



Center for Social Development

GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Saving for Post-Secondary Education in American Indian Communities

A Geospatial and Quantitative Analysis

Amy Locklear Hertel
Center for Social Development

Mary Elizabeth Jäger
Center for Social Development

2010

CSD Working Papers
No. 10-21

Campus Box 1196 One Brookings Drive St. Louis, MO 63130-9906 • (314) 935.7433 • csd.wustl.edu



Washington University in St. Louis

Saving for Post-Secondary Education in American Indian Communities: A Geospatial and Quantitative Analysis

A college education is critical to achieving financial stability in the United States. Empirical evidence linking college completion to higher incomes supports this assertion (Bergman, 2006). Every child should have the opportunity to obtain a post-secondary education and achieve financial stability. However, little is known about the practices and behaviors of American Indians when it comes to saving for post-secondary education. This pilot study is the first in this regard. There are two objectives for this study. The first is to assess spatially NC 529 College Savings Plan (NC 529 Plan or Plan) awareness and ownership among American Indian participants in North Carolina. The second is to identify significant indicators of saving for post-secondary education among participants. The indicators tested are income, child education expectations, homeownership, and credit card debt. Data for this study is from an 18-question survey instrument designed to learn more about saving for college among American Indians. The sample consists of 107 American Indian adults living in North Carolina. Findings indicate that Plan awareness in tribal and urban Indian communities is low. There is a relatively high degree of NC 529 Plan ownership among sample participants compared to 2007 NC 529 Plan ownership in general. The only significant indicator of saving for college is child education expectations. All other variables are not significant. The finding that income is not associated with saving is itself significant as there is an opposite finding in studies with non Native study participants. Policy recommendations and areas for further research are discussed.

Key words: *American Indians, 529 College Savings Plan, child education expectations, credit card debt, homeownership*

A college education is critical to achieving financial stability in the United States. Empirical evidence linking college¹ completion to higher incomes supports this assertion. Data from the U.S. Census Bureau reveals that adults with a bachelor's degree earn, on average, \$22,900 more annually than adults with only a high school diploma. They also earn, on average, \$32,400 more annually than adults without a high school diploma (Bergman, 2006). The gap widens when a graduate or a professional degree is taken into consideration. Advanced degrees allow adults to earn, on average, \$49,400 more than adults with a high school diploma, and \$58,900 more than adults without a high school diploma (Bergman, 2006).

Every child should have the opportunity to obtain a post-secondary education and achieve financial stability. However, there are a number of barriers to higher education that make college unobtainable for low-income and minority youth. One of these barriers is limited financial resources. Families with limited access to financial resources are less likely to pursue higher education (Elliott, 2007a). Another barrier is the high cost of post-secondary education. A recent study by the Pew Mobility Project shows that between 1999 and 2009, tuition and fees at public

¹ College is defined here as either post-secondary training or education that results in a degree or certification after high school, which may lead to improved economic opportunities.

universities increased on average by 50% (Haskings, Holzer, & Lerman, 2009). These increasing costs have led to a perception that college is unattainable for low-income and minority families (ACFSA, 2002). A third barrier to post-secondary education is fewer grant opportunities. In 2008, 26% of financial aid to undergraduate students came in the form of grants. This was down substantially from 1980 when grants were awarded at a rate of 55% (Orozco and Cauthen, 2009). As grant opportunities diminish, parents and students are forced to seek out alternative ways to save and pay for college. One way to save for college is in a 529 college savings plan.

529 College Savings Plans

The 529 college savings plan (529 plan or plan) is a savings account designed for individuals to save for future college expenses. The plans are administered by states and allow plan owners to select from a wide range of investments with varying risks and returns. Account owners must identify an account beneficiary and funds in the account may be used for qualified educational expenses at any eligible educational institution. Eligible education institutions include private and public colleges and universities, community colleges, and some vocational schools (Boshara, Clancy, Newville, & Sherraden, 2009). They may also include tribal colleges.

In general, people saving in 529 plans have higher incomes and assets than those not saving in the plans (Boshara et al., 2009). In 2003, approximately 8% of households in the US owned a 529 plan. Of those who did not own an account, 61% were aware of the plans. Awareness decreases with income, falling to 50% among households with income of less than \$50,000 annually (Boshara et al., 2009).

A more recent study indicates that 529 plan ownership is on the rise among the general population. A 2007 online survey found that among a nationally representative sample of 2,294 families, 26% reported having saved in a 529 plan (Fidelity Investments, 2007). The same study reported that 21% of those families not saving in a 529 plan were unaware of the plans. These findings indicate that as account ownership has been trending upward so has plan awareness.

The state of North Carolina has experienced a much slower uptake of its NC 529 College Savings Plan (NC 529 Plan or Plan). Data from tax returns filed for the 2007 tax year reveals that less than one percent of NC tax payers included information in their tax returns about 529 plan participation (Action for Children, 2010). At the time of this writing, there is no awareness data for the NC 529 Plan available.

Efforts at the Center for Social Development are currently underway to make 529 plans more attractive and accessible to minority and lower-income individuals. This pilot study will inform these efforts with respect to American Indians. Data are collected from American Indian adults living in North Carolina to assess a number of key indicators of saving for college as well as NC 529 Plan awareness and ownership patterns. Based on a thorough review of the literature, this is the first study to specifically examine saving for college among American Indian adults.

