CSEM

CENTER FOR THE STUDY OF ECONOMIC MOBILITY

WINSTON-SALEM STATE UNIVERSITY

Does Forsyth County's Affordable Home Ownership Program
Build Wealth and Spur Economic Mobility?

Outcomes for a Sample of 508 Participants

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This report is based on a larger CSEM working paper, titled "Analysis of the Forsyth County, North Carolina Homeownership Program Outcomes." This report details in depth the research programs' methodologies and includes other results.

Executive Summary

The American dream is partially rooted in the promised satisfaction of home ownership. With that promise comes the building of wealth and assets as property values rise over time. Wealth then transfers to future generations, as children and grandchildren have a "leg up" for their own home purchases. Home ownership also vests people in their neighborhoods, changing their perspectives about new improvements and investments. Any upgrade to their surroundings is now essentially a windfall bonus to their property value rather than seen as a potential threat of rising rents and displacement. Lack of access to home ownership, on the other hand, contributes to growing wealth gaps along socioeconomic lines, particularly between whites and Blacks.

However, purchasing a house is beyond the bounds of many low-income families, due to the burden of saving for a down payment and often unavailable credit for smaller mortgages.[1] At the same time, the Great Recession of 2008-9 came about because of Federal policies that strongly encouraged home ownership, but with irresponsible economic policies that fostered reckless lending practices and led to millions of foreclosures. Home prices at the lowest price tier have never recovered in value.[2] Thus, how much wealth-building actually happens in home ownership has been an open empirical question, particularly in the realm of government programs that promote it. It requires painstaking work to track the lives of people over time as well as the changes in variables that define how their wealth is measured in terms of property values. It is also important to track their success in holding onto their properties over time and avoiding foreclosures. A foreclosure can be worse than never purchasing a house at all since it can lead to bankruptcy, longstanding debts, and a negative net worth.

The Center for the Study of Economic Mobility (CSEM), based at Winston-Salem State University, North Carolina embarked on an independent assessment of the Forsyth County Homeownership Program (FCHP), administered by our Forsyth County's Department of Community and Economic Development (CED). This housing program is a public-private partnership, with many government sources contributing funds to the program, though only a small amount (around $2,000) is never paid back. Additionally, private businesses (banks and mortgage companies) lend to participants and assist in training them, especially participants in the IDA portion of the housing program.

Despite operating for decades, and helping over 800 participants become first-time homeowners, the FCHP program relied on anecdotal feedback, because of lean budgets that did not allow for in-depth empirical analysis. Invited by the county, CSEM saw an opportunity for taking an in-depth look at this program, using tried and true statistical techniques and analysis. The long-term goal of the CSEM project is to analyze the effect of the FCHP on wealth accumulation, living standards and other measures of quality of life for the participants.

Essentially, the big question is: "What is the return on investment for this program, which has operated for decades? Is the county spending too much, too little or just right?"

Our study examines a subsample of 508 homeowners since 2004 since the data were not accurate in prior years. CSEM received no payment from any group or institution for this analysis, thus assuring a full and candid assessment of this program. However, we received full cooperation from the county in sharing the data and helping us input to input data by hand from hundreds of notebooks-each containing information on the individual homeowner. (In addition, a CSEM documentary around this program is also in the works.)

Note that the FCHP program has two primary branches, the Individual Development Account (IDA) and non- IDA. Participants in the non-IDA program are not required to undergo substantial financial training and preparation prior to receiving the down payment subsidy, while those in the IDA program are required to undergo significant training and preparation. For example, IDA participants are required to regularly meet with financial planners and budget organizers, and to participate in monthly financial meetings for an entire year prior to receiving any funds. Hence, the IDA is a "high touch" program that works closely with participants to not only improve long term financial outcomes, but to improve financial literacy and related behaviors. This gave CSEM an opportunity to analyze both groups and compares outcomes in this paper around the question of wealth accumulation, predictors of foreclosure rates and the rate of return for each government dollar invested in the program. Our results show strong success as well as areas that the county can focus on to further improve outcomes. Some of the most significant findings follow on the next page.

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[1] Eisen, B. (2019). Small mortgages are getting harder to come by: Lenders are offering fewer mortgages for cheaper properties even while racing to serve deep-pocketed home buyers. *The Wall Street Journal*. Retrieved WSJ Website.
[2] *Id*. at 1.

Center for the Study of Economic Mobility Findings:
Outcomes of the Forsyth County Affordable Home Ownership Program
(n = 508 participants, years 2004-2018).

Net Wealth Accumulation

- For every $1 of county government dollars spent on the program, $5.49 of homeowner equity is generated.
- Total net equity created from the program is $24.9 million and the average net equity for the homeowner is $48,986, after an average 9.1 years in the program.
- Blacks and whites had very similar outcomes regarding wealth-building.
- IDA participants accumulated 19.7% more net wealth than non-IDA participants.

Paid Property Taxes

- Of the 508 participants, as of October 2020, they have paid $6.2 million in property taxes. Per participant, the average property taxes paid is around $12,255 over an average of 9.1 years.

Foreclosures

- Of the 508 participants, as of October 2020, only 7.9% have had their houses foreclosed over the 15 year study period, and nearly all around the years of the Great Recession.
- Though low, the probability of participant being foreclosed upon significantly increased under the following conditions:
    1. single head of household
    2. low credit scores
    3. higher debt ratio
    4. part-time employment status.

Home Values

- From 2005 to 2020, the average FCHP participant's home has appreciated by around 32.2%.
- Participants with higher credit scores purchased homes that tended to remain more valuable.
- Those with higher debt ratios bought homes that remain less valuable.

