

**UCSB McNair Scholars
Research Journal**

**University of California, Santa Barbara
2020 – Volume 10**

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Letter from Executive Vice Chancellor David Marshall

I am very pleased to introduce Volume X of the UC Santa Barbara *McNair Scholars Research Journal*. Named after Dr. Ronald E. McNair Jr., physicist and NASA astronaut, the national McNair Scholars Program is a program designed to provide research opportunities for first-generation college, low-income, and underrepresented undergraduates with the goal of preparing them for graduate school. Our local UC Santa Barbara McNair Scholars Program supports our campus efforts to advance the diversity and quality of our students, and to prepare them for success beyond their undergraduate experience. By combining undergraduate research with faculty mentoring and academic support services, the McNair Scholars Program provides a path to graduate school for students from families that in the past may not even have considered an undergraduate college education.

UC Santa Barbara is very proud to be an Asian American Native American Pacific Islander- Serving Institution (AANAPISI) and a Hispanic Serving Institution (HSI). UCSB is the first member of the American Association of Universities (AAU)—an elite group of the 62 top research universities in North America—to receive the HSI designation. As a public research university, UC Santa Barbara strives to support all of its students and to give them the knowledge, understanding, and skills to make contributions to the State of California.

The *McNair Scholars Research Journal* recognizes the research accomplishments of a select group of undergraduate scholars from a wide range of disciplines who have successfully completed our McNair Scholars Program. Their contributions to this journal represent the hard work and intellectual creativity of students who, we expect, will become leaders in their respective fields. In our program, students develop a strong bond with mentors who offer

guidance and serve as role models in order to help them realize their potential. The journal also reflects the contributions of the faculty mentors who exemplify the dedication of our campus to undergraduate success.

The quality, originality, and creativity of the scholarship published here are very impressive. This research augurs well for the future contributions of these students to scholarship and society. We will need their dedication, resourcefulness, and resilience to address the challenges that we are confronting around the world today. I congratulate the McNair Scholars, thank their faculty mentors, and extend my appreciation to the staff of the McNair Scholars Program for their dedication and work in helping these students succeed.

David Marshall
Executive Vice Chancellor

Letter from Director of UCSB Undergraduate Research and North Hall Endowed Chair in the Linguistics of African America, Anne Charity Hudley

A phrase that many are frequently hearing and even repeating during the COVID-19 pandemic is that “these are unprecedented times.” And while the statement is definitely true, for many of us in the McNair community, it is not representative of our full set of experiences. Many McNair Scholar’s entire lives have been filled with the challenges that the pandemic has exacerbated on a personal and global scale. We do indeed have precedent.

So why, during the midst of the collective crisis of our lifetime, do we still research and write?

McNair scholars have shared with me that they wanted to finish what they started with the same grace and determination that they have displayed their entire lives. Multiple generations of hard work and sacrifice have gone into this research. It shows.

I also think we know that despite the chaos, we also have a once in a lifetime opportunity to collectively re-imagine how we can create a better world for everyone, including ourselves. Who better than the McNair Scholars to point us in the right direction? The research in this journal demonstrates the McNair scholars’ ability to focus on what is most important to them and is an extraordinary contribution to starting our re-imagining process.

McNair Scholars, reading all your work and the feeling the hope that you bring to it is a powerful and focusing gift to us all. Your scholarship strengthens our collective resolve to do research that we need to truly make positive changes in education both now for the future. You have shown how our community can come together as you have supported each other, worked to adapt to remote learning conditions and

learned to advocate for the best conditions possible for learning and thriving.

Thanks to the faculty, graduate, and peer mentors who helped to make this work possible. Undergraduate research is where true structural justice happens in higher education. Your daily work of justice takes the best resources of the research university and makes them available to McNair Scholars. You have gone above and beyond in making yourselves available online to make sure this work got done, and graduate school applications got completed. As we go forward, we need you now more than ever.

Our community may be physically distant from each other, but we are emotionally and intellectually closer than ever. We got this.

Anne Charity Hudley
North Hall Endowed Chair, Linguistics of African America

Letter from McNair Program Director, Dr. Beth Schneider

The McNair Scholars Program is pleased to bring you the tenth volume of the *UCSB McNair Scholars Research Journal*. A cooperative effort of faculty mentors, McNair staff, and most especially a dedicated cadre of student scholars, the journal represents months of research, writing, editing and reviewing on the part of all the participants. As the Director of the McNair Scholars Program since its inception, it is a pleasure to showcase the work of seven seniors and to honor their efforts to complete their publications during this particularly difficult time as each of them, their family and friends grapple with the constraints of a global pandemic.

Expectations we hold for the UCSB McNair scholars are high, and all these students met them, presenting their faculty-mentored scholarship at one McNair Scholars National Research Conference or at a professional conference in their discipline. They each offered two or three poster sessions in various venues. This current group of authors applied to graduate school this year, and all will be attending graduate school in fall 2020 (Brown University, CSU-Fullerton, University of Connecticut, University of North Carolina-Wilmington, UCLA, and two at the University of California-Irvine).

The papers published in Volume X are the final versions of manuscripts the students were willing to see through to publication. Working remotely, they went the extra mile, writing and rewriting their research papers in response to a stream of comments from their mentors and the journal editors. As undergraduate research papers, I fully expect that these publications will be the first of many manuscripts published by these seven students during their graduate training and in their first academic positions. I applaud them all for their hard work and commitment. A special thank you

goes out to the faculty mentors who worked alongside the students to guide them in the production of such high caliber work.

The seven scholars whose work is featured in this issue displayed perseverance, patience, and general good humor that will serve them exceedingly well in their continued professional training. For all first-generation, low income, and underrepresented undergraduates, the existence of the journal and the labor it represents is an inspiration to seek research opportunities, develop successful mentorships, and take seriously a future in which the McNair Scholars Program plays an important part.

As my retirement approaches, this volume marks the tenth and final one that I will be editing. It has been an honor and privilege to present a decade's worth of high-level undergraduate scholarship to cohorts of McNair Scholars, alumni, faculty mentors, campus allies, and McNair colleagues in California and around the country. I know that the McNair staff, working collaboratively with faculty on campus, will continue to bring together the voices of new generations of scholars in subsequent volumes.

With special thanks to the UCSB McNair Scholars staff, and congratulations to the scholars.

Beth E. Schneider
Professor of Sociology
Director, UCSB McNair Scholars Program

The Effects of Demographics on Labor Force Discrimination

Gabrielle Grafton

Faculty Mentor: Shelly Lundberg

Department of Economics and Department of Demography

Abstract

Using 2013-2017 IPUMS USA census and survey data, this paper examines the impact of demographic diversity on earning differentials for white non-Hispanics, Blacks/African Americans, Asian Americans, and Hispanics. Focusing on California, one of the most racially and ethnically diverse states in the United States, this paper answers the question: How does the racial and ethnic diversity of a community influence the rate of labor force discrimination amongst minority groups? Specifically, I construct a measure of racial/ethnic diversity for each county, using the Herfindahl-Hirschman Index (HHI), a measure of diversity, to illustrate the effects of living in a diverse community on wages across the different racial/ethnic groups. The findings indicate that being in a more diverse community is linked to lower wage gaps; however, the difference in the wage gap varies by racial and ethnic group.

Introduction

How does the racial and ethnic diversity of a community influence the rate of labor force discrimination amongst minority groups? In this paper, I use 2013-2017 IPUMS USA census and survey data to examine the impact of demographic diversity on earning differentials for white non-Hispanics, Blacks/African Americans, Asian Americans, and Hispanics. I focus on California, one of the most racially and ethnically diverse states in the United States (Reed, 2003, p. 1). Because of the state's distinct population, California presents a unique platform to analyze labor force inequalities and how they vary across counties and various industries. In order to isolate the wage gap that most plausibly pertains to racial inequality, I control for inputs that are well known for influencing job skill qualifications (i.e. educational attainment), as well as measure the effects of the type of industry on the wage of racial/ethnic minorities in California. I construct a measure of racial/ethnic diversity for each county, using the Herfindahl-Hirschman Index (HHI), a measure of diversity, to illustrate the effects of living in a diverse community on wages across the different racial/ethnic groups.

My first hypothesis is that there is variation in the racial/ethnic wage gap across the main industries in California's labor market. The purpose of the investigation is to evaluate whether there are specific industries that contain larger wage disparities than others. Since some industries are associated with higher paying jobs and/or different levels of racial and ethnic variation among the workers typically employed, I believe that higher paying industries, such as professional/management, will have larger wage gaps than an industry like entertainment/food service. My second hypothesis is that living in a more diverse county has a positive effect on wages for minority racial and ethnic groups. By assessing the effects of diversity in one of the most racially and ethnically diverse states, the

positive effects of diversity will be more prominent in California's unique environment. The HHI is used as a determinant of income differentials to assess how racial/ethnic diversity impact economic earnings. Ultimately, this study finds that the type of industry, as well as the amount of racial/ethnic diversity within a county, is associated with wage disparities in California.

Literature Review

In the past literature on the causes and effects of labor discrimination I found that sex, race, and ethnicity are key factors that influence wage gaps amongst various minority groups. After a discussion on the past literature related to the topics on racial and gender inequalities in the U.S. job market, I address how California's racially and ethnically diverse counties may illustrate new findings on wage disparities across racial/ethnic groups, which is presently lacking in the current scholarship.

Much of the past literature on racial composition and discrimination in the labor market portrays a negative effect of racial/ethnic diversity on the earnings of marginalized groups, due to limited occupational opportunities (Cassirer, 1996). Ronald L. Oaxaca and Michael R. Ransom's (1994) study investigates how racial inequalities affect the earnings of Black and white workers at both the national level and within an individual firm. Their research found that whites males are overpaid, compared to Black males, even when controlling for productivity. Moreover, in Naomi Cassirer's (1996) article, she examines whether or not a larger number of Black workers in the labor force illustrates a different level of earnings differentials by race, region, and sex. She found that a larger Black representation in the work force tends to result in a wider wage gap between white male workers and Black male workers (Cassirer, 1996, p. 381-385). "For example, northern white men earned an average of \$547 more per year when they worked in a labor market

with 20% rather than 5% blacks...When blacks were 20% rather than 5% of the population, northern black men lost nearly \$1200" (Cassirer, 1996, 386). However, higher Black representation did not lower Black women's earnings relative to white males and their female counterparts (Cassirer, 1996, p. 394-395). Interestingly, even though past literature documents negative outcomes of racial diversity on wages, past research lacks the analysis of wage gaps in more socially and demographically varied populations such as California.

Furthermore, in Cohn and Fossett's (1995) article, they assess racial labor market differentials between Blacks and whites regionally. The authors define their regions as Northeast, Midwest, South and West and contrast the labor dynamics between Northeast and Midwest from those of the South and West of the United States. Their results indicate that more economic growth, smaller firms, and less unionization drive regional differences. For example, they found that the South has lower wage gaps than the Northeast, despite the Northeast having less racial tensions (Cohn, 1995, p. 511). However, in her study that assesses the effects of racial composition on business performance, hiring, job segregation, and wages, Barbara F. Reskin, et. al (1999) found that female-intensive establishments and firms close to Black communities tend to have more female and Black workers respectively. This finding may support the argument that more diverse populations tend to have more female-inclusive firms as well as more African American neighborhoods (Reskin et.al, 1999, p.335-338). "In sum, the majority of the research indicates that the representation of women and minorities in establishments is negatively related to their own earnings and sometimes to those of men" (Reskin, 1999, p. 353). Even though these findings, like many in the literature, contradict this study's hypotheses, I argue that using more current data on California communities, which have such a unique racial and ethnic labor force composition, may transform the scholarship.

Some research focuses on the context of metropolitan areas. These studies on racial labor force inequalities measured determinants such as residential segregation, minority group composition, economic restructuring, spatial mismatch, human capital differences, and queuing theory. These determinants are the main drivers of racial and ethnic income inequalities in the labor market. For instance, measuring the ratio of Black to white per capita annual income in each metropolitan area, Charles Jaret et. al (2003) find that metropolitan areas exhibit the most intense difference in income between Blacks and whites, and “that racial and educational inequality and unemployment differences were the strongest predictors of racially based income inequality” (p. 305). Similarly, recent work by Qingfang Wang (2008) measures the effects of the socioeconomic conditions, specifically the macroeconomic structure, racial composition, residential segregation, and labor market segmentation of a community, on the labor market inequalities of whites, Blacks, Hispanics, Asians and immigrants in the United States. By providing a more inclusive analysis of racial and gender earning inequalities, she finds that despite all groups benefiting economically from immigrants in the labor force, Blacks are still more economically disadvantaged, relative to other minority groups (Wang, 2008, 829-839). Even though metropolitan areas also provide a unique platform for investigating racial wage inequalities, much literature is lacking on the analysis of labor market discrimination outcomes for minorities by industry.

In Tomaskovic-Devey’s (1993) paper, he analyzes how human capital, social characteristics, and status explain gender and racial wage inequalities in the labor force. By comparing North Carolina employees to the overall U.S. labor force, he portrays a distinct analysis of workplace discrimination since North Carolina has different demographic and social characteristics than the overall United States population (Tomaskovic-Devey, 1993, p. 45).

Notably, Tomaskovic-Devey found that “males and females experience declining real wages as percent female rises...For every ten percent increase in percent female in their job, male wages decline by 63 cents, yet for the same increase female wages decline by only three cents.” (1993, p. 55). Additionally, he attributes the negative effects of increases in female and Black composition to social closure of higher paying jobs for women and racial minorities (Tomaskovic-Devey, 1993, p. 60-61). Despite the argument of job sorting and segregation resulting in white males gaining and maintaining institutional power and respect within specific occupations, more socially and demographically diverse states, such as California, may illustrate less social closure and job segregation.

Joseph G. Altonji and Rebecca M. Blank (1999) provide a comprehensive outline of facts and evidence on the racial and gender wage gap, while also investigating the determinants of both wage and unemployment by race, gender, and Hispanic origin. By incorporating the component of Hispanic origin into the analysis, they found that “there are fewer differences between Blacks and Hispanics, although...controlling for occupation, industry, and job characteristics, there remain significant differences between White males and other workers” (Altonji and Blank, 1999, p. 3164). In another study Julie Kmec (2003) finds that, by devaluation and queuing theory, “wages are lower for workers in mostly Black and Latino jobs compared to mostly White jobs, net of individual, human capital, job, occupation, establishment, and city controls” (p. 38). Despite having the same characteristics except racial and ethnic identity, Blacks and Hispanics are disproportionately concentrated in lower paying occupations compared to their white counterparts (Kmec, 2003).

Moreover, Cedric Herring’s (2009) article discusses the pros and cons of diversity within a firm and how that affects the workplace as a whole. Using a national sample of

for-profit businesses from the National Organizations Survey and racial and gender diversity indexes as measures he “explore(s) the relationship between racial and gender workforce diversity and several indicators of business performance, such as sales revenue, number of customers, relative market share, and relative profitability” (Herring, 2009, p. 209). He finds that racial and gender diversity actually increase a firm’s revenues, the number of customers, market share, and relative profits, relative to a homogenous workforce. Herring attributes this trend to the increase in creativity and innovation that is associated with how diversity “allows companies to ‘think outside the box’ by bringing previously excluded groups inside the box” (Herring, 2009, p. 220). Despite the positive outcomes of diversity in this analysis, Herring lacks the discussion of how the racial and gender wage gap changes as firms become more diverse.

Additionally, in Matt Huffman and Phillip Cohen’s (2004) article on the effects of Black worker concentration on labor market inequalities, they evaluated the presence of job segregation, or exclusion from certain jobs, and devaluation in the U.S. While also addressing the ideas of white competition fears, spatial mismatch, racial job selection, and queuing theory, they found “that Black population size is associated with greater segregation of Black workers into Black-dominated jobs. On the other hand, no evidence is found that the penalty for working in a Black-dominated job (the devaluation effect) increases as a function of Black population size” (Huffman, 2004, p. 902). Due to the decades of systemic racism in the United States, Blacks are segregated into Black-dominated jobs which have lower average wages compared to jobs with more white workers. Blacks being socially and economically excluded from higher paying jobs in the labor force, or job segregation, is a prominent determinant of racial wage disparities in the literature (Huffman, 2004, p. 931).

Despite the abundance of literature on the topic of racial and gender inequalities in the labor market, there is a lack of research on differences in the racial wage gap across minority groups within the unique context of California. California contains diverse demographic characteristics, social climate, and cultural history. Using the Californian labor force, this study seeks to contribute to past literature regarding the effects of diversity on earnings for racial minorities of differing social, geographic, and demographic populations.

Methodology

To investigate how industry and the racial diversity of a community influence labor force inequality, this study uses 2013-2017 demographic information on individuals in California from the IPUMS USA. With a sample size of 742,354 working individuals from 35 California counties, this study uses Ordinary Least Squares regression analyses to observe variation in the racial wage gaps by the type of industry a worker is employed in and their residence's racial and ethnic composition. Specifically, I estimate the percentage difference in wages of workers based on their race/ethnicity, main industry of employment, and rank of their county's diversity. This study focuses mainly on ethnicity in terms of Hispanic and non-Hispanic. White non-Hispanics, Blacks/African Americans non-Hispanics, Asian non-Hispanics, and Hispanic workers are the four racial/ethnic categories evaluated.

To measure the diversity of each county, I use the Herfindahl-Hirschman Index (HHI). Modeling Hou and Wu's (2009) paper, I calculated the sum of squares of each racial/ethnic group population as a share of the total population of each county. In Hou and Wu's (2009) study, they used the HHI to measure and evaluate the effectiveness of a diversity index, relative to calculating the minority concentration of a specific community. Moreover, I decided

to incorporate this unique approach to assessing diversity, instead of just calculating the racial/ethnic composition. The HHI allowed me to assess diversity in terms of the variation of different groups within a county, rather than whether the majority of the population is from a certain minority group. For example, “When the majority group dominates in the neighborhood, diversity rises as the share of minorities increases. However, when the majority group in the society is actually a minority in the neighborhood, diversity decreases as the share of racial minorities increases”(Hou & Wu, 2009, p.695). In this study, diversity is not necessarily evaluated based on the number of minorities in a population, relative to white non-Hispanics, but rather the overall variation of the county’s racial/ethnic composition.

In all the models, I control for educational attainment, sex, marital status, occupation, industry, age, and year. Additionally, I control for each specific county in the models that assess how certain industries effect the racial/ethnic wage gap. In the models estimating the effects of diversity on wages, I ran separate regressions for the unscaled HHI and the scaled HHI variables to provide two different methods of interpretation. However, the scaled index is the main indicator used in the results analysis since it has a more straightforward interpretation. Also, summary statistics, diagnostic tests, and heteroskedastic robust standard errors were performed to comply with the assumptions associated with OLS regression and limit the amount of omitted variable bias within the models.

Industry OLS Regression Model

$$\text{Log(wage)}_{ij} = \alpha + \beta_1 \text{Black}_{ij} + \beta_2 \text{Asian}_{ij} + \beta_3 \text{Hispanic}_{ij} + \beta_4 \text{Other}_{ij} + \beta_5 \text{Industry}_{ij} + \epsilon$$

For the main regression model, the dependent variable is natural logarithm of the wages of each observation in the sample. One of the main independent variables is the racial composition of the sample, which is

constructed as a categorical variable of binomial race/ethnicity variables with white non-Hispanic as the base category. Race composition is divided by white non-Hispanics (43.27%), Black non-Hispanics (4.26%), Asian non-Hispanics (16.52%), all Hispanic identifying individuals (32.99%), and other non-Hispanics (2.95%).

One variation of the OLS specification includes a measure of industry composition to evaluate how the type of industry affects wages and how this differs by race/ethnicity. Industry, which is interacted with each race and ethnic group dummy variable, is divided into the main industries employed by the sample. Industry composition includes manufacturing (9.91%), construction (7.37%), retail (10.19%), food services (9.49%), professional/management (13.48%), finance/leasing (6.36%), education (9.13%), health care (12.65%), and other services (21.43%), with construction as the base comparison group.

In the first OLS estimation, three regression variations were used to assess the effect of a certain industry on wages and how this differs by race and ethnicity. **Model 1** only includes the racial/ethnic dummy variables, in addition to the controls previously mentioned, to provide a basic line wage gap for the sample. Then **Model 2** and **Model 3** controls for each type of industry; however, **Model 3** also includes the interactions between each racial/ethnic dummy variable and each industry category.

HHI OLS Regression Model

The second OLS model estimates the effects of living in a more diverse county on wages. To measure the racial diversity for each county, the HHI rank was implemented, defining the county ranking from most to least diverse, 1 being the most diverse and 35 the least diverse. Yet, in order to facilitate the interpretation of the interaction terms of this variable, a scaled HHI rank version was constructed:

$$\textit{Scaled HHI}_i = \frac{\textit{HHI}_i - \min(\textit{HHI})}{\max(\textit{HHI}) - \min(\textit{HHI})}$$

The HHI is the vector of HHI county rank, which $1 \leq i \leq 35$. The rescaling of the index implies that the smallest value of the scaled HHI rank is now 0 instead of 1, the most diverse county, and the highest value of the scaled HHI rank is now 34 instead of 35, the least diverse county. This interpretation will make for an easier analysis of the models when observing the results.

$$\text{Log}(\text{wage})_{ij} = \alpha + \beta_1 \text{Black}_{ij} + \beta_2 \text{Asian}_{ij} + \beta_3 \text{Hispanic}_{ij} + \beta_4 \text{Other}_{ij} + \beta_5 \text{HHI}_{ij} + \epsilon$$

In the new approximation of the HHI, the sum of squares of each racial group population as a share of the total population of each county was computed. Therefore, as the HHI decreases, a county is considered more diverse, relative to the other counties. For an in-depth analysis on the effects of living in a diverse community **Table 2** assesses the effect of HHI on race and ethnicity with the scaled HHI rank, the original unscaled HHI rank, and the interactions between the scaled HHI rank and race/ethnic indicator dummy variables. **Model 1** includes the scaled HHI rank, while **Model 2** includes the interaction between the original HHI measurement and each race/ethnic dummy variable. Lastly, **Model 3** includes the interaction between the scaled HHI measurement and each race/ethnic dummy variable.

Results

In the OLS estimations measuring the effects of industry type on wages and the variation across different race/ethnic groups, almost all the key independent variables, besides the interaction terms for Blacks in manufacturing, retail, and finance/leasing, were statistically significant at

the 1% significance level. Using **Model 3** from **Table 1** that include the interaction terms between the race/ethnic dummy variables and each industry category, this study found that being Hispanic or Black in a professional or managerial field has a negative effect on wages. Hispanics experience 33.35% lower wages and Blacks experience 38.87% lower wages than whites. For education, Blacks experience only 4.72% lower wages, relative to white workers in education, while Asians experience 22.9% lower wages and Hispanics receive 5.59% lower earnings. Another interesting variation in racial/ethnic wage gaps by industry was found in the entertainment and food service industry. Blacks face 6.46% lower wages, while Hispanics experience 26.17% lower earnings. However, Asians tend to receive 17.96% more earnings relative to their white counterparts in the entertainment/food service industry. Additionally, I used **Model 1** from **Table 1** that just contains race/ethnic dummy variables to assess the general wage gaps in the California labor market. Regardless of industry, Blacks have 18% lower wages, Asians have 17.9% lower wages, and Hispanics have 16% lower wages, relative to their white counterparts, after controlling for education, sex, age, year, and marital status.

