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Sibling Social Capital and College Success among Underrepresented Students

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Sibling Social Capital and College Success among Underrepresented Students

A Thesis submitted in partial satisfaction of the requirements
for the degree of Master of Arts

in

Social Sciences (Sociology)

by

Wendy V. Puquirre

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Professor Irenee R. Beattie (Chair)
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Professor Zulema Valdez

2015

The Thesis of Wendy Vanessa Puquirre is approved, and is acceptable in quality and form for publication on microfilm and electronically:

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ABSTRACT

Sibling Social Capital and College Success among Underrepresented Students

by Wendy V. Puquirre for partial satisfaction of the requirements
for the degree of Master of Arts in Social Sciences (Sociology)
University of California, Merced 2015
Professor Irenee R. Beattie, Chair

Research in the sociology of education has long stressed the benefits of social capital for academic success. This explanation, however, offers little insight for understanding the academic success of underrepresented students, including Latinos and African Americans – who are often examined through deficit models. Drawing from social capital theory, this study examines the effect of an additional source of social capital that may facilitate college success for underrepresented students: sibling social capital. I expect that having an older sibling who attended college and talking to them about educational matters will prove especially beneficial for underrepresented students' college achievement (college GPA) and engagement (academic interactions) compared to their overrepresented peers (whites and Asians). Using the Social Interactions and Academic Opportunities Survey, with a random sample of 401 undergraduates attending a Hispanic Serving Institution, I use OLS and logistic regression to predict college success. I measure sibling social capital in two ways: 1) number of older sibling who attend/attended college and 2) the frequency and topics of educationally relevant conversations the younger sibling reports having with their older sibling while in college. Results indicate that sibling college attendance has positive effects for underrepresented students compared to overrepresented groups. The effect of educationally relevant conversations is mixed. Analysis focused on typically marginalized students may reveal tools for success that have been previously overlooked by social capital studies and studies on the academic achievement of underrepresented groups.

Sibling Social Capital and College Success among Underrepresented Students

Despite increasing diversity in higher education over the last couple of decades, disparities persist in the educational outcomes of underrepresented populations in college (Pascarella, Pierson, Wolniak, and Terenzini 2004; Lohfink and Paulsen 2005; Cerna, Perez and Saenz 2009; Armstrong and Hamilton 2013; Pyne and Means 2013). Disparities in college enrollment contribute to the "underrepresented" status of Black and Latino students, who enroll at lower rates than their white and Asian counterparts (U.S. Department of Education, 2013, 302.20). The disparities in college degree attainment are even greater. Of black and Latino students, only 40 percent and 52 percent earn college degrees, respectively (U.S. Department of Education, 2013, 326.10). In contrast, 63 percent of white and 71percent of Asian students earn college degrees (U.S. Department of Education, 2013, 326.10). These disparities in college enrollment and degree attainment highlight the need for colleges and policy makers to address education gaps. Examining academically successful underrepresented students in college can reveal how to create and expand pathways for disadvantaged populations and mitigate existing education gaps.

Research in the sociology of education has long stressed the importance of social capital as a determinant of a student's academic success (Coleman 1987; Bourdieu 1983; Stanton-Salazar and Dornbusch 1995; Dika and Singh 2002; Kim and Schneider 2005; Perna and Titus 2005, Cerna, Perez and Saenz 2009). At the student level, studies have specifically highlighted the impact of parental involvement on the high school completion and college enrollment of their children (Kim and Schneider 2005; Perna and Titus 2005). The research on parental involvement often highlights the resources that parents can provide to their children as a result of their own human, social and cultural capital. Consequently, students of color tend to be examined through deficit models (Yosso 2006, Cerna et. al 2009). These students, their families, and communities are seen as not having the "adequate" human, social, and cultural capital to successfully navigate the education system. This tendency in the literature to highlight parental involvement as a measure of social capital may obscure alternate resources underrepresented students use for success. After all, if these students of color are "deficient," how do any of them go to college and earn degrees?

I argue that there is an overlooked but salient resource that facilitates academic success among underrepresented college students: sibling social capital. I define sibling social capital as the resources available to students via their college educated siblings. Ultimately, I contend that when examining the academic outcomes of underrepresented college students we must consider the alternate resources available to them for academic success.

LITERATURE REVIEW

Student-Level Social Capital

Social capital refers to the resources available to an individual through his/her social networks (Bourdieu 1983). Research in the sociology of education has established the importance of social capital as a determinant of students' academic success (Lareau 1987; Coleman 1987; Kim and Schneider 2005; Perna and Titus 2005; Cerna et al. 2009). Specifically, studies have shown the importance of parent-child interactions and parental actions (e.g. visiting colleges during high school) for providing adolescents with access to educationally-relevant social capital that facilitates high school completion and college enrollment (Kim and Schneider 2005; Perna and Titus 2005).

Exploring parent-child interactions, Coleman (1987) finds that the more time parents spend with their children, the better they do in school. He concludes that children who spend time with their parents have access to their parents' human capital and thus, are more likely to do better in school than children who spend little time with their parents (Coleman 1987). Studies also demonstrate that parents with higher levels of human capital (via their own education) are better able to provide their children with social capital that optimizes their abilities to apply and enroll in selective colleges (Kim and Schnider 2005; An 2010). This work highlights that parents with high levels of human capital often have rich social capital, which allows them to help their children successfully transition into postsecondary education.

