

No-Money-Down Home Loans for Teachers

An Analysis of How Housing Incentives Can Reduce Teacher Attrition in North Carolina

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Executive Summary

Background

North Carolina, and the entire United States, is in the midst of a teacher shortage. The teacher shortage is caused by two main factors: not enough teachers are joining the profession and too many teachers are leaving the classroom.

In North Carolina, the pipeline for teachers is drying up. Enrollment in the UNC system's education programs—which produce more than 35% of NC teachers—is down more than 40%. Superintendents also report that the number of applications per job opening has decreased and some job postings receive no applications at all.

Each year about 8% of teachers in North Carolina leave the classroom. Teacher attrition and a glut of inexperienced and underprepared teachers seriously inhibits student achievement. It also costs North Carolina millions each year to recruit, hire, and train new teachers.

Teachers leave the classroom for a variety of reasons that are complicated and often interdependent. However, among the main reasons are low pay and rising cost of housing. Adjusted for inflation, NC teacher pay decreased nearly 12% from 1999-2016. Average teacher pay in North Carolina has increased from 46th to 34th in the United States. This increase is not enough to keep pace with rising cost of living and housing (NEA, 2019). During the past decade, the average home price in North Carolina has increased 45% (“North Carolina Home Prices and Values”, 2020). As the cost of living continues to increase, teaching becomes a less appealing profession.

Some NC districts have used housing interventions like subsidized apartment complexes specifically to recruit and retain teachers. There is a lack of rigorous academic research, but anecdotal evidence suggests these housing programs have been successful on a small scale. However, the subsidized apartment complexes are unable to meet demand and should be supplemented with other housing interventions.

Proposed Policy

I am proposing a no-money-down home loan program for teachers modeled after the VA's program to help retain teachers by addressing the challenge of affordable housing. North Carolina would guarantee 25% of home loans through the program. All public-school teachers in North Carolina would be eligible for the program. Teachers could opt for an option with a 5-year commitment with no fees or a 3-year commitment with 1.5% fees on the value of the loan.

Methods

To determine whether a no-money-down loan program would help address teacher attrition, I created a questionnaire for teachers in North Carolina and I interviewed district-level leaders. I also built a financial model to analyze the feasibility of the program as well as the cost to the State.

Results/Key Takeaways

There is interest in the proposed program—the overwhelming majority of teachers want to own a home and lack of funding for a down payment is the second largest barrier. Over 65% of teachers said they would be interested in buying a home with the proposed program.

Owning a home increases the likelihood of a teacher staying—75% of teachers said owning a home would make them much more- or slightly more likely to stay in their current school.

Hiring and retaining quality teachers is difficult—Superintendents repeatedly said that this is one of, if not, the biggest challenges for them today. They also said that they need policy solutions to help solve these challenges.

The financial cost is low, but liability is big—If the program is widely adopted, North Carolina could carry billions on its balance sheet. However, this risk is borne mostly by private lenders. The State could expect to pay only about \$1 million in the first year.

The proposed policy could benefit North Carolina financially and academically—Each 1% reduction in attrition saves almost \$1 million for North Carolina. In addition to financial savings, student achievement should increase as teachers stay in the classroom longer.

Recommendation

I recommend that North Carolina implement the no-money-down home loan program for a period of at least 10 years. This program would be most effective for “middle-age” teachers between 28-45 who have been teaching for a few years. The commitment will help address teacher retention and the lack of a down payment will help teachers afford a home. For very expensive counties or counties with low housing stock, districts should build more subsidized apartment complexes to supplement the no-money-down program.

Introduction

On Tuesday, January 14, 2020, the North Carolina General Assembly met for a special one-day session to discuss the issue of teacher pay. Legislators discussed a bill passed by Republicans in late 2019 that raised teacher pay by 3.9% (Vaughn, 2020). Democrats argued that the raise was inadequate, leading to Democratic Governor Roy Cooper's veto of the bill. This disagreement is not new, the state legislature has been fighting over teacher pay for the last decade. Teachers were stuck in the middle of the disagreement and forced to face another school year without a raise.

This anecdote highlights the challenge of getting a raise for millions of teachers across the United States. The lack of financial support, among others, is one of the primary reasons thousands of teachers to leave the classroom each year. Financial support for teachers sometimes also includes housing benefits such as subsidized rent or down payment assistance. The goal of this research project is to investigate whether housing benefits could be used to decrease teacher attrition.

In this report, I will first describe the teacher shortage that North Carolina and the entire United States is facing. Next, I will discuss the consequences of teacher attrition and what is causing teachers to leave the classroom. I will then discuss how housing interventions have been used to retain teachers. Following this, I outline what a no-money-down home loan program for teachers would look like for teachers in North Carolina. Afterwards I will discuss and analyze data and interviews regarding this possible policy. Finally, I will offer recommendations on how housing policies can be used to address teacher attrition.

Teacher Shortage

Like many states in the United States, North Carolina is dealing with a serious teacher shortage. In 2013, there was no teacher shortage; by the 2017-2018 school year, the United States faced a teacher shortage of about 110,000 (Garcia, 2019). All 50 states reported a teacher shortage for at least one subject area or grade level in 2018 (Department of Education, 2019). On July 23, 2018—approximately one month before the school year started—out of nearly 100,000 total teaching positions statewide, there were 7,000 vacancies. Many of those jobs were unable to be filled; there were 3,107 vacant teaching positions on the first day of school, indicating that schools were forced to use substitute teachers for extended periods of time or had teachers covering multiple roles (Johnson, 2020). During the 2018-2019 school year, some schools in eastern, rural NC counties were forced to use substitute teachers for an entire school year (WRAL, 2019).

Teacher pipeline drying up

One reason for the teacher shortage is the pipeline for North Carolina teachers is drying up. Enrollment in undergraduate and master of education programs at University of North Carolina (UNC) schools is down 41% since its peak and 25% since 2010 (Public Schools First, 2019). This decline is a huge problem because the UNC system provides about 37% NC's teachers (Hui, 2016).

In 2011, the state legislature voted to end the NC Teaching Fellows Program (NCTF) that had been in existence since 1986. NCTF gave students a full scholarship in exchange for a four-year commitment to teach at public school in North Carolina. NC Teaching Fellows tended to stay in the classroom longer than teachers who were not Fellows (Henry, et al., 2015). The

program was brought back in 2017 in a different format.¹ The new iteration of this program provides less incentive for college students to participate than the original version.

Furthermore, in 2013, North Carolina became the first state in the country to cut pay increases for teachers with advanced degrees. A bill to restore bonuses for advanced degrees has bipartisan support in the GA but has not been passed. These cuts have discouraged students from pursuing masters degrees in education or for teachers with advanced degrees to teach elsewhere (Kiley, 2013).

Teach Attrition Overview

Each year about 8% of teachers in North Carolina and nationwide, leave the classroom (Osborne, 2019). This translates to over 7,000 teachers in North Carolina and more than 250,000 in the United States that leave the classroom each year. In comparison, South Korea—which has one of the most successful K-12 education systems in the world—has a teacher attrition rate at just 4%, twice as low as the US' rate (Ibid). In high poverty schools, the turnover is about 20 percent annually. That rate is 50 percent greater than better funded schools in higher income areas (ibid). Overall 40 to 50 percent of new teachers leave the profession before five years (ibid). Teacher attrition has a number of significant costs associated with it such as high fiscal costs and lower student achievement.

¹ In its current form, Fellows receive forgivable loans of up to \$4,125 per semester of college (“Loan Forgiveness”, 2019). Fellows must agree to teach either STEM or Special Education upon graduation because these were designated the areas of highest need in North Carolina. One academic year’s worth of loans is forgiven for each year taught in a low performing school and two years in a non-low performing school.