Cost to County Government

- The cost of the program- counting the county government gifted funds not repaid, lost interest on county government down payment loans, and unrecoverable loans due to foreclosures, was $4.5 million for 508 recipients over the 15 years studied. The net equity created for these recipients was $24.9 million with other unmeasured spillover effects associated with home ownership.

The data and information surrounding the FCHP are vast. We intend to continue analyzing what we find and publishing our results. Therefore, this report is likely to be one of multiple reports. Future reports will include analyses of pre- and post-move neighborhood comparisons (crime rates, demographic compositions, etc.), migration analyses, and deeper dives into home values, among other things. In addition to analyzing currently available data, representatives from Forsyth County's CED Department are interested in creating a survey that asks past FCHP participants to describe their quality of life after receiving the down payment subsidy and financial training. This survey will serve to gauge these household's health, access to jobs, social mobility, satisfaction with local education, and overall well-being.

Introduction

Forsyth County's department of Community and Economic Development (CED) directs a housing program to promote home ownership among low-income residents in Forsyth County, NC, known as the Forsyth County Homeownership Program (FCHP). The program seeks to promote home ownership by subsidizing down payments, which is a primary obstacle to ownership among low-income residents. Low-income residents often lack savings to support a down payment, hence, they tend to rent. Owning a home compared to renting provides the opportunity of building equity and, in turn, growing wealth. Hence, low-income residents, who often live paycheck-to-paycheck, are missing out on a potentially powerful opportunity to climb the economic ladder. As of 2018, over 800 low-income residents have purchased homes as a result of participating in this program. This housing program is a public-private partnership, with many state and federal government sources contributing funds to the program. Additionally, private businesses (banks and mortgage companies) lend to participants and assist in training them, especially participants in the IDA portion of the housing program.

The program has two primary branches, Individual Development Account (IDA) and non-IDA. Participants in the non-IDA program are not required to undergo substantial financial training and preparation prior to receiving the down payment subsidy, while those in the IDA program are required to undergo significant training and preparation. For example, IDA participants are required to regularly meet with financial planners and budget organizers, and to participate in monthly financial meetings for an entire year prior to receiving any funds. Hence, the IDA is a "high touch" program that works closely with participants to not only improve long term financial outcomes, but to improve financial literacy and related behaviors.

The FCHP has not been previously analyzed and, thus, the return on investment by Forsyth County is not well understood except through anecdotal examples. Home ownership has always been viewed as a mechanism for upward mobility and an embodiment of the of the American Dream. Additionally, this program has been able to align the main societal players-business, individuals, and governments, providing benefits to all three entities. The FCHP also addresses long standing differences in wealth accumulation between racial groups and provides a potential mechanism for narrowing this gap.

The goal of this Center for the Study of Economic Mobility (CSEM) project is to analyze the effect of the FCHP on wealth accumulation, living standards and other measures of quality of life for the participants. Our study examines 508 homeowners for which data is available and accurate. Although there have been over 800 people who have participated in the CEDD program since the 1990s, the present analysis only uses participants that participated after 2004. The reason is because prior to 2005, participant records were not recorded and stored in a standardized and structured way, making it nearly impossible to include these records in an analysis. In consultation with the Director of CED, Dan Kornelis, it was decided that the analysis should only be carried out on the post-2004 participants. Also, the 508 participants used in the present analysis had all necessary data. There were some post-2004 participants who were missing critical information, such as address information. Additionally, there were a number of participants who moved into Forsyth County, NC from other states, such as Virginia, New York, and Georgia. These were participants were not included in the analysis either to focus solely on original Forsyth County residents. This report highlights a set of key findings from the overall CSEM project, which are summarized on page 17.

Data

The analysis dataset is comprised of housing data and recipient data. The housing data can be divided into two categories: Physical information and Property information. The recipient data also fits into two categories: Financial information and Demographic information. Table 1 lists and describes all housing variables, and Table 2 lists and describes all recipient variables.

Table 1: Housing Data.

Category	Variable	Type	Description
Physical and Geographic	Old Address	Character	Mailing address of participant's old home
	Old City	Character	City of participant's old home
	Old State	Character	State of participant's old home
	Old Zip	Character	Zip code of participant's old home
	Old PIN	Character	PIN number of participant's old home
	Old Market Area	Character	Market area where old address is located
	New Address	Character	Mailing address of participant's new home
	New City	Character	City of participant's new home
	New State	Character	State of participant's new home
	New Zip	Character	Zip code of participant's new home
	New PIN	Character	PIN number of participant's new home
	New Market Area	Character	Market area where new address is located
	Square Feet	Numeric	Square footage of new home
	Bedrooms	Numeric	Number of bedrooms in new home
Property and FCHP	Monthly Mortgage	Numeric	Participant's new monthly mortgage
	Interest Rate	Numeric	Interest rate on the new mortgage
	Market Value	Numeric	Fair Market Price of participant's house
	Tax Assessment Vale	Numeric	Tax Assessment value of participant's home
	Years in Home	Numeric	Number of years participant lives in new home, as of October 2020
	Home Foreclosed	Numeric	Binary variable indicating that participant's home was foreclosed on
	Home Sold	Numeric	Binary variable indicating that participant's home was sold
	Still in home, Paid in Full	Numeric	Binary variable indicating that participant's loan was paid in full and they are still living in house
	Still in home, Not Paid in Full	Numeric	Binary variable indicating that participant's loan has not yet been paid in full and they are still living in house
	Sale Price	Numeric	Sale price of participant's house, if they sold it
	Prior to the Great Recession ('07 – '09)	Numeric	Binary variable indicating that participant purchased new home prior to the Great Recession
	During the Great Recession ('07 – '09)	Numeric	Binary variable indicating that participant purchased new home during the Great Recession
	After the Great Recession ('07 – '09)	Numeric	Binary variable indicating that participant purchased new home after the Great Recession
	IDA Participant	Numeric	Binary variable indicating that participant was in the IDA branch of the FCHP

