high school graduates who enroll in a postsecondary institution, whether a two or four-year public, private, non-profit, or for-profit institution, increased from 63 percent to 70 percent between 2000 and 2016 (National Center for Education Statistics, 2018). However, the six-year graduation rate for first-time enrollees was just 58.3 percent in 2018 (Shapiro et al., 2018). Taken as a whole, the share of young adults with a bachelor's degree has grown slowly over the past four decades; the share of 25-29-year-old adults holding a bachelor's degree grew from 21 percent to 33 percent between 1975 and 2015 (Ryan & Bauman, 2016). Further, there are large gaps in rates of postsecondary completion between students with different backgrounds. While 63.9 percent of first-time, full-time white students who entered a four-year university in 2010 completed their bachelor's degree within six years, only 39.7 percent of black students and 54.4 percent of Latino/a students completed a bachelor's degree within six years (National Center for Education Statistics, 2016). Additionally, there were large gaps in bachelor's degree completion rates between students from different Asian Pacific Islander backgrounds, with completion rates ranging from 4 percent to 76 percent (Museus, 2013). Holding a postsecondary credential is increasingly the gateway to a higher income, certain indicators of health, and other quality of life indicators, in addition to positive social benefits (McMahon, 2018; Oreopoulos & Petronijevic, 2013; Oreopoulos & Salvanes, 2011; Autor, 2014; Galama, Lleras-Muney, & van Kippersluis, 2018). However, individuals have unequal access to these outcomes due to inequities in postsecondary credential accumulation.

Postsecondary institutions are increasingly focused on improving degree completion rates, particularly as more states adopt performance-based funding structures (Snyder & Fox, 2016). There is some evidence to suggest that as states tie funding to degree outcomes and, in

particular, outcomes for students from historically underrepresented backgrounds, universities are investing more heavily in student support services (Kelchen & Stedrak, 2016). Universities are working collaboratively to diversify campuses, increase first to second-year persistence, and increase graduation rates through organizations such as the American Association of State Colleges and Universities and the Association of Public and Land-Grant Universities. These efforts are examples of universities engaging in action research to promote student success. However, it is important to understand the context in which these efforts are playing out; specifically, it is critical to understand the extent to which current student support services facilitate postsecondary completion, which students utilize on-campus resources, and what barriers prevent students from accessing these resources.

In this chapter, I examine on-campus student support services from three perspectives. First, I use the Beginning Postsecondary Study: 2012/14 to examine the association between support service utilization and postsecondary persistence, as well as potential mechanisms by which support services may facilitate student outcomes. Second, I use a detailed campus-wide survey administered at the University of Arkansas-Fayetteville to examine the extent to which students utilize on-campus resources, predictors of resource utilization, and the association between resource utilization and feelings of belongingness. Finally, I conduct interviews with current students at the University of Arkansas-Fayetteville to gain insight into students' experiences with on-campus resources, including how they become aware of different on-campus resources, which ones are most impactful for their collegiate experience, and what challenges they experience when attempting to utilize these resources. By using a multi-tiered lens to examine student support services, I am better able to describe the structures currently in

place to facilitate postsecondary completion and to identify currents strengths and areas of improvement for these resources.

I find that, nationally, the majority (over 69 percent) of students report using academic advising services, but less than 40 percent of students report using academic support services. At a large, flagship state university, I find that 60-76 percent of students use at least some on-campus resources, with about 53 percent using at least three types of resources. Further, there are differences in characteristics between students who are likely to use and who are not likely to use on-campus support services. Specifically, students with lower achievement throughout high school and students from lower-income families are less likely to use on-campus resources, while more extraverted, neurotic, higher-income, and previously higher-achieving students are more likely to utilize on-campus support services. Students identify professors and resident assistants as important but inconsistent sources of information about the availability of on-campus resources. Further, students identify logistical hurdles, peer warnings, and personal stigmas as barriers to accessing resources.

The remainder of this chapter proceeds as follows: First, I discuss the literature examining barriers to postsecondary degree completion and promising strategies for improving student outcomes. Next, I describe the Beginning Postsecondary Study, my methods of analysis, and results. I then discuss the on-campus survey administered at the University of Arkansas, strategies for analysis, and results. Fourth, I describe the student interviews and main themes revealed through those conversations. Finally, I synthesize my findings across data sources and analyses and offer suggestions for future research and practice.

II. Prior Literature

Historically, higher education has been the province of elite, wealthy, white men in the United States; the majority of men did not enroll in college until about 1945, and the majority of women did not enroll in college until about 1950 (Goldin & Katz, pp. 250). As such, the traditional organization of postsecondary institutions was not designed with certain populations in mind, creating barriers to success. In particular, students of color (Conrad & Gasman, 2015; Flores & Park, 2013; Hurtado & Carter, 1997), first-generation students (Engle, 2007), students coming from the foster care system (Cutler White, 2018; Fox & Zamani-Gallaher, 2018; Salazar, Jones, Emerson, & Mucha, 2016), and students with psychiatric disabilities (Jones, Brown, Keys, & Salzer, 2015) have been identified as particularly at risk of being left behind by current institutional structures.

In addition to student characteristics, certain institutional characteristics correlate with students' postsecondary outcomes. For example, counter to overall trends in postsecondary completion, students of color who enroll at a minority-serving institution in Texas complete a postsecondary credential at the same rate as white students (Flores & Park, 2013). Researchers characterize minority-serving institutions as student-centered, adaptable organizations determined to meet their students' unique challenges to promote success (Conrad & Gasman, 2015). In a national quasi-experimental study, Melguizo (2010) finds that students of color are more likely to persist and complete a bachelor's degree than their peers with similar background characteristics and levels of prior achievement when they enroll in more selective institutions. Universities can also experiment with different pedagogical approaches that may promote student success, such as active learning or promoting a balance between face-to-face and online instruction (Braxton, Milem, & Sullivan, 2000; Shea & Bidjerano, 2018).

Theoretical models of postsecondary persistence and completion incorporate the academic, social, and psychological needs of students transitioning into college and into adulthood. Tinto (1993) emphasizes that the college setting has both an academic and social system, with each comprised of various subcultures with their own norms, values, and expectations (pp. 104-105). If students are not able to establish an interactive membership with a particular community, Tinto argues, they will be at greater risk of dropping out (1993, pp. 106). Empirically, researchers find that students' sense of belonging in individual classes and in the postsecondary setting more broadly is associated with motivation in particular classes and persistence (Freeman, Anderman, & Jensen, 2007; Braxton, Milem, & Sullivan, 2000). Recent models of student persistence emphasize the importance of creating culturally responsive and culturally relevant environments that do not require students to choose between their cultural background and a stereotypical college-student identity (e.g. Museus, Yi, & Saelua, 2017). Additionally, psychologists emphasize the importance of recognizing the unique developmental needs of emerging adulthood to allow students to thrive in the postsecondary setting (e.g. Demetriou & Powell, 2015).

Researchers have tested many hypotheses stemming from these theoretical models of student persistence in postsecondary education. The literature largely affirms the importance of developing a strong sense of belonging and building meaningful interpersonal relationships on campus. Faculty play a significant role in creating an environment in which students can succeed, with research indicating that as faculty become more engaged, student-centered, and culturally responsive in their practice, student retention and completion may increase (Means & Pyne, 2017; Stevenson, Buchanan, & Sharpe, 2007; Kinzie, 2005; De Sousa, 2005; Hurtado & Carter, 1997). Extra-curricular opportunities to engage with a broader community, such as

undergraduate research, cohort-based learning communities, and Greek life, can also improve students' performance, retention, and degree completion (Collins et al., 2017; Xu, Solanki, McPartlin, & Sato, 2018; Byun, Irvin, & Meece, 2012). These interventions help students create membership within particular communities on campus, increasing their sense of belonging and postsecondary outcomes.

Research also indicates the importance of affirming students' identities. Means and Pyne (2017) find that identity-based centers, such as multicultural student centers or Latino/a student organizations, help students develop positive self-images as college students and increase their sense of belonging on campus. The spaces and organizations that foster a sense of belonging may vary between student groups. For example, Vaccaro and Newman's (2016) qualitative findings suggest that white students may feel a strong sense of belonging in their campus community when they have friends with whom they are able to have fun and enjoy themselves, while students of color may feel a greater sense of belonging when they are able to build deep, authentic relationships with others.

Interventions designed to address specific challenges students face can also increase persistence and degree completion. For example, Mabel and Britton (2018) find that 33 percent of college dropouts left after completing 75 percent of their graduation requirements and that a lack of preparedness for upper-level courses or a lack of awareness of degree requirements may contribute to this pattern of late departure. An evaluation of the federal Student Support Services program (a TRIO program), and academic advising, in particular, finds these services lead to increased rates of persistence and degree completion (Zhang, Chen, Hale, & Kirshstein, 2005). Additionally, increases in financial aid, whether in the form of work-study, loans, or scholarships/grants, are linked to increases in student persistence and degree completion (Scott-

Clayton & Zhou, 2017; Dynarski & Scott-Clayton, 2013; Denning, 2018; DesJardins & McCall, 2010). Finally, research indicates the efficacy of comprehensive supports for students facing a variety of barriers to postsecondary support (Jones, Brown, Keys, & Salzer, 2015; Cutler White, 2018; Daugherty, Johnston, & Tsai, 2016; Means & Pyne, 2017), especially those programs that allow students to maintain a relationship with a staff member over time (Salazar, Jones, Emerson, & Mucha, 2016; Engle, 2007).

Postsecondary success is the product of a complex interplay among academic performance, social networks, and personal development. When universities provide support to students along these dimensions, students from various backgrounds can overcome a myriad of obstacles to obtain a postsecondary credential. However, universities cannot force students to utilize resources designed to facilitate their success, nor can universities compel students to disclose all the challenges they may be facing during their postsecondary experience. Indeed, while there have been numerous studies looking at specific interventions within certain vulnerable student populations, there is a dearth of knowledge about current student utilization of on-campus resources among the general student body. Specifically, we know little about the extent to which students voluntarily utilize on-campus resources such as academic advising, tutoring, multicultural spaces, or mental health services. Further, we do not know how students learn about these services, what challenges they encounter when attempting to utilize these resources, or how these services shape students' collegiate experiences.

I address these gaps in the literature by asking three related sets of questions using three distinct analytical approaches. First, I use a nationally representative survey to provide a high-level overview of which students are most likely to utilize on-campus resources as well as to suggest potential ways in which support services shape students' collegiate experiences. Next, I

look specifically at the University of Arkansas-Fayetteville, which is in a state with a performance-based funding formula, to gain a more detailed understanding of which students are most likely to use on-campus support services, how frequently students use these services, and how many services students tend to utilize. Finally, I conduct a series of interviews with current undergraduate students at a four-year university to understand students' experiences with on-campus services, including how they learn of these resources, what challenges they face in accessing these resources, and how these services shape their overall collegiate experience. Each approach has distinct advantages. The national survey allows me to paint a broad, representative picture of the current state of service utilization and suggests ways in which on-campus resources are serving students, but does not provide many details about what resources students are using or how frequently. The campus survey allows me to go into greater detail about which services students utilize and how frequently. Further, I am able to look at differences in service utilization based not just on basic demographics, but also by differences in personality, which prior work has linked to differences in academic achievement, major selection, grade point average, and college completion (Humburg, 2017; Lundberg, 2013; Kappe & van der Flier, 2012; Poropat, 2009; Lufi, Parish-Plass, & Cohen, 2003). Finally, the student interviews add nuance to our understanding of how students interface with on-campus support services. All three analyses suggest areas for future research while describing the current state of support services at two and four-year postsecondary institutions.