Literature Review

Assets Theory and Effects of Savings

Assets are defined as “an item of value owned” (Merriam-Webster's collegiate dictionary, 2003). Assets can be tangible or intangible, financial or nonfinancial. For purposes of this study, we are concerned with financial assets in the form of college savings accounts. Assets theory suggests that, among other things, assets can generate long-term thinking and planning, lead to greater development of human capital, and enhance the well-being and life chances of future descendants (Sherraden, 1991).

Child savings accounts designed for education can increase expectations about individual academic ability and lead to increased efforts in school (Elliott, 2007b; Sherraden, Johnson, Elliott, Porterfield, & Rainford, 2006). Increased efforts may, in turn, result in improved academic performance and increased opportunity to attend college (Marjoribanks, 1984; Mau, 1995; Mau & Bikos, 2000; Mickelson, 1990). In a study by Shobe & Page-Adams (2001), researchers report that college saving gives children and their parents the opportunity to hope, plan, and dream about their future; an opportunity that may not otherwise exist without college savings accounts. Even saving a small amount of money is associated with positive changes in the lives of children (Sherraden, 2009).

There are other ways to pay for college besides saving. Parents and students may seek scholarship and grant opportunities or obtain student loans. However, these opportunities are limited and in the absence of saving, positive behavioral effects may not be realized. Assets theory suggests that the process of saving can have a significant influence on college expectations (Sherraden, 1991), which other forms of financial aid may not have (Elliott, 2007a). College loans can have a negative impact on expectations, as parents and students perceive college loans to be a costly liability, rather than an investment in the future. Further, college loans may negatively affect college completion as students are confronted with the overwhelming reality of mounting debt (Elliott, 2007a). College scholarships, while a possibility for some, are not a guarantee and are often awarded near the end of high school completion when it is too late to positively impact college expectations or academic performance.

Saving can have both short-term and long-term positive implications. According to Sherraden (1991), financial assets may facilitate socioeconomic development through “asset effects,” which are capacities, attitudes, and behaviors that assets may generate beyond those generated by income alone. In the short term, it can improve academic behavior and orientation toward post-secondary education, sending more students to college. Saving can help parents and students afford post-secondary education. In the long term, it can lead to greater income potential and eventual financial stability. Higher paying jobs create access to health insurance and retirement benefits that can have a significant impact on long-term financial well-being. A recent study by the Pew Charitable Trust finds that parents in the lowest income quintile almost quadrupled the chance of their children moving to the top quintile by helping them obtain a college degree (Haskings, Holzer & Lerman, 2009).

Indicators of Saving for Post-Secondary Education

Significant indicators of saving for college include income, child education expectations, assets (homeownership), and unsecured debt (credit card debt). This study examines each of these indicators to understand saving for college in American Indian communities.

Parents' education expectations for their children are highly correlated with saving for college (Lippman et al., 2008). Parents who are saving money in a college savings plan are more likely to expect that the money saved in the account will be spent on college-related expenses.

Other researchers have shown that income and assets matter. Saving for college varies by income (Sherraden, 2009). In households where the annual income fell below \$35,000, 32% of parents were saving for college, while in households where the annual income was over \$100,000 the rate of saving for college increased to 80% (Sherraden, 2009). The association with income is not surprising as low-income parents are often forced to make difficult decisions regarding the allocation of limited resources. With respect to homeownership, a study of IDA participants found that homeowners saved more than renters, indicating that homeownership promotes saving for post-secondary education (Zhan & Schreiner, 2004).

A recent study by Zhan and Sherraden (2009) found that unsecured debt (partially in the form of credit card debt) is negatively associated with college graduation for African American and Hispanic children suggesting that credit card debt may negatively influence saving for college. In the Zhan and Sherraden study, the sample included only white, African American, and Hispanic youth aged 11-17 in 1994. Youth from other racial groups were excluded based on the small sample sizes. While that survey defines unsecured debt to include credit card debt, it did not ask about credit card debt independently.

Education in American Indian Communities

American Indians value education as a top asset in tribal communities. In fact, education ranked higher than money, financial security, or homeownership in a 2008 study (Hertel, Wagner, Phillips, Edwards, & Hale, 2008). Many in this study viewed education as part of an unspoken contract between the tribal community and its youth. Study participants noted that the tribal community had a responsibility to teach the youth and that the youth had a responsibility to give back to their tribal community after receiving an education (Hertel et al., 2008). The prioritization of education as a vital communal asset by American Indian people is remarkable and worthy of further exploration. Since education has been identified as a vital asset among American Indian people, it would logically follow that most American Indian adults are either saving for a child's education or would like to save for a child's education. This study explores this assertion.

Study Purpose

There are two objectives for this study. The first is to spatially assess NC 529 Plan awareness and ownership patterns among American Indian participants in North Carolina. The second is to identify significant predictors of saving for post-secondary education among American Indian participants living in North Carolina.

Two analyses are conducted. First, geospatial analysis is conducted to spatially examine NC 529 Plan awareness and ownership patterns in American Indian communities in North Carolina. When presented geospatially, awareness and ownership patterns will emerge that are not readily visible by table or text format alone. This data may lead policymakers to ask probing questions such as “Why is awareness of the NC 529 Plan low among this population?” or “How can we better market the NC 529 Plan to American Indian adults?” Second, a logistic regression analysis is conducted to investigate the direct association between income, child education expectations, homeownership, credit card debt, and saving for college in American Indian communities.