Teacher Attrition Consequences

Student outcomes

Teacher attrition has high social and educational costs for students. The US' high rate of attrition has left more than 100,000 classrooms with an uncertified or under-qualified teacher (Darling-Hammond, 2017). Research has shown repeatedly that teachers are the most important factor influencing student achievement (Ibid). According to research from Rand, teachers impact student achievement in math and reading two to three times as much as other school related factors including curriculum, facilities, and leadership. (Rand, 2012). Effective teachers also have lasting effects both inside the classroom and in a student's personal life, even into adulthood. (Chetty, 2012 & Jackson, 2018). A Vanderbilt University study found that losing a teacher during the school year was equivalent to losing between 32 and 72 instructional days (Redding, 2018).

Studies have also shown that more experience in the classroom is positively correlated with student achievement (Podolsky & Darling-Hammond, 2016). The greatest gains for student achievement happen after teachers have spent about five years in the classroom (ibid). Experience cannot make a poor teacher effective, but it can make a good teacher better. As teachers gain experience, their students are also more likely to improve other positive behaviors such as school attendance, homework completion, and time spent reading at home (ibid).

Schools in low-income areas, rural areas, and with higher proportions of minority students face higher attrition (Darling-Hammond, 2017). These schools then must hire less qualified and less experienced teachers. Students in these schools begin at a disadvantage and

then are further disadvantaged by having unqualified teachers. At-risk students more often come from low-income homes and neighborhoods blighted by violence. (Halfon, 2017). High teacher turnover can also negatively affect student motivation, which is often a challenge for students from lower income families and historically disadvantaged populations (Salifu, 2013). These students therefore have less stability at home and, because of high attrition, less stability in their schools. Schools also lose institutional knowledge when teachers leave. A constant flow of new and inexperienced teachers makes it harder for schools to function efficiently and improve each year due to the loss of institutional knowledge and inexperienced workforce.

Fiscal impact

According to Richard Ingersoll, teacher attrition costs the United States more than \$2.2 billion each year in direct recruiting, hiring, and training costs (Alliance for Excellent Education, 2014) (Exhibits 1 & 2). His research estimates that between 2008-2009, teacher attrition cost North Carolina between \$28-\$63 million per year (Alliance for Excellent Education, 2014). The costs to recruit and train teachers and rate of attrition have increased in the last decade, so the cost estimate has most likely risen significantly in since 2009. The money that is used to recruit and train new teachers could be used in more productive ways such as retaining high quality teachers, improving professional development, or providing resources for students. Low-income rural communities typically have lower costs per teacher that leaves, but they have higher rates of attrition. These districts have fewer resources to begin with and then need to expend them each year trying to replace teachers. They also have a smaller applicant pool to hire from as well. These communities already face the challenges associated with poverty, which are further exacerbated by having high teacher turnover and lower student achievement.

Teacher Attrition Causes

Overview

There is generally not a single cause for why teachers decide to leave the classroom. One common reason though, is a lack of preparation. Teachers with little-to-no preparation are 2.5x more likely to leave the classroom after one year than their better-prepared peers (Podolosky, 2016). About one in three teachers cite personal reasons such as lack of childcare or pregnancy as important in their decision to leave teaching (ibid). Many teachers leave due to poor working conditions. These teachers feel unsupported by administrators and colleagues. Finally, low pay and financial reasons drive about 20% of teachers to leave the classroom (Carver-Thomas & Darling-Hammond, 2017). I will further detail teacher why teacher compensation matters because my research addresses this issue.

Poor Compensation for NC Teachers

According to a 2019 survey, 60% of teachers believe they are underpaid and nearly 25% considered quitting due to their compensation (McClear, 2019). Low pay becomes more difficult as teachers start a family or buy a home during their career. Indexed to 2016 dollars, average NC teacher pay decreased by 11.8% compared to 1.8% nationwide from 1999-2016 (National Center for Education Statistics, 2017). This decrease was the third largest of any state during this time period. Currently, NC ranks 34th nationwide in average teacher pay with a salary of about \$51,000, nearly \$9,000 below the national average (NEA, 2019). Many NC teachers also say that number is skewed because there are a large number of teachers at the maximum pay level that inflate the average salary (Hui, 2019).

A 2018 study by personal finance website WalletHub ranked all 50 states for best states and worst states for teachers to work in. The study included things such as salary, cost of living, per pupil spending, and income growth rate. North Carolina ranked 49th (WalletHub, 2018). Working conditions and salary are so bad in North Carolina that Ann Bullock—dean of the school of education at Elon University—said teachers will cross the border to work in Virginia rather than work in their home state because overall working conditions including pay and benefits are better (Brown, 2019).

Rising Cost of Living

In North Carolina, cost of living has increased significantly, outpacing salary raises for teachers. According to Bureau of Labor Statistics surveys, on average, housing is the largest category of expenditure for Americans at 37% of take-home pay (U.S. Bureau of Labor Statistics, 2019). In North Carolina, median sale price for homes has increased 45% from \$149,000 in 2010 to \$217,000 in 2020 (“North Carolina Home Prices and Values”, 2020). Rent has increased 36% during the same time (Lupa, 2020). Comparatively, cost of living has risen only 19% over the past decade according to the Consumer Price Index.

As the cost of housing continues to increase, it has become a bigger concern for teachers. In a survey of North Carolina teachers, over 60% of respondents said finding affordable housing is a barrier to teaching in their district (Osborne, 2018). The percent of teachers who leave because of housing costs was not captured in the survey. However, almost half of the teachers said they factor housing costs into where they choose to work and live (Ibid).

Using housing to address teacher attrition

Retaining quality teachers takes a comprehensive and multifaceted approach. This should include adequate preparation, supportive working conditions, personalized mentorship, sufficient compensation (Podolsky & Darling-Hammond, 2016). Increasing compensation is one of the most important and effective retention tools (Aragon, 2016). Housing benefits function as a form of compensation. Recently, school districts have started experimenting with housing incentives like subsidized rent as a retention tool. There is little research into the effectiveness of housing programs on retention. Education policy scholars have suggested that states and the federal government study the effectiveness of these programs.

Subsidized Apartment Complexes for Teachers

The idea of communal teacher housing (teacherages) has existed since the late 19th century (Verdin & Smith, 2013). By 1922, there were more than 3,000 teacherages across the United States. During the latter part of the 20th century, the number of teacherages declined rapidly. However, counties in North Carolina have experimented with bringing teacherage-like complexes back. As of 2018, five districts—Asheville City Schools, Buncombe, Dare, Hertford, and Hoke counties—in North Carolina have built or are building apartment complexes for teachers. Teachers in Asheville, Buncombe, and Dare faced a shortage of affordable housing due to housing costs rising faster than salaries. Hertford and Hoke counties faced a different challenge. There was limited housing stock for teachers that did not want to or could not afford to own a home. To address the challenges, the districts partnered with the State Employees Credit Union (SECU) and local non-profit organizations to build apartment complexes. SECU provided zero-interest loans to the non-profit to construct the developments and the nonprofit

organization would pay back the loan over the course of 15 years. The nonprofit would own the apartments after 15 years and would use rental income to maintain the buildings as well as supplement local education.

The North Carolina Department of Public Instruction wrote a case study on the effects of Hertford and Dare Counties teacher housing developments. In Hertford County during the four years prior to opening its teacher housing complex, teacher turnover averaged 17%. Turnover dropped to 10% three years after the complex opened in 2008. In Dare County, teacher turnover decreased slightly from 8% to 7% in the years after its apartment complex opened. While this data is encouraging, it is impossible to make a causal inference.

Despite the lack of a causal claim, these housing developments benefit numerous stakeholders. Teachers are able to find below market rents. Students benefit from lower rates of teacher attrition which should raise student achievement. Finally, schools and districts face lower costs from less teachers leaving as well as supplemental money from the nonprofits after the loans are paid off to SECU.