III. National Overview

In this section, I look descriptively at national patterns in student services utilization. I use the Beginning Postsecondary Students Longitudinal Study: 2012/14 (BPS: 12/14) to provide a national representative overview of the extent to which students utilize on-campus resources,

which student characteristics predict resource utilization, and whether or not resource utilization predicts persistence and a sense of belonging. I begin by describing the dataset, then discuss the methods used and present results.

A. Data

The Beginning Postsecondary Students Longitudinal Study (BPS) is a nationally representative longitudinal survey designed, administered, and maintained by the National Center for Education Statistics (NCES). A subset of students who participate in the National Postsecondary Student Aid Study (NPSAS) is selected to participate in the BPS; the BPS: 12/14 draws from the pool of students who completed the 2011-12 NPSAS. Students are initially surveyed in 2011-12, then again in 2014, during a survey window that begins in February 2014 and ends in November 2014. Additionally, NCES obtains administrative records through the National Student Clearinghouse, the Central Processing System, and the National Student Loan Data System to include enrollment and financial aid information in the BPS (Hill et al., 2016). The sample is stratified by institution type as well as students' degree type and major; weights are included to adjust for nonresponse and to account for the unequal likelihood of selection into the survey across institutions and students (Hill et al., 2016).

Because I have access to students' responses from 2014, I observe students' persistence decisions in their second year. As additional waves of the survey become available[1], researchers could examine the relationship between service utilization and degree completion. Additionally, researchers could conduct path analyses to examine whether the mechanism underlying this

[1] Prior waves of the BPS include measures of degree completion; however, prior waves surveyed students who began college in 1990, 1996, and 2004, respectively, before states implemented performance-based funding schemes that prioritized student retention and completion (Dougherty et al., 2014). Thus, prior waves do not provide direct information on how students interact with on-campus support services in the current policy context. Additionally, the BPS: 12/14 asked students directly about their utilization of academic advising, financial aid advising, and career services (Hill et al., 2016), while prior waves did not (e.g. Wine, Cominole, Caves, & Hunt-White, 2009).

relationship is students' sense of belonging. The BPS: 12/14 restricted-use dataset includes 20,310 observations.[2] I first restrict this sample to students in two or four-year institutions, reducing my sample to 19,440. This sample restriction allows me to focus on students in more traditional postsecondary settings who likely interact with support services that are oriented towards similar goals and work within similar structures. I further limit my analytic sample to students with complete information; with these restrictions, my analytic sample contains 14,480 observations. Table 1 presents the demographics of students in my analytic sample. I calculate all descriptive statistics using the recommended survey weights and bootstrapping procedures described in Hill et al. (2016).

As shown in Table 1, white students comprise just over half the sample; Latino/a students comprise the second largest group in the sample, followed by Black students, Asian students, multiracial students, American Indian/Alaskan Native, and Native Hawaiian/Pacific Islander students. Female students comprise 55 percent of the respondents. Slightly less than 20 percent of students surveyed are the first in their immediate family to attend college. The majority of students surveyed in the BPS:12/14 are enrolled at four-year institutions, with 42 percent of students enrolled in two-year institutions.

Table 2 presents additional demographic characteristics of the sample used in the analyses presented below. These summary statistics of continuous variables are calculated using the sample weights recommended by NCES and bootstrapping replication procedures for variance estimation (Hill et al., 2016).

The average age of a respondent is about 19-20 years of age, with an expected family contribution of $13,000. Students report an average high school GPA of about six on a seven-

[2] In compliance with NCES regulations, all observations are rounded to the nearest 10 to protect respondents' anonymity.

point scale; average SAT scores are similarly respectable, with an average of about 1019. On average, students travel 150 miles from their homes to their institution of higher education. With this understanding of the data source used for my first research question, I turn now to the analytic strategy for this section of the paper.

B. Analytic Strategy

My aim is to provide a descriptive overview of the extent to which students utilize on-campus support services, which student characteristics predict resource utilization, and whether resource utilization predicts second-year persistence and a sense of belonging. I first calculate the share of students who report using any on-campus support services, then break out results by type of support service: academic advising, academic support services, career services, or financial aid advising. Next, I run discrete choice Probit models expressing the likelihood of resource utilization as a function of student characteristics, a vector of state fixed effects, and a vector of institution type fixed effects. I employ student-level weights and bootstrapping variance estimation procedures as recommended by the BPS:12/14 to account for non-response and the stratified sampling procedures used for data collection (Hill et al., 2016). This model can be expressed as:

$$(1) \qquad P(y = 1|x) = \Phi(\beta_0 + \boldsymbol{\gamma stuchars} + \boldsymbol{\tau State} + \boldsymbol{\varphi instsector} + \varepsilon_i),$$

where outcome y is a dummy variable indicating, in turn, using no on-campus support services, using academic advising, using academic support services, using career services, and using financial aid advising. The vector $stuchars$ includes student age, race, gender, expected family contribution, high school GPA, composite SAT score[3], distance between a student's home and

[3] For students who submitted ACT scores, scores were converted onto the SAT score by NCES.

first institution, and an indicator for whether or not the student is a first generation student. I also include state and institution sector fixed effects, captured by τ and φ, respectively.

I then express an indicator of second-year persistence as a function of on-campus resource utilization, student characteristics, institution type, a vector of state fixed effects, and institution sector effects. I again employ student-level weights as recommended by the BPS:12/14 technical manual and bootstrap standard errors. This model can be expressed as:

$$(2) \qquad P(y = 1|x) = \Phi(\beta_0 + \delta support_i + \boldsymbol{\gamma stuchars} + \boldsymbol{\tau State} + \boldsymbol{\varphi instsector} + \varepsilon_i),$$

where t $y = 1$ indicates second-year persistence. I first define $support$ as a dichotomous indicator of whether the student reported not using on-campus resources, then include an indicator for each specific type of support service included on the survey: academic advising, academic support services, career services, and financial aid advising. The remaining control variables are as described above.

As an exploratory analysis of a potential mechanism by which support service utilization could improve postsecondary outcomes, I also model the relationship between students' sense of belonging and support service utilization. As Tinto (1993) and others theorize, finding community on campus is an important aspect of students' collegiate experiences and may be necessary for student success. The survey included a single item measuring the extent to which students felt like they belonged on campus. Students respond to the belonging item on a 5-point scale. I dichotomize this variable, coding students as one (high belonging) if their response is "strongly agree" and as zero (low belonging) if their response is anything else.[4] I regress this indicator of belongingness on an indicator of whether or not they used on-campus resources,

[4] A descriptive histogram of students' responses to this item indicated that almost 50 percent of students marked "strongly agree" to the question, leading me to split the sample in this way. In an alternative specification that takes into account the full distribution of responses, I standardize the variable and treat belongingness as a continuous variable. The results from this analysis are presented in Appendix A.

student characteristics, a vector of state indicators, and institution sector fixed effects. This Probit model is given by:

$$(3) \qquad P(y = 1|x) = \Phi(\beta_0 + \delta support_i + \boldsymbol{\gamma stuchars} + \boldsymbol{\tau State} + \boldsymbol{\varphi instsector} + \varepsilon_i).$$

With this description of the analytic strategy used to answer my first research question, I turn now to the results of these analyses.

C. Results

Before presenting the results related to the predictors of the use of support services, it is helpful to know the extent to which students use on-campus support services at all. Among my analytic sample, 89% of students report using some support service on campus. When broken down into different types of services, 69.4 percent of students report using academic advising, 36.4 percent report using academic support services, 17.0 percent report using career services, and 55.7 percent report using financial aid advising. I turn now to the results of my analysis of the predictors of on-campus resource utilization, then discuss the relationship between service utilization and persistence before concluding by presenting the relationship between resource use and a sense of belonging.

1) Predictors of On-Campus Service Utilization

Table 3 presents the marginal effects from the Probit models predicting, in turn, utilization of academic advising, academic support services, career services, financial aid services and no services as a function of student characteristics, as described in Equation (1).

As shown in Table 3, older students are significantly less likely to report using academic advising but are slightly more likely to use academic support services. Native Hawaiian/ other Pacific Islander students are 7.6 percentage points more likely to use academic advising than white students; there are no other differences in reports of use of academic advising by student

race. However, there are differences by race in use of other on-campus resources.[5] Black, Latino/a, Asian, and Native Hawaiian/other Pacific Islander are about six percentage points more likely than white students to report using academic support services, career services, and financial aid advising. Multiracial students are about five percentage points more likely than white students to use academic support services and financial aid advising. Students from higher-income families are more likely to use academic advising and academic support services, but are less likely to use financial aid advising. Differences in service utilization by family income are slight, however; an increase in family wealth represented by a $1,000 increase in expected family contribution is associated with a 0.1 percentage point increase in the likelihood of utilizing academic advising and a 0.5 percentage point decrease in the likelihood of utilizing financial aid advising. Female students are 4.4 percentage points more likely than male students to use any on-campus resource, and are significantly more likely to use academic advising, academic support services, and financial aid services. Students with higher levels of academic preparation, measured both by high school GPA and SAT score, are more likely to report using any on-campus service, but this difference is slight, about a half of a percentage point. First generation students are less likely to use academic advising and career services than continuing generation students but are three percentage points more likely to use financial aid advising.

Overall, Table 3 indicates that higher-achieving students, female students, and students of color are more likely to report using on-campus support services. It is encouraging that students of color are often utilizing on-campus support services, as prior research indicates students of color, in particular, may benefit from engaging in affirming, academically supportive

[5] These results are robust across model specifications. In particular, race is only weakly correlated with first generation status (no correlation above 0.11; full correlation matrix available upon request), and results do not change when first generation status is omitted as an explanatory variable.

environments (e.g., Means & Pyne, 2017; Conrad & Gasman, 2015). However, first-generation students are less likely to utilize academic and career-centered services, students from lower-income families are less likely to use academic advising and academic support services, and students who are lower-achieving in high school are less likely to use academic and career services. Although differences in usage between these groups are small, these patterns may still be of concern to universities, since these student populations tend to be at higher risk of dropping out (e.g. Mabel & Britton, 2018; Engle, 2007; Walpole, 2003; Terenzini, Cabrera, & Bernal, 2001). Universities may therefore be particularly interested in how to expand access to on-campus resources to these students. With this understanding of the differences in which students are likely to utilize on-campus resources, I turn now to look at the consequences of utilizing (or not) these services.

2) On-Campus Service Utilization and Second-Year Persistence

This section explores the relationship between on-campus service utilization and persistence into students' second year in college. Students are counted as persisting if, in 2014, they report either still being enrolled in higher education or if they report having already completed their degrees. Students are first surveyed in the 2011-12 school year when they are first-time college students; the first follow-up survey is administered between February and November 2014, spanning the spring semester of their second year and the fall semester of their third year. Table 4 presents the relationship between service utilization and persistence. I include indicators of service utilization in students' first year (2011-12) as the main explanatory variables.

As shown in Table 4, the use of academic advising, academic support services, and career services are positively associated with second-year persistence, even after controlling for student

demographics, prior achievement (high school GPA and composite SAT score), state fixed effects, and institution sector fixed effects. In confirmation of this result, students who report using no services in their first year are 3.7 percentage points less likely to persist beyond their first year. Consistent with prior research, older students, Black students, students from lower-income families, male students, lower-achieving students, and first-generation students all have lower likelihoods of persistence in this sample.