Measures and Data Analysis

The data for this study is from an 18-question survey instrument designed to learn more about saving for college among American Indians. Desired participants are American Indian adults living in North Carolina. The survey was administered at the 35th Annual North Carolina Indian Unity Conference (Unity Conference) held in Raleigh, North Carolina March 11-13, 2010.

Sample

Survey data are collected from 120 adults attending the Unity Conference. The Unity Conference attracts American Indians from across the state with different interests and backgrounds ranging from education, tribal governance, and economic development to arts, crafts, and cultural preservation. Non-Native participants and those who did not provide a North Carolina zip code as their home zip code are not included in this analysis. The final sample size is 107 participants. Not all study participants are parents saving for their child’s education. There were a number of grandparents in the sample saving for their grandchild’s education. Given the treatment of education as an important communal asset, it is logical for this study to expand beyond the experiences and practices of American Indian parents and to include tribal members, regardless of their status as parents.

The survey asked participants to provide their home zip code. This data is used to geospatially locate participants on a map (see Figure 1 in Appendix A). The zip code data is aggregated to county-level data in order to protect participant confidentiality. Figure 1 shows the distribution of participants by county and tribally-designated area. Counties portrayed in light green contain study participants. As the map indicates, participants in the study are clustered around tribally-designated areas and urban cities throughout the state. This observation is explored statistically in ARCGIS by calculating Moran’s I, which is a measure of spatial auto correlation. With a Moran’s Index value of 0.15, significant clustering of participants at the $p < .01$ level was confirmed.

Measures

The dependent variables for this study come from a review of the literature. In all, four independent variables from the literature are included in the logistic regression model, and participant education level is the control variable. Spatial data are analyzed using the ArcMap features of ArcGIS, a geospatial data analysis program. Logistic regression analyses are conducted using SAS 9.2.

Saving for College. The dependent variable comes from the participants' response to the question "Have you opened any type of account to save for a child's education?" This variable is dichotomous, where a "Yes" response is coded as "1" and a "No" response is coded as "0".

Education Level. Participants were asked to provide the highest level of education they had completed. Answer choices ranged from high school to graduate school and included the following options: (1) less than high school or GED; (2) high school degree; (3) some college or technical school; (4) two-year degree (Associates); (5) four-year degree (Bachelors); (6) Some graduate school; and (7) graduate degree. This variable is dummy coded with "0" representing less than a Bachelor's degree and "1" representing a Bachelor's degree or greater. All of the models included in this analysis controlled for this variable.

Income. Participants were asked to select an income range for all persons living in their household over the last year. Answer choices included: (1) less than \$15,000; (2) \$15,001-\$25,000; (3) \$25,001-\$50,000; (4) \$50,001-\$75,000; (5) \$75,001-\$100,000; and (6) above \$100,001. This variable is dichotomized with "0" representing participants with less than \$25,000 in annual household income and "1" representing participants with \$25,000 or more in annual household income.

Child Education Expectations. This independent variable is based on a question asking participants how far they expect the children they are saving for will go in school. Response choices included the same as the participant education level question with the addition of two additional responses: (8) don't know; and (9) I do not have children. There were no "don't know" responses. This variable is dummy coded the same as the education level variable with "0" representing less than a Bachelor's degree and "1" representing a Bachelor's degree or greater.

Credit Card Debt. Participants were asked "Approximately how much credit card debt do you have?" Answer choices included: (1) \$0-\$4,999; (2) \$5,000-\$9,999; (3) \$10,000-\$14,999; and (4) more than \$15,000. The variable is also dummy coded with "0" representing those with \$9,999 or less in credit card debt and "1" representing those with \$10,000 or more in credit card debt.

Homeownership. Homeownership is also dichotomized. The survey asked participants to select one of four categories to describe the home they lived in. Answer choices included: (1) own and do not own any money on the home; (2) own and make mortgage payments; (3) rent; and (4) do not own or rent, but live with family or friend. To dichotomize the variable, those who owned their own home are coded as "1" and those who either rented or lived with family or friends are coded as "0".

It is hypothesized that there will be a significant positive association between child education expectations, income, homeownership, and saving for post-secondary education. There will also be a negative significant association between credit card debt and saving for college.

Results

Sample characteristics

Less than half of the participants (45%) reported having opened an account to save for a child's post-secondary education (see Table 1 in Appendix D). Saving in the NC 529 Plan (11%) trailed awareness (40%). Less than half of the participants (47%) had obtained a Bachelor's degree while over half (58%) reported greater than \$50,000 in annual household income. Only 70% of

participants expected the children they were saving for to obtain at least a Bachelor's degree. Regarding credit card debt, 11% of the sample carried credit card debt of \$10,000 or more. Finally, homeownership rates are high (90%).

NC 529 Plan Awareness and Ownership

Figure 2 contains information related to NC 529 Plan awareness among study participants (see Appendix B). The base layer of the map indicates the percentage of participants from each county in the study. The red symbols on the map represent the number of participants aware of the NC 529 Plan by county. Finally, tribal offices and urban Indian centers are geospatially located to identify places tribal members frequent.

Awareness was low. More than half of the participants (60%) were not aware of the Plan, and nine counties included in the study had no participant awareness. These counties were Haywood, Mecklenburg, Cabarrus, Iredell, Person, Warren, Greene, Bladen, and Scotland Counties. Three of these counties—Person, Warren, and Scotland Counties—contain tribally-designated areas. Mecklenburg County is home to the Metrolina Native American Association, which serves the urban Native population living in and around Charlotte. The remainders of counties without participant awareness border counties that contain either a tribally-designated area or an urban Indian center.