Table 2: Recipient Data

Category	Variable	Type	Description
Financial	Income	Numeric	Participant's yearly income, at time of purchase
	Credit Score	Numeric	Participant's credit score, at time of purchase
	Salaried	Numeric	Binary variable indicating that participant is a salaried employee
	Hourly	Numeric	Binary variable indicating that participant is hourly employee
	Full-Time	Numeric	Binary variable indicating that participant is a full-time employee
	Part-Time	Numeric	Binary variable indicating that participant is a part-time employee
	Debt Ratio	Numeric	Ratio of Debt-to-Income of participant
	Payment-to-income Ratio	Numeric	Ratio of mortgage payment to income of participant
	Accumulated Wealth	Numeric	Participant's accumulated wealth, as of October 2020
Demographic	Non-Hispanic Black	Numeric	Binary variable indicating whether participant identifies as Non-Hispanic black
	Non-Hispanic White	Numeric	Binary variable indicating whether participant identifies as Non-Hispanic white
	Non-Hispanic Other	Numeric	Binary variable indicating whether participant identifies as Non-Hispanic Asian, American Indian, Pacific Islander, etc.
	Hispanic	Numeric	Binary variable indicating whether participant identifies as Hispanic
	Age	Numeric	Age of participant, at time of purchase
	Single HH	Numeric	Binary variable indicating whether participant identifies as a single head of household
	Size of HH	Numeric	Number of people living in participant's household
	Disability	Numeric	Binary variable indicating whether participant has a disability

Summary statistics were generated to get a high-level view of our dataset. Table 3 displays the mean and standard deviation all continuous numeric variables used in this analysis. Table 4 displays the percentage breakdown of the non-continuous numeric and factor variables used in this analysis.

The average participant is around 37 years old and lives in a household with around 3 people. The average credit score is 656 and the average debt-to-income ratio is 0.3. The mean payment-to-income ratio is 0.3. Of the houses that participants purchased, the average number of bedrooms is 3 and the average square footage is around 1,369. Program participants have average annual incomes of $31,216 and their new mortgages are average $664 a month. This means the monthly mortgage is about $1/4^{th}$ of the participants' gross monthly income. On average,

participants have lived in their purchased homes, as of October 2020, for around 9 years. Per participant, the mean accumulated wealth, as of October 2020, is around $48,986.

Table 3. Descriptive Statistics for Continuous Variables[3]

Variables	Mean	Std. Dev.
Age	36.5	9.2
Size of Household	2.6	1.3
Credit Score	656.6	95.7
Debt Ratio	0.3	0.1
Payment-to-Income Ratio	0.3	0.1
Number of Bedrooms	3.0	0.4
Square Footage	1,369.3	267.4
Income ($)	31,215.9	8,291.4
New Monthly Mortgage ($)	663.5	143.2
Years in Home, as of October 2020	9.1	4.7
Accumulated Wealth ($), as of October 2020	48,986.2	29,510.7
Ln(Accumulated Wealth ($)), as of October 2020	10.4	1.9

Table 4 contains the percentage breakdown of the categorical variables used. The majority (> 70.0%) of participants identify as non-Hispanic Black and are single heads of household (>76.0%). Most participants earn an hourly wage (>74.0%) and work full-time (>85.0%). Around 38.4% of the sample participated in the IDA program. Approximately 27.9 percent of participants purchased their homes during the Great Recession. The majority of participants purchased their new homes in Winston-Salem (>77.0%), with Rural Hall and Kernersville making up a bit more than 15.0% and smaller neighborhoods comprising the rest.

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[3] All have an N = 508, except for the natural log of accumulated wealth, which has an N = 455. The reason is because 53 participants have yet to accumulate any net wealth as of October 2020. Hence, there net wealth is either $0 or a negative number. The natural log can only be taken for a number greater than zero.

Table 4. Percentage Breakdown of Non-Continuous Variables

Variables*	%
Race (N = 508)	
Non-Hispanic Black	70.1
Non-Hispanic White	21.9
Non-Hispanic Other	0.8
Hispanic	4.7
Missing	2.6
TOTAL	100.0
Gender (N = 508)	
Female	76.4
Male	16.3
Missing	7.3
TOTAL	100.0
Head of Household (N = 508)	
Single	76.2
Not Single	21.9
Missing	1.9
TOTAL	100.0
Employee Type (N = 508)	
Salaried	22.1
Hourly	74.0
Missing	3.9
TOTAL	100.0
Employment Status (N = 508)	
Full-Time	85.0
Part-Time	11.2
Missing	3.7
TOTAL	100.0
IDA Status (N = 508)	
IDA Participant	38.4
Non-IDA Participant	61.6
Missing	0.0
TOTAL	100.0
Disability (N = 508)	
Yes, Has a Disability	2.8
No, Has a Disability	95.1
Missing	2.2
TOTAL	100.0
Foreclosure (N = 508)	
Homes Foreclosed	7.9
Homes Not Foreclosed	92.2
TOTAL	100.0
Time frame of Purchase (N = 508)	
Bought Prior to the Great Recession (2007 – 2009)	33.9
Bought During the Great Recession (2007 – 2009)	27.9
Bought After the Great Recession (2007 – 2009)	38.2
TOTAL	100.0
Location of New Home (N = 508)	
Winston-Salem	77.4
Rural Hall	9.7
Kernersville	6.1
Pfafftown	2.4
Walkertown	1.2
Tobaccoville, Germanton, and King	1.2
Lewisville	1.0
Clemmons	0.8
Belews Creek	0.4
TOTAL	100.0