Use of on-campus support services is significantly and positively related to second-year persistence, but the mechanism by which these services facilitate student success is unclear. These services could help students build useful skills that allow them to succeed academically, or students may find membership in a community on campus by engaging with these resources. It could also be that characteristics not measured by the BPS: 12/14, such as students' personality or family pressures, influence both students' likelihood of utilizing on-campus resources and of persistence. I am not able to make causal claims about the impact of support services on college persistence with this analysis, as students choose whether or not to use on-campus resources and these decisions may be correlated with unmeasured factors that also affect students' persistence decisions; I am only presenting descriptive associations between resource utilization and persistence. As an exploratory analysis, however, it is interesting to look at a potential mechanism by which support services could influence students' experiences and outcomes. Namely, theorists emphasize the importance of a sense of belonging for student persistence and eventual degree attainment (e.g. Tinto, 1993; Freeman, Anderman, & Jensen, 2007; Braxton, Milem, & Sullivan, 2000). Therefore, I look next at the relationship between students' sense of belonging and on-campus resource utilization.

3) On-Campus Service Utilization and Sense of Belonging

Table 5 presents the results of my analysis looking at the relationship between on-campus resource utilization and students' sense of belonging on campus. Unlike above, there is not a lag between service utilization and the outcome measure; students in their first year (2011-12) report service utilization, which is also when students report the extent to which they "felt like a part of the institution." While the simultaneous measure of service utilization and a sense of belonging allows for the potential of reverse causality, whereby students who feel a greater sense of belonging are more likely to use on-campus resources, this approach has two main advantages over measuring sense of belonging in 2014. First, such an analysis would limit my sample just to students who persisted into their second year, which would also introduce concerns of a bidirectional relationship between belonging and service utilization. Second, I am not making any causal claims in this analysis; my objective is simply to present a descriptive overview of which students use on-campus resources and the correlates of such resource utilization. Thus, the use of a larger, more representative sample is more important than a clean identification of a unidirectional relationship between service utilization and a sense of belonging.

As shown in Table 5, the use of on-campus services is positively and significantly associated with students' sense of belonging. Specifically, the use of academic advising, the use of academic support services, and the use of financial aid services are each associated with a two to three percentage point increase in the likelihood a student will report a strong sense of belonging. The relationship between the use of career services and belongingness is even stronger; students who report using career services are 6.9 percentage points more likely to report a strong sense of belonging. Conversely, students who report using no on-campus services are 5.5 percentage points less likely to report a strong sense of belonging. There are few

differences in sense of belonging by student race, gender, or first-generation status. However, students from higher income families report feeling more connected to their institution than their peers from lower income families. Interestingly, while students with higher reported high school GPAs report higher levels of belongingness, students with higher SAT scores report lower levels of campus belongingness. This incongruity points to a need for further exploration of the relationship between prior achievement and sense of belonging. There is only a 0.37 correlation between students' high school GPA and SAT score, indicating these measures are capturing different domains of students' baseline capabilities; the SAT score may be capturing more of students' cognitive ability, while high school GPA may be capturing more of students' non-cognitive ability. Certain non-cognitive skills that are rewarded by classroom grades, such as timeliness, conscientiousness, or the ability to work in a group, may also facilitate students' social integration at a university, while intellectual ability alone may not facilitate such engagement.

The data from the BPS:12/14 present only a broad outline of whether and how students engage with on-campus support services. For example, students report whether they have ever used services in each of four broad sectors of campus life, but not the frequency with which they use these resources. Additionally, the BPS provides a standard set of demographic variables, but does not measure all student characteristics that may influence whether students utilize on-campus services. In the next section, I present results from an institution-specific survey that allows me to go into greater detail when describing whether and how students engage with on-campus services as well as which students are more likely to utilize these resources.

IV. Student Survey at the University of Arkansas

In this section, I describe the results of a student survey deployed at the University of Arkansas-Fayetteville (U of A), the state's flagship university. Snyder and Fox (2016) classify Arkansas' higher education funding system as a Type 3 performance-based funding system, which means universities' funding substantially depends on how well they perform relative to the state's rubric. Further, all institutions of higher education are subject to performance-based funding, and outcomes for historically underrepresented students are given additional weight in the rubric (Snyder & Fox, 2016). The U of A is investing heavily in efforts to promote student retention and degree completion by reorganizing the administration of on-campus resources and committing additional funding to student services (University of Arkansas, 2017). Thus, the U of A is an ideal location for a study to examine students' experiences with on-campus resources, including the extent to which they know about and utilize these services, which students are likely to engage with these resources, and what barriers prevent students from utilizing these services.

While this survey relies on a convenience sample of student respondents rather than a representative sample like the BPS: 12/14, this work nonetheless makes an important contribution. In particular, the survey administered at the U of A provides a much more detailed picture of students' usage of on-campus resources by asking students to report their usage multiple on-campus services rather than whether they use three broad categories of services, as in the BPS. Second, as a cross-sectional dataset, the U of A survey allows me to examine how upperclassmen interact with on-campus services rather than just first-year students as on the BPS: 12/14. Finally, I include additional student characteristics, including personality traits,

which allows me to develop a more nuanced description of which students utilize on-campus resources and how on-campus resources are related to students' sense of belonging.

A. Data

In order to obtain a more detailed understanding of which students utilize on-campus resources and whether resource utilization is correlated with measures of postsecondary success, I deployed a web-based survey at the University of Arkansas-Fayetteville during the fall of the 2018-19 school year. I advertised the survey to students through an on-campus daily electronic newsletter; additionally, individual professors agreed to send the survey directly to their class lists. The full survey instrument is available on request.

There are separate versions of the survey for freshmen and upperclassmen, each consisting of 70 items; estimated survey completion time is 15-20 minutes. On the survey, students report demographic information, including gender, race, parental education, Pell grant receipt, the Big Five personality traits, academic information (including merit scholarship receipt, current GPA, and high school GPA), and awareness and utilization of on-campus resources. The rich set of student characteristics allows me to examine in greater detail which students are likely to take advantage of available resources on campus as well as to better control for student characteristics when estimating the association between on-campus utilization and students' sense of campus belonging. In particular, I include personality measures on the U of A survey that are not available on the BPS: 12/14 survey. Psychologists generally regard personality as a semi-stable mix of behaviors, internal processes, and environmental conditions that influences an individual's habits, goals, and actions (Fajkowska, 2017). Personality can be measured in terms of broad traits, such as agreeableness, or narrow traits, such as locus of control (Credé, Harms, Blacksmith, & Wood, 2016). The Big 5 factor theory of personality

(Goldberg, 1993; McCrae & Costa, 1997) defines five broad personality traits: conscientiousness, extraversion, agreeableness, negative emotionality (or neuroticism), and open-mindedness. Researchers have linked these personality traits to a range of individual outcomes, including collegiate academic performance (Komarraju, Karau, Schmeck, & Avdic, 2011). I include the short form of the Big 5 Inventory (Soto & John, 2017) on the U of A survey. The short form of the inventory consists of 30 five-point Likert-type items. I score students' responses to these items following the recommendations laid out in Soto and John (2017).

In total, 446 individual students completed the survey; 289 (65.38%) were upperclassmen and 153 (34.62%) were freshmen. One student did not report their grade level and is excluded from the analysis; an additional observation is excluded because the student reported an implausible age. Of the 289 upperclassmen who began the survey, 235 (81.31%) completed enough items to be included in the analytic sample. Of the 153 freshmen who began the survey, 137 (89.54%) completed a sufficient number of items for the analysis. Table 6 describes the demographic characteristics of students who completed the survey.

As shown in Table 6, over half of the upperclassmen in the sample are women, as are over three-quarters of freshman survey respondents. Less than half of the students report graduating from high school in Arkansas. Both upperclassmen and freshmen report an average GPA of 3.7 on a four-point scale. About 53 percent of upperclassmen and 58 percent of freshman respondents have received or are currently receiving a merit-based scholarship. Both upperclassmen and freshmen respondents report having slightly better than a B average in their postsecondary courses. Around 25 percent of students are first-generation students. Students of color account for 19 percent of upperclassmen respondents, but only 15 percent of freshmen

respondents; conversely, Pell-eligible students are more highly represented among freshmen respondents.

Students in the U of A sample differ in important ways from the BPS: 12/14 sample used in the prior analysis. First, the U of A sample includes upperclassmen, while the BPS only includes students in their first year on campus. Second, all students at the U of A are enrolled at a four-year institution, while in the BPS:12/14 sample only about 65 percent of students are enrolled at a four-year institution. Next, less than 60 percent of students in the BPS: 12/14 sample are white, while 82 percent of students in the U of A sample identify as white. Almost 25 percent of U of A respondents are first-generation college students, compared to only 15 percent of BPS: 12/14 respondents. Additionally, the share of female respondents is larger in the U of A sample than in the BPS: 12/14 survey; 63 percent of U of A respondents are women, while 55 percent of BPS: 12/14 respondents are women. The age of respondents varies more in the BPS: 12/14 sample than in the U of A sample; students in the BPS sample report ages of 15-75, while respondents in the U of A sample report ages of 18-45. Academically, the two samples are similar; respondents at the U of A report about a B average in high school and respondents in the BPS sample report an AB[6] average in high school. In both samples, the average student would not expect to receive a Pell grant.

Students report their use of, or knowledge and intentions of use, of 17 different on-campus resources: academic advising, the Career Development Center, the Center for Educational Access, the Center for Learning and Student Success, the Center for Multicultural and Diversity Education, CLASS + Writing Support, the Spring International Language Center, Counseling and Psychological Services, financial aid advising, the Full Circle food pantry, the

[6] The BPS: 12/14 survey reports high school GPA on a 7-point scale: A, AB, B, BC, C, D, and F. The survey at the U of A asked students report their high school GPA on a 4-point scale: A, B, C, D, and F.

Math Resource and Tutoring Center, the Pat Walker Health Center, professors' office hours, teaching assistants' office hours, Student Support Services, mentoring with a staff mentor, and mentoring with a student mentor. For each service, upperclassmen report their usage in the past academic year on a four-point scale: never, rarely (1-2 times), frequently (3-6 times), or often (weekly +). Similarly, freshmen report their intended usage on a five-point scale: never heard of, definitely will not use, probably will not use, probably will use, or definitely will use. Histograms of upperclassmen and freshmen students' responses for each service are presented in Appendix B. I exclude academic advising from the following analyses because students are required to go to academic advising in their freshman year, and the majority of upperclassmen (94%) report having used academic advising at least once in the prior year as well; this lack of variation makes it difficult to include advising in the models.

With this understanding of my sample, I turn now to my analytic strategy for examining students' responses to the survey.

B. Analytic Strategy

As with my analysis of the BPS: 12/14, my goal is to provide a descriptive overview of which students utilize on-campus services and whether service utilization is associated with postsecondary outcomes. The campus survey asks students about their use or knowledge of a comprehensive list of on-campus resources, which I collapse into four categories. Specifically, I ask about academic resources such as tutoring or attending office hours, wellness resources such as mental health services or an on-campus food pantry, multidimensional services such as the multicultural center or mentoring programs, and future planning services such as financial aid advising and the Career Development Center. Academic services provide a straightforward, well-defined resource for students: help explaining math concepts, providing feedback on written

work, and so on. Wellness services also provide a well-defined resource for students: physical or mental health care. Multidimensional services are less straightforward: students may receive academic support, but they are also given space to explore their identities, develop lasting relationships, and fulfill other socioemotional needs. Finally, future planning resources help students understand and plan for future challenges and opportunities. I group the services into these four categories for the sake of brevity and ease of interpretation.[7]

I run each model described below separately for upperclassmen and freshmen respondents. While upperclassmen report whether or not they actually used a particular resource in the prior academic year, freshmen indicate if they know about each resource and their intended likelihood of usage. Splitting the sample allows me to see which students are likely to know about the services and which are likely to use them as well as if there are certain groups who, while knowing about the existence of these services, are unlikely to use them. Such a pattern would indicate that the barriers to resource utilization are not due to a lack of information or advertising but are instead due to some other factor.