Expanding developments like this could help districts that face high rates of attrition and lack affordable housing. One benefit of this type of solution is that it allows districts to craft localized solutions rather than a statewide program. Moreover, this type of development could be used to specifically attract and retain teachers to rural and low wealth districts which have a more difficult time recruiting and retaining teachers.

On the downside, this solution relies on money from SECU or other similar lenders. It is difficult to imagine lenders could or would offer too many no-interest loans at one time, which significantly limits the scale of this proposal. Moreover, demand for these subsidized

apartments tends to far outpace supply. The apartment complex in Hoke County has a considerable waitlist. In a subsidized apartment development for teachers near Los Angeles, 7200 people applied for 89 apartments (Davis, 2017). This 80-1 ratio of applicants to apartments speaks to demand from educators as well as the scale of the problem. These apartments are also not always a long-term solution; apartments in Dare County have implemented a limit on how long teachers can stay because they were originally supposed to be a stopgap. Finally, subsidized apartments do not allow teachers to build equity. For many, owning a home is one of the best ways to build wealth.

Down payment assistance programs

The private sector, rather than school districts, have experimented with down payment assistance programs for teachers. A start up called Landed is attempting this idea. Teachers can split a down payment with Landed. When the teacher sells his or her house, Landed receives back their half of the down payment and, if the house appreciates in value, 25% of the increase in equity. While this program may help teachers afford a home, there is little incentive for teachers to stay in the classroom longer.

A program could be designed in which a teacher receives money for a down payment in exchange for staying in a school or district for a certain number of years. If the teacher leaves early, he or she would have to pay back the grant. Very few areas have tried this type of program so the possible effects of it are unknown. The biggest issue is the financial feasibility. This type of program would require school districts to have immense amount of cash on hand to distribute for down payments.

No-Money-Down Home Loans for Teachers

Rationale

Subsidized rent buildings have been successful at increasing teacher retention, but they are not able to keep pace with demand. Down payment assistance programs are not feasible for states or districts to operate because they require large amounts of cash. Private sector solutions like Landed help teachers but they do not address retention. Therefore, North Carolina could use a policy that helps teachers with rising cost of housing, addresses retention by incentivizing teachers to stay, and uses existing markets to expand its scale.

Policy Design

I am proposing a no-money-down home loan program for teachers in North Carolina modeled on the VA home loan program. The VA loan program is facilitated by both the government and the private sector. Loans are issued by private lenders and backed by the US Department of Veterans Affairs. The VA insures 25% of the loan instead. Program administration costs are covered almost entirely by a 2-3% fee on VA loans. Appraisers inspect and approve all homes before they are purchased. Above a certain price threshold, the VA requires a down payment. For most of the country this limit is \$484,350 but can be as high as \$726,525 in more expensive areas. About nine percent of eligible service members and veterans take advantage of the program.

In North Carolina, 25% of the value of each loan would be guaranteed by the North Carolina Housing Finance Administration (NCFHA) rather than the VA. North Carolina will use appraisers like the VA, and will use the same price limits as the VA. Teachers can opt to pay no fee with a five-year commitment to teach in a North Carolina public school or pay a 1.5% fee

for a three-year commitment. If a teacher leaves before the end of the contract, he or she will pay a breakage fee of 0.5% of the loan for each year remaining on the agreement.

The VA home loan program has 810 full time employees spread across eight regional offices and a central office (FTEs) that oversee nearly 2.5 million active loans. Using a similar FTE-to-loan ratio, North Carolina would need between 10-20 FTEs to administer a similar program. To begin with, North Carolina could hire 10 FTEs to start the program at an average cost of \$50,000 per FTE (the average salary for an NC state employee) for \$500,000 plus an additional \$500,000 in overhead costs for a total of \$1,000,000 (Gibson, 2019).

SECU Loans

The North Carolina State Employee Credit Union (SECU) offers some loans that are no-money down that differ in some important ways from the proposed program. First, there is no commitment requirement to be eligible for the program. SECU loans help teachers but do not address teacher attrition because as soon as a teacher secures a loan, he or she can leave the classroom without penalty. In addition, teachers must first join SECU to be eligible for their loans. Unlike the VA program and the proposed policy, SECU originates the loans. The proposed policy uses market forces and allows borrowers to shop around at different lenders. Borrowers are beholden to SECU rates and the interest rates on SECU loans varies greatly depending on the amount of money a borrower puts down. If a borrower put no money down, he or she would require a five-year adjustable rate mortgage at a 5.375% initial rate (SECU website). Adjustable rate loans like this can increase or decrease up to 2% every five years with a maximum increase of 6% over the life of the loan. These loans pay far more in interest and are riskier because the rate is not stable or predictable. There is no guarantee that teachers will be

approved or find a lower rate than the SECU with the proposed policy, but it at least gives them the option to look different places for a loan.

Methodology

I used a mixed-methods research design for my MP using questionnaire and interviews, as well as financial modeling to analyze the proposed program, its cost, and potential savings.

Questionnaire

I collected data to better understand teachers' current housing decisions and demand for this possible program through a questionnaire. I partnered with EducationNC who used their Reach NC Voices online survey tool that they use to regularly survey North Carolina teachers. Because of its prominent name and long relationship, partnering with EducationNC would give me a wider reach and higher response rate to the questionnaire. To review the complete questionnaire, see Exhibit 3.

Superintendent Interviews

I interviewed four North Carolina superintendents to better understand the challenges of retaining teachers.² When selecting potential interviewees, I considered a county's median income, racial diversity, size, location, attrition rate of teachers, and whether the county had used any housing incentives for teachers.

Results

Questionnaire Data

² I had originally planned to interview 10 superintendents but many interviews were canceled due to the COVID-19 pandemic.

The questionnaire consists of 28 questions centered around three main areas: current housing decisions, interest in a potential no-money-down program and its effects on retention, and demographics. To screen respondents, the first question asked, “Are you a K-12 teacher in North Carolina?” If the response was yes, the respondent could continue with the remaining 27 questions; if the response was no, the questionnaire ended.

EducationNC sent the questionnaire out to its list of current teachers and posted a link to the questionnaire on its website on February 20; the questionnaire closed on March 9. The questionnaire was viewed 816 times and 334 people filled out the questionnaire for a response rate of 41%. Not all respondents answered every question, but if the questionnaire was submitted, it was considered complete. Below are some important tables and charts taken from the questionnaire data:

Figure 1

Do you currently rent or own? (n=326)	Rent 26%	Own 70%	Other 4%
Would you prefer to rent or own? (n=324)	Rent 4%	Own 93%	No preference 4%

