COMMUNITY SERVICE AND UNDERGRADUATES' SOCIAL CAPITAL DEVELOPMENT

Krista M. Soria

Abstract

The purpose of this study was to examine the effects of community service participation on undergraduates' social capital development, including whether any potential effects are conditional on students' race/ethnicity, parents' or guardians' education, and social class. I used a propensity score analysis on a multi-institutional sample of students enrolled at 69 colleges and universities in spring 2021 to construct matched pairs of students who did and did not participate in community service (n = 8,964). The results of ordinary least squares regressions suggest that community service has significant and positive effects on students' social capital development; however, while the results were uniform for students based upon their parents' or guardians' education and social class, the results were not uniform based upon students' race/ethnicity.

From admission to graduation, the system of higher education is concomitantly stratified and stratifying—restricting access and opportunity to students from more privileged backgrounds while also maintaining structural barriers that perpetuate systemic racial, family education, and social class-based disparities in college students' graduation rates. The evidence is clear: Black, Hispanic, Native Hawaiian, Pacific Islander, American Indian, Alaska Native, multiracial, first-generation, low-income, and working-class students have disproportionately lower rates of enrollment and graduation at four-year colleges and universities compared to White, continuing-generation, middle-class, and wealthy students (Cataldi et al., 2018; National Center for Education Statistics, 2015, 2018a, 2018b, 2019, 2022). One of the means through which higher education reproduces those societal inequities is via the privileging and rewarding of social capital—the social networks, connections, and relationships that provide actual or potential resources or benefits to individuals (Lin, 2001). In higher education, social capital can be mobilized to facilitate students' admission into colleges and universities, grant students access to academic and career resources, and provide social and emotional support to promote college students' success (Almeida et al., 2019; Bourdieu & Passeron, 1990; Dika, 2012; Harper, 2008; Luedke, 2020). By and large, traditionally privileged groups, including White, continuing-generation, middle-class, and wealthy

students, possess the "right kinds" of social capital desirable in higher education; consequently, those students are more prepared than marginalized students to enter and successfully navigate the system of higher education, a system that was designed to mutually reinforce the power and privilege of their elite status in society (Aries, 2008; Armstrong & Hamilton, 2013; Stuber, 2011).

Institutional interventions and programs may help to disrupt those disparities in social capital and support social capital development among marginalized and disenfranchised college students (Schwartz et al., 2017). For example, mentorship programs, leadership development programs, and student organizations can increase marginalized students' social capital (Glass, 2022; Glass & Gesing, 2018; Soria & Cole, 2023). Community service participation also appears to be a promising means of facilitating college students' social capital development (Campbell, 2000; Hart et al., 2008). Indeed, community service participation may even be more effective than other types of co-curricular activities or programs in promoting students' social capital development (Flanagan et al., 2014); however, at present, researchers have only investigated the social capital benefits of community service participation among youth and older adults while college students have been overlooked (Burnett, 2006; Cuskelly, 2008; Flanagan et al., 2014; Henness et al., 2013). The purpose of this study is therefore to examine whether there are effects of community service participation on college students' social capital development. Given the disparities in social capital described above, the following research questions guided this study: 1) are there effects of community service participation on undergraduates' social capital development? 2) are any potential effects of community service participation on social capital development conditional on undergraduates' race and ethnicity, parents' or guardians' education, and social class?

Social Capital and Community Service

Students from different racial and ethnic identities, family education levels, and social classes grow up with distinct knowledge, aspirations, support, and expectations related to higher education (Cataldi et al., 2018; Hines et al., 2019; Maldonado, 2022; Mishra, 2020; Soria, 2015; Yosso, 2005). For students with privileged social identities, higher education is viewed as a birthright, which ultimately leads the same students to have higher aspirations for educational attainment and efficacy in their abilities to meet their educational goals compared to marginalized students (Cataldi et al., 2018; Dufur et al., 2016; Ornstein, 2019; Schroeder & Saw, 2016; Soria & Stubblefield, 2014). In line with those expectations, the parents of privileged students provide a "concierge" experience bolstered by social capital to facilitate their children's entrance into higher education, including access to exclusive higher education infrastructure (Hamilton et al., 2018). Students from privileged backgrounds also benefit from legacy admissions into institutions and social organizations, attend better-resourced schools with more college preparatory resources, and have ready access to academic and social resources to support their admission to prestigious institutions (e.g., letters of recommendation; Alon, 2009; Armstong & Hamilton, 2013; Bowen & Bok, 1998; Hamilton et al., 2018). Marginalized students experience barriers in accessing the same types of social capital and thus experience greater systemic

disadvantages in higher education (Armstong & Hamilton, 2013; Bowen & Bok, 1998; Soria, 2015; Thiem & Dasgupta, 2022).

The disparities in students' pre-college social capital continue as students are enrolled in higher education. As a function of their "concierge" services, parents of privileged students can easily connect their children to other adults who provide career guidance and opportunities (e.g., internships) and help their children obtain access to elite university programming and experiences not available to all students (Armstong & Hamilton, 2013; Hamilton et al., 2018). Moreover, college students from privileged identities have been intensively socialized to engage independently in behaviors and activities to develop their ongoing social capital while enrolled in higher education. Many of those same students enroll in college already involved in student activities and clubs and can ultimately leverage their social capital to assist with obtaining internships and gateways into prestigious careers regardless of their academic majors (Armstrong & Hamilton, 2013; Hamilton et al., 2018; Stuber, 2011). With their socialization for independence and networking connections, it is easier for privileged students to interact with faculty, staff, and institutional agents who support their development of additional social capital (Dika, 2012; Soria & Stebleton, 2013; Stanton-Salazar, 1997). Thus, marginalized students are structurally disadvantaged when it comes to acquiring social capital in higher education (Armstrong & Hamilton, 2013; Stuber, 2011).