Research on disadvantaged groups illustrates that this pattern varies since low SES, black, and Latino parents often have difficulties advocating for their children in school settings (Lareau 1987; Cooper 2003; Lareau 2003; Moreno and Valencia 2010). Studies examining the outcomes of students from high SES and low SES backgrounds find that middle class educated parents see their children's education as a shared endeavor with the school and are thus more likely to intervene if they feel like their children are not receiving all the benefits available to them (Lareau 2003). Working-class parents, on the other hand, see education as a teacher's responsibility (e.g. the way they believe it is a doctor's job to cure an illness), and educators perceive parents' lack of interaction as disinterest in their children's education. Lareau (1987; 2003) also highlights how low SES parents are aware that schools hold biases against them and resent the schools for it.

Studies specifically looking at families of color find that parents are very much involved in their children's education but their involvement is typically confined to the home environment and thus, rendered invisible to educators (Moreno and Valencia 2010). As a result, educators misconstrue the parents "invisibility" in the school setting as disinterest in the children's education (Copper 2003; Moreno and Valencia 2010). Furthermore, parents often resent

educators for not recognizing the various factors that prevent them from attending school events (i.e. inflexible work schedules) (Cooper 2003; Moreno and Valencia 2010). Since ethnic minorities are more likely to be of low socioeconomic status (SES) and educators are more likely to hold biases against them, unpleasant interactions with school systems may limit what these parents can do to facilitate their children's academic success. Additionally, the work on parental involvement in families of color demonstrates that "typical" measures of social capital can portray their parental involvement as "deficient" (Yosso 2005; Moreno and Valencia 2010), when in fact, it is just different and less visible.

Underrepresented Students and the Education System

There is great deal of evidence that navigating the education system is an enormous challenge for underrepresented groups such as black and Latino students (Valenzuela 1999; Ream 2003; Rosenbloom and Way 2004; Tenenbaum and Ruck 2007; Ream and Rumberger 2008). During high school, black and Latino students are more likely to experience discrimination by authority figures than their white and Asian peers (Rosenbloom and Way 2004; Tenenbaum and Ruck 2007). With little support from institutional actors (i.e. teachers), some argue that it is important for students to draw on social capital from their peer networks (Stanton-Salazar 1995; Ream and Rumberger 2008). However, given that black and Latino students are more likely to be working class, they are less likely to befriend peers with high levels of social capital (typically high SES) (Stanton-Salazar 1995; Lin 2000; Ream and Rumberger 2008). Thus, for black and Latino students, the discrimination in schools and the homophily of social networks greatly diminishes their opportunities for academic success.

For students from underrepresented groups that manage to get through the pipeline and go to college, difficulties persist (Lohfink and Paulsen 2005; Cerna et al. 2009; McCabe 2009; Yosso, Smith, Ceja, and Solorzano 2010). On college campuses, students of color experience a barrage of microaggressions and hostile racial climates (McCabe 2009; Yosso et al. 2010). Additionally, studies illustrate how lack of family resources stunts integration into college life due to greater chances of part-time school enrollment (Pascarella et al. 2004) and higher likelihood of living at home (Lohfink and Paulsen 2005). This partial integration further limits the ability of black and Latino students to form resource rich social networks that would facilitate college success (Harper 2008). Nevertheless, since students from underrepresented backgrounds are earning college degrees, I ask: how do these students overcome the obstacles they face?

Sibling Social Capital

The overemphasis on parental involvement as a determinant of academic achievement and notions of deficiencies among communities of color limit our understanding of alternate determinants for success among underrepresented students. I contend that sibling social capital is an overlooked but salient resource that facilitates academic success among underrepresented college students. To facilitate the discussion of sibling social capital, I refer to academically successful older siblings as "pathfinders" and younger siblings as "path-followers." I conceptualize pathfinders as the students, often the oldest children in a family, that experience many of the obstacles described above first. As pathfinders develop a repertoire of first-hand academic experiences (positive and negative), they may be better able to advice pathfollowers on how to navigate those situations easily and efficiently.

The role of siblings in the academic achievement of underrepresented students has been rarely studied (see: Hess and D'Amato 1996; Hurtado-Ortiz and Gauvian 2007). Nevertheless, these studies do suggest that older siblings can have positive effects on the academic achievement of younger siblings among families of color. Investigating how experiences in the family context contribute to Latinos' postsecondary educational attainment, researchers found that educational experiences of older siblings influence younger siblings' academic experiences (Hurtado-Ortiz and Gauvain 2007). This research revealed that younger sibling college attendance was correlated with that of their older siblings'. Similarly, Hess and D'Amato (1996) note that younger siblings of dropouts have lower academic expectations than siblings of persisiters (those that stay in high school). In other words, if the older siblings were persisting, then the younger siblings were more likely to have higher academic expectations for themselves. The sibling dynamics highlighted in these studies suggest that older siblings who are more knowledgeable of the education system from first-hand experience may be better positioned to guide and mentor younger siblings compared to their parents, who are more likely to have negative experiences with institutional actors (Lareau 1987; Cooper 2003; Lareau 2003; Moreno and Valencia 2010).

A more popular way of examining the role of siblings on academic achievement has been through economic models such as the Resource Dilution Model (see: Powell and Steelman 1990; Powell and Steelman 1993; Steelman, Powell, Werum, and Carter 2002; Jaeger 2008). The resource dilution model maintains that the higher the number of closely spaced children there are in a family, the fewer resources each individual child has (Powell and Steelman 1993; Steelman et al., 2002). This model, however, is still focused on the resources parents can give their children and may not function in the same way for underrepresented students.

As highlighted in studies documenting the challenges students of color face in school, academic success can be difficult to achieve for certain groups. However, pathfinding older siblings that manage to enter the college pipeline may be better positioned to guide and mentor their pathfollowing younger siblings through the challenges they too will face during their academic trajectory. Furthermore, there is evidence that as students go through college, they learn to refine their origin habitus—tastes, preferences, and knowledge—and adopt a more middle class habitus (Lee and Kramer 2013; Lehman 2013). If this is the case, learning the norms and habitus required of academia would allow pathfinders to provide information to pathfollowers that could facilitate their college transition and completion.