Figure 2

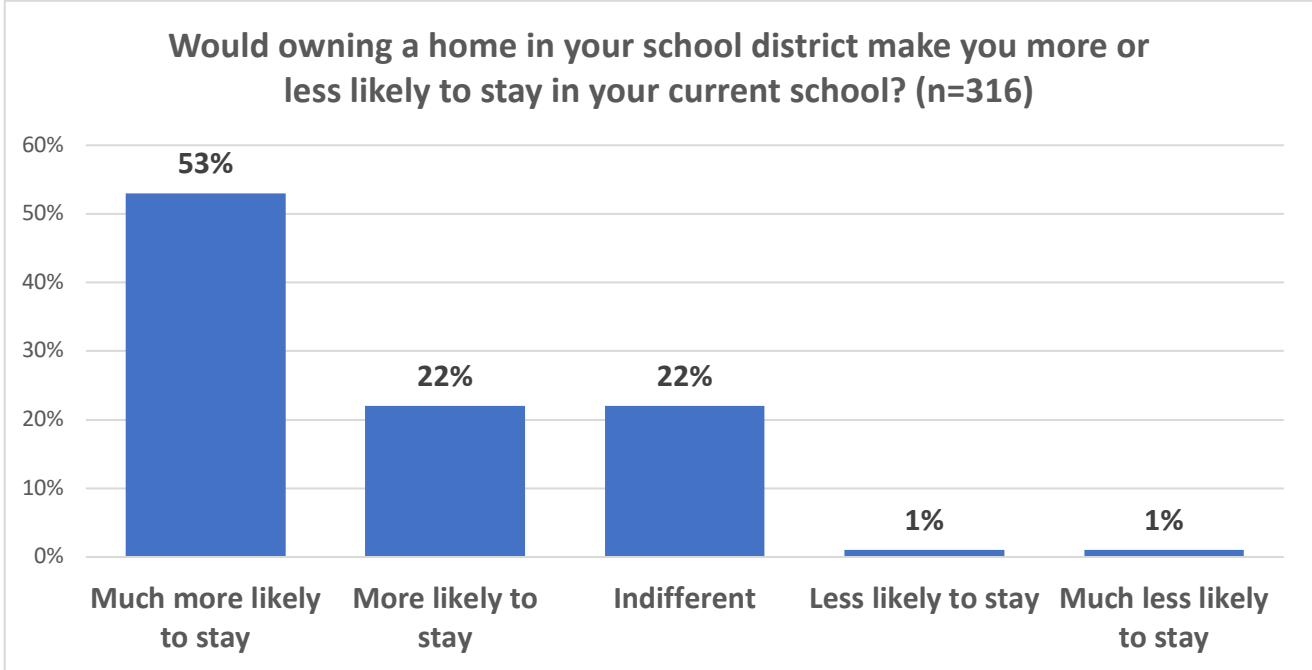


Figure 3

	Extremely likely	Slightly likely	Neither likely nor unlikely	Slightly unlikely	Extremely unlikely
If you could get a no money down loan, how likely would you be to buy a home? (n=266)	58%	21%	16%	2%	3%
If you could get a no money down loan in exchange for a 3-year commitment to stay in your current school, how likely would you be to buy a home? (n=266)	51%	26%	16%	2%	4%
If you could get a no money down loan in exchange for a 5-year commitment to stay in your current school, how likely would you be to buy a home?	38%	28%	22%	5%	6%

Figure 4

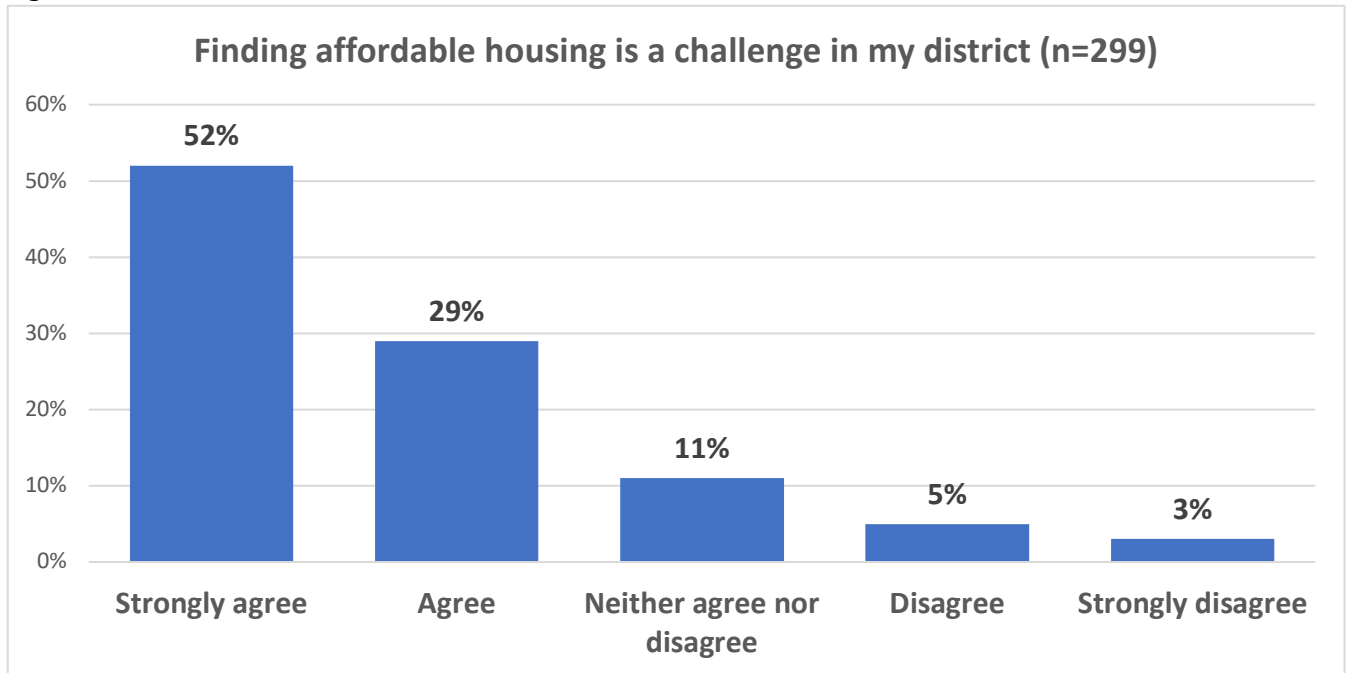
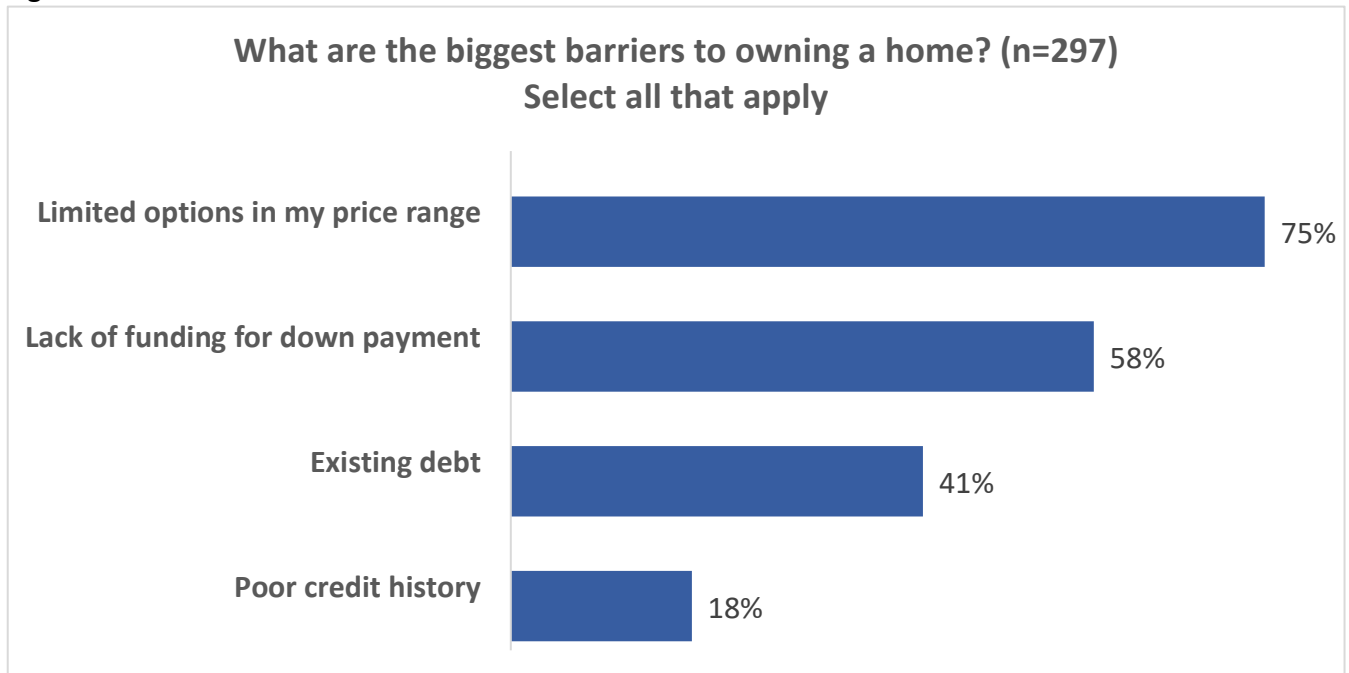


Figure 5



Interviews

From the interviews with superintendents, I identified the following themes and key takeaways:

Lack of “middle age” teachers—The workforce in many schools has two primary categories: young teachers (22-28 years old) and veteran teachers (45+ years old). Attrition tends to be highest with the young teachers and leaves a gap of “middle age” teachers between 28-45 years old. These teachers are important because they bring stability and knowledge to a school but are not at retirement age. Young teachers are inexperienced and are more likely to leave, while veteran teachers are nearing retirement.