In the HHI OLS regressions I found that as the HHI increases by one unit, or as a county becomes less diverse, relative to the other counties in California, Hispanics, Asians, and Blacks receive less of the economic benefits of a more diverse county. Using **Model 1** from **Table 2**, Blacks experience 18.2% lower wages, Asians experience 18% lower wages, and Hispanics experience 16.2% lower wages, as a county's ranking in diversity decrease by one. White workers only experience a 3.42% decrease in wages as a county becomes less diverse. Analyzing original interpretation of the HHI from **Model 2**, Blacks receive 3.146% less, while Hispanics receive 1.291% less wages as the county's variation in racial/ethnic composition becomes less diverse. Regardless of race, as a county becomes less

diverse relative to the other counties, a worker will experience lower wages, thus illustrating that living in a more diverse county is associated with smaller racial/ethnic wage gaps. This finding indicates that being in a more diverse community is linked to lower wage gaps; however, the difference in the wage gap varies by racial and ethnic group. Non-white workers still experience lower wages, yet the living in a more diversity county is associated with less wage inequality.

As expected from the past literature on determinants of wages, all the main control variables, age, year, education, sex, and marital status, were statistically significant at the 1% level and of the expected sign. Moreover, despite the interesting results regarding the effects of a county's racial/ethnic diversity on wages, this study lacks the analysis of gender differences in the wage gap for different racial/ethnic groups and industries. However, overall, living in a more racial/ethnically diverse community, specifically in the context of California, is associated with a smaller racial/ethnic wage gap.

Conclusion

In this investigation, I analyze wage gaps in California, a state that provides a diverse platform with extensive demographic variation across the state. Despite the plethora of literature on racial labor market inequalities and the mechanisms that drive them, there is a limited amount of work that analyses these issues in such a racially and ethnically diverse climate. Thus, this study uses the Herfindahl-Hirschman Index (HHI) to enhance the scholarship, regarding the effects of diversity on earnings for racial minorities. Additionally, I found that the specific industry a worker is affiliated with has a significant yet differing effect on wages for different racial/ethnic groups, after controlling for educational attainment. Overall, living in a more diverse county in California has a positive effect

on wages, yet the magnitude of this effect varies by racial/ethnic group.

Nonetheless, this study has some limitations that could be addressed in future research on the effects of racial/ethnic diversity on labor market inequalities. First, the main drawback from this report was that the central source of data, the IPUMS U.S. Census database, does not allow for researchers to link observations across different years, thus hindering the ability to execute a proper panel data analysis. A panel data model would have allowed this study to possibly assess changes in workers' wages over time for specific observations. Second, despite the act of controlling for year effects in both models and county effects in the industry OLS regression model, being able to link individuals by one distinct identification variable would have been ideal for this investigation. Last, after restricting the 2013-2017 U.S. Census dataset to only employed California residents, there were only observations from 35 out of the 58 counties in the state. To provide a more accurate comparison and measure of the HHI, future research should try to find and utilize a better dataset that allows for more county observations.

Despite the limitations, this study still found substantial findings on the effects of racial/ethnic diversity on wage gaps. In the future, researchers could further this analysis by investigating how immigration plays a role in living in diverse communities. Additionally, future scholarship could explore how diversity of a county affects the racial/ethnic wage gaps within different industries. Even though this study cannot entirely be generalized to other populations, a policy that promotes more job security and employment stability for various racial/ethnic minority groups in other communities could aid in abating labor market discrimination in other parts of the United States.

Table 1: Effects of Type of Industry and Race/Ethnicity on Wages

VARIABLES	Model 1	Model 2	Model 3
Black	-0.179*** (0.00569)	-0.180*** (0.00563)	-0.237*** (0.0340)
Asian	-0.153*** (0.00321)	-0.179*** (0.00315)	-0.321*** (0.0195)
Hispanic	-0.160*** (0.00281)	-0.160*** (0.00276)	-0.285*** (0.00841)
Other	-0.133*** (0.00711)	-0.126*** (0.00692)	-0.136*** (0.0298)
Manufacturing		0.133*** (0.00472)	0.149*** (0.00826)
Retail		-0.270*** (0.00528)	-0.398*** (0.00899)
Finance/ Leasing		0.168*** (0.00586)	0.122*** (0.00920)
Professional/ Management		0.0292*** (0.00509)	-0.00914 (0.00830)
Education		-0.452*** (0.00567)	-0.544*** (0.00858)
Health Care		-0.0717*** (0.00520)	-0.178*** (0.00866)
Entertainment/ Food Services		-0.409*** (0.00540)	-0.574*** (0.00968)
Other Services		6.23e-05 (0.00452)	-0.0542*** (0.00765)
Observations	742,354	742,354	742,354
R-squared	0.362	0.389	0.392

Robust standard errors in parentheses

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

Note: All models include controls for age, education, sex, year, marital status. **Model 3** also includes interactions between race dummies and industry categories. However, interaction terms omitted from the table due to the large number of variables estimated

Table 2: Effects of HHI and Race/ Ethnicity on Wages

VARIABLES	Model 1	Model 2	Model 3
Black	-0.182*** (0.00563)	0.802*** (0.122)	-0.112*** (0.0131)
Asian	-0.180*** (0.00316)	-0.129** (0.0554)	-0.251*** (0.00776)
Hispanic	-0.162*** (0.00278)	0.156** (0.0646)	-0.579*** (0.0607)
Other	-0.127*** (0.00692)	0.232 (0.142)	-0.133*** (0.0174)
HHI		5.192*** (0.138)	
HHI*Black		-3.948*** (0.491)	
HHI*Asian		-0.233 (0.221)	
HHI*Hispanic		-1.242*** (0.261)	
HHI*Other		-1.447** (0.568)	
HHI Rank	-0.0342*** (0.000473)		0.00334*** (0.000152)
HHI Rank*Black			-0.00332*** (0.000606)
HHI Rank*Asian			0.00313*** (0.000323)
HHI Rank*Hispanic			1.726*** (0.245)
HHI Rank*Other			0.000222 (0.000748)
Observations	742,354	742,354	742,354
R-squared	0.389	0.391	0.390

Robust standard errors in parentheses

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

Note: controls for industry, age, education, sex, year, marital status

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Acknowledgements

I would like to thank my faculty mentor, Professor Shelly, Lundberg for assisting me in the finalization of this project. I also thank the American Economic Association Summer Program at Michigan State University for providing additional guidance and resources. Lastly, I want to thank the staff of McNair Scholars Program for all their support and assistance throughout this project and my time as a McNair scholar. I am truly grateful for all the guidance and support I have received throughout this research project and my journey as an economist.

Parasite Ecology of the California Sheephead,

Semicossyphus pulcher

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Abstract

The parasites of the fish Semicossyphus pulcher (the California sheephead) are not well-documented, despite the fact that it is a key predator in the kelp forest ecosystem. This study used full parasitological assessments on twenty-five specimens of Semicossyphus pulcher from the Santa Barbara and Oceanside, California areas. These assessments consisted of dissections, tissue squashes, microscopy, and parasite identification. The parasites found in these dissections were compared to existing literature on the diet of S. pulcher in order to construct a preliminary food web including trophic transmitted parasites. Through these assessments, I found that the parasites in S. pulcher originate in a several prey taxa, reinforcing the knowledge that this fish is an important generalist predator in the kelp forest. I also found many larval parasites in this fish, indicating that S. pulcher may also be an important prey item for larger kelp forest predators. Therefore, S. pulcher may act as a pathway for trophically transmitted parasites not only in the context of its predatory behavior, but also by acting as a prey item. Alternately, it may act as a population sink for these larval parasites. This may occur if S. pulcher grows too large for a predator to eat, parasites living in it may be trophically transmitted to their final host.

Introduction

Many parasites are transferred from prey to predator when the prey is eaten through a process known as trophic transmission (Lafferty, 1997). These parasites accumulate over time within a fish. The importance of trophically transmitted parasites to understand food web connections is made clear through work by Lafferty and Kuris (2009) and Hechinger, Lafferty, and Kuris (2008). Parasites act as an important indicator of ecosystem health because they reflect hosts diversity. Trophically transmitted parasites require multiple hosts to complete their life cycles. These hosts are often linked through predator-prey interactions. Therefore, studying parasites can reflect such interactions as well as show the effects of these interactions due to behavior modification required for trophic transmission (Lafferty and Kuris, 2009). This has important ramifications for the fishing industry (Frost and Dailey, 1994), as parasites can be used to determine the health of wild-caught populations of fish by acting as bioindicators of ecosystem health. This role as a bioindicator also allows us to measure the health of ecosystems at risk of damage from climate change.

Despite the fact that parasites can be used as a bioindicator for ecosystem health, and as a way to better understand trophic connections, literature on the parasites of a major kelp forest predator, *Semicossyphus pulcher*, is scant. There have been a few studies with descriptions and/or lists of parasites found in *S. pulcher* (Brooks and Mayes, 1975; Manter et al, 1983; Muñoz and Díaz, 2015; Morales-Serna et al, 2012; Gaida and Frost, 2011; Frost and Dailey, 1994). However, literature on *S. pulcher* parasites is disconnected from its ecology. Connecting these topics expands our understanding of its ecology. Though certain lists in the literature include records of the parasites of *S. pulcher*, there has yet to be a paper that consolidates that knowledge and combines it with what is known about the ecology of *S. pulcher*.

Most of the research that has been done on the diet and trophic connections of the sheephead agrees that *S. pulcher* is an important generalist of the California kelp forest, but these studies depend on gut contents as a measure of diet richness (i.e. how many and what type of prey items the predator consumes). A parasitological assessment of *Semicossyphus pulcher*, would provide a more complete record of its diet and thus a more complete understanding of the ecological connections of the California kelp forest, including when matters of environmental change (Wood et al, 2014) and extinction (Dunn et al, 2009) are concerned. This study seeks to combine the knowledge of these two topics – marine community ecology and parasites of *Semicossyphus pulcher* – to create a better understanding of the trophic connections this fish has and the implications they might have for the kelp forest as a whole.

Methods

Review of previously documented parasites

There are a few checklists for parasites of *S. pulcher* (Muñoz and Díaz, 2015; Manter et al, 1983; Morales-Serna et al, 2012). These identify several species of parasites that have been found in *S. pulcher*: *Lepeophtheirus parvus*, *Caligus hobsoni*, *Phyllodistomum scrippsi*, *Lepocreadium bimarinum*, *Lepocreadium* sp., *Labrifer secundus*, *Neolabrifer bravoae*, *Proctoeces maculatus*, *Opecoelina scorpaenae*, *Opecoelus lotellae*, *Neobenedenia girellae*, and *Neobenedenia melleni*. Another paper that mentions the sheephead's parasites is Frost and Dailey (1994), which lists *Protoceces magnorus* and *Opecoelina scorpaenae* as parasites of *S. pulcher*. Morphological descriptions of a few of these parasites can be found in Brooks and Mayes (1975), Morales-Serna et al. (2012), Gaida and Frost (2011), and Frost and Dailey (1994). In each of these checklists and papers, the parasites of *S. pulcher* are looked at in isolation; the implications of trophic links are not explored. However,

as seen in the results of this study, each of these papers was useful for identification purposes of the parasites found in the dissections and towards the development of a more complete food web of both prey and predators of *S. pulcher* (see **Discussion: Updated food web**).

Study sites

Twenty-five specimens of *S. pulcher* were spear-fished from two reefs off the coast of Oceanside, California (Spies Hole and The Rock) and two reefs off the coast of Santa Barbara, California (Santa Cruz Island and Mohawk). After being spear fished, the specimens were frozen and later dissected. The sixteen fish from Santa Barbara were caught between November 2014 and July 2017 and dissected between May 2015 and February 2018. The nine fish from Oceanside were caught and dissected in July of 2018.

Parasite sampling

Each internal organ and tissue was checked for metazoan endoparasites (infectious agents larger than microbial agents) because trophically transmitted parasites fall under this category. All tissues -- gills, liver, stomach, intestine, kidney, swim bladder, gallbladder, brain, eye, mouth, heart, muscle (subsample), and gonads -- were examined between squash plates under a dissecting microscope. Gallbladder fluids were also checked under a compound microscope for myxozoans when the gallbladder was intact. Endoparasites were identified using the same methods as described for ectoparasites.

I searched for ectoparasites in the fish's fins and the water in which each fish was stored. This and all other searches were done using a dissecting microscope. I identified parasites under a compound microscope when I could not identify them at low power optics. All parasites were identified to the lowest taxonomic order using literature on marine parasites or by sending vouchers (preserved

parasites) to experts for identification. Those that were identified only to morphospecies are currently being more specifically identified.

Due to logistical constraints, the dissection methods for the Oceanside fish differed slightly from those of the Santa Barbara fish. For the Oceanside fish, the gonads were not available from all individuals, the gut contents were not available for any (the stomach and intestinal tissues were available). Also, the Oceanside fish were not frozen with water in each of their individual plastic bags, so no bag water was checked for ectoparasites, and both sides of the gills (rather than just the left arches) were examined.

Results

I found the following species of parasites in the *Semicossyphus pulcher* dissected in this study: *Phyllodistomum scrippsi* (Brooks and Mayes 1975), *Lepeophtheirus arvus* (Wilson 1908), *Neobenedenia girellae* (Hargis 1955), and *Caligus hobsoni* (Cressey 1969). These have been previously recorded in *Semicossyphus pulcher* (**Table 1**). I also found nine parasites of which there is no record with *S. pulcher*. These parasites include 3 digenes in the genera *Dolfustrema*, *Allopodocotyle*, and *Pseudopecoelus*, two nematodes, *Anisakis sp.* and *Cucullanidae sp.*, an acanthocephalan, *Corynosoma sp.*, a copepod *Andreina sp.*, a cestode *Nybelina sp.*, and a monogene, *Pseudohaliotrema sp.* I identified these using Schell (1970) for trematodes and Palm (2004) for cestodes. Dr. Ralph Appy identified the nematodes, and Dr. Danny Tang identified the copepods.

Table 1. Parasites previously recorded in the California sheephead, *Semicossyphus pulcher*.

Parasite	References
<i>Phyllodistomum scrippsi</i>	Manter et al (1983), Muñoz and Díaz (2015)
<i>Lepeophtheirus parvus</i>	Manter et al (1983), Morales-Serna et al (2012)
<i>Neobenedenia girellae</i>	Manter et al (1983)
<i>Caligus hobsoni</i>	Manter et al (1983)

Discussion

Updated food web

Through knowledge about *S. pulcher*'s diet and this study's newfound knowledge about its parasites, we can extrapolate lower trophic level information and identify some of the parasites of *S. pulcher*. For example, Millemann (1951) found the nematode *Echinocephalus pseudounцинatus*, in the pink abalone, a prey item of *S. pulcher*. This species of nematode is also found in sea urchins (Hopkins 1935), another prey item of the sheephead. Therefore, one of the nematodes of *S. pulcher* that remains unidentified may be *E. pseudounцинatus*. Another trophically transmitted parasite, an acanthocephalan in the genus *Corynosoma*, is not listed in any sheephead literature. However, it was found in many of the specimens used in this study. Acanthocephalans use invertebrates, particularly crustaceans, as a lower trophic level host (Skorobrechova and Nikishin 2011), so we can infer that a crustacean prey item transfers this parasite to *S. pulcher*.

A digene in the genus *Dolfustrema* is another that has never been documented in *Semicossyphus pulcher*. It was found as metacercariae (encysted larvae) in the fin rays and the fin tissues between the rays of this fish. There are no documented *Dolfustrema* adults in the sheephead wrasse, so this larval form is likely to reach its adult form in a predator of *S. pulcher*.

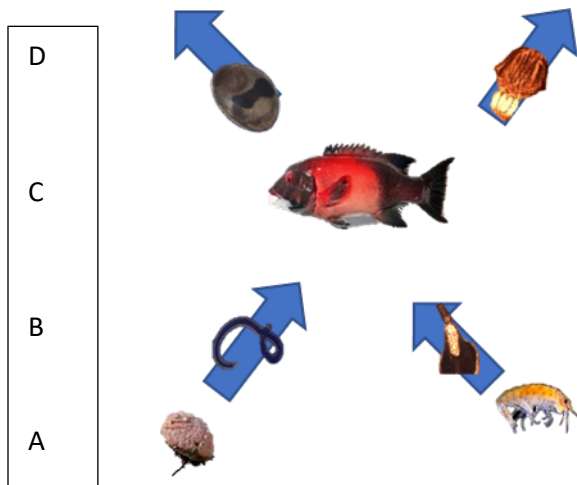


Figure 1 *Simplified food web of Semicossyphys pulcher parasites. The pink abalone, *Haliotis corrugata*, and a gammarid amphipod are shown at level a as prey of *S. pulcher*. Level b shows the parasites, *Echinocephalus pseudouncinatus* and *Corynosoma* sp., which are transferred from these prey to *S. pulcher*. Level c is a male *S. pulcher*. Level d shows *Dolfustrema* sp. and *Nybelinia* sp., parasites which *S. pulcher* transfers to its predators.*

Nybelinia is another type of parasite (cestode) that is found in sharks. Its presence in the sheephead could indicate that *S. pulcher* may act as an intermediate host for some parasites and final host for others. In this case, it may be an intermediate host for a cestode that will end up in a shark. However, this could also mean that *Nybelinia*, like *Dolfustrema*, and the other larval parasites found in this fish are actually in a population sink. Further literature reviews of the prey items of *S. pulcher* and their parasites is underway to discover more of the prey-parasite-predator links like those described here.

Ecological consequences

The list of nine parasites which have not been recorded in *S. pulcher* offers a sample of the data that we have yet to include in our assessment of this fish's trophic importance. However, the presence of several larval parasites suggest that this fish may be transmitting parasites

to a higher trophic level kelp forest predator. Therefore, *S. pulcher* would not only act as a pathway for trophically transmitted parasites in the context of its predatory behavior. It would also act as a prey item to pass along larval parasites to their final host.

The other potential explanation for the presence of larval parasites in *S. pulcher* is that it could be acting as a population sink for these parasites. If *S. pulcher* grows to a length beyond that which a predator can consume, its parasites may not be able to make it to their appropriate final host.

The next step to a deeper understanding of this dynamic is to investigate the parasites of potential predators of *S. pulcher* to determine if *S. pulcher* is acting as an ecological sink for parasites that are supposed to end up in another top predator of the kelp forest. This use of ecological parasitology will allow us to more fully comprehend *S. pulcher*'s place in the kelp forest. As many studies have demonstrated (Lafferty and Kuris, 2009; Hechinger et al, 2008); Dunn et al, 2009) this type of understanding allows us to better understand ecosystems as a whole and how to protect them.

Tracking changes in the kelp forest

Habitat loss and climate change are driving factors of extinctions that have the potential to cause cascading effects in an ecosystem. Such loss could destroy not only biological diversity in terms of species but also erase permanently certain adaptive traits from nature (Dunn et al, 2009). Wood et al. (2014) and Lafferty and Kuris (2009) show how parasite diversity reflects ecological change and therefore can be used to track such changes. Lafferty (1997) describes previous studies on the relationship between pollution and/or disturbance and parasitism, noting that parasitology and anthropogenic stressors are linked. Therefore, knowing more about the parasites of *Semicossyphus pulcher* will

provide the information needed to more fully understand what ecological changes may be affecting this fish and the kelp forest as a whole. The ecosystem-level usefulness of parasitology has been demonstrated as an important bioindicator of ecosystem health at both the intermediate and final host levels (Hechinger et al, 2008). In these times of rapid environmental change, ecological parasitology of *S. pulcher* is a starting point for tracking changes in the California kelp forests.

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Acknowledgements

I would like to thank Dana Morton and my faculty mentor, Dr. Armand Kuris, for all the mentorship and advice they provided. I would also like to thank Dr. Kevin Lafferty and Dr. Mia Adreani for help collecting samples for this project, and to Dr. Ralph Appy and Dr. Danny Tang for their help identifying parasites. Thank you to the staff and students of the UCSB McNair Scholars Program for the resources and support they have provided.

Yüe Ou: Local Culture, Identity, and Mobility in Early Nineteenth-Century Guangzhou

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Abstract

This study looks at the entertainment sector of early 19th century Guangzhou, a major trade hub in southern China. It pays attention to Yüe Ou, a local music genre sung in the Guangzhou dialect, as a cultural device utilized by local literati to affirm their identity as natives of Guangzhou and jumpstart their local culture to the place of asceticism and refinement. It examines a variety of different gazetteers, poetry anthologies, diaries, and popular literature about 19th century Guangzhou entertainment. Overall, this study offers a nuanced portrayal of how local identity was constructed and local culture reshaped in late imperial Guangzhou.

Introduction

Around 1808, Shen Fu, a literatus from the culturally rich Jiangnan region arrived in Guangzhou, a city on the southernmost frontier of China. Wanting to see the exotic entertainment climate of the city, he boarded a floating brothel called *Hua-ting* (flower-boat) on the Pearl River. But the cultured Jiangnan native was disappointed. In his travelogue, Shen complains:

I thought flower-boat courtesans possess the beauty and musical talent to steal souls of men, for everyone warns, ‘No young man should ever go to Guangzhou.’ But whose heart is there to be flipped when confronted by such vulgar appearance and barbaric tongue?¹

In Shen’s opinion, songs of the courtesan, sung in the Guangzhou dialect, resembled the sounds of a barbarian. Yet, the other Guangzhou locals would most likely disagree. In a poem, Xie Lansheng writes that “*Yüé Ou* is not a vulgar song, for its melody is as clear as snow.”² He also records a poem written by his friend Zhang Ruzhi for a young literatus who was about to leave Guangzhou:

A long time has passed since the last *Yüé Ou* song was played.
But when I heard the Pipa melody today, a beam of light flashed through my ears.
What’s better than listening to a song composed by an old friend?

¹ Shen Fu, *Fu Sheng Liu Ji*, (1808), vol.4.

² Xie Lansheng, *Changxingxing zhai riji*, the 20th day of the 7th month in the 25th year of Jiaqing (1820).

Like the cry of nightingales, it speaks of my
concerns for thee.³

Xu Rong, a friend of Xie and Zhang also writes:

Born and raised in the southern Man
(barbaric) village, we ply the vulgar tongue.
Yet, even in vulgar words we can express our
emotions and concerns.⁴

In their poems, the three literati invoke both the poetic quality of the local music, Yüé Ou, and the nostalgia of being Guangzhou locals. The similar diction—valorizing the vulgarity, barbarity, beauty or clarity of Yüé Ou—show their efforts to defend local music. By so doing, the literati identified themselves with the beauty of local music and culture, and reinforced their connections with other Guangzhou locals. In contrast to Shen, who scorned local music as vulgar and barbaric, the laudatory views of Xie, Zhang, and Xu convey the local men's love for local music.

But, when we look into the backgrounds of the three literati, we see a decidedly more complicated picture. While Xie belonged to the junior branch of a Nanhai gentry lineage that settled in Guangzhou, Zhang was a Shunde native residing in the city.⁵ Xu, on the other hand, was a Han Bannerman whose ancestors were sent to be stationed in Guangzhou.⁶ Xu's style name (*Zi*), Tiesun, literally the

³ Xie, *Changxingxing zhai riji*, the 8th day of the 3rd month in the 2nd year of Daoguang (1822).

⁴ Zhao Ziyong, (1828), *Yüé Ou*, 8. Xu Rong's pseudonym in the anthology is Meihua Laonong, the old nurturer of plum-blossoms.

⁵ Nanhai and Shunde were counties under the administration of Guangzhou prefecture.