Awareness was most prevalent in the central and northeastern part of the state. In general, greater awareness existed in areas with a higher percentage of study participants. The two counties with the highest awareness were Robeson County and Halifax County. Both of these counties contain tribally-designated areas.

The map identifies 12 tribal offices or urban Indian centers in North Carolina (see Figure 2 in Appendix B). These are areas where tribal members often congregate or receive information and are presumed to be some of the most trusted institutions for American Indians living in North Carolina. Awareness of the NC 529 Plan among tribes and Native organizations is generally low. There is no awareness among participants near the Eastern Band of Cherokee, Metrolina Native American Association, Sappony Tribe, or the Meherrin Indian Tribe.

Figure 3 spatially identifies NC 529 Plan ownership among participants (See Appendix C). The base map is a choropleth map depicting the number of participants saving for college in general. Colors range from white to dark green. Counties represented in white contain no participants saving for college. As the green color ramp intensifies, the number of participants saving for college also increases. No county contained more than two participants saving in the NC 529 Plan. The counties with the highest Plan ownership were Columbus and Guilford Counties. Eight counties contained one Plan owner. While nearly half (45%) of the participants reported opening an account to save for post-secondary education, only 12 (11%) of the participants were saving in the Plan. This number may sound small, but it is a relatively high rate of participation in comparison to 2007 available data that puts NC 529 Plan participation at less than 1%.

Direct Effects of Indicators on Saving for Post-Secondary Education

Table 2 displays the logistic regression results of saving for post-secondary education (see Appendix E). The control variable, participant education level, was not significant when entered into Model 1 independently. Child education expectation for post-secondary education is the only variable that remained highly significant as each model was built. Essentially, American Indian adults that expected children to obtain at least a Bachelor's degree were more likely to save for college than adults who did not have the same expectation when controlling for other variables in the model. The influence of child education expectations decreased slightly when credit card debt was entered in Model 5.

Income, found to be a significant predictor of saving among non-Native people, was not significant in this study. Participants making less than \$50,000 annually were as likely to save as participants making \$50,000 or more annually when controlling for all other variables in the model. While homeownership and credit card debt were not significant indicators, their association with saving for post-secondary education was negative, when holding all other variables constant.

Limitations

While this study explores saving for college among American Indians—a topic that has received little scholarly attention—it is limited in scope. This is a pilot study and as a result, the sample is small. The sample is also limited to American Indians living in North Carolina, when there are over 550 federally-recognized tribes and over 150 state-recognized tribes in the United States with varying customs, histories, practices, and languages. While there is great diversity among tribes, there are some common themes, and it is not clear whether the findings presented here fall into this more general category. A larger sample of American Indians in North Carolina and from other states is necessary.

The sample for this study is highly educated, has a high rate of homeownership, and has a high annual income; this sample may not be representative of all Native people in the State. The Unity Conference is hosted each year in Raleigh, which is the state capital and is centrally located for most tribes. However, transportation limitations and costs associated with attending the Unity Conference, such as registration fees and food and hotel expenses, may be prohibitive for many American Indian adults. As a result, it is possible that the Unity Conference attendees are more educated and financially stable than American Indians in the state that do not attend the Unity Conference.

It should also be highlighted that limited variance is explained by the models. This research is exploratory in nature and does not capture all predictors of saving for college among American Indian participants. It is likely that there are other indicators of saving for post-secondary education that are not accounted for here. Even given these limitations, this research explores saving for college among a group of people who have not been included in similar studies and whose experience is often underreported.

Discussion and Implications

Findings indicate that Plan awareness in tribal and urban Indian communities is low (40%). Of those who were aware of the NC 529 Plan, 43% were state employees. Further, 58% of those saving in a NC 529 Plan were state employees. These individuals likely found out about the Plan through their employer, although this assertion was not tested. The state has apparently made a concerted effort to advertise and enroll its employees in the Plan. Similar efforts should be made to reach others outside the state employee system. Tribal offices and urban Indian centers are often trusted institutions and sources of information for American Indian people. One recommendation for the state is to expand communication efforts by reaching out to the tribal communities, tribal centers, and urban Indian centers identified in Figure 2. Another recommendation for the state is to consider pairing 529 materials with financial education programs offered by tribes or Native community-based organizations. These institutions are a natural outlet to advertise the NC 529 Plan to American Indians. A network analysis of trust and communication networks in tribal and urban Native communities would empirically identify trust networks.

There is a high degree of NC 529 Plan ownership among sample participants compared to 2007 NC 529 Plan ownership in general. This may be representative of American Indians in the state or the result of a skewed sample. While the statewide conference from which the sample was drawn is attended by tribal members from across the state, it may not be attended by participants that are representative of American Indians living in the state. Further data collection in each of the North Carolina tribal communities would help determine whether the findings presented here can be generalized to all American Indians living in North Carolina.

Findings indicate that the most significant indicator for whether or not American Indians save for post-secondary education is child education expectations. All other variables are non-significant. However, the direction of the association for child education expectations is not clear. While 70% of participants in the study expect the children they saved for to obtain at least a Bachelor's degree, less than half (45%) were saving money for college, indicating that saving rates are low. It is not clear how the participants not saving intend to pay for college. The finding that income does not have a significant association with saving is itself significant and distinguishes saving in Native communities from saving in non-Native communities. It may be that income is mediated by child education expectations. Future quantitative analysis should explore the mediating effects of education expectations in the models.