To assess the role of pathfinding older siblings on the academic outcomes of pathfollowing younger siblings, I ask three questions:

1) Does having an older sibling who attends/attended college improve younger sibling's academic success in college?
2) Does discussing educational matters with college educated older siblings improve younger sibling's academic success?
3) And, if older siblings improve younger sibling's academic success, are the effects stronger for underrepresented students than for overrepresented students?

I use OLS regression and logistic regression analysis of the data from the Social Interactions and Opportunities Survey (SIAO). I assess whether the number of older siblings in college and race affects college GPA and academic engagement. And I assess whether talking to older siblings about academic matters (scale measure to capture sibling social capital) affects college GPA and academic engagement. I hypothesize that having more older siblings in college and discussing academic matters with them will have a positive effect on the academic success of younger siblings, particularly among underrepresented students.

DATA AND METHODS

Survey

The data come from the Social Interactions and Opportunities (SIAO) survey administered at a public university I call "Northern University" in the Fall semester of 2011. The SIAO survey contained approximately 70 questions about student interactions with family and friends prior to college enrollment as well as institutional, academic, financial, and personal factors that may help or hinder college success. These questions were appended to Northern University's administrative records including demographics (e.g. race/ethnicity), precollege achievement (e.g. SAT scores, high school GPA, etc.), and college experiences (e.g. transcript data).

The survey was created and administered using the basic methodology guidelines outlined in *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method* (Dillman et al. 2009). Dr. Irenee Beattie designed and implemented the SIAO survey with the help of 15 undergraduates enrolled in an advanced research methodology course. The Qualitrics survey design tool was then used to administer the SIAO survey online. The university registrar provided email addresses for the undergraduate population. A random sample of 1000 students, stratified by class year, was then contacted via email to take the SIAO survey. To incentivize students to complete the survey, Dr. Beattie used grant funds and randomly entered students into prize lotteries if they completed the survey. The prizes offered were gift certificates redeemable at the campus bookstore that ranged in value from $5 to $75. Students were reminded up to four times to complete the survey.

Of the 1000 students contacted, 403 completed the survey, resulting in a 40 percent response rate. This response rate is in line with other widely used surveys of college populations, such as the National Survey of Students Engagement (NSSE), which has an average response rate of about 30 percent (NSSE 2014). Beattie and Thiele (Forthcoming) discuss the reliability and validity of these data in more depth.

Participants

Northern University has a large proportion of underrepresented minority students and first generation college students. During the semester the data was collected, about 34 percent of students on campus were Latinos, 28 percent were Asian, 22 percent were white, and 6 percent were African American. The campus is also a designated Hispanic Serving Institution (HSI) and over half of the undergraduate population receives Pell grants. Additionally, the majority of the students come from the state in which Northern University is located. It should be noted that this sample overrepresents female and higher achieving students relative to the campus population. However, the sample's racial demographics are comparable to the demographics of the campus, with Latinos making up 38 percent of the respondents, followed by Asians at 24 percent, whites at 19 percent, and African Americans at 8 percent. This sample was chosen precisely because of the racial demographics. Although it poses limits on generalizability, the sample is ideal for uncovering the mechanisms underlying the success of typically marginalized groups because of their overrepresentation.

Dependent Variables: Academic Success

Grade point average. To assess academic outcomes, I first examine cumulative college grade point average (GPA). Participant GPA was obtained through Northern University's registrar. The GPA variable ranges from .657 to

4.0 and has a mean of 2.887. GPA was kept continuous for the linear regression analysis but was dichotomized for the binary regression analysis. For logistic regression, I coded students with a GPA of 3.0 or higher as 1 and students with a GPA of less than 3.0 as 0. I chose a GPA of 3.0 as the cutoff because that is typically the cutoff for admission to graduate programs and scholarships.

Academic engagement. The academic engagement variable is a scale created from various questions in the SIAO survey. Higher values on this scale indicate more class participation, study time, and interaction with peers and professors about academics. The scale items include: how often students talk to professors in general, how often they go to office hours, how many hours per week they study, how often they participate in class discussions, how often they discuss academic matters with professors, how often how often they talk to friends about academic matters, and how many hours they study with friends. Given the variance in measurement metric, items were standardized and added up to construct the scale. The scale has a Cronbach's alpha of .76. Since the variable is continuous, I use an OLS regression for the analysis.

Independent Variables: Race and Sibling Social Capital

Underrepresented Race. To address the effects of siblings on underrepresented students, I dichotomize race. Black and Latino students are coded as one (underrepresented group) and white and Asian students are coded as zero (overrepresented group). I decided to dichotomize the sample rather than having four categories because the sample is small and it would have greatly reduced the power of the analysis. The overrepresented group is the reference category during analysis. Ideally, I would have included Southeast Asian students in the underrepresented category. Studies have shown that the academic experience and outcomes of Southeast Asian students differs from the experiences of other higher achieving Asian subgroups such as Chinese, Japanese, and Vietnamese (Ima and Rumbaut 1989; Kim 2002; Mizokawa and Ryckman 1990; Ngo 2006). However, the institutional data provided by the registrar is not detailed enough to separate Southeast Asian students into their own category.

Number of older siblings in college. To measure the sibling variable, I combined various items in the survey that specifically ask respondents about their siblings. Students were first asked "How many siblings shared your primary home with you when you were growing up (including step-, half- or adopted siblings)?" Then, they were asked, "How many of the siblings counted in the previous question are older than you?" and "How many of your older siblings have attended (or currently attend) a college or university?" 200 respondents answered

the last questions. 37 had no older siblings in college and rest of the respondents had one to six older siblings in college.

