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Socioeconomic Stratification of
Educational Attainment in
Puerto Rico



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June 2010

Commonwealth of Puerto Rico
Puerto Rico Council of Higher Education
Division of Research and Documentation
Center for Research and Documentation on Puerto Rican Higher Education

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Socioeconomic Stratification of Educational Attainment in Puerto Rico¹

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June 30, 2010

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About the Center for Applied Social Research (CISA)

The Center for Applied Social Research (CISA), established in 1991, is an integral part of the Department of Social Sciences at UPRM. CISA promotes and coordinates practical applications of faculty expertise to the analysis and mitigation of problems arising from or inextricably linked to social attitudes and behavior. CISA's specific objectives aim to provide strong research training and mentoring to undergraduate students; to engage faculty and students in interdisciplinary research; to develop collaborative research projects; to enhance the professional development of researchers and students; and to increase the number of students pursuing a graduate degree in social sciences.

Website: <http://academic.uprm.edu/~cisa/>

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- Fiorelys Mendoza, Department of English – library database searches
- Camelia Rivera, Department of Social Sciences – creation of databases
- Yvette Santiago, Department of Social Sciences - interviewing and transcription
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Executive Summary

Sandra L. Dika, Rima Brusi-Gil de Lamadrid, and Walter Díaz

Project Summary

The research project, “Socioeconomic Stratification of Educational Attainment in Puerto Rico” was a multi-method research study conducted by researchers from the Center for Applied Social Research at the University of Puerto Rico-Mayaguez (UPRM) from January 2009 to March 2010. The project was funded by the Puerto Rico Higher Education Council (CESPR). Socioeconomic factors are well-known to play a role in individual educational outcomes in the research literature, but empirical evidence is lacking to substantiate this relationship in Puerto Rico. The researchers utilized existing data sources (Census, institutional databases at UPRM) and conducted original research (interviews) to examine how socioeconomic factors influence educational attainment in Puerto Rico, looking at three distinct populations – all adults over age 25 in Puerto Rico, public university students at UPRM, and adults living in public housing in Mayaguez. Further, the project resulted in the creation of a data infrastructure using Census and geographic information systems (GIS) data, to facilitate the creation of educational attainment maps for Puerto Rico. The findings of the study and its recommendations will benefit higher education leaders in Puerto Rico as they aim to ensure all social sectors of Puerto Rico have access to higher education and enjoy the social and economic benefits of advanced educational preparation.

Background

Since 2004, the Center for Research and Documentation on Higher Education in Puerto Rico (CEDESP) of the Puerto Rico Higher Education Council (CESPR) has awarded \$993,000 toward 26 research projects on higher education in Puerto Rico. In 2008, the CEDESP developed a process for collaborative agreements, through which larger projects could be conducted. The Director of CEDESP at that time, Dr. Luis Cámara Fuertes, met with researchers from the UPRM Center for Applied Social Research in early 2008 to discuss joint research interests. In April 2008, the principal investigators submitted a proposal, which was reviewed and awarded funding in August 2008. The study is the first of its kind for CESPR, both for its broad focus on socioeconomic factors and educational attainment, and for the size of the award (\$76,000). The project is also the first publicly funded, multi-method study in Puerto Rico to empirically examine the links between socioeconomic status, geographic location, and educational outcomes.

The principal investigators for the study are all faculty members and researchers at the University of Puerto Rico-Mayaguez’s Center for Applied Social Research (CISA). The funds allocated by CESPR provided release time for the researchers, wages for undergraduate research assistants, and materials and supplies. The administrative assistant for the Center for University Access at UPRM provided administrative support to the researchers as part of UPRM’s contribution to the study.

Process

This project included four separate but related studies that provide empirical evidence for the influence of socioeconomic factors on overall levels of educational attainment in Puerto Rico, as well as among two particular sub-populations; public higher education students and adults living in public housing. Each study was conducted independently by its principal investigator and research assistants. The bulk of the research was conducted between January and December 2009, based on the availability of data and the schedules of the researchers.

The studies engaged multiple research methods, including literature review, secondary analysis of institutional and census data, and qualitative interviewing².

Study #1 involved the compilation of published social science research literature on social structural barriers – family, school, and community - to educational attainment among low-income populations. Literature was identified using online databases and electronic journals available through the University of Puerto Rico-Mayaguez General Library, as well as academic search engines (e.g., Google Scholar).

In Study #2, a database on educational attainment in Puerto Rico was developed using Public Use Microdata Sample (PUMS) and American Community Survey (2006) data from the United States Census. The researchers combined these data with GIS technology (ArcGIS 9.2) to develop a tool to generate educational attainment maps for block groups, census tracts barrios and municipalities in Puerto Rico on any of the variables available in the SF3A file.

In Study #3, data from admissions, enrollment, and economic assistance databases at the University of Puerto Rico-Mayaguez (UPRM) were compiled with assistance from personnel from the UPR Office of the Vice-President of Student Affairs, the UPRM Information Technology Center, and the UPRM Office of Institutional Research and Planning to study how socioeconomic factors predict retention in college. Two separate samples of first year, first time degree seeking students were created, based on availability of valid and reliable data on academic preparation, family structure, and parent education and income.

In Study #4, qualitative interviews were conducted with youth and adults living in public housing communities in Mayaguez. Participants were identified using a combination of convenience and snowball sampling, beginning with contacts achieved through prior ethnographic and participatory action research. Participants were asked to narrate their educational life histories, including perceived barriers to educational attainment. A total of 11 individual interviews and one group interview were conducted.

Findings and Conclusions

- Previous research on socioeconomic stratification of educational attainment in the United States and internationally links structural factors in families, schools, and neighborhoods to educational attainment. Low-income families tend to have more restricted access to the forms of social capital associated with higher attainment (parent education level, parent-child interaction, and interactions of parents and children with school personnel). School quality is an important factor in attainment, and low-income youth are also more likely to attend middle and high schools that do not provide the academic preparation or the “college-going culture” enjoyed by their higher income peers.
- There are clear economic and educational inequities in Puerto Rico based on geography, as illustrated in the income and attainment maps. The highest median incomes (\$50,000-\$110,000) are concentrated in census block in the metropolitan San Juan area, and the proportion of adults completing high school tends to be highest in the urban areas. In the grand majority of census blocks, fewer than 10% of adults have a bachelor’s degree, again with highest education levels in Mayaguez, San Juan metro, and Ponce.
- High income students whose parents attended college were significantly more likely to persist in college than low income/first generation students. There were some gender-based differences in academic preparation and socioeconomic factors that predict retention among students who apply for financial aid. Young men’s persistence appears to be related to academic preparation and public school attendance, while young women’s persistence is related to high school GPA, parents’ marital status, and public school attendance.
- The life histories of youth and adults living in public housing shared four common themes: 1) chronic tragic life events that dampened their academic aspirations; 2) the “apartheid” nature of public housing; 3) middle grades as turning point, usually for the worst; and 4) institutional barriers in the schools.

Taken together, these findings provide empirical evidence for educational attainment inequities in Puerto Rico, and illustrate that these inequities are associated with both socioeconomic and geographical factors. Higher income, highly educated Puerto Ricans are concentrated in urban areas – but in the public housing communities of those urban areas, citizens face significant structural barriers in their communities and schools to moving beyond a middle school level education. Even among those who enroll in the most selective higher education institution on the island, socioeconomic and structural factors play a role in whether they continue their studies beyond the first year.

The limited availability of research on higher education in Puerto Rico became apparent during the course of the project. While we were aware of several different research and outreach initiatives, both large and small, across different institutions in Puerto Rico, very little information was available about

the outcomes and findings of this work. Publically available research reports and peer-reviewed published research on higher education in Puerto Rico are scarce. Even the CESPR research reports are not published online. Also during the course of this project, Puerto Rico experienced the largest government layoff in history – over 17,000 employees – and the CESPR was drastically downsized like many other Puerto Rican public agencies. In a time when little information is available to understand challenges facing higher education in PR, fewer resources are being allocated to this effort.

Policy Implications and Recommendations

While this project was not designed to analyze or evaluate any particular state or institutional policies, the findings certainly call attention to areas of policy and research focus for higher education in Puerto Rico. Based on our experiences and on the findings of our research, we identified 9 recommendations across five important actors in the K-16 educational process: the Government of Puerto Rico, the Puerto Rico Higher Education Council, Higher Education Institutional Leaders, K-12 School Leaders, and Educational Researchers.

Government of Puerto Rico

1. **Puerto Rico must continue to allocate funds to research on higher education.** In order to understand the best ways to allocate limited public resources, the government must continue to invest in research that helps determine the most effective policies and strategies for ensuring students persist and graduate from higher education institutions.

Puerto Rican Higher Education Council (CESPR)

2. **CESPR should prioritize the funding of research that helps develop pathways to college in areas of lower educational attainment.** On such a small island with so many colleges and universities, we should not see the kinds of effects illustrated in the maps in Study 2. CESPR can help encourage researchers to work in these areas by prioritizing research that involves partnerships with schools and communities, and results in clear recommendations for practice.
3. **CESPR must foster increased availability of basic student data to allow the analysis of socioeconomic factors and college outcomes at the island level.** A limitation of the current project was the sample from a single institution. Institutional data are simply not shared at the island level. Institutions already compile student-level data to comply with the institutional-level federal reporting requirements of the Integrated Postsecondary Data System (IPEDS) – these data could be provided to CESPR, without personal or institutionally identifying information.
4. **CESPR should foster increased accessibility of research findings on higher education in Puerto Rico by initiating the development of an online research clearinghouse.** While not all Puerto

Ricans have reliable access to the Internet, it is arguably the most equitable manner in which to disseminate research findings. Reports submitted to the CESPR and other funding agencies, theses and dissertations, and presentations at local and international meetings should be accessible from a central source. CESPR could issue a call for proposals such that the clearinghouse could be administered by one of the higher education institutions.

Higher Education Institutional Leaders

5. **Higher education institutions must support and promote research and sustained outreach in schools and communities with lower college-going rates.** Higher education institutional leaders should prioritize research and outreach that aims to increase educational attainment in Puerto Rico, and publicize the work of their faculty and students in this direction. Specifically, there needs to be deep involvement in these schools and communities - not one-shot photo opportunities - to develop the “thickness” of educational aspirations in young people to ensure they consider higher education as a viable life option. This involvement needs to be part of the lived mission of the university, and faculty and staff efforts in these areas must be recognized and rewarded. Institutional resources should be targeted to intensive research/outreach/support efforts that bring together the study of the particular barriers faced in lower attainment communities to develop pathways to college.
6. **Higher education institutions must develop or strengthen efforts to retain lower SES students.** Using institutional research infrastructure, institutions should focus on studying which students are more likely to leave after their first year, along with the specific needs of those students for extended orientation or academic support. Then, resources must be allocated (or re-allocated) to efforts that will promote the persistence of those students most likely to leave. Ample evidence on best practices is available in the literature – but it is important to examine what will work in a particular institutional context.

K-12 School Leaders

7. **K-12 school leaders must work to create high expectations for all students among school personnel, students, and their families.** In private schools, the college preparation mentality begins in kindergarten. School personnel cannot be permitted to decide who is “college material” based on demographic characteristics and assumptions about motivation and interest in higher education.

Educational Researchers

8. **Further research is necessary to understand the barriers to college retention among low income students in Puerto Rico.** Evidence from UPRM suggests that the attrition rates for low income students are twice as high as their higher income peers; and the findings in the current project showed that parent income and education level play a key role in predicting retention. Further research is needed to understand what barriers these students face, in contrast to

higher income peers; qualitative research should play an important role. Conceptual frameworks including social and cultural capital would also help to provide more theoretical tools to understand educational inequity in PR.

9. **Further research using the mapping tool developed in this project should be undertaken to identify key geographical focus areas in Puerto Rico for outreach and recruitment efforts.** Educational researchers should use the database and mapping tool to identify places in Puerto Rico with the highest socioeconomic and educational needs, and to pave the way for the generation of more responsive policies and initiatives to lessen socioeconomic stratification of educational attainment in Puerto Rico, and create more solid pathways to college in schools and communities where going to college is not the norm.

1 Introduction

Sandra L. Dika

The issue of higher education access and attainment is a topic of national concern in the United States. The report on the future of higher education commissioned by US Secretary of Education Margaret Spellings ("Spellings Report") concludes that although higher education is crucial to "...our ability to sustain economic growth and social cohesiveness....too few Americans prepare for, participate in, and complete higher education – especially those underserved and nontraditional groups who make up an ever-greater proportion of the population." (USDE, 2006, p. 6). African American students earn bachelors' degrees at half (18%), and Latinos at one-third (11%) the rate of white students (34%) (USDE, 2006), while low-income students earn bachelors' degrees at one-eighth the rate of their more advantaged counterparts (Mortenson, 2001).

The Puerto Rican Context

There are unique challenges to access and attainment in Puerto Rico. Indeed, educational attainment in Puerto Rico has increased substantially during the past fifty years. Recent figures from the 2007 American Community Survey indicate that about 20% of Puerto Rican adults have attained a bachelor's degree; a college completion rate that is higher than that of underserved US populations. Higher education is an important factor in economic mobility – the median earnings for families in which at least one member has attained a bachelor's degree are over about 2.7 times higher (\$45,996) than those of families where the highest level of education is a high school degree (\$17,211) (Díaz, in press). Results from a recent survey of graduating high school students suggest that socioeconomic factors such as family income, parent educational level, and school type (public vs private) play a role in student plans to apply for college (Vásquez, Torres, & Negrón, 2004).

The enrollment patterns in higher education institutions in Puerto Rico have changed significantly during the current decade, as presented in the Puerto Rico Higher Education Council's (CESPR) recent snapshot on higher education enrollment and completion in Puerto Rico (Cámara Fuertes, 2007). In the 2000-01 academic year, the University of Puerto Rico (UPR) accounted for about 35% of all enrollment (CESPR-IESALC, 2004). An overall rise in higher education enrollment (17%) during the years between 2001-02 and 2006-07 reflects increasing enrollment in private institutions (32%). While public institutions enrolled 39% of all higher education students in 2001-02, this proportion fell to 29% by 2006-07. Enrollment in private for-profit institutions nearly tripled during this timeframe. It is not clear from these data whether students from public institutions are transferring out of those institutions or whether a higher proportion of students are initiating their studies at private institutions (Cámara Fuertes, 2007).

Analyses conducted by the Center for University Access (Díaz, in press) shed further light on these

changes in higher education enrollment, particularly related to the socioeconomic characteristics of enrolled students. The median family income for 18 to 22 year olds enrolled in public universities (\$32,379) is over \$6,000 higher than for those enrolled in private universities (\$25,979), and over double that of those not enrolled in higher education (\$15,600).

Has completion kept pace with enrollment? Independent of institution type (two- or four-year) public institutions in Puerto Rico demonstrate higher graduation rates than private ones (Cámara Fuertes, 2007). The gap is most striking among four-year institutions, where the overall public graduation rate (41%) is nearly double that for private institutions (24% for-profit; 22% non-profit). Thus, while private institutions are enrolling the majority of undergraduate students, they are significantly less successful in ensuring those students attain the two- and four-year degrees essential to obtain meaningful employment and ensure upward social mobility.

Although Puerto Rican public institutions achieve graduation rates superior to that of their private counterparts, results are not uniform across socioeconomic groups. Data from the University of Puerto Rico-Mayaguez (UPRM) indicate that retention and graduation rates for the most disadvantaged students are well below "average" rates. First to second year retention rates for students at the lowest family income levels (less than \$7,500 per year) are 10% lower than those for students from middle class families (incomes of \$50,000 or higher)³. The graduation rate for students from public housing is a full 20% below that of the 54% campus average (Brusi, Bellido, Dika, & González, 2008).

The availability and use of data on higher education in Puerto Rico have improved significantly in recent years, and the CESPR has played a central role. Recent research on college going plans among Puerto Rican high school students has demonstrated that factors such as family income, parent educational level, owning the family home, and school type (public vs. private) play a role (Muñiz Gracia, 2010; Vásquez, Torres, & Negrón, 2004). However, there is limited published research in Puerto Rico that looks at socioeconomic factors related to persistence and performance in college. Notably, such research has been funded by the CESPR (Alvarez, Camacho-Isaac, & Figueroa, 2004; Vásquez, Torres, & Negrón, 2004) and local foundations (e.g., Brusi, 2009; Díaz, in press). More research is needed to improve understanding of inequities in educational opportunities and outcomes in Puerto Rico based on socioeconomic status. The current project was designed to address this gap.

Project Summary

This project included four separate but related studies that provide empirical evidence for the influence of socioeconomic factors on overall levels of educational attainment in Puerto Rico, as well as among two particular sub-populations; public higher education students and adults living in public housing. Each study was conducted independently by its principal investigator and research assistants. The

³ While a family income of \$50,000 may coincide with a typical definition of "middle class", a family with this income in Puerto Rico is at the 83rd percentile (ACS, 2006).

studies engage multiple research methods, including literature review, secondary analysis of institutional and census data, and qualitative interviewing⁴.

Study 1: Social structural factors in the educational attainment of low-income populations: A review and synthesis of the literature

In the first study, Dr. Sandra Dika and a research assistant compiled a review and synthesis of social science research literature on social structural barriers – family, school, and community - to educational attainment (highest degree or years of schooling) among low-income populations. Literature was identified using online databases and electronic journals available through the University of Puerto Rico-Mayaguez General Library, as well as academic search engines (e.g., Google Scholar). In addition, a matrix of the studies on family structure was prepared to provide details on the methodology used in each study. The literature review provided a foundation for the selection of variables and the development of interview questions in studies 3 and 4, respectively.

Study 2: Mapping educational attainment in Puerto Rico

Dr. Walter Díaz and research assistants developed a database on educational attainment in Puerto Rico using Public Use Microdata Sample (PUMS) and American Community Survey (2006) data from the United States Census for the second study. PUMS files contain individual records of the characteristics for a 5 percent sample of people and housing units, as well as data for two types of geographic units called Public Use Microdata Areas (PUMAs) -those with minimum populations of 100,000 and those with populations of 400,000 or higher (super-PUMAs). The study combined these data with GIS technology (ArcGIS 9.2) to develop a tool to generate educational attainment maps for block groups, census tracts barrios and municipalities in Puerto Rico on any of the variables available in the SF3A file.

Study 3: Socioeconomic factors and persistence: Evidence from the University of Puerto Rico

In the third study, Dr. Sandra Dika and colleagues compiled databases on admissions, enrollment, and economic assistance from the University of Puerto Rico-Mayaguez (UPRM) with the aim to investigate the importance of socioeconomic factors in explaining educational persistence and grades. Dika conducted two sets of analyses. The first set of analyses used a data set on admissions and enrollment from first-year, first time degree seeking students entering UPRM between 2000 and 2007 in two income categories representing income extremes for the population (N=5,408). The second set of analyses was conducted using a different data set, which incorporated family structure and income information from the Free Application for Financial Student Aid (FAFSA for first-year, first time degree seeking students entering UPRM between 2005 and 2009 (N=7,006). The FAFSA data include parent gross income measures, which were hypothesized to be more accurate and sensitive measures of family

⁴ The order of the presentation of the studies is different from the order of the research questions in the proposal for this project. In the process of preparation of the final report, it was determined that the qualitative study of educational trajectories should be presented last, thus moving from broader to deeper examinations of attainment inequity in Puerto Rico.

income than the categories used on the UPR admissions form. Personnel from the UPR Office of the Vice-President of Student Affairs, the UPRM Information Technology Center, and the UPRM Office of Institutional Research and Planning were instrumental in obtaining the data from various institutional databases.