It is not clear why homeownership had a negative, although non-significant, association with saving for college. A possible explanation is that American Indian homeowners allocate more of their liquid assets to mortgages rather than saving for college. There is insufficient and inadequate data from the survey to explore this assertion. Future studies exploring assets and liabilities are necessary.

Assets theory suggests that the presence of a child savings account can have positive behavioral impacts on child academic performance and post-secondary education expectations. In North Carolina, American Indian students are nearly one and a half times more likely to drop out of high school than other students in the school system with a four-year cohort graduation rate below 55% for the 2007-2008 school year (State Advisory Council on Indian Education, 2009). American Indian males are impacted the hardest with the highest high school dropout rate of any other race or gender in the state (State Advisory Council on Indian Education, 2009). Based on the literature,

encouraging saving for college by participating in the NC 529 Plan may be one way to improve the graduation rates of American Indian high school students.

This study suggests that there is a significant association between saving for college by American Indians and parental expectations for post-secondary education. Therefore, one way to influence saving may be to improve expectations. This may be accomplished through innovative changes to the existing state 529 Plan. Recommendations include offering an initial deposit by the state, the creation of a refundable tax credit, excluding savings in plans from public benefits means testing and need-based financial aid calculations, and providing matching grants for qualified low-income individuals (Clancy, Cramer, & Parrish, 2005). While a few states have adopted these policy recommendations, North Carolina has the opportunity to be among the most innovative of states in this regard. Policymakers in North Carolina and elsewhere are urged to consider these recommendations and the dramatic impact each could have on minority and low-income individuals living within their borders.

Participant expectations in this study were high, with 70% of participants expecting the child they were saving for to obtain at least a Bachelor's degree. In a report prepared by the State Advisory Council on Indian Education, American Indian students graduating from high school in 2008 entered the NC community college system at a rate of 36%, which is higher than the 27% for the general student population. Further, American Indian students entered the University of North Carolina School System for the 2007-2008 school year at a rate of 34 % per capita, which is higher than the 30% for all other races (State Advisory Council on Indian Education, 2009). It is not clear what is causing these high enrollment rates. There may be an association between child education expectations and the location of tribally-designated areas in relation to institutions of higher education. A geographic association could be assessed geospatially. However, short of building colleges and universities on or near tribal lands, the policy implications for this association may not be realistic. It is also possible that the expectation of college enrollment is driving post-secondary education enrollment rates in North Carolina. Another explanation may be that tribal community and family pressure to receive post-secondary education in order to serve Native communities is influencing these numbers as well. This is not clear and further research on college expectations in American Indian communities and its impact on academic performance and college enrollment are necessary.

Publically available information regarding state 529 plans needs to be made accessible and readily understandable by individuals with low educational attainment. The state bears some responsibility in this regard. This is where social workers can help. Social workers familiar with state 529 plans can help translate plan operations to lower-income clients, helping them understand how the plan works and how plan participation may affect the receipt of other social services. States also need to understand that a one-size fits all approach to dissemination materials may not be effective. Materials should be culturally appropriate and targeted to particular audiences. Brochures with culturally identifiable and representative photographs, designs, and endorsements are recommended.

According to Sherraden (1991), financial assets may facilitate socioeconomic development through "asset effects," which are capacities, attitudes, and behaviors that assets may generate over and above income. Child savings accounts have the ability to improve student academic performance, personal efficacy, perceived opportunities, and paying for college. These benefits are real and should be available to individuals from all income and ethnic groups, including American Indians.