Less than 10 percent of respondents report never using or having no intentions of using any on-campus resources. The share of non-users is similar to the less than 11 percent of respondents in the BPS: 12/14 who report using no services. Unlike the BPS: 12/14 data, I have detailed information about students' frequency of use of each on-campus service. I therefore model the likelihood that a student will be a frequent user of on-campus services rather than predicting whether a student ever uses on-campus resources to extend my findings from the BPS: 12/14. I code upperclassmen as frequent users if they report using any particular service frequently (three to six times a year) or often (weekly + in the last academic year). I code

[7] Results for individual services are available upon request.

freshmen as frequent users if they state they 'definitely will use' any particular service. I split students' responses in this way based on the frequency of responses in each category, as shown in the histograms presented in Appendix B. Freshman respondents appear to be more optimistic about their intended usage than upperclassmen, making it necessary to split the responses differently across the two groups. I predict the likelihood that a student will be a frequent user as a function of student characteristics, including demographics, prior achievement, and socioeconomic status. Specifically, I run the following discrete choice Probit model:

$$(4) \qquad P(y = 1|x) = \Phi(\beta_0 + \boldsymbol{\gamma demos_i} + \boldsymbol{\delta big5_i} + \varepsilon_i).$$

Students' personality traits are measured using the Big Five Inventory short form (Soto & John, 2017).[8] I standardize students' score for each trait for ease of interpretation. Additionally, I include student gender, race, age, high school GPA (to account for prior achievement), Pell grant eligibility (to account for socioeconomic background), and an indicator for whether the student is employed, represented by the vector $\boldsymbol{demos_i}$.[9]

We can think of service usage as consisting of two dimensions. First, students can use services to meet a variety of their needs, which may be thought of as breadth of service coverage. Second, students can use a service multiple times, which may be thought of as depth of service coverage. By predicting whether students will be frequent users of any service, I am examining the depth of service. To examine breadth of service, I conduct an ordered Probit to predict whether students will use zero services, services in one sector of campus life (academic, wellness, multidimensional, or planning), services in two sectors (any combination of academic,

[8] Alphas for each trait from 0.68 (open-mindedness) to 0.82 (negative emotionality).
[9] Students also report their majors; however, because respondents are from various disciplinary backgrounds there are not enough students in each major to include indicators for each reported major, but combining students into broader disciplinary categories introduces additional noise into the model without contributing significant explanatory power. I therefore do not include controls for students' areas of study.

wellness, multidimensional, or planning), or services in three or more sectors. This model can be expressed as:

$$(5) \qquad P(y_i = j) = \Phi\left(\tau_j - x_i'\beta\right)\left(\tau_j - \boldsymbol{x_i'\beta}\right) - \Phi(\tau_{j-1} - x_i'\beta\boldsymbol{x_i'\beta}),$$

$$Y_i = j \leftrightarrow \tau^{j-1} < Y_i^* \leq \tau^j; j = 1, \dots, m$$

$$\tau^0 = -\infty, \tau^m = \infty$$

The vector of explanatory variables, x_i', includes student gender, race, high school GPA, merit scholarship receipt, employment status, Pell eligibility, first generation status, and the Big 5 personality traits.

Finally, I am interested in the ways in which utilizing support services shapes students' collegiate experiences. The survey includes three questions that help describe students' experiences on-campus and affinity to the campus. First, I ask students where they study: at home, in a campus library, in a public space on campus, in a public off-campus space, in an on-campus resource space, or in some other space. Second, I ask students to whom they would turn if they have a question or challenge relating to academics: figure it out on their own, ask a friend, ask an experienced peer, ask a professional (university faculty/staff), or ask a family member. Third, I ask students where they met their closest circle of friends: if they knew them before they arrived on campus or if they met them through Greek life, at their dorm, through a registered student organization, or through on-campus support services. Each item captures a different dimension of students' sense of belonging on campus, and begins to suggest how these services can affect students' experiences (Milem & Berger, 1997; Astin, 1999; Pascarella & Terenzini, 1980). These items are more specific than the measure of belongingness included on the BPS: 12/14, which simply asked students to report the extent to which they felt a part of their institution. By examining specific behaviors related to whether or not students feel a strong sense

of belonging to the University of Arkansas-Fayetteville, we can gain greater insight into the relationship between use of on-campus resources and students' sense of belonging.

I code students' responses to each item as indicating a sense of affinity to the university or not. For the item asking students where they study, students are coded as feeling a sense of belonging if they report their study spot to be somewhere on campus, whether a public campus space, a campus library, or a resource space. Students are coded as not feeling a sense of belonging if they report studying at home or elsewhere off-campus. Students are coded as feeling a sense of belonging if they seek academic advice from a friend, experienced peer, or professional, and not if they seek academic advice from a family member or if they figure it out on their own. Finally, students are coded as feeling a sense of belonging if they state they made their close friends through an on-campus activity, whether Greek life, in their dorm, through a registered student organization, or through a support service. Students are coded as not feeling a sense of belonging if they state they knew all of their close friends prior to entering the university.

I estimate the likelihood a student will report a sense of belonging in each of these three areas of campus life using discrete choice Probit models. Specifically, I model belonging as a function of whether or not a student is a frequent user of on-campus support services, gender, age, race, high school GPA, Pell eligibility, first generation status, merit scholarship receipt, employment status, and personality. This model can be expressed as:

$$(6) \qquad P(y = 1|x) = \Phi(\beta_0 + \beta_1 frequentuser_i + \boldsymbol{\gamma stuchars_i} + \varepsilon_i).$$

As before, I run this model separately for freshmen and upperclassmen. With this overview of my analytic strategy in mind, I turn now to the results of my analysis of the student survey administered at the U of A.

C. Results

I begin by presenting the results of my analysis predicting frequent usage of any on-campus service(s) at the U of A.

1) Predictors of Frequent Use of On-Campus Supports

Table 7 presents the marginal effects of a Probit model predicting frequent usage (Equation 4). Overall, both upperclassman and freshman respondents report high rates of frequent usage of on-campus resources; 60 percent of upperclassmen and 76 percent of freshmen are frequent users, even after excluding academic advising from the analysis. Perhaps as a result of this limited variation, there are few significant differences in frequent usage in this sample, as shown in Table 7. Column 1 presents results for upperclassman students. Among upperclassmen, more extraverted students are more likely to be frequent users of on-campus services; specifically, a one standard deviation increase in extraversion is associated with a 10.1 percentage point increase in the likelihood of frequent service usage. Extraverted students report being outgoing, dominant, and full of energy. Additionally, a one standard deviation increase in agreeableness is associated with a 7.3 percentage point increase in the likelihood of frequent service usage. Agreeable students report being compassionate, respectful, and assuming the best about people. No other characteristics are significant predictors of frequent usage of on-campus services among upperclassmen.

Column 2 presents results for freshman students. Female freshman students are almost 14 percentage points more likely to be frequent users of on-campus services than are male freshmen; this is larger than the finding from the BPS: 12/14 that first year female students are 4.4 percentage points more likely than first year male students to use any on-campus service. Older students are also more likely to be frequent users of services. Pell-eligible students are

19.4 percentage points less likely to be frequent users of on-campus resources. The differences in likelihood of frequent usage by personality traits observed for upperclassmen are not observed among freshmen; neither extraversion nor agreeableness predicts frequent usage among freshmen. However, we do see that freshman students with higher scores of negative emotionality, also referred to as neuroticism, are more likely to be frequent users of on-campus resources, as are freshman students with higher scores on the open-mindedness scale. Students with higher scores of negative emotionality report being anxious and temperamental. Students with higher scores of open-mindedness report being original and are fascinated by art, music, or literature.

Overall, in this sample there are few differences in frequent service usage based on observed student characteristics. This pattern could indicate that the university's efforts to invest more heavily in student services are succeeding in making on-campus resources more widely known and accessible to students. However, the differences in results between the BPS: 12/14 and the on-campus survey could also be driven by differences in sampling procedures. The BPS: 12/14 is a large survey with a high response rate and clear stratification procedures to ensure its representativeness. The U of A survey is a convenience sample consisting of students who agreed to participate in a survey when asked through a campus-wide newsletter or class emails sent by a professor. Survey respondents may be more likely to use on-campus resources than the average student on campus, potentially masking differences by student characteristics. With this caveat in mind, I turn now to the results of my analysis examining the extent to which students utilize services across sectors at the University of Arkansas.

2) Predictors of Breadth of On-Campus Service Utilization

Table 8 presents the marginal effects of the ordered Probit predicting the likelihood that students would use no services, services in one sector, services in two sectors, or services in three or more sectors.

Table 8 presents the results of the ordered Probit among upperclassmen. There are few consistent patterns in terms of the likelihood a student will use services across a successively greater number of sectors, potentially because of the small sample size. Additionally, while these results may suggest patterns in the extent to which students utilize on-campus resources, they do not show the optimal level of service coverage for student success; in short, there is not a clear optimal level of service coverage. Female upperclassmen are 14.4 percentage points less likely than male upperclassmen to report using services in three or more sectors, and are 6.2 percentage points more likely than male students to use no on-campus resources. This pattern is opposite from that found in the BPS:12/14, which only examined whether students used any on-campus resources rather than service utilization in multiple sectors; the BPS also only focused on first year students, while this sample is comprised only of upperclassmen. Older students are less likely to use services in three or more sectors. Students of color are 8.1 percentage points less likely than white students to report using no services and are 18.6 percentage points more likely than white students to use services in three or more sectors. Students who are employed are 11.4 percentage points more likely to use services in three or more sectors than are students who are not working. Students scoring higher on the extraversion and agreeableness scales are significantly more likely to use services in three or more sectors. I observe no differences in the likelihood of service utilization based on prior achievement, Pell eligibility status, first generation status, conscientiousness, negative emotionality, or open-mindedness.

Table 9 shows the results of the ordered Probit for freshman respondents. There are few significant differences in service usage across student characteristics. I observe no differences in breadth of service usage by gender, age, Pell eligibility, first generation status, merit scholarship receipt, employment, extraversion, or agreeableness. Additionally, there is limited evidence of monotonic patterns of increasing utilization of services across sectors. Students who are higher achieving in high school, measured by their high school GPA, are more likely to report using no services or services in two sectors, but significantly less likely to use services in three or more sectors. Students of color are significantly less likely than their white peers to not intend to utilize on-campus services and to report intending to use services in only two sectors. Conversely, students of color are significantly more likely to report intending to use services in three or more sectors. Students with higher scores on the negative emotionality scale are less likely to report intending to use services in only two sectors but are more likely to intend to use services in three or more sectors. Finally, students with higher scores on the open-mindedness scale are more likely to report intending to use services in two sectors but are less likely to report intending to use services in three or more sectors.