While institutional agents (e.g., faculty, staff, advisors) in higher education can disrupt the system of social reproduction by transmitting or negotiating the transmittal of social capital (Dika, 2012; Harper, 2008; Stanton-Salazar, 1997, 2011), students from systemically excluded and marginalized identities are not as likely to network with institutional agents because they experience greater difficulty interacting with faculty and staff and finding networks on campus who share their background and experiences (Soria & Stebleton, 2012, 2013). Students from marginalized backgrounds sometimes experience indifference or hostility from faculty, perceive faculty and administrators as gatekeepers who make education more challenging for students, and fear negative repercussions when meeting with faculty, including feelings of incompetence (Longwell-Grice, 2003; Longwell-Grice & Longwell-Grice, 2007–2008).

Because marginalized students experience more barriers in accessing institutional agents, it is important to examine whether institutional programs and opportunities, such as community service, could be a means for students to experience social capital development. At present, there is a deficit in the community service literature regarding the potential for community service to promote college students' social capital, although scholars have documented many benefits of community service participation. For instance, undergraduates who participate in community service gain enhanced critical thinking skills, academic skills, civic responsibility, self-efficacy, multicultural awareness, and leadership abilities (Astin & Sax, 1998; Soria & Johnson, 2017; Soria et al., 2013; Soria et al., 2019; Soria et al., 2023). Undergraduates who participate in community service also benefit from enhanced social outcomes, including a higher sense of belonging, interpersonal skills, perspective-taking, and prosocial values (Horn, 2012; Cooks & Schrarrer, 2006; Soria et al., 2012; Soria et al., 2023).

The relational and contextual processes of community service provide *in situ* learning and development opportunities via social interactions and relationships with others (Cooks & Schrarrer, 2006). Community service participation offers opportunities for students to interact with a wider network of individuals in their

community, become aware of their own identities as members of a community with a stake in the greater good, witness how people can work collectively to resolve problems, and connect with their classmates, staff, and faculty in novel settings (Flanagan et al., 2014). Therefore, within the social experience of community service, students may be well-positioned to expand their social networks and connections with others, thereby increasing their social capital.

Indeed, scholars have proposed that the social dynamics present in community service participation may enhance social capital among college students. Campbell (2000) hypothesized that community service participation would increase adolescents' social capital via norms of reciprocity and thicker networks of social connectedness between youth and adults in their community; however, Campbell did not directly test the hypothesis using measures of social capital but instead analyzed whether individuals who volunteered when they were younger were likely to volunteer in adulthood. Flanagan et al. (2014) used direct measures of social capital and discovered that fifth through 12th grade students who engaged in community service had higher rates of social capital than students who were not as involved. Burnett (2006) and Cuskelly (2008) found that adults who volunteered for community sports clubs generated individual and organizational social capital; however, their samples did not include college students. Similarly, Henness et al. (2013) examined the social capital benefits of community service among rural youth and adults but did not examine the effects of service for college students. Given the critical role of social capital in college students' success in higher education and beyond, it is therefore important to address the gap in research related to the potential benefits of community service in college students' social capital development.

Although many researchers over the last three decades have demonstrated the benefits of college students' participation in community service, few have considered the potential influences of students' self-selection biases in their analyses. College students who engage in community systematically differ from their peers who do not participate in community service based upon their demographic characteristics, pre-college experiences, and other collegiate experiences (Horn, 2012; Meyer et al., 2019; Soria et al., 2019; Wilson, 2000). Those systematic differences may contribute directly or indirectly to differences in the outcomes associated with students' participation in community service, making it difficult to gauge the effectiveness of community service above and beyond students' characteristics or experiences. Therefore, in this study I used quasi-experimental procedures to address and limit the potential biases in students' participation in community service as I explored whether there are effects of community service participation on undergraduates' social capital development.

Conceptual Framework

While individual theorists have provided unique nuances to their conceptualizations of social capital, at its core social capital reflects the resources available to individuals in their network (Bourdieu, 1980; Coleman, 1988; Putnam, 1994). Social capital is theorized to have both individual and collective benefits to society (Coppe et al., 2022). In Coleman's view, individual social capital can only flourish when trust and norms of reciprocity (collective social capital) are present in social organizations or networks. Community service experiences may facilitate norms of trust and reciprocity among participants and community members (Campbell, 2000), providing ideal collective social capital

conditions to foster college students' individual social capital. Bourdieu understood that social inequalities and competition for scarce resources lead individuals to have different levels of access to social capital—those with higher economic and cultural capital are more likely to have advantageous positions in society that provides greater access to valuable social capital. As applied in the present study, I analyzed whether the potential benefits of community service participation were uniform across students from privileged and marginalized identities to examine whether community service could be leveraged to achieve greater parity in students' social capital development.