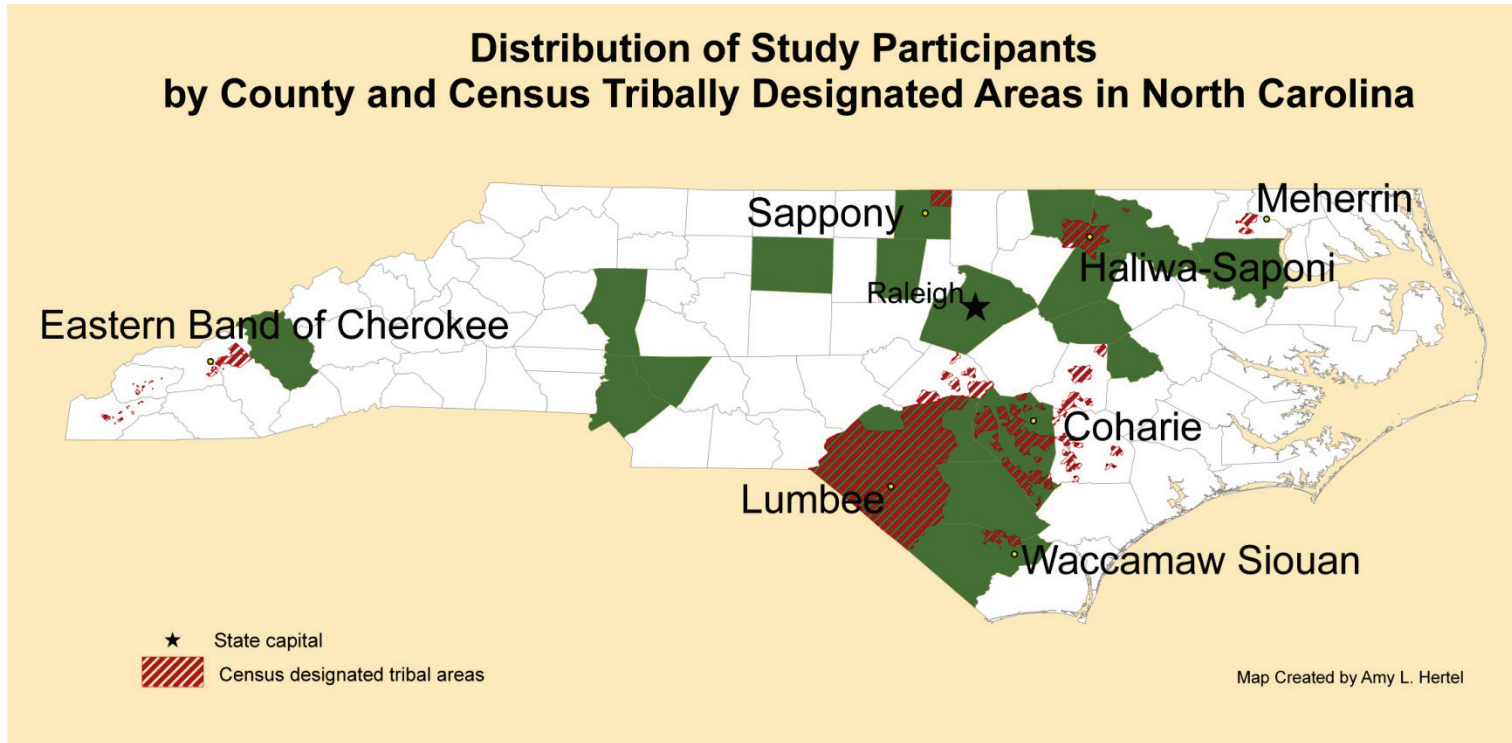
References

- ACFSA. (2002). *Empty promises: The myth of college access in America*. Retrieved May 1, 2010, from <http://www.ecs.org/html/offsite.asp?document=http%3A%2F%2Fwww.ed.gov%2Fabout%2Fbdscomm%2Flist%2Facsfa%2Femptypromises.pdf>
- Action for Children (2010). *Saving brings children's educational goals in focus: An emerging issues report*. Retrieved May 1, 2010, from http://www.ncchild.org/sites/default/files/FINAL_529%20College%20Savings%20Plan.pdf
- Bergman, F. (2006). *Census bureau data underscore value of college degree*. Washington, DC: U.S. Census Bureau.
- Boshara, R., Clancy, M., Newville, D., & Sherraden, M. (2009). *The basics of progressive 529s*. St. Louis, MO: Washington University, Center for Social Development; Washington, DC: New America Foundation.
- Clancy, M., Cramer, R., & Parrish, L. (2005). *New America Foundation Issue Brief#7: Section 529 savings plans, access to post-secondary education and universal asset building*. St. Louis, MO: Washington University, Center for Social Development.
- Elliott, W. (2007a). *Examining minority and poor youth's college aspirations and expectations: The potential role of college savings*. St. Louis, MO: Washington University, Center for Social Development.
- Elliott, W. (2007b). *Specifying children's educational expectations: The potential impact of institutions* (CSD Working Paper 07-07). St. Louis, MO: Washington University, Center for Social Development.
- Fidelity Investments (2007). *College savings indicator executive summary of key findings*. Retrieved May 1, 2010, from <http://personal.fidelity.com/myfidelity/InsideFidelity/NewsCenter/mediadocs/college-savings-executive-summary.pdf>
- Haskings, R., Holzer, H., & Lerman, R. (2009). *Promoting economic mobility by increasing postsecondary education*. Retrieved May 1, 2010, from http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Economic_Mobility/PEW_EM_Haskins%207.pdf
- Hertel, A. L., Wagner, K., Phillips, J., Edwards, K., & Hale, J. (2008). *Dialogues on assets in Native communities: Recording a Native perspective on the definition and benefits of retaining and building assets* (CSD-Buder Report 08-19). St. Louis, MO: Washington University, Center for Social Development.
- Lippman, L., Guzman, L., Keith J., Kinukawa, A., Schwalb, R., Tice, P., & Mulligan, G. (2008). *Parent expectations and planning for college statistical analysis report*. Washington, DC: U.S. Department of Education.

- Marjoribanks, K. (1984). Ethnicity, family environment and adolescents' aspirations: A follow-up study. *Journal of Educational Research*, 77, 166-171.
- Mau, W. C. (1995). Education planning and academic achievement of middle school students: A racial and cultural comparison. *Journal of Counseling & Development*, 73, 518-526.
- Mau, W. C., & Bikos, L. H. (2000). Education and vocational aspirations of minority and female students: A longitudinal study. *Journal of Counseling & Development*, 78, 186-194.
- Merriam-Webster's collegiate dictionary* (11th ed.). (2003). Springfield, MA: Merriam-Webster.
- Michelson, R. A. (1990). The attitude-achievement paradox among black adolescents. *Sociology of Education*, 63(January), 44-61.
- Orozco, V., & Cauthen, N. (2009). *Work less, study more, & succeed: How financial supports can improve postsecondary success*. Demos, New York City.
- Sherraden, M. (1991). *Assets and the poor: A new American welfare policy*. Armonk, NY: M.E. Sharpe.
- Sherraden, M. (2009). *Saving and educational attainment: The potential of college savings plans to increase educational success* (CSD Research & Policy Brief 09-29). St. Louis, MO: Washington University, Center for Social Development.
- Sherraden, M., Johnson, L., Elliott, W., Porterfield, S., & Rainford, W. (2006). *The I Can Save Program: School-based children's saving accounts for college* (CSD Working Paper 06-02). St. Louis, MO: Washington University, Center for Social Development.
- Shobe, M., & Page-Adams, D. (2001). Assets, future orientation, and well-being: Exploring and extending Sherraden's framework. *Journal of Sociology and Social Welfare*. 23(3), 109-127.
- State Advisory Council on Indian Education (2009). Weaving innovative educational opportunities for American Indian Students: 2009 Report to the North Carolina State Board of Education. Retrieved May 1, 2010, from <http://www.ncpublicschools.org/docs/americanindianed/reports/2009indianedreport.pdf>
- Zhan, M. & Schreiner, M. (2004). *Saving for post-secondary education in individual development accounts* (CSD Working Paper 04-01). St. Louis, MO: Washington University, Center for Social Development.
- Zhan, M., & Sherraden, M. (2009). *Assets and liabilities, educational expectations, and children's college degree attainment* (CSD Working Paper 09-60). St. Louis, MO: Washington University, Center for Social Development.