With this understanding which students are utilizing on-campus resources, and how, I turn now to examining the relationship between on-campus service utilization and sense of belonging at the University of Arkansas.

3) On-Campus Service Utilization and Sense of Belonging

Table 10 presents the results of binary choice Probit models used to examine the association between whether upperclassmen are frequent users of on-campus services and their sense of belonging at the University of Arkansas. Upperclassmen who are frequent users of on-campus support services are more likely to demonstrate a sense of belonging with the university

through their choice of study location; this is encouraging given Astin's (1999) finding that students who spend more time on campus are more likely to persist in their studies. Specifically, upperclassmen frequent users are 20.3 percentage points more likely to study on-campus than are upperclassmen non-frequent users. However, there are no differences between frequent users and non-frequent users in terms of whom they go to for academic advice or where they make their closest friends, which Milem and Berger (1997), Pascarella and Terenzini (1980), and Astin (1999) indicate are measures of social integration. There are some differences by personality type. Students who score one standard deviation higher on the extraversion scale are 5.2 percentage points less likely to study on campus but are 6.9 percentage points to ask someone connected to the university for academic advice. Students who score one standard deviation higher on the open mindedness scale are 6.2 percentage points less likely to study on campus and are 5.4 percentage points less likely to make their close friends on campus. Working students are less likely to study on campus and are less likely to make their close friends on campus. Female students are more likely to make their close friends on campus than are male students, while older students and Pell eligible students are less likely to make their close friends on campus.

Table 11 presents the results of the analysis examining the relationship between frequent usage of on-campus services and sense of belonging for freshman students. Frequent usage of on-campus services is related to first year students' sense of belonging in terms of where they study and where they make their close friends, but not whom they ask for academic advice. Freshmen frequent users are 35.5 percentage points more likely to study on campus and 28.4 percentage points more likely to make their close friends on campus than non-frequent users. Older students are less likely to study on campus, but are more likely to ask someone on-campus

for academic advice. Students with higher high school GPAs are more likely to seek academic advice on campus, while students of color are less likely to seek academic advice on campus.

Similar to the results from the BPS: 12/14, students who utilize on-campus resources frequently at the U of A express a greater affinity for the university than those who do not. This association may be larger for freshmen than for upperclassmen. Beyond service utilization, few observable student characteristics significantly predict belongingness.

The survey at the University of Arkansas in part replicates the results from the BPS: 12/14. For instance, both surveys find that female freshman students are more likely to utilize on-campus resources than male freshman students, and that wealthier students are more likely to use on-campus services. Additionally, in the BPS: 12/14 sample, first generation students are less likely to use both academic advising and career services; in the U of A sample, first generation students are also estimated to be less likely to be frequent users of on-campus resources, although the difference is not statistically significant.

There are also contrasts between the results from the two surveys. While the BPS: 12/14 survey indicates students of color may be more likely to use on-campus resources than white students, there are no differences in usage by race at the U of A. Similarly, in the BPS: 12/14 survey I find that students with higher GPAs in high school are more likely to use on-campus resources, while there are no differences in usage by prior achievement at the U of A. These differences could be due to differences in sample composition. For example, the share of white students in the U of A sample is greater than the share of white students in the BPS: 12/14 sample. The differences could also arise because of differences in statistical precision; fewer than 500 students responded to the U of A campus survey, while over 14,000 students are included in my analysis of the BPS: 12/14. Finally, it could be that the U of A is particularly effective at

making on-campus resources available to students with lower prior achievement, for example. Future work should compare practices across campuses to examine how services are marketed to students, how students' perceptions of the accessibility of different services vary across groups, and whether certain types of services are particularly helpful for different groups of students.

The survey at the U of A extends the BPS: 12/14 by asking detailed questions about which services students utilize and by including measures of students' personality traits. While there are few consistent differences by personality, I find suggestive evidence that upperclassmen who score higher on measures of extraversion are more likely to be frequent users of on-campus resources, are more likely to use on-campus resources in three or more sectors of campus life, and are more likely to seek academic advice from others on campus. Among freshmen, students with higher scores on the negative emotionality scale are more likely to utilize academic services and are more likely to use on-campus resources in three or more sectors of campus life. Future work should continue to examine the relationship between personality and the transition to college life, including how to make on-campus resources accessible and helpful for students with different personality types and predispositions to seeking out resources.

The on-campus survey allows me to examine in greater detail which services students utilize, how frequently, and whether there are differences across student groups in how likely students are to utilize these resources. While informative, this survey raises additional questions. For instance, 93 percent of freshmen report that they intend to use academic-focused support services, while only 81 percent of upperclassmen report frequent usage of academic-focused services. Similarly, over 80 percent of freshmen intend to use wellness-focused services, while only 57 percent of upperclassmen report doing so; 66 percent of freshmen intend to use multidimensional services, compared to 34 percent of upperclassmen who actually do so.

Finally, 77 percent of freshmen intend to use planning services, while 47 percent of upperclassmen do so. These simple differences suggest there are barriers that prevent students from utilizing on-campus resources, despite their intentions. Further, while I observe a positive association between students' utilization of on-campus resources and a sense of belonging in both the BPS and U of A samples, I do not know if using these services helps students build a network, or whether more connected students are more likely to use these services. I also do not know the mechanism underlying the positive relationship I observe between service utilization and second-year persistence. To explore these questions in greater depth, I conduct a series of interviews with current undergraduate students at the University of Arkansas, as I discuss in the next section.

V. Student Interviews at the University of Arkansas

The analyses presented thus far in this paper sketch an outline of which students are currently using on-campus resources as well how those services may affect students' collegiate experiences by examining the relationship between resource utilization and students' sense of belonging on campus. However, these surveys do not allow me to fully understand how students learn about, access, and experience support services. In order to gain this nuanced, detailed perspective on students' experiences, I conduct a series of interviews on the University of Arkansas campus in the fall of the 2018-19 school year. Three students, two of whom are sophomores and one of whom is a freshman, agreed to talk with me about their experiences using on-campus resources. Each has a different major; one is majoring in history intending to enter education, one is majoring in international business, and one is majoring in agriculture. Two interviewees are women, while one is a man; all identify as white. All students have at least

one parent with a higher education credential, ranging from an associate's degree to a graduate degree.

I met with each student on campus, in a private room at the student union, an accessible and familiar place. Interviews lasted between 15 and 30 minutes each. The interviews were semi-structured; I had a pre-established list of questions, but allowed the conversation to flow naturally and for new topics of interest to arise organically. I recorded and transcribed each interview. I then reviewed and coded the transcripts across interviewees to compare and contrast students' experiences with on-campus resources. In the discussion that follows, all names have been changed.

Students reported using a variety of on-campus resources, including the Center for Multicultural and Diversity Education (MC), Counseling and Psychological Services (CAPS), the Center for Learning and Student Success + Writing Support, the Math Resource and Tutoring Center, academic advising, the communications lab, financial aid advising, and the Pat Walker Health Center. While we initially discussed all of the services students had utilized, we then narrowed our conversation to discuss the resource that each student felt had had the largest impact on their experience at the university. For this more focused discussion, Adam, the male freshman, highlighted his experiences with the math tutoring center on campus; Sarah, a female sophomore, focused on her experiences with academic advising and with the multicultural center; and Megan, a female sophomore, focused on her experiences with Counseling and Psychological Services (CAPS).

I first asked students how they had initially learned of the resource that had altered their trajectory the most at the university. All three students underscored the importance of faculty members. Adam stated that his "math teacher … just kept telling us if we're struggling, go down

to the math lab, and they'll help us out, so that's what I did." Similarly, Adam learned about the communications lab from a professor. He explained:

> there was an assignment that we had to do, uh, it was for my freshman business connections class, and they told us if we, we had to like write a paper, and they told us to go down to this lab and have them check it, there's like, there's a 95% chance that we'll pass.

For Adam, professors communicated information about on-campus resources to students as a way to improve class performance. Adam trusted that if he followed his professors' advice, he would succeed as a student.

Megan also learned about CAPS from a university instructor, but the resource was marketed less as a means of improving grades and more as a general resource. Megan described the process, stating:

> the instructor told us about it […] I think, especially at the University Perspective course they helped teach study habits and everything and told you about the CLASS+ center and all that and then if you're stressed, like how I was for missing friends and family and like not knowing anyone, you can go to CAPS.

Megan learned about CAPS, not through a professor specifically tying utilization of the resource to success on an assignment, but instead in a general setting that informed her about the existence of CAPS and its purpose. Megan was then able to utilize the service to meet her needs. Again, there is an element of trust in Megan's experience; she viewed her University Perspectives instructor as a legitimate source of information about campus resources, and believed that CAPS would be helpful because of her instructor's recommendation.

Sarah also learned about a meaningful resource from her University Perspectives course, specifically because of her instructor's connection to the Multicultural Center (MC). Sarah explained:

> The only reason I knew about it, is because, I forgot what her last name was … Kimberly was my, what was it called, like the orientation class you had to take as a freshman? … She was my teacher. And so she plugged it really hard.

Kimberly was a university administrator connected with the MC; were it not for the coincidence of having Kimberly as an instructor, Sarah believed she would not have known about the MC, which had positively shaped her first year on campus. Because of her role in the university beyond the University Perspectives course, Kimberly was an enthusiastic and effective ambassador for the resource. However, Sarah could not remember many other on-campus resources, stating "I don't think people know about some of these things cause like when you were [asking which services she had used], I was like, no idea." While each student initially learned of on-campus resources through a faculty or staff member, their motivations for utilizing the resources differed. Adam went to ensure he would earn high grades; Megan went to deal with general anxiety relating to her transition to college; and Sarah went because her instructor had been so consistent about recommending it.

Students also mentioned the importance of resident assistants (RAs) for learning about on-campus resources, although their experiences varied in terms of how effective RAs were at conveying information about on-campus resources. Megan felt that the university did "offer a lot of support, most—more than most places would" and that the university did a good job of communicating the availability of supports to students. In her experience, "the University Perspectives course was really helpful and the RAs are always really great." Sarah also discussed the importance of RAs, less for informing students about specific resources and more for creating a welcoming environment. Sarah described her experience as:

> I think my RA did like a great job … I lived in [freshman dorm] and there's always something happening at [freshman dorm] and always at different times … things going on really made me feel like yeah, I really like [freshman dorm], and I still think [freshman dorm's] the best dorm. … if the alternative is I can stay in my room and watch

> YouTube or I can go downstairs and like meet people that makes me feel more connected to campus.

For Sarah, her RA's personal attention to residents, even once bringing a home-cooked meal for the floor, made her feel connected and allowed her to meet new people. While Sarah did not recall learning of any specific resources from her RA, her experiences in the dorms helped her feel connected and socially successful during her first year on campus.

Adam also recognized RAs as an important source of information about specific on-campus resources, but was less convinced than Megan about their efficacy in doing so. Adam discussed the emphasis his dorm placed on formal events rather than direct communication about resources:

> I'm in [a learning community] so we get told about a lot of resources there. But it's not like, like there's no posters or anything or there's no bulletin board we have, um, where different resources are posted…. They've had different events where I've learned about stuff, like I didn't know about CAPS until like our dorm had some special event and they said you'll get free pizza if you come … some of the events we've had my RA has been like hey, go to this event, go to this event. Like one, one thing there's, we had, there's like something where we can watch free movies, it's like Netflix but it's for like older movies and stuff …. And there was an event to show us how to access that and my, well it wasn't my RA, but one of the RAs in the dorm told me hey, go to this and learn about it. And it was pretty late at night so like I don't want to go to that … So I didn't go and like she wouldn't tell me for like a week because I didn't go the event.