Putnam (2000) proposed that there are distinctions in social capital based upon the types of social networks and function of social capital. Bonding social capital in closer networks and relationships (e.g., friendships) can build a sense of support, belonging, community, and solidarity for individuals. Bridging social capital among looser, more distant connections (e.g., faculty, staff, community members) can facilitate access to resources and information. Bonding social capital helps individuals to "get by" while bridging social capital helps individuals to "get ahead" (Putnam, 2000). Bonding social capital is often established among more homogenous groups whereas bridging capital is more likely to occur within heterogeneous groups (Coffé & Geys, 2007). Participation in community service has the potential to facilitate bonding social capital through opportunities to develop friendships and connections with classmates and bridging social capital for students through enhanced opportunities to develop networks among community members, campus staff, or faculty who may also be engaged in those efforts (Campbell, 2013; Flanagan et al., 2014). However, community service may have differential effects on students' outcomes based upon their race and ethnicity, parents' or guardians' education, and social class (Chittum et al., 2022; Soria et al., 2019; Valentine et al., 2021), so it is important to examine whether the effects may be conditional upon those demographic characteristics. Further, it is important to consider the role of institutional agents, such as faculty, in improving marginalized students' social capital development (Stanton-Salazar, 1997, 2001). These theoretical frameworks provided the rationale for analyzing the potential effects of community service participation on college students' social capital development, the analytic approaches selected, and the potential benefits of the results for marginalized and disenfranchised students in higher education contexts.

Methodology

Instrument

The Multi-Institutional Study of Leadership (MSL) survey was administered to undergraduate students at 69 U.S. four-year colleges and universities from January to May of 2021. Common psychometric concerns related to self-reported data (i.e., social desirability, halo effect, and item format) are not problematic in the MSL survey (Dugan, 2015; Tyree, 1998). Several changes have also been made over time to improve the psychometric properties of the instrument, including removing and phrasing individual items and constructs (Dugan, 2015; Tyree, 1998). Researchers have used MSL survey data in several studies as they have investigated the outcomes of college students' participation in community service (Author, in-press-a; Johnson et al., 2017; Kodama & Dugan, 2013; Soria et al., 2013).

Sample

Each institution administered the survey to a random sample of 4,000 students and the response rate was 21.0% (n = 49,307). The items measuring social capital development were randomly assigned to half of the participants, leaving 15,498 students who responded to all the items used in the analysis. Within that reduced sample, 28.1% (n = 4,482) of students participated in community service in an average month. I used matching procedures (described below) to construct the final sample of 8,964 students (n = 4,482 students who participated in community service, n = 4,482 students who did not participate in community service). The final sample primarily included cisgender women (72.8%), White students (64.3%), continuing-generation students (68.6%), and middle-class, upper professional, or upper middle-class students (68.0%; Table 1). The participants also tended to be younger on average ($\bar{x}$ = 21.41, s = 5.50).

Table 1
Descriptive Information for Participants

	n	*%*
Gender		
Man	2,179	24.3
Woman	6,530	72.8
Transgender, non-binary, or genderqueer	255	2.7
Race/Ethnicity		
Middle Eastern or Northern African	96	1.1
African American or Black	499	5.6
Asian American	798	8.9
Latinx or Hispanic	639	7.1
Multiracial	933	10.4
White	5,765	64.3
Race not listed	208	2.3
International Status		
Domestic student	8,577	95.7
International student	387	4.3
Parents' Education Level		
Continuing-generation (parents/guardians have ≥ a bachelor's degree or higher)	6,150	68.6
First-generation (parents/guardians have < a bachelor's degree)	2,814	31.4
Social Class		
Low-income or poor	1,588	10.0
Working-class	3,155	19.8
Middle-class	6,874	43.1
Upper professional or upper middle-class	3,970	24.9
Wealthy	361	2.3

(Contd.)

	n	%
Disability		
Deaf or hard of hearing	36	0.4
Blind or visual impairment	83	0.9
Speech or language condition	9	0.1
Learning disability	38	0.4
Physical or musculoskeletal (e.g., multiple sclerosis)	20	0.2
Attention deficit disorder or attention deficit hyperactivity disorder	169	1.9
Psychiatric or psychological condition	455	5.1
Neurological condition (e.g., brain injury, stroke)	23	0.3
Medical (e.g., diabetes, severe asthma)	48	0.5
Does not have a disability	7,135	79.6
Disability not listed	60	0.7
Multiple disabilities	888	9.9
Sexual Orientation		
Asexual	315	3.5
Bisexual	808	9.0
Gay	133	1.5
Lesbian	130	1.5
Heterosexual	6,607	73.7
Pansexual	107	1.2
Queer	100	1.1
Questioning or unsure	199	1.1
Preferred response not listed	134	1.5
Multiple sexual orientation categories selected	431	4.8
Transfer Status		
Transfer	1,580	17.6
Non-transfer	7,384	82.4
Enrollment Status		
Full-time	8,580	95.7
Part-time	384	4.3
Class Level		
First Year	1,988	22.2
Second Year	1,950	21.8
Third Year	2,334	26.0
Fourth Year and Beyond	2,692	30.1
Employment		
Working in an off-campus job unaffiliated with school	2,922	32.6
Working in an on-campus job	2,660	29.7
Residence		

(Contd.)