Discussing academic matters with older siblings. I also used a scale variable to capture sibling social capital using responses to a question about discussions with siblings. Participants were asked, "During the Fall 2010 semester about how often did you discuss (in person or through some other mode) the following topics with your older sibling(s)?" Possible answers included: future career plans; post-BA/BS education; course material and/or assignments; grades; and financial concerns. The scale has a Cronbach's alpha of .93. Higher values indicated greater frequency of contact with older siblings. During analysis, I reduced the sample to only include respondents with older siblings who attend/attended college because I was interested in whether respondents were discussing academic matters with older siblings in college. This, however, greatly reduced the sample size.

Interaction Terms

In order to determine whether older siblings in college had a moderating effect on academic success, I created two interaction terms between race and older siblings in college. The first interaction term is between underrepresented students and number of older siblings in college. The second is an interaction between underrepresented students and discussion of academic matters with older siblings in college. The interaction terms were added to the OLS regression on GPA, the binary logistic regression for GPA, and the OLS regression for academic engagement.

Controls

The goal was to isolate the effect of older siblings in college and race on the academic success of respondents. Therefore, I had to control for precollege attributes that could have influenced academic success such as high school GPA, and SAT scores (Geiser and Studley 2002; Nobel and Sawyer 2002; Massey and Probasco 2010). Since I was interested in the effect of race, it was important to control for some socioeconomic factors such as first generation college student status and financial hardships. Additionally, to isolate the effect of sibling social capital, I controlled for parental social capital (a scale capturing the frequency and topics of academic matters discussed with parents during the senior year of high school, Alpha .85), whether the students grew up in a two-parent household, and the overall number of siblings in a household.

Missing Data

Given the small sample size, it was important to deal with missing data on the independent variables included as controls. To address missing data, I imputed missing values with the means of each variable. Ancillary analysis suggested that there was no difference between mean substitution (done for this analysis) and multiple imputations. Variation in the N of the analysis is due to missing data on the dependent measures and/or the key independent measures, not the independent measures included as controls.

Analytic Strategy

For the analyses, I ran four models per outcome. For the OLS regression, I first examine the direct effect of race and the number of older siblings in college on cumulative GPA. Next, I add the controls to see if the direct effects remain. Then, I examine the effect of the interaction term of race and siblings in college (Black or Latino X number of older siblings in college) on GPA, without controls and, finally, with controls. The binary logistic regression on the dichotomous GPA and the OLS regression on academic engagement were estimated in the same manner. Similarly, the analysis using the sibling social capital measure is estimated the same way.

RESULTS

Effects of Race and Number of Older Siblings On Academic Success

College GPA. Table 1 reports the OLS coefficients for the effects of race and older siblings in college on GPA. The first model in Table 1 shows that there is a significant relationship between race and GPA. Being underrepresented is associated with a .14 decrease in GPA and the effect is significant at the .05 level. When controls are introduced in the second model, the relationship is no longer significant. Given that pre-college characteristics, growing up in a two parents household, and first-generation college student status are significantly associated to GPA, these variables better predict college GPA than race alone. The first and second models also show that there is no relationship between number of older siblings in college and GPA. When the interaction term between race and number of older siblings is introduced in the third model, the interaction term is significantly associated to GPA. This relationship suggests that for underrepresented students, each additional older sibling in college is associated with a 0.115 increase in GPA. Figure 1 better illustrates this relationship. Figure 1 demonstrates that as the number of older siblings in college increases, predicted GPA *increases* for underrepresented students but *decreases* for overrepresented students. This effect, however, disappears in the fourth model when controls are

introduced. Once again, precollege characteristics, growing up in a two-parent household, and first-generation college student status explain college GPA.

[TABLE 1 AND FIRE 1 AROUND HERE]

Table 2 presents the odds ratios of having a 3.0 GPA or higher for underrepresented students and older siblings in college. The first and second models in Table 2 show that there is no direct effect between number of older siblings in college on GPA. The effect of race on GPA is not significant in model 1 but is marginally significant in model 2. When the interaction term between race and number of older siblings in college is introduced in the third model, the effect is significantly associated with having a GPA above 3.0. For underrepresented students, each additional older siblings in college increases the odds of having a 3.0 GPA or above by a factor of 1.5. This effect remains when control variables are introduced in the fourth model. The fourth model suggests that for underrepresented students, each additional older sibling in college is associated with an odds ratio 1.5 times greater than for overrepresented students and the effect remains net of control variables. So, even controlling for high school GPA and family background, having older siblings in college has a positive effect in underrepresented students' college GPA. Figure 2 better illustrates this relationship: as number of siblings increases, the predicted probability of having a 3.0 GPA or above *increases* for underrepresented students but *decreases* for overrepresented students.

[TABLE 2 AND FIGURE 2 AROUND HERE]

Academic Engagement. Table 3 presents the OLS coefficients for the academic engagement of underrepresented students and older siblings in college. The first two models in Table 3 show that there is no direct effect between race and number of older siblings in college on academic engagement. Model two suggests that discussing academic matters with parents and first generation college students status are better predictors of academic engagement since they have significant effects. However, when the interaction term is introduced in the third model, the effect is significant at the .05 level. In model three, each additional older sibling in college is associated with 0.78 increase in academic engagement for underrepresented students. The effect remains and slightly increases when controls are introduced in the fourth model. In model four, each additional older sibling in college is associated with a 0.82 increase in academic engagement for underrepresented students, net of the control variables. Figure 3 illustrates this relationship: as the number of older siblings in college increases,

the predicted academic engagement of underrepresented students *increases* but *decreases* for overrepresented students.