Adam felt that his RAs had knowledge of on-campus resources, whether academically-focused or resources available in the dorms, but that they would withhold that information unless residents attended special events specifically to learn about the resources.

The three students interviewed identified faculty, staff, and RAs as potentially important sources of information about on-campus resources. However, each student's experiences showed how the ways in which students learn about these resources can be highly variable depending on which professors or RAs students happen to have. While the University does have a formal class designed to help students transition successfully to college life, for only one student did this

course function as intended: to provide students an overview of available resources and to develop helpful skills. While Sarah did learn about the MC through the University Perspectives course, it was only because her instructor was an uncommonly enthusiastic promoter of the resource because of her administrative role at the university. Sarah could not identify any other resource she learned of through this course, and Adam did not mention the course at all. Adam and Sarah both mentioned the importance of professors for advertising specific resources and events; for Adam, his math and business professors introduced him to the math tutoring center and the communications lab, respectively. For Sarah, her history professors were important sources of information about history lectures and other departmental events that allowed her to explore her interests. In order for students to access and benefit from on-campus resources, they have to know about their existence. While these three students had all learned about different on-campus resources, their divergent experiences suggest that a systematic approach to informing students of all the resources available to them on campus does not yet exist.

After learning about the existence of on-campus resources, students may face additional challenges in actually accessing and utilizing these resources. I asked each student about the different challenges they faced in accessing on-campus resources. Both Adam and Sarah discussed logistical issues they had faced when trying to use different resources on campus. For example, Adam described his experience trying to get help with his writing, "I tried to schedule an appointment [with the writing lab] um but like there were just no appointments open and … it didn't even show me … a later date when I could schedule one." Adam and Sarah are both high achieving students, reporting college GPAs of 3.5 and 3.9, respectively, and likely plan further in advance than do most students. However, the delay of a week or more between scheduling an appointment with an advisor and meeting with that advisor, or not being able to get an

appointment at the writing center within a week, presented a real obstacle to utilizing resources on-campus. Sarah sought advice from other students and an online course planning tool when she could not schedule an appointment with an advisor, while Adam chose not to use the writing center at all.

Adam also discussed overcoming his own biases about tutoring in order to go to the math resource center for help. He explained:

> I didn't want to go there because I feel like, I don't know, like I should have just known it, but after I went there and then they explained to me all the stuff, then I would go back to my class and like nobody in my class, nobody knows how to do it, the hard stuff, except for me, because I'd go down there.

For Adam, going to tutoring was difficult because it meant admitting that he needed help; however, after he experienced the benefit of tutoring, he continued going back. Adam's math professor's repeated mentions of the tutoring center may have helped normalize going to the tutoring center, making it easier for Adam to first utilize the resource. Additionally, the tutoring center was logistically easy for Adam to access; he merely had to go to the tutoring center, put in a ticket explaining what he needed help with, and then wait at a table until a tutor came over. However, Adam also noted that many students who could benefit were not utilizing the tutoring center: "I have like my class of like 70 people and probably maybe 25-30 of those people are using it and probably like 40 or 50 of those people need, need the help."

In addition to overcoming their own perceptions of seeking out on-campus services for help, students may also have to contend with other students' perceptions or negative experiences. For instance, at her freshman orientation, Sarah met with an academic advisor to sign up for courses and was ultimately enrolled in a course she had previously taken in high school and gotten college credit for. Sarah coped with this experience:

> It's not that big of a deal, like I got a really good rec letter out of it … it was a fun experience, and it like it was a nice easy course, intro to college, but like, I have had some friends who were a little soured off of [advising] because of similar things.

For Sarah, the benefit of building a relationship with a professor and having fun compensated for the hassle of being directed to take a course she did not need for graduation. However, for other students, such an experience can destroy their trust in a particular service, limiting that service's ability to help other students as well. Both Sarah and Megan described how students share information with each other, either encouraging or discouraging students to seek out certain on-campus resources. For instance, Megan recounted how, "if you hear one person who doesn't like something they tell—they tell everyone it's the worst thing ever… and I think it keeps people from wanting to go there." Just as students learn about the existence of on-campus resources from faculty and RAs, they learn about the quality of services from other students, and these recommendations can have a substantial impact on students' decisions of whether or not to seek out certain resources.

After students have learned about on-campus services and overcome any barriers to accessing these resources, how does interacting with these resources affect their collegiate experiences? I discussed this question with the three students interviewed in this project. Megan talked about how going to CAPS helped her transition to college and make friends:

> My first semester at the school was really hard. Cause I didn't really know anyone and I didn't really know how to approach college… I was just pretty sad. … so I went to CAPS and they like started to tell me how to get involved in stuff so [I] went online to start looking at the RSOs and club sports and everything and found Quidditch … that's where all of my friends are.

Megan was struggling to adjust to campus life when she first arrived. She was one of the only students from her public school district to attend the U of A, and arrived on campus without knowing anyone. She compared herself to other students in her dorm, who seemed to know their

roommates before arriving, and had already built support networks. She also struggled to adjust to the demands of her classes, saying:

> I think I was pretty cocky in high school. Just cause…but also like, now I'm like, oh I wasn't smarter than anyone, there was just only a few people who actually tried in high school. And now I'm here and I'm like, I'm doing pretty good, I'm going to keep going with this. I'm not cocky anymore.

Working with CAPS helped Megan navigate the stresses of adjusting to a new social and academic environment.

Sarah discussed the importance of on-campus services for making the campus seem smaller and more welcoming. She contrasted her experience with her friends from high school currently attending a local community college, but thinking about transferring to the U of A:

> I have like one long-term friend that I've actually met [at the MC], but most of them are just like oh, like there's a friendly face on campus, I know them … and that's kind of nice even if I don't know them super well. … It's a big school and there's kind of an image at least at like NWACC of like people at U of A not being friendly.

For Sarah, finding community through the MC and in her dorm allowed her to feel personally connected to the university, despite its large size and various bureaucratic systems she had to navigate. Those personal connections shaped her experiences and allowed her to not only navigate her own college transition, but also to facilitate her boyfriend's and other transfer students' transitions to the main U of A campus.

All three students I interviewed had relatively positive experiences with on-campus services, even if they faced challenges in accessing certain resources. However, each also believed there were many students on campus who would benefit from on-campus services but were not utilizing them. For example, Adam mentioned his roommate, saying:

> I think he should go to CAPS and talk to somebody there … I don't want to be like hey go to CAPS cause I don't want to seem mean or anything. … So I wish he like would be more aware of what CAPS is so he would just go there himself.

I asked each student what they thought on-campus services could do to make students more aware of the resources offered on campus. Sarah spoke about the importance of making things personal and easy to fit into a busy schedule:

> Something I've noticed is sometimes I want to stay on campus longer but everything happens while I'm in class and then I work ….I know it's like individual groups and clubs doing that, but like if there was more of an incentive to like hold your thing at 4 o'clock or hold your thing at— so there were more things happening not just in the middle [of the day].

For Sarah, events organized by student organizations tend to cater to non-working students who live on campus and have flexible schedules during the day. In contrast, she lives off campus and works in Bentonville, giving her less time during the day to hang around on campus. Having opportunities to have fun and get to know other students casually is important to Sarah, and makes an otherwise impersonal campus feel personal and engaging. The survey results presented above indicate that, in general, upperclassmen who are employed are more likely to be frequent users of on-campus services and to use services in three or more sectors of campus life. However, the survey did not differentiate between students such as Sarah, who work off campus, and students who work on campus; Astin (1999) found that while students who work full-time off-campus were less likely to persist, students who work part-time on-campus were more likely to be retained. A similar pattern at the U of A could explain the difference between Sarah's experience and the experiences reported by the average upperclassmen respondent on the survey.

Both Adam and Sarah mentioned the need for more advertising of campus resources. Adam stated, "I feel like if they just had more posters out people would be able to see where they are. Because people probably know what it is but I don't think everyone knows where it is." For both Adam and Sarah, on-campus services could do more to advertise themselves and their sponsored events to students. Interestingly, while Adam talked about not having a bulletin board

or other permanent source of information of on-campus resources in his dorm, Sarah called out her dorm as a place where she received most of her support. While Megan acknowledged that CAPS was not as widely used as it potentially should be, she did acknowledge their efforts to reach students, saying, "I think their outreach programs are really good ideas … like the one with the dogs last year." Each year, during finals, CAPS brings emotional support dogs to public areas on campus to help students de-stress; to Megan, such a highly visible and fun event is a great way to attract students to the service.

Sarah, Megan, and Adam reported some similarities in their experiences with on-campus support services. For all three, professors and faculty were important sources of information about available resources; RAs were also seen as important information brokers on campus. Future work should examine the extent to which RAs and faculty feel prepared to inform students about the various resources available on campus, and how universities support faculty and student employees in this role.

After learning of available resources, students faced challenges in accessing those resources; these challenges included logistical hurdles, personal stigmas, and other students' opinions. Once they overcame these challenges, Sarah, Megan, and Adam were able to use on-campus resources to make close friends, to build a network of friendly faces to personalize the university, and to succeed academically. Their experiences show the importance of making sure all students have access to on-campus supports to promote students success and suggest ways in which service centers can adjust their practices to better meet students' needs.

VI. Conclusion

In this paper, I have examine student support services from three perspectives. First, my findings from the nationally representative Beginning Postsecondary Students Longitudinal

Study: 2012/14 show that over two-thirds of first-year students at two and four-year institutions use academic advising, and over half of first-year students report using financial aid advising. However, less than 40 percent of students use academic support services, and fewer than one in five use career services. Further, students from lower-income families, first-generation students, and previously lower-achieving students are less likely to utilize academic services than their peers, potentially exacerbating gaps in postsecondary completion. Utilization of student support services is positively related to second-year persistence and students' sense of belonging on campus, indicating these services are associated with students' long-term postsecondary success.

My second analysis focuses on a single university to replicate and extend my findings from the BPS: 12/14. In this survey, students report their usage patterns of a wider range of on-campus services and provide measures of additional student characteristics, such as personality, that are not available in the BPS. The University of Arkansas data includes 446 responses from students in all grade classifications. My results suggest that freshmen from lower-income families are less likely to be frequent users of on-campus resources, while upperclassmen who are employed and who score higher on scales of extraversion or agreeableness are more likely to be frequent users of on-campus resources. Additionally, upperclassmen who are employed, who score higher on scales of extraversion or agreeableness, and who identify as students of color are more likely to use services in three or more sectors of campus life. Among freshmen, students who report higher high school GPAs and who score higher on scales of agreeableness, open-mindedness, and negative emotionality are more likely to use services in three or more sectors of campus life. My analysis of the campus survey replicates my finding from the BPS that not all students utilize on-campus resources, and that these differences in resource utilization may be associated with measures of student advantage. As with the BPS, my analysis of the campus

survey indicates that students who frequently utilize on-campus resources feel a greater sense of belonging on campus than students who infrequently or never utilize on-campus resources.

Finally, I explore students' interactions with on-campus resources by interviewing three students at the University of Arkansas who describe how they learn about the availability of services, how accessible these services are in practice, and how utilizing these services shape their collegiate experience. These interviews highlight the importance of professors for informing students of available resources, the logistical, emotional, and social challenges students face in accessing support services, and the importance of support services for shaping students' collegiate experiences. Each student has his or her own experiences with on-campus resources, and for each, their interactions with on-campus services serve a different purpose. For one student, support services are a way to succeed academically, while another uses support services to manage her stress and adjust to the academic and social demands of campus. Finally, one student uses the relationships built through a support service to personalize the campus and facilitate others' transition to the university. All three interviewees emphasize the need to make these resources easily accessible, in terms of availability of information about services, limited delays between realizing a need for assistance and an appointment, and countering stigma surrounding certain services.