Recruiting and retaining teachers is a primary concern—The interviewees emphasized how big of a challenge it is to recruit and retain quality teachers. One superintendent said, “it’s my primary concern.” Another claimed, “it’s what keeps me up at night.” The superintendents also said that the number of applications per job opening are down significantly.

Housing needs vary greatly by county—Some counties in North Carolina are desirable to live in but are very expensive to live in. Other parts of the state lack quality housing at any price while also lacking amenities such as grocery stores and broadband internet that potential buyers care about.

Long-term commitment from teachers would be a benefit—All of the superintendents expressed interest in having teachers commit for between three and five years. This would benefit students and allow districts to focus on incremental improvements rather than teacher recruitment.

Teachers and leaders want housing programs—Superintendents talked about how the housing incentives in their districts were useful recruitment tools and they had a

waitlist. Leaders from districts without these incentives stated that they wanted to use housing for teachers.

Discussion

Would the program meet its aims?

To gauge whether or not the proposed program would be widely adopted and effective at retaining teachers, there were a number of questions I needed to answer. The first question was whether or not teachers wanted to own a home or whether they preferred renting. Figure 1 clearly shows that an overwhelming majority of teachers wanted to own a home. 70% of respondents owned—which is higher than the NC average of 65%—but 96% responded that they would prefer to own (Homeownership Rate for North Carolina, 2020).

The next question was then whether owning a home would make teachers more likely to stay in their school or district. The answer to that is also a resounding yes—75% of respondents said owning a home would make them either much more likely to stay or more likely to stay (Figure 2). This sentiment was consistent amongst teachers who currently rent and those who own.

I then needed to gauge whether teachers would participate in this program or not. If the program was in place, 79% of teachers would be extremely or slightly likely to buy a home (Figure 3). I then tested different structures of the program by varying the fee and commitment length. The likelihood of buying a home decreased to 77% and 66% with a 3-year and 5-year commitment respectively (Figure 3). These results changed however when the 3-year plan was presented with a 1.5% fee and the 5-year option was presented with no fees. The 5-year

commitment was the preferred option with 55% while was the second most popular with 17% support was the 3-year commitment option.

Affordability

Another concern is whether or not teachers would be able actually afford a home. 58% of teachers said that lack of funding for a down payment was one of the biggest barriers to owning a home (Figure 5). This program eliminates that issue, but can teachers afford mortgage payments on a house? Results from the questionnaire are conflicting. 70% of teachers who responded to the questionnaire own a home, but 75% also said there are limited options in their price range. Among those that own a home, twice as many split the mortgage with a spouse, roommate, or partner than those that are paying a mortgage alone. While most people buy a home with a spouse or partner, this also may suggest that purchasing a house on a single teacher's salary is quite difficult.

To gain a deeper understanding on this issue, I wanted to see in what areas teachers could afford mortgage payments given different costs of living and salary. I did so by taking the average salary in each of NC's 115 local education agencies (LEAs) and seeing what percentage of a teacher's take-home pay after taxes a mortgage would be. I looked at mortgage payments for homes at \$100,000, \$150,000, and \$200,000. A person is considered housing cost-burdened if he or she is paying more than 30% of pre-tax household income on housing (Schwartz and Wilson, 2006). For the table below I considered 30% of pre-tax income as the affordability threshold. If the monthly payment was less than 30%, I considered it affordable. The results indicated that an average priced home in North Carolina may be difficult for a single, first year teacher, but for a teacher with five to ten years this is affordable. Moreover, the affordability is

significantly higher if a teacher is able to split a mortgage with a roommate, spouse, or partner. Overall, this shows that teachers in the majority of LEAs can afford to pay a mortgage, even on one salary.

Figure 6

	Can afford a \$100,000 mortgage with 5% interest (\$537 monthly payment)	Can afford a \$150,000 mortgage with 5% interest (\$805 monthly payment)	Can afford a \$200,000 mortgage with 5% interest (\$1,074 monthly payment)
Starting teacher	100% (115/115)	100% (115/115)	3% (115/115)
5 years teaching	100% (115/115)	100% (115/115)	43% (115/115)
10 years teaching	100% (115/115)	100% (115/115)	100% (115/115)

Cost implications

It was important to model what the cost, revenue, and potential liability would be to the state. To see assumptions that went into the model, see Exhibit 5. The total liability to the State on paper is looks immense—in year 1 it is about \$13 million but by year 20 it is \$1.8 billion. A potential liability of this size may seem unpalatable and too big of a risk for North Carolina to take, but the risk is actually lower for a few reasons. First, the State is not originating the loans, lenders such as banks and credit unions are. The State is only guaranteeing 25% of the loan amount. Therefore, the majority of the risk falls upon the originator of the loan. In addition, like the VA program, North Carolina can sell homes that go into foreclosure. The majority of homes appreciate in value over time, so for most foreclosed homes, North Carolina can sell them at a profit, pay off the loan balance to the lender, then use any additional proceeds to pay for the

program administration. As the model shows, foreclosed homes are sold for a net loss during the first seven years of the program, but by year 8, they are net positive (Exhibit 5).

Effects on savings and student achievement

Reducing the attrition rate will also generate financial savings for North Carolina. For each 1% reduction in attrition, North Carolina saves about \$1 million (Exhibit 5). Furthermore, reducing teacher attrition leads to improved student outcomes. As teacher attrition tends to be higher in low-income areas where student achievement is lower as well, reducing attrition in these communities could lead to disproportionate gains.

Where the program falls short

While this idea seems to improve a number of issues, it is not a silver bullet. Results from the questionnaire identified “limited options in my price range”, “existing debt”, and “poor credit history” as some of the biggest barriers to owning a home. A number of teachers also said that it was difficult to afford the maintenance on their current home. Increasing teacher salary can help with these issues and is much needed as well.

As I highlighted in the Results section on superintendent interviews, there are also parts of North Carolina that are too rural and underdeveloped or too expensive for teachers, especially new teachers. In these areas and for new teachers, subsidized apartment complexes may be a better intervention.

Recommendations

I recommend that North Carolina implement the no-money-down home loan program for teachers for a period of at least 10 years. This length of time will allow the State adequate

time to study the program's impacts and effectiveness. This program would be most effective for "middle-age" teachers between 28-45 who have been teaching for a few years. The commitment length will help address teacher retention and the lack of a down payment will help teachers afford a home. For very expensive counties or counties with less desirable housing, districts should build more subsidized apartment complexes to supplement the no-money-down program. Together, these programs could increase teacher retention, student achievement, and make housing more affordable for teachers.

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Exhibits:

Exhibit 1: Cost per Leaver by District Type (“About Teacher Turnover Calculations”, 2017)

School District Type	Costs per Leaver
Urban	\$21,000
Suburban	\$11,000
Rural	\$9,000

Exhibit 2: Teacher Turnover Cost Components (Ibid).