Study 4: Barriers to educational attainment: College access and urban poverty

In the fourth study, Dr. Rima Brusi and a research assistant conducted interviews with youth and adults living in public housing communities in Mayaguez, Puerto Rico. Participants were identified using a combination of convenience and snowball sampling, beginning with contacts achieved through prior ethnographic research and PAR research. Participants were asked to narrate their educational life histories, including perceived barriers to educational attainment. A total of 11 individual interviews and one group interview were conducted. The interviews were transcribed verbatim, and then analyzed, coded in three levels (instrument level, grounded, and theme-based) and looking for themes within and across participant histories.

Organization of the Report

The report is organized in chapters representing each of the four research studies. The literature review (Chapter 2) provides a context for studies 3 and 4. Each of the three data-based studies (Chapters 3, 4, and 5), written by the corresponding Principal Investigator, were conducted independently and can stand alone as research studies in themselves. In the final chapter, the results of the literature review and the three empirical studies are integrated and policy implications and recommendations are presented.

Key Concepts and Definitions

Educational attainment: The highest level of education completed by a person; in Studies #2 and #4 of this project, the focus is on the highest degree completed.

First generation student: Generally, college student for whom neither parent completed a four-year college degree; in Study #3 of this project, first generation students were defined as students whose parents did not complete any studies after high school

Continuing generation student: Generally, college student for whom at least one parent completed a four-year college degree; in Study #3 of this project, continuing generation students were defined as students whose parents completed any studies after the high school degree

Retention (or persistence): Continued enrollment in four-year college degree studies from first to second year; in Study #3 of this project, retention is modeled as an indicator of attainment, as likelihood to drop out of college is highest after the first year of studies.

Socioeconomic status (SES): Primarily income and education level, although occupation is included in some studies; in Study #3 of this project, students' socioeconomic status is measured by parent income and parent education level

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2 Social structural factors in the educational attainment of low-income populations: A review and synthesis of the literature

Sandra L. Dika

Introduction

Access to and success in higher education for low-income students has emerged as a focus in recent years given the ever-increasing importance of attainment of a bachelor's degree for social mobility (e.g., Bowen, Kurzweil, & Tobin, 2005; Tinto, 2006). Over the past several decades, disparities in educational attainment based on social class and ethnicity have been observed in the United States (National Center for Education Statistics (NCES), 2009). Bachelor degree attainment for low socioeconomic status (SES) students is 7%, compared to 60% among high SES students (NCES, 2003). Educational attainment and socioeconomic status are linked the world over, and Puerto Rico is no exception. Higher education is an important factor in economic mobility in Puerto Rico – median family income is about 2.7 times higher when the highest attainment is a bachelor's vs high school degree (Díaz, in press). In 2007, about 20% of Puerto Rican adults had attained a bachelor's degree (American Community Survey). Among Puerto Rican youth aged 18 to 22 years, those enrolled in public and private colleges come from more economically advantaged homes than those not enrolled in any postsecondary institution (Díaz). Additionally, recent research suggests that socioeconomic factors such as family income, parent educational level, school type (public vs private), and neighborhood/community factors play a role in student educational aspirations (Brusi, 2009; Brusi, Chapter 5 of this report; Muñiz Gracia, 2010; Vásquez, Torres, & Negrón, 2004). Clearly, social structures play an important role in the educational outcomes of Puerto Ricans.

This literature review provides a summary and synthesis of recent research literature on social structural factors that predict or are linked to educational attainment. Both social structural and cultural explanations have been examined in the literature on educational attainment and achievement (see Pearce, 2006 for a summary; see also Fram, Miller-Cribbs, & Van Horn, 2007). Further, cultural reproduction and cultural capital theories are increasingly used to frame studies of educational experiences and outcomes, including college enrollment and success (Perna & Thomas, 2008; Walpole, 2008). I have focused this review on studies of effects of social structural and social capital factors on high school and college attainment published since 1995. While a sizable body of attainment research has focused on race or ethnicity gaps, this review will not explore these. Similarly, a large body of research focuses on social structural influences on grades, test performance, effort and other school outcomes; these are also not reviewed here. The review is not intended to be exhaustive of all research published in the timeframe, but to represent the major conceptual frameworks, methodologies, and measures used in research that links structural factors in family, school, and neighborhood with attainment.

The review is organized in the following manner: first, relevant literature examining the effects of family structural factors such as family size, family structure, and socioeconomic status is reviewed. Literature that defines family social capital measures is included here. These studies are presented in a matrix which outlines data sources, indicator variables, analysis, and outcomes variables (see Appendix B). Next, literature examining the effects of school and neighborhood/community structural factors, such as socioeconomic segregation is discussed. Finally, three recent qualitative studies that incorporate family, school, and neighborhood contexts to understand how socioeconomic status intersects with race and ethnicity to limit or enhance young people's attainment are highlighted. In the final section of the paper, the implications of the literature review for Studies #2, #3, and #4 of this project are discussed.

Family Structural and Social Capital Factors Related to Educational Attainment

Interest in the effects of family structure variables on educational outcomes has been prominent in the U.S. research literature since the publication of James Coleman's "Equality of Educational Opportunity" in 1966. Twenty years later, Coleman (1988) used data from the High School and Beyond Study (HSB) to demonstrate that certain family characteristics – two parents in the home, lower number of siblings, higher parental expectations, and intergenerational closure – are associated with staying in school. Coleman defined these characteristics as forms of "social" capital that are generated by parents in their relations with their children, with school agents, and with the parents of their children's friends. In contrast, French sociologist Pierre Bourdieu's (1986) concept of social capital built on theories of cultural reproduction to suggest that structural constraints (social class, gender, ethnicity) reinforce unequal access to resources.

Family size and structure

The results of research that links family size and structure with educational attainment generally show that higher attainment is related with smaller household size and two-parent family structures. For example, analyses of longitudinal data from the 1960s through early 1980s link "traditional" family structure (father in the home) with college enrollment and completion (Furstenberg & Hughes, 1995), and household size with years of schooling (Dyk & Wilson, 1999). Analyses of large scale panel data from the early and mid 1980s demonstrate that nontraditional family structure (i.e., single parent) and greater number of siblings predict dropping out of high school (Israel, Beaulieu, & Hartless, 2001; Smith, Beaulieu, & Israel, 1992). In recent years, these variables have become less visible in the sociology and education literature. I contend that this represents a conceptual shift in these fields to incorporate social and cultural capital explanations of educational achievement and attainment.

Parent education, occupation, and income

Education, occupation, and income are the three traditional components of socioeconomic status (SES), and status attainment theories have purported that one's social class is correlated with the social class of origin since the 1960s. Recently published studies illustrate the continued importance of SES in explaining educational attainment, but incorporate ecological influences and cultural explanations as well. Comparing high ability-low SES with moderate ability-high SES 8th graders in the U.S., Baker (2009)

found that the former were twice as likely to complete a bachelor's degree. These results, he indicates, suggest that ability is more important than SES for predicting economic mobility. Based on analyses of longitudinal and ethnographic data from rural Appalachian youth, Brown and colleagues (2009) found that lower exposure to family poverty and higher levels of parent education were associated with higher levels of attainment (high school and college graduation), and that community poverty and attainment levels were not significant in predicting attainment after adding family influences to their model. Similarly, Marie, Fergusson, and Boden (2008) found that controlling for parent education and income neutralized the predictive power of cultural identity in explaining years of schooling attained by Maori youth in New Zealand. Together these results suggest that the current practice of "controlling for" SES when studying other influences on attainment (e.g., cultural identity, academic ability), is an important one to ensure that the unique effects of those other factors can be estimated.

Social capital

During the late 1990s and early 2000s, research on educational attainment began to incorporate family social capital variables as possible predictors of high school graduation and college attainment, drawing primarily from the data available from the National Educational Longitudinal Study of 1988 (NELS:88) and other panel studies (see Dika & Singh, 2002 for an extensive review). Results of analyses of NELS:88 show that parental expectations and aspirations, parent-teen communication and parent monitoring, number of moves (residential stability), parent communication with school, and intergenerational closure predict high school completion (Carbonaro, 1998; Israel et al., 2001; Muller & Ellison, 2001; Teachman, Paasch, & Carver, 1996; Yan, 1999). Other longitudinal studies evidence the importance of intergenerational closure, parents' social network, parent monitoring, number of friends known by parent, and parent involvement in the school in high school graduation and college enrollment (Furstenberg & Hughes, 1995; White & Glick, 2000). Moving is negatively related to these two outcomes (Hofferth Boisjoly, & Duncan, 1998). Family discussion, parents' influence and expectations, parent-school involvement, and parent monitoring have also been found to predict years of schooling (Dyk & Wilson, 1999; Kalmijn & Kraaykamp, 1996; López, 1996).

School and Neighborhood Structural Factors Related to Educational Attainment

Another explanation for educational attainment gaps focuses on socioeconomic segregation in schools and neighborhoods as possible causes of differential outcomes. Mayer (2002) notes that research on school finance and neighborhood socioeconomic composition provides a useful background to understand how such segregation affects attainment.

Rouse and Barrow (2006) summarize contradictory research in the area of school finance. While Hanushek (1989; 1996) has suggested that, after controlling for SES, school funding does not predict student achievement, other researchers have challenged his methods (Hedges, Laine, & Greenwald, 1994; Krueger, 2003). Increased funding to schools serving low income students has resulted in improved achievement, based on the analysis of federal Title I program evaluations (Borman &

D'Agostino, 1996). Other researchers have found that inequalities in school funding (per pupil spending) are linked to inequalities in teacher and school quality, and ultimately, in educational outcomes (Betts, Rueben, & Danenburg, 2000; Biddle & Berliner, 2003).

Research investigating neighborhood effects suggests the advantages and disadvantages of having “affluent” community members; they can generate benefits for their neighbors, but tend to win out against their more disadvantaged peers when competing in the school and the job market, creating more economically homogeneous neighborhoods (Mayer, 2002). Using U.S. census and Panel Study of Income Dynamics (PSID) data, Mayer (2002) suggests that increases in economic segregation between 1970 and 1990 did not affect overall educational attainment levels, but resulted in a widened gap between the attainment levels of low- and high-income children.

Qualitative Research on Structural Constraints

The aim of this review is quite narrowly focused on socioeconomic and structural factors related to attainment, which privileges the inclusion of quantitative research. I would like to highlight the following three studies as they represent the nature of qualitative research on attainment that investigates the “interactive effects” (Horvat, 2003) of race and ethnicity, gender, and class on young people’s trajectories, taking into account family, school, and neighborhood contexts.

Stanton-Salazar (2001) studied the social networks of Mexican American youth to develop a model of the principal factors affecting network development, particularly with school agents. These factors include stratification forces, counterstratification forces, subcultural forces, and societal hierarchies. He names seven forms of institutionally-based funds of knowledge that are essential for students to activate social capital: (a) institutionally-sanctioned discourse; (b) academic task-specific knowledge; (c) knowledge of how bureaucracies work; (d) networking skills; (e) technical funds of knowledge (computer use, studying, test taking, time management); (f) knowledge of the labor and educational markets, and (g) problem-solving knowledge. Stanton-Salazar also identifies the forms of institutional support that facilitate the activation process, including implicit and explicit socialization into institutional discourses, bridging connections to gatekeepers and other social networks, advocacy, modeling effective coping with stratification forces (help-seeking, problem solving), emotional and moral support, and personalized advice and guidance.

Horvat (2003) discusses the utility of Bourdieu’s concept of habitus to understand how educational experiences and outcomes are influenced by structural factors – namely, race and class. Horvat presents an example from a longitudinal study of African American women from college application through graduation. She asserts that race and class interact to shape how these women interpret educational opportunity, and that the meaning of race and class shifted for the students as they moved through different fields of interaction – high school through college.

Lew’s (2006) research on Korean-American dropouts draws on participant observation, interviews, survey and document analysis. He looked at how SES background, social capital, and school resources affect aspirations and attainment of Korean American youth in New York City. Lew references the work

of Stanton-Salazar (2001), and notes how economic, linguistic, and cultural barriers limit access to institutional support and accumulation of social capital for low income Korean Americans. He also explores the “ineffective” learning environment and lack of caring relationships with school personnel as barriers to continuing in school. Lew found that these young people were highly aware of their “otherness” as minority and low income status. Lew suggests that variability within ethnic groups must be critically examined to understand barriers to developing and accessing resources in social networks.

Summary

The research evidence overwhelmingly confirms that social structural factors restrict and facilitate educational attainment. Research on family structures and social capital generally demonstrates positive links between higher SES and educational attainment. Most of the studies utilizing social capital have conceptual and methodological limitations, including conceptual validity. Studies on school and neighborhood structural factors suggest that socioeconomic segregation and educational attainment gaps may perpetuate one another, and that gaps between low income and high income groups will continue to widen.

This review helped provide a conceptual framework and justification for the focus of the project on socioeconomic stratification of educational attainment in Puerto Rico. The strengths and limitations of previous research informed the selection and operationalization of variables in Studies #2 and #3, and provided a context for the creation of the interview protocol for Study #4.

- Parent education and income are important variables that must be modeled as part of students’ socioeconomic status (SES).
- Social capital variables – such as interaction with parents or with educational agents – may also help explain educational attainment; but some researchers have criticized the measurement of social capital in educational research, citing that it primarily acts as a proxy for SES (see Dika & Singh, 2002 for a discussion).
- In studies on educational attainment among marginalized groups, it is essential to ask participants about understandings of the barriers they and others faced in their homes, schools, and communities to continuing their education through and beyond high school.

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3 Mapping Educational Attainment in Puerto Rico: Development of a Database

Walter Díaz

Introduction

The objective of this study was to develop a geographic data base, using US Census data, which could be used with GIS technology to generate educational attainment maps for blocks, block groups, census tracts, and municipalities of Puerto Rico. A report on this study was submitted to the CESPR in June 2009 as part of the preliminary report on the project. This final report includes a summary of the method for creating the maps and some examples. The geographic databases (PASW 17 files) and their descriptions (Appendix B) have been provided separately as electronic files.

Creating Maps

The maps presented in this section of the report illustrate how researchers can use the database with ArcGIS to generate maps of specific socioeconomic and education characteristics. The maps were created using ArcGIS version 9.2 by combining geographic and demographic data into a single geographically referenced database. The geographic data used were obtained from US Bureau of the Census TGER Line files. These files contain the information necessary to produce maps for most of the geographic units utilized by the Census Bureau to collect and aggregate census data and to present it to the public. These geographies include:

1. census blocks
2. block groups
3. census tracts
4. counties

Other geographies, such as “places”, are also available, but they are of reduced analytic value either because of limitations with the data available for them or because of the way they are defined by the Census Bureau. We add that from an analysis perspective the most useful level of aggregation by far is the block group. The usefulness of the census blocks is severely limited because the Bureau of the Census does not publish the most important socioeconomic status variables relating to income, and education for this level of aggregation to protect the privacy of respondents from sparsely populated blocks. Census tracts and counties are limited because of significant problems with aggregation that occur because of their usually large populations and geographic extent.

The demographic data are obtained from the 2000 Census SF3a (Summary File 3A) data file. This file contains the demographic data collected by the Census for the above listed geographies. Using PASW 17 software (formerly SPSS) we recoded many of the original census variables, computed new ones and

converted the resulting data set into DBASE IV which is the default format for table files in ArcGIS. Finally, the ArcGIS “join” function was used to integrate the DBASE IV data file into the corresponding ArcGIS geographic shapefile. The result is a geographic database containing geographic data with their demographic information. This electronic database was provided to CESPR as part of the deliverables of the project.

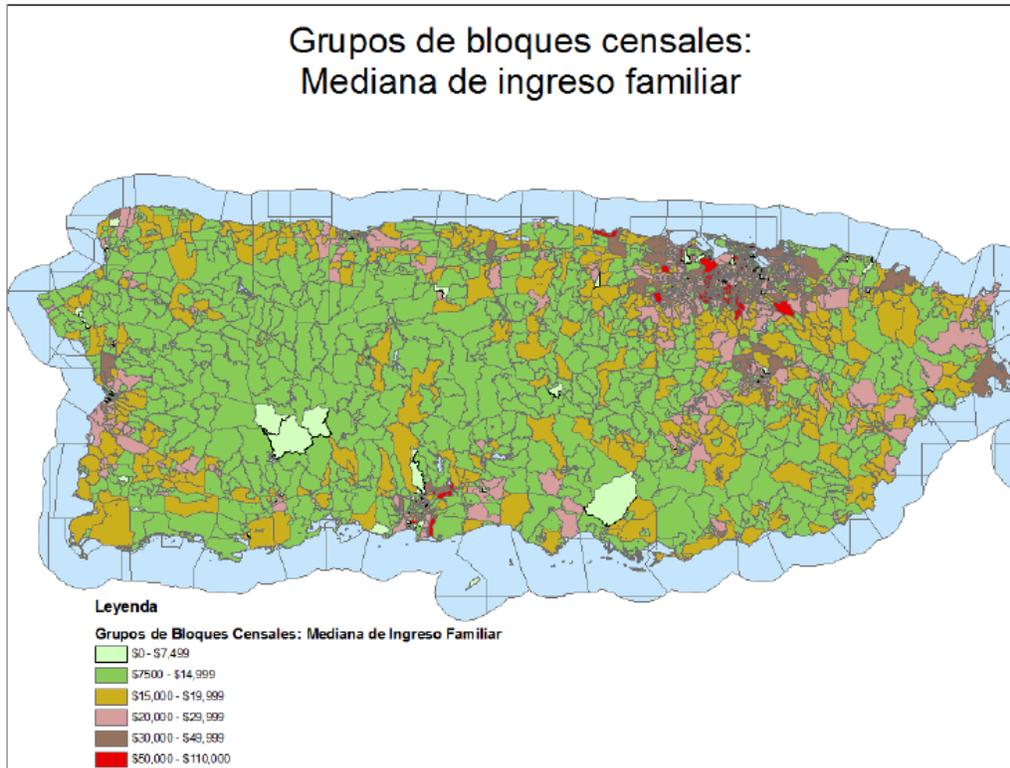
Sample Maps

The maps presented here correspond to the block group geography because this is the smallest geographic unit for which the Census Bureau publishes the critical income and education data that are central to our research. These data are available for census tracts and counties, but their analytical value is severely reduced because the large size of these areas compounds the problems inherent to aggregation. Maps can be produced for most of the numeric variables included in the *grupos de bloques con vivienda pública identificada.sav* file.

The following maps and their descriptions are provided as examples that can be generated using the data bases and GIS application. The possibilities are as extensive as the variables in the data bases.