Analysis

Home Values

One of the desired products of the CSEM project is to understand how participants' property values behaved and to visualize trends in these market values for various groups of participants. To create these visuals, estimates of market values were calculated using housing sales data. Also, Zillow estimates were included as a comparison. Figure 1 plots the results from 2005 through 2020. In 2005, the average market value of the participants' homes was just over $100,000, while the average market value of all Forsyth County homes was around $150,000. The trends of both over the 15-year timeframe are very similar.[4]

Figure 1. Trends in Home Values
From 2005 to 2020, FCHP Values +32.3%
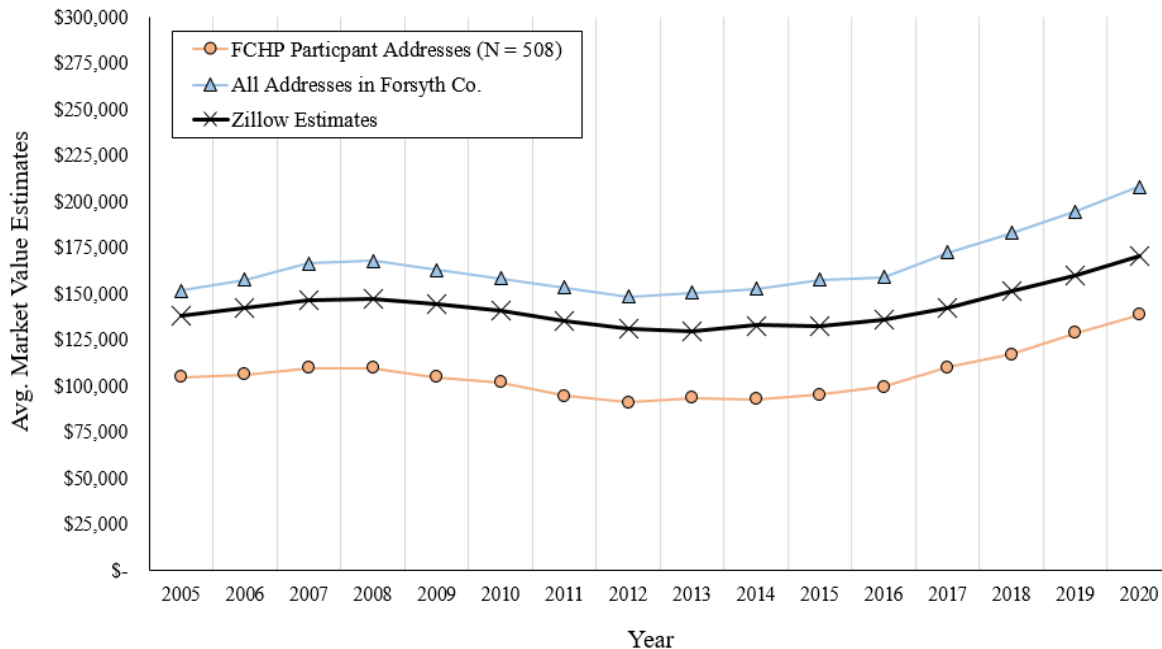
Figure 2 shows the percentage change in home values adjusting for time. Participants who have lived in their homes for longer tend to experience greater appreciation, which can distort the picture of growth rates across the municipalities. The plotted values of the growth rates have been adjusted to reflect this. The average percentage change in the home values in Rural Hall are used as the reference point.[5] Hence, the plotted rates are *relative* rates – relative to Rural Hall. According

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[4] Note that our market value estimates are consistently higher than those from Zillow. This could be because Zillow's approach underestimates home values in Forsyth County, especially considering that we have more and better data regarding sales in the county than Zillow does. Nevertheless, it could be due to the fact that our process overestimates home value estimates in the county. We rely on the county's square footage data to include in the denominator of the market value formula. It appears that, in some cases, the county under-records the square footage sizes of homes. Hence, if this is widespread, we are likely underestimating the sizes of homes, which would in fact result in us overestimating their value.

[5] These time adjusted rates were calculated using a linear regression. The percentage change in home values, for each participant, was regressed on a variable indicating the years in which the participant lived in the home and the municipality where the new house is located. In the model, an omitted category has to be chosen to avoid perfect multicollinearity. To avoid this, Rural Hall was chosen as this category.

to the results, participants who moved to Lewisville (N=5) and Pfafftown (N=11) experienced the greatest appreciation, while the participants who moved to Tobaccoville, King, and Germanton (N=6) experienced the greatest depreciation.