⁶ Wang Zhaoyong, *Lingnan hua zhenglüe*, 104, 146. The Han Banner was a Han Chinese unit under the Eight Banners: the

grandson of Tie, also implies that he was aware of his ancestral link to the region of Tieling in Northeast China.⁷ Even so, their poems reveal their love for the local music of Guangzhou. Unlike Shen Fu, a visitor and therefore a true outsider, Xie, Zhang, and Xu fully identified themselves with local music and Guangzhou.

The music despised by Shen and praised by the three literati was Yüe Ou, one of the narrative music genres local to Guangzhou, and one that was popular in the early 19th century Pearl River entertainment scene. In an 1857 European account a French diplomatic attaché, Yvan Melchior, describes his impression of Pearl River entertainment:

By night, [Guangzhou] is a rich and beautiful courtesan, crowned with flowers, decked with bright jewels, murmuring, with winsome voice, quaint melodies and songs of love-in-idleness, and plying, with little reticence, her voluptuous trade under the shadow of the dark.⁸

In this account, the “songs of love-in-idleness” were Yüe Ou songs described by the three aforementioned literati. As Melchior suggests, Yüe Ou is a genre defined by stories of romance and regrets on the Pearl River. Most Yüe Ou songs are also sung from the perspective of courtesans and describe

administrative/military divisions during the Manchu Qing dynasty (1636-1912) into which all Manchu households were placed.

⁷ *Zi*, or style name, is an additional name bestowed upon or chosen by a person at the age of twenty as a symbol of adulthood and respect. Tie, or Tieling is a region in Northeast China.

⁸ Yvan Melchior, *Canton: Un coin du céleste empire*, (Paris: M. Levy frères, 1857), 1 49.

their sufferings in the entertainment scene.⁹ Since its appearance in the early 19th century, Yüe Ou became popular not only among locals, but sojourners and the descendants of migrants as well.¹⁰ On the Pearl River, many literati also devoted themselves to the composition of new Yüe Ou songs.¹¹ Considering the melancholic subject matter of the Yüe Ou, there are questions about why Yüe Ou became one of the dominant musical genres in the early 19th century Pearl River entertainment scene. Additionally, why did many literati in Guangzhou partake in the composition of new Yüe Ou songs? What did Yüe Ou contribute to early 19th century Guangzhou society and culture?

This study explores the social and cultural significance of Yüe Ou in reinforcing the course of identity-construction, local culture affirmation, as well as the vitalization of transregional and social mobility in early 19th century Guangzhou society. Historians who study local societies of late imperial China have noted connections between transregional mobility and the local—that migrants were often met with distinct localist elements, which in turn instigated new developments in local societies and cultures. In his study of the scholarly institution, Xuehaitang, and

⁹ Leung Pui-Chee, *Nanyin yu Yüe Ou zhi yanjiu*, (San Francisco: Asian American Studies & School of Ethnic Studies, San Francisco State University Press, 1988), 179-180. Yüe Ou songs often lament about actions of unfaithful brothel patrons, and the emotional pains they bring to courtesans.

¹⁰ For instance, towards the end of the 19th century, a Fujian literatus recalls that “on the Pearl River, hundreds of flower-boats gathered at the docks and sang Yüe Ou songs.” See, Qiu Weiyuan, (1899), *Keyunlu xiaoshuohua*, vol. 2.

¹¹ For instance, Xie Lansheng writes one time, “I attended a banquet... [where] Mingshan handed someone a kumquat fruit, and a Yüe Ou song was composed. What an elegant event.” Xie, *Changxingxing zhai riji*, the 16th day of the 8th month in the 25th year of Jiaqing (1820).

urban Guangzhou elite society, Miles emphasizes the ways in which sojourners and migrants were able to climb the social ladder through commerce, cultural patronage, and participation in and reinvention of localist scholarship and literary production.¹² Exploring the culture of Guangdong province, of which Guangzhou was the capital, Ching calls for the importance of the Guangzhou dialect as a symbol of identity to Guangzhou elites.¹³ Moreover, by studying the poetry of Guangzhou poets, Honey identifies motifs in Guangzhou poetry. According to Honey, those themes reveal a love for local symbols (such as the litchi fruit), a reverence for the ruling dynasty, and an eagerness of Guangzhou poets, who lived in the peripheral outpost of the Chinese civilization, to prove their cultural authenticity and refinement.¹⁴ The Guangzhou dialect and other localist elements were media for Guangzhou elites in the Ming-Qing period to construct their local identities, and affirm and transcend their local culture beyond prejudices of a coterie of refined non-Guangdong literati. For sojourners, migrants, and their descendants who resided in Guangzhou, those localist elements became the media through which they could acquire upward social mobility and reinvent themselves as locals of the city.

This study differs from earlier studies in that it looks at one particular localist element in early 19th century Guangzhou's entertainment sector: the music genre known as Yüe Ou. I argue that Yüe Ou became popular because it fosters emotional resonance among entertainment patrons, particularly literati who failed in the Chinese officialdom or in the traditional pursuit for an official career. The genre also

¹² Steven B. Miles, *The Sea of Learning*, (Cambridge, Mass.: Harvard University Press, 2006), 282-297.

¹³ May-Bo Ching, *Diyu wenhua yu guojia rentong*, (Beijing, China: SDX Joint Publishing Company, 2006), 132-133.

¹⁴ David B. Honey, *The Southern Garden Poetry Society*, (Hong Kong: Chinese University Press, 2013), 157.

justifies the merrymaking actions of patrons who used these songs to portray themselves as saviors and tender lovers of courtesans. Written in a mixture of classical and vernacular writing, Yüé Ou became something intimate to speakers of the Guangzhou dialect. Yüé Ou was also a medium for the literati, merchants, migrants, sojourners and the Guangzhou-dialect-speaking-population at large to become part of local society, affirm local culture, and move upwardly in society. As sojourners and descendants of migrants portrayed themselves as locals and as merchants reinvented themselves as literati, they joined a local literary movement surrounding Pearl River entertainment and Yüé Ou. We will see how residents in Guangzhou used Yüé Ou to portray themselves as locals on one hand, and affirm their local culture and surmount outside prejudices, on the other.

Yüé Ou: The Genre

Before Yüé Ou became a specific genre in the early 19th century, it was a loose collection of vernacular songs from Guangzhou prefecture and its satellite counties. The name Yüé Ou itself literally means “Song of Yüé,” an alternative name for the province of Guangdong. The earliest record in which the name Yüé Ou appears is in 16th century biographic collectanea. In *Baiyüé xianxian zhuan*, Ou Daren records, “Zhang Mai was a native of Yüé... he served as the imperial attendant of Hui emperor of Han (r. 210-188 BCE)... and could sing Yüé Ou songs while paddling the boat.”¹⁵ Unlike the first Yüé Ou anthology, which was published in 1828, the collectanea lack any description of the musical composition of Yüé Ou or an explanation of its origin. Hence, before the early 19th century, Yüé Ou was not a specific genre, but a general term used to denote vernacular songs of the Guangzhou-dialect-speaking part of Guangdong province.

¹⁵ Ou Daren, (16th century), *Baiyüé xianxian zhuan*, vol. 1.

The first specific vernacular genre to have become popular in Guangzhou was a genre known as the *Moyu ge*. Borrowing structures and contents directly from Buddhist chants and other established music genres such as *Tanci* from Jiangnan, *Moyu ge* were long and monotonous, and are mostly concerned with Confucian and Buddhist teachings. According to Qu Dajun, “The culture of Yüe is music-oriented. Music is always present in celebrations... [The music] is named *Moyu ge*... [it is] sung by blinded buskers... its stories, historical and fictitious, often celebrate the virtues of filial piety, righteousness, and chastity.”¹⁶ As *Moyu ge* became established in the Pearl River delta society, it became a poetry motif for Guangzhou literati who wished to capture the local culture and splendor of their city as early as the 17th century.¹⁷

Besides *Moyu ge*, there were also folksongs of the Tanka people (or “boat-people”) who lived on the Pearl River. Collectively known as *Xianshui ge*, these songs are duetted by a male and female performer. In an 1877 poem, the poet writes, “The Tanka girl sings under fishing lights, the boat goes round-and-round from *Shaji* to *Neihe*. Her *Xianshui ge* are so popular, they all rhyme by the name of her lover.”¹⁸ This poem suggests that different from *Moyu ge*, *Xianshui ge* was about courtships and romances between Tanka youth. Unlike the long duration of *Moyu ge*, songs of young Tanka women were short in length. Because many Tanka women also worked as courtesans, *Xianshui ge* songs

¹⁶ Qu Dajun, (18th century), *Guangdong xinyu*, vol. 12, Shiyu.

¹⁷ For instance, Kuang Lu in 1634 records the splendor of the Lantern festival in Guangzhou by writing that “[The people] plucked the *Muyu ge* with a *Pipa*, whilst the wine’s aroma drifted away with the music of the embroidered *Se*.” In this poem, both *Pipa* and *Se* were musical instruments. See Kuang Lu, (17th century) “*Pohou xiyunxiao gongti ji shiqing liang zhongyu*,” in *Qiao Ya*.

¹⁸ Yinxiangge Zhuren, (1877), *Yangcheng Zhuzhici*.

were able to circulate in the Pearl River entertainment scene. But prior to the appearance of Yüe Ou in the early 19th century, neither Moyu ge nor Xianshui ge were able to compete against other established music genres on the Pearl River entertainment scene.

Since the 18th century, there were three major courtesan cliques in the Pearl River entertainment scene: the Yangzhou clique from Jiangnan, the Chaozhou clique from the Chaozhou-dialect-speaking part of Guangdong, and the local Guangzhou clique.¹⁹ Because of the refined musical meter and structure of its music, the Yangzhou clique was the most popular among Guangzhou pleasure seekers.²⁰ One can imagine, different courtesan cliques would have learned from each other's music in order to attract the most patrons.²¹ When different elements of Moyu ge, Xianshui ge, and music of other cliques influenced each other, a prototype of the present day Yüe Ou was developed.

In the early 19th century, songs of Tanka women and courtesans were adopted and transformed by Guangzhou literati into music with poetic lyrics and refined meter. The first literatus to have done so was Feng Xun. According to Lai Xuehai, “Zhuniang [Tanka girls and courtesans] love to express themselves through songs. The master [Feng Xun] changed their vulgar lyrics, and refined their melodies.”²² Feng's new songs quickly became popular among other Guangzhou literati and brothel patrons. They “imitated [Feng Xun] and competed against each other for best songs... Before a cup of wine could be finished, a new song

¹⁹ Leung, 33.

²⁰ Ibid, 34.

²¹ This conjecture is something I will investigate and expand in a future project focused on courtesan experiences in the Pearl River entertainment scene.

²² Lai Xuehai, (1892), “Xüelu shihua,” in *Qing shihua sanbian*, vol. 9, (Shanghai, China: Shanghai guji Chubanshe, 2014).

would already be composed... Pleasure seekers love the songs' ravishing but melancholic sentiments, they collected the songs and called them: Yüe Ou."²³

However, unlike Moyu ge and Xianshui ge, Yüe Ou was sung from the courtesans' perspectives and described their sufferings. In the preface of the first Yüe Ou anthology composed by Nanhai literatus Zhao Ziyong, the Han Bannerman, Xu Rong, exclaims:

Flies the flowery brush of Qingzhou's
prefect,
Pausing to artfully compose the feelings of
our sisters [courtesans].
With infinite care, Yüe Ou tries to perfect is
charm of style,
Souls of listeners would burn in ravishing joy
even if they are fools.²⁴

In the first two stanzas of the poem, Xu describes Zhao, the "Qingzhou prefect," as a talented composer who understood the sufferings of Pearl River courtesans exploited by both procurers and patrons. In the last two stanzas, Xu praises the poetic lyrics and ravishing rhythms of Zhao's songs. On one hand, Xu's poem suggests a close connection between Guangzhou literati and the Pearl River entertainment scene. On the other, it reflects that Guangzhou literati, being the literary elites of the city, have added their own understandings of music and aesthetics onto songs of the commoners, thus transforming folkish music from something that they considered vulgar into an elegant genre more appropriate to their taste. But, when literati boarded

²³ Qiu, (1899), *Keyunlun xiaoshuohua*, vol. 2.

²⁴ Zhao, (1828), *Yüe Ou*, 8. This is my modified version of the translation by Sir Cecil Clementi, in his *The Cantonese-Love Songs*, (Oxford: The Clarendon Press, 1904), 19-20. The Qingzhou prefect is a reference to Zhao's official career as a county-magistrate in Weixian, Shandong.

Pearl River brothels, they were entering a subaltern area where vulgarity and elegance coexisted. In their hands, Yüe Ou as a form of entertainment retained certain characteristics of both Moyu ge and Xianshui ge.

Unlike lyric poetry (*Cí*), which is also composed upon definitive musical tones, Yüe Ou is unfettered by musical meter nor are its rhymes restricted by syllabic rules.²⁵ Unrestrained in style, Yüe Ou “ignores all tonic sequence, and permits its lines to be ‘long or short’” as long as “all the lines of [a] given song end in the same rhyme.”²⁶ Overall, as a vernacular music genre that grew out from Moyu ge, Tanka songs, music of different courtesan cliques, and was consolidated by literati aesthetic, we can perhaps see why Yüe Ou was able to replace its predecessors and became one of the dominating music genres on the early 19th century Pearl River. In the next section, I will discuss a possible explanation for the popularity of Yüe Ou and how Guangzhou literati used the genre for self-reflection while patrons used this genre to justify their pleasure-seeking desires.

Yüe Ou: Literati Self-Reflection and Justification of Pleasure-seeking Desires

In the writings of Guangzhou literati, Yüe Ou was often referred to with a more philosophical title: *Jie Xinshi* (Relief of Suffering). In the first song of his Yüe Ou anthology, titled “Jie Xinshi,” Zhao Ziyong exclaims:

²⁵ Lyric poetry (*Cí*) uses a set of poetic meters derived from a base set of certain patterns, in fixed-rhythm, fixed-tone, and variable line-length formal types, or model examples. Its rhythmic and tonal pattern are based upon certain, definitive musical tunes.

²⁶ Clementi, 13.

When a person is relieved from inner troubles and sufferings, his heart will be cleared. The sea of worldly suffering is deep and vast... [but] he will taste boundless joy if his heart is relieved.²⁷

According to Zhao then, Jie Xinshi means to resolve the troubles in one's heart or to relieve one of miseries and sufferings. But why did Guangzhou literati, such as Feng and Zhao, feel compelled to compose such songs? In the preface of his anthology, Zhao explains:

Since the literati, who tread the path of virtue, take eager pleasure in hearing the sincere devotions of Yüe Ou, my hope is that this little volume may serve to rescue all such who drowned in the sea of desires.²⁸

For Zhao, he composed Yüe Ou songs because they might rescue those “who drowned in the sea of desires.” Subsequently, Guangzhou literati were attracted to the genre because of its sincerity. If we look at the careers of the Yüe Ou composers, Feng and Zhao, we will see more clearly what Zhao meant in his preface.

Even though becoming a bureaucrat was the traditional pursuit for most Chinese literati, both Yüe Ou composers had rather difficult experiences with Chinese officialdom. While Feng earned a Jinshi degree in the civil service examination at twenty-five, he was not appointed to an official position until forty-six.²⁹ Zhao, on the other hand, failed the examination multiple times. He finally earned a Juren degree at thirty and was appointed county-magistrate

²⁷ Zhao, (1828), “Jie Xinshi,” in *Yüe Ou*, 33.

²⁸ Zhao, (1828), *Yüe Ou*, 1.

²⁹ Jinshi was the highest degree in the civil service examination while Juren ranked the second.

in Shandong. However, after being accused of colluding with the British, Zhao was forced to resign. Despite being talented scholars and responsible officials, both literati had a tough career path.³⁰ When Zhao returned to Guangzhou, Feng was waiting for his official appointment.

In Guangzhou, the two abject literati chose to relieve themselves through entertainment. In a conversation with a student, Feng said that the happiest moment in his life was:

[When I] Became a Jinshi... Awaiting the appointment at home, I indulged myself in Pearl River brothels with Qiu Zhongyu, Zhao Ziyong and six, seven friends. Singing for the moon and crying for the wind, we squandered monies and competed for the most daring acts. In only a few years, my family properties were wasted. Yet the official appointment was nowhere in sight, and I was unable to fulfill my ambition.³¹

Rather than a description of a “happiest moment,” this passage appears to be an irony and lament of Feng over the failure and hopelessness of his life. Towards the second half of the Qing dynasty, the empire produced more degree holders annually than official positions available. We can imagine that abject literati like Feng and Zhao were not alone among the larger Guangzhou literati population. Frustrated

³⁰ Feng Xun was known as one of the best Guangzhou poets in his time. When Zhao Ziyong resigned, people of the county formerly under his administration presented him a plaque labeled “Bukui qingtian,” meaning that Zhao was well deserved to be called a just official. For a detailed study on Zhao Ziyong, see Xian, Yuqing. 1947 “Zhao Ziyong Yanjiu,” in *Xian Yuqing Lunzhu Huibian*, (Guilin, China: Guangxi Normal University Press, 2016), 23-72.

³¹ Lai, (1892), *Xüelu shihua*.

and disappointed, these literati wandered their ways into Pearl River brothels where they witnessed the lives of the equally miserable courtesans, and their experiences sparked emotional resonance. For Feng and Zhao, as well as other literati who failed and indulged themselves in brothels, Yüe Ou became a genre that portrayed an ostensible empathy between themselves and the courtesans. It also temporarily relieved their suffering, be it in Chinese officialdom or in Pearl River brothels. Although lyrics of Yüe Ou songs, at face value, chanted of the agony and miseries of courtesans, how can we be sure that they were not subtle reflections of laments of the literati themselves?³²

More than a genre that portrayed empathy, Yüe Ou appears to be a medium of merrymaking and justification of desires of brothel patrons who came from different strata of Guangzhou society. In *Zhujiang minghua xiaozhuan*, Zhi Jisheng writes biographies of Pearl River courtesans in the early 19th century. Nearly all of them are said to have been “Girls of poor but good families, who have unfortunately fallen in the entertainment world.”³³ Another popular publication, *Wenzang youxi*, collects accounts of different men who patronized courtesans listed by Zhi Jisheng.³⁴ This implies that Zhi’s biographies served as a kind of menu for picking courtesans. Furthermore, they reveal a second reason for the popularity of Yüe Ou among patrons. While patrons sang laments of the miserable lives of courtesans, they still played their part in the exploitation of these

³² Due to the lack of sources available, I was unable to explore and discuss the response and feelings of Pearl River courtesans toward Yüe Ou and the literati. However, the acknowledged but lacking aspect of this research will be addressed in a future study focusing on courtesan experiences in the Pearl River entertainment scene.

³³ Zhi Jisheng, (19th century), *Zhujiang minghua xiaozhuan*.

³⁴ Mou Gen, (19th century), *Mengbi shenghua: Wenzang youxi*, vol. 4, (Shanghai, China: Guangyi shuju, 1935), 173-180.

courtesans. Ultimately, Yüe Ou, apart from acting as a merrymaking implement for patrons who found joy within sorrow, served to justify their pleasure-seeking actions.³⁵

Such mentality among brothel patrons was shown in one of the two longest and most popular Yüe Ou songs. In this song, titled “Chu que liao Ah Jiu” (Apart from Ah Jiu), a brothel patron laments the miserable fate of the courtesan Ah Jiu, and advises her to “follow a good man” and leave her brothel:

Apart from Ah Jiu, who else could be called
a soul-ravishing beauty?
Your eyebrows are like the hills of spring, a
halo of smile.
You are clearly the fairy. Alas! Fallen into
this earthly place.
The Pearl River names you the highest
beauty, the very first among maids of wine.
But don't you know, for gaiety and wealth,
how easily it palls!
But don't you know, for men who visit the
pleasure-quarters, how unfaithful they can
be!
You make a fortune for your Madame, but
you won't get a share...
Please think well on it, think well of the
world.
Slowly and thoroughly, you will choke with
emotion.
Before lifting the wine pot, you will swallow
your tears.
Have you ever thought of the words “Follow
a good man?”
My dear... Wander no more!

³⁵ A similar cultural phenomenon in American society may be drinking songs.

The more beautiful and popular you become,
the more anxious I grow.
Seeing you girls escape from the sea of
sorrow is far better than us ascending high
official world.³⁶

In this particular Yüe Ou song, the patron portrays himself as a tender lover to the courtesan, Ah Jiu, one who truly understands her sufferings in a Pearl River brothel. Ironically though, the patron necessarily contributed to the courtesan's suffering. He portrays himself as a moralistic savior in the lyrics, but is the ultimate cause of the courtesan's moral dilemma.

Overall, despite being a form of entertainment, Yüe Ou functioned differently for Pearl River brothel patrons. On one hand, it was a way for literati who failed in Chinese officialdom to reflect upon themselves and to lament their disappointment and abjection. On the other, it allowed patrons to justify their reasons for visiting Pearl River brothels and attribute to themselves high morality. Though reality was quite the opposite. When he visited Guangzhou, Huang Zunxian, a famed poet writes, "Singing about Zhao Ziyong's lament over the death of his lover, Qiuxi, the

³⁶ K. P. K. Whitaker, "A Cantonese Song Entitled 'Creoy Keok Irio Aa Gao,'" in *Bulletin of the School of Oriental and African Studies*, University of London, vol. 36. 2., 446-459. This is an excerpt of Version C in Whitaker. I used my translation here. This Yüe Ou song was rumored to have written by Ye Tingying for his patron Wu Chongyao, one of the wealthiest man in Guangzhou during his time. According to the anecdote, the song was written to convince the courtesan Ah Jiu to accept Wu's courtship and become his concubine. When Ah Jiu finally agreed, Ye was awarded a mansion in Xiguan district, Guangzhou. See Leung, 205-206; and *Chongxiu Nanhai xianzhi* (1910), vol. 20.

alternating peach blossom rhythm brings ravishing joy.”³⁷ Similarly, in a poem dedicated to Zhao Ziyong, Xu Rong writes, “Infamously unfaithful was your claim to fame, but in the world of entertainment this is rather inevitable.”³⁸ Nevertheless, under the hands of Guangzhou literati, Yüe Ou amassed great popularity and social significance. From the early 19th century it would also become a medium through which Guangzhou residents validated their local identities, acquired social mobility, and affirmed the local culture of the city.

Yüe Ou and Guangzhou Literati: Promoting Local Culture through a Transregional Perspective

When Feng Xun composed his Yüe Ou, he was determined to transform the vulgar Tanka songs into a refined and poetic music genre. When Zhao Ziyong published his Yüe Ou anthology in 1828, he was equally concerned with attributing literati aesthetics to the genre. Thus, in his Yüe Ou songs, one encounters a large number of allusions to history, mythology, and literature. For instance, in his Yüe Ou song, “Taohua shan” (Peach-Blossom Fan), Zhao borrows the theme of love from the play “Peach-Blossom Fan” by Shandong playwright Kong Shangren.³⁹ The original play, one of the most influential pieces of Qing dynasty drama, depicts the fall of the Ming dynasty through a retelling of the love story of a young literatus and a courtesan. Under Zhao’s imagination, the story became a lament of a courtesan who was deserted by a

³⁷ Huang Zunxian, (1911) “Huai Chen Yishan shi,” in *Renjinglu Shicao*. In the poem, the Yüe Ou song is Zhao Ziyong’s “Diao Qiuxi,” in which Zhao laments over the death of his lover Qiuxi, a courtesan who was unable to repay her debt and chose to drown herself in the Pearl River.

³⁸ Xu Rong, “Zhao Mingshan daling tongnian,” in *Huaigu tianshe shichao*, vol. 6.