1. Median family income, by Census block group
2. Proportion of adult population over 25 years without high school completion, by Census block group
3. Proportion of adult population over 25 years with bachelor’s degree or better, by Census block group
4. Proportion of population enrolled in public universities, by Census block group
5. Proportion of population enrolled in private universities, by Census block group
6. Median family income, public housing and location of institutions of higher education in a portion of the San Juan Metropolitan Area

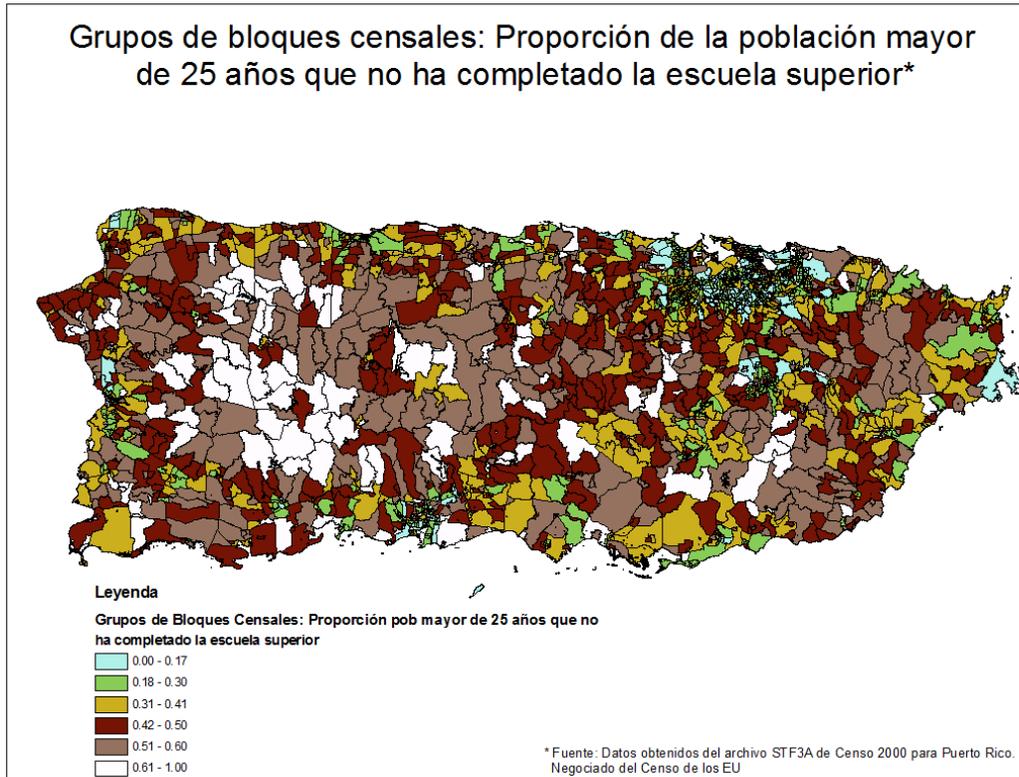
Map 1. Median family income, by Census block group



Map 1 shows the distribution of median family income by census block group throughout the Island. As expected, the highest incomes are found in the San Juan metropolitan area and to a lesser extent in the Ponce and Mayagüez areas.

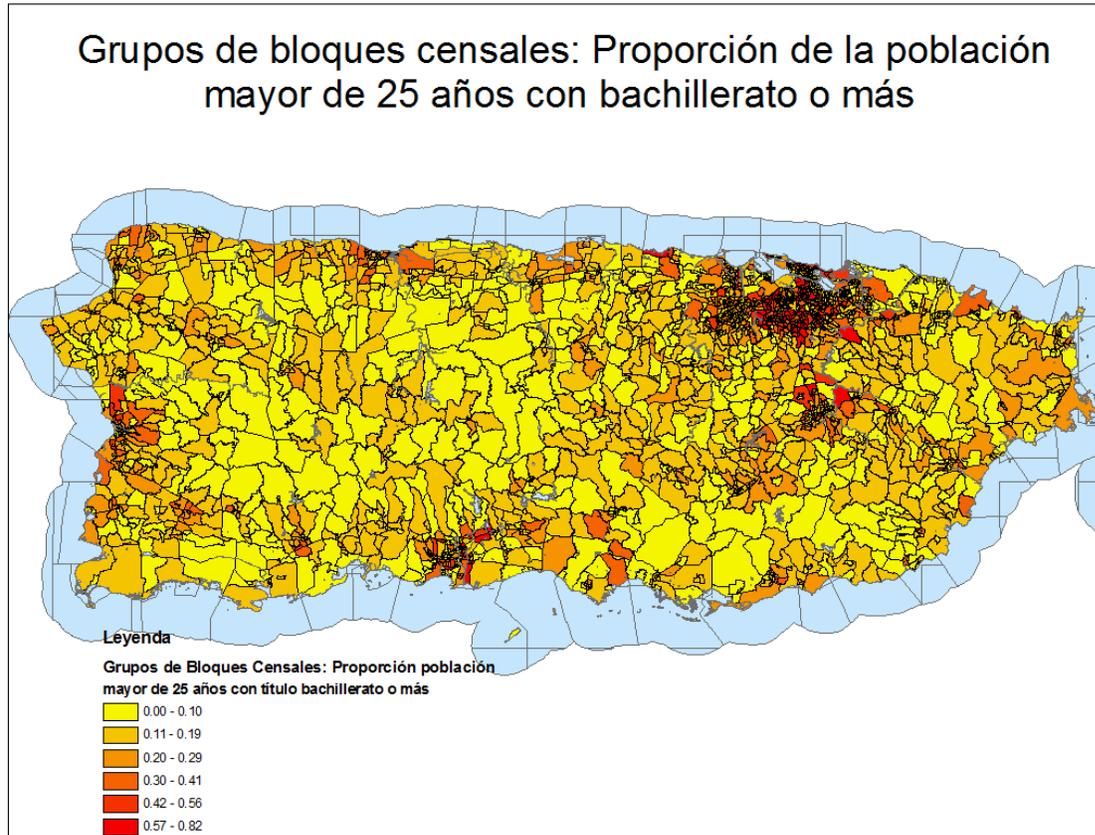
Map 2 (below) shows the proportion of the population 25 years and older for the same geographies that has not completed a high school degree. Compared to Map 1 we can see that, not surprisingly, there is an inverse relationship between their spatial distributions.

Map 2. Proportion of population over 25 years of age without high school completion, by Census block group



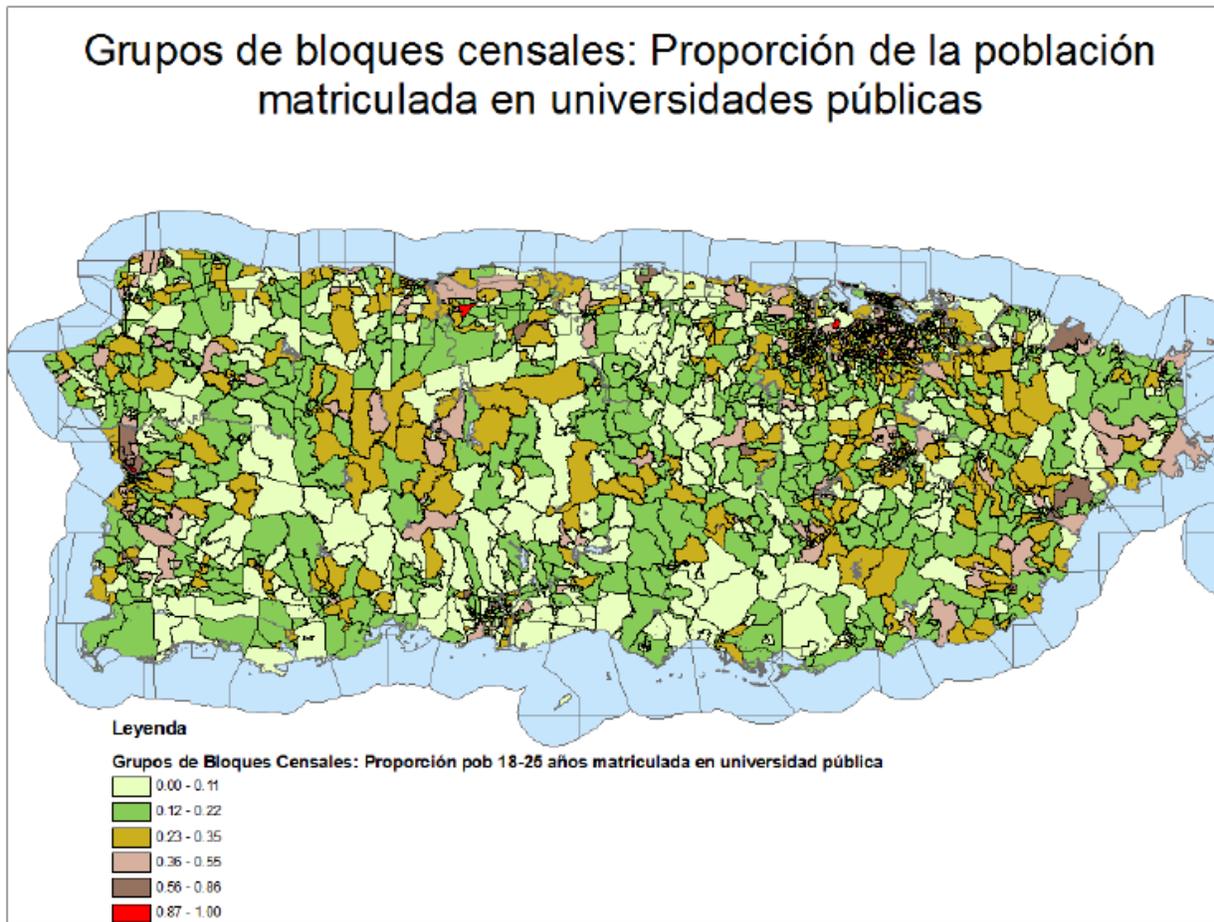
Map 3 (below) shows the proportion of the population over 25 years of age that has completed a bachelor's degree or better for each block group on the island. Once again, the usual relationship between income (from Map 1) and educational attainment appears to be obtained.

Map 3. Proportion of population over 25 years of age with a bachelor's degree or better, by Census block group

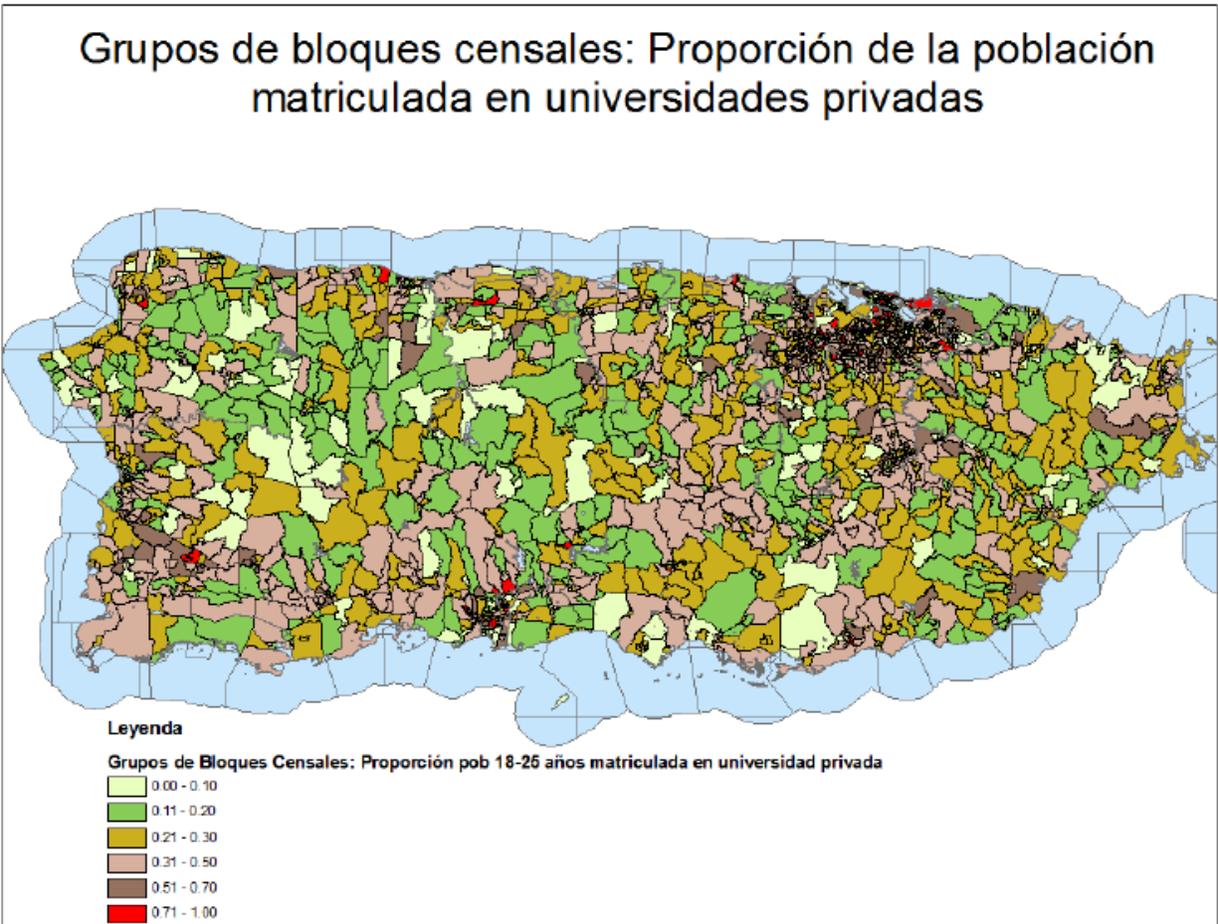


Maps 4 and 5 show enrollment information (college aged population) for public and private universities, respectively. In Map 4, an element that could impact analyses based on geographically aggregated data is observed. There are block groups with up to 100% of the college aged population enrolled in the public university system. The areas where this occur tend to be (though not always) associated with the location of major campuses and thus are highly likely to have large populations of university students residing in them. It is interesting to note that when Maps 1 and 2 are examined many of these same areas tend to show very low incomes and relatively low educational attainment, something not usually expected given what we know about the relationship between SES and college enrollment and educational attainment. A possible explanation for this is that many of these students may have filled out census forms wherein they reported their individual incomes, but not their family incomes. Thus these areas with very high concentrations of students living on their own in dorms or rented houses or apartments will show relationships between income and higher education enrollment that are contrary to usual expectations.

Map 4. Proportion of population enrolled in public universities, by Census block group



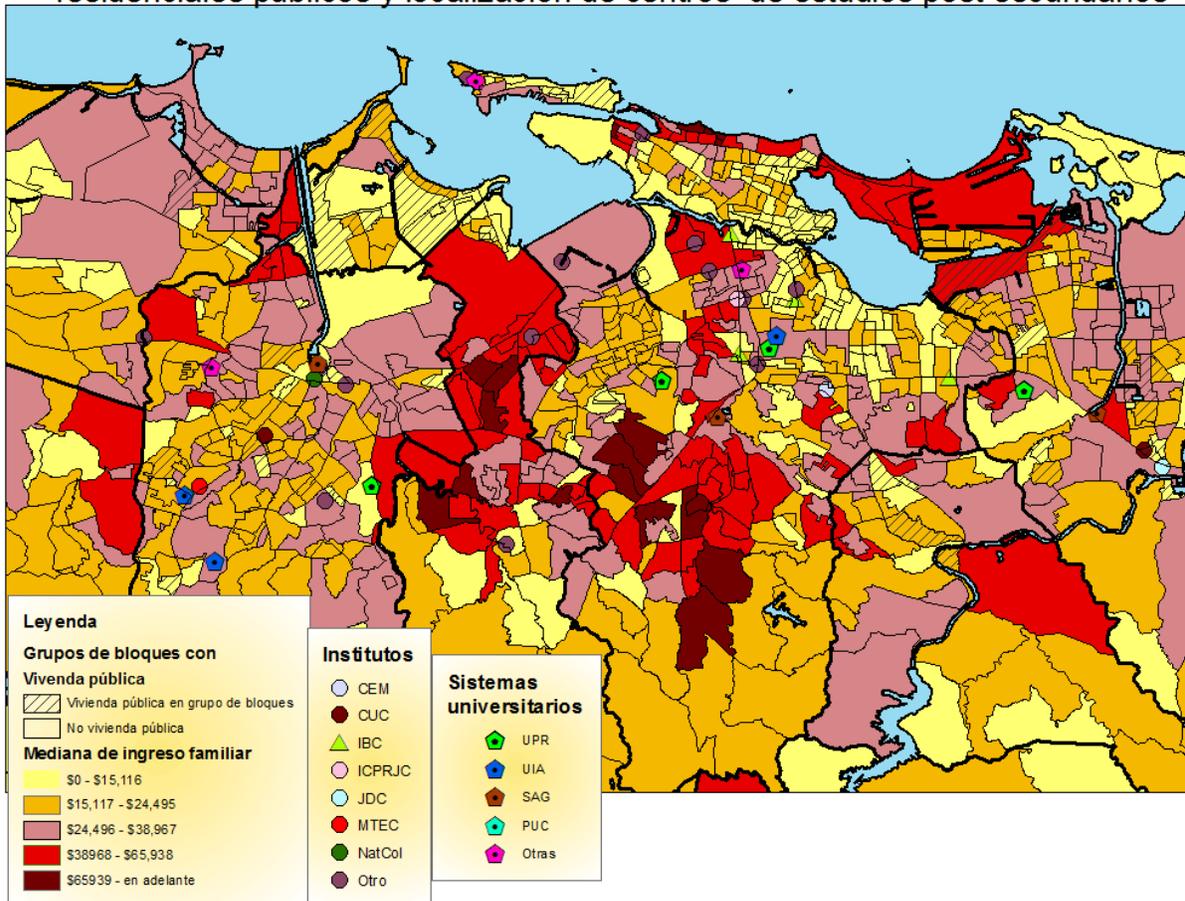
Map 5. Proportion of population enrolled in private universities, by Census block group



Finally, we present Map 6 (below) to illustrate the power of geographic depiction. Due to scaling issues, these maps can only depict relatively small areas while remaining interpretable. Map 6 shows the relationship between median family income and the location of public housing projects on the one hand, and the location of two and four year institutions of higher education, on the other, for a portion of the San Juan metropolitan area. The map suggests that many of the two year institutes are located within, or on the periphery, of lower income areas. Though this finding requires further and more sophisticated analysis using specialized spatial analysis software, it does illustrate the ability of visual depictions of data to suggest interesting new areas of inquiry.

Map 6. Median family income, public housing, and location of institutions of higher education in a portion of the San Juan Metropolitan Area

Porción área metro de San Juan: Mediana de ingreso familiar, localización de residenciales públicos y localización de centros de estudios post-secundarios



Summary

The geographic databases developed for this study represent a powerful tool to study socioeconomic and education variables in Puerto Rico. The possibilities for the generation of maps are nearly infinite, and the maps provided in this report are samples of some basic ones to start discussion and guide future inquiry by higher education researchers in Puerto Rico. In addition to being useful for the development of institutional and island-wide policies and practices, the maps are excellent tools for communicating with the broader public due to their visual appeal.

4 Socioeconomic Factors and Persistence: Evidence from the University of Puerto Rico

Sandra L. Dika⁵

Introduction and Purpose

Access to and success in higher education for low-income students has emerged as a focus in recent years given the ever-increasing importance of the bachelor's degree for social mobility (e.g., Bowen, Kurzweil, & Tobin, 2005; Tinto, 2006). Among the most prominent theoretical and conceptual models used to examine student success in college are cultural reproduction, cultural capital, and status attainment theories (Perna & Thomas, 2008; Walpole, 2008), emphasizing the influence of social class origins on educational outcomes. This study utilized data from one public four-year institution in Puerto Rico – the University of Puerto Rico-Mayaguez Campus - to examine the effects of socioeconomic factors and academic preparation on first to second year retention.

Socioeconomic factors, including parent education, income, and social capital, are associated with educational attainment and achievement (see Section 1 of this report for a review). While college completion is a classic attainment measure, retention is another indicator of attainment that is used in higher education research. Given that the probability of dropping out of college is highest in the first year (Levitz, Noel, & Richter, 1999), retention to second year of studies serves as an indicator of likelihood to graduate. Overall, higher education research shows that socioeconomic factors including family income and parent educational attainment are positively associated with student retention in college (e.g., Hossler & Vesper, 1993; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980). More recent research has focused on lower retention rates among students whose parents did not complete college, or “first-generation” college students (Horn, 1998; Ishitani, 2003, 2006; Nunez & Cuccaro-Alamin, 1998; Riehl, 1994).