Figure 2. Percentage Change in Home Values, Adjusting for Time
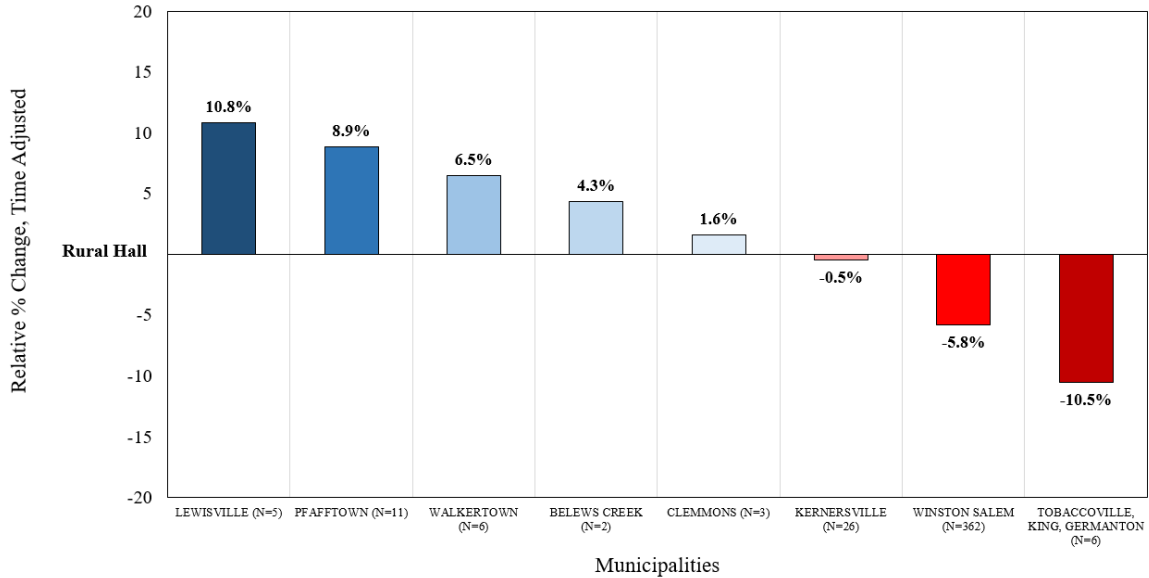
The histogram in Figure 3 shows the average % change in home values, from the moment of purchase to the most recent moment in which the participant still lived in the house, conditional on the time frame in which the house was constructed. Participants' homes that were built in 1970-1989 experienced the highest percentage change over the course of time in which participants lived there.

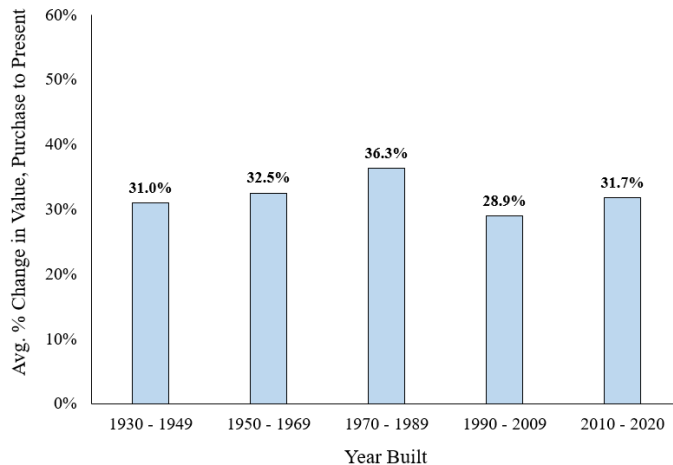Figure 3. Average % Change in Home Value and Year of Home Construction

Figure 4 shows the market value of all the participants' new homes from 2005 through 2018, by various credit score levels. Generally, participants with the lowest credit scores, at the time of closing, bought properties that tended to maintain lower values, while those with higher credit scores bought properties that tended to maintain higher values.

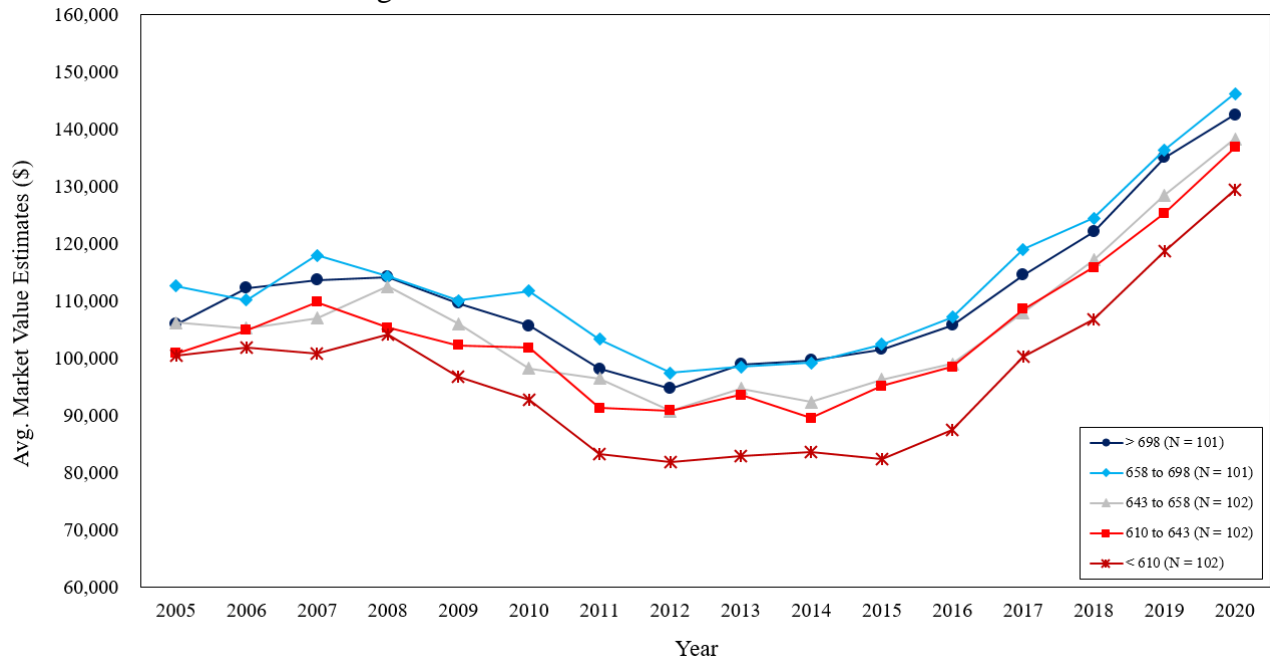Figure 4. Market Values and Credit Scores