	n	%
Off-campus with partner, spouse, and/or children	630	7.0
Off-campus with parent/guardian or other relative	1,991	22.2
Other off-campus home, apartment, or room	2,631	29.4
College/university residence hall	2,866	32.0
Other on-campus student housing	571	6.4
Fraternity or sorority house	189	2.1
Other residence	86	1.0
Academic Majors		
Natural sciences	1,156	12.9
Science, technology, engineering, or mathematics	1,210	13.5
Business or communications	1,608	17.9
Health-related	984	11.0
Education	535	6.0
Humanities	910	10.2
Social sciences	1,843	20.6
Undeclared or other	718	8.0
Carnegie Classification		
Baccalaureate	905	10.1
Master's colleges and universities: small and medium programs	1,489	16.6
Master's colleges and universities: larger programs	1,372	15.3
Doctoral/professional universities	2,673	29.8
Doctoral universities: High research activity	2,090	23.3
Doctoral universities: Very high research activity	435	4.9
Institutional Size		
Under 4,999	1,881	21.0
5,000 to 9,999	1,629	18.2
10,000 to 19,999	2,827	31.5
20,000+	2,627	29.3
Control		
Public	4,296	47.9
Private	4,668	52.1
Institutional Setting		
Town or rural	2,248	25.1
Suburb	1,682	18.8
Small city	1,486	16.6
Midsize city	2,020	22.5
Large city	1,528	17.0

Note. Less than 10 American Indian, Alaska Native, Native Hawaiian, and Pacific Islander students responded to the items in the survey, so they were removed from analysis to prevent potential identifiability.

Measures

Independent Variable

The survey included an item asking students whether they engaged in any community service in an average month. As noted above, in the original sample, 28.1% (n = 4,482) of students participated in community service in an average month. In follow-up items, students shared additional information about the nature of their participation in community service. Among those who participated in community service, 28.3% participated as part of a class, 9.0% as part of a work-study experience, 57.5% with a campus student organization, 39.1% as part of a community organization unaffiliated with their college or university, and 56.9% on their own. Students could select any of those options, so the totals do not round to 100%.

Covariates

I included pre-college, demographic, collegiate, and institutional variables as covariates in matching procedures because those variables are sources of self-selection biases for participation in community service and may also be associated with their social capital development (Cruce & Moore, 2007; D'Agostino, 2010; Horn, 2012; Marks & Jones, 2004; Mitchell & Donahue, 2009; Schulzetenberg et al., 2020; Soria et al., 2019). In the survey, students identified their race/ethnicity, parents' or guardians' education, and social class. I recoded parents' or guardians' education into a dichotomous variable (0 = *continuing-generation, where parents or guardians have ≥ a bachelor's degree or higher*, and 1 = *first-generation, where parents or guardians have < a bachelor's degree*). Students selected their social class in one of five categories (1 = *low-income or poor*, 2 = *working-class*, 3 = *middle-class*, 4 = *upper-professional or upper-middle class*, 5 = *wealthy*). Those subjective categories have strong correlations with other items typically used to measure social class (i.e., parents' or guardians' income and education; Soria & Barratt, 2012), they have been used extensively in research related to social class (Soria, 2012; Soria & Stebleton, 2013), and students' subjective social class identification is valid and reliable (Rubin et al., 2014; Soria, 2018).

The pre-college items measured students' participation in student clubs and organizations, organized sports, community service, and leadership positions while in high school. Students reported the frequency of their participation in those activities on a scale from 0 = *never* to 3 = *very often*. I also included two items measuring students' pre-college social capital development in which students reflected upon the accuracy (1 = *not at all accurate* to 5 = *completely accurate*) of the following statements regarding their behaviors prior to college: "I sought out connections with a range of people from different fields" and "I maintained relationships even when I wasn't sure I would get much from them."

In addition to race/ethnicity, parents' or guardians' education, and social class, the demographic characteristics used as covariates included students' gender, citizenship, sexual orientation, disability, and age. The variables related to collegiate experiences include transfer experience, enrollment intensity, class level, employment (on- or

off-campus), residence, and academic major. Finally, the institutional variables included Carnegie classification, size, control, and setting.

Dependent Variable

In the survey, students were asked to indicate how accurate the following statements were to their thoughts, beliefs, or actions (scaled 1 = *not at all accurate* to 5 = *completely accurate*): a() I intentionally seek out relationships with others who are different than myself; (b) When talking with someone, I look for connections that may either help me or help them; (c) I can effectively build a network in professional fields outside my own; and (d) I'm skilled at identifying mutual interests between colleagues and/or friends. I used those four items to construct a single factor via confirmatory factor analysis (described below) that I named "social capital development."

Data Analysis

I first used the "lavaan" package in R (Rosseel, 2012) for a confirmatory factor analysis on the social capital development items. The factorial model had acceptable fit (CFI = .981, TLI = .959, RMSEA = .060, SRMR = .028; Kline, 2015). The social capital development factor had good reliability (α = .874, ω = .876), which is congruent with related research (Soria & Cole, 2023).