³⁹ Zhao Ziyong, (1828), *Yüe Ou*, 67.

heartless man. In another song titled, “Jietan boming” (A Lament for Life’s Frailty), Zhao makes references to four tragic beauties in Chinese literature tradition.⁴⁰ By transferring the stories from their original settings to the Pearl River and changing the traditional intertwining structure of love and union into one of agony and regret, Zhao’s songs resonate both with the dominating Chinese literary tradition and the flavor of local entertainment. Perhaps to promote his songs among non-Guangzhou-dialect-speaking audience, and to draw a parallel between Yüe Ou and classical Chinese literature, Zhao included a comprehensive dictionary of vernacular idioms and their classical Chinese equivalents in his publication.⁴¹ In *Nanhai xianzhi*, the gazetteer of Zhao’s home-county attributes vulgarity and profanity to Tanka songs, whereas Zhao’s Yüe Ou songs were “rather appealing and emotional, expressing an archaic beauty of *Ziye* folksongs.”⁴² By drawing different allusions and adding a unique style of combined literary and vernacular writing, Zhao thus presented Yüe Ou as part of both the Chinese literary tradition and local Guangzhou culture.

⁴⁰ The original lines in Zhao’s song were “Look ye! Consort Yang’s jade bones were buried beside the mountain track. The grass of the great plains remained green on Zhaojun’s tomb. Fallen was Xiaoqing who mourns over her past. And Shiniang drank of her misery as abundant as water.” See, Zhao, (1828), *Yüe Ou*, 33. While consort Yang and Wang Zhaojun were historical figures, Xiaoqing appeared in the work *Qingtian baojian* of Feng Menglong, and Du Shiniang appeared in Feng’s *Jingshi tongyan*.

⁴¹ Zhao, (1828), “Fangyan Fanlie,” in *Yüe Ou*, 1-4.

⁴² *Nanhai Xianzhi*, (1872), vol. 20, 3-4. *Ziye* was a folkish music genre of Jiangnan, sung in the perspective of females and expressed their romantic experiences. Xu Rong once describes Zhao as a person who “excelled in the art of *Ziye* songs, and whose melodious voice is ever clear and pleasant.” See Xu Rong, *Huagu tianshe shichao*, vol. 6.

In the preface of Zhao's anthology, different Guangzhou literati also validated their linkage with the city and promoted Yüe Ou as part of its local culture. In his preface poem, the Han Bannerman, Xu Rong affirms the local culture and dialect of Guangzhou:

Born and raised in the southern Man
(barbaric) village, we ply the local tongue.
Yet even in vulgar words we can express our
emotions and concerns.
The Pipa melody breaks and unites as the
notes sob into the sounds of yi-yi ya-ya.
Our poet makes his verses long and short just
like the *Zhuzhici* poems.⁴³

While the descriptions of a “Man (barbaric) village” and the “local tongue” seem to imply a self-mockery, they also express Xu's attachment to Guangzhou, its dialect and culture. The diction “yi-yi ya-ya” was also a reference to the 14th century poem, “Guangzhou ge” (Song of Guangzhou), by Nanhai poet, Sun Fen.⁴⁴ Originally, the diction implies a mockery by outsiders on the barbarity of the music of Guangdong in antiquity. But under Xu and Sun, it became a representation of chants of Pearl River courtesans. Despite having an ancestral link to north China, Xu's appreciation for local culture—the poem of Sun, a local poet, and Yüe Ou, a local genre—as well as his active participation in the

⁴³ Zhao, (1828), *Yüe Ou*, 8. Xu Rong's alias in the anthology is Meihua Laonong, the old nurturer of plum-blossoms.

⁴⁴ *Guangzhou fuzhi*, (1879), vol. 15, 1057. The original lines of Sun Fen's poem are “Min courtesans and Yüe girls have countenances like flowers. Their southern Man songs and rustic tunes sound yi-yi ya-ya.” For the translation, see Honey, *The Southern Garden Poetry Society*, 18-19. Honey's original translation for the diction was “goo-goo ga-ga.” I changed the romanization so that it matches the diction's pronunciations in both Mandarin Chinese and the Guangzhou dialect.

production of localist poetry reveal his endeavor to construct an identity that was local. By connecting with Sun, Xu inscribed himself and Yüe Ou into the poetic pedigree of Guangzhou poets, and therefore the culture of Guangzhou. He might have been a Han Bannerman stationed in Guangzhou to oversee the city, but by connecting with Sun and Yüe Ou, Xu reinvented himself as a Guangzhou local who was ever concerned with promoting the local culture of the city.⁴⁵

Zhang Weiping, one of the three poetry masters of Guangdong (*Yüedong sanzi*), compares Yüe Ou with two established music genres from other parts of the Chinese empire in the preface and exclaims:

While the Kun melodies are elegant, they
lack novelty.

While the Qin tunes are vigorous, they lack
softness.

Our poet's songs are filled by melancholic
rhymes: they trip and throb, stop and subside.
When they are being sung, the fish and
dragons in the water depths come forth and
roam.

Know ye the reason?

He has woven into his songs the love of this
earthly world.

Zhang further claims that “Had I met master Yu-Yang betimes, I would have shown him this book for his poetry anthology.”⁴⁶ In his preface, Yu-Yang is the pseudonym of

⁴⁵ According to Miles, Xu Rong was dedicated to promoting his identity as a Han Chinese—or more specifically, a Guangzhou—litteratus. See Miles, *The Sea of Learning*, 137.

⁴⁶ Zhao, (1828), *Yüe Ou*, 7. Zhang Weiping's alias in the anthology is Hongliao tanbian yuzhe, the fisherman by the red weed shores. The other two masters of the three poetry masters

the renowned Shandong poet, Wang Shizhen, who according to Zhang, collected “Yüe ge” (Songs of Yüe) in his poetry collectanea. Wang was also friends with various Guangzhou poets. When he oversaw the Nanhai festival in Guangzhou, Wang visited famous landmarks in the city and felt at ease in its poetic climate.⁴⁷ More than Xu who inserted himself and Yüe Ou into the poetic pedigree of Guangzhou, Zhang linked Yüe Ou, an embodiment of local culture, with Wang, a famous non-Guangzhou poet, and the Chinese literary tradition he represented. By so doing, Zhang elevated the literary value of Yüe Ou and promoted the local culture of Guangzhou to a national level. Through the efforts of Guangzhou literati to link Yüe Ou with prestigious poets, the genre overcame the limitations of being sung in a peripheral dialect. It became appreciated not only by the local population but also by migrants and sojourners who in turn used the genre as an entry point into the local society of Guangzhou.

Merchants and Sojourning Literati: Mobility and Identity

Besides the aforementioned cohort of local literati, many literati sojourning in Guangzhou also immersed themselves in the Pearl River entertainment world. Like the aforementioned literati who had diverse backgrounds but identified with Guangzhou through connecting with local culture and dialect, there were sojourners who partook in the production of localist literature and became part of the local culture of Guangzhou. A quintessential sojourning literatus who became part of local culture was Mou Gen, a local of Jiangnan. Failing the civil service examination multiple

of Guangdong were Huang Peifang and Tan Jingzhao. Huang was also an author of multiple poems in Zhao Ziyong’s anthology preface.

⁴⁷ For Wang Shizhen’s travel in Guangzhou, see *Guangzhou Fuzhi*, (1879), Vol. 111, 6715.

times, Mou wandered across south China and served as a legal secretary (*muyou*) in various Yamens. He arrived in “the southern sky” (Guangzhou) when he was over forty-five.⁴⁸ As a talented literatus, Mou quickly befriended locals like Zhao Ziyong and Xie Lansheng, immersed himself in the local entertainment scene, and developed affections with a number of Pearl River courtesans.⁴⁹

In his popular publication *Wenzang youxi*, Mou records a number of Zhuzhici poems composed by himself, Liu Huadong, Yi Kezhong, and Wu Lanxiu.⁵⁰ Written with colloquial diction in the Guangzhou dialect, these poems described the poets’ appreciation for talented courtesans and Yüe Ou songs they sang. While they reflect the familiarity of the four sojourning literati with localist elements such as the dialect and Yüe Ou, they also reveal a gradual, if not immediate process of identity transformation from sojourner to local. Among the four literati, Mou was from Hangzhou, and Wu was from the Hakka-predominated Jiayingzhou prefecture in northeast Guangdong. Whereas Liu and Yi were born in Guangzhou only because their fathers—a salt merchant from Fujian and an administrator from Shanxi—found commercial and official opportunities in the city.

But the interaction with and incorporation of Yüe Ou and other localist elements in the literature of these four sojourners, as well as their frequent gatherings with local

⁴⁸ Leung, 70; Mou, *Wenzang youxi*, vol. 4.

⁴⁹ Xie Lansheng wrote about Mou Gen frequently in his diary. For instance, he writes one time, “I attended a [banquet of Zeng...] Mingshan [Zhao Ziyong] handed someone a kumquat fruit, and a Yüe Ou song was composed. What an elegant event. Around nine o’clock at night, I met with Gen [Mou Gen] on a boat at Cuijiang cove.” Xie, *Changxingxing zhai riji*, the 16th day of the 8th month in the 25th year of Jiaqing (1820). See also the comments of Mou Gen on Zhi Jisheng’s descriptions about courtesans, Mou, *Wenzang youxi*, 174-177.

⁵⁰ Ching, *Diyu wenhua*, 132.

notables indicate that they had successfully created upward social mobility and became part of local elite society. Even more, two of the four literati—Wu and Yi—became members of the first cohort of masters of the Xuehaitang, one of the most influential academies in 19th century Guangzhou, and partook in the reinterpretation of local history through a localist framework.⁵¹ Through the association with this important academy and their endeavors at producing local history and literature, these sojourning literati constructed their local identities and reinvented themselves as locals of Guangzhou. Interestingly enough, when Mou and others produced literature, they became part of the local culture they wrote about. Whereas Liu became a favorite character of Cantonese opera and of Guangzhou folktales; Mou and his romance with a Pearl River courtesan were adapted into a Nanyin song titled “Ketu Qiuhen” (The Autumn Exile). This story continues to be told today in Guangdong cinema and television.⁵² Whether intentionally or accidentally, through their adoption of localist literary and entertainment elements, sojourning literati and new locals of Guangzhou left a trace on the city and became integrated into its local culture.

In addition to sojourning literati, merchants in Guangzhou during this period also began to utilize the Pearl River entertainment scene and Yüe Ou to reinvent their social and cultural identities. In the diary of Xie Lansheng, the local literatus often writes about his social gatherings with merchants in the city. In one entry, Xie writes, “I boarded the rich flower-boat of Pinghu... the courtesan sat in the gazebo [in Pinghu’s garden], her green clothes corresponded with the redness of the litchi fruits, what an

⁵¹ Miles also suggests that migrants and sojourners produced localist texts and reinterpreted local history in order to portray themselves as the leading figures of the city’s elite culture. See Miles, *The Sea of Learning*, 127-164.

⁵² Ching, *Diyu wenhua*, 132.

elegant sight to see.”⁵³ On the next day, Xie attended the banquet of Nanzhou and listened to Yüe Ou songs with Zhao Ziyong.⁵⁴ In this entry, Pinghu was the style name of Wu Bingjian, one of the wealthiest men in early 19th century Guangzhou. Nanzhou was the style name of Wu Bingzhen, younger brother of Wu Bingjian. The Wu family was originally from Fujian and flourished in salt and maritime trade in Guangzhou since the 18th century. Like other wealthy and ambitious families in Guangzhou, the Wu family patronized local literati, such as Xie and Zhao, inviting them to banquets on their privately-owned flower-boats or to poetry readings in their family gardens on the banks of the Pearl River.

In hope of turning their economic resources into cultural capital, merchant families also hired local literati as private teachers for their children.⁵⁵ Before he became an academy master in 1804, Xie Lansheng was a private teacher in the equally wealthy Pan family.⁵⁶ In 1822, Xie visited the Pan family mansion and performed the *Kaimeng* ceremony for a Pan child.⁵⁷ Here, the message behind social interaction and cultural exchange between merchants and local literati was twofold. As Mou and other sojourning literati did, migrant merchants in Guangzhou wished to become part of the local society. Through maritime and salt trades, they grew wealthy and became important figures in the Pearl River entertainment scene. Whereas their familiarity with

⁵³ Xie, *Changxingxing zhai riji*, the 7th day of the 5th month in the 25th year of Jiaqing (1820).

⁵⁴ Ibid, the 8th day of the 5th month in the 25th year of Jiaqing (1820).

⁵⁵ Miles, *The Sea of Learning*, 64-66.

⁵⁶ Ibid, 65.

⁵⁷ Xie, *Changxingxing zhai riji*, the 4th of the 11th month in the 2nd year of Daoguang (1822). The Pan child was Pan Zhengyu (1818-1891). *Kaimeng* is a ceremony to signify that the formal education for a child will thereafter be commenced.

localist elements like Yüé Ou suggests that the merchants had engaged in a similar process of identity-construction from migrants to locals, their privately-owned carriers of entertainment—flower-boats and gardens—became their ways of mingling with the local literati and elevating their own social positions toward that strata. In the reigns of Daoguang and Xianfeng, from 1820 to 1861, the aforementioned Wu and Pan families ascended the place of literati through several of their family members who earned the Juren degree from the civil service examination.

The linkages that the local and sojourning literati, as well as merchants made with the music genre signify that Yüé Ou, in addition to its popularity on the Pearl River, had become an integrated part of the culture of Guangzhou. Since its consolidation by Feng Xun and Zhao Ziyong in the early 19th century, Yüé Ou became so established in Guangzhou prefecture that “[it is] known to high and low, rich and poor; [it is] sung alike by [courtesans] on board... flower-boats, by blinded minstrel-girls... and by the dirty beggar in the suburban slum.”⁵⁸ The genre’s popularity among different strata of Guangzhou society points to an intersection between what has traditionally been regarded as literati-like and commoners-like, and between the refined and vulgar.⁵⁹ Despite its origination in literati imaginations, Yüé Ou cannot be regarded as a genre enjoyed solely by the educated elites. It is true that in contrast to literati or merchants, commoners were less literarily oriented and erudite. But they were able to understand, appreciate, and eventually identify with the genre because of its root in the Guangzhou dialect and colloquial diction. For the Guangzhou-dialect-speaking population in general, and for those who took root in the city and its culture, Yüé Ou became a medium through which they could identify

⁵⁸ Clementi, 1.

⁵⁹ Ching, *Diyu wenhua*, 132.

themselves as locals of the land and take part in the affirmation of the city's culture.

In 1924, Liao Fengshu published an anthology of his own Yüe Ou songs titled, *Xin Yüe Ou Jie Xin*. In the preface, Liao tells a story of how Yüe Ou evoked his nostalgia for Guangzhou:

[Spring 1921] I was recuperating in Japan without many friends. Under a lonely moon and waning light, I sat by the window and thought of the past. That year when I was on a Pearl River flower-boat, the night was quite, and shadows of people faded away. A courtesan sat under the curtain—the Pipa covered half of her face—she sang a Yüe Ou song in a soft voice. Before me, tears dropped from her eyes. That moment felt like only yesterday, and I couldn't help but sigh [stroke my beard] and whisper a Yüe Ou song.⁶⁰

Luo Yinggong, a Beijing opera playwright from Shunde who sojourned in Beijing makes a similar remark about Yüe Ou in Liao's anthology:

Our Yüe dialect is strange, its music does not match that of the central plains [Mandarin-speaking provinces...] But Yüe Ou of Zhao Ziyong is the most wondrous music in all the world. I have resided in the capital [Beijing] for almost twenty years, and haven't heard the music for a long time. [But] whenever I hold a volume of Yüe Ou in my hands, I can't

⁶⁰ Liao Fengshu, (1924), *Xin Yüe Ou Jie Xin*, (Hongkong: Tiandi Tushu, 2011), I. Liao Entao (1865-1954), style name Fengshu, was a diplomat and elder brother of Republican revolutionist and co-founder of the Chinese Nationalist Party Liao Zhongkai.

help but feel saddened and think about the past.⁶¹

In the prefaces, both Liao and Luo emphasize the significance of the Guangzhou dialect in complementing the quality of Yüé Ou. Living far away from their native land, the nostalgia of Liao and Luo for Yüé Ou and the Pearl River entertainment scene reveals their attachment to the city's dialect and culture. Their sentiments also refuted the remote contempt of Shen Fu and resonated with local literati such as Xu Rong and Zhang Weiping. Whereas Xu and Zhang a century ago found Yüé Ou to be elegant and enjoyable, Liao and Luo found that the genre could make them feel at home. The prefaces of Liao and Luo thus suggest that Yüé Ou created a familiar and cordial feeling for Guangzhou locals who sojourned far away from their native land.

Since it became established as an integrated part of the Guangzhou culture, Yüé Ou was even used by revolutionaries and republican scholars to promote their political goals and advance the New Culture Movement in the late 19th and early 20th century. In fact, Liao's Yüé Ou songs, unlike those of Feng and Zhao, reflect Liao's revolutionary mentality and his wish to promote vernacular literature. The prefaces in his anthology too were written by renowned revolutionaries and new era scholars such as Liao Zhongkai and Liang Qichao. As an integrated part of local culture, Yüé Ou was the medium that revolutionaries turned to when they sought an instrument to arouse populist support. In Guangzhou's published newspapers, there were also Yüé Ou songs written to mock the anachronistic monarchists and corrupted warlords in early 20th century

⁶¹ Ibid, I. Luo Guorong (1872-1924), pseudonym Yinggong, famous playwright and mentor of the renowned Beijing opera performer Cheng Yanqiu.

China.⁶² Such transformation leaves one wondering: when revolutionaries borrowed Yüe Ou as a promotional instrument for their anti-Qing and republican cause, did they ever consider that the genre was originally created in Pearl River brothels on the “sea of desires?”

Epilogue

Early 19th century Guangzhou was a cosmopolitan metropolis and its local entertainment was a transregional scene. During this time, the national warning that “No young man should ever go to Guangzhou” failed to stop men from all over the empire from immersing themselves in Pearl River brothels. Some of them, like Shen Fu, come and go. Others, like Mou Gen, settled themselves as part of the local society, partook in the production of localist literature, and inscribed their stories into the local culture of Guangzhou. A genre composed of the colloquial diction of Tanka songs, Moyu ge, and literati aesthetics, Yüe Ou served as more than a genre that invoked self-reflection, portrayed empathy, and justified the pleasure-seeking actions of Pearl River patrons. To members of Guangzhou society, it was also a medium through which the construction of local and social identities, and the validation of local culture were fulfilled.

The majority of those who participated in this valorization of local culture and identity were migrants, sojourners, or scions of the gentry. They could also be literati, merchants or commoners. But through an appreciation for Yüe Ou, all of them proclaimed their close connection with Guangzhou. Their social interactions and cultural exchanges on the Pearl River and their efforts to validate local culture showed the endeavors of these men to portray their identities as Guangzhou locals and to transcend

⁶² For instance, one Yüe Ou song compared the deposed Qing court with the king of hell and suggested that monarchists should all descend to hell to serve their monarch. See Leung, 249-254.

their local culture beyond the prejudices of non-Guangdong literati. Furthermore, the motifs used by Guangzhou literati in their Yüé Ou songs and poetry reveal that they have marked themselves onto the poetic pedigree of the city and linked its local culture with the entire Chinese literary tradition. The prefaces of Liao Fengshu and Luo Yinggong also attest that the people of Guangzhou, fully identifying with local culture and dialect, saw Yüé Ou as a reminder of their identities as locals of Guangzhou. And when Yüé Ou became so deeply rooted in Guangzhou society, it became a part of the local culture that could be given different social functions as historical circumstances changed.

Lastly, to reiterate the main lines of my analysis, I conclude with the same poem I began with. It was written by one retired Guangzhou literatus to another who was about to begin his official career far away from Guangzhou:

A long time has passed since the last Yüé Ou
song was played.

But when I heard the Pipa melody today, a
beam of light flashed through my ears.

What's better than listening to a song
composed by an old friend?

Like the cry of nightingales, it speaks of my
concerns for thee.⁶³

A farewell from one Guangzhou local to another, this poem both recall the heartfelt sentiment that Yüé Ou fosters and the nostalgia of being a Guangzhou local. By doing this, the poet identifies with the beauty of his local dialect and culture, and his connection with other locals of his city. He demonstrates himself to be thoroughly conversant with the conventions of the genre and culture of the city, and

⁶³ Xie, *Changxingxing zhai riji*, the 8th day of the 3rd month in the 2nd year of Daoguang (1822).

ultimately passes these on to the next fledgling local of Guangzhou.

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Acknowledgements

This is a joyful moment for which I have been waiting and through which I can express my heartfelt gratitude. I thank Dr. Xiaowei Zheng for her unconditional support and guidance through this journey of three years. It was under her mentorship that I learned the historian's craft and came to become a historian myself. I thank Dr. Beth Schneider, Dr. Yvette Martinez-Vu, Brian Galaviz-Sarmiento, Jesse Ramirez, Eduardo Cardenas, Transito B. Gonzalez, Fidel D. Lopez and others in my McNair cohort for bringing me confidence and perseverance when I thought it was impossible to go on. Last but not least, I thank Dr. Ellen Broidy and Chris Morales who showed me the spirit of writing and expertly guided me through the editorial process.

This paper is dedicated to my great-grandfather, Ah Gong and Ah Po. I am forever thankful to them for instilling in me a sincere love for the music tradition of our dear Guangzhou. Even though my great-grandfather and Ah Po were not able to see my work before it was finished, our common memory is present in this paper. And that memory will accompany me on the long journey of my life.

Relative chronology of high-magnitude debris flow events in Santa Barbara and Montecito

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Abstract

The magnitude 5 debris flow event that occurred in Montecito, CA in 2018 has called for an improved understanding of the recurrence of past high magnitude debris flow events in the area. This study uses unconventional methods of examining mean weathering rind thicknesses (WRTs) measured on sandstone boulders of debris flow deposits throughout Santa Barbara, CA and their surrounding area to determine the relative chronology of these events. 20 WRT measurements per boulder were made on a sample set of boulders at 17 sites. Of these measurements, we hypothesize that the comparatively smaller WRTs correlate to younger debris flow events, while larger WRTs correlate to older debris flow events. The results of this study provide a preliminary understanding of the large volume debris flow history of the area.

Introduction

With 23 recorded deaths, approximately 300 houses damaged, and almost \$200million in infrastructural damage, the debris flows in Montecito, California occurring on January 9th, 2018 have raised concerns about forthcoming high-magnitude events. Debris flows are characterized by the high-velocity movement of a mixture of sediments and mud, with entrained boulders and debris on steep hillslopes following heavy precipitation events. The magnitude of these events is determined by the volume of the flow on a logarithmic scale. For example, preliminary estimations of the volume of the 2018 event indicate 10^5 cubic meters of material were transported through the canyons, making it a magnitude 5 event. These high-magnitude events are particularly susceptible to be triggered when intense precipitation follows wildfires, in what researchers have coined to be the Wildfire-Debris Flow Cycle (Keller et al., 2019). The impacts of wildfires on debris flows in Matilija Creek in Montecito have shown that wildfires readily decrease basin stability and the efficiency for sediment transport increases (Florsheim et al., 1991). Furthermore, with increasing summer temperatures due to climate change, the frequency of wildfires in coastal California may increase in the coming years (Keeley, 2004), which could have an effect on debris flow frequency.