Academic preparation reflects college readiness (Perna & Thomas, 2008), and prior academic achievement is positively linked to persistence in college (Braxton, Duster, & Pascarella, 1988; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980). In a recent study of 20 years of national data, researchers from ACT found that high school GPA and standardized test scores are the academic factors most strongly associated with college retention (Lotkowski, Robbins, & Noeth, 2004). Further, it is known that academic preparation, including tracking and advanced course taking, is linked to social class (Cabrera & LaNasa, 2000; Gamoran, Porter, Smithson, & White, 1997), demonstrating the complexity of the study of the contribution of academic and background characteristics to educational outcomes.

⁵ The author acknowledges the contribution of Dr. David González, Professor of Industrial Engineering at UPRM, in the data preparation and analysis for the first set of analyses described in this section. Dika and González presented a preliminary version of this work at the 2009 Association for Institutional Research (AIR) Forum (see references).

Relatively little research has been done to examine the predictors of college retention outside of the United States. In the case of Puerto Rico, we could find no published research on this topic. This study addresses this gap through investigation of the predictive ability of academic preparation and social structural factors on retention using two different data sets compiled from the University of Puerto Rico-Mayaguez data bases. The exploratory analyses involved modeling academic preparation and socioeconomic factors as predictors of retention.

Slightly different family and school socioeconomic measures are used in each of the two analyses, to explore their utility and appropriateness. Selection and operationalization of these variables was guided by the findings of the literature review conducted in Study #1. In the first analysis, socioeconomic status was measured as the student belonging to one of four family income-education groups based on first generation status and income category (low vs high). Based on the known importance of school structure variables, we also included socioeconomic and achievement variables from the student's high school of origin. School composition variables included average English achievement and proportion first generation, among students admitted to UPRM. We were unable to access any neighborhood level variables due to the limited information available in the UPRM database and the limited time frame for completion of this study.⁶ In the second analysis, family structural variables available from financial aid application data (size, parent marital status, teen mother), first generation status, and parent income are included as socioeconomic background factors, while school type (public vs private) is included as a measure of school socioeconomic composition.

Methodology

Sample

This study involves the use of two different samples of student data from UPRM. The samples were created by the researchers from existing data based on availability of valid and reliable data. While they overlap somewhat, together they represent an eleven year time span of UPRM entering freshmen between 1998 to 2009.

The sample for the first analysis was composed of the records of 5,987 undergraduate students selected from the entire population of first-time undergraduate students entering UPRM between 1998 and 2006 (N=20,151). The criterion for inclusion in the sample was based on two extremes of family income: from below \$7,499 to \$14,999, and \$40,000 or higher. These ranges represent the first three and last two income ranges on the UPR admissions form. The categories were labeled low-income and high-income, roughly equivalent to the two lower quintiles and the top quintile of median family incomes in Puerto Rico, based on the 2007 American Community Survey.

The sample for the second analysis included records of first-year, first time degree seeking students who

⁶ Using the Census and GIS database created for Study 2 of this project, in future analyses we should be able to add neighborhood level socioeconomic variables to allow modeling of neighborhood effects.

applied for financial aid to study at UPRM between 2005 and 2009 (n=7,006). Student records were included in the sample if they were admitted to and enrolled in UPRM.

Data Sources

This study utilizes admissions and enrollment data available in the student information system at the institution. There are a limited number of socioeconomic variables available in these databases; essentially, parent income and education; based on the information that students provide during the admissions process. The income measure is truncated at the higher end, as the final category includes incomes of \$50,000 or higher. We obtained data from the financial aid application process (FAFSA) for the second set of analyses, specifically to allow us to model social structure and socioeconomic variables that are not available in the admissions and enrollment data; for example, family size, parent marital status, and exact family income; which have shown to be important predictors of attainment in previous research. Personnel from the UPR Office of the Vice-President of Student Affairs, the UPRM Information Technology Center, and the UPRM Office of Institutional Research and Planning were instrumental in obtaining and preparing the data from various databases. The data files were provided in Excel format, and merged files containing the variables of interest were created. These files were exported to Minitab (Analysis 1) and SPSS (Analysis 2) to carry out the descriptive and statistical analyses.

Variables

All variables used in the analyses, along with names, descriptions, and descriptive statistics, are shown in Tables 1 (Analysis 1) and 2 (Analysis 2).

Previous academic achievement. Students' scores on standardized university admission tests and high school GPA are used as measures of previous academic achievement. The achievement and aptitude tests (Prueba de Evaluación y Admisión Universitaria, or PEAU) were developed by the College Board for Puerto Rico, and have the same scoring as the SAT (range 200 to 800). English achievement and mathematics aptitude are included in Analysis 1, along with Spanish verbal aptitude in Analysis 2. Both analyses included measures of high school GPA (four point scale). These academic achievement variables were chosen because they represent the components of the admission index for the University of Puerto Rico.

Individual socioeconomic factors. In Analysis 1, the variable family income-education group was created by combining a student's income status (low= below \$7,499 to \$14,999 and high=\$40,000 or higher) with first generation status. While the first and last categories of the admissions income scale (below \$7,499 and \$50,000 or higher) roughly represent the top and bottom quintiles of median income in Puerto Rico, we included additional categories on either end to have a sufficient number of cases for analysis. While "first generation" status is often defined as neither parent having completed a four-year degree, we defined "first generation" in Analysis 1 as students for whom neither parent had attained any more years of schooling beyond a high school degree. This definition was considered to be more appropriate for the Puerto Rican context, as any years of schooling beyond high school generally

represent a significant difference in income and occupational options. First generation status was computed by recoding mother's and father's education variables, then computing a single parent education variable. In Analysis 2, parents' gross income, number of family members, parents' marital status (1=married, 0=other), whether mother was teen mother (19 or younger), and first generation status were all included as structural factors. In the second analysis, the more traditional definition of first generation was used; that is, students were defined as first generation if neither parent had completed a bachelor's degree. In both analyses, students who are not first generation are called "continuing generation".

School composition. For Analysis 1, the average English achievement score (school level English achievement) and the proportion of first generation students (school level first generation) at the students' high school of origin were included as measure of school composition. The estimation of these school level values is limited because it could only be calculated for students admitted to UPRM. While these variables do not provide an accurate representation of the composition of the students' schools of origin, we can use them in a cautionary way to investigate the relevance of school composition to retention. In Analysis 2, school type (public vs private) was the sole measure of school composition.

Retention. The dependent variable for both of these analyses is retention, measured as a dichotomous variable (0=student did not re-enroll in first semester of second year; 1=student re-enrolled in first semester of second year).

Table 1. Descriptions of previous academic achievement, individual socioeconomic factors, and school composition factors modeled in the prediction of retention in Analysis 1

Variable	Description and Possible Values	Mean	SD
High school GPA	High school GPA (2.00 to 4.00)	3.56	0.40
Standardized English achievement	Score on PEAU English achievement test (200-800)	594.28	103.96
Standardized math aptitude	Score on PEAU Mathematics aptitude test (200-800)	645.97	87.11
Family income and education (dummy variable)	Low-income, First Generation (reference) Low-income, Continuing Generation High-income, First Generation High-income, Continuing Generation	--	--
School-level English achievement	Average PEAU English achievement test score amongst admitted UPRM students from same school of origin (200-800)	585.77	55.20
School –level first generation	Proportion of students classified as first generation amongst admitted UPRM students from same school of origin (0.00-1.00)	0.26	0.17

Table 2. Descriptions of previous academic achievement, individual socioeconomic factors, and school composition factors modeled in the prediction of retention in Analysis 2

Variable	Description and Possible Values	Mean	SD
High school GPA	High school GPA (2.00 to 4.00)	3.67	0.34
Standardized English achievement	Score on PEAU English achievement test (200-800)	562.01	112.59
Standardized math aptitude	Score on PEAU Mathematics aptitude test (200-800)	621.27	87.50
Standardized Spanish aptitude	Score on PEAU Spanish aptitude test (200-800)	579.81	71.97
First generation status (dummy variable)	Whether at least one parent completed a bachelor's degree (0=no, 1=yes)	--	--
Parent income	Parents' gross income reported on FAFSA for year of admission (\$)	\$30,074.16	\$29,877.38
Number of family members	Number of members in family as reported on FAFSA for year of admission	3.85	1.38
Parents married (dummy variable)	Whether parents were married as reported on FAFSA for year of admission (0=no, 1=yes)	--	--
Teen mother (dummy variable)	Whether mother was 19 or younger when student born as reported on FAFSA for year of admission (calculated using mother and student years of birth) (0=no, 1=yes)	--	--
Public school attendance (dummy variable)	Whether student attended public or private high school (0=private, 1=public)	--	--

Data analysis

Descriptive statistics, including correlations, as well cross-tabulations and ANOVA were conducted prior to conducting logistic regression analyses, to determine the relations among variables in the models and to make the final selection of variables to include in the models. Logistic regression was used because the dependent variable, retention, is dichotomous (yes/no). Tables showing the results of these analyses are provided in Appendix C; only their results are summarized in the report. While Microsoft Excel was used to compile the databases, data were exported to other programs for analysis. The statistical packages Minitab (Analysis 1) and SPSS (Analysis 2) were used to run all analyses. All statistical tests were evaluated at the $\alpha=.05$ level.

Results

Analysis 1 Results

The descriptive statistics (means, standard deviations) for the variables used in this analysis are shown in Table 1. The correlations between the variables (see Appendix C) were all positive and statistically significant at the $p < .001$ level. The strongest correlation among the individual variables was between English achievement and math aptitude ($r = .46$). The correlation between the two school composition variables was $-.83$, illustrating the hypothesized relationship between socioeconomic status and English knowledge. School level English achievement was negatively related to GPA, while proportion of first generation students at the school level was negatively related to the standardized English and math test scores.

Next, a series of ANOVAs were conducted to determine if differences in academic achievement existed among the four family income and education (FIE) groups (Appendix C). High school GPA was significantly higher for low income students, regardless of parent education level. This result seems to reflect the known phenomenon that GPA are higher for public vs private school students at UPRM, and that low income students are more concentrated in public schools island-wide. English achievement was significantly higher for high income students, regardless of parent education level; and English achievement was significantly higher for low income/continuing generation students than for low income/first generation students. College academic achievement (first year GPA) was significantly higher for high income/continuing generation students compared to all other groups, but there were no differences among the other 3 groups. These results indicate that socioeconomic factors clearly seem to be a factor in college academic achievement for this sample.

The logistic regression model is shown in Table 3. Three individual level factors were statistically significant for predicting retention: high school GPA ($z = 14.30$, $p < .001$), standardized math aptitude ($z = 3.37$, $p < .01$), and family income and education; as expected, high-income/continuing generation students were more likely to persist to second year than low-income/first generation students ($z = 4.01$, $p < .001$). None of the school factors were significant for predicting retention.ⁱ

Table 3. Logistic regression analysis of retention from first to second year of college, Analysis 1 (n=5,987)

Predictor	B	SE B	Z	p	Odds Ratio
High school GPA	1.50	0.11	14.30	.00	4.49
Individual English Achievement	-0.00	0.00	-1.02	.31	1.00
Individual Math Aptitude	0.00	0.00	3.37	.00	1.00
Proportion First Generation (School)	-0.01	0.00	-1.67	.10	0.99
Average English Achievement (School)	0.00	0.00	0.97	.33	1.00
Low income/continuing generation (0=low income/first generation)	0.12	0.13	0.92	.35	1.13
High income/first generation (0=low income/first generation)	-0.03	0.21	-0.15	.88	0.97
High income/continuing generation (0=low income/first generation)	0.50	0.13	4.01	.00	1.66

Analysis 2 Results

Means and standard deviations for the variables in Analysis 2 are presented in Table 2. Prior to conducting the logistic regression analyses, I conducted some exploratory cross-tabulations. First, I crossed gender with first generation status and retention. The results indicated that both of these factors are not independent of gender in the sample. First generation students are more likely to be women ($\chi^2=27.77$, $p<.001$), as are students who persist to the second year of studies ($\chi^2=27.85$, $p<.001$). Based on these findings, I decided to run separate regression models for men and women to see how well the selected factors predict retention based on gender. The other cross-tabulations indicate that retention status is not independent of first generation status, school type, whether the mother was 19 or younger at student's birth, and whether parents are married. These results suggest that the variables selected for the model are appropriate ones for predicting retention.

The logistic regression analyses for men and women are shown in Tables 5 and 6. Standardized scores of the continuous variables in the model; test scores, GPA, income, and number of family members; were used to aid in the interpretation of odds ratios. Four predictors were statistically significant in the prediction of young men's retention in college – high school GPA ($\chi^2=131.468$, $p<.001$), mathematics aptitude ($\chi^2=5.238$, $p<.05$), Spanish aptitude ($\chi^2=3.67$, $p<.05$) and school type ($\chi^2=3.380$, $p<.05$). Young men from private schools are 1.27 times more likely to persist to the second year of studies than those from public schools.

Table 5. Logistic regression analysis of men’s retention from first to second year of college, Analysis 2

Predictor	B	SE B	Wald’s χ^2 (df=1)	p	Odds Ratio
Z- Individual Spanish Aptitude	0.120	0.062	3.761	.052	1.128
Z -Individual Math Aptitude	0.133	0.058	5.238	.022	1.142
Z- Individual English Achievement	-0.012	0.062	0.036	.850	0.988
Z- High school GPA	0.567	0.049	131.468	.000	1.764
Z- Parents’ gross income	0.042	0.068	0.393	.531	1.043
Z- Number of family members	-0.051	0.062	0.685	.408	0.905
Parent education (0=first generation; 1=continuing generation)	-0.057	0.112	0.263	.608	1.059
Parent marital status (0=married; 1=not married)	-0.049	0.129	0.144	.704	0.952
Mother’s age when S born (0=teen mother; 1=not teen mother)	-0.035	0.223	0.025	.874	0.965
School type (0=public; 1=private)	0.235	0.120	3.380	.050	1.265

Table 6. Logistic regression analysis of women’s retention from first to second year of college, Analysis 2

Predictor	B	SE B	Wald’s χ^2 (df=1)	p	Odds Ratio
Z- Individual Spanish Aptitude	0.113	0.067	2.803	.094	1.119
Z -Individual Math Aptitude	0.044	0.067	0.425	.514	1.045
Z- Individual English Achievement	-0.069	0.068	1.015	.314	0.933
Z- High school GPA	0.443	0.051	74.654	.000	1.558
Z- Parents’ gross income	0.034	0.071	0.230	.631	1.034
Z- Number of family members	-0.102	0.068	2.231	.135	0.903
Parent education (0=first generation; 1=continuing generation)	0.233	0.125	3.501	.061	1.263
Parent marital status (0=married; 1=not married)	-0.349	0.134	6.783	.009	0.705
Mother’s age when S born (0=teen mother; 1=not teen mother)	0.379	0.199	3.608	.057	1.460
School type (0=public; 1=private)	0.310	0.141	4.860	.027	1.364

The logistic regression model to predict young women's persistence in college showed a slightly different pattern of statistically significant predictors - high school GPA ($\chi^2=74.654$, $p<.001$), parents' marital status ($\chi^2=6.783$, $p<.01$), and school type ($\chi^2=4.860$, $p<.05$). Young women whose parents are married are 1.4 times more likely to persist than those whose parents are not married (1/.705). Finally young women who attended private school are 1.3 times more likely to continue to second year studies than young women who studied at public schools.

The logistic regression analyses in this second analysis revealed some gender-based differences in academic preparation and socioeconomic factors that predict retention. Young men's persistence appears to be related to academic preparation (College Board scores, high school GPA), and attending private school, while young women's persistence is related to high school GPA, parents' marital status, and private school attendance.

In an exploratory vein, I conducted an additional logistic regression analysis, leaving school type out of the model, to see if any of the other socioeconomic factors would become significant predictors. None of the socioeconomic factors were significant predictors of men's retention. However, first generation status and whether mother was a teenage mother, were statistically significant, favoring young women's whose families have higher education levels and women whose mother was over 19 years when she was born.

Discussion and Conclusions

There is scarce research available on factors that predict college student retention in Puerto Rico. Retention is an important indicator of educational attainment, as it approximates the likelihood to graduate from college. This study included several measures of two factors identified in the research literature – socioeconomic indicators and academic preparation – to determine whether these factors are important in the prediction of student persistence.

In the first set of analyses, high school GPA and math aptitude were shown to be important predictors of staying in college, as well as the family income and education. These results have particular implications for policy and practice at the UPR and other universities in Puerto Rico. Both high school GPA and math aptitude are included in the admission index for UPR, thus, the results demonstrate that those requirements are appropriate ones for admitting students that are most likely to complete university studies. However, knowing that socioeconomic factors – parent education and income - affect a student's chances of continuing and completing university studies suggests that institutions must have resources and supports in place to assist those students. In particular, first generation students are a group that institutions should target for improved and extended orientation services. It is in both the individual and public interest that the retention and graduation rates of our institutions improve, and institutions must make conscious efforts to improve retention to fight impressions that “solo los duros pueden.”

The second set of analyses were undertaken to incorporate several social structural variables and determine whether these would result in a more suitable model for predicting retention. The decision to analyze the models separately for men and women was made after examining the first generation and retention differences between these groups. Contrary to expectations, the parental income variable (gross income) and the number of family members did not make significant contributions to the prediction of retention for either men or women. The only socioeconomic variable that was important for predicting retention for both groups was attendance at a public high school; that is, that students from public schools are less likely to persist at UPRM than from private schools. Given that the College Board scores for public school students tend to be lower, this may partially explain this result. However, College Board scores were included in the model, so there are possibly other factors at play. Given that about 60% of the incoming student population comes from the public sector, UPRM must do a better job of trying to understand why this is happening and to determine how to improve the retention of these groups.

The most interesting result of the second analysis was indeed the differences between the models for men and women, and how family background characteristics may affect them differently at the moment of continuing their education. Additional research using these data should explore other combinations of the socioeconomic variables, for individuals, schools, and neighborhoods – perhaps incorporating census tract data developed in Study #2. These results raise questions about how boys and girls are socialized, and whether their educational trajectories and motivations are similar as they aspire to complete a college education. Research utilizing data from other public and private institutions in Puerto Rico would be an important next step to understand whether these findings are institutionally-specific, or indicative of a broader cultural trend. Given that we know that retention rates tend to be lower for men, it also suggests that institutions should be working to figure out which young men we are losing and how to better retain them, perhaps through mentoring programs.

While these results were obtained from analyses of data from a single institution in Puerto Rico, they shed light on class-based differences in the experiences of higher education in Puerto Rico. If other institutions are doing these types of analyses for institutional research purposes, these results should be shared more widely so that institutions may work together to use limited resources to improve educational attainment island-wide. Further, there should be more basic data available for analysis, from both the public and private higher education sectors, to allow a more comprehensive analysis of the effects of socioeconomic factors on higher education attainment in Puerto Rico.

Endnotes

- i. As a follow up to the logistic regression in Analysis 1, a stepwise regression was conducted to explore how well the individual and social level variables predict achievement in college. Achievement was measured using first year GPA. Alpha to enter and remove variables was set at .15. Overall, the model explained 35% of variance in first year GPA, illustrating the appropriateness of the variables selected. High school GPA made the strongest contribution (26%), echoing the results of the logistic regression model for retention. While neither of the

school composition variables contributed to the prediction of retention, school level English achievement explained an additional 7% of the variance in first year GPA. The other factors that contributed to the prediction of grades included math aptitude, English achievement, and family income-education. High income/continuing generation students had higher first year GPA than low income/first generation students, while the low income/first generation students had better results than high income/first generation students.

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5 Barriers to Educational Attainment: College Access and Urban Poverty

Rima Brusi-Gil de Lamadrid

"The sociological imagination enables us to grasp history and biography and the relations between the two within society. That is its task and its promise."