Next, I utilized propensity score matching techniques using the "MatchIt" package in R (Ho et al., 2021) to match students who participated in community service (the "treatment" group) with students who did not participate in community service (the "control" group). There are multiple methods available to produce matched sets and different methods can yield differences between the treatment and control groups. Austin (2011) recommended that researchers use several methods for the balance of covariates prior to final selection for outcome analysis. After reviewing different methods (i.e., optimal pair matching, optimal pair matching comparing Mahalanobis distances, nearest neighbor, and full matching), I proceeded with nearest neighbor matching because it provided the best overall balances in the covariates after matching, the most similar distributions of propensity scores between the treatment and control groups, and the smallest differences in propensity score distances between the matched pairs (Schultzetenberg et al., 2020). I used binary logistic regression to compute students' individual propensity scores, the estimated probability that students participated in community service. I used one-to-one nearest neighbor matching without replacement so that students who participated in community service were matched to students who did not participate in community service (Austin, 2011). I used a caliper of 0.20, which represents the maximum tolerated difference between matched subjects (Greifer, 2022a). A caliper of 0.20 can eliminate between 98% and 99% of the bias (Austin, 2011).

When utilizing propensity score matching analyses, it is important to assess the similarity of the covariate distributions (or balance) between the "treatment" and "control" groups (Harder et al., 2010). I examined whether the matching procedures balanced the distribution of variables in both groups (students who did and did not participate in community service) by reviewing the standardized mean differences before and after matching.

I detected no imbalances above 0.25 after matching (Austin, 2011; Harder et al., 2010). The percent balance improvement for each covariate was above 0.0 and indicated the balance did not become worse after matching (Greifer, 2022a). The empirical cumulative density functions (eCDF) statistics, which correspond to the difference in the overall distributions of the covariates between the groups, were close to zero, which indicates better balance (Greifer, 2022a). All statistics are reported in Table 2.

I also visually inspected the Love plot of the standardized mean differences and observed that the matching improved balance on all covariates because all were within a threshold of 0.10 (Greifer, 2022b; Figure 1). I inspected the empirical quantile-quartile (eQQ) plots of the covariate for the "treated" units and value of the covariate at the corresponding quantile in the "control" group, kernel density plots of the covariate values and

Table 2
Balance Statistics

	Standardized Mean Differences Pre-Matching	*Standardized Mean Differences Post-Matching*	*Percent Balance Improvement*	*Empirical Cumulative Density Functions Post-Matching*
Propensity Score Distance	0.660	0.033	95.10	0.004
Transfer Status	0.074	−0.001	99.20	0.000
Enrollment Intensity	0.008	−0.011	38.30	0.002
Class Level	0.052	−0.001	97.80	0.001
Academic Major	−0.023	−0.007	71.60	0.009
Working Off Campus	0.023	0.007	69.10	0.003
Working On Campus	0.166	0.031	81.50	0.014
Student Clubs or Organizations (H.S.)	0.309	0.024	92.30	0.007
Organized Sports (H.S.)	0.181	0.001	99.50	0.005
Leadership Positions (H.S.)	0.358	0.022	93.80	0.006
Community Service (H.S.)	0.605	0.007	98.90	0.004
Sought Connections (H.S.)	0.266	0.020	92.30	0.005
Maintained Relationships (H.S.)	0.144	0.005	96.50	0.004
Age	0.037	0.022	39.90	0.004
Gender	0.212	−0.018	91.60	0.004
Sexual Orientation	0.021	0.025	17.00	0.005
Citizenship	−0.033	−0.007	78.40	0.002
Race/Ethnicity	−0.068	−0.008	88.30	0.003
Disability	0.004	−0.001	78.00	0.006
Social Class	0.010	−0.016	56.90	0.004
First-Generation Status	0.091	0.001	99.00	0.005
Residence	−0.075	0.005	92.90	0.003
Institutional Size	−0.040	−0.014	66.50	0.012
Institutional Control	−0.054	−0.005	90.90	0.003
Institutional Setting	0.044	0.011	74.10	0.008
Carnegie Classification	−0.151	−0.021	86.10	0.006