In order to understand if large debris flow events may follow this increase, a fundamental understanding of their past occurrence must be established. In a study by Florsheim et al. (1991), t radiocarbon dating of charcoal within debris flow deposit matrices at Matilija Creek (Mediterranean Climate) indicate that large impact events occur on the order of several hundred years. While this estimated recurrence interval was made in a relatively close locale, the recurrence of large debris flows events specifically in the Santa Barbara area was still poorly constrained prior to this study. Additionally, the present study represents an attempt at a

more comprehensive understanding of the debris flow history than was performed in the 1991 study.

Evidence for past debris flows are readily available throughout Santa Barbara in the form of sandstone boulder fields and levees along stream banks and within canyons. One potential method for estimating the ages of these past debris flows is by measuring the weathering rind thicknesses (WRTs) on the boulders of deposits. Weathering rinds (WR) forms on the surface of boulders as a result of chemical changes due to continual exposure to the surrounding climate through time. The rate of formation is highly dependent on both the surrounding environment and rock type, but ultimately, the biggest influencer on rind development is time, making it an effective tool for making relative distinctions of the ages of deposits (Hunt, 2015; Reeves & Rothman, 2014). In previous studies, WRTs measured on basalt, andesite, sandstone, have been correlated with numeric age dates to understanding the ages of various geomorphic features in locations such as New Zealand, the Western United States, Costa Rica, and Northern Scandinavia (Chinn, 2006; S. M. Colman & Pierce, 1981; Dixon, Thorn, Darmody, & Campbell, 2002; Kneupfer, 1988).

As explained by Kneupfer, 1988, if the rate of weathering rind formation is calibrated at sites of known ages, it is possible to independently estimate ages using WRT where traditional dating methods cannot be readily applied. This method of dating is much more cost-effective than relying on dating numerous flows using radiometric methods. While this method of relative age dating has been applied in many studies, the rate of WR formation has been shown to not only steadily decrease over time as a power law function, but are also highly dependent on the surrounding environments (Steven M. Colman, 1981; Hunt, 2015). Thus, the rate of growth modeled by previous studies cannot be directly applied to Santa Barbara's sandstone boulder fields

because no studies on WR development have been conducted in the Santa Barbara climatic conditions. Furthermore, several studies have explored that weathering rind formation steadily decreases over time due to competing rates of growth and erosion (S. M. Colman & Pierce, 1981; Gordon & Dorn, 2005). Thus, for WRTs to be used as an independent chronometer to date debris flows in Santa Barbara, erosive factors that hinder its use must be acknowledged.

With the potential problem of erosion and our inability to apply previously established WRT calibration curves in different locales, this study explores the use of WRTs as a potential age dating tool by combining a spatial and statistical analysis of WRTs measured throughout Santa Barbara before these measurements are correlated with radiocarbon age dates of charcoal found in debris flow matrices. In previous studies, radiometric analysis of carbon material has been utilized not only to correlate age dates with WRT measurements, but also to date the recurrence interval of debris flows (e.g.: Chinn, 2006; Florsheim et al., 1991). While the process of collecting the carbon material for radiometric dating continues, the data collected for this study will provide more context in the relative ages that we expect before we correlate these WRT measurements with exact age dates. We predict that areas of smaller thickness measurements will be found with sites correlated with younger flows, while larger thicknesses will be correlated with older flows. We also expect that these boulders are distributed in locales that have similar thicknesses.

Methods

This project focuses on the relative chronology of the WRs of sandstone boulders found in the Santa Barbara, CA area. We analyzed the data for the WRTs on a map to obtain a more comprehensive prediction for the relative ages of different debris flow sites across the county.

1. Geology

The sampled boulders predominantly originate from the Matilija Formation unit of the Santa Ynez Mountains above Santa Barbara. The sandstones of this unit are medium to coarse grained and are known to have high erosional resistance (Link, 1975). As such, we can assume that the chemical composition and minerology of our samples are the same between sites because they come from the same geologic unit. This allows us to assume that the rate of rind formation is the same between the different boulders.

2. Climate

It is important to note that we assume that all the WRs have been exposed to the same climatic conditions, and therefore, the same rate of weathering because our samples and sites are confined within the region of Santa Barbara. We also assume that each of our samples' rinds have been eroded to the same extent under these climatic conditions over time.

3. Field Samples & Measurements

Weathering rind thicknesses were measured on a sample set of boulders (3-20 boulders) in 17 different locations around Santa Barbara and Montecito, CA. On each boulder, 20 weathering rind thickness (WRT) measurements were made. In total, approximately 3,500 WRT measurements were made across all 17 sites. A digital caliper with an accuracy to 0.01 mm was used to measure the rind thicknesses. The predominate method of collecting weathering rind thicknesses was measuring along the edge of an intact piece of weathering rind, adjacent to where a piece of rind had flaked off, exposing the fresh, unweathered rock beneath. A Trimble Geo 7X handheld GNSS device was used to record the coordinates of each measure boulders. Microsoft Excel was used to perform preliminary statistics on the collected field data.

4. *ArcGIS*

ArcGIS was used to analyze the geospatial relationships of the measured sites and their respective WRT. Each sampled boulder was put on a map of Santa Barbara using the coordinates obtained in the field. Corresponding mean WRT was added to the attributes of each boulder. Boulders were then divided into categories of boulders with relatively small, intermediate, and large WRT, representing relatively young, intermediate, and old debris flow deposits. A shapefile was created based on these categories, with each being a separate color on the map. A qualitative analysis on the geographic spread of the weathering rind thickness among the deposits was done to explore how deposits of similar WRT, therefore age, are distributed throughout the study area.

Results

WRT data was put on a box and whisker plot to illustrate the distribution of the data for each site and to compare datasets between sites (**Figure 1**). The sites were arranged from least to greatest in terms of their overall mean. We categorized sites 1-5 to be small (pink), sites 6-14 to be intermediate (blue), and sites 15-17 to be large (red). The mean WRT for sites 1-5 (in mm) are 4.63, 4.26, 4.16, 4.49, and 4.49, respectively. The mean WRT for sites 6-14 (in mm) are 5.67, 6.68, 6.89, 7.17, 7.41, 7.61, 7.92, 8.26, and 8.31, respectively. Finally, the mean WRT for sites 15-17 (in mm) are 9.34, 10.19, and 10.76, respectively. The error bars indicate the ranges for the mean WRT of each site. The intermediate category ranges blend in with its neighboring categories; that is, the intermediate WRT ranges are contained within the small and large WRT category ranges.

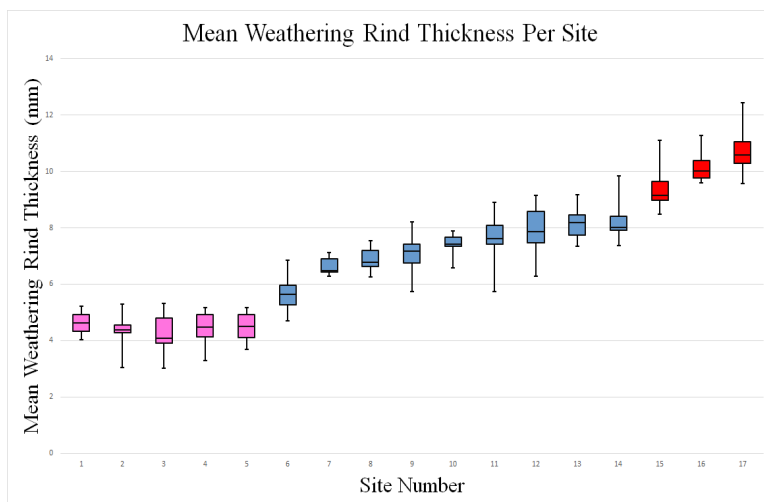


Figure 1 Box and whisker plot of the mean weathering rind thickness per site. The error bars indicate the minimum and maximum for each site. The colors of the small, intermediate, and large categories are pink, blue, and red, respectively

On the constructed map (**Figure 2**), subgroups of boulders based on their mean WRT can be seen to group in similar geographic areas and follow distinct paths down the canyons. The subgroup WRT range for small, intermediate, and large WRTs are 3.026 to 5.319 mm, 4.711 to 9.838 mm, and 8.483 to 12.43 mm, respectively. Because of the blending for intermediate ranges, we created two separate shapefiles that show the range blending between 4.711 to 5.319 mm and 8.483 to 9.838 mm. Though some intermediate sites are defined (sites 7-10), all large and small sites contain some intermediate WRT size.

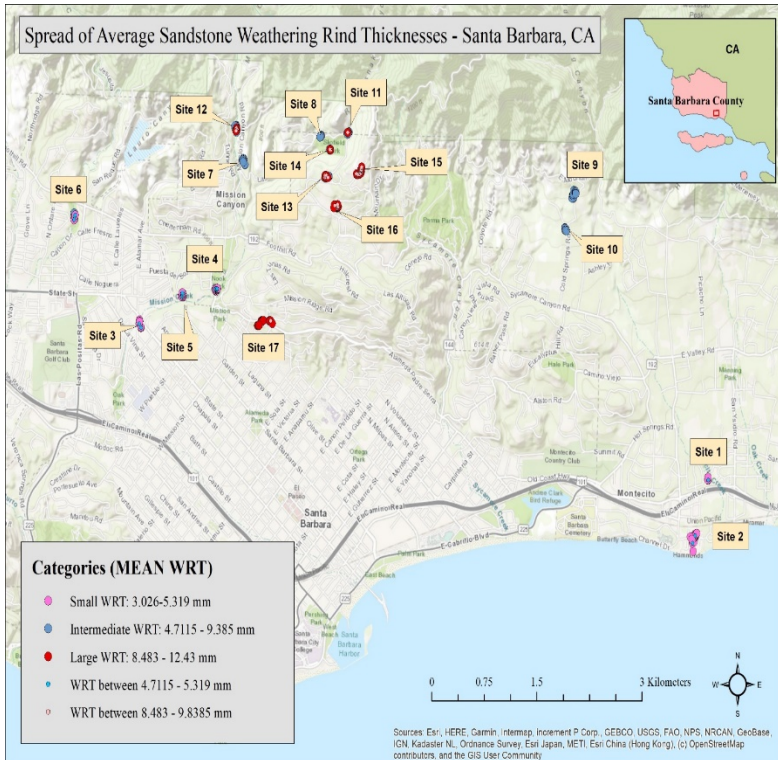


Figure 2. Map of Santa Barbara, CA with sites 1-17 labeled. The small, intermediate and large sites are colored pink, blue, and red, respectively. Shapefile ranges were chosen based on the minimum and maximum of the mean WRT site categories.

Discussion and Conclusion

We begin our discussion with the small category. Sites 1 and 2 were within the same region near Montecito Shores, and since both are similar in size, we hypothesize that they may be the result of the same debris flow event. Sites 3 through 5 are also found within the same region and are similar in size, where we hypothesize that they may also be the result of the same debris flow.

The intermediate category does not have a well-defined range. The explanation for why the intermediate

range is contained within the ranges of small and large may be because these neighboring sites may be similar in age. For example, site 6 is near sites 3 through 5 but may not have moved as far to have its WRs flaked or eroded away when moved. Furthermore, sites 13, 15 and 16 may be from the same debris flow event, but a decrease in WR development may cause the larger sites to have smaller WRTs (Colman, 1981). Sites 7 through 10 are the exception as they are not contained within the ranges of their neighboring categories. Sites 9 and 10 may be the only sites of true intermediate age as they do not mix in within the regions of 11, 13, 14, 15, and 16 as sites 7 and 8 are. Another explanation for why the intermediate range is contained in its neighboring categories may be that there is a mix of population due to an unknown debris flow. This would cause certain boulders within each site to have a smaller WRT than its surrounding boulders. Finally, the large category has one site that may be of an old debris flow event because it only contains one intermediate size thickness (site 17). This site may therefore potentially be the oldest debris flow that was measured.

Overall, while the intermediate category is not well-defined, we still have a rough idea for which sites should be relatively younger and those that should be relatively older. For example, we can expect that sites 1 through 6 should be younger than sites 12 through 17. We also see that because some sites are spatially near one another that they may be the result of the same debris flow event or happened within the same general time period. Sites 1-5, 9 and 10 are good examples of this. This data is particularly useful for providing context in our predictions before making the correlation between the WRT data and numeric ages. Overall, this study gave insight into how WRT can be used to study the geomorphic features the Santa Barbara, CA area, which provided preliminary information on the high-magnitude debris flow history of the area.

Future Work

Future work includes continuing our WRT data collection at different sites, adding 2 to 3 more to potentially identify more outliers and trends in the data. We will also be conducting statistical comparison tests for each site category to assess whether they are statistically from the same population. The second half of the project includes collecting charcoal from the fine-grained matrix of sites to conduct a radiocarbon analysis to estimate the numeric ages of the debris flows. We are using charcoal because of the close relationship between wildfires and debris flows (Keller et al., 2019). If the correlation between the WRT and ages exists, and the rind development rate can be well quantified through the creation of a calibration curve, the age of other debris flows could be estimated where charcoal for radiocarbon analysis is not available. These next steps will help us further understand the recurrence and chronology of high-magnitude debris flow events in Santa Barbara.

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Acknowledgements

I would like to thank my faculty mentor, Dr. Ed Keller, for giving me the opportunity to assist in the project. I also thank Chandler Adamaitis who I worked very closely with on this project and has been of great help for me to understand both the research and graduate school process.

From the bottom of my heart, I thank the McNair program and staff, Dr. Schneider and Dr. Yvette Martinez-Vu; the both of you have helped me succeed both personally and academically and I could never thank the both of you enough. To answer your question, Dr. Schneider: yes – everything did work out.

Last, but not least, I want to thank my family and friends for the love and support. To Annie Wang, thank you for supporting me since the day I met you. You helped me revise my application for the McNair program, and believed I would not only be accepted, but also believed I would go to graduate school. My heart is full of joy knowing that you look down and watch over me on this journey. I will continue to work hard and make you proud. The same goes for my mom and dad. I know this isn't the traditional route to becoming a doctor, but I've done everything for the both of you. Thanks for all that you do and more.

Impact of natural disasters on the *Ostrea lurida* in the Southern California estuary

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Abstract

*The Olympia Oyster, *Ostrea lurida*, is the only oyster species native to the West Coast of North America. *O. lurida* is a foundational species providing ecosystem services including shoreline stabilization, water filtration, fish habitat, and food for shoreline birds. Populations once ranged from British Columbia to Baja California, but have declined dramatically due to development and pollution. The Carpinteria Salt Marsh was once home to one of the largest natural populations of *O. lurida* in Southern California. Many oysters were found in 2017 but the Thomas Fire and Montecito Mudslides in early 2018 covered the marsh with mud and debris, killing most of the oysters and destroying their habitat. This study explores the impact of the 2018 debris flow on *O. lurida* populations in the Carpinteria Salt Marsh, and the restoration bottlenecks limiting their recovery. Based on surveys performed from 2017 to 2020, the *O. lurida* populations in the salt marsh have decreased by 90% post debris flow. Findings from recruitment experiments, indicate that the oyster larvae prefer artificial substrate. These findings can inform management and conservation of oyster populations in Carpinteria. By using the survey map and locations of suitable substrate, restoration work can begin where both exist and expand the area *O. lurida* occupies over time.*

Introduction

Climate change is drastically impacting the world. Some of the predicted changes during the twenty-first century are increasing summer drying and more intense precipitation events (Van 2017). These events can be seen through natural disasters like forest fires and mudslides which are increasing in frequency and magnitude. Mudslides often come after forest fires, and they can negatively impact humans and ecosystems alike (Halpern 2007). Restoration efforts could be impeded by natural disasters such as mudslides resulting in a loss of money and time. Restoration is focused on preventing negative interactions from taking place in a specific ecosystem (Halpern 2007). It may include suppressing predation, restoring endangered species, and maintaining the population of foundation species to make sure ecosystem services are still being readily provided by affected species.

Oysters are habitat engineers and provide a myriad of ecosystem services such as shoreline stabilization, water quality improvement, providing food for fish, and providing habitat for many migratory birds (Breitberg et al 2007). Since the 1920s native oyster reefs dominated estuaries ecologically and economically (Beck et al. 2011). Through consumption of resources, humans have decimated oyster reefs to the brink of extinction. Now, over 85% of oyster reefs have been lost globally. Additionally, other factors such as trawling, sedimentation, and pollution have contributed to the decline of oysters (Halpern et al. 2008). For these reasons, this foundational species has been a focus of restoration.

Oyster conservation and restoration has been increasing as oyster populations are declining. Protected areas have been developed for oysters in countries like China, the United States, and Chile (Powers et al. 2009). Restoration projects that have taken place in locations such

as the Chesapeake Bay and Denmark have been successful, but only on a small-scale (Beck et al. 2011). Most of the funding for oyster restoration projects is driven by attempts to regain fisheries and fishery production. The success of these restoration projects is measured by the amount of harvests at the end of catch term. The other ecosystem services that oyster reefs provide are often left unaccounted for, but if they were taken into account, the habitat value of reefs would be greater than the harvest value from the catch term (Peterson et al. 2003).

The Olympia oyster, *Ostrea lurida*, is the only oyster species native to the West Coast of North America. Populations once ranged from British Columbia to Baja, but have declined dramatically due to overharvesting, coastal development, and polluted coastal inlets. Olympia oysters provide ecosystem services which include maintenance of substratum, biofiltration, pelagic-benthic coupling, and increased biodiversity (Groth and Rumrill 2009). One restoration project is in the state of Washington; its success lies in the development of a suitable habitat for the oyster where it can recruit, grow, and in turn rebuild populations (Peter-Contesse and Peabody 2005). In contrast, a restoration project in Oregon was not as successful, due to a lack of substrate which resulted in slow growth of juveniles (Groth and Rumrill 2009). Today, Olympia oysters are not farmed or sold anywhere in California, and most people do not know they exist. As a result, Olympias are forgotten by the public, even though there are active restoration efforts taking place across the West Coast.

The Thomas Fire burned through Santa Barbara County beginning in November 2017 and was, at the time, the most destructive fire to burn through California. Flames swept through the region until January 2018. Following the fire, heavy rains moved through the Santa Barbara area, dumping water on the freshly burned and vulnerable Santa Ynez Mountains. Rain washed 1,000 cubic meters of mud and massive boulders down into the city of Montecito,

destroying homes and taking 22 lives. In addition to the devastation to the community, considerable damage was done to the environment. The 2018 debris flow carried mud, rocks, and debris into coastal systems in the Santa Barbara region. Coastal ecosystems were inundated with plant material and benthic species were smothered with thick mud and debris. Some of the plant and benthic species affected by the debris flow are critical to the overall function of coastal systems. One of these important species was the Olympia oyster.

The Carpinteria Salt Marsh once hosted one of the larger populations of *O. lurida* in Southern California, but the marsh was inundated with mud and debris during the 2018 Debris Flow. The marsh was resurveyed one-year post debris flow, and Olympia oysters were discovered in the marsh. Their presence at the sites surveyed in 2017 was diminished by 76%, but they were present nonetheless. Many round rocks were found near the mouth of the marsh that were not there before, and a large number of these rocks had 3-15 dead oysters on them. Rocks like these were not in high abundance in 2017. Natural disasters that lead to high sedimentation and smothering of benthic species have been recorded historically, and oysters have a hard time recovering due to difficulties overcoming suboptimal biotic and abiotic conditions, as well as inadequate production and larval retention in the coastal inlet (Groth and Rumrill 2009). The same location was resurveyed in 2019, two years after the debris flow, and the populations were reduced by 90% since 2017.

As a result of these natural disasters there have been significant changes in the habitat and the oyster population has decreased drastically. Through habitat characterization and an oyster larvae recruitment experiment across the salt marsh we can unravel the magnitude of impact these natural disasters have, not only on the Olympia oyster but their habitat as well. Understanding the lasting effects of natural

disasters on this foundation species can inform future adaptive management of wetlands as the frequency of natural disasters increase.

Methods

Study Site

The Carpinteria Salt Marsh (CSM) has been known to have one of the larger populations of *Olympia* oysters. Additionally, the CSM is an estuary for which we have previous data on *Olympia* oyster populations. Using both historical and contemporary data, an accurate depiction of the overall health of the population can be investigated. There are different levels of debris in various parts of the marsh and different substrates can provide a natural manipulation for each of the sites. These factors make the salt marsh a good study site for this project.

There are four sites in total ranging from the middle of the marsh to the mouth (see **Figure 1** for the coordinates and **Figure 2** for site photo). Two of the sites are set on rocky/solid substrate, while the other two are on sandy/soft substrate. Additionally, 120 similarly sized rocks were collected, 30 for each site. Within each site were 15 rocks with no existing oyster shell, and 15 with existing oyster shell, indicating that they were suitable habitat at one point for *Olympia* oysters. Length, width, and height of each rock was measured, and for rocks with existing oyster shell on them, length and height of oysters were measured. The measurements were transformed into total surface area covering the rock using ImageJ software. Rocks were numbered and placed at the four sites. Rocks were placed randomly amongst the random rock treatments.

Site	Coordinates		
1	34°24'1.45"N	119°32'19.39"W	
2	34°23'57.05"N	119°32'19.28"W	
3	34°23'55.21"N	119°32'19.06"W	
4	34°23'54.24"N	119°32'19.03"W	

Figure 1 Coordinates for Study Sites. The different recruitment sites set up at the Carpinteria Salt Marsh.

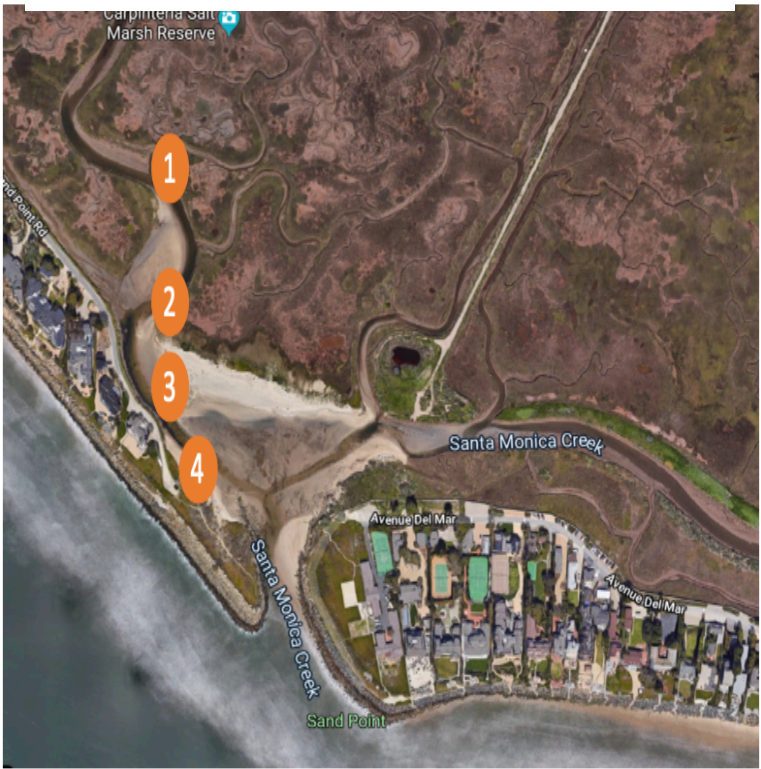


Figure 2 Map of Study Sites. The recruitment sites set up in various at the Carpinteria Salt Marsh

Growth and Recruitment

The surface area covered by dead oysters were measured on rocks located at the mouth of the marsh and recorded. Measurements are transformed into oyster size and can be back calculated to determine whether or not most of them recruited before or after the debris flow. The measurements of dead oysters are used to determine if dead oysters play a big role in attracting oyster larvae.