[TABLE 3 AND FIGURE 3]

Effects of Sibling Social Capital

College GPA. Table 4 reports the odds ratios of having a 3.0 GPA or higher for students who discuss academic matters with their older sibling and for underrepresented students. Model one in Table 4 suggests that siblings social capital decreases the odds of having a 3.0 GPA or higher by a factor of .94. The effect is marginally significant at the .1 level in a one-tailed test. Underrepresented status is not significantly associated to GPA in model one. When control variables are introduced in the second model, siblings social capital decreases the odds of having a 3.0 GPA or higher by a factor of .92, net of the control variables. In model two, underrepresented status increases the odds of having a 3.0 GPA or higher by a factor of 2.36, holding all other variables constant. When the interaction term is introduced in model three, the effect is not significant. In model four, high school GPA, first generation student status, and gender are all significant predictors of GPA but the interaction term remains statistically insignificant. Nevertheless, model four suggests that sibling social capital is positively associated with GPA for underrepresented students even if the effect is not statistically significant.

Academic Engagement. Table 5 reports OLS coefficients for the academic engagement of students who discuss academic matters with older siblings and for underrepresented students. Examining the effects of talking to older siblings in college had mixed findings. The first model in Table 5 suggests that discussing academic matters with older siblings in college significantly increases academic engagement by .25. Model one also demonstrates that race is marginally associated with academic engagement. When control variables are introduced in the second model, the effects of sibling social capital and race remain significant at the .05 level. However, when the interaction term (underrepresented X sibling social capital) is introduced in model three, the effect is positive, but not statistically significant. Similarly, when control variables are introduced in model four, the effect of the interaction term is positive but not statistically significant. Model four suggests that growing up in two parent households and first generation college student status are better predictors of academic engagement than the interaction term.

[TABLES 4 AND 5 AROUND HERE]

DISCUSSION

This study's main finding is that, among underrepresented college students, having pathfinding academically successful older siblings has positive effects on the academic success of pathfollowing younger siblings. Specifically, having college educated older siblings has a moderating effect on the GPA and academic engagement of underrepresented students. As far as GPA, the effect of academically successful older siblings was most prevalent when looking at high achieving students (3.0+ GPA). Analyses on overall GPA suggested older siblings were having an effect on GPAs, but when the variable was dichotomized to represent high achieving students (3.0+), the effect of the interaction term between race and pathfinding older siblings remained significant net of control variables.

Similarly, having academically successful older siblings resulted in higher academic engagement among underrepresented students. This finding in particular is interesting because the relationship was only significant for the interaction term and not the individual variables. That is, there was no direct effect between race or having older siblings who attend/attended college on academic engagement. Having a significant interaction term, however, indicates that the effect of academically successful older siblings is important for underrepresented college students.

There were some unexpected results that should be noted. Even though there were no significant effects for the interaction terms in Tables 4 and 5, the direct effects of sibling social capital were still significant. Quick auxiliary analysis that included other race categories revealed different outcomes on the dependent variables. To get a better sense of the effects of the sibling discussion variable, I will conduct a more thorough analysis including a wider variety of interaction terms (individual race categories, first generation status, etc.). Nevertheless, the results presented here and the auxiliary analysis suggest that talking to older siblings is important even if the effect is not unique to black and Latino students.

It is also important to note that figures one, two, and three demonstrate that for white and Asian students, having college educated older siblings is associated with a lower college GPA and academic engagement. These findings are more in line with the resource dilution model. These results demonstrate that the effect of siblings vary by group. Among underrepresented students siblings are not drain on resources but actually a resource for their younger siblings.

In all, the analyses provide some evidence in support of the hypotheses. Even though the effect of the sibling social capital scale is unclear, there is evidence that simply having academically successful older siblings has a positive effect on younger siblings' academic success as measured by GPA and academic

engagement. Moreover, this positive effect is observed among underrepresented college students but not overrepresented college students.

Limitations

There are some key limitations in this study. First, it should be noted that students with higher GPAs are overrepresented in the sample. Second, the sample size is small, which may limit the statistical power of the analyses. This is particularly pertinent to the analysis looking at how discussing academic matters influences academic success. Because the analysis had to be limited to respondents who indicated they had college educated older siblings, the sample size was greatly reduced. On the other hand, the fact that I had marginally significant results even with a small sample suggests that the effects observed in the study may be greater with a larger sample. Third, the lack of a detailed breakdown of panethnic groups is problematic considering the variation in academic outcomes and college experiences of certain ethnic subgroups (e.g. Southeast Asians vs. Northeast Asians). Finally, the campus the sample is drawn from is very unique. The proportion of minority students and first generation college students at Northern University is not common in most colleges, which raises questions about generalizability. It could be that race functions differently on such a diverse campus. Nevertheless, findings within this unique population should encourage others to explore how marginalized groups strive for academic success in more traditional college settings.

CONCLUSION

The aim of this paper was to reveal alternate determinants of success among students who are underrepresented in college. I argue that sibling social capital is an alternate resource for underrepresented students in college. For students facing discrimination (Rosenbloom and Way 2004; Tenenbaum and Ruck 2007) microaggressions (McCabe 2009), hostile racial climates (Yosso et al. 2010), and parents with limited ability to be involved in their education (Cooper 2003; Lareau 2003; Moreno and Valencia 2010), academically successful pathfinding older siblings are simply better positioned to guide and mentor them during their academic trajectory. Findings in this study provide evidence that among underrepresented students, having college educated older siblings has a positive effect on the academic success of younger siblings as measured by college GPA and academic engagement.

Even though there was no evidence that discussing academic matters with older siblings among underrepresented groups had an effect on academic success, simply having college educated siblings did. Considering the challenges underrepresented students face in college (Lohfink and Paulsen 2005, Pascarella

et al. 2004), perhaps siblings discussions are limited to attempting to resolve those challenges and less about academic matters. Cerna et al. (2009) indicate that for Latino students, parents provide moral support but it is mentors and role models that predict degree attainment. Perhaps discussing academic matters with college educated older siblings is less important than simply having them as role models to look up to.