C. Wright Mills, The Sociological Imagination, 1959, p. 6

1 - Subject, Method and Analytical Process

The spaces (and the inhabitants) of public housing in Puerto Rico periodically become the target of a largely unwanted storm of media attention. Recent instances of such attention are the Commonwealth's decision, in January 2010, to establish a fixed rate for utilities for residents of public housing projects, and the massive police intervention in Llorens Torres as a form of "prevention" in February. The first of these instantly generated an energetic, largely negative, popular reaction: within hours of the announcement, a Facebook group had been created against the measure, and it quickly reached thousands of members, many of whom left "wall posts" accusing residents of laziness, of having expensive electronic devices, and of being "parasites". A counter-group created in favor of the residents' "dignity and identity" barely reached a couple of hundred supporters. In the February 2010 police intervention, the Chief of Police asked "the decent people of Llorens" to come forward and help the police unmask and extirpate "the criminals" from the housing project. When asked about the purpose of the police occupation, he repeatedly referred to residents in general, and to those likely to kill or get killed, as "them", against the "us" represented by the state, an "us" carrying out a "war" in that space, following a societal wish for "zero tolerance for crime"(Colón Dávila, 2010). A few months before, upon learning of a video that kids from another housing project had done depicting (role-played but realistic) scenes of death, drug dealing and violence, a flurry of activity unfolded in the agencies of the state that most often deal with these spaces of urban poverty: the Department of the Family, whose secretary expressed her concern not so much about the realities of daily life for the urban poor but about the particular parents of the particular children involved in videotaping such "negative" things, and quickly spoke of (threatened with?) home removals, and the Police, who made reference to the difficult investigation ahead of them and to potential crimes committed by the parents. In spite of police misgivings, the next day the press gained easy access to the children, their families, and the information they needed about the home video (Texidor, 2009). These incidents illustrate, however, the tendency to "other" the residents of public housing in Puerto Rico. Against an imagined, "typical" Puerto Rican, assumed as middle class and employed, the people who live in public housing, and the very spaces defined as such, are the focus of much stereotyping, blame, projection, and scapegoating (see Brusi, 2010; Santiago Valles, 1995).

The many difficulties facing residents of what are commonly called *residenciales* or *caseríos* are less discussed, and in fact the voices of those who actually live in such spaces are largely absent from the public discussions about them. The present paper deals with one specific issue: Low-income Puerto Ricans in general, and residents of certain areas in particular, have significantly lower rates of educational attainment. Based on previous work and on institutional data, we already knew that people living in Mayagüez public housing projects were very underrepresented in the student body of the University of Puerto Rico at Mayagüez, in spite of being located at walking distance from campus. The resulting case study, presented in this segment, complements the large data sets provided in the other two sections of this report and explores ten biographical narratives of residents of diverse ages, educational levels, and life paths.

Cultural biography is a qualitative research approach that acknowledges the inseparability of individual lives and socio-historical context. As process, it strives to understand individual motivations, actions, trajectories, and decisions by paying attention to cultural and social processes and institutions, and to understand cultural and social systems through the lenses of individual actors and, particularly, of their narratives. Such an approach has been applied successfully to the study of issues of minority access to higher education (Tierney & Colyar, 2009; Tierney, 2009). The basic principle upon which it rests, however, is much older and is central to the goals and endeavors of disciplines like history, anthropology, and sociology. Drawing inspiration from several authors in different branches of the human sciences, Colyar (2009) outlines three characteristics of the process leading to the development of cultural biographies as products: 1) the use of representative anecdotes, that reveal important or interesting aspects about the individual or issue under study, 2) a clear and simple writing style intended to appeal to a wide variety of readers and to be intelligible across disciplines and 3) a focus on illuminating "the real person", on treating lives with a combination of "seriousness, wonder and humility".(34) The initial analysis of these lives, presented here, strives to follow the guidelines above, especially the third one: For those whose life-history narratives appear in this document belong to a sector that often plays the role of "undesirable" in the Puerto Rican collective imagination. Against the tendency to essentialize and mark the residents of the projects as "other", as "different" and by implication "less" than an imagined "us", scientists and academics have a responsibility, not to romanticize poverty or its impact but to produce and analyze information in a way that recognizes reality and diversity and that allows for empathy and meaningful action. In fact this, one may argue, is the ultimate role of ethnography: to document complexity, to make the strange familiar, and to question the popular assumptions we sometimes call "common sense" (Herzfeld, 2001).

An attention to individual lives is not only an ethical or philosophical preference: It confers practical, analytical advantages. Looking at individual lives in context allows researchers to understand lives without removing them from spaces (e.g. neighborhoods) institutions (e.g. schools) and networks (e.g. friends). The lives examined here are thus "emplotted", meaning that the social constellation that we need to understand as part of the theoretical efforts to improve access and success for underrepresented students is always part of individual stories (Colyar, 2009). The information garnered in this manner is useful not only for a better understanding of the impacts and dynamics of urban

poverty in Puerto Rico but also, perhaps especially, of the structure and dynamics of access to higher education, and of potential spaces of improvement. The use of cultural biography and the close look at the individual lives explored in the present work is part of a larger project that strives to apply anthropological theory and methods to increasing access to higher education for socio-economically disadvantaged students. The lives documented here represent a partial answer to the question of how the disadvantages that result in lower application, admission and graduation rates occur, unfold and are interpreted by men and women who are both subject and object of structural forces: In the process, I try to illuminate potential venues for further research and intervention.

Anthropology, Sociology, and related disciplines have had a long and ambivalent relationship with the study of inequality in its relation to schooling. The (in)famous "culture of poverty" thesis popular in the sixties and seventies (made famous through the writings of Oscar Lewis, see for example Lewis, 1967) emphasized the way in which the "cultural traits" associated with poverty were reproduced (thus reproducing poverty itself) through socialization and child rearing. This and related notions shaped policy and public opinion and although few social researchers whose work targets the cultural expressions of social suffering related to urban poverty today would use the term "culture of poverty" as part of their analytical toolkit (Bourgois, 2001:11906), the idea that the urban poor are somehow to blame for their own poverty is still alive and well in the public discourse and popular attitudes. More recent work focuses on schools and other educational institutions as sites that are full of social and cultural capital and therefore imply a promise of mobility, but often end up reproducing existing inequalities and offering differential access to children from different groups (see Louie 2008 for review). Other relevant works on the connections among culture, urban poverty and education bring up questions of youth socialization, reproduction of poverty and subjectivity/agency, and grapple with these in nuanced, powerful ways from the optic of ethnography, urban studies, the new poverty studies, participatory action research, structural violence, and others (see for example Bourgois, 1996; Cammarotta, 2008; Dolby, 2004; Fine, 1998). This paper is thus part of a body of knowledge that aims to 1) recognize the very real consequences of poverty and marginality in people's lives, 2) explore the role of institutions and power in the production of inequality, including the constitution of individual subjectivities, 3) identify concrete opportunities for policy, intervention, collaboration and advocacy and 4) question cultural assumptions about the causes and outcomes of poverty, assumptions that persist in spite of historical evidence refuting their usefulness. Some of these assumptions include, for example, ideas about merit, worthiness, unworthiness of students ingrained in the very structure of our institutions: Why is it, for example, that we have been able to produce free standardized testing to accommodate federal demands for accountability, but not to produce a similarly free admissions test to its public university? Why is it that so-called "vocational" tracks and schools seem to be more common in poor communities and to actively recruit mostly the poorest of students?

The cultural biographies developed here involved ten interviews⁷, nine of them individual and one of them a group interview, averaging two hours per interview and producing close to 400 pages of transcription and field notes. Participants were selected through convenience sampling guided by two basic criteria: They all had to have lived a majority of their lives in Mayagüez public housing and represent the broadest possible range of life experiences and level of educational attainment. As the project unfolded, I ended up accepting two exceptions which I believe improved the depth and breadth of the final product: one of the individual interviewees (Janice) lives in Mayaguez but originally lived in caserío in a different town; and for the final interview, as participants expressed a desire to stay together, I carried out a group interview instead of sticking to the individual format that characterized the others. All names used in the transcripts are pseudonyms, often picked by participants themselves. The interviewers (The researcher, Rima Brusi, and her student assistant, Yvette Santiago) are identified in all excerpts by their initials (RB or YS). The instrument was a guide containing broad, open ended questions built around a simple chronology of life-educational themes (first school, elementary school, etc.- see Appendix C), and the interviewers probed as needed within the themes.

Once participants were selected, the consent process was complete and interviews were carried⁸ out and transcribed, coding was done in three stages or readings, and with the aid of HypeResearch®, a qualitative coding and analysis software package. The first reading was used to code for level 1 codes, and included codes and sub-codes arising from the interview instrument questions (e.g. "elementary school" and "elementary school-teachers"). The second involved adding grounded codes that arose from the content of the individual interviews (e.g. "drug-runners", and "diaspora"). Broader 'meta-codes' (Hesse-Biber & Leavy, 2006), or themes were added in the third stage, and included those themes that served as analytical categories that subsumed individual codes and allowed for the discussion of the relationships between them (Ryan & Bernard, 2003). See Appendix C for a complete list of codes used for this project.

The following section of this report presents short life-history summaries, or profiles, of the ten cases. The next section explores four themes or meta-codes in some depth, to identify potential barriers to access. In the final section, I outline a framework for understanding the topic of access in its connection to urban poverty, using a fifth meta-code, and articulate some concluding remarks about the relationship between poverty, higher education, and the broader spheres of culture and policy.

⁷ The author acknowledges the extensive help provided by two undergraduate research assistants during the time the interviews took place. Yvette Santiago carried out and transcribed several of the stories, and Emely Medina aided with transcription. Conversations with both also helped me articulate some of the arguments presented here.

⁸ Eleven individual and one group interview were carried out. I only cover nine of the individual interviews in this report because the remaining two, although they fit the criteria, were significantly shorter in comparison with the rest. All interviews were conducted in Spanish and interview excerpts were translated for this report.

2 - The Complexity of lives: Individual Profiles

The individuals interviewed represent a wide range of educational and life experiences, summarized in following table:

<i>pseudonym</i>	<i>gender</i>	<i>age</i>	<i>raised in projects</i>	<i>lived there at time of interview</i>	<i>interviewer</i>	<i>type of interview</i>	<i>highest degree</i>
Juni	M	early 30's	yes	yes	RB	individual	12th grade
Chary	F	mid 50's	yes	yes	YS	individual	GED and some junior college
José	M	early 30's	yes	unknown	YS, RB	individual	5th grade
Ester	F	mid 50's	yes	yes	YS	individual	GED and some junior college
Chefi	F	early 60's	yes	yes	RB	individual	some high school
Lisi	F	early 30's	yes	yes	RB	individual	12th grade
Zurdo	M	mid 50's	yes	no	RB	individual	Ph.D.
Michael	M	late 20's	yes	yes	RB	individual	8th grade
Janice	F	18	yes	no	RB	individual	in 4 year college program
Gorda, Macho, Méndez, Leonel, Bobby, Chucha, Nancy, Jenny, Juan, Leslie	FMMM MFFFMF	18			RB	group	12th grade in progress at time of interview

2.1 Juni: staying busy

I interviewed Juni in a borrowed classroom in an intermediate school located near the housing project where he lives. He seemed eager to be interviewed but somewhat concerned about being seen by the dealers working near his apartment, lest they got “the wrong idea”, and suggested we meet at the school instead. We sat alone in one of the vocational workshops for about two hours, during which he told me his story.

Juni is in his early thirties and is married with two children. His wife is from the same *caserío*, and although she is somewhat older than him, Juni refers to her as “*esa jovencita*”, with evident tenderness. They have been married for thirteen years and have been together for eighteen years. Although a commonly held stereotype states that people who live in *residenciales* do not work for a living, at least not in the formal economy, Juni’s story (like Lisi’s, Chofi’s, and most of the people we interviewed) contradicts this. He was employed for several years at a nearby tuna-processing plant, and, like so many other working class *mayagüezanos* (see Valdés, 1996, for a brief history of tuna processing and its labor practices in Puerto Rico), lost his job several years ago during generalized layoffs and has been drifting between unemployment, underemployment and temporary employment ever since. He is currently actively, and unsuccessfully, looking for meaningful employment.

Juni has a high school degree from a vocational school, specializing in electronics. Since he always was a student with good grades, I was curious as to the reasons to go into a vocational curriculum as opposed to a college-oriented high school program. He seemed curious about my curiosity, and explained that the particular vocational program he had gotten into was very selective, “*como el Colegio*”, the public university campus I work at, a fact that other ethnographic work has corroborated (see Brusi, 2009) and reinforcing one of the points I make in this section: that student college-going decisions occur at the interface between what they perceive to be their own decision-making power and the sense of “default” communicated by systemic and contextual characteristics.

With some variation, the interviews were to a great extent driven by interviewees themselves, and care was taken to give them space to discuss those topics they seemed to perceive as more relevant. In Juni’s case, two themes seemed to make him talk more: The circumstances of his wedding, which he narrated with great storytelling skills and obvious pleasure, and what he calls his “*desliz*”, a period in his life, between the ages of seventeen and twenty or twenty-one, when he made money as an independent drug dealer. He stopped that practice when he was promoted to a better paying position in the tuna plant, one that made use of his knowledge and skills with machinery.

Today Juni is full of energy and constantly on the lookout for a job. He does not want to go back to selling drugs, mainly to protect his two children from the way of life (and the moral contradictions) associated with it. “*Yo les enseño lo que es bueno y lo que es malo.*” He hopes to find a job and move out of the *caserío*, where the constant presence of drug dealers, the animals (there are currently horses,

chickens, and pigs being kept near his home), and the tecatos (heavy drug users) make it difficult to raise children properly and safely. At a minimum, he would like to get a better, safer and healthier location within the projects. He stays busy working (the lack of salary does not mean they are not real jobs, he states, and I agree) with a troupe of volunteer clowns and coaching little league, a space that also allows him to instill values, and a love for the sport, in his oldest child, a son.

2.2 Chary: pushing forward

Chary, a mother of four, remembers a happy childhood. "We were poor", she says of herself, her eleven siblings and her parents, "but I didn't know it." On some days they only had one meal. When the PRERA distributed shoes, the whole family went. "And then I grew up, and realized we were needy." She remembers good grades in elementary school, but she did not particularly enjoy studying. Still, she kept good grades until ninth grade, when she grew interested in boys, and her grades suffered. Once in high school, she fell in love and got married, and left school. Although she completed a GED later, she still regrets not having a "real" graduation. After a divorce, she lived with her mother and her two daughters for a long time. She tried marriage again years later - but again separated from her husband, who she describes as jealous and controlling. She had two boys with him.

She tried going back to school for post-secondary studies while her daughters were young, but it did not work. She did not study enough and got frustrated with her grades. In addition, she took in a young baby, the daughter of a neighbor. "She would have died otherwise...the mother left her alone in the apartment, did not give her milk, she was skinny, malnourished, looked like a child from a CARE commercial..."She left school and stayed home, caring for the baby.

Later on she went back to school again, this time making it: Honor roll, associate degree diploma in Business Administration. The best part, she says proudly, was that her third son, inspired, went back to school as well at that point. "The teacher loved it", she narrates, "she said it was the first time she had a son and a mother together in the same classroom." She gets frustrated, however, because in spite of the effort to get a degree and good grades, she cannot find a job. Still, she pushed all her children to go back to school, and three of them have associate degrees. The youngest is still in high school, and wants to go to college in the States. Chary believes he will, and told the interviewer that she plans to go with him.

Given the many challenges she has faced, does Chary think it is harder for poor people to gain access to higher education? "No", she says firmly. "It is not. All you need is grit, and the desire to move forward."

2.3 José: alive and prosperous

One of our interviewees identified himself as a punto owner. The meaning of "punto", the local equivalent of "drug corner", may vary according to the semantic context. "El punto" can be used technically to refer to an individual's whole drug business structure, involving all the personnel

associated with sales and distribution at different locales within a space defined as his or hers, as in "Fulano owns el punto." It may also be used as a geographical term, to point at one particular location where drugs are sold, as in "tell him not to play there, el punto is right there"; and it can also be used as an abstraction, referring to the drug business in the projects in a more general way, as in "boys nowadays drop out of school, they go to el punto."

The interview took place in the living room of a borrowed apartment in one of the housing projects. We had a general notion that understanding the structuration of educational opportunity (or its lack) involved an understanding of the relationship between the dynamics of the underground economy especially as they relate to human development. It was a topic that kept coming up in the interviews. We used, however, the same semi-structured instrument we used in the other interviews.

A soft-spoken man in his early thirties, José is married with two children, a boy and a girl. He left school for the drug business sometime during his middle school years, "fourteen or fifteen", but at another point in the interview talked about leaving school as early as fifth grade. His parents were in the business, and so, he says, "it's in the blood." He does not wish, however, for his children to carry on what he describes as a difficult life, with plenty of money-and plenty of risks. The interview with José left the question of his own educational history somewhat unclear - he did not really remember having academic aspirations, other than an early dream of going to the Army someday. His account of his life around the time he decided to drop out was blurry.

And yet, the very vagueness of it serves to reinforce the importance of the "capacity to aspire" (Bloom, 2008; Appadurai, 2004; see section 4 of this paper) in the production of academic aspiration. Even today, as he wishes a different life for his children, he is not clear about the choices they have. "Nurse, maybe" he said, talking about his daughter, now in middle school. "I told her I will give her a car if she goes to college. The boy can go into sports...college and sports." José's story suggests that the sense of default that structural forces imprint on individual lives can sometimes be identified by the contrast between choices that are clear and contain defined steps, and choices that, in principle, exist, but that remain, perhaps forever, obscure and enigmatic. For true opportunity to exist, the path to college cannot be obscure and enigmatic.

2.4 Ester: happy childhood, stormy life

Ester's eyes get teary with happy memories of her childhood. They always lived in the projects, and her family went everywhere together. It all changed when at the age of fourteen, still in middle school, she got pregnant. Ester married, and at fifteen, found herself a stay-at-home mother, wife to a controlling husband that did not want her to leave the house and was always "in and out of jail." At seventeen, she started using drugs, and that was the beginning of a decade "en el vicio".

She went to a few places for treatment: NA, a hospital in Ponce...none worked. "I just slept for four days, and then came back the same". She missed her son's police academy graduation. Perhaps, she

suggests, that was the turning point. Perhaps it was the birth of her granddaughter. Or finding a doctor that really, truly cared. This doctor, she says gratefully, not only has helped her get "clean", but even brought a turkey for thanksgiving. "She really cares about patients." Whatever the push, the fact is that she has been clean now for several years, took her GED, and took post-secondary courses in a program to certify pre-school teaching assistants.

She does not know if she passed, however, and feels unfairly treated by the instructor in charge, who had her work at a summer camp and only then informed her of other requisites for her last class. Still, she says, she is happy. Her daughter just graduated from high school, her granddaughter is her pride and joy, her son is a policeman and completed two years of university courses. The main problem poor students face in terms of access to higher education? Money, she says. Her daughter is attending a private junior college and spends all of her Pell Grant in tuition, still missing part of the payment and facing issues of meals ("some days she eats only once", said Ester) and transportation to and from school.

2.5 Chefi: proud and happy

Chefi is in her early sixties. I interviewed her for a little over two hours at her home, a second-floor apartment in one of the projects included in the study. She has lived in the residencial all her life, ever since as a six-year old, her family moved from a nearby barrio to one of the then-new units. "We had a little, termite-infested wooden house", she states. "This [the projects] seemed like a palace to us then". Married at the age of sixteen to an eighteen year old she had met at church, she was very much in love but had a difficult life, punctuated by the birth of six children and by her husband's repeated absences and infidelities, until she finally divorced him. She raised her children on her own, combining state-provided benefits (WIC, food stamps and subsidized rent), factory work (when available), and frequent participation in the informal economy in roles such as an Avon salesperson, childcare provider, house cleaning, and sewing at home.