The rocks were checked every week for recruitment of oyster larvae (**Figure 3**). If oyster larvae settle on any of the rocks then they will be processed through pictures and with the software, Image J, which can help us quickly analyze field photos oyster and rock size. These pictures show us about how quickly oysters go from recruiting to settling in place on the rocks, allowing us to estimate oyster growth rates through time.



Figure 3 Site 3. At each site, there are 30 rocks and we check for recruitment of oyster larvae; once they settle, we monitor their growth rates over time. As seen in the red boxes, there are two treatments, with and without oysters.

Salinity and Temperature

At each site, salinity, temperature, time, date, recorder initials, and time of low tide were recorded. Salinity was measured using a salinity refractometer. These were recorded because proper levels are essential for recruitment and growth.

Statistical Analysis

All analyses were done through the statistical software, R, by linear regressions. Oyster growth and recruitment were tested against different variables such as distance from marsh, substrate, salinity, and temperature. If the variables are favorable growth and recruitment will be augmented.



Figure 4 Potential Oyster Recruitment.

Results

Growth, Recruitment, Salinity, Temperature

Recruitment at each of the sites has been varied. Many potential recruits were other kinds of shellfish, which in early stages of their life look very similar to each other. We found our first sign of oyster recruitment at site 4, which consists of rocks and hard substrate (**Figure 4**).

Temperatures were highest at site 1 and lowest at site 2 (Figure 5). The averages of the salinities show that Salinities were highest at site 3 and lowest at site 1 (Figure 6).

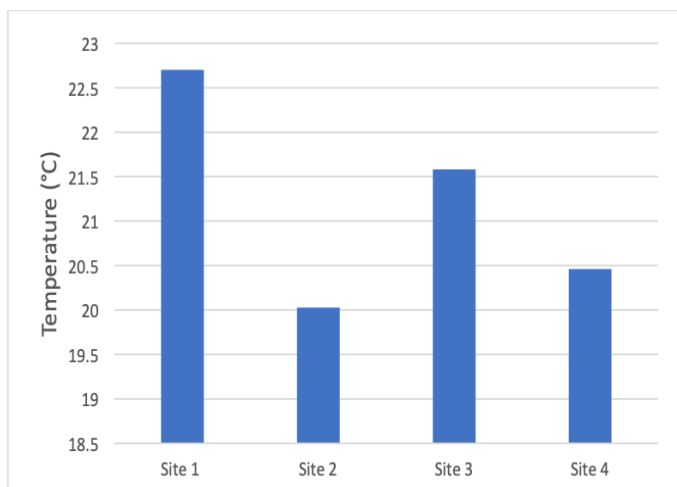


Figure 5 The temperature at the different sites through time

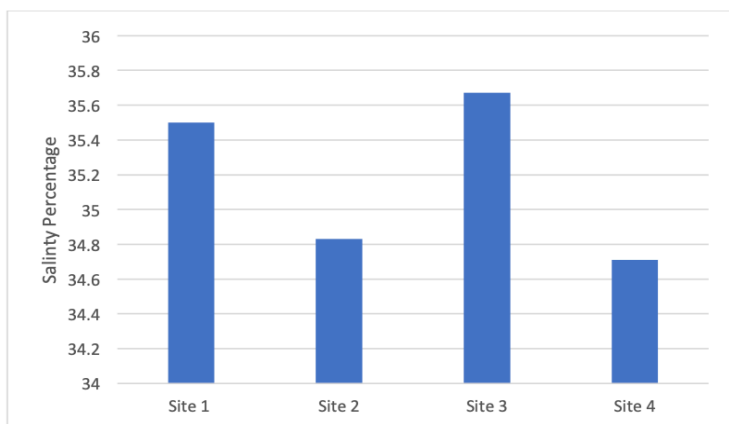


Figure 2 Variation in salinity at the different sites through time.

Discussion

Growth and Recruitment

These results are preliminary. The study took place for about two months throughout the summer and oyster larvae take months to grow and settle. Since they grow at very slow rates, the point from when they settle to when they are visible to the naked eye can take months as well.

Explanations for recruitment can be seen from the type of substrate at this site. It was made up of rocks and hard substrate. At sites where this substrate is present, oyster larvae which are travelling down the water column can more easily find a spot to secure themselves. This find is a promising sign of the possibility that the Olympia oyster populations may come back after its massive post debris flow decline. [SEP]

Salinity and Temperature

The salinity and temperature of the marsh are critical for oyster recruitment and growth. This may explain why the oyster decided to recruit at site 4. The salinity at site 4 was relatively high compared to the other sites. Previous studies have shown that oysters need high percentages of salinity in order to do well (Breitburg 2000). The high amount of salinity available for the larvae, suggests this may be why it settled there. Temperature is a different story, because it was the highest at site 1. If the Olympia oyster is not within its preferred range, it might not do well. Although it has recruited, its overall fitness and likelihood of securing to a rock can be decreased.

Future Research

We have gained some preliminary insights on the status of the Olympia oyster post- debris flow. Its future looks hopeful but in terms of long-range environmental changes, it is important to recognize that other organisms, like mussels, felt the effects of the debris flow as well. The entirety of the landscape was changed. The Olympia oyster was just a snapshot post- debris flow. Through a habitat characterization of the entire landscape, a more holistic idea of how the Carpinteria Salt Marsh has changed can be gained.

Based on the preliminary data here about oyster recruitment, management may be different in future work. For instance, if we were to do another recruitment project at the salt marsh, we would do it on rocks and hard substrate since that is where the oysters have been known to recruit pre and post debris flow. This would make restoration cost effective and time efficient and offer the highest likelihood of bringing back the population.

We know that with climate change, natural disasters are only increasing in magnitude and frequency. Since the population has already taken a huge blow, it is imperative to return the populations to a healthy condition. This is the only way to assure that the population will stay and continue to provide its ecosystem services.

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Acknowledgements

This work could not have been done without the assistance of the following groups: the support and guidance from the McNair Scholars Program; the mentorship of Erin Winslow and Professor Hunter Lenihan from the Bren School; the funding provided by the UCSB Coastal Fund and the Undergraduate Research and Creative Activities research grants; and the access to the Carpinteria Salt Marsh provided by the UCSB Natural Reserve System.

**“They Know Me”: [College] Social Capital & The
Educational Aspirations
of Latino College Students**

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Abstract

Previous research has found that student-faculty relationships and the benefits that accrue from these relationships are key forms of support for Latino students. Research has also found that increased frequency and quality of student-faculty interactions can increase the academic performance, motivation, resilience, and graduate school aspirations of Latino college students. Still, few studies have examined how student-faculty interactions influence the educational aspirations of Latino college students. This study utilizes a social capital and opportunity structure framework to explore the experiences of five Latino undergraduates to examine the effects of student-professor interactions on Latino college students' educational aspirations. Findings suggest that relationships with professors hold deep meaning for students, with students' educational aspirations increasing in response to such relationships and the opportunities accrued from such relationships.

Introduction

The growth of the Latino population, along with its low educational attainment rates (Flores, 2017; Krogstad, 2015), has fueled a wide range of research on Latinos in higher education for decades. Many scholars across disciplines have looked to psychological, cultural, and structural explanations to explain the low educational attainment rates of Latinos (Lewis, 1961; Gandara, 1995; Rendon, 1999; Solorzano, 1986; Yosso, 2005; Conchas, 2001; Rodriguez, Mosqueda, Nava, & Conchas, 2013; Valencia, 2010). Initially, scholars concluded that Latinos held a culture of poverty that did not value education, and thus, did not invest the time and effort necessary for successful outcomes (Lewis, 1961). In response, some Latino researchers have used studies to disprove this myth, demonstrating that Latinos hold high educational aspirations and highly value education (Gandara, 1995; Solorzano, 1986; Rendon, 1999; Yosso, 2005; Valencia, 2002). Researchers have also shown that Latino students are not provided with the support necessary for their widespread success in education, citing under-certification of teachers serving Latino students, lack of teacher support and prevalence of negative teacher-student interactions, among other causes (Conchas, 2001; Stanton-Salazar, 2001; Valencia, 2010; Gonzalez, Stoner, & Jovel, 2003).

Scholars have also looked to student-faculty interactions and student-teacher relationships to show how such interactions and relationships may influence students' educational outcomes. In the case of college students, researchers have found that student-faculty interactions can affect students' academic achievement along with their sense of belonging, motivation, and resilience (Komarraju, Musulkin, Bhattacharya, 2010; Baker, 2013; Santos & Reigadas, 2002; Anaya & Cole, 2002). Comparative studies have shown that minority, low-income, and first-generation students benefit more from student-faculty interactions than

their affluent white counterparts (Sánchez, Reyez, and Singh, 2006; Gloria et al., 2005). However, few studies have examined the effect of student-faculty interactions on Latino undergraduates' educational and occupational aspirations (Trolan & Parker, 2017; Chen & Starobin, 2019; Cuellar & Gonzalez, 2019).

In this study I attempt to understand the social processes that promote high educational aspirations among Latino undergraduates. Building upon the work of Stanton-Salazar (2001), I focus my examination on the experiences of Latino undergraduates using a social capital and opportunity structure framework. More specifically, I use a social capital framework to examine the effects of student-faculty interactions on the educational aspirations of Latino undergraduates through an exploration of Latino college students at the University of California, Santa Barbara (UCSB). The specific research question for this study is: "How do student-faculty interactions affect the educational aspirations of Latino undergraduates?" In order to examine this phenomenon, I utilize five phenomenological semi-structured interviews with Latino undergraduates.

Literature Review

Social Capital

Bourdieu (2007) investigated the significance of social ties in defining the opportunity and success of people and concluded that social ties and the benefits that accrue from them can be viewed as a form of capital. The concept of social capital is key to understanding that social ties make possible the achievement of certain ends that, in their absence, would not be possible (Coleman, 1988). Social capital can include relationships with family members, community members, or peers that create a network of support to provide an individual with actual or potential resources.

While resources accrued from social ties may take various forms, the more valuable forms of resources are typically held by high-status individuals. In fact, Bourdieu (2007) theorized that the volume of a person's social capital depends on their ability to effectively mobilize their network of connections, meaning that the volume of an individual's social capital is based upon the volume of capital of those to whom they are connected. Therefore, high-status people whose social networks hold more economic capital have access to more valuable forms of social capital in comparison to their low-status peers.

Stanton-Salazar's (2001) study, which utilizes a social capital framework, is particularly useful. In his study, Stanton-Salazar (2001) examined the role of social ties in structuring the educational trajectories of Chicano students. More specifically, Stanton-Salazar's (2001) study—which used the social network data of 75 participants, in-depth interviews of 51 participants, and statistical survey data of 205 participants—found that low-status Chicanos struggle when constructing meaningful relationships and social networks that provide access to important forms of social support. Stanton-Salazar's redefinition of social capital illuminated the need for researchers to study the attainment of social capital and the availability of it to varied populations in different educational contexts through interactions and relationships with institutional agents.

Bourdieu's (2007) social capital and Stanton-Salazar's (1997) reconceptualization of the concept recognize the significance of relationships with institutional agents for providing information and opportunities to students, especially working-class minority students. This take on social capital also acknowledges the limited availability of access to institutional agents within different institutional and social contexts. This study seeks to examine how one population, Latinos at UCSB, attain social capital through their interactions with professors and to explore the

influence of social capital on the development of Latino students' educational aspirations.

Opportunity Structure

Roberts has identified the opportunity structure as the structural conditions in which individuals find themselves and make decisions. Roberts (2009) asserts that structural factors and conditions determine the opportunities and choices presented to individuals. He states that individuals make realistic appraisals based on their place in the societal hierarchy to determine their occupational choices; an individual's perceptions of the opportunity structure may affect a person's perceptions of what is possible for themselves, and thus, their educational and occupational aspirations.

For example, in a study that examined whether the election of Barack Obama, the first African-American President, affected the aspirations of African American male students in an urban high school, Conchas et al. (2015) found that the students' aspirations remained limited despite Obama's election because of their perceptions of the opportunity structure. They found that the students felt that they could not escape the various problems stemming from poverty and other socially related issues in their communities, and thus continued to form aspirations that indicated limited access to college and professional school. This study demonstrated the significant role that economic status plays in defining individuals' perceptions of opportunity and demonstrates that the opportunity structure is best understood as Roberts (2009) understood it, influenced by sociological factors which may include race, class, gender, sexuality, religion, and location. More, as Conchas (2006) found, the opportunity structure and individual's perceptions of the opportunity structure can also influence attitudes and behaviors toward schooling. Students identify inequality in opportunity structures in schooling

institutions and react to identified inequalities, further indicating the need to study how students' perceptions of the opportunity structure affect academic performance, educational aspirations, and educational attainment.

Roberts (2009) uses his opportunity structure theoretical framework to argue that individuals make decisions based on their locations within the societal hierarchy to determine their occupational choices. Using this theoretical framework in conjunction with Stanton-Salazar's (1997) social capital theoretical framework, this study will seek to explore how the attainment of social capital can alter an individual's social location within the opportunity structure, and thus, influence the decisions they make. This study will specifically explore how social capital influences Latino students' social locations within the hierarchy of the university and the larger society and will seek to understand how this process influences the educational aspirations of Latino students.

Relationships and Interactions with Institutional Agents as Social Capital

Relationships with institutional agents are a key form of social capital that is developed within educational contexts, as social capital in this form facilitates the provision of opportunities and other key resources for students. Stanton-Salazar (2011) defines an institutional agent as an individual who occupies a position of relatively high status in an institution and acts directly to transmit or negotiate the transmission of highly valued institutional support to students. Stanton-Salazar (2011) elaborates that institutional support may be defined in terms of resources, opportunities, privileges and services which are highly valued, yet differentially allocated within any organization or society that is invested in social inequality and in hierarchical forms of control and organization.

Researchers have begun to examine institutional agents in higher education such as professors, campus staff, and administrators (Trolan & Parker, 2017; Hanson, Paulson, & Pascarella, 2016). Institutional agents in educational contexts can help low-income and/or minority students overcome inequalities by providing them with resources that are otherwise not available to them. However, by default, institutional agents interact and network with students in the context of institutional and societal forms of inclusion and exclusion (Stanton-Salazar, 2011). Stanton-Salazar (2011) claims that an institutional agent's role is typically to work as societal actors who act to maintain the advantages of other actors or groups who share similar attributes, high status-positions and social backgrounds. Despite the constraints of institutional or societal forms of inclusion and exclusion, some institutional agents who are empowerment-oriented can serve to counter societal and educational inequality (Stanton-Salazar, 2011). Empowerment-oriented institutional agents can counteract inequality by empowering working-class, minority, and marginalized students by plugging them into rich resource-full networks. As low-status students are inserted into resource-rich networks, they are in turn provided access to opportunities that are key for upward social mobility – thereby undermining institutional and societal forms of exclusion.

However, effective institutional agents must have access to abundant resources– with their effectiveness being influenced by the strength of their own social networks (Bourdieu, 2007; Stanton-Salazar, 2011). Paradoxically, the resources and high-status needed to empower low-status youths requires that institutional agents are incorporated into high-status hierarchical positions within institutions that are invested in maintaining the societal status quo and structure of inequality. Considering this contradiction, institutional agents who are empowerment-oriented and who work to counteract inequality often do so at their own expense, with

their employers seldomly funding them or recognizing time spent outside of classes needed to develop meaningful relationships between marginalized students and faculty (DeAngelo, Mason, Winter 2016; Park 1997). Despite this institutional limitation, institutional support remains critical to the success of students, as it provides guidance in navigating educational institutions and finding opportunities within them (Stanton-Salazar, 2001).

While institutional support may be beneficial for minority students, access to the opportunity for the development of relationships with empowerment-oriented institutional agents is limited in the context of higher education. De Angelo, Mason and Winter's (2016) qualitative study of 98 faculty members at five California State University campuses found that less than a third of all professors took part in mentoring undergraduates. Interestingly, their study also found that faculty who did mentor undergraduates often identified and approached students to promote graduate study as a post-baccalaureate possibility, thereby demonstrating how student-faculty relationships may influence the educational aspirations of students.

The barriers to relationship-building opportunities and interactions with institutional agents suggests that social capital in the form of support from institutional agents is a scarce resource at the university. While low-status youth have been shown to benefit greatly from interactions with institutional agents (Rodriguez, et. al., 2013; Stanton-Salazar, 2001), the exclusive nature of social capital and institutional support means that not all can receive it (DeAngelo, Mason & Winter, 2016; Stanton-Salazar, 2001). While relationships with institutional agents, specifically empowerment-oriented institutional agents, are highly valued and are resources necessary for the educational success of marginalized students, opportunities to establish

relationships with professors in the university setting may be limited.

Student-Faculty Interactions & The Educational Outcomes of College Students

Researchers have looked to the significance and impact of student-faculty interactions on student populations to further understand the role of interpersonal interactions on student success. These studies have shown that frequent and high-quality student-faculty interactions are beneficial for college students (Anaya & Cole, 2002; Santos & Reigadas, 2002), positively influencing their academic self-concept, achievement, motivation, resilience, educational aspirations, and perceptions of the university context (Komarraju, Musulkin, & Bhattacharya, 2010; Baker, 2013; Santos & Reigadas, 2002; Anaya & Cole, 2002; Torres & Hernandez, 2009). Komarraju et. al.'s (2010) study of 242 undergraduates found that students who perceive their faculty members as being approachable, respectful, and available for interactions outside of the classroom are more likely to report being confident of their academic skills and being motivated, both intrinsically and extrinsically. They also found that students who spoke informally with faculty members also seem more likely to find the learning process to be more enjoyable and stimulating and gain a better understanding of how their college education could prepare them for the job market.

Scholars have also demonstrated the significance of mentorship by university faculty for students of color, with several researchers claiming that mentorship is more beneficial for students of color who may have less social capital and positive academic role models than for more privileged peers (Sánchez, Reyerez, & Singh, 2006; Gloria et al., 2005). Other research has found that mentorship can affect the academic performance and success of Latinos in higher education (Anaya & Cole, 2002; Baker, 2013; Bordes

& Arredondo, 2005; Fischer, 2007; Rendon, 1999; Sánchez, Reyez, & Singh, 2006). For example, Bordes and Arredondo's (2005) study of 112 first-semester Latino students found that Latino students who had perceptions of being mentored or having a mentor had more positive outlooks of the university environment in comparison to students who did not. Additionally, Bordes & Arredondo (2005) found that mentorship and the positive outlooks of the university environment associated with it increased the academic resilience and retention of Latino students.

Moreover, Sanchez, Reyes, & Singh's (2006) qualitative study of Mexican-American college students found that parents were the most frequently cited sources of support; parents played a significant role in motivating students to go to college, finishing college, and choosing a major/career. These researchers also found that students identified peers and institutional agents as differing from parents in that they provided support in areas such as scholarships/financial aid and the college application process, which parents could not due to their low educational attainment and other restrictions.

Student-faculty interactions are important in influencing students' occupational aspirations and decisions (Spencer, 1976; Hanson, Paulsen & Pascarella, 2016; Trolan & Parker, 2017; Chen & Starobin, 2019). For example, Trolan & Parker (2017) found that frequency of students' interactions with faculty, quality of students' interactions with faculty, and engaging in research with a faculty member increased the likelihood that a student would aspire to earn a graduate or professional degree. Trolan & Parker also found that race/ethnicity moderated the benefits of student-faculty interactions. In fact, the Trolan & Parker found that Asian/Asian, American/ Pacific Islander and Latino/Hispanic students were less likely than white students to benefit from engaging in out-of-class interactions with faculty in terms of aspirations to earn an advanced degree.

Other researchers have shown that Latino undergraduates do benefit from interactions in regards to increased educational aspirations. In their study of Latino undergraduates using the 2004 Freshman Survey, which included a sample of 2,359 students across 258 institutions, Cuellar & Gonzalez (2019) found that frequent interaction with a professor in mentorship activities increased the likelihood of aspiring to earn a Ph.D. or Ed.D. among Latino undergraduates. Thus, the literature suggests that student-faculty interactions may influence the educational aspirations of undergraduates. However, the quantitative emphasis of these studies have limited researchers' understandings of *why* these interactions influence Latino students' aspirations.

Low Social Capital & High Aspirations: Understanding the Paradox of Latino Aspirations

Aspirations among Latinos remain high despite the fact that the population experiences the lowest educational outcomes in comparison to other major population groups in the United States. According to the Pew Research Center (2009), which uses the term Hispanic when collecting data on Latino people, Hispanics overwhelmingly agree that a college degree is important for upward social mobility. Nearly 9 in 10 (88%) Hispanics agree that a college degree is important for getting ahead in life. Latino youth concur, with 82% of Latino youths ages 16 to 25 agreeing that a college degree is important for getting ahead in life (Pew Research Center, 2009). However, there remains a disparity in educational attainment in relation to educational aspirations among Latinos, with only 15% of Latinos ages 25 and older holding a bachelor's degree or more (Krogstad, 2015). Furthermore, Solorzano (1986) found that Latino parents had higher aspirations for their children than white parents when controlled for social class. Yet, participation in higher education remains low among Latino youth – with only 22% of Latinos participating in college, in comparison

to 41% of white youth and 30% of Black youth (Pew Research Center, 2016).

Academics have attempted to explain the disparity between educational aspirations and expectations of Latinos by using assimilationist models and other cultural explanations. Sociologists studying the assimilation of Mexican immigrants have found that third and fourth generation Mexican-Americans are less likely than second generation Mexican-American of similar characteristics to have completed either high school or college (Telles & Ortiz, 2008). Telles & Ortiz suggest that racialization may be preventing educational assimilation and achievement, claiming that early immigrant generations' optimistic dispositions cushioned them from the full effects of racialization that serve to predetermine academic capability and limit opportunity. Thus, immigrant generations go on to succeed without preconceived notions of barriers to possibility. However, this explanation does not respect the violence that immigrants are subject to because of their status as newcomers, nor does it acknowledge the discrimination that many Latinos face as a result of the racialization and illegalization of Latinos (Southern Poverty Law Center, 2009). Furthermore, Portes, McLeod, & Parker (1978) found that contrary to the viewpoint that immigrants hold high aspirations regardless of their characteristics, the socio-economic aspirations of immigrants in the United States were governed by their rational assessment of objective opportunities as determined by the individual's past experiences and his skills to cope with new situations in a new country.

Additionally, Gándara's (1995) study on high-achieving low-income Chicanos found several consistent characteristics among its participants, who were 50 low-income Chicanos who had attained a doctoral degree. Her findings pose a strong counter to Telles & Ortiz's explanation of naïve optimism. Gándara found that most

students had an “extraordinarily high” incidence of attending desegregated schools where they were exposed to peers with much greater social capital than themselves. Gándara (1999) contends that the achievement of these students is a combination of the individual agency and academic success of the Chicanos and the social capital provided to them by their white peers who acted as conveyers of information about opportunities that would never otherwise be shared with the majority of Chicano students. Rendon’s (1999) study examining the experiences of Latino doctoral students are similar to Gandara’s (1999) and suggest that mentorship is key to high educational attainment among Latinos. Rendon’s (1999) findings also indicate that limited access to mentors may act as a gatekeeping mechanism to students who have yet to have their “intellectual potential and curiosity” awakened. The high-achieving Latinos in Gandara’s (1999) and Rendon’s (1999) studies pose a counter to Telles & Ortiz’ explanation of naïve optimism, and instead suggest that social networks and educational opportunity, this time presented through students’ social capital in the form of relationships with peers and mentors, are vital to the educational success of Latinos.