Cost Categories	Activities
Separation Costs	<u>Standard Practices</u> <ul style="list-style-type: none"> Removing teachers from payroll and health plans and processing eligible refunds of retirement contributions Paying substitutes to cover for mid-year departures Conducting exit surveys
Recruitment and Hiring Costs	<u>Standard Practices</u> <ul style="list-style-type: none"> Advertising open positions Traveling to job fairs and interview sites Responding to inquiries from prospective candidates, corresponding with applicants, and drafting offer/rejection letters Scheduling site visits and conducting interviews* Conducting criminal background checks, health record checks, credentialing checks, and reference checks Adding new teachers to payroll and benefit programs <u>Additional Activities</u> <ul style="list-style-type: none"> Designing and developing advertisements and recruitment web pages Working with teacher preparation programs to identify strong candidates Coordinating recruitment activities with state programs Traveling overseas for recruitment Offering new hires signing or relocation bonuses, housing and moving allowances, and rent or day care subsidies Meeting with candidates and members of search committees Completing affirmative action paperwork Purchasing equipment for digital fingerprinting Archiving teacher records
Training Costs	<u>Standard practice</u> <ul style="list-style-type: none"> Introducing new hires and teacher transfers to school goals and governance procedures Coordinating and staffing mentoring programs and related forms of structured induction, including stipends for mentors and payments to substitutes who replace mentors with reduced teaching loads Onboarding workshops and professional development activities <u>Additional activities</u>

	<ul style="list-style-type: none">• Holding welcome events to integrate new hires into the school community• Providing new-employee orientation• Traveling to training sessions and professional meetings• Instructing new hires on the goals and specific elements of the state’s testing programs• Training mentor teachers• Paying substitutes while teachers attend training activities• Reducing teaching loads for beginning teachers• Reimbursing tuition and fees for additional induction or professional development
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Exhibit 3: Questionnaire

Start of Block: Default Question Block

Q1 Do you live in a house or apartment?

- House (1)
 - Apartment (2)
 - Condo (3)
 - Duplex (4)
 - Mobile Home (5)
-

Q4 Do you rent or own?

- Rent (1)
 - Own (2)
-

Q5 Would you prefer to rent or own?

- I prefer to rent (1)
 - I prefer to own (2)
 - No preference (3)
-

Q2 Do you have a roommate who is not in your family?

Yes (1)

No (2)

Q3 Do you have a spouse or partner who pays part of your rent/mortgage?

Yes (1)

No (2)

Q6 Would owning a home make you more or less likely to stay in your current school?

Much more likely to stay (1)

More likely to stay (2)

Indifferent (3)

Less likely to stay (4)

Much less likely to stay (5)

Q7

Please indicate whether you agree or disagree with the following statements:

Finding affordable housing is a challenge in my district

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q8 Finding affordable housing is a challenge in my district for my colleagues

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q26 Finding affordable housing is a challenge in my district for people my age

- Strongly agree (4)
 - Agree (5)
 - Somewhat agree (6)
 - Neither agree nor disagree (7)
 - Somewhat disagree (8)
 - Disagree (9)
 - Strongly disagree (10)
-

Q9 What are the biggest barriers to owning a home?

- Poor credit history (1)
- Existing debt (2)
- Lack of funding for down payment (3)
- Limited options in my price range (4)
- Other (5)

End of Block: Default Question Block

Start of Block: Block 1

Q10 If you could get a no money down loan (\$0 down payment necessary), how likely would you be to buy a home?

- Extremely likely (1)
 - Moderately likely (2)
 - Slightly likely (3)
 - Neither likely nor unlikely (4)
 - Slightly unlikely (5)
 - Moderately unlikely (6)
 - Extremely unlikely (7)
-

Q11 If you could get a no money down loan (\$0 down payment necessary) in exchange for a 3-year commitment to stay in your current school, how likely would you be to buy a home?

- Extremely likely (1)
 - Moderately likely (2)
 - Slightly likely (3)
 - Neither likely nor unlikely (4)
 - Slightly unlikely (5)
 - Moderately unlikely (6)
 - Extremely unlikely (7)
-

Q12 If you could get a no money down loan (\$0 down payment necessary) in exchange for a 5-year commitment to stay in your current school, how likely would you be to buy a home?

- Extremely likely (1)
 - Moderately likely (2)
 - Slightly likely (3)
 - Neither likely nor unlikely (4)
 - Slightly unlikely (5)
 - Moderately unlikely (6)
 - Extremely unlikely (7)
-

Q13 If you could get a no money down loan (\$0 down payment necessary), which of the following fee structures would you prefer?

All have \$0 downpayment. Assume a loan value of \$200,000.

- 3% fee (\$12,000) spread across the length of the loan; no commitment to staying in your current school (1)
- 1.5% fee (\$6,000) spread across the length of the loan; 3 year commitment to staying in your current school (2)
- no fees; 5-year commitment to staying in your current school (3)

End of Block: Block 1

Start of Block: Block 2

Q14 What is your gender?

- Male (1)
 - Female (2)
 - Transgender male (3)
 - Transgender female (4)
 - Other (5)
 - Prefer not to answer (6)
-

Q15 What is your race?

- Prefer not to answer (1)
 - Black or African American (2)
 - Asian (3)
 - Native Hawaiian or Other Pacific Islander (4)
 - American Indian or Alaska Native (5)
 - White (6)
 - Latino or Hispanic American (7)
 - Middle Eastern or Arab American (8)
-

Q16 What county do you live in?

Q17 What county do you teach in?

Q18 How important is it to live in the same county as where you work?

- Extremely important (1)
- Very important (2)
- Moderately important (3)
- Slightly important (4)
- Not at all important (5)

Q19 How long have you been teaching?

Q20 How long have you been in your current school?

Q21 What type of school are you in?

- Public (1)
- Charter (2)
- Other (3)

Q22 Do you teach in a Title 1 school?

Yes (1)

No (2)

Q23 Have you ever left a school?

Yes (1)

No (2)

Display This Question:

If Have you ever left a school? = Yes

Q29 Why did you leave the school?

Q24 Are you thinking about leaving your current school?

Definitely yes (1)

Probably yes (2)

Might or might not (3)

Probably not (4)

Definitely not (5)

Q27 Are you a member of a credit union?

Yes (23)

No (24)

Q28 Are you aware of home ownership resources available for educators through banks or credit unions?

Yes (23)

No (24)

Exhibit 4: Model assumptions

Assumption	Rationale
Growth rate of new teachers	From 2010-2020 the growth rate of the total number of teachers in North Carolina averaged 0.5% per year. This rate could change as the population in North Carolina continues to grow, but this assumption does not affect the model outputs much (Public School Full-Time Personnel State Summary, 2020).
Adoption rate of program	I assumed a first-year adoption rate of 1% that would then double each year before holding steady at 8%, which is in the range of the VA adoption rate which is between 8-12%.
Average home price/average loan amount	I chose \$150,000 as the average home price. The average home price for North Carolina is \$217,000 but for most teachers this is far too expensive unless they have a co-signer on the mortgage with a substantial salary.
Increase in average home price	I chose a rather conservative estimate at a 2% increase per year. The average in North Carolina over the past decade is about 4.5% per year but teacher salary has not kept pace, therefore I chose 2%. This number does impact the overall liability to the State a fair bit. Therefore, I also did a case that shows a 7.5% decrease for 2 years which shows what would happen in the case of a recession.
Length and type of mortgage	30-year fixed-rate mortgage are the most common type of mortgage in the VA program.
Default rate	The default rate for the VA program is about 0.4%. To be conservative I chose a higher rate of 0.6%.
Brokerage fees	The standard rate for brokerage fees in the United States is about 6%.
Fees on mortgage paid to state	In the questionnaire, I proposed three differ options. About 20% of respondents chose the 1.5% fee for a three-year commitment as their preferred option.
Percent paying fee	See above.