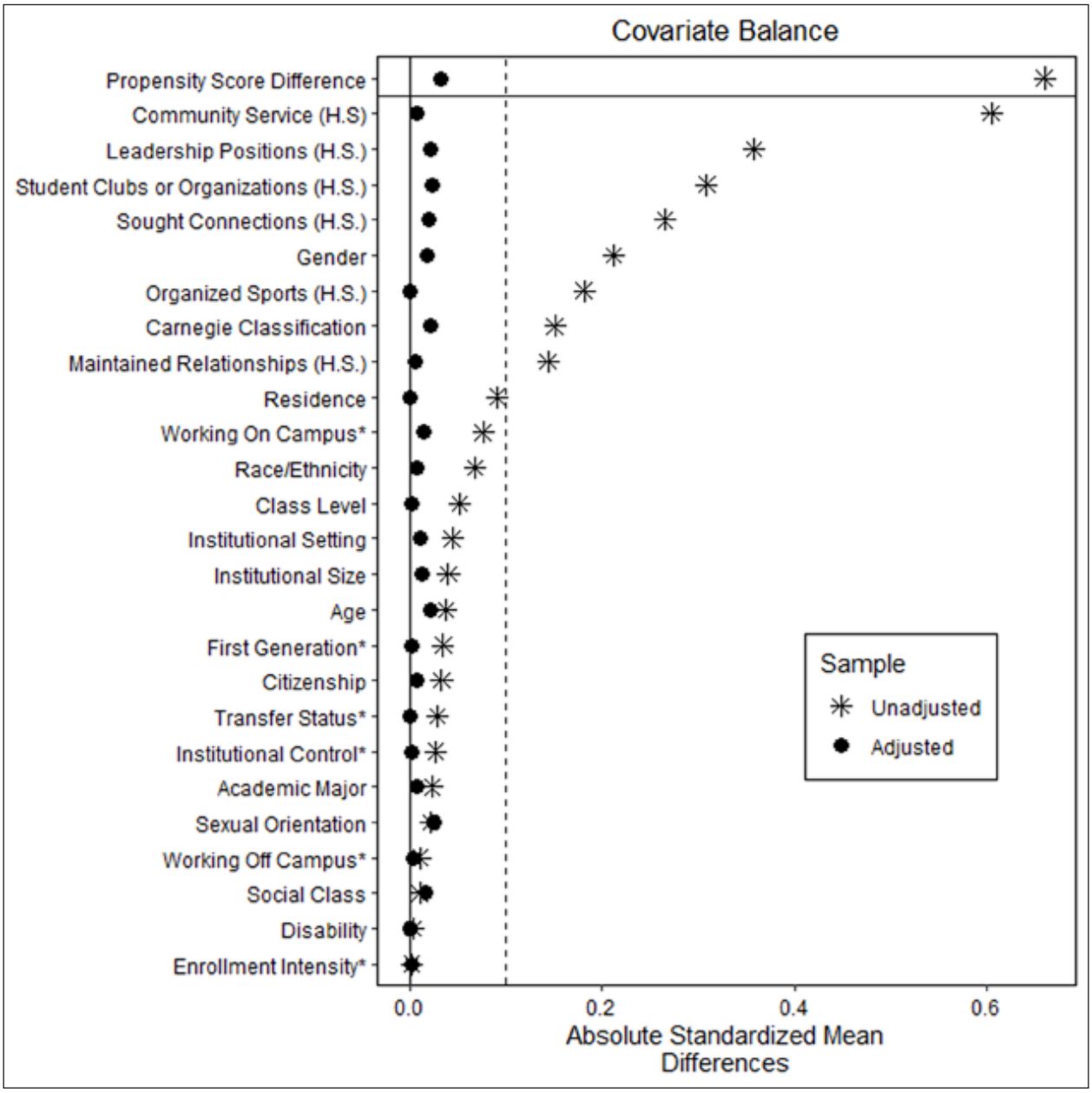

Figure 1 Love Plot of Standardized Mean Differences Before and After Matching.

density of the sample at the covariate values, and the histograms of the density of the propensity score distribution before and after matching (Figure 2). The visual evidence suggested that the covariates within the groups differed significantly before matching procedures were implemented. The matching techniques effectively decreased bias by making the groups of students who did and did not participate in community service more similar with regard to the covariates.

Finally, I analyzed the data using ordinary least squares regressions to examine the relationship between the independent and dependent variables. I did not utilize hierarchical linear modeling techniques, even though the students were enrolled at different institutions. I computed the intraclass correlation coefficient (an estimate of the