This paper suggests that student support services have the potential to fulfill their mission and help students succeed in their postsecondary education. However, there is also room for improvement. Students who may need the most support may be less likely to access these services, and students often face barriers when attempting to leverage these resources for their success. Universities should track which students are utilizing on-campus resources and evaluate how they can better connect students with relevant services. Additionally, the ways by which

students learn about on-campus resources is haphazard, with some students learning about resources in a university transition class, others hearing of resources in content classes, and still others learning of resources in their dorms. Future work should examine the process by which faculty members and other information brokers learn of on-campus services themselves, whether they see this type of information dissemination as part of their roles, and how their own experiences with different centers, services, and on-campus groups affect whether and how they communicate these opportunities to students.

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Tables and Figures

Table 1: Characteristics of BPS: 12/14 Sample

	Analytic Sample
Female	55.25%
First generation	14.63%
Race	
White	57.76%
Black	12.98%
Latino/a	17.82%
Asian	6.46%
American Indian/Alaskan Native	0.70%
Native Hawaiian/Pacific Islander	0.34%
Multiracial	3.94%
Institution Type	
Public 4-year	40.88%
Private nonprofit 4-year	21.73%
Private for-profit 4-year	2.49%
Public 2-year	31.70%
Private nonprofit 2-year	0.58%
Private for-profit 2-year	2.61%
N	*14,480*

Descriptive statistics calculated using recommended survey weights and bootstrap procedures
Number of observations rounded

Table 2: Additional Sample Characteristics of BPS: 12/14

	Range	**Mean (Std. Err.)**
Age at first survey	15-75	18.74 (0.03)
Expected Family Contribution	0-$133,395	$12,677.04 (285.70)
High School GPA	1-7	5.73 (0.02)
Combined SAT Score^		1018.67 (2.77)
Distance from first institution	1-8,978	148.15 miles (5.51)
N		*14,480*

Standard errors calculated using student-level weights and bootstrapping variance estimation
^SAT score is derived from students' reported ACT score if a direct SAT score is not available
Number of observations rounded

Table 3: Predictors of On-Campus Service Utilization

	(1) Academic Advising	(2) Academic Support	(3) Career Services	(4) Fin Aid Services	(5) No Services
Age	-0.006***	0.004*	-0.002	-0.004	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Black	-0.012	0.073***	0.058***	0.056***	-0.015**
	(0.011)	(0.012)	(0.011)	(0.012)	(0.008)
Latino/a	0.008	0.059***	0.053***	0.055***	-0.022***
	(0.011)	(0.012)	(0.010)	(0.012)	(0.007)
Asian	0.006	0.096***	0.057***	0.045***	-0.032***
	(0.017)	(0.018)	(0.015)	(0.017)	(0.011)
American Indian or Alaska Native	0.042	0.010	-0.003	0.004	-0.009
	(0.038)	(0.042)	(0.034)	(0.043)	(0.027)
Native Hawaiian/other Pacific Islander	0.076*	0.150***	0.136***	0.117**	-0.054**
	(0.046)	(0.057)	(0.052)	(0.051)	(0.025)
More than one race	-0.010	0.045**	0.007	0.046**	0.004
	(0.019)	(0.020)	(0.016)	(0.020)	(0.014)
Expected family contribution ($1000s)	0.001**	0.000*	-0.000	-0.005***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.060***	0.053***	0.004	0.030***	-0.044***
	(0.007)	(0.008)	(0.007)	(0.008)	(0.005)
High school GPA	0.016***	0.008**	0.016***	-0.003	-0.005**
	(0.003)	(0.004)	(0.003)	(0.004)	(0.002)
Composite SAT (100s)	0.015***	-0.006***	0.007***	-0.006***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Distance (10s)	0.000**	0.000**	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
First generation	-0.028***	0.005	-0.015*	0.031***	-0.000
	(0.010)	(0.011)	(0.009)	(0.011)	(0.007)
Observations	14,480	14,480	14,480	14,480	14,390

**** p<0.01, ** p<0.05, * p<0.1*
Standard errors calculated using 200 bootstrap replications
Recommended sample weights used in all models
State and institution sector fixed effects not shown
Number of observations rounded

Table 4: On-Campus Service Utilization and Second Year Persistence

	(1)	(2)
Academic advising	**0.029****	
	(0.014)	
Academic support services	**0.030***	
	(0.017)	
Career services	**0.037****	
	(0.015)	
Financial aid services	**-0.002**	
	(0.015)	
No services used		**-0.037***
		(0.020)
Age	-0.022***	-0.022***
	(0.004)	(0.004)
Black	-0.058***	-0.055***
	(0.019)	(0.020)
Latino/a	-0.005	-0.003
	(0.017)	(0.017)
Asian	0.034	0.038
	(0.025)	(0.025)
American Indian or Alaska Native	-0.009	-0.008
	(0.070)	(0.072)
Native Hawaiian/other Pacific Islander	-0.024	-0.020
	(0.089)	(0.089)
More than one race	-0.035	-0.036
	(0.032)	(0.032)
Expected family contribution ($1000s)	0.002***	0.002***
	(0.000)	(0.000)
Female	0.044***	0.045***
	(0.012)	(0.012)
High school GPA	0.019***	0.020***
	(0.005)	(0.005)
SAT derived composite score (100s)	0.017***	0.017***
	(0.003)	(0.003)
Distance (10s miles)	-0.000	0.000
	(0.000)	(0.000)
First generation	-0.053***	-0.054***
	(0.015)	(0.015)
Observations	14,480	14,480

**** p<0.01, ** p<0.05, * p<0.1*
Standard errors calculated using 200 bootstrap replications
Recommended survey weights included in all models
State and institution sector fixed effects not shown
Number of observations rounded

Table 5: On-Campus Service Utilization and Sense of Belonging

	(1)	(2)
Academic advising	**0.023***	
	(0.014)	
Academic support services	**0.023***	
	(0.012)	
Career services	**0.069*****	
	(0.015)	
Financial aid services	**0.028***	
	(0.014)	
No services used		**-0.055****
		(0.023)
Age	0.012**	0.012**
	(0.006)	(0.006)
Black	-0.010	-0.003
	(0.021)	(0.022)
Latino/a	-0.035*	-0.031
	(0.020)	(0.020)
Asian	-0.006	0.002
	(0.030)	(0.030)
American Indian or Alaska Native	0.205***	0.208***
	(0.069)	(0.069)
Native Hawaiian/other Pacific Islander	0.031	0.042
	(0.106)	(0.108)
More than one race	0.046	0.048
	(0.034)	(0.034)
Expected Family Contribution ($1000s)	0.002***	0.001***
	(0.000)	(0.000)
Female	0.016	0.017
	(0.015)	(0.015)
High school GPA	0.023***	0.024***
	(0.007)	(0.007)
SAT derived composite score (100s)	-0.012***	-0.012***
	(0.004)	(0.004)
Distance (10s)	0.000**	0.000***
	(0.000)	(0.000)
First generation	0.002	0.001
	(0.018)	(0.018)
Observations	14,910	14,910

**** p<0.01, ** p<0.05, * p<0.1*
Standard errors calculated using 200 bootstrap replications
Recommended sample weights included in all models
State and institution sector fixed effects not shown
Number of observations rounded

Table 6: Characteristics of U of A Campus Support Services Survey

	Range	Upperclassmen Mean (Std. Error)	Freshmen Mean (Std. Error)
Current GPA	0-4	3.26 (0.61)	3.16 (1.19)
Age	18-45	20.62 (3.9)	18.49 (2.31)
High school GPA	2.3-4.9	3.67 (0.35)	3.72 (0.31)
Merit scholarship- never	0-1	46.88%	42.48%
Merit scholarship- in the past	0-1	10.07%	1.96%
Merit scholarship- current	0-1	43.06%	55.56%
Female	0-1	55.75%	76.32%
In-state student	0-1	38.06%	43.14%
Student of color	0-1	19.29%	14.86%
Pell eligible	0-1	17.65%	26.32%
First generation	0-1	23.26%	28.29%

Table 7: Predictors of Frequent Usage of On-Campus Services (Probit, Marginal Effects)

	(1) Upperclassmen	(2) Freshmen
Female	-0.016	0.139*
	(0.068)	(0.078)
Age	-0.011	0.137**
	(0.010)	(0.066)
High school GPA	0.021	-0.072
	(0.086)	(0.120)
Pell eligible	0.047	-0.194**
	(0.085)	(0.085)
Student of color	-0.019	-0.069
	(0.089)	(0.086)
First generation	-0.064	-0.045
	(0.077)	(0.080)
Merit scholarship	0.067	0.006
	(0.065)	(0.075)
Employed	0.125*	-0.052
	(0.065)	(0.077)
Extraversion	0.101***	0.061
	(0.032)	(0.039)
Agreeableness	0.073**	0.030
	(0.034)	(0.035)
Conscientiousness	-0.005	0.012
	(0.036)	(0.037)
Negative Emotionality	-0.007	0.064*
	(0.037)	(0.037)
Open Mindedness	0.004	0.114***
	(0.032)	(0.035)
Observations	235	137

**** p<0.01, ** p<0.05, * p<0.1*
Robust standard errors in parentheses
Personality traits standardized

Table 8: Breadth of Service Utilization, Upperclassmen

	No Services	One Sector	Two Sectors	3+ Sectors
Female	0.062**	0.066**	0.016	-0.144**
	(0.029)	(0.027)	(0.01)	(0.06)
Age	0.008***	0.008***	0.002	-0.018***
	(0.003)	(0.003)	(0.001)	(0.007)
High school GPA	-0.019	-0.021	-0.005	0.045
	(0.035)	(0.037)	(0.009)	(0.080)
Pell Eligible	-0.016	-0.017	-0.004	0.038
	(0.031)	(0.033)	(0.008)	(0.073)
Student of color	-0.081**	-0.085**	-0.02	0.186**
	(0.037)	(0.037)	(0.013)	(0.078)
First generation	0.025	0.026	0.006	-0.057
	(0.027)	(0.028)	(0.008)	(0.062)
Merit scholarship	-0.023	-0.024	-0.006	0.052
	(0.025)	(0.025)	(0.006)	(0.055)
Employed	-0.049**	-0.052**	-0.012	0.114**
	(0.024)	(0.026)	(0.009)	(0.055)
Extraversion	-0.034***	-0.036***	-0.009*	0.079***
	(0.012)	(0.013)	(0.005)	(0.026)
Agreeableness	-0.039**	-0.041***	-0.010*	0.090***
	(0.015)	(0.015)	(0.005)	(0.031)
Conscientiousness	0.02	0.021	0.005	-0.046
	(0.013)	(0.014)	(0.004)	(0.030)
Negative emotionality	0.009	0.009	0.002	-0.021
	(0.013)	(0.014)	(0.003)	(0.029)
Open mindedness	-0.004	-0.004	-0.001	0.009
	(0.011)	(0.011)	(0.003)	(0.025)
Cut 1	-1.961	-1.961	-1.961	-1.961
Cut 2	-1.11	-1.11	-1.11	-1.11
Cut 3	-0.220	-0.220	-0.220	-0.220
Pseudo R-squared	0.060	0.060	0.060	0.06
Observations	235	235	235	235