Chefi's children illustrate both the force and the helplessness of human will and action when faced with difficult odds. Her eldest son has an associate degree from a nearby private junior college and currently has an accounting job at the company that administers the public housing project where his mother still lives ; another son became involved with drugs in middle school and is today institutionalized and under treatment, as well as HIV positive; The third son finished high school with a vocational degree and after working for a few years, went back to school to obtain an associate degree; One of her daughters finished high school with a 4.0 average, got married, had children and then obtained an associate degree in early childhood development from a Junior College, and currently works in a private pre-school where she also enrolls one of her children; the fifth son was able to go to a private school in high school as the result of a basketball scholarship, followed by a second scholarship to go to college and play in Texas, from which, feeling isolated, he promptly came back, enrolling then in a private university in Puerto Rico, again on a sports scholarship, where he currently studies; and finally, the youngest daughter is currently a student in good standing in a four-year degree program at the University of Puerto Rico.

Chefi's life is rich in detail, and very useful to understand the complexities involved, even for the best of parents, in raising children in a situation of poverty and marginality. It also illustrates the power of ideologies of individual responsibility: In spite of all the hardship she had experienced, especially when dealing with her second-born, when asked about the factors most likely to help or hinder college going chances, Chefi answered "parents." "it's all in the values given at home, families have control, [as long as they] don't let them get out of their hands..."

2.6 Lisi: loving critique

I interviewed Lisi for two and a half hours in my office, one afternoon after she came out of her clerical job at a local private hospital. Smart and articulate, Lisi illustrates very well the kind of structural injustice posed by the reduced access that youth from the projects have to higher education: It is impossible to have a conversation with her without wondering about the academic success she could have had in a different context, in a different world. Raised in the residencial from the age of two, Lisi describes her family as "dysfunctional", contrasting the tender image of her mother, who walked not only Lisi but seemingly every kid in the residencial to and from school every day, with that of her father, a drug user "since forever and 'til the day he died". She lived in the three bedroom apartment with her mother, her three siblings (two of whom had severe mental disorders, which prevented her mother from working outside the home), an aunt with three children and another with two: one bedroom per family, grandma sleeping in the living room. In spite of it all, Lisi described her childhood as happy, and says she was not aware of being poor until later, in middle school, a stage that marked not only her discovery of her own poverty but also a process of distancing herself from academic work.

Narrating tales of her adolescence in the caserío, Lisi conveys a nuanced view of the space of her early years, a "city of the poor", trapped by the sea on one side, by the avenue on the other, and eventually, by the quasi-military occupation of the mano dura policies (and policing) of the early nineties. "It was our world, and for us there was nothing else, you see? You only came out to go to school and then came back." Most of the male friends from her childhood and teenage years ended up in the drug business and are now dead or in jail. She fell in love with and married her neighbor, and after the 12th grade went straight to work. Now divorced, today she has three sons, and is also the primary caregiver of her now elderly mother. An activist and an involved parent, she dedicates time to design and lead activities for children and adults in the neighborhood while at the same time protecting her children from potentially bad influences. "Growing up there is not easy. Noise pollution, drugs....no respect. [I] keep them [the kids] distracted...videos, video games, computers, and on weekends, going outside...it is hard, with the peer pressure...[Parenting requires] three times the amount of effort. And I had to keep my kids inside, they never learned to ride a bike."

Lisi's life is a testimony not only to the hardships of growing up (and raising children) in the projects but also of the inadequacies of the stereotypes about public housing residents, that so often drive discourse and policy. The thick description she makes of navigating the projects and their schools, as a child and

now in her sons' behalf, restores complexity to the simple picture that "common wisdom" often provides, and constitutes a sort of loving, constructive, nuanced critique of the experience of poverty that neither blames nor romanticizes it or underestimates its negative impact. The kind of critique needed for meaningful action.

2.7 Zurdo: like a river

Zurdo is in his mid-fifties and lives in the United States, where he is a university professor and researcher. Always a good student, albeit with a consistent rebel streak developed in the middle grades, Zurdo's path to college was full of twists and turns but ended with a PhD. Of his life and education, he says "they're like a river. With three lines, you know, the caserío, sports, and school, three lines all ending in one same river." Like most other interviewees, he remembers a happy, easy elementary school experience with very good grades, followed by an abrupt change in the intermediate years, in his case leading down a path of frequent fighting at school, boxing more formally as a sport, and drug use coupled with the discovery of intellectual pursuits outside of school. Teachers and peers are a predominant part of his narrative.

After high school and some college, where for the first time in his life he had academic difficulties, Zurdo signed up with the Army, where he kept boxing. In spite of knowing little, if any, English, after some time his college-going potential was discovered and he started an academic path that moved swiftly from BA to a master's and eventually a doctoral degree in Psychology. In fact he thinks and writes about issues related to poverty, marginality and freedom, working with homeless people and marginalized communities in the United States. He identified, during his interview, issues that play a role in the production of inner-city poverty: "... Institutions [like universities] have to open more doors...and also, the second part, is ourselves, sometimes it looks as if we had internalized a sort of blame, that we do not want to move, that we have internalized oppression within our own consciousness..."

Today Zurdo is a successful academic, but always remembers his origins and reports still feeling somewhat torn: "Always two lives...When I visit Puerto Rico, like, the academic stuff is put aside, you know I write and such, but I cannot sit with my family and say look guys, look at what I'm writing. I would very much like for my siblings to be able read what I write. But that is like a piece I have there, kept away, Icome from the caserío."

2.8 Michael: feeling the pull

Michael is 28 and cuts people's hair in his apartment for a living. Married with three children, the story of his relatively short life is packed with sadness, intensity and suspense. After eight years of good grades, he left school in ninth grade to try his luck "en la calle", "in the street", by which he means the same thing Juni named "el business del caserío" in our interview: selling drugs. Before the age of eighteen, Michael had been in CREA, a rehab-oriented institution, from which he escaped almost every

night to indulge in drinking and "pepas" (pills, downers) at the "caserío"; he had spent a year in a juvenile detention center; and he had done time in two juvenile jails.

His story was punctuated with long, interesting, sad tales of fighting (with fists, knives and guns) to protect his life or reputation; of escaping from jail to try and see his newborn son; of trying, and failing repeatedly, to live with his mother; of causing his grandmother, the person who raised him, much sadness; of learning to cook, build, cut hair and read blueprints so that he could work for a living while on probation. During the interview, which lasted almost four hours, he moved between word-packed stories of mischief and wrongdoing (from stealing a dollar at the age of nine to knifing another inmate while in jail) to slower segments during which he reflects on his own life and his children's future.

Like Chefi's, however, what strikes me the most of this interview is how after hours of relating what seems to be an unequivocal statement highlighting the sense of "default", the power of structures to shape individual lives, Michael still believes himself (and the individual in a more abstract sense) to be the ultimate responsible: "El que quiera echar pa'lante, echa" ("if you want to move ahead, you move ahead") he says, although he worries about the fact that he was not there for his two oldest children, a boy and a girl, during their first years, and about his son having seen him in a fight once. Talking about his children's aspirations for the future seems to make him remember that at some point he also had some, and without prompting, and somehow dreamily he mutters, "What did I want to be? A policeman, I wanted to be a policeman...I could have been a good policeman."

2.9 Janice: against all odds

When psychologists (and increasingly, regular people) talk about resilience, they probably have somebody like Janice in mind. Removed from home and sent to live with an aunt during the last years of her elementary school, Janice came back to el caserío at the age of twelve, to find her mother, an ex-addict, battling AIDS and Hepatitis. Somehow, she kept an outstanding GPA throughout it all; her own health failing when she developed impetigo, her relationship with mother and grandmother progressively deteriorating, her brothers consumed with what she referred to as "the bad vibes" of the projects, herself moving between households, alternating between her mother's apartment, her grandmother's and a foster home just outside. The shooting at night, sometimes during the day. The police. The density of tragedy.

Janice wants to be a meteorologist. I asked her how she found out about this particular career choice, and she describes a thick combination of information received at one of her favorite spaces, the Boys and Girls Club, a summer camp, and a public talk by meteorologist Ada Monzón at a mall. She graduated with honors every time, and one serendipitous event after another, ended up applying to a UPR campus far from home. The months right before her freshman year were intense, and she did everything on her own: The paperwork was all hers; The summer jobs to save money; The entrance examination. Today she lives near campus and far from home. Estranged from her family, she does not visit her friends in the projects to avoid a confrontation with her mother. During the interview, I had the

distinct feeling of standing in front of one of those rare individuals that would do well regardless of circumstance. I also remember thinking that it should not be so difficult.

2.10 Gorda, Macho, Méndez, Leonel, Bobby, Chucha, Nancy, Jenny, Juan, Leslie: those were the good days!

A charming and talkative group of ten 12th grade students from the same neighborhood, all about to graduate from high school, eagerly agreed to be interviewed and talked to me for about two hours about their educational histories. Some were "good students" some were on the verge of dropping out; some aspired to go to college, some did not, some were curious about the possibility but had little information. Their favorite topics were related to the social dynamics inside schools and communities, and it was while talking with them that I first started realizing the importance of the sense of "default" in shaping decisions and trajectories.

Meeting them also forced me to realize, yet again, that aspiration is not enough. The desire to go to college has to be buttressed with the capacity to aspire, in turn built upon information, academic skills, and a sense of concrete possibility rather than distant dream. At least three of the youth who expressed interest in going to college were not able to. Bobby dropped out of high school shortly after our interview. Gorda and Jenny finished but did not go to college, and today are looking for jobs. Nancy is a freshman in a four year program. Macho tried to get into the public college campus and study History, but to his surprise, his scores in the College Board entrance test were not high enough to qualify. He is finishing a one-year degree in cooking and hopes to become a chef.

3 - Selected Themes

3.1 the density of tragedy

The interview guidelines (see Appendix C) simply structure the interview process so that it follows a chronological order that helps interviewees remember key events in their lives, and the follow up questions and probes focused on educational experiences. One of the things that first struck me as I read all the transcripts was what I coded as "density of tragedy", statements that suggest a constant flow of tragic events, connected to one another, defining the lives of most interviewees. These tended to be articulated in a very matter-of-fact manner, as necessary parts of the life and educational stages and events they were describing. Although this "density of tragedy" does not by itself predict low educational attainment (Janice is a good example of how a life can unfold in the midst of tragic events and still result in robust educational aspirations and academic achievement), when coupled with other themes (e.g. mid-school crisis and/or institutional barriers) it does seem to lead to non-college paths. It would make sense to study these connections with a larger pool of individuals.

What do I mean by density of tragedy? That tragedy is not only present, and acute, but repeatedly and unpredictably there, a sort of "default" background to these unfolding lives. Chefi, for example, had to

work hard to raise six children in the midst of her husband's repeated absences, infidelities and emotional abuse, and deal with the long-time addiction of her second born, who also suffers from AIDS as the result of his heroin use. Janice's mother, an ex addict, has AIDS and Hepatitis, and Janice is currently estranged not only from her but also from her grandmother. Lisi's father was an addict, and two out of her three siblings had serious mental/physical disabilities: They grew up in a three bedroom apartment that she shared not only with them and her mother but also with two aunts, each with her sons (four and three, respectively.) There was not a question that asked about difficulties or sad events - difficulties and sad events were simply an unavoidable part of life for most of the interviewees, and often they were framed as a normal part of a happy childhood:

Lisi: When I was two, my parents divorced, and we [her mother and siblings] moved to the residencial, to live with my grandmother...The house was very full, my cousins were also there...We had bedrooms, one room per family: My mother with her four children, my aunt with her four children, my other aunt with her four children, my grandmother...My father was not emotionally or economically responsible...[But] I didn't know about poverty, I didn't know we were poor, I had no point of comparison...To me, I had everything I needed and I was missing nothing. Although, there were some traumatic incidents, like, my siblings, because of their mental problems..they would scream, they would hurt themselves, they would attack others...

I did not have a point of comparison, to me there was no world outside that small space in the building where we lived, really...I had food every day, maybe not what I wanted but I did have food, never went to bed hungry, always had clothes to wear, always went to school...You could say I had a happy childhood.

A density of tragedy means not only that bad things happen but that they seem to be happening all the time and/or all at once. Janice, eighteen at the time of the interview, reported an intense adolescence, marked by extremely difficult, sad situations like the ones she describes below, when she was fifteen years old and was finishing ninth grade:

Janice: [Talking about moving between a foster home and her mother's] ...and I lived with her for six months, it was very hard for me because she suffered from depression, her four children, three of them are psychiatric patients, one of them often turned violent and I had to deal with that...Around the same time I had to deal with my mom's relapse, she was starting her hepatitis C treatment, and every week she had to stay in the hospital...The treatment was very hard on her, in addition to dealing with the HIV virus and ironically, after all she had done and in spite of all the pain she caused me, I helped her with her injections, the one who dealt with her was me...I lived with the lady [foster home] and every weekend I would go to my mother's, I took care of her, I cooked, I cleaned and then went back home to study, and back the next Friday, again...

...at one point, it was December, I had impetigo on my legs...It got really, really bad, got infected, my blood also, the lady could not help me because her oldest daughter was pregnant, a high risk pregnancy...my brother went to get me, and my mother, who is a nurse...she saw my legs, she did not graduate but she is a nurse, and she did not let me leave her house, she called the police and took me to the hospital, went to court the next day, asked for my custody back...

The density of tragedy has direct and indirect implications for college access odds. The indirect ones are related to the production of the capacity to aspire and will be discussed in the final section of this manuscript. Direct ones include their impact on choices related to optimizing the use of finite time and resources, as the example below, from Chary's story, illustrates:

Chary: My plans? Well, I had planned to finish my 12th grade, finish 12th grade, like everybody else, and then keep studying, you know. I would have liked that, but I didn't. I had two daughters. I went back to school [later] when they were in school themselves, but around that time, Haydeé [a neighbor's daughter] was born, and Haydeé was very sickly, and her mother did not want her, she would have died if we hadn't taken her in, because her mother left her alone in the apartment. We were able to get her because a neighbor alerted us, the mother had left her alone, the house was closed, everybody was gone and the baby was alone. She didn't give her milk, the little girl looked like a child from a CARE commercial [makes gestures with face signifying dehydration], you could see her bones [there are tears in her eyes now], and by then I was studying, I was studying to be a teacher...You know, I left school, I left school, so that I could take care of the little girl, move her ahead..and we did, we did turn her into a *mujer de provecho* [good woman]. And I lost that time, never got it back.

This density of tragedy is not only sad, it is violent in its disruption of everyday life, what it means for the structuring of opportunity (Farmer, 2004). It is not a peculiarity of my interviewees, but a characteristic of life in the *residenciales* I do my fieldwork in more broadly. For example, I spent a year doing ethnographic observation and interviewing teachers and school personnel at a middle school that serves families from the five surrounding housing projects, and heard stories like this every day. After a couple of months at the school, I had already been to the funeral of a ninth grader, dead in a hit and run accident, who was also HIV positive, and had listened to or witnessed the aftermath of countless sad stories. In Janice's tale (and others'), the tragedy of everyday life inside the apartment is the narrative counterpoint of the everyday violence of the *caserío*, outside:

Janice: "The same day I come back to the *caserío* [after some time living with an aunt due to her mother's addiction, at the age of thirteen], my grandma, and my uncle, her youngest son, they sit me down and they say 'your mother has HIV', mom was in rehab by then, and they were preparing me so that when I went to visit her I would know I would find her in the physical state she was in...That same night, after those heartbreaking news, there was shooting, on top of the building, on my roof, right above my bedroom, they climbed the roof with an AK-full...a

type of weapon, automatic, it was horrible, I started screaming, I was desperate, I saw them climbing down from my kitchen window, it was horrible...”

...

Janice: [Once] I was [studying] at the [afterschool] club...The director did not want to let me go but I told him I had to go.

RB: Why didn't he?

Janice: Because I was uneasy, there were rumors of drug guerrillas in the caserío, he wanted to give me a ride, but I didn't want to wait...as I was crossing the parking lot where the punto [drug corner] is, it was the only way home, the bichote's brother and a guy who went to school with me passed by, they said hello, I kept walking, I went upstairs, opened my door and sat down...suddenly, gunfire, huge, absolutely bloodcurdling...A minute later, the screaming, they killed Taly, they killed Taly, and I started running...Mom grabbed me so that I would get down, on the floor, I went outside anyway and asked them, they said “they killed Taly”...

RB: Who said?

Janice: The people, the people that were running, people knew that there was going to be death in that parking lot..It was strange because every time I walk by that parking lot it is usually full of children, and that day there was nobody there except them two, walking...When I get there, the bichote's brother, on the floor, twenty-eight shots, and the guy who went to school with me, they had grabbed his hair and shot him in the face, he fell on an anthill, they shot his legs so that he would fall and then grabbed his hair and shot his face...it touched me, so much, 'cause, I say, how is it possible, a kid who was going to graduate with me, we were friends, we were friends, how could they kill him like that...It could have been me...I stayed away from the Club for many days...

This dense mixture of physical and/or mental illness, poverty, and violence also appeared near the start of Michael's interview, when I asked him to talk about his elementary school years:

Michael: I got a sister with mental retardation that still lives with my grandmother, and my brother [raised with him, genealogically his cousin], he started using drugs when my aunt died, he was kind of disoriented, his Dad killed himself when he was little, shotgun to the head, you know, he couldn't handle that, not having a dad...His mom died of AIDS, a boyfriend gave it to her, he used to be in jail and got the AIDS there, came out and didn't tell her nothing about the AIDS, they slept together, my aunt started feeling sick and then the asshole told her, “oh, by the way, I didn't tell you but I have AIDS”. My aunt was infected already.

..She was the best aunt ever, wherever she is now...She died in my bed, in my bedroom, I was talking to her, she could barely talk by then...I used to look at her, she was so thin, I was suspicious, of course I was very young, I thought 'she's in my room, and she's got AIDS', I didn't want to use the toilet after her, I was so ignorant..And that day I saw her, I never got close but that day I decided to go to her and she held my hand, we talked, she could barely talk, it [the illness] was too advanced, too advanced...

In the midst of these sad events, both Michael and Janice went to school and had good grades. Their stories diverge, however, in middle school, when Michael left school and started working la calle, the street, el caserío.

3.2 place and metaphor, home and urban apartheid

Michael has been in prison several times. Currently, he is on probation and after trying his luck at car washing, plumbing and restaurant cooking, today he scrapes a living and enjoys mild fame with his home-based business, an informal, underground barbershop. He quit school in 9th grade, at the age of fourteen, and his story contradicts common stereotypes about the academic performance of would-be dropouts:

RB: Let me ask again, to understand this well, because your experience may reflect others'...You know, when you decided to drop out, in ninth grade, you left because you felt you needed to use your time in something else?

Michael: In something else...

RB: Selling...

Michael: ...It was selling, yes....

RB: To stay in business...

Michael: To stay in business, yes, because the fact is, it was taking up all my time, you know, I wanted to make enough money, and being in school every day until 3:00, there was a lot of competition, everybody was selling...

RB: Were you in danger? Did you ever feel endangered? Or was it a safe environment?

Michael: Actually no, I never had the feeling of being in danger, of fearing the police or anybody else. When I started selling, it was like a game...

RB: Did it feel like a game?

Michael: Yes, yes [smiles], let's sell some here, let's sell some there...

RB: Was it fun?