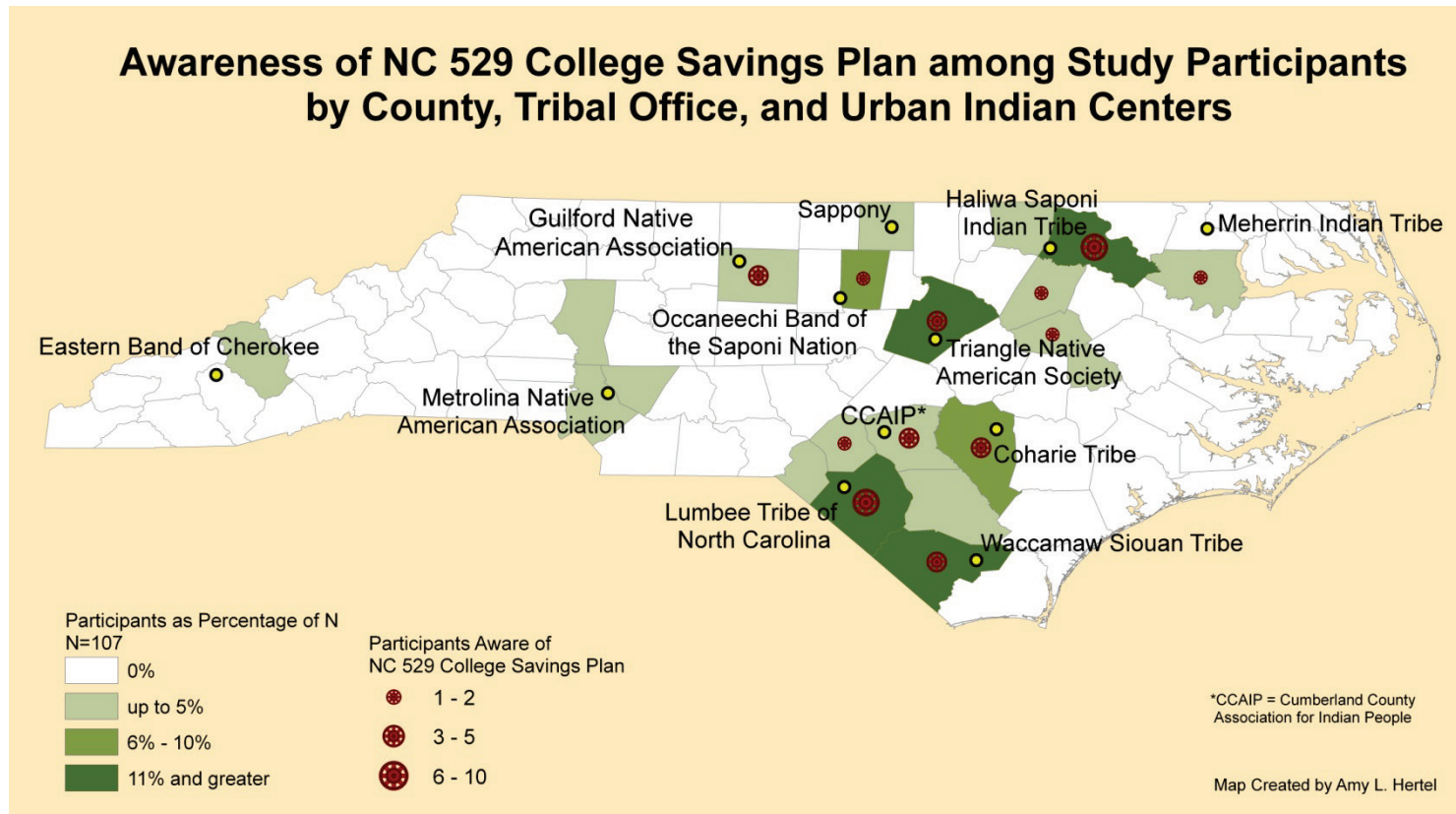
Appendix A

Figure 1. Map showing locations of participants by county and tribally designated areas