Figure 5 below shows the market value of all the participants' new homes from 2005 through 2018, by various debt ratio levels. Participants with the highest debt ratios tended to purchase homes that maintained lower market values. However, participants with debt ratios between 0.34 to 0.38 bought homes that maintained the highest market values.
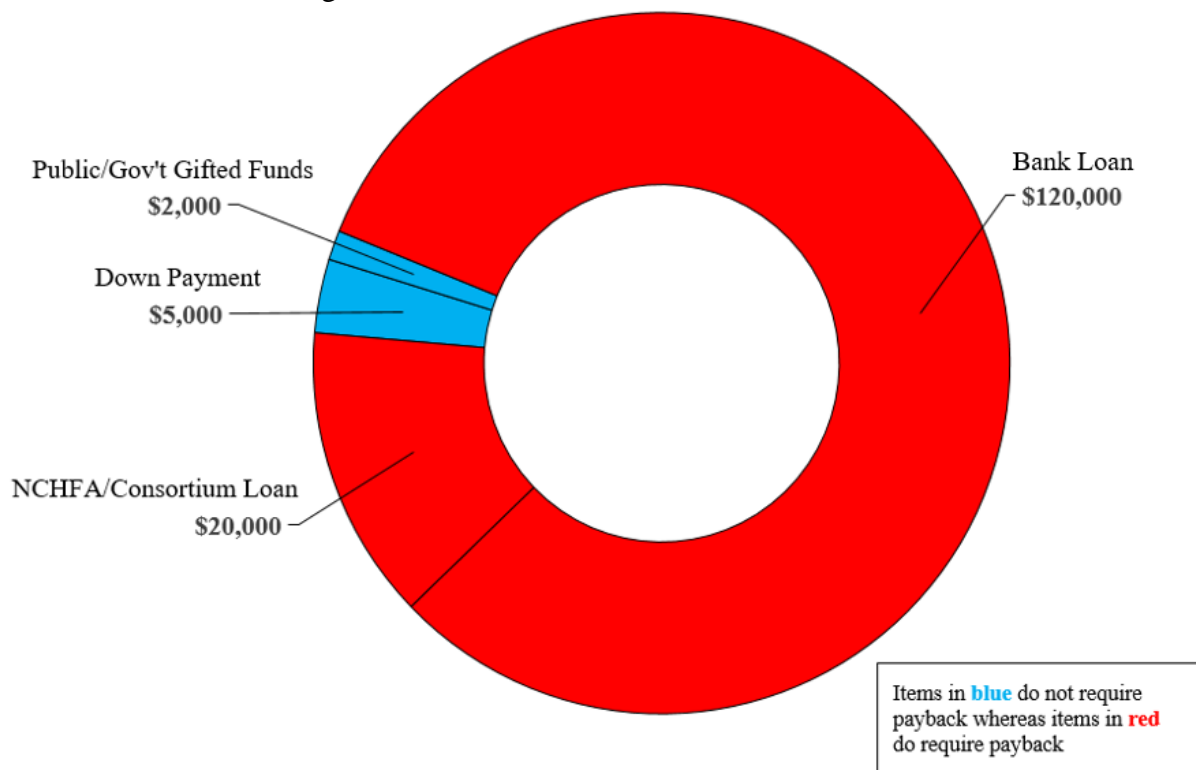
Figure 5. Market Values and Debt Ratios
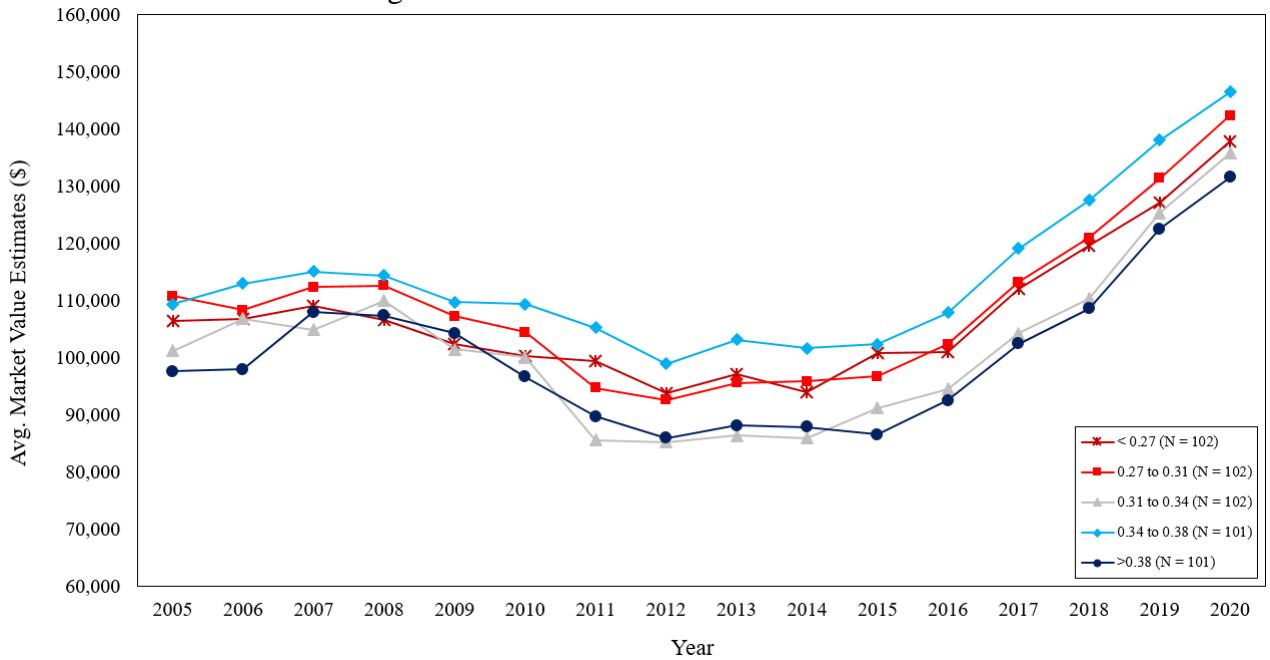
Accumulated Net Wealth