Michael: [with emphasis] Yes, yes, 'cause I was always high too, smoking and drinking, I was in this state of "aaaahhhh, great, wonderful, chillin...", you know now that I think about it maybe that was what made me leave school, being so relaxed in that state, with the muerto on me, the muerto is the package of drugs, and so I would sit there and I would feel like the boss, and guards would stop by and I was like that, with the muerto on me, like I had no cares...

RB: Did you have bosses, did you answer to somebody else? Or was it more like you had your own business?

Michael: I didn't answer to anybody, although there's always somebody that gives you [something], so you can start, and we were just boys, chamaquitos, and I say 'we' because there were many of us, we grew up together, it was the same for all of us...

RB: So your process is like the process other boys go through?

Michael: Yes.

RB: A pattern...

Michael: Almost the same. Somebody has their own already and gives you some, so you can start even if you have no money to pay, you go to him and you ask for a libreta of marihuana, or you go buy it yourself and you sell it yourself, then that is yours. In my case I went to a guy, asked for it, told him "look, I wanna sell" ...

RB: A commission of sorts.

Michael: Right, he gave it to you and you sold it for a commission, a small thing really, because you have to sell 25 bags to make 25 dollars, a hundred [dollars] for him, you're making him rich, but it sells so fast, in two days you make six hundred, and you say "wow, easy money" ...

Michael is describing an entry into what Juni, while articulating the story of his life and education, called "el business del caserío", meaning a certain way of life associated with the underground economy of drug dealing and their correlates: horses, motorcycles, expensive tennis shoes and clothes, and jewelry. It also implies spending long hours inside the projects, with a very limited range of movement, and participating in a network where young boys have to slowly work their way to whatever position they

will end up taking in the system. Such a life required a time investment from Michael, and school schedules were not compatible, and so he dropped out.

What Michael calls *la calle*, Juni referred to as *el business del caserío*, and described how he fell “off track” soon after finishing high school:

RB: So you were seventeen, finished grade 12th, playing ball...what else? Take it from there.

Juni: Well, from there, how do you say it, I fell off track..I came to...Let’s be real, I came to *vacilar*, *al caserío*...I was young, after all. I wanted to see how it felt like, to have money in my hands. One always wants more. I had my slip, dealing here with their business. [*el business the ellos.*]

RB: For how long?

Juni: Three years...I was selling drugs, drinking, riding horses, all of that. That’s how they call it, the business of the *caserío*. [*“el business del caserío”*]

The term *caserío*, in the interviews, may convey one (or more) of four possible meanings, depending on context: 1) The type of place, the projects, with its peculiar architecture and bureaucracy, always run by the Department of Housing and its many *privatizadoras*, private companies it subcontracts to run particular projects or regions; 2) their own project, where they live and/or were raised; in this sense, somebody from, say, *Candelaria* may state that they walk the whole *caserío* everyday, meaning the set of buildings that constitutes *Candelaria*; 3) a way of life and/or a form of class consciousness, an identity, manifested in proud statements like “that’s who I am, I am from *el caserío*” and 4) as synonymous with “*el negocio*”, “*la calle*”, the illegal activity associated with drug trafficking and its concomitant lifestyle. Depending on context, *caserío* can be uttered or interpreted as a derogatory term, with *residencial* being perceived as less problematic - and in some contexts, less genuine or more formal.

Public housing projects in Puerto Rico were devised as a solution to the problem of inadequate housing conditions experienced by marginal populations in *arrabales* (slums), and appeared as a result of the New Deal policies of the late 1930’s, as expressed in the federal Housing Act of 1937 and the Puerto Rican Law #126 of 1938, which created a Public Housing Program that had local and federal funding. The first examples of the type of housing project referred to as *residencial* or *caserío* today were finished in 1941 (Alameda, 2005). Their contemporary scale and scope makes the problems they face all the more urgent: Our examination of census data, coupled with numbers from the Department of Housing and from our institution, suggest that 12% of the households in *Mayagüez* are located in a public housing project; that 13% of the minors in *Mayagüez* live in public housing projects; that youth from the projects constitute only 0.3% of the admissions at the university; and that they contain a significantly lower

proportion of adults with a college degree and a significantly higher proportion of adults without a high school diploma than the rest of the Puerto Rican population⁹(Brusi, 2009).

Interviewees represent a variety of life experiences but also tend to share certain commonalities related to the human geography of the projects. Lisi was never an active part of the drug business that Juni and Michael describe but nevertheless shares with them a complex, nuanced sense of the residential as “place”, as spatial coordinates infused with history and meaning:

Lisi: [as a teenager] I walked, I did not limit myself to my building or my project anymore, I walked all three of them. And I grew up watching police abuse, discrimination, the way we were treated..I was insulted so many times, for being in the wrong place at the wrong time. I saw many acts of abuse, by the police, basically [they were] the only ones that sometimes entered our world....I did not have much opportunity to go out of the area of the residencial, there was no transportation, there were no programs for seeing or socializing with other populations. It was our world, for us there was nothing else, you see?

Against the easy, destructive stereotype of public housing as a container for people who “want” to be poor, and against an equally dangerous romantic idea of the projects as nice “communities” that need no help, the lives and ideas discussed by our participants provide a more complicated and honest view of urban projects as network, community, and one’s place but also as separate, segregated, and to some extent excluded from everyday interaction. The larger research and outreach project in which the present work is inserted seeks to counter easy, simplistic notions of the experience and consequences of poverty in Puerto Rico with nuanced portraits of this type, that allow readers (and hopefully policy makers) unfamiliar with these populations to understand, empathize, and relate.

The stigma and stereotypes nowadays associated with living in public housing projects in Puerto Rico is therefore a relatively recent phenomenon. In fact, residenciales were initially seen as an alternative to the social ills then associated with the arrabal, or slum: “The slum is an easy, pleasant place for the vicious law breaker; it is a space of concern for the father and for the honest woman, for those whose limited means force to live i such a place; and a source of tremendous concern for the state, who is morally obligated to clean it or eliminate it, and to raise the moral and way of life of its inhabitants.” E.J. Fonfrías, President of the Housing Authority in 1955, quoted in Alameda, 2005, p. 17).

Chefi, one of our interviewees, moved from a slum to the caserío, then “brand new”, in 1955, and describes it as “a palace, girl, you know, we came from really, really poor houses...” Today, however, the locus of the stigma of poverty, marginality and popular notions of “culture of poverty”, more than any other space in Puerto Rico, is the modern caserío. Lucy, Chefi’s youngest daughter and a successful

⁹ The author acknowledges the collaboration of Drs. David González and Walter Díaz, both from UPRM, in obtaining and interpreting the institutional and census data, respectively, and of the Puerto Rico Department of Housing, which kindly provided the summary data used here.

student in a four year college program, described some of the many instances where she has been made feel uncomfortable because of where she lives:

Lucy: I was, we were making up *trabalenguas*, you know the [name of elementary school nearby]?

RB: Yes, the [name], I know

Chefi: You were talking with Damaris and the teacher scolded you...

Lucy: The thing is we had to make a *trabalenguas*, yell it, from the first floor, downstairs and the second one, and my friend pulled my hair or something, and I yelled at her, and the teacher saw me, and said she would give me an F and I started crying and crying...

Chefi: Because she also said, "see, it is because you are from a *caserío*..."

RB: She didn't...[takes hand to mouth in gesture of surprise]

Chefi: And I went to speak with her, and told her, we are from the *residencial*, yes, and we're proud of it, and there are good and bad *residenciales*, and you can't generalize, and we are from there but my daughter to this day has never gotten in trouble or disrespected any teachers, or myself, so I expect you to fix this, because my daughter came back crying because of what you told her...

Lucy: I know that teacher was constantly criticizing *residenciales* in the classroom, I remember...and many of us felt very uncomfortable, once she grabbed a girl's arm, and told her things...like that.

Chefi: ...swearing...

RB: and did she use the word *caserío* or *residencial*?

Lucy: [dismissing my concern with a gesture of her hand] *caserío*, but that's the word everybody uses always.

...

Even when the stigma was not directly or purposefully related to her, stereotypes about the *caserío* can still hurt:

Lucy: ...When I went to college, in my freshman year, me and Sara....You know, you make friends in college, and we started talking to a guy, talking about Christmas, about how you sometimes grab a stick, and a pail, and make music and things like that, and the guy jokes and says "are

you guys from a caserío”, and we looked at each other and told him “yes, we are from a caserío” ...and he...was joking, and apologized...

...

Chefi: And I’m gonna tell you something, we live in a residencial, we have good and bad times, but there are kids in urbanizaciones that get involved with drugs....what matters is the values you teach them at home...

Any effort to improve educational opportunity must be predicated on a more thorough understanding of the daily life of poor Puerto Ricans, especially of those living in conditions that may produce or exacerbate spatial marginality. If space shapes experience it also shapes not only opportunity but also the tools one may have to make the best of whatever opportunity is available. The following section explores a turning point in the life cycle of every Puerto Rican, but one that may have particular challenges if you are born poor: adolescence.

3.3 middle school crisis

The middle grades, defined as those enrolling 10 to 14 year old students (roughly 5th to 9th) are a critical stage for the development of educational and career aspirations (Camblin, 2003). They are associated with the development of identity, a stage for students to start seeing and projecting themselves, most closely associated to what college access and success scholars sometimes term the “predisposition” stage (Cabrera, 2000). The middle grades are also important for the processes Cabrera and La Nasa (2001) identify as the three critical tasks that disadvantaged students must complete to increase the likelihood that he or she will in fact attend college: acquire at least a minimal college qualification, graduate from high school, and apply to a 4 year college or university. They acknowledge that the path to college for the poorest students, however, “can be best described as hazardous.” (200, p. 119) As cultural biographies shown here and elsewhere (see Tierney & Colyar, 2006; Tierney, 2009) show, the lives of young people growing up poor can be tremendously “intricate, bewildering, and complicated...Adolescence...is a time for self definition, and how individuals com to define themselves is no easy process that follows a checklist of actions...At a time when virtually everyone agrees that the twenty first century workforce needs to be better educated..., [disadvantaged] youths...face a particularly perilous path.” (Tierney, 2009, p. 168).

How do the middle grades look, in the lives we examine here? The individuals interviewed were tremendously diverse, and yet their middle grades showed surprising similarities. They range from problematic to stormy, and almost all are marked by diminished grades and increased discipline issues. Several described them as a turning point in their lives, usually the beginning of a worse or at least more difficult set of circumstances:

YS: Did you go to middle school?

Ester: ...yes, to [name of school]...That's where I met the father of my children, when I got in...seventh, eighth...I was in eighth grade[her face tenses somewhat] he was my boyfriend...He visited me at my home, sometime later we got married, after eight months we got married, I went to school pregnant, and had some trouble [with that]...The principal, he did not want a pregnant student, I had to go to the Department of Education, so that they would give me a permit to attend school and finish, but it was too much trouble and I decided to leave school. But then my ninth grade teacher told me "Ester, you only have two months left to finish, I'll help you" and she helped me pass the ninth grade...

YS: Were you attending school or...?

Ester: Yes, at first, but when trouble started, I got...[makes angry gestures with hands]..I stopped going....Then morning sickness started, and I said no more school...

YS: How old were you when you got pregnant?

Ester: Fourteen. Fifteen when the boy was born.

YS: Did you go to high school?

Ester: No.

It was the start of a difficult life for Ester. After an infancy she describes, dreamily, as "very, very happy", marked by frequent outings with her close knit family, she found herself alone in her apartment with her babies all day long. She started using drugs, first with her husband at night, soon during the day as well:

Ester: well....I started young, smoking marijuana at 17, around then...with the father of my children, that is how I started. Then, while he was at work, I had a friend, and we purchased and we smoked and then I switched to cocaine, ...wait a second...[a neighbor interrupts, she explains what she is doing and asks him to stay and listen]...Then, after three or four years with cocaine, I switched to heroin, inhaled, I always inhaled, never injected, and so I was almost ten years en el vicio, on drugs....My children's father, meanwhile, was in jail, out of jail, back in jail, out...

Ninth grade was also a turning point for Michael. After eight years of grades he describes as academically excellent, he decided to leave school because his time and energy were needed elsewhere:

RB: How were your grades in ninth grade?

Michael: Very good, always very good, if I say I had one F I would be lying, I was good in school, very good grades...

RB: Was it easy, or did you like it, or...?

Michael: I liked school...Awards are good, you know, and I got many, in math, social studies, English, everything...I liked it, always had my hand up, "let somebody else answer", teachers said to me, "but I know the answer, and this guy doesn't!", I would say...

RB: Then why did you leave?

Michael: Why did I leave? For the street, I liked studying but I liked hanging out even more, lots of hanging in the street, more fun than school, than studying although I liked school, but the street was different...

RB: [realizing there's not really a "street" in the proper sense of the term in the landscape Michael describes] When you say street, what type of space are you talking about, the court, the corner, the avenue...?

Michael: The whole caserío. El caserío.

RB: El caserío.

Michael: El caserío, a different world....

....

RB: So when did you decide to leave school?

Michael: Honestly I didn't notice, I just got more and more involved with the street, I started skipping school, and then I got to the point where I told my grandmother "get me out of school", because I did not want to spoil my record, I always had good grades, it's all I have, if I keep missing school I will flunk, and I do not want that on my school record...

During his interview, Michael made frequent reference to the fact that although he was a "good" kid in school, this label was mostly for the benefit of teachers and caregivers. He started building a reputation of mischief and frequent fighting for himself from the fifth grade, when he stole his first dollar from his aunt's pocket. It is interesting that although on the surface, his profile seems to confirm the stereotype of the teenager who leaves school at the end of junior high, his reasons for doing so were related not only to drug dealing but also to the pride he felt towards his grades. He did not want to get his "record dirty" flunking ninth grade.

Although never a drug user, Lisi also describes the middle grades as the beginning of trouble. In her case, academic trouble was coupled with an increased awareness of being poor:

Lisi: I would say seventh grade passed, not much pressure there, it felt more like elementary school. But in eighth grade, it was...peer pressure started...it made you look bad, being a hard working student, like a kind of “nerd”, people didn’t accept you. Being “the bandit” was fashionable, it meant being popular, and perhaps all that influenced me and my grades got lower, I studied less...

...

RB: So during adolescence, eighth, ninth grade, that’s when it started...

Lisi: Yes, and also demands for things, like school supplies, increased...And it was harder, I remember that occasionally we had to ask my aunt, who worked in a factory, for help to buy stuff we had to bring in the next day, you had to bring “x”, or “y”...

I remember once, in Home Economics, they asked us to bring in a watermelon the next day, and at home, food stamps came in every fifteen days, we had to wait for the food stamps to buy anything...[and I went] From a 4.00 GPA to a C average, something like that...

The narratives of six out of the nine individual interviews¹⁰ contain numerous references to a period of good grades in elementary school followed with a lowering of the grades and the beginning of discipline/behavior problems in middle school. In the group interview with youth about to graduate from high school after going to the same elementary, middle and high school, half of them cheerfully acknowledged following that pattern:

RB: Okay, just so that I am clear, because many of you are mentioning this kind of thing, how many of you “visited” the principal’s office often, once in junior high?
[five hands are raised. laughter.]

RB: Why? What did you guys do?

Bobby: Fighting, bad behavior...

Jenny: Bad behavior.

Leslie: Being disrespectful.

¹⁰ The three remaining interviews did not deny this tendency but, simply, did not address it. Grounded theme was not part of the original codes but emerged from process.

RB: Disrespect, bad behavior...anything else?

Méndez: Threatening a teacher.

RB: Sounds serious...

Jenny: Refusing to get in the classroom.

RB: This does not sound at all like what you described earlier, in elementary school. What changed? Why did you start getting in trouble?

Jenny: Because one thinks one is the boss, that one is all grown...

Macho: The environment, el ambiente, too, because you see others doing it and so you think you can do it too.

Chucha: Exactly.

Macho went on to describe middle school as a sort of turning point when some of life's major decisions are made:

Macho: I've always said that around seventh grade, you have two paths in front of you, either you stay studying well, and most people don't choose that one, most people go bad and do stuff that they shouldn't do, other people don't do much and others overdo it and they have to leave the school....

Later in the conversation, when I asked them to explain some of the motivations behind the school fights they were describing, Macho went into more detail and exemplified with his own story:

Macho: In seventh grade I had a fight with my best friend...

RB: Your best friend? Why, a girl? [they had been talking about fighting over girls just before. Laughter.]

Macho: No [with a serious expression], no, I went to seventh grade, and then a corillo [group of friends, also used in the sense of allies, in case of fights] friends of mine from elementary school, they were going to steal mechanical pencils from the store, all that...[Lots of laughter. He stays serious.] They wanted me to do it, because they were concerned, they looked at me differently, like, I left sometimes, didn't hang out with them, they started yelling things, and I was angry, and so at lunch time I took off my stuff (gestures towards back pack, watch, ring),

and I hit him, really hard..I kept at it, I wanted to keep at it, but he didn't, and the bell rang, and I said okay, we'll leave it here..

I'd rather fight with my best friend than steal, you start with a pencil and end up with valuable stuff, when you look, you have taken a path, if I had gone down that path I would have never graduated...

Macho's narrative evidences a keen, unusual sense of the stakes involved in middle school choices. I asked some additional questions later:

RB: [People who do not go to college after high school] Where do they go? Where are they?

Juan: Working, or...

Macho: in junior colleges, or...

Jenny: being daddies [laughter]...

Macho: They do nothing, I am not judging, really, I'm not judging but I think..you know, preparing yourself...you should not go to a junior college, you learn to cut hair, computers, you can't live off that, you need more preparation...

RB: So where are they? [the ones that do not keep studying]

Leonel: They are in el punto. [drug corner]

RB: El punto. From what age?

Jenny: From middle school, more or less...

Juan: thirteen, fourteen..

RB: That age? Do they get invited?

Jenny: Yes, they want to do new stuff and experiment with new things, it is an easy age...

RB: Do they get paid?

Jenny: Well if they are selling, yes, but many of them just get hooked, los meten al vicio...[get them addicted]

Chefi's second born got hooked, se metió al vicio, starting in middle school. It is disquieting to think that choices made at such an early age can have such a huge impact on life's trajectory. The landscape, the social ecology, the environment these kids are exposed to on a day to day basis contain more destructive options, and less solutions, than most middle and upper class spaces (if Chefi had been wealthy I am sure Eduardo would have been swiftly sent to the best possible treatment center). On the other hand, the stories and conversation summarized here suggest a space for negotiation and for the manifestation of what social theorists call agency, a sense of individual capacity to act that is nevertheless socioculturally mediated (see Ortner, 2006, for a recent framing of ongoing debates related to this notion). A space that allows us a glimpse of the strong structural forces limiting the choices (and thus the college access) of disadvantaged students but that at the same time reveals a potential for active, engaged forms of intervention and support.

Choices in middle school are not only posed by peers, or by the abstraction the youth I interviewed called "el ambiente", the environment. They can also be part of the work of institutions. These institutional barriers to access are the topic of the next section.

3.4 institutional barriers, biographical solutions

Institutions such as schools and universities have a lot of power - they can increase opportunity through things like quality teaching, academic and non academic extracurricular activities, and college going information-or its lack. This section focuses on representative events that illustrate two examples of areas where the structuring of opportunity happens in Puerto Rico and that may be re- examined: "Defaults", predesigned paths, institutionalized in the form of school policy.