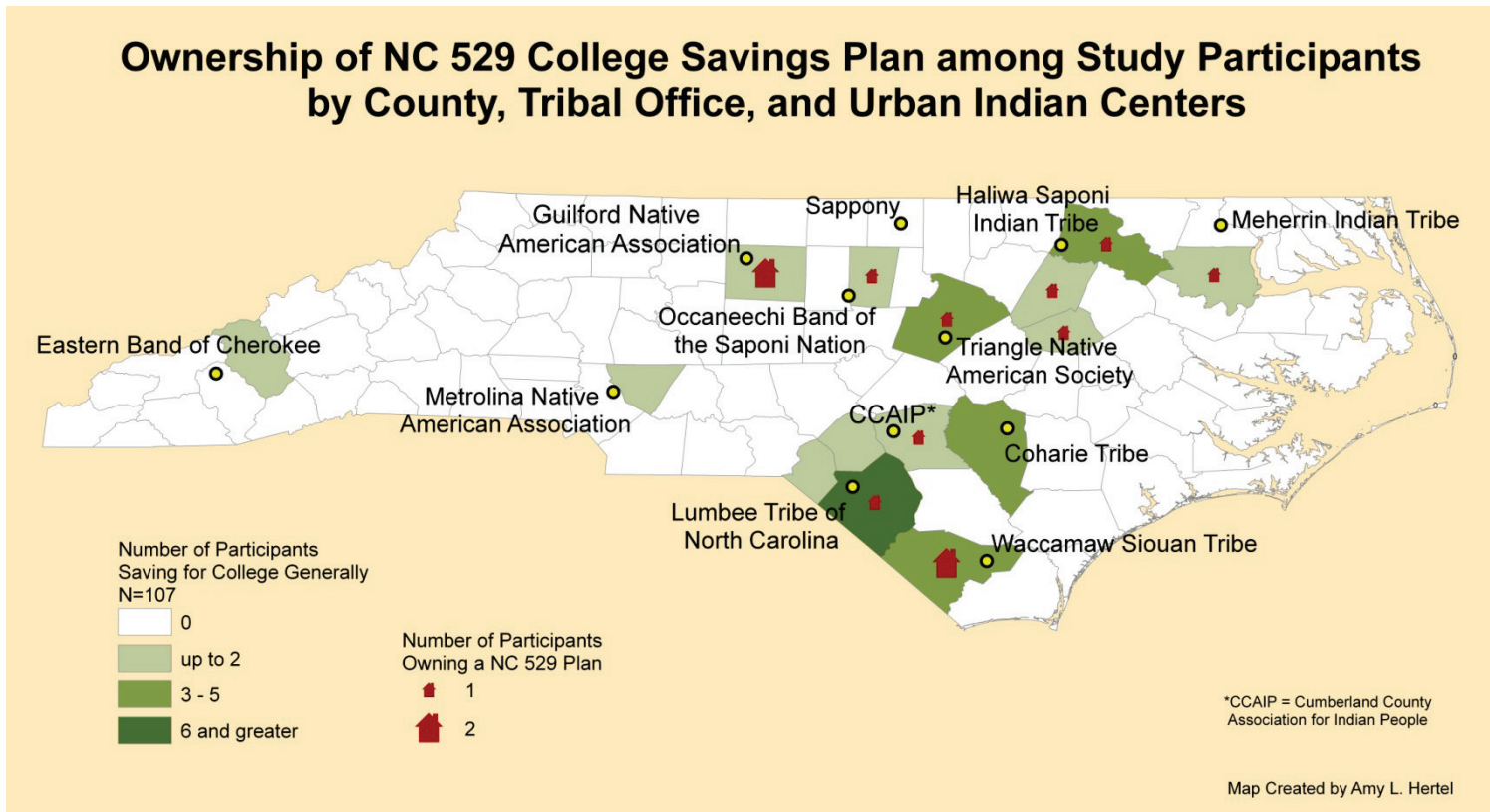
Appendix B

Figure 2. Map showing awareness of the NC 529 Plan among study participants



Appendix C

Figure 3. Map showing participants saving for college in general including those saving in a NC 529 Plan



Appendix D

Table 1. Sample characteristics

Variable	N(%)
Saving for Post-Secondary Education	44(45)
Aware of NC 529 Plan	42(40)
Saving in NC 529 Plan	12(11)
Education Level	
< Bachelor's Degree	57(53)
≥Bachelor's Degree	50(47)
Income	
≤\$50,000	45(42)
>\$50,000	62(58)
Child Expectations	
< Bachelor's Degree	32(30)
≥Bachelor's Degree	75(70)
Credit Card Debt	
<\$10,000	95(89)
≥\$10,000	12(11)
Homeownership	96(90)

N=107

Appendix E

Table 2. Unstandardized coefficients and odds ratio from logistic regression models of saving for post-secondary education
 Note. Reference categories are in parentheses.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Participant Education Level						
($<$ Bachelor's degree)						
\geq Bachelor's degree	0.31(1.40)	0.08(1.08)	0.35(1.41)	0.34(1.41)	0.16(1.17)	0.16(1.17)
Income						
(\leq \$50,000)		0.77(2.16)				
$>$ \$50,000			0.48(1.62)	0.54(1.71)	0.63(1.88)	0.68(1.98)
Education Expectations						
($<$ Bachelor's degree)						
\geq Bachelor's degree			1.89(6.58)***	1.95(7.05)***	1.79(5.99)***	1.86(6.41)***
Homeownership						
(Renter)						
(Homeowner)				-0.37(0.69)		-0.35(0.71)
Credit Card Debt						
($<$ \$10,000)						
\geq \$10,000					-1.86(0.16)	-1.86(0.16)
X^2	0.44	3.58	17.25***	17.44**	20.70***	20.86***
Df	1	2	3	4	4	5
Max-rescaled R^2	0.01	0.17	0.22	0.22	0.25	0.26

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$