For the 508 participants, we estimate the total net equity accumulated. Total equity is equal to the sum of the principal of loan paid as of October 2020, the appreciation of the house, and the participant's own money put towards the down payment on the house. From this, we subtract the debt these participants have from publicly funded loans. Below, we provide an illustrative example of how net equity is calculated.

Conceptual Example 1

This example involves a fictional participant, named Michelle, illustrated in Figures E.1-E.5. She buys a $147,000 home. She receives a $120,000 30-year fixed mortgage loan from the bank. The down payment is $27,000, which is comprised of multiple sources. Michelle receives a $20,000 deferred payment 0 interest loan from the NCHFA, which she will pay back at the end of the 30 years. Michelle puts down $5,000 of her own savings towards the down. The remaining $2,000 of the total down payment is funded from gifted funds, which Michelle will not have to pay back.

Figure E.1: Source of Funds for $147,000 Home

Public/Gov't Gifted Funds
$2,000

Down Payment
$5,000

NCHFA/Consortium Loan
$20,000

Bank Loan
$120,000

Items in **blue** do not require payback whereas items in **red** do require payback

In the first year, notice that her house has not appreciated in value yet (blue bar in Figure E.2). The last bar (green), represents Michelle's Total Net Worth at the time, which, in this case, is equal to $7,000. The first red bar represents the bank loan ($120,000) and the second red bar represents the NCHFA loan ($20,000). Her Net Worth is just the current value of her home ($147,000) minus her total debt ($140,000).
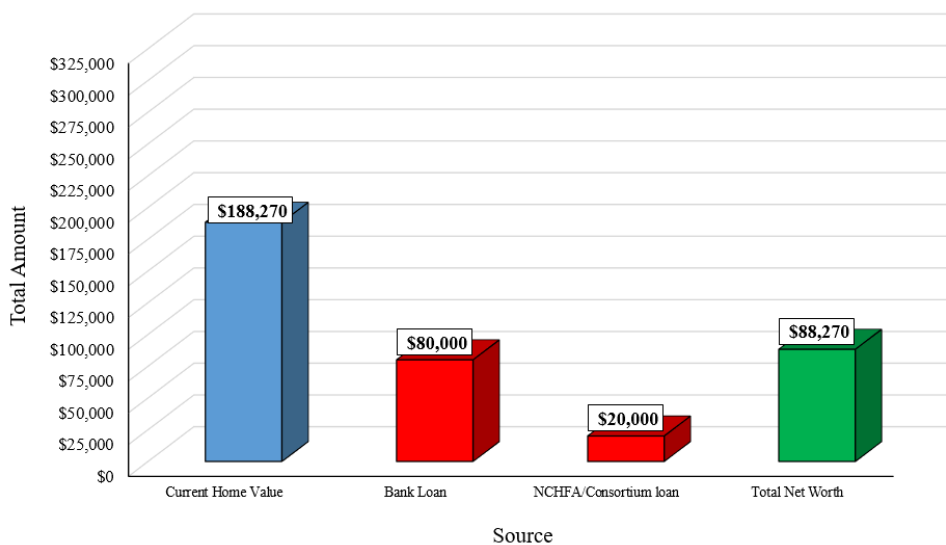
Figure E.2: Michelle's First Year in Home Bought for $147,000
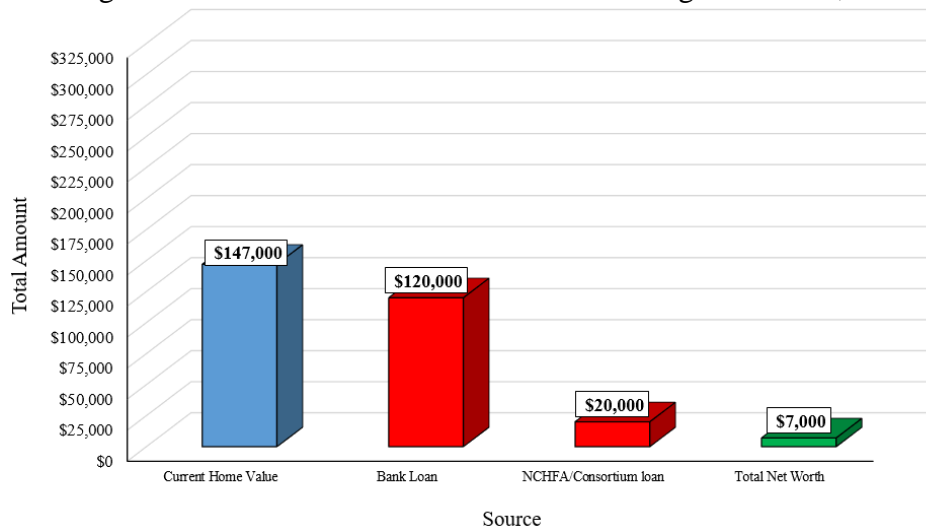
Note: Figure E.2 reflects a hypothetical $7,000 in down payment assistance, that reduced the size of the original bank loan.