Latinos’ aspirations and academic success remain a paradox. However, studies of high-achieving Latinos in academia suggest the importance of social capital, social networks, and individual opportunities in presenting a pathway to achievement that allow for Latinos to form high educational aspirations (Rodriguez et. al., 2013; Gandara, 1995; Rendon, 1999). Furthermore, they illustrate a need to study how broadened perceptions of the opportunity structure affect Latino students’ appraisals of their ability to maintain and form high educational aspirations.

The Development and Significance of Aspirations: Competing Perspectives

Most research literature defines aspirations as goals composed of specific beliefs about one's future trajectory through the educational system and one's ultimate class or status position (Morgan, 2006). The study of aspirations is linked to studies of expectations, though, some researchers have separated the two by defining aspirations as idealistic goals in contrast to expectation as realistic appraisals (Cooper, Chavira, & Mena, 2005; Morgan, 2006). Aspirations and expectations have typically been measured through answers that adolescents give to questions like: "Do you plan to go to college?" and "As things stand now, how far in school do you think you will get?" (Morgan, 2006; Spencer, 1976). This standardized measurement is often used in sociological analysis of aspirations and expectations, and implies a linkage between the two terms.

Sewell, et. al.'s (1969) Wisconsin Model proposed that the joint effects of a high school students' family background and mental ability on her eventual educational and occupational achievements could be explained by others' expectations of her (Morgan, 2006). They found that significant others—particularly parents, teachers, and peers – defined expectations, then students internalized them as educational and occupational aspirations. Critics of the Wisconsin Model, mostly sociologists, have argued that the interpersonal interactions that affect the development of high aspirations are not linked to the attainment of goals, with many citing structural modes of stratification for variations in achievement among populations and that they had no explanatory power in explaining the educational outcomes of individuals (Heyns, 1974; Gamoran, 1978; Hout & Garnier, 1978; Kerchhoff, 1976). Bourdieu (1973) boldly asserted that the unequal opportunity structure of society "determine[s] aspirations by determining the extent to which they can be satisfied" (83). Those who follow in this

tradition propose analyses that are rooted in structural critiques of education and contend that education works to reproduce inequalities and oppressions (Bourdieu, 1973; Freire, 2002).

This study will look to professors as components of the opportunity structure, and thus part of the context in which aspirations are both formed and developed, to examine how faculty influence the formation and development of Latino college students' aspirations. While familial ties along with economic circumstance remain factors that heavily influence educational trajectories and outcomes, this study examines how Latino students' aspirations are developed in the university context through interactions with faculty. It seeks to find the overlap and interplay between structural processes and interpersonal interactions to better understand the role that faculty-student interactions have in influencing students' perceptions of the opportunity structure, and thus students' perceptions of the extent to which high aspirations can be set and satisfied.

Method

Participants & Institutional Demographics

Interview participants were Latino undergraduate students recruited at the University of California, Santa Barbara (UCSB). UCSB has a total of 23,070 enrolled undergraduate students. Of this 23,070, 1% of students identify as American Indian/Alaskan, 5% as Black/African American, 30% as Chicano/Latino, 28% as Asian/Pacific Islander, and 36% as white (UCSB Office of Budget and Planning, 2018). Additionally, 54% of the undergraduate population are women and 45% are men (UCSB Office of Budget and Planning, 2018). In order to be eligible for participation, participants had to be 18 years of age, identify as Latino, and be enrolled in an undergraduate program at UCSB. There were five students who were selected and interviewed for this study. These were students who

participated in a larger survey who then volunteered to participate in the qualitative phase of the research. Each participant was assigned a pseudonym for the purpose of maintaining confidentiality.

Survey Data Collection

This study's data was collected through surveys and interviews with UCSB students. The purpose of the data collection was to investigate the effects of student-faculty interaction on Latino college students' educational aspirations. The survey asked a series of questions about participants' social background prior to attending UCSB and focused on questions concerning desired educational goals and student-faculty interactions. Interviews inquired about how students felt professors perceived them, what influenced students to meet or not meet with professors, and students' educational and occupational aspirations. The objective of these questions was to investigate what influenced aspiration development and to find how interactions with professors influenced aspiration development.

For data collection in the survey, the researcher constructed and distributed an online survey to UCSB students. The online survey with 36 questions took approximately five to eight minutes to complete and was run through the online survey platform, Qualtrics. Students were recruited through social media to ensure that various populations were represented. The recruitment email was also sent out by two counselors to two of the Educational Opportunity Program's various email lists of undergraduates, as well as to undergraduates in the Department of Sociology, and to numerous student organizations. Participants were given the opportunity to participate in a raffle drawing at the end of the survey and indicate interest in participating in a future interview. A total of 355 surveys were collected through an online survey

platform. However, this paper will only use survey data to highlight key demographics of those interviewed for its analysis.

The survey asked questions regarding the educational aspirations of participants which was measured by participants' responses to a question asking, "How far do you want go in school?" The independent variable was measured by several questions measuring the frequency of meeting with professors and the social connections netted through connections with professors. Such questions are "During Fall 2018, how many times did you meet with professors to discuss: assignments; academic plans, or post-graduate plans?", "Has a professor referred you to other professors, graduate students, or personal contacts?" and "Has a professor referred you to educational or employment opportunities?" These questions were used to measure professor-student interactions because frequency of student-faculty interactions has been found to be a key in improving students' educational outcomes (Anaya & Cole, 2002). In addition, the process of "bridging" or providing students' with opportunities or referrals to others has been theorized to be key to the success of minority students (Stanton-Salazar, 1997).

Procedures

Survey participants were given the opportunity to state whether they would like to participate in an interview for the study. Interviewees were selected from a pool of survey participants who indicated that they would be interested in a future interview on a survey question. After collecting survey data, I reached out to Latino-identified students in different aspiration groups to find patterns in experiences. I interviewed a total of five Latino students. Before the interview, participants signed an informed consent form and received a \$20 Amazon gift card. Interviews ranged from 45-60 minutes and asked questions

regarding students' educational aspirations, occupational aspirations, experiences at UCSB, and experiences with professors.

Data Analysis Plan

This study utilized a qualitative approach. The researcher conducted semi-structured phenomenological interviews to gain a thorough understanding of how student-faculty interactions affect the graduate and professional school aspirations of Latino undergraduates. Phenomenological interviews were chosen for this study to allow for interviews to develop a “composite description of the essence of the experiences of all the individuals – what they experienced and how they experienced it” (Moustakas, 1994 as cited in Creswell, Hanson, Clark Plano & Morales, 2007). One of the benefits of semi-structured interviews is that they allow individual respondents some latitude and freedom to talk about what is of interest or important to them while allowing the researcher to guide the conversation with a set of questions (Hesse-Biber & Leavy, 2006). Furthermore, semi-structured interviews allow interviews to develop, exploring new topics that are relevant to the interviewee (Hesse-Biber & Leavy, 2006).

The purpose of the interviews was to find patterns among the lived experiences of Latino undergraduates at UCSB and to investigate the ways in which faculty support, or lack of support, influenced the educational aspirations of Latino undergraduates. The interview protocol consisted of the following major areas: background information (e.g. What kind of student were you academically in high school?), experiences at UCSB (e.g. What is your typical week like? How often do you meet with professors?), educational goals and career goals (How far did you want to go in school before attending UCSB? Now that you're attending UCSB, would you say that your educational goal has changed?).

Data was transcribed using Express Scribe transcription software, which is available through NCH software. Data was analyzed throughout the data collection process, using memos to guide analysis. Throughout this process, memos were used to identify themes that emerged. Themes and significant statements were highlighted and collapsed into broader themes to be used for data analysis, ultimately forming sections for analysis.

Table 1 The Interview Participants

	Angela	Patricia	Brandon	Alma	Robert
Gender	Female	Female	Male	Female	Male
Year in School	3 rd	3 rd	4 th	3 rd	4 th
GPA	3.51-4	2.51-3	3.0-3.5	3.51-4	2.5-3
Race and Ethnicity	Latino	Latino	Latino	Latino	Latino
Major	Chicano Studies	Sociology	Political Science	Statistics	Philosophy
Pre-UCSB Education Aspirations	M.A.	Ph.D.	M.A.	B.S.	Ph.D.
Education Aspirations	M.A.	M.S.	M.A.	Ph.D.	Ph.D.
Times met to discuss assignments	2	0	5+	4	3
Times met to discuss academic plans	0	1	2	0	0
Times met to discuss post-graduate plans	0	1	2	0	0
Referred to educational or employment opportunity	No	No	Yes	Yes	Yes
Referred to professors and others	No	No	No	Yes	Yes
Number of professors identified as mentors	0	0	0	1	2

Findings

This study used a qualitative approach to better understand the proposed research question: *How do student-faculty interactions affect the educational aspirations of Latino students at UCSB?* The qualitative data allowed for the experience of Latino students to be analyzed for an interpretation of meanings, feelings, and influences that are not easily obtainable through quantitative methods.

Meetings with Professors

Interviews showed that Latino students described meetings concerning assignments as intimidating experiences that sometimes made them question their own self-efficacy. This finding was consistent for all the students interviewed and was shown to be true for students of all aspiration groups. Alma, a 3rd year Latino student, recalled her experiences with professors concerning assignments:

I think it's very intimidating because, some of these professors, they've been doing this for a while, and even during like lectures, it's like the material itself can be very intimidating. But I think it's intimidating because you don't know who they are outside the classroom. You don't know what they're like, and if they don't seem very nice and like even prone to answer questions during lecture, you're going to be afraid to go and ask them individually because it's going to be pressure on you...It can be a little bit intimidating because sometimes you don't know how to, how to say what you want and maybe your voice starts cracking a little bit... You don't want them to think that you're dumb or something like that.

Brandon shared this sentiment when discussing going to professors for assignments, stating:

I felt really intimidated by my political science professor last year. She kept asking me if I had any questions. I did have one, but she kept trying to push me to ask her more, it just made me uncomfortable. Um, so I just didn't go after. So that's was when I went to my teacher assistant Michelle instead and she was way more helpful in helping me understanding the context of the readings and articles .Another reason why I would go more with teacher assistants than professors is because when, when I would go visit professors who seemed intimidating to me, ...I don't want to go in there and ask them questions. They're like, what do you mean? Did you do the readings? Did you pay attention in lecture?... That's sort of, um, type of environment makes me feel uncomfortable.

All five of the students stated that they felt that visiting with professors meant added pressure on them. Students felt that they had to be on top of all coursework to meet with professors to discuss assignments, with Angela and Brandon both stating that their professor's expertise in their fields intimidated them. Their responses suggest a reluctance to meet with professors to discuss assignments for fear of appearing like an incapable or lazy student.

Additionally, all students recalled feeling the need to have a reason to justify their time spent visiting with professors, as they believed that professors were either busy with their research or other students. Out of the five, Robert, Alma, and Brandon said that they were much more likely to go discuss assignments with professors who purposefully

welcomed students to attend office hours or otherwise relieved the pressure students felt when meeting with professors to discuss assignments. Interestingly, one student identified a professor who alleviated this pressure by structuring her office hours in a classroom setting, allowing for groups of up to twelve students to ask questions at a time. Alma stated that, “It was only after I found out that her office hours were held like that, that I started going every week.” Alma’s statement suggests that group settings may help alleviate the feelings of intimidation and sense of pressure that Latino students feel when discussing assignments with professors as well as allow for increased opportunity for student-professor interactions that lead to significant relationships, giving students who would otherwise not attend office hours an opportunity for interaction.

Only two of the five students had met with a professor to discuss post-graduate plans. Patricia, a 3rd year student, indicated that she had only met with a professor once during Fall 2018 to discuss her graduate school plans because the professor offered extra credit points for attending office hours. She stated that she would not have met to discuss graduate school otherwise. Brandon, on the other hand, communicated that he enjoyed speaking with professors about a variety of non-class related topics, one being his educational goals. For instance, he recollected,

I told my professor that I wanted to do a master’s program, specifically a hands-on program to prepare for the job market. And she gave me some, some other recommendations in case I was interested in hydrology master’s programs and just other paths within graduate school that I could take, in other words, she expanded my horizons.

While Brandon's career goal or educational goal did not change in response, he stated that the fact that his professor was willing to discuss graduate programs with him was meaningful. He stated that her willingness to do so meant that she "cared about his plans."

On the other hand, students who had not met with professors about careers or post-B.A. plans identified a variety of reasons for not doing so. Robert, a 3rd year student, stated that,

This was with my TA, and the reason why I really went to her first to talk about grad school was just because prior to that, at her office hours, just actually going for like school or for class, I actually had decent dialogue with her to begin with and I felt comfortable enough to where I try to, I can talk to her on a... deeper level, but I also felt closer to her in the aspect of she's also a student...I felt more comfortable talking to her cause she was also a student.

Robert's statement suggests the role of graduate students in serving as key sources of information and support. Students' inclination to meet with teaching assistants, firstly for assignments, then later for a discussion about graduate school suggests that students are more comfortable discussing graduate school plans with professors or teaching assistants after first meeting for assignments.

Two students, Angela and Alma, stated that the reason they had never met with professors to discuss academic or post-graduate plans was because they did not think it was appropriate to do so. Angela expresses this sentiment, explaining,

I never really thought about going to professors for that reason. I always thought

that in order for me to go to a professor it had to be strictly about the course material and academics, but not like any personal matters... Other students have explained their experiences going to professors' office hours, saying that they didn't really seem to be um, present and in their conversation and like they just wanted them out of their office already and was like strictly about academics for them. So, I thought if that's how they were to them, they'd be the same way to me.

This explanation suggests that Angela was hesitant to discuss academic or post-graduate plans because she felt that professors' office hours had to be spent discussing assignments. This explanation may be connected to interviewees' initial hesitation to visiting office hours, as Patricia and Angela stated that they believed that professors were too busy to discuss non-class related topics and suggested a hesitancy to spend professors' time discussing what they believed to be personal matters.

Connections, Opportunities, and Educational Aspirations

All five students mentioned the significance of connections with professors, with four of five mentioning that professors "knew" them. Brandon, Alma, and Robert all stated that professors knowing them meant that professors cared about them, and, when asked what this told them about themselves, three of them stated that it meant that professors had recognized them as especially capable students. Furthermore, these three students believed that professors knowing their names and faces meant that they had distinguished themselves from their peers and showed them that professors had recognized their determination, capability, or hard-working nature. This pattern is significant, as it suggests that students who maintain high educational aspirations or experience an increase in

educational aspirations are affected by affirmations received by professors. Students also believed that being presented with opportunities or referrals to contacts by professors had a similar meaning to being known by them, stating that such referrals showed that professors had identified them as determined, capable, or hard-working.

Brandon, Alma, and Robert all received affirmations from graduate students in addition to professors. Robert's recollection of how he established a connection with a professor in his department exemplifies how students felt that they earned their connections with professors, suggesting that the process of earning connections or relationships with professors meant that they had distinguished themselves from their peers, thus proving that they were recognized as especially capable students. His following statement describes this process,

He was a professor, for philosophy of science. Uh, and you know, we were just having a talk for like an hour because at first, I was asking about internships... Then he just started having a discussion on his next course. Which was um, you know, since his next course was a continuation on the philosophy of science and he's like, what book should I decide on? What books should I choose? And I told him, I was like, I love this book, *Tractatus Philosophicus* by Ludwig Wittgenstein. And we had this hour-long discussion. And, post that discussion, he definitely had like a 180, right? Prior to that, he'd just be like, it's just a student. Now it's like, Oh hey, it's Robert. I made an impression on him.

He continued, describing this process with another professor,

And, I have another professor that I took for environmental law, and with her, I mean I just kind of impressed her just based on like how much I was staying on top of that course, I was basically like one of her star students within the class. And because of that, we kept a dialogue. So even after the class and now she, you know, she's helping me trying to find work, or, internships within public policy. Because you know, I just, you know, showcased to her that I'm determined, and you know, maybe not smartest, I'm not the dumbest, I'm capable within my intelligence.

This process of earning connections resulted in real benefits for Latino students, with Robert's connection to his environmental law professor providing him with an institutional agent seeking to provide him with internship opportunities. Furthermore, when asked about the significance of having a professor providing him with opportunities, he stated,

Oh, it meant that I was like, So I mean, I made it to her book? Right? I made it to the like, well I know this person who might want this job, let me call them. And to me that – it was, it was such a flattering moment because it was like, I don't know why I made it to that book. I don't know if it were based on my personality, my intelligence, but to me, it didn't matter. I made it, I made it to that list. Of like, I know this person, I know you can do greatness, let me call them. Right. And for me, that's what her book meant. Potential greatness. So the fact that I made it there was, it's a lot.

The experiences of Alma, who experienced an increase in educational aspirations from bachelor's degree to doctoral degree, paralleled the experiences of Robert. Alma reflected on the connection she has with a professor in the education department, who has asked her to run her research lab, stating,

I'm not a stranger to her anymore. She knows who I am. You know, I have her phone number. I've already established this relationship with her. So it's not like she's handing off her lab to someone who might have the qualifications but she knows nothing about.

Alma also reflected on her decision to change her educational aspirations, stating that,

I feel that going to graduate school and getting a master's or a Ph.D. is an outlet that I can actively pursue. And, I wouldn't have, I wouldn't have changed my mind if I hadn't met the people that I have and who I know will actively support me in a decision and will tell me, you know, it's okay if you don't want to pursue it, but just know you can because, you know, you're smart enough. You know, you're a hard worker and you can do it.

Alma's and Robert's connections and experiences with professors led them to believe that they had been identified as especially capable students. This trend is identified in the experiences of three students, Brandon, Alma, and Robert, and suggest that professors knowing them, or otherwise demonstrating an interest in them positively impacts their ability to maintain high educational aspirations.

Like being referred to educational or employment opportunities, being referred to other professors, graduate students, or personal contacts by professors seemed to have a positive effect on the educational aspirations of Latino students. Of the five students, Alma and Robert both

indicated that they had been referred to other professors and graduate students by professors. Robert's interpretation displays the significance of referrals to contacts by professors on the educational aspirations of Latino students. Robert recalled that the referral occurred in response to meeting with a professor, stating that,

So it was like when I was in philosophy office hours discussing the notion of, um, consciousness with my philosophy of science professor. And um, he had mentioned, he's like, you should definitely go talk to professor Michaels because he focuses primarily on, you know, the consciousness and he studies the philosophy of consciousness. So, I feel like this would be a very good discussion. So, I went over there and talked to him and he was like, oh, you should email this professor who works at like the University of Maryland. He was like, get some more of her research because you might find that really interesting.

When asked what the referral meant to him, he stated,

Uh, two things. Uh, so a, a purely from what their basis was, was like, I don't know enough about this. They know more, talk to them. On the second level, it was like your points intriguing enough to continue with this line of discussion. Go talk to them.

Being referred to contacts had significant meaning to students, indicating that they had professor support and that professors had identified them as being worthy of providing such referrals.

While referrals to opportunities and contacts from professors appear to hold significant meaning for the

students interviewed, so do the lack of such referrals. For example, Angela states that before attending UCSB she had expected an increase in her aspirations but that the lack of connections with professors has stunted such an increase. She recalled,

As a transfer, when I first came to UCSB, I thought maybe being at a research institution might have, it might have changed.... It might have like influenced whether or not I wanted to keep that goal of mine, and maybe I would have wanted to like become a professor and like get my doctorate, do some research or stuff like that. But I feel like the connection that I have had with professors here so far hasn't really influenced that change.

So, while three of the four students who maintained high aspirations or experienced an increase in aspirations all recalled connections with professors and professors knowing them, Angela mentioned that a lack of connections with professors stunted the increase in her educational aspirations that she had initially expected. Patricia's case similarly shows the meaning that a lack of connections may hold for students. Patricia explains her experiences, stating,

I think they [her professors] believe that like my level of like education or like intelligence isn't as high as like other races. Um, and yeah, that just kind of puts me in a position where I feel like I'm not as important. And like my personality is not as strong as other people's. But I still think, I don't know, I tend to see like when I do get the opportunities to do stuff with professors, like as like lucky.

When asked to elaborate on how she came to this negative self-assessment she explained,

Definitely like just entering college from the high school I went to, the high school is very, it was very low on, kind of like educational opportunities, it's one of the poorest ones in my city. But it also helped me stand out so I could, you know, class rank wise. But definitely it wasn't at the same level was a lot of the students I met coming into college and the programs that they had and the AP classes, AP teachers, they definitely had more experience in like certain skills for like writing essays and you could definitely see like the disparity in the schools, how funding can really affect students.

Patricia's awareness of the gap in academic preparation between her and her peers appears to have negatively affected her self-efficacy, and thus, appears to adversely affect her desire to aspire to earn a doctoral degree. Still, she describes opportunities to work with professors as lucky, further suggesting that students understand such opportunities to be scarce and that students prize access to such opportunities. When asked how far she currently wanted to go in school she said,

A master's degree because I need it. Like I can't just like go into counseling. They won't be like, yeah, it will be yours, your counselor position. Like I have to go and do a two-year program...If I could just be done right now, I would do that. But I can't. So, I have no choice, to be honest. Kind of sucks.

Patricia's academic disengagement is extreme and suggests that the negative experience of entering UCSB as an academically unprepared freshman left severe damage on her ability to see herself completing the doctoral degree she

initially hoped to attain before attending UCSB. She explains her decrease in educational aspiration,

Now I'm just like, I can definitely not do that because I don't see myself writing a book. I don't see myself doing such a big like thing like a thesis and like a whole like, I don't know, I haven't really had experience with research also. So, I think that also has, it's kind of like a thing I haven't experienced so I can't really judge it. But to me it does seem hard. It does seem like something that would be hard for me to, you know, accomplish.

Patricia states that her experiences at UCSB have limited her ability to see herself reaching her initial aspiration of the doctoral degree, saying that such work seems difficult for her to accomplish. Her experiences suggest that her perception of her academic ability relative to her peers has negatively influenced her ability and desire to form high educational aspirations, suggesting that students form aspirations in response to their perception of their academic ability relative to their peers.

Discussion and Conclusion

Returning to the study's research question – *How do student-professor interactions affect the educational aspirations of Latino students at UCSB?* – I can state that various student-faculty interactions had significant effects on the educational aspirations of Latino college students. Most of the students interviewed who indicated that they had high educational aspirations prior to attending UCSB and had maintained them or increased them explained that they had developed meaningful relationships with professors and had been personally offered educational or employment opportunities by professors. High-aspiring Latino students stated that professors knew them, and this has shown to be a validating and motivating factor for them, indicating to them

that professors distinguished them from their peers and suggesting a positive assessment of their potential. The one student who had experienced a decrease in educational aspirations had negative experiences upon entering UCSB and stated that she felt that professors believed she was not as intelligent as her peers of other races, suggesting that her negative experiences with professors may have resulted in a changed belief about her place in the opportunity structure, and thus negatively influenced her educational aspirations.

While interviewees felt intimidated to visit with professors to discuss assignments, meeting with professors to discuss assignments appears to be a precursor to establishing more meaningful relationships with professors. Furthermore, the establishment of meaningful relationships appeared to invite students to discuss things besides assignments, such as post-graduate plans with professors. Without these relationships, students expressed a reluctance to discuss such plans with professors, describing them as personal and stating that they understood office hours as being for class-related discussions. Findings indicated that some students visited with graduate students who were their teaching assistants instead of meeting with professors. Through this process they established relationships with graduate students that allowed them to feel comfortable discussing non-class related topics, such as post-graduate plans. While these relationships influence students' self-efficacy, and thus aspirations, the social capital that graduate students can provide students with may be less than that of their professor counterparts. Stanton-Salazar (1997) asserted that the effectiveness of institutional support relied upon high status within institutions. Thus, the effect of interactions and relationships with graduate students on the educational aspirations of Latino students may be less than that of interactions and relationships with professors. However, this finding may also demonstrate that graduate students, who hold lower status than professors, may also serve as effective institutional agents because of their role in

shaping students' self-concepts along with their ability to provide students with key information regarding the university and opportunities within it.