Whatever the case may be, if we want to address the persistent disparities in higher education, it is vital we stop examining disadvantaged groups though deficit models that limit our understanding of their tools for success. In doing so, colleges and policy makers will be better able to create and/or expand the pathways for academic achievement among disadvantaged groups that are better suited to their needs.

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APPENDIX A

Table 1. OLS Coefficients of Cumulative GPA Among Underrepresented Students with Older Siblings in College

	Model 1 Direct Effects	Model 2 Direct Effects + Controls	Model 3 Interaction	Model 4 Interaction + Controls
Key Independent Variables				
Underrepresented X Number of Older Siblings in College	---	---	0.115** (0.066)	0.081 (0.064)
Underrepresented	-0.138** (0.072)	0.028 (0.080)	-0.220*** (0.085)	-0.035 (0.094)
Number of Older Siblings in College	-0.008 (0.032)	0.003 (0.034)	-0.054* (0.042)	-0.028 (0.042)
Pre-College Academic Achievement				
High School GPA	---	0.399*** (0.101)	---	0.392*** (0.101)
SAT Scores	---	0.001*** (0.000)	---	0.001*** (0.000)
Individual Characteristics				
First Generation College Student	---	-0.143** (0.081)	---	-0.140** (0.081)
Female	---	-0.030 (0.074)	---	-0.032 (0.074)
Family Background				
Two Parent Family	---	-0.130** (0.074)	---	-0.128** (0.074)
Discuss Academic Matters with Parents	---	0.002 (0.008)	---	0.003 (0.008)
Hardships	---	-0.076 (0.078)	---	-0.072 (0.078)
Number of Older Siblings Not in College	---	0.026 (0.046)	---	0.031 (0.046)
Number of Non-Older Siblings	---	-0.020 (0.032)	---	-0.017 (0.032)
Constant	2.977***	0.916**	3.014***	0.972**

	(0.058)	(0.459)	(0.061)	(0.460)
N	361	361	361	361
Prob > F	0.289	0.000***	0.146*	0.000***
Adjusted R-Squared	0.002	0.081	0.008	0.083
BIC	737.088	751.113	739.879	755.344

*p < .10 **p < .05 ***p < .01 (One-tailed test)
Note: Standard errors in parentheses.

Table 2. Odds Ratios of 3.0+ GPA among Underrepresented Students with Older Siblings in College

	Model 1 Direct Effects	Model 2 Direct Effects + Controls	Model 3 Interaction	Model 4 Interaction + Controls
Key Independent Variables				
Underrepresented X Number of Older Siblings in College	---	---	1.499** (0.312)	1.447** (0.322)
Number of Older Siblings in College	1.012 (0.100)	0.988 (0.111)	0.860 (0.113)	0.855 (0.124)
Underrepresented	0.867 (0.191)	1.485* (0.397)	0.652* (0.172)	1.122 (0.353)
Pre-College Academic Achievement				
High School GPA	---	3.170*** (1.101)	---	3.089*** (1.074)
SAT Scores	---	1.001** (0.001)	---	1.001** (0.001)
Individual Characteristics				
First Generation College Student	---	0.606** (0.164)	---	0.612** (0.166)
Female	---	0.587** (0.145)	---	0.580** (0.144)
Family Background				
Two Parent Family	---	0.969 (0.239)	---	0.976 (0.241)
Discuss Academic Matters with Parents	---	1.031 (0.028)	---	1.035 (0.028)
Hardships	---	1.101 (0.288)	---	1.123 (0.295)
Number of Older Siblings Not in College	---	1.112 (0.177)	---	1.135 (0.181)
Number of Non-Older Siblings	---	0.832** (0.091)	---	0.845* (0.093)

N	361	361	361	361
Prob > Chi-Squared	0.858	0.001***	0.321	0.001***
BIC	523.243	543.399	525.211	546.430

*p < .10 **p < .05 ***p < .01 (One-tailed test)
Note: Standard errors in parentheses.

Table 3. OLS Coefficients of Academic Engagement among Underrepresented Students with Older Siblings in College

	Model 1 Direct Effects	Model 2 Direct Effects + Controls	Model 3 Interaction	Model 4 Interaction + Controls
Key Independent Variables				
Underrepresented X Number of Older Siblings in College	---	---	0.777** (0.466)	0.815** (0.464)
Number of Older Siblings in College	-0.028 (0.231)	0.009 (0.249)	-0.361 (0.305)	-0.330 (0.315)
Underrepresented	-0.070 (0.505)	0.508 (0.580)	-0.618 (0.602)	-0.118 (0.679)
Pre-College Characteristics				
High School GPA	---	0.006 (0.741)	---	0.019 (0.739)
SAT Scores	---	-0.001 (0.001)	---	-0.001 (0.001)
Individual Characteristics				
First Generation College Student	---	-1.508*** (0.588)	---	-1.471*** (0.587)
Female	---	-0.649 (0.534)	---	-0.693* (0.532)
Family Background				
Two Parent Family	---	0.199 (0.544)	---	0.223 (0.542)
Discuss Academic Matters with Parents	---	0.173*** (0.058)	---	0.179*** (0.058)
Hardships	---	-0.004 (0.552)	---	0.040 (0.551)
Number of Older Siblings Not in College	---	0.314 (0.358)	---	0.362 (0.358)
Number of Non-Older Siblings	---	-0.109 (0.232)	---	-0.079 (0.232)
Constant	-0.170	2.357	0.088	2.814

	(0.406)	(3.333)	(0.433)	(3.333)
N	338	338	338	338
Prob > F	0.078*	0.014*	0.048**	0.009***
Adjusted R-Squared	-0.011	0.039	0.017	0.045
BIC	1987.140	2020.745	1990.155	2023.365

*p < .1 **p < .05 ***p < .01 (One-tailed test)
Note: Standard errors in parentheses.