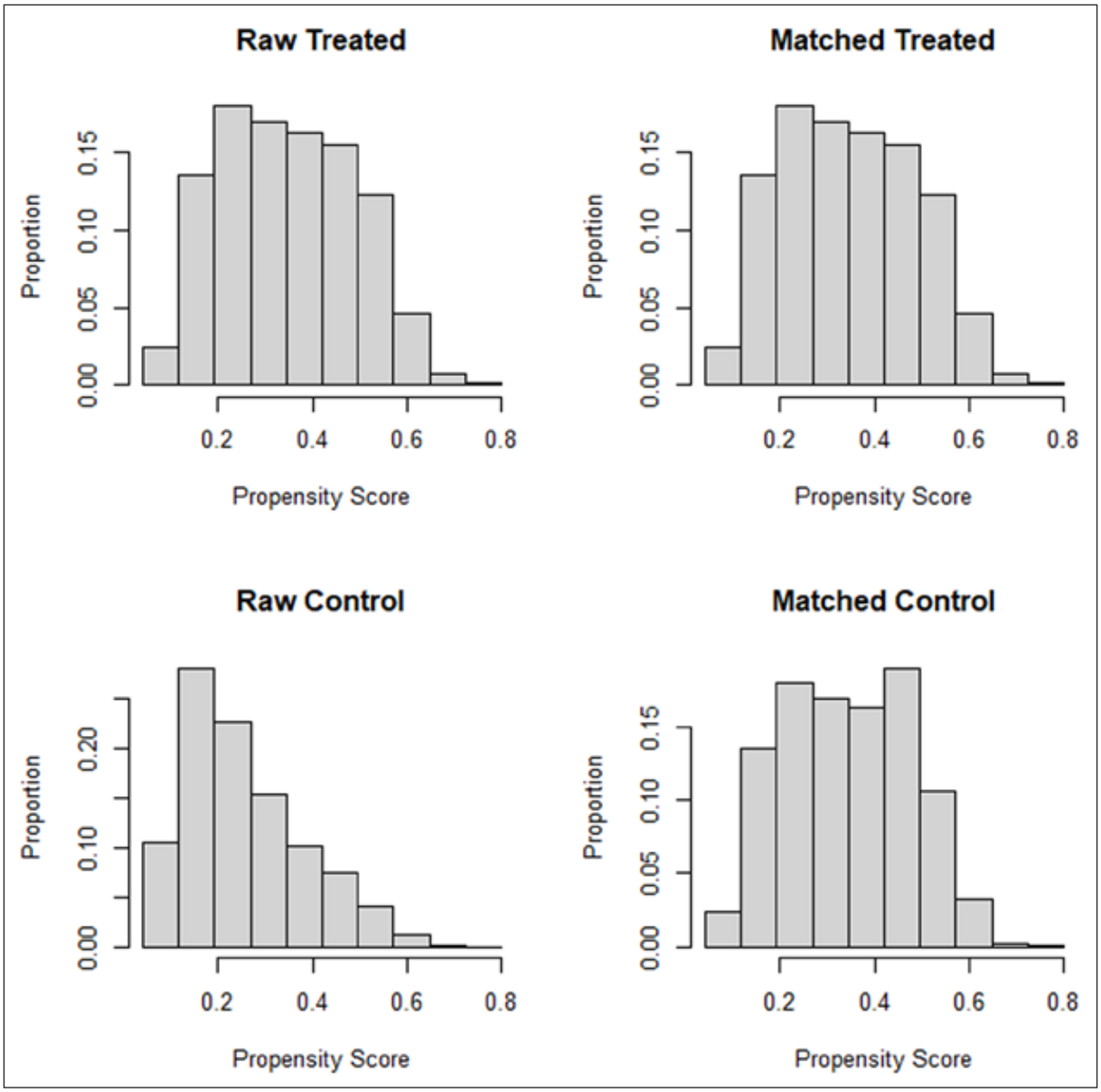

Figure 2 Histograms of the Density of the Propensity Score Distribution Before and After Matching.

proportion of between-institution variance compared to within-institution variance) using the bruceR package in R (Bao, n.d.). The coefficient was .010, suggesting greater independence of observations in the different groups of institutions. Scholars utilizing the MSL survey in prior studies have also discovered nominal between-institution differences (Dugan et al., 2013), so ordinary least squares regression is sufficient for the present analysis. I ran 15 separate ordinary least squares regressions—one for all students and 14 separated by students' race/ethnicity, first-generation status, and social class. In the regression analyses, I also included the same covariates used in matching procedures (Horn, 2012; Soria et al., 2019) and whether or not the community service was completed as a part of a course (i.e., a service-learning class), given the important role of faculty in enhancing the social capital development among marginalized students (Soria & Stebleton, 2013; Stanton-Salazar, 2011). Adding the covariates in

regression models post-matching has several benefits, including increasing precision in the estimates, reducing bias from residual imbalance, and generating robust estimates (Greifer, 2022b).

Results

The results of the first ordinary least squares regression analysis for all students suggests that community service participation has significant ($p < 0.05$) and positive effects on students' social capital development (Table 3). The results also suggest that community service has heterogeneous effects on students' social capital development by their race and ethnicity. There were no statistically significant effects of community service on the social capital development of Middle Eastern or Northern African students' social capital development. There were also no statistically significant effects of community service on the social capital development among students who did not have a race or ethnicity listed in the survey. However, there were statistically significant ($p < 0.05$) and positive effects of community service on African American or Black, Asian American, Latinx or Hispanic, multiracial, and White students' social capital development. Among both continuing-generation and first-generation students, community service participation had significant ($p < 0.05$) and positive effects on their social capital development. Finally, the results suggested there are statistically significant ($p < 0.05$) and positive effects of community service participation on low-income or poor, working-class, middle-class, upper professional or upper middle-class, and wealthy students' social capital development. All effects held controlling for the covariates used in propensity score matching and for the additional independent variable of whether the service completed was within a service-learning class.

Table 3
Regression Analyses for College Students' Social Capital Development

	B (SE)	*p*	*95% CI(B)*	R^2
All students	0.237 (0.020)	***	0.199, 0.276	0.481
Middle Eastern or Northern African	0.233 (0.226)		−0.217, 0.683	0.610
African American or Black	0.282 (0.081)	**	0.124, 0.441	0.536
Asian American	0.182 (0.068)	**	0.049, 0.315	0.513
Latinx or Hispanic	0.219 (0.080)	**	0.061, 0.376	0.453
Multiracial	0.237 (0.023)	***	0.192, 0.282	0.471
White	0.321 (0.056)	***	0.211, 0.432	0.548
Race Not Listed	0.174 (0.129)		−0.080, 0.429	0.508
Continuing-generation (parents/guardians have ≥ a bachelor's degree or higher)	0.242 (0.023)	***	0.197, 0.288	0.484
First-generation (parents/guardians have < a bachelor's degree)	0.227 (0.036)	***	0.156, 0.298	0.477
Low-income or poor	0.293 (0.067)	***	0.161, 0.426	0.442
Working-class	0.292 (0.045)	***	0.204, 0.380	0.511
Middle-class	0.202 (0.030)	***	0.143, 0.261	0.496
Upper professional or upper middle-class	0.238 (0.038)	***	0.163, 0.312	0.469
Wealthy	0.148 (0.075)	*	0.011, 0.293	0.482

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Each separate model includes covariates, but only the focal coefficients are presented.

Discussion, Limitations, and Recommendations

The results of this study suggest that community service participation has significant and positive effects on undergraduates' social capital development. Most students who participate in community service benefit from being more likely to intentionally seek out relationships with others from diverse backgrounds, build networks across professional fields, and identify shared interests between colleagues and/or friends for the benefit of mutual support. However, the results are not uniform across students based upon their race or ethnicity; in particular, community service did not have significant effects on social capital development among Middle Eastern or Northern African students or students who did not have a race or ethnicity listed in the survey. By and large, while community service participation may be a useful means for some students from marginalized identities to develop social capital in higher education—including African American or Black, Asian American, Latinx or Hispanic, multiracial, first-generation, low-income, and working-class students—it also appears as though community service participation also enhances social capital among privileged students as well.