Qualitative data show that interviewees who established relationships with professors believed that they had earned the right to have a relationship with professors by distinguishing themselves from their peers and believed that the presence of such relationships meant that professors had identified them as especially capable students. Furthermore, interviewees who had established connections to professors indicated that they thought their connections with professors showed that professors had recognized their determination, capability, or hard-working nature. These findings suggest that establishing relationships with professors holds deep meaning for Latino students; students recognize the scarcity of student-professor relationships and recognize a professor's willingness to have a relationship with them as a positive assessment of their own potential by professors. This recognition of scarcity aligns with Stanton-Salazar's (1997) claim that institutional support is a scarce resource within educational institutions. This finding also suggests that students internalized what they believed to be positive assessments of their potential as evidence that they could achieve high educational aspirations. They thus used relationships with professors as evidence that they could attain their high educational aspirations or even dare to increase them.

The data continue to show the significance of social capital as it demonstrated the significance of referrals to educational or employment opportunities and referrals to other professors, graduate students or personal contacts. This finding aligned with Rodriguez et. al.'s (2013) study that demonstrated that opportunities and referrals to opportunities altered the position within the opportunity structure that individual actors found themselves in. Such experiences served to expand individuals' perceptions of

what was possible. Students identified professors' willingness to refer them to resources as indicative of their potential but also a broadened opportunity structure. Furthermore, an explanation suggesting the role of social capital in altering individuals' positions within the opportunity structure would align with Gandara's (1999) findings that indicated the significance of social capital in forming opportunities that allow for high educational aspirations and attainment. While the data was limited, it did show a stark contrast between the student whose educational aspiration had increased and the student whose educational aspiration had decreased while attending UCSB. The experiences of the former provided opportunities and mentorship, while the experiences of the latter were characterized by a lack of opportunities and mentorship.

The significance of these opportunities is displayed in students' beliefs that referrals to educational or employment opportunities implied that professors had identified special qualities in them that warranted providing resources. In addition to the recognition of internal qualities, such referrals may also be indicative of the new positions of students within the opportunity structure of the university. This may suggest that students' perceptions of the opportunity structure may change as they become increasingly privileged students within the context of the university and that the effect of student-faculty interactions on educational aspirations is the result of this phenomenon. Simply put, the effect on the educational aspirations of Latino students may be explained by the effects of access to social capital. As the benefits of access to social capital in the form of relationships with professors accumulates through access to internship opportunities, research opportunities, or professional guidance from an expert in the field, students become more qualified applicants for graduate school and the job market. They become more privileged actors who hold higher levels of human capital

and social capital outside of the context of the university and within the larger opportunity structure of society.

This explanation of Latino students' ability to maintain and increase their educational aspirations in response to student-faculty interactions falls in line with the theoretical arguments made by Bourdieu (1973; 2007) and suggests that students make realistic appraisals about their ability to achieve educational aspirations in response to having access or being denied access to highly valued social capital in the form of relationships with professors. Furthermore, having access to highly valued social capital in the form student-professor relationships and referrals to opportunities may influence the educational aspirations of Latino students by positioning them in privileged positions that broaden their understanding of what is possible for themselves. Therefore, from a sociological perspective the significance of the study of aspirations may not be for the ability of aspirations to predict outcomes or attainment, but rather for studying the conditions that allow for the cultivation and maintenance of high aspirations and for understanding the social processes that cultivate or limit the aspirations of people and shape the opportunity structure in which they live.

Future Research

Several future studies might build on the preliminary data in this one. Researchers may examine the role of graduate students and professors to investigate whether the effects of student-faculty interactions on the educational aspirations of Latino students are significant for both groups, and in what ways. Future research should also examine aspiration development across social contexts to find whether such processes differ based on institutional characteristics. Finally, comparative studies are suggested that would examine whether and how different racial and class groups benefit from student-faculty interactions. Such studies

should also key upon students' meaning-making of student-faculty interactions to find if there are differences in the meaning-making processes of similar interactions among different class and racial groups.

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Acknowledgements

First, I would like to thank my faculty mentor, Dr. Rebeca Mireles-Rios, for her generous support and guidance. Next, I thank Dr. Zakiya Luna, who served as my primary faculty advisor for my senior thesis, which I adapted for the article published here. Thank you for your guidance, support, and patience during the writing process. Your commitment to scholarship, mentorship, and support for undergraduate researchers has truly been an inspiration. In addition, I thank the graduate students, Bertin Solis, Fatima Suarez, and Rodolfo Cerda, who have helped me brainstorm ideas and organize the literature, and who have provided support throughout the writing process. Lastly, I thank the McNair Scholars Program staff for their support and guidance over the last two years. Thank you, Dr. Beth Schneider, Dr. Yvette Martinez-Vu, Dr. Ellen Broidy, Christopher Morales, Raquel Ramos, and Amaru Tejeda for your support, whether it be proofreading, editing, or otherwise supporting me during the tenuous writing process.

The Effects of Immigration Experience on Health and Healthcare among Ethiopian and Eritrean Americans

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Abstract

Since the 1980s there has been a significant increase in immigration from African countries to the United States. Despite the growing population of black immigrants, most research regarding immigration and health in America, and particularly in California, is centered on Latinx and Asian populations. However, there are differences between the immigration experiences that these distinct populations face which suggest that specific research on African immigrants is necessary in order to expand the scholarly record and to serve their unique needs. Through semi-structured interviews this research looks at the three main immigration pathways of both Ethiopian and Eritrean immigrants, which include obtaining legal permanent resident status through family reunification, diversity programs, or refugee admissions. This study focuses on the views of second-generation Ethiopian and Eritrean Americans regarding how their parents' immigration experience affects their own personal and family's health and access to quality healthcare. I hypothesize that quality of health and access to healthcare for the children of these three types of immigrants will be dependent on a number of factors in addition to immigration pathway, including: level of social and economic assistance, parents' jobs, historical period in which parents had them, English proficiency and trust of biomedical doctors.

Background

Ethiopian and Eritrean Immigration

Across the globe today, there are more international migrants than ever before. In 2017, the number of international migrants reached 258 million, up from 220 million in 2010 and 173 million in 2000 (United Nations International Migration Report, 2017). Immigration is a broad term that references a variety of processes, situations, and people with diverse experiences and lives (United Nations World Migration Report, 2018). There are a variety of social, economic, and political motives that frame a decision to immigrate. These are exhibited in people who immigrate because they are seeking better economic opportunities and those who are fleeing from religious, racial, or political persecution. Immigration continues to be a topic of contestation in nations around the world, but it is particularly so in the United States. Immigration pathways to the United States can include receiving a job sponsorship, familial sponsorship, applying to be a refugee, winning the diversity visa lottery, or crossing borders undocumented.

According to the Pew Research Center (2016), there are 4.2 million black immigrants in the United States which is an increase of 71% since 2000. Much of the recent growth in the foreign-born black population has been due to African migration (Pew Research Center, 2016). The African immigrant population that I focus on are children of Ethiopian and Eritrean immigrants, also known as second generation Ethiopian and Eritrean Americans. I decided to group these two populations together because prior to 1993 Eritreans were counted as Ethiopians since Eritrea was not yet its own country. When Eritrea was officially recognized as its own country by the UN in 1993, Eritrean immigrants began counting as Eritrean in the United States' collection of immigration data. In addition to their common history, I decided to group these two populations together because

they have a variety of similar cultural practices, reasons to immigrate, and many members of the second generation are half Ethiopian and half Eritrean. Their reasons for immigrating have been similar; they are usually seeking a better life, fleeing political persecution, or escaping an unstable government.

Today, there are about 251,000 Ethiopian immigrants and their children living in the United States, which is a large increase from the 1980s when there were only around 10,000 (Migration Policy Institute, 2014). This makes Ethiopian immigrants the second largest African immigrant group, and about half of these immigrants are U.S. citizens (Migration Policy Institute, 2014). Many Ethiopian immigrants obtained legal permanent residence status through family reunification, diversity programs, and refugee admissions (Migration Policy Institute, 2014).

Eritrean immigrants have a smaller population in the United States than Ethiopian immigrants do, and most of them came to the United States as refugees fleeing war. More recently Eritrean immigrants are fleeing the totalitarian government to go to Europe (Migration Policy Institute, 2016). For both groups there has been an increase in attempts to cross into the United States without documentation through the US-Mexico border. Both Ethiopians and Eritreans along with other African immigrants take boats to South America. After arriving in South America, they travel to the US-Mexico border to try to cross, but due to the current US administration's threats to close the border and Mexico's tightened security these immigrants have been trapped at the border (Solis, 2019).

Structural Violence

No matter the pathway of immigration—refugee admissions, diversity visa lottery, or family reunification—there are consequences to immigration that have a significant impact on the health of the immigrant. This impact is so great

that immigration can be considered a social determinant of health and wellbeing, as social and economic inequalities affect health and access to healthcare by constraining choice and amplifying risk (Castañeda et al., 2015).

While on their journey immigrants and their children face a wide range of health challenges and a lack of access to healthcare. I hope to explore this by looking at qualitative narratives that show how immigration experience and status contribute to social and economic inequalities. Even after arriving in the United States, immigrant families face many issues that harm their health or their ability to access quality healthcare. An example of this is the placement by under-resourced caseworkers of refugee families in substandard housing which has led to increased exposure to lead (Abdulrahman and Horton, 2018). Abdulrahman and Horton find that many children had higher levels of lead in the United States than in their home country and that it had significant negative health effects, and in some cases led to death. These combined structural forces have a direct negative impact on immigrants and their families, and I hope to help document any similar circumstances faced by my interviewees. Looking at the composite of my interviewees' experiences through a structural violence framework will allow me to see beyond individual perceptions and actions and toward the bigger picture of how the immigration experience and status has affected and continues to affect the health of this population. Structural violence is a framework that takes into account oppression, economic exploitation, and racial discrimination in order to understand how social relations, economic arrangements, institutional practices, law, and policies affect the individual (Farmer, 2004; Taylor 2006). Within the context of health, structural violence constricts the individual's agency and dictates everything from the kind of food they have to the kind of care they receive (Farmer, 2004).

Eritrean and Ethiopian people immigrate to America because of structural violence. Unstable governments, dictators, and no economic future (which can be traced back to European and U.S. interventions, colonialism, and imperialism) are all examples of structural violence that cause people to immigrate. Ethiopia has faced numerous attempts to be colonized by the Italians including a military occupation from 1936-1941. More recently, the country has been politically affected by major interventions by both the USSR and the United States. The communist Derg regime supported by the USSR provided \$11 billion of military aid (Breslauer, 1992), much of which was used to kill 10,000 people (World Peace Foundation, 2015). The Derg regime was then overthrown in 1987 by the Ethiopian People's Revolutionary Democratic Front (EPRDF), which was backed by the United States government. The EPRDF continued to commit human rights violations and used U.S. aid to build a one-party state (Human Rights Watch, 2010). The United States continues to give the political party aid because Ethiopia is a stabilizing regional force in the war on terrorism, thereby disregarding human rights in favor of their political interests. Human rights violations, frequently ignored by the U.S. government, continued in the last decade with the support of U.S. economic assistance (Human Rights Watch, 2010; Baker and Fortin, 2015). The people who immigrate to avoid this violence do not have an easy journey to the United States; moreover, they face the systemic struggles experienced here by people of color once they arrive. I anticipate that experiences within the immigration process and generally within the United States that are rooted in structural violence will demonstrably lead to low socioeconomic status, lack of access to services, and a hesitation to use government-backed resources among African immigrants.

Immigration and Health

In the United States, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 added restrictions on Medicaid eligibility for immigrants. Instead of being eligible for Medicaid and other benefits like citizens, under the new act even legally admitted immigrants could not receive coverage except in emergencies during their first five years in the country (Ku & Matani, 2001). Other policy mandates by federal agencies ask “immigrants to repay the value of Medicaid benefits received or else jeopardize their U.S. residency status” which thoroughly drove home the idea that legal immigrants should avoid accessing Medicaid under any circumstance (Ku & Matani, 2001, 248). The fear caused by these policies also affected the US-born children of these immigrants by “impeding efforts to enroll children in Medicaid and the State Children’s Health Insurance Program (SCHIP)” (Ku & Matani, 2001).

In an analysis of data from the National Survey of America’s Families (NSAF) on how immigrant status affects insurance coverage and the use of medical, dental, and mental health services by adults and children, Ku and Matani (2001) identified many differences between non-citizens (refugees, undocumented, etc.) and native citizens. They found that children with non-citizen parents as well as non-citizens in general were less likely than native citizens to have Medicaid and/or job-based or other insurance and were more likely to be uninsured (Ku and Matani, 2001). In addition, Vargas Bustamante, et al. (2010) analyzed data from the 2007 California Health Interview Survey (CHIS) that looks at healthcare access and utilization by documented and undocumented Mexican immigrants. Using similar methods, they also found that undocumented status had adverse effects on Mexican American adults including a lower likelihood for a doctor’s visit or having a usual source of care (Vargas Bustamante, et al., 2010).

Gelatt (2016), in addition to Ku & Matani (2001) and Vargas Bustamante, et al. (2010), has analyzed data on Latinx parents and children immigration status, insurance coverage, and healthcare utilization drawn from the Los Angeles Family and Neighborhood Survey, which is representative of Los Angeles County in 2000–2001. Gelatt (2016) found that children in undocumented families were significantly less likely to be covered by health insurance and were less likely to have a usual care provider than children in native or mixed status families. Ku and Matani (2001), Vargas Bustamante, et al. (2010), and Gelatt (2016) all find similar conclusions about immigration status in Latinx populations mostly through the lens of undocumented versus documented. In contrast, this study looks at the nuances of the immigration experiences of an African population who mostly come to the United States legally.

In addition to the lack of access to healthcare resources, immigrants also face a lack of access to healthy food. Carney (2015) discusses how undocumented Mexican and Central American migrant women use their local food bank as a way to access food and healthcare. Carney (2015) goes on to discuss how these migrant women who struggle with access to healthy food refuse government benefits like WIC and EBT because of the negative social stigma, especially with the continued prevalence of the welfare queen stereotype, that is attached to government aid.

Despite this growing population, most research regarding immigration and health in the United States and California is centered on Latinx and South East Asian populations. More specifically, there is a gap in research on how immigration experience and status--as social determinants of health--affect the health and access to healthcare of children of Ethiopian and Eritrean immigrants. African immigrant health requires specific, ethically responsible, focused study because African, Latinx, and South East Asian populations migrate from profoundly

different historical and social contexts that can determine significant differences in health outcomes (Liz, 2017).

Ethiopians and Eritreans in America

Ethiopians and Eritreans have formed large enclaves around the United States that are located in the states of California, Virginia, Texas, Maryland, and Minnesota (Migration Policy Institute, 2014). Like most East African immigrants, they typically only have access to low wage jobs in the service sector (Woldeab, Yawson, & Woldeab, 2019). Immigrants from Sub-Saharan Africa are among the most well-educated and have better English skills when compared to other foreign-born Americans. However, this population is still unable to fully participate and succeed in the American workforce (Woldeab, Yawson, & Woldeab, 2019). This pattern is explained by factors including limited English proficiency, long wait times in refugee camps, failure to transfer educational credit, limited professional networks, and discriminatory hiring practices (Woldeab, Yawson, & Woldeab, 2019). Low wage jobs lead to persistent low socioeconomic status which is an important social determinant of health that limits access to healthcare.

Another major difficulty faced by this population is their access to housing. Abdulrahman and Horton (2018) explore the fact that refugee children have higher blood lead levels after their resettlement within the United States than in their home country. Poorly maintained housing built before 1978 has a higher amount of lead which harms physical and cognitive development in children, and in some cases results in death (Abdulrahman & Horton, 2018). In addition to the reasons mentioned earlier, refugee children are more likely to be placed in substandard housing because of the low socioeconomic status of refugees and the pressure from the government to find housing in a short period of time which leads caseworkers to accept housing with obvious defects (Abdulrahman & Horton, 2018).

Studies of African immigrant health have been centered on infectious disease rather than chronic disease (Venters & Gray, 2009). It is important to study chronic disease especially among the second-generation because they grow up in a different nutrition environment than their parents (Dondero and Van Hook, 2016). Dondero and Van Hook state, “Diet, a critical proximate determinant of obesity and various chronic diseases, represents a key behavioral mechanism through which this and other health advantages may be lost or maintained across family generations” (2016, p. 212). A health advantage that first-generation immigrants have that could potentially be lost is the healthy immigrant effect which is when immigrants are generally healthier than the native-born population. With the loss of the healthy immigrant effect, the second-generation are more vulnerable to chronic diseases.

Methods

My research methods consist of recruitment surveys and semi-structured interviews. I sent out recruitment surveys to a few Ethiopian and Eritrean students with whom I grew up in Los Angeles. From there I contacted friends of participants who said they would be interested in being interviewed, using a snowball sampling method aimed at sample diversity. I chose to interview students at four-year and two-year institutions between the ages of eighteen and thirty-five because much of Ethiopian and Eritrean immigration is recent, so the 2nd generation is relatively young. Ethiopians did not immigrate to America in large numbers until the passage of the 1980 Refugee Act; therefore, I chose to limit participants to those under the age of thirty-five. Interviewing college students at both four-year institutions and community colleges was vital to getting more diversity in age, gender, and income level.

My recruitment surveys include questions that seek to gain the participants’ awareness of their parents’

immigration experience and of any health or healthcare issues that they or their family may have faced. These questions include: How did their parents immigrate? How well did they know their parents' immigration story? After the recruitment surveys were reviewed, I chose participants based on who might provide some diversity to the sample for interviewing. Among the factors around which participants have been selected are sex, gender, parent income, immigrant generation, age, and what country they identify with (either Ethiopia or Eritrea) regardless of ethnicity.

My semi-structured interviews consist of questions regarding health and healthcare experiences and immigration experience. I include both open-ended and more narrow questions in order to gauge my participants' broader thoughts on immigration and health and then their specific situations and experiences. Questions regarding health and healthcare are geared towards access and utilization and aim to pinpoint any health issues common to other socio-demographic group. One such question was: "As a child/teenager did you and your parents feel comfortable going to the doctor if you were seriously ill?" Immigration experience questions are geared to find any common experiences, resources, and community organizations. One example of a question regarding immigration experience: What process did they have to go through to immigrate? Did they stop in other countries before arriving in the U.S.? What resources, if any, did your parents use when first coming to America (e.g. government, community, non-profit)?

I conducted 2 pilot interviews to test the interview protocol and modified it as needed to ensure successful interviews. I had a target number of ten interviews each lasting twenty to thirty minutes. To ensure that I had enough participants for my research I offered a small incentive in the form of a twenty-dollar gift card. I made certain that my participants understood that they had informed consent and can back out of the interview whenever they wish.

I had planned on travelling back and forth from Los Angeles and Santa Barbara to conduct interviews with participants in person. However, in light of the limits placed on the travel by the COVID-19, I conducted five interviews over Zoom. The interviews were 20-30 minutes long with questions centered on participants' point of view regarding how their parent's immigration experience and status affected their own personal and family's health and access to quality healthcare.

As both a researcher and a member of the community of study, I am particularly alert to the potential problems of such 'insider-outsider' research. Naples (1996) showed that these are flexible positions that reflect dynamic standpoints rather than fixed positions, and anthropologist, Zavella (1993), showed the importance of reflection about one's identity inside a community of study. Personally as a member Ethiopian community in Los Angeles, this research is particularly close to me. These are the stories of my friends and family, and I want to share their experiences authentically. Protecting their identities is also of great importance and in order to ensure that their identities remained protected I have given all my participants pseudonyms.

My analysis consists of reading each interview and looking for common themes that are brought up by my participants. To do this, I use a grounded approach and iterative coding procedures as described in Saldana (2015) to develop and refine my understanding of my research participants' views in their own terms as well as in relation to one another. From my questions, I examine participants' answers that reveal their thoughts about the immigration experience, resource utilization or lack thereof, health issues facing the community, and access to healthcare.

Preliminary Results

My preliminary results are based on five interviews done with four-year and two-year college students. Everyone I have interviewed has been the child of Ethiopian rather than Eritrean immigrants so my results can only be applied to the Ethiopian community. At the present time three main findings have been particularly interesting regarding how parental immigration pathways affect the 2nd generation's health and access to healthcare. The factors that interviewees indicated affect their health and access to healthcare are the age at which the parents had their child in relation to the age of their arrival within the United States, level of English proficiency, and the parent's occupation over time. These three factors interact with each other and compound in their effect on health and access to healthcare.

Participants who were born either before their parents immigrated or within a couple of years of immigrating to the US reported lower childhood health and/or worse access to healthcare; the main factor they identified was that their parents had less time to establish themselves in the US before adding the demands of family support and care. While all participants reported their parents spoke English currently, the participants who reported that their parents didn't speak much or any English when first arriving in the US reported their parents having a hard time communicating with biomedical doctors about their children's illnesses. Parents' occupation over time is the third factor. Participants whose parents went from a low wage job when they first arrived in the US to higher wage job when they were more established reported a clear improvement in the healthcare they had access to. In contrast, participants whose parents had them when they were more established in the US and had a steady job saw little to no change in access to healthcare.

Conclusion and Future Work

There are many possible future projects that flow from this preliminary study. I would like to continue studying the effects of immigration on health and the nuances that emerge based on differences in legal immigration statuses. Regarding this study, I would like to look at the experiences of the first generation of Ethiopian Americans and Eritrean Americans and how they affect their health and access to healthcare from their point of view in order to compare it to the second-generation accounts. I may expand my research on immigration to explore the experiences of Caribbean and African immigrants traveling to South America and up to the US-Mexico border. I will explore their immigration experiences, especially the aspects of travelling undocumented as a black person, living on the border of two countries as an outsider, not being able to speak the language of either country, and how these elements affect health and access to healthcare.

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Acknowledgements

I would like to thank my friends and family for their unconditional love and support. Their experiences are what inspired me to do research in the first place. This research would not have been possible without the help and guidance of my faculty mentor, Dr. Barbara Harthorn, especially during these uncertain times. I would also like to thank the McNair Scholars Program and staff for all their help and support. Specifically, I want to thank Dr. Martinez-Vu, Dr. Schneider, and all the graduate student mentors for all their help. Lastly, I would like to thank my fellow McNair cohort, I couldn't have survived applying to graduate school without you.

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Ronald E. McNair was born on October 12, 1950, in Lake City, South Carolina. Son of an auto mechanic and a high school teacher, McNair attended the local high school, graduating as class valedictorian. He went on to earn a bachelor's degree, magna cum laude, in physics, from North Carolina A & T University in 1971 where he was named a Ford Foundation Fellow and a

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Nationally recognized for his work in laser physics and the recipient of numerous fellowships, honorary degrees, and commendations, Dr. McNair was also a sixth-degree black belt in karate and an accomplished saxophonist. In 1978, while working at the Hughes Research Laboratory, he was selected for the NASA space program. He was the second African American to fly in space. On January 28, 1986, Dr. McNair, along with 6 other astronauts, died when the Space Shuttle Challenger exploded and crashed into the ocean moments after lift-off.

After his untimely death, Congress provided funding to start the Ronald E. McNair Post-Baccalaureate Achievement Program. UCSB's McNair Scholars Program is dedicated to helping promising scholars follow Dr. Ronald E. McNair's path of scholarship and service.