Exhibit 5: Cost and Adoption Model

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Teachers																
Beginning		101,000	101,505	102,013	102,523	103,035	103,550	104,068	104,588	105,111	105,637	106,165	106,696	107,229	107,766	108,304
New		505	508	510	513	515	518	520	523	526	528	531	533	536	539	542
Ending	101,000	101,505	102,013	102,523	103,035	103,550	104,068	104,588	105,111	105,637	106,165	106,696	107,229	107,766	108,304	108,846
% Growth		0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Homeowners																
Beginning		65,650	65,978	66,308	66,640	66,973	67,308	67,644	67,983	68,322	68,664	69,007	69,352	69,699	70,048	70,398
New		328	330	332	333	335	337	338	340	342	343	345	347	348	350	352
Ending	65,650	65,978	66,308	66,640	66,973	67,308	67,644	67,983	68,322	68,664	69,007	69,352	69,699	70,048	70,398	70,750
% Homeowners	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Non-Homeowners																
Beginning		35,350	35,527	35,704	35,883	36,062	36,243	36,424	36,606	36,789	36,973	37,158	37,344	37,530	37,718	37,907
New		177	178	179	179	180	181	182	183	184	185	186	187	188	189	190
Ending	35,350	35,527	35,704	35,883	36,062	36,243	36,424	36,606	36,789	36,973	37,158	37,344	37,530	37,718	37,907	38,096
Potential Participants																
Total Non-Homeowners	35,350	35,527	35,704	35,883	36,062	36,243	36,424	36,606	36,789	36,973	37,158	37,344	37,530	37,718	37,907	38,096
Less: Participants	0	(354)	(354)	(703)	(2,814)	(2,660)	(2,687)	(2,699)	(2,713)	(2,726)	(2,740)	(2,753)	(2,767)	(2,781)	(2,795)	(2,809)
Potential Participants	35,350	35,173	35,351	35,179	33,248	33,583	33,737	33,907	34,076	34,247	34,418	34,590	34,763	34,937	35,112	35,287
Adoption Rate	1.0%	2.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Loans Given		354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767	2,781	2,795	2,809	2,823
Cumulative Loans		354	1,057	3,871	6,531	9,218	11,917	14,629	17,355	20,095	22,849	25,616	28,397	31,192	34,001	36,824
Average Home Value																
Average Home Value	\$150,000	\$153,000	\$156,060	\$159,181	\$162,365	\$165,612	\$168,924	\$172,303	\$175,749	\$179,264	\$182,849	\$186,506	\$190,236	\$194,041	\$197,922	\$201,880
% Increase / Decrease - Base Case		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Base Case		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Loans Given Per Year																
Year 1		354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767	2,781	2,795	2,809	2,823
Year 2		-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767	2,781	2,795	2,809
Year 3		-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767	2,781	2,795
Year 4		-	-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767	2,781
Year 5		-	-	-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753	2,767
Year 6		-	-	-	-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740	2,753
Year 7		-	-	-	-	-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726	2,740
Year 8		-	-	-	-	-	-	-	354	703	2,814	2,660	2,687	2,699	2,713	2,726
Year 9		-	-	-	-	-	-	-	-	354	703	2,814	2,660	2,687	2,699	2,713
Year 10		-	-	-	-	-	-	-	-	-	354	703	2,814	2,660	2,687	2,699
Year 11		-	-	-	-	-	-	-	-	-	-	354	703	2,814	2,660	2,687
Year 12		-	-	-	-	-	-	-	-	-	-	-	354	703	2,814	2,660
Year 13		-	-	-	-	-	-	-	-	-	-	-	-	354	703	2,814
Year 14		-	-	-	-	-	-	-	-	-	-	-	-	-	354	703
Year 15		-	-	-	-	-	-	-	-	-	-	-	-	-	-	354

Defaulted Loans by Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0.6%	1 Year 1	2	4	17	16	16	16	16	16	16	17	17	17	17	17	17
0.6%	2 Year 2	-	2	4	17	16	16	16	16	16	16	17	17	17	17	17
0.6%	3 Year 3	-	-	2	4	17	16	16	16	16	16	16	17	17	17	17
0.6%	4 Year 4	-	-	-	2	4	17	16	16	16	16	16	16	17	17	17
0.6%	5 Year 5	-	-	-	-	2	4	17	16	16	16	16	16	16	17	17
0.6%	6 Year 6	-	-	-	-	-	2	4	17	16	16	16	16	16	16	17
0.6%	7 Year 7	-	-	-	-	-	-	2	4	17	16	16	16	16	16	16
0.6%	8 Year 8	-	-	-	-	-	-	-	2	4	17	16	16	16	16	16
0.6%	9 Year 9	-	-	-	-	-	-	-	-	2	4	17	16	16	16	16
0.6%	10 Year 10	-	-	-	-	-	-	-	-	-	2	4	17	16	16	16
0.6%	11 Year 11	-	-	-	-	-	-	-	-	-	-	2	4	17	16	16
0.6%	12 Year 12	-	-	-	-	-	-	-	-	-	-	-	2	4	17	16
0.6%	13 Year 13	-	-	-	-	-	-	-	-	-	-	-	-	2	4	17
0.6%	14 Year 14	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4
0.6%	15 Year 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Total Defaulted Loans		2	6	23	39	55	71	87	103	119	136	153	170	187	204	221

End of Year Remaining Loans		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year 1	352	699	2,797	2,644	2,671	2,683	2,697	2,710	2,724	2,736	2,750	2,764	2,778	2,792	2,806	2,806
Year 2	-	350	695	2,780	2,628	2,655	2,667	2,681	2,694	2,708	2,719	2,733	2,747	2,761	2,775	2,775
Year 3	-	-	348	691	2,763	2,612	2,639	2,651	2,665	2,678	2,692	2,702	2,716	2,730	2,744	2,744
Year 4	-	-	-	346	687	2,746	2,596	2,623	2,635	2,649	2,662	2,676	2,685	2,699	2,713	2,713
Year 5	-	-	-	-	344	683	2,729	2,580	2,607	2,619	2,633	2,646	2,660	2,668	2,682	2,682
Year 6	-	-	-	-	-	342	679	2,712	2,564	2,591	2,603	2,617	2,630	2,644	2,651	2,651
Year 7	-	-	-	-	-	-	340	675	2,695	2,548	2,575	2,587	2,601	2,614	2,628	2,628
Year 8	-	-	-	-	-	-	-	338	671	2,678	2,532	2,559	2,571	2,585	2,598	2,598
Year 9	-	-	-	-	-	-	-	-	336	667	2,661	2,516	2,543	2,555	2,569	2,569
Year 10	-	-	-	-	-	-	-	-	-	334	663	2,644	2,500	2,527	2,539	2,539
Year 11	-	-	-	-	-	-	-	-	-	-	332	659	2,627	2,484	2,511	2,511
Year 12	-	-	-	-	-	-	-	-	-	-	-	330	655	2,610	2,468	2,468
Year 13	-	-	-	-	-	-	-	-	-	-	-	-	-	328	651	2,593
Year 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	326	647
Year 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	324
Total Loans Outstanding		352	1,049	3,840	6,461	9,093	11,721	14,346	16,969	19,590	22,208	24,822	27,433	30,041	32,646	35,248