Table 4. Odds Ratios of 3.0+ GPA among Underrepresented Students who Discuss Academic Matters with Siblings

	Model 1 Direct Effects	Model 2 Direct Effects + Controls	Model 3 Interaction	Model 4 Interaction + Controls
Key Independent Variables				
Underrepresented X Sibling Social Capital	---	---	0.991	1.013
			(0.080)	(0.092)
Discuss Academic Matters with Siblings (Siblings Social Capital)	0.940*	0.916**	0.944	0.910*
	(0.038)	(0.043)	(0.055)	(0.060)
Underrepresented	1.277	2.455**	1.286	2.423**
	(0.448)	(1.082)	(0.458)	(1.089)
Pre-College Characteristics				
High School GPA	---	8.154***	---	8.231***
		(5.238)		(5.315)
SAT Scores	---	1.001	---	1.001
		(0.001)		(0.001)
Individual Characteristics				
First Generation College Student	---	0.544*	---	0.546*
		(0.240)		(0.242)
Female	---	0.412**	---	0.414**
		(0.172)		(0.174)
Family Background				
Two Parent Family	---	1.046	---	1.048
		(0.459)		(0.460)
Discuss Academic Matters with Parents	---	1.056	---	1.056
		(0.045)		(0.045)
Hardships	---	1.292	---	1.298
		(0.593)	---	(0.596)
N	149	149	149	149
Prob > Chi-Squared	0.428	0.002***	0.595	0.003***

BIC	219.588	229.053	224.581	234.036

*p < .1 **p < .05 ***p < .01 (One-tailed test)
Note: Standard errors in parentheses.

Table 5. OLS Coefficients of Academic Engagement among Underrepresented Students who Discuss Academic Matters with Siblings

	Model 1 Direct Effects	Model 2 Direct Effects + Controls	Model 3 Interaction	Model 4 Interaction + Controls
Key Independent Variables				
Underrepresented X Sibling Social Capital	---	---	0.120	0.089
			(0.170)	(0.173)
Discuss Academic Matters with Siblings (Siblings Social Capital)	0.245***	0.175**	0.187*	0.131
	(0.085)	(0.091)	(0.118)	(0.125)
Underrepresented	1.201*	1.645**	1.132*	1.574*
	(0.727)	(0.812)	(0.735)	(0.825)
Pre-College Characteristics				
High School GPA	---	0.001	---	0.066
		(1.114)		(1.124)
SAT Scores	---	-0.002	---	-0.002
		(0.002)		(0.002)
Individual Characteristics				
First Generation College Student	---	-1.475**	---	-1.457**
		(0.819)		(0.822)
Female	---	-1.231*	---	-1.185*
		(0.781)		(0.788)
Family Background				
Two Parent Family	---	-0.595	---	-0.571
		(0.855)		(0.858)
Discuss Academic Matters with Parents	---	0.185**	---	0.186**
		(0.085)		(0.086)
Hardships	---	0.221	---	0.244
		(0.842)		(0.845)
Constant	-0.670*	3.754	-0.652	3.523
	(0.506)	(4.814)	(0.508)	(4.848)

N	143	143	143	143
Prob > F	0.005***	0.015**	0.009***	0.022**
Adjusted R-Squared	0.069	0.085	0.066	0.080
BIC	829.851	854.703	834.299	859.375

*p < .1 **p < .05 ***p < .01 (One-tailed test)
Note: Standard errors in parentheses.