**p<0.10, **p<0.005, ***p<0.001*
Delta-method standard errors in parenthesis
Average marginal effects from ordered Probit presented

Table 9: Breadth of Service Utilization, Freshmen

	No Services	Services in One Sector	Services in Two Sectors	Services in Three^{+} Sectors
Female	0.006	0.004	0.008	-0.018
	(0.028)	(0.020)	(0.042)	(0.090
Age	-0.003	-0.002	-0.005	0.011
	(0.006)	(0.004)	(0.007)	(0.016)
High school GPA	0.075*	0.051	0.108*	-0.233*
	(0.041)	(0.034)	(0.059)	(0.121)
Pell Eligible	0.001	0.000	0.001	-0.002
	(0.028)	(0.019)	(0.040)	(0.087)
Student of color	-0.034	-0.023	-0.049	0.106
	(0.033)	(0.019)	(0.045)	(0.094)
First generation	0.033	0.022	0.048	-0.103
	(0.028)	(0.019)	(0.033)	(0.077)
Merit scholarship	-0.025	-0.017	-0.037	0.080
	(0.024)	(0.017)	(0.033)	(0.072)
Employed	0.010	0.007	0.014	-0.030
	(0.023)	(0.016)	(0.034)	(0.074)
Extraversion	-0.012	-0.008	-0.017	0.037
	(0.012)	(0.008)	(0.017)	(0.036)
Agreeableness	-0.021**	-0.014	-0.030**	0.065**
	(0.010)	(0.009)	(0.015)	(0.030)
Conscientiousness	-0.009	-0.006	-0.013	0.029
	(0.012)	(0.008)	(0.016)	(0.034)
Negative	-0.036**	-0.025**	-0.053***	0.114***
Emotionality	(0.018)	(0.012)	(0.017)	(0.039)
Open Mindedness	-0.021*	-0.014	-0.031*	0.066*
	(0.013)	(0.010)	(0.017)	(0.036)
Cut 1	-4.382	-4.382	-4.382	-4.382
Cut 2	-3.975	-3.975	-3.975	-3.975
Cut 3	-3.242	-3.242	-3.242	-3.242
Pseudo R-squared	0.113	0.113	0.113	0.113
Observations	137	137	137	137

**p<0.10, **p<0.005, ***p<0.001*
Delta-method standard errors in parenthesis
Average marginal effects from ordered Probit presented

Table 10: On-Campus Support Service Utilization and Sense of Belonging, Upperclassmen

	(1) Study Habits	(2) Academic Advice	(3) Making Friends
Frequent user	**0.203*** **	**0.033**	**0.035**
	(0.059)	**(0.061)**	**(0.052)**
Female	-0.057	0.086	0.132**
	(0.066)	(0.064)	(0.057)
Age	0.003	-0.008	-0.018**
	(0.012)	(0.009)	(0.009)
High school GPA	0.008	-0.044	0.011
	(0.095)	(0.080)	(0.067)
Pell eligible	-0.117	-0.005	-0.162***
	(0.082)	(0.077)	(0.057)
Student of color	0.089	-0.141*	0.042
	(0.082)	(0.074)	(0.072)
First generation	-0.108	0.010	-0.052
	(0.076)	(0.074)	(0.060)
Merit scholarship	0.020	-0.092	0.002
	(0.061)	(0.063)	(0.054)
Employed	-0.177***	0.034	-0.102**
	(0.059)	(0.064)	(0.051)
Extraversion	-0.052*	0.069**	0.028
	(0.032)	(0.032)	(0.025)
Agreeableness	0.043	0.041	0.010
	(0.035)	(0.032)	(0.031)
Conscientiousness	0.006	-0.026	0.008
	(0.035)	(0.035)	(0.031)
Negative emotionality	0.013	-0.013	-0.009
	(0.034)	(0.033)	(0.029)
Open mindedness	-0.062**	-0.036	-0.054**
	(0.030)	(0.030)	(0.026)
Pseudo R-squared	0.110	0.071	0.184
Observations	236	236	233

*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Robust standard errors in parentheses
Probit, marginal effects presented

Table 11: On-Campus Support Service Utilization and Sense of Belonging, Freshmen

	(1) Study Habits	(2) Academic Advice	(3) Making Friends
Frequent user	0.355***	-0.017	0.284***
	(0.102)	(0.096)	(0.084)
Female	-0.026	-0.154	-0.115
	(0.102)	(0.098)	(0.099)
Age	-0.025*	0.031*	-0.002
	(0.015)	(0.016)	(0.015)
High school GPA	-0.017	0.223*	0.105
	(0.146)	(0.132)	(0.130)
Pell Eligible	-0.125	0.097	0.009
	(0.108)	(0.104)	(0.108)
Student of color	0.019	-0.176*	-0.163
	(0.123)	(0.104)	(0.104)
First generation	-0.071	-0.088	-0.032
	(0.094)	(0.089)	(0.088)
Merit scholarship	-0.004	-0.125	-0.008
	(0.089)	(0.080)	(0.080)
Employed	0.146	0.122	0.086
	(0.099)	(0.101)	(0.099)
Extraversion	0.008	-0.048	-0.033
	(0.049)	(0.045)	(0.045)
Agreeableness	-0.033	0.039	-0.031
	(0.043)	(0.039)	(0.046)
Conscientiousness	0.066	0.021	0.031
	(0.046)	(0.045)	(0.044)
Negative emotionality	0.040	-0.027	-0.009
	(0.050)	(0.044)	(0.044)
Open mindedness	-0.026	-0.005	0.010
	(0.045)	(0.044)	(0.042)
Pseudo R-squared	0.106	0.106	0.092
Observations	136	135	136

**** p<0.01, ** p<0.05, * p<0.1*
Robust standard errors in parentheses
Probit, marginal effects presented

Appendix A: Alternative Analysis of Belongingness in BPS: 12/14 Sample

Table A.1: On-Campus Service Utilization and Sense of Belonging (Standardized)

	(1)	(2)
Academic advising	**0.093*** **	
	(0.029)	
Academic support services	**0.064** **	
	(0.025)	
Career services	**0.145*** **	
	(0.032)	
Financial aid services	**0.050***	
	(0.030)	
No services used		**-0.147*** **
		(0.047)
Age	0.011	0.011
	(0.011)	(0.011)
Black	-0.045	-0.032
	(0.047)	(0.048)
Latino/a	-0.030	-0.023
	(0.041)	(0.041)
Asian	0.022	0.038
	(0.071)	(0.071)
American Indian or Alaska Native	0.321***	0.323***
	(0.111)	(0.114)
Native Hawaiian/other Pacific Islander	-0.101	-0.082
	(0.214)	(0.221)
More than one race	0.011	0.012
	(0.070)	(0.069)
Expected Family Contribution ($1000s)	0.003***	0.003***
	(0.001)	(0.001)
Female	0.023	0.026
	(0.028)	(0.028)
High school GPA	0.050***	0.053***
	(0.014)	(0.014)
SAT derived composite score (100s)	-0.022***	-0.021***
	(0.007)	(0.007)
Distance (10s)	0.001*	0.001*
	(0.000)	(0.000)
First generation	-0.035	-0.035
	(0.040)	(0.039)
Observations	14,480	14,480
R-squared	0.051	0.045

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

Standard errors calculated using 200 bootstrap replications

Recommended sample weights included in all models; state and institution sector fixed effects not shown

Number of observations rounded

Appendix B: Histograms of On-Campus Service Utilization, U of A Survey

Figure B.1: Reported Service Utilization, Upperclassmen

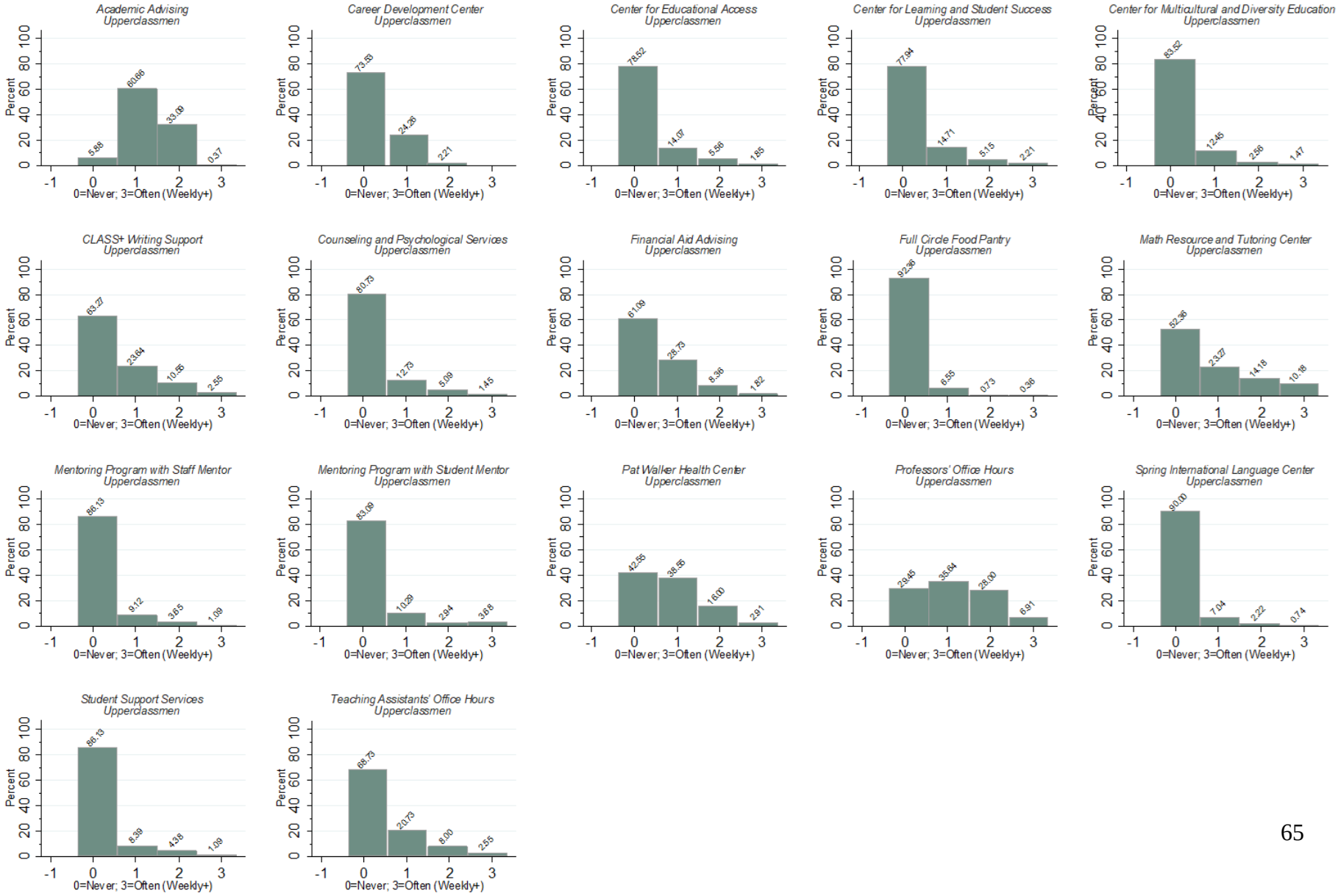

Figure B.2: Intended Service Usage, Freshmen