The inconsistent results by race/ethnicity may be the result of several factors. Notably, the sample sizes were smaller among Middle Eastern or Northern African students and students who did not have a race or ethnicity listed on the survey, which reduces the statistical power and ability to find an effect. The size of the effects of community service were also smaller among some students of color compared to White students. Some community service experiences may reinforce structural injustices, reaffirm White privilege, and reinforce the subjugation of racially minoritized people and communities (Cahuas & Levkoe, 2017; Cann & McCloskey, 2017; Castillo-Montoya et al., 2021). While the survey did not capture details about the community service spaces students served in this study, racially minoritized students may encounter unexamined racist perspectives in predominantly White community service spaces where critical lenses and perspectives are not employed (Mitchell & Donahue, 2009; Mitchell et al., 2012). In those circumstances, the act of centering and prioritizing White students' experiences and outcomes serves not only to reinforce the power and privilege of Whiteness in higher education, but it diminishes the potential developmental outcomes for racially minoritized students, who are often overburdened with teaching their peers about issues like racism and privilege, may struggle to navigate the complexities of service in White-framed "needy or problematic" communities that may include their own communities of upbringing, and endure unchallenged deficit assumptions about racially minoritized communities (Mitchell et al., 2012). In the service of Whiteness, racially minoritized students' development outcomes may be neglected, contributing to the social reproduction of ongoing social capital disparities (Bourdieu, 1980).

The specific nature of students' community service participation—including duration, type of organization, community, and other contextual factors—is unknown, which limits understanding of whether some of those factors may be supportive of students' social capital development. Although I included the independent variable of whether students' community service was completed in the context of a service-learning course, I observed that service-learning was not significantly associated with students' social capital development in any of the 15 models. While faculty are institutional agents who can impart social capital among marginalized students (Soria & Stebleton, 2013; Stanton-Salazar, 2011), it may be the case that faculty-related social capital development has

greater limitations than community-related social capital development. I encourage researchers to continue to explore the effects of different types of community service, including service conducted in the context of service-learning courses, on students' social capital development.

Some have proposed that community service experiences expand undergraduates' trust in community institutions (e.g., emergency services), trust in individuals, feelings of reciprocity, and networks, which can promote social capital (Coleman, 1988; D'Agostino, 2010). Within service environments, students are likely to work alongside the community partners—adults, staff, volunteer managers, or supervisors—who may actively mentor students to increase their social capital by intentionally connecting them with other networks (Swaminathan, 2007). It may be the case that community service participants received opportunities to engage with individuals from different backgrounds, which can facilitate bridging social capital (Putnam, 2000; Tinkler & Tinkler, 2020); however, the survey did not capture the composition of the communities in which students served, so it may also be the case that students served in homogenous communities or worked alongside others from similar backgrounds, which could diminish bridging social capital. Students may have served alongside others with a similar passion or interest in resolving a societal or community problem, which can facilitate bridging social capital (Putnam, 2000). While those two types of social capital were not distinguished in this study, I encourage researchers to explore the nuances of bridging and bonding capital and whether both may be potential outcomes of community service.

There are additional limitations to the study that provide rich opportunities for future research. The survey was administered during the COVID-19 pandemic, which likely limited students' ability to participate in different types of community service and may have also hampered their social capital development. In the sample, 28.1% of students participated in community service, although in a previous administration of the MSL survey in 2018, the average was 42.3%. The selection of covariates in the logistic regression is subjective and propensity score matching reduces the sample size for the outcome analysis, which can introduce bias in the final models. While I used propensity score matching to address self-selection bias, the generalizations derived from self-selection in response to the MSL survey should be factored into cautious interpretations of the results.

Further, the data are limited by students' self-reported responses to items related to their community service participation and social capital development. Critics have proposed that students may be overconfident or inaccurate in their self-assessment of experiential learning (Porter, 2011; Porter et al., 2011). The sample also included college students who were attending four-year institutions, so the results may not be generalizable to students enrolled at other institutions. The limited diversity of the sample may also make it difficult to generalize the results to students enrolled at campuses with higher demographic diversity. Consequently, I recommend that scholars continue exploring the benefits of community service participation among more diverse samples of college students enrolled at different types of institutions.

Conclusion

The results of this study provide some evidence for the potential ways in which community service participation can enhance undergraduates' social capital development. While those results are promising, less than one-third of the students in the original sample participated in community service and not all students equally benefited from

community service participation in terms of their social capital development. Therefore, I encourage higher education administrators, faculty, and staff to consider the ways in which community service opportunities could be more intentionally leveraged to promote students' social capital development, especially among marginalized students.

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Author Bio

Dr. Krista M. Soria is an assistant professor in leadership and counseling at the University of Idaho. She is a critical quantitative researcher seeking to investigate the most equitable and inclusive programmatic practices and institutional conditions to prepare students to engage in the complexities of social change. She examines how higher education institutions can create a more supportive campus climate for students from diverse backgrounds, whether programs are equitably accessible and beneficial to all students, and how we can create structural conditions to support students' development and success.