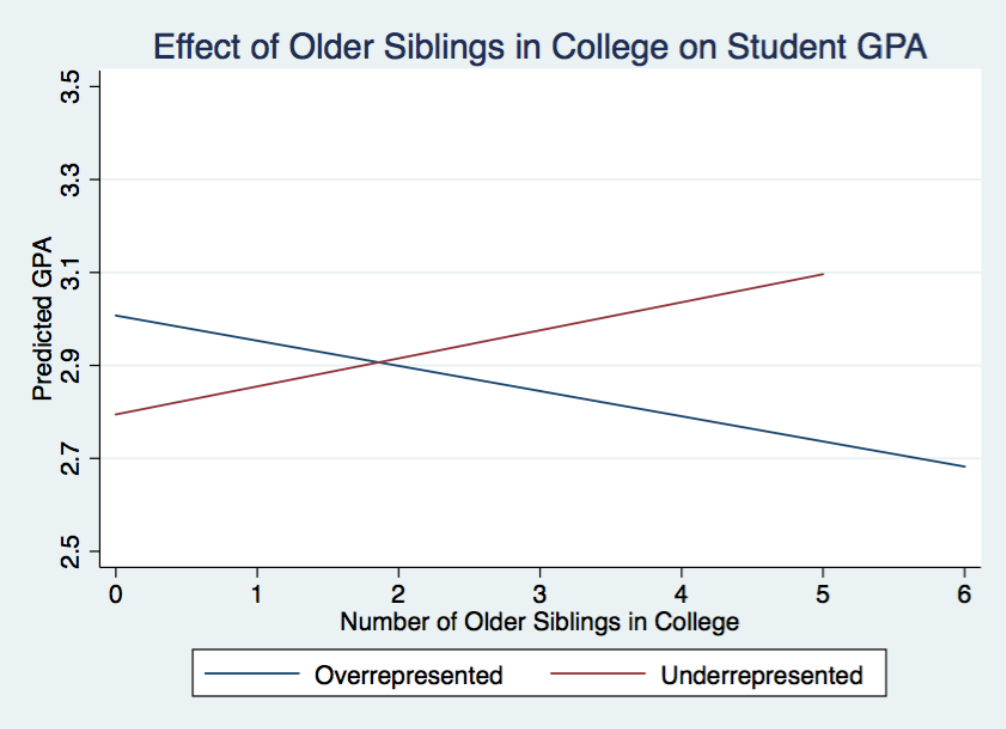

Figure 1. Number of Older Siblings in College on Predicted GPA

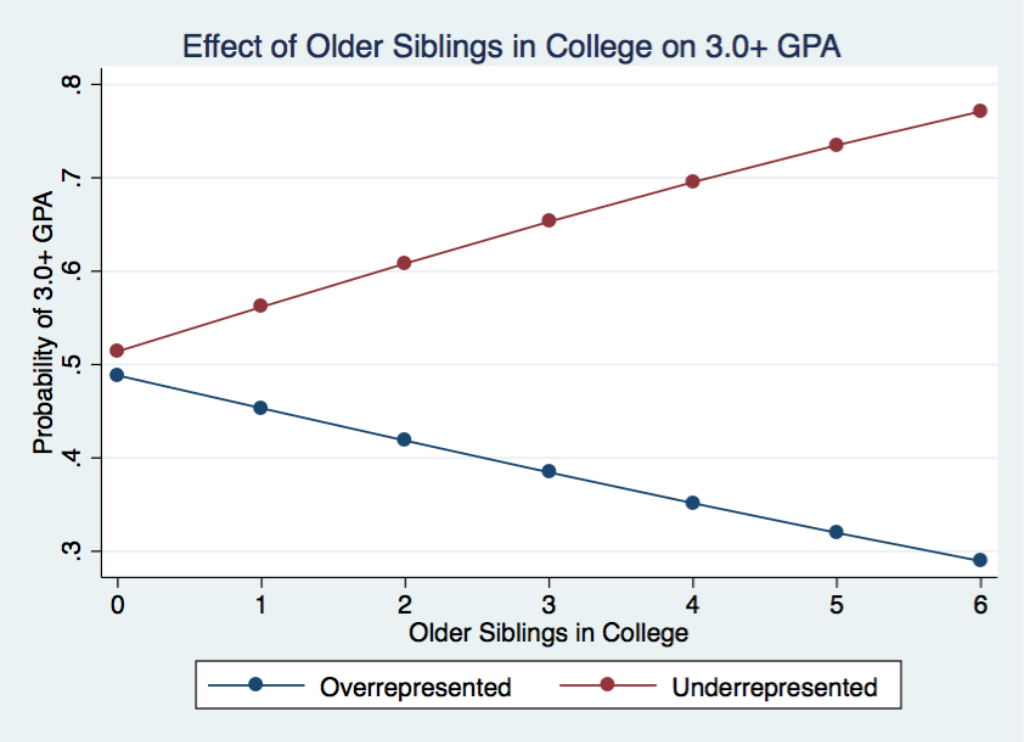

Figure 2. Number of Older Siblings in College on the Probability of a 3.0+ GPA

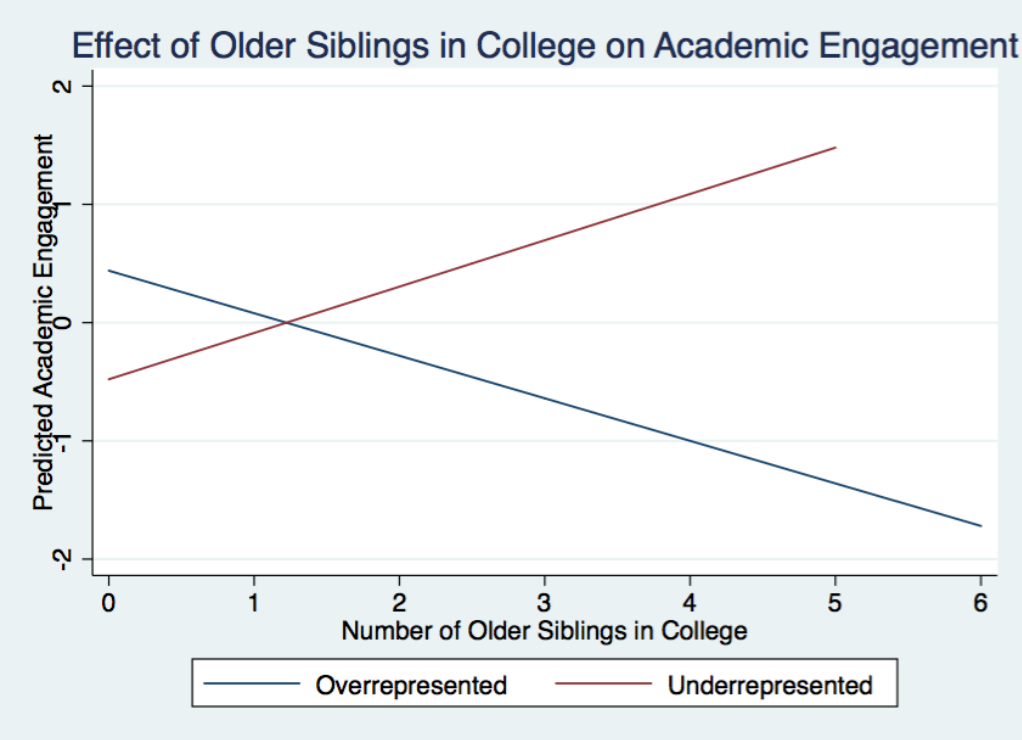

Figure 3. Number of Older Siblings in College on Predicted Academic Engagement