One of such policies is the mapping of schools according to location. This means that if you come from a certain elementary school, there is a default middle school you go to, and getting out of the default route often requires substantial parental involvement. This happened to Lisi when she graduated from sixth grade: her "default" school was a dangerous place at the time, and she cried every day for the first three weeks of class-and skipped school. Eventually, and after visiting her preferred school, located nearby, many times, her mother was able to get her switched, only after the principal was made aware of her excellent grades. A child without that credential, she stated, would have been left out. She describes her shock when, years after, the same thing happened to her son, a student with very good grades and strong college-going aspirations, then finishing the ninth grade:

Lisi: We had our sights on engineering, the [selective public university campus], and the [name of school] had very low average scores [in the NCLB yearly tests], and so we wanted to get him in [a different public school which, unlike the other one, offers honors courses.]...My son, and I want to be very clear about this, my son is an excellent student, with excellent behavior, and when he went to his counselor [in middle school] he was told he could not apply to the general course in [his preferred school]....

The reference to “general course” [curso general] is important because it represents another potential structural barrier I would like to discuss here as very worthy of further study: the vocational-general dichotomy. In Mayagüez, the city where this study was carried out, there are two high schools. One school offers exclusively “vocational” curricula, the other one has both “general” and “vocational” curricula. The general curriculum is the one that best prepares a student for college and the one that allows, by default, students with good grades to opt for honors versions of courses in their final year. [Students in vocational tracks may be able to get into these courses but only after a substantial time investment negotiating with school authorities-see Brusi, 2009, for a discussion.]

What the school counselor was telling Lisi’s son was that he could go to his default school (vocational) or apply directly to one of the vocational tracks in his preferred school (accounting, business, which provide practicum opportunities but erase one year of math and one year of science from the curriculum), but not to the general track, the one that the child wanted and the one that most closely resembles a college-preparatory track in Puerto Rico’s public school system. In effect, he was disclosing, and perpetuating, an interesting and discriminatory assumption turned into policy: That the poorer the community surrounding a school, the less likely its graduating children were to pursue a college education. Lisi, however, insisted, and went to his son’s school of choice school to apply directly:

Lisi: I went, and they told me to speak to the school counselor...I got there and was disgusted...all the Army propaganda, and only a small, very small announcement from the college board [college admissions test]. And she comes out, with her “go army” necklace and I explain the situation, and she told me that she could not give me an application, because my son’s school was not the “escuela de procedencia” [school of origin] to hers...and I say “okay, I understand that the kids from [name of school of origin] would then have priority over my son but I still want to apply”, and she talks and talks and then says that even kids from private school would have priority over my son, and I say “but those kids are not from the school of origin” and she answers, “right, but we assume they have transportation”...You bet I left and in less than ten minutes had two complaints filed with the Civil Rights Commission.

RB: But if it had not been you, or if you didn’t have that knowledge about the commission, and those contacts, if you had been a “normal” mom....

Lisi: [Nodding in assent] In fact we know of other cases, my son tells me look, So and So, they wanted to do the same thing I did, and want to study the same thing [in college] and they cannot come here...

Decisions in middle school, then, are not only the more abstract kind related to life paths that Macho described in the preceding section. They also involve very concrete, short term decisions about life and career that can increase or decrease their chances of getting enough cultural capital to aspire and prepare for college. The separation of vocational vs. general tracks, and the institutionalization of vocational tracks as default choices for the poorest student, and other “choices” (like choosing a

different school) that in fact they need a substantial investment of time and knowledge. The knowledge available to disadvantaged students may help reinforce, not question, these institutional defaults. The end of ninth grade in the middle school Juni went to exemplifies the institutional shaping of students' knowledge and thus, student "choice":

RB: So you picked a vocational program in high school.

Juni: Yes, electronics.

RB: How did you come to that decision?

Juni: Because of the math.

RB: Tell me more.

Juni: Because I know to work with numbers...I love math. Working with numbers has always been my passion. I thought about accounting at first [another vocational track] but then I picked electronics. You divide, you use Pi, I love it.

RB: How did you find out what the vocational choices were? Accounting, electricity, how do kids at the [middle] school you went to find out?

Juni: They visit the [middle]school three or two months before [ninth grade] graduation...They show you what courses they have, what [content] you use, they...they let you choose, that's the good thing they have. But your choice depends on your GPA. For every track you need a specific GPA, but mine was high and I could get in any of them..you need 3.50, at the very least 3.20 to get in...

RB: Ok, so the vocational high schools visits the middle school. How about the general tracks? Did anybody, does anybody tell kids at the school about the general track?

Juni: At the vocational school they have academic classes, but they offer you a course [vocational track], the academic comes after...They give you a career.

RB: So here the [school that contains general track] does not visit, here only the vocational school visits.

Juni: That is right.

RB: So kids would have to take different steps if they wanted something different.

Juni: Exactly.

RB: Did you have to do paperwork or something [to go to the Vocational school]?

Juni: They [vocational school] bring the papers, you choose, and they take the papers back with them.

There are many ways in which schools and other institutions structure opportunity. The stories examined here suggest several potential “barriers” worthy of examination: channeling the ninth graders from high-poverty areas into vocational schools or programs by default is one of them. Other potential institutional barriers to access mentioned by participants included: stereotypes or faulty assumptions held by teachers; lack of college going information; assumptions of “lack of interest” automatically projected on students from the poorest schools, even in the absence of the college going information needed to develop such an interest; lack of academic support and extracurricular activity, especially during those critical middle school years; and the lack of interest expressed by nearby four-year colleges who seldom visit the school. Of all the themes explored in this paper, this one is perhaps the one most amenable to short-term, scalable change.

4 - Concluding Remarks: Persons, Systems, and the Capacity to Aspire

This paper has employed the cultural biography framework used by Tierney and Colyar (2009) to examine challenges of college access in urban settings and to approach the difficulties/barriers to access presented in situations of marginal poverty, using key events, anecdotes and themes. This final section represents an initial attempt at the analysis and discussion of the abundant data generated, articulating connections between notions of agency (the actions of individual social actors), structure (systemic constraints, the context, the structural components of access), and the capacity to aspire (Appadurai, 2004), a concept I believe to have a lot of potential for the understanding of the implications marginality has for college access and success.

The notion of the ‘capacity to aspire’ (Appadurai, 2004) was developed by its author as a tool to think about poverty in connection to development programs (see Rao & Walton, 2004), but I believe it to be particularly useful to describe and understand the relationship between poverty and access to higher education (see Bloom, 2008, for its application to the study and critique of college access programs). Bloom describes how first generation students are more likely to go to college and succeed in it if they develop not only the aspiration to go to college but the “thickness” of aspiration. Aspirations with content, content in turn provided by a mixture of imagination and knowledge, the kinds of knowledge that get manifested in aspiring not only to go to college but to particular colleges and careers, in imagining oneself as a freshman, in acting with particular, detailed scenarios in mind.

This “thickness” is predicated on academic empowerment, information about the process and landscape of higher education, and a sense of comfort and affinity with the resources needed to navigate it, all of

which involve the sorts of cultural capital that are more readily accessible to middle or upper class youth. These contents inhabit “the subtle space between desire and aspiration” (Bloom, 2008, p. 3) and often result in the (crucial) difference between wanting to go to college and actually doing so. The capacity to aspire, not only as it relates to college going but in general, is unevenly distributed in society, because “the better off you are, the more likely you are to be conscious of the links between the more and less immediate objects of aspiration.” (Appadurai, 2004, p. 68) A better social position translates into a bigger stock of available experiences related to college-going aspirations and, in a more general sense, to the relationship between aspirations and outcomes, useful for the detailed construction of potential scenarios and for the production of justifications, narratives, metaphors and, especially, pathways: “The capacity to aspire is...a navigational capacity. The more privileged in any society...have used the map of its norms to explore the future more frequently and more realistically, and to share this knowledge with one another more routinely than their poorer and weaker neighbors.” (p. 69) Appadurai is not advocating a “culture of poverty approach”, but rather recognizing the impact of relative poverty on the density of what he calls “aspirational nodes”, resulting in a thinner, weaker, less supple set of pathways, “not because of any cognitive deficit but because the capacity to aspire, like any complex cultural capacity, thrives and survives on practice, repetition, exploration, conjecture and refutation. Where the opportunities for such conjecture and refutation in regard to the future are limited (and this may well be one way to define poverty), it follows that the capacity itself remains relatively less developed.” (p. 69)

The critical role of this “subtle space” is evident in Janice’s narrative. When asked about the roots of her impressive college going aspirations, developed against all odds in the midst of the density of tragedy, Janice states that she developed academic interests and aspirations as a reaction to her mother’s parenting and life choices. “Como un espejo - para ser todo lo que ella no era.” This emic interpretation is valid - but her story, I think, evidences also the capacity and opportunity to develop “thick desire” connected to college via academic pursuits and rewards. Her rebellion, unlike Juni’s, Michael’s, or Chary’s, resulted in her involvement not with “el business del caserio” or with an escape through romance, but rather in her involvement with academic activity, in intense daydreaming where college and careers were protagonic, with, in short, relatively thick college-going aspirations and imaginaries. Academic activities led to more academic activity, rewards led to more rewards, and when the mid-school crisis hit, it found her spending more and more time in the afterschool club. Note that many of the experiences that serve as the building blocks of Janice's "capacity to aspire" happen precisely during the middle grades, a period recognized by the research literature as critical to college-going outcomes (Camblin, 2003).

In contrast, at the same age, Michael got more and more involved with the drug business. A comparison between the two cases is suggestive- they both had good grades, they both had extremely difficult relationships with their mother, they both rebelled and sought refuge in a set of activities separate from what went on inside the house, they were both rewarded for doing good, for their talent and hard work, and they both, motivated by this rewarding, persevered in their “chosen” path. The crucial differences are the where and the what - the why, the motivation, may not be so different. They both invested time

and effort that led to more time and effort, developing thickness-on opposite sides of the college access path. The same need to survive and excel drove Janice to college and away from home, and drove Michael to attack a fellow inmate, in jail.

Developing “thickness of aspiration” may be seen as a vague proposition, but it has an intuitive appeal: Anybody working with youth knows that one time advice is less effective than day to day involvement. Good teachers, recent research has revealed (Ripley, 2010) are not necessarily those that most impress the students but those that show persistence and grit. Persistence and grit are part of what thickness of aspiration is about. To the extent that true “choice” cannot be said to exist in the absence of opportunity, true agency may be predicated on this thickness of desire that drives not only rational decision making but the strategic improvisations that define day to day activity and decision making and that are so crucial to the unfolding of the process that ends with the application and admission to college; the “unconscious enactment of the individual dispositions that govern the vision of possible and appropriate actions” (Horvat, 2001, p. 208).

Of course it is easy to assume differences at the individual level, differences in “talent”, “merit” or whatever concept we choose to use, to explain the diverging paths of Janice and Michael. And in fact, they are very different individuals. But I believe there is a lot of usefulness in realizing that the goal of a child is not to become a successful adult, but a successful child: children are talented students of culture - especially of children’s culture, the culture where they carry on their day to day activity (Harris, 1998; Hirschfeld, 2002) and where one-time adult advice is probably less relevant (unless it resonates with prior notions) than peers, systems, structures, institutions and other shapers of senses of “pathway”, of “default”. Both Michael and Janice had the talent to eventually get into college - but only Janice had the “capacity” to turn desire into aspiration. Michael’s “thickness” developed elsewhere and as the result of actions that were both chosen and imposed. At the level of system/ structure, outside of the individual, the level where policy is developed, the question of availability of opportunity to develop thickness is relevant. If the after school club had not been there, would Janice be in college today? If Michael had grown up in a different context, with different opportunities to develop his talents and different pathways or patterns in front of him, would he have gone to jail? Sometimes individuals do manage to find biographical solutions to structural problems-but at the level of policy-making, the focus has to be in the development of structural solutions.

Ever since the somewhat infamous “culture of poverty approach” was misused in the political realm, anthropologists have avoided the term - and with good reason. But, as Bourgois (1996, 2001) states, in studying inner city poverty it is important not to lose sight of the very real consequences of misery, poverty, and its manifestations in spatial segregation. The study of issues of college access has to include an honest look at the ways in which poverty exerts structural violence and shortchanges some of our citizens, limiting, among other things, their educational opportunity. Part of the power of Appadurai’s notion stems from the idea of “thickness” applied to the development of aspirations, but an important part derives from the connection he makes between aspirations and what he terms the “terms of recognition”, the daily negotiation of the norms that frame one’s life. Aspirations can change the terms

of recognition through the potentiation of the capacity to debate, contest, aspire, in short, participate fully, and critically, in a democracy. Faced with a situation in which the place they call home has been also turned into a collective symbol of otherness, treated simplistically by the very authorities in charge of protecting, serving and reforming, the residents of public housing constitute a social group that stands to benefit from such a switch in the terms of recognition, and all Puerto Rico would be better off for it.

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6 Conclusions and Recommendations

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While overall educational attainment in Puerto Rico has increased substantially during the past fifty years, the results of the studies in this project provide empirical evidence for persistent socioeconomic stratification of educational attainment in Puerto Rico. Prior to this project, there had been few studies on socioeconomic factors and educational attainment in Puerto Rico, and none as comprehensive in terms of data sources and methods. Each of the studies represents one piece of a large and complicated puzzle to understanding this phenomenon.

The most important findings of the project were as follows:

- Previous research on socioeconomic stratification of educational attainment in the United States and internationally links structural factors in families, schools, and neighborhoods to educational attainment. Low-income families tend to have more restricted access to the forms of social capital associated with higher attainment (parent education level, parent-child interaction, and interactions of parents and children with school personnel). School quality is an important factor in attainment, and low-income youth are also more likely to attend middle and high schools that do not provide the academic preparation or the “college-going culture” enjoyed by their higher income peers.
- There are clear economic and educational inequities in Puerto Rico based on geography, as illustrated in the income and attainment maps. The highest median incomes (\$50,000-\$110,000) are concentrated in census block in the metropolitan San Juan area, and the proportion of adults completing high school tends to be highest in the urban areas. In the grand majority of census blocks, fewer than 10% of adults have a bachelor’s degree, again with highest education levels in Mayaguez, San Juan metro, and Ponce. An analysis of the higher education institutions in the San Juan area suggests that many of the two year institutes are located within, or on the periphery, of lower income areas.
- High income students whose parents attended college were significantly more likely to persist in college than low income/first generation students. There were some gender-based differences in academic preparation and socioeconomic factors that predict retention among students who apply for financial aid. Young men’s persistence appears to be related to academic preparation and public school attendance, while young women’s persistence is related to high school GPA, parents’ marital status, and public school attendance.

- The life histories of youth and adults living in public housing shared four common themes: 1) chronic tragic life events that dampened their academic aspirations; 2) the “apartheid” nature of public housing; 3) middle grades as turning point, usually for the worst; and 4) institutional barriers in the schools.

Taken together, these findings provide empirical evidence for educational attainment inequities in Puerto Rico, and illustrate that these inequities are associated with both socioeconomic and geographical factors. Higher income, highly educated Puerto Ricans are concentrated in urban areas – but in the public housing communities of those urban areas, citizens face significant structural barriers in their communities and schools to moving beyond a middle school level education. Even among those who enroll in the most selective higher education institution on the island, socioeconomic and structural factors play a role in whether they continue their studies beyond the first year.

The limited availability of research on higher education in Puerto Rico became apparent during the course of the project. While we were aware of several different research and outreach initiatives, both large and small, across different institutions in Puerto Rico, very little information was available about the outcomes and findings of this work. Publically available research reports and peer-reviewed published research on higher education in Puerto Rico are scarce. Even the CESPR research reports are not published online. Also during the course of this project, Puerto Rico experienced the largest government layoff in history – over 17,000 employees – and the CESPR was drastically downsized like many other Puerto Rican public agencies. In a time when little information is available to understand challenges facing higher education in PR, fewer resources are being allocated to this effort.

Policy Implications and Recommendations

While this project was not designed to analyze or evaluate any particular state or institutional policies, the findings certainly call attention to areas of policy and research focus for higher education in Puerto Rico. Based on our experiences and on the findings of our research, we identified 9 recommendations across five important actors in the K-16 educational process: the Government of Puerto Rico, the Puerto Rico Higher Education Council, Higher Education Institutional Leaders, K-12 School Leaders, and Educational Researchers.

Government of Puerto Rico

1. **Puerto Rico must continue to allocate funds to research on higher education.** In order to understand the best ways to allocate limited public resources, the government must continue to invest in research that helps determine the most effective policies and strategies for ensuring students persist and graduate from higher education institutions.

Puerto Rican Higher Education Council (CESPR)

2. **CESPR should prioritize the funding of research that helps develop pathways to college in areas of lower educational attainment.** On such a small island with so many colleges and universities, we should not see the kinds of effects illustrated in the maps in Study 2. CESPR can help encourage researchers to work in these areas by prioritizing research funding for projects that involve partnerships with schools and communities, and which will result in clear recommendations for practice.
3. **CESPR must foster increased availability of basic student data to allow the analysis of socioeconomic factors and college outcomes at the island level.** A limitation of the current project was the sample from a single institution. Institutional data are simply not shared at the island level. Institutions already compile student-level data to comply with the institutional-level federal reporting requirements of the Integrated Postsecondary Data System (IPEDS) – these data could be provided to CESPR, without personal or institutionally identifying information.
4. **CESPR should foster increased accessibility of research findings on higher education in Puerto Rico by initiating the development of an online research clearinghouse.** While not all Puerto Ricans have reliable access to the Internet, it is arguably the most equitable manner in which to disseminate research findings. Reports submitted to the CESPR and other funding agencies, theses and dissertations, and presentations at local and international meetings should be accessible from a central source. CESPR could issue a call for proposals such that the clearinghouse could be administered by one of the higher education institutions.

Higher Education Institutional Leaders

5. **Higher education institutions must support and promote research and sustained outreach in schools and communities with lower college-going rates.** Higher education institutional leaders should prioritize research and outreach that aims to increase educational attainment in Puerto Rico, and publicize the work of their faculty and students in this direction. Specifically, there needs to be deep involvement in these schools and communities - not one-shot photo opportunities - to develop the “thickness” of educational aspirations in young people to ensure they consider higher education as a viable life option. This involvement needs to be part of the lived mission of the university, and faculty and staff efforts in these areas must be recognized and rewarded. Institutional resources should be targeted to intensive research/outreach/support efforts that bring together the study of the particular barriers faced in lower attainment communities to develop pathways to college.
6. **Higher education institutions must develop or strengthen efforts to retain lower SES students.** Using institutional research infrastructure, institutions should focus on studying which students are more likely to leave after their first year, along with the specific needs of those students for

extended orientation or academic support. Then, resources must be allocated (or re-allocated) to efforts that will promote the persistence of those students most likely to leave. Ample evidence on best practices is available in the literature – but it is important to examine what will work in a particular institutional context.

K-12 School Leaders

- 7. K-12 school leaders must work to create high expectations for all students among school personnel, students, and their families.** In private schools, the college preparation mentality begins in kindergarten. School personnel cannot be permitted to decide who is “college material” based on demographic characteristics and assumptions about motivation and interest in higher education.

Educational Researchers

- 8. Further research is necessary to understand the barriers to college retention among low income students in Puerto Rico.** Evidence from UPRM suggests that the attrition rates for low income students are twice as high as their higher income peers; and the findings in the current project showed that parent income and education level play a key role in predicting retention. Further research is needed to understand what barriers these students face, in contrast to higher income peers; qualitative research should play an important role. Conceptual frameworks including social and cultural capital would also help to provide more theoretical tools to understand educational inequity in PR.
- 9. Further research using the mapping tool developed in this project should be undertaken to identify key geographical focus areas in Puerto Rico for outreach and recruitment efforts.** Educational researchers should use the database and mapping tool to identify places in Puerto Rico with the highest socioeconomic and educational needs, and to pave the way for the generation of more responsive policies and initiatives to lessen socioeconomic stratification of educational attainment in Puerto Rico, and create more solid pathways to college in schools and communities where going to college is not the norm.