Beginning Loan Balance by Loan by Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year 1	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	182,849	186,506	190,236	194,041	197,922	197,922
Year 2	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	182,849	186,506	190,236	194,041	194,041
Year 3	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	182,849	186,506	190,236	190,236
Year 4	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	182,849	186,506	186,506
Year 5	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	182,849	182,849
Year 6	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	179,264	179,264
Year 7	-	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	175,749	175,749
Year 8	-	-	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	172,303	172,303
Year 9	-	-	-	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	168,924	168,924
Year 10	-	-	-	-	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	165,612	165,612
Year 11	-	-	-	-	-	-	-	-	-	-	150,000	153,000	156,060	159,181	162,365	162,365
Year 12	-	-	-	-	-	-	-	-	-	-	-	150,000	153,000	156,060	159,181	159,181
Year 13	-	-	-	-	-	-	-	-	-	-	-	-	150,000	153,000	156,060	156,060
Year 14	-	-	-	-	-	-	-	-	-	-	-	-	-	150,000	153,000	153,000
Year 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150,000

Ending Loan Balance by Loan by Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year 1	147,787	150,743	153,758	156,833	159,969	163,169	166,432	169,761	173,156	176,619	180,151	183,754	187,430	191,178	195,002
Year 2	-	145,461	148,370	151,337	154,364	157,451	160,600	163,812	167,089	170,430	173,839	177,316	180,862	184,479	188,169
Year 3	-	-	143,015	145,876	148,793	151,769	154,804	157,901	161,059	164,280	167,565	170,917	174,335	177,822	181,378
Year 4	-	-	-	140,445	143,254	146,119	149,041	152,022	155,063	158,164	161,327	164,554	167,845	171,202	174,626
Year 5	-	-	-	-	137,743	140,498	143,308	146,174	149,098	152,080	155,121	158,224	161,388	164,616	167,908
Year 6	-	-	-	-	-	134,903	137,601	140,353	143,160	146,023	148,944	151,923	154,961	158,060	161,222
Year 7	-	-	-	-	-	-	131,918	134,556	137,247	139,992	142,792	145,648	148,561	151,532	154,562
Year 8	-	-	-	-	-	-	-	128,779	131,355	133,982	136,662	139,395	142,183	145,026	147,927
Year 9	-	-	-	-	-	-	-	-	125,481	127,990	130,550	133,161	135,824	138,541	141,312
Year 10	-	-	-	-	-	-	-	-	-	122,013	124,453	126,942	129,481	132,071	134,712
Year 11	-	-	-	-	-	-	-	-	-	-	118,368	120,736	123,150	125,613	128,126
Year 12	-	-	-	-	-	-	-	-	-	-	-	114,537	116,828	119,164	121,547
Year 13	-	-	-	-	-	-	-	-	-	-	-	-	110,509	112,720	114,974
Year 14	-	-	-	-	-	-	-	-	-	-	-	-	-	106,276	108,401
Year 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101,826

Ending Loan Balance by Year Current Loans	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year 1	51,947,114	105,439,236	430,114,476	414,640,114	427,217,915	437,778,084	448,793,994	460,071,132	471,632,866	483,308,353	495,454,706	507,906,238	520,670,617	533,755,699	547,169,542
Year 2	-	50,838,508	103,186,068	420,771,434	405,643,559	417,973,980	428,317,540	439,108,660	450,155,867	461,482,143	472,745,473	484,641,529	496,836,778	509,338,742	522,155,133
Year 3	-	-	49,697,849	100,867,941	411,168,509	396,396,123	408,470,696	418,590,836	429,150,022	439,959,980	451,043,284	461,892,733	473,530,696	485,461,661	497,693,001
Year 4	-	-	-	48,523,747	98,482,041	401,294,618	386,887,095	398,696,959	408,586,564	418,906,352	429,471,412	440,303,893	450,737,844	462,109,573	473,767,896
Year 5	-	-	-	-	47,314,754	96,025,438	391,138,222	377,105,323	388,641,212	398,292,848	408,365,437	418,677,606	429,251,058	439,268,020	450,365,009
Year 6	-	-	-	-	-	46,069,362	93,495,079	380,687,315	367,039,200	378,291,419	387,697,320	397,514,559	407,565,486	417,871,336	427,469,957
Year 7	-	-	-	-	-	-	44,785,999	90,887,783	369,929,397	356,676,647	367,635,054	376,787,106	386,340,480	396,121,437	406,150,726
Year 8	-	-	-	-	-	-	-	43,463,028	88,200,236	358,851,464	346,005,091	356,659,077	365,548,805	374,829,415	384,331,285
Year 9	-	-	-	-	-	-	-	-	42,098,743	85,428,989	347,439,982	335,011,448	345,349,916	353,968,466	362,967,017
Year 10	-	-	-	-	-	-	-	-	-	40,691,368	82,570,448	335,680,871	323,682,106	333,693,448	342,031,572
Year 11	-	-	-	-	-	-	-	-	-	-	39,239,054	79,620,869	323,559,483	312,002,901	321,674,977
Year 12	-	-	-	-	-	-	-	-	-	-	-	37,739,874	76,576,357	311,060,583	299,959,101
Year 13	-	-	-	-	-	-	-	-	-	-	-	-	36,191,822	73,432,854	298,168,323
Year 14	-	-	-	-	-	-	-	-	-	-	-	-	-	34,592,811	70,186,166
Year 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32,940,667
Aggregate Guaranteed Amount	12,986,778	39,069,436	145,749,598	246,200,809	347,456,695	448,884,401	550,472,156	652,152,759	753,858,527	855,472,391	956,916,815	1,058,108,951	1,158,960,362	1,259,376,737	1,359,257,586

Sale Summaries by Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Home Sales	2	6	23	39	55	71	87	103	119	136	153	170	187	204	221
Average Home Value	\$153,000	\$156,060	\$159,181	\$162,365	\$165,612	\$168,924	\$172,303	\$175,749	\$179,264	\$182,849	\$186,506	\$190,236	\$194,041	\$197,922	\$201,880
Gross Proceeds	\$306,000	\$936,360	\$3,661,168	\$6,332,228	\$9,108,667	\$11,993,630	\$14,990,348	\$18,102,137	\$21,332,402	\$24,867,486	\$28,535,440	\$32,340,166	\$36,285,666	\$40,376,050	\$44,615,535
Less: Loan Value	(314,241)	(951,405)	(3,717,550)	(6,335,862)	(8,964,933)	(11,603,270)	(14,248,844)	(16,899,470)	(19,552,799)	(22,394,087)	(25,234,289)	(28,069,944)	(30,897,822)	(33,714,469)	(36,516,191)
Net Proceeds	(\$8,241)	(\$15,045)	(\$56,382)	(\$3,634)	\$143,734	\$390,360	\$741,504	\$1,202,668	\$1,779,603	\$2,473,399	\$3,301,152	\$4,270,222	\$5,387,844	\$6,661,581	\$8,099,344
Less: Brokerage Fees	(18,360)	(56,182)	(219,670)	(379,934)	(546,520)	(719,618)	(899,421)	(1,086,128)	(1,279,944)	(1,492,049)	(1,712,126)	(1,940,410)	(2,177,140)	(2,422,563)	(2,676,932)
Net Proceeds to State	(\$26,601)	(\$71,227)	(\$276,052)	(\$383,568)	(\$402,786)	(\$329,258)	(\$157,917)	\$116,540	\$499,659	\$981,350	\$1,589,025	\$2,329,812	\$3,210,704	\$4,239,018	\$5,422,412

Exhibit 6: Potential Cost Savings

101,000 **Number of Teachers in NC**
8.00% **Attrition Rate**
\$12,500 **Cost per Leaver**
8,080 **Number of Leavers**

Reduction in Attrition	Number of teachers	Resulting Attrition Rate	Savings
1%	81	7.92%	\$1,010,000
3%	242	7.76%	\$3,030,000
5%	404	7.60%	\$5,050,000
10%	808	7.20%	\$10,100,000
20%	1,616	6.40%	\$20,200,000