In Michelle's tenth year in the home, her accumulated equity picture has changed (see Figure E.3). She has paid off $40,000 of the bank loan principal, evidence by the reduction in the first red bar. This sum transfers to her net worth (green bar). Her home has appreciated in value. Since the first year in her home, its value has increased from $147,000 to $188,270, over the last 10 years (blue bar). This value is also transferred to Michelle's net worth. Now, her total net worth is $88,270.

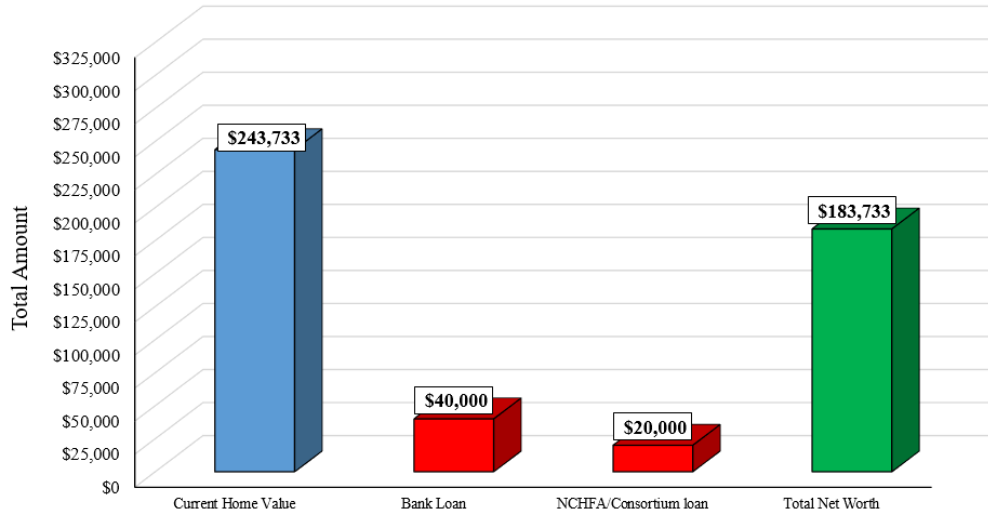Figure E.3: Michelle's Tenth Year in Home Bought for $147,000

Note: Figure E.3 reflects a hypothetical $7,000 in down payment assistance, that reduced the size of the original bank loan.

By her 20th year in the home, Michelle has paid off $80,000 of loan's principal, all of which is added to her net worth (see Figure E.4). Her home's value has also appreciated. Since the 10th year, the home's value has appreciated from $188,270 to $243,733.[6] This adds to Michelle's net worth. As of her 20th year in her home, her net worth is equal to $183,733.

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[6] For this example, we assume a 2.6% annual appreciation rate.

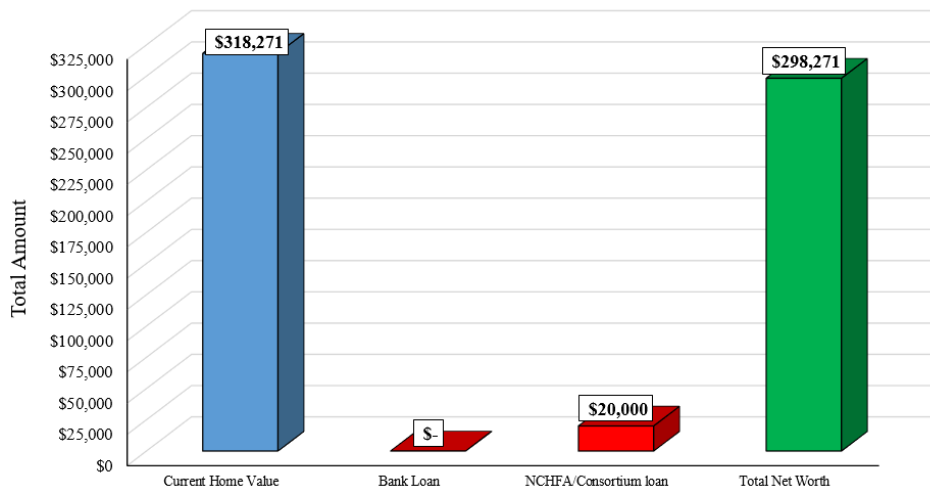## Figure E.4: Michelle's 20th Year in Home Bought for $147,000

Note: Figure E.4 reflects a hypothetical $7,000 in down payment assistance, that reduced the size of the original bank loan.

By Michelle's 30th year in her home, she has now fully paid off the bank loan (see Figure E.5). The full principal of the bank loan is now transferred to her net worth. Additionally, her home's value has continued to appreciate. Since the 20th year, the home has appreciated from $243,733 to $318,271. Her net worth now stands at $298,271. Now that she has fully paid off her loan and has lived in her house for 30 years, she will soon be required to pay back the $20,000 loan received from the NCHFA.

Figure E.5: Michelle's 30th Year in Home

Note: Figure E.5 reflects a hypothetical $7,000 in down payment assistance, that reduced the size of the original bank loan.

Using the process described above for the 508 participants, the result is the total net equity. As of October 2020, total net equity is around $24.9 million, after an average of 9.1 years in the program. Per participant, this is around $48,986 during the same time frame, an accumulation of $5,383 in net equity per year.

Table 5. Total Net Equity[7]

Number of Participants	Accumulated Equity	Avg. Net Equity
508	$24,844,990.0	$48,986.0

FCHP allocated public funds as loans, which is money the county government will eventually recoup. There are some funds given to participants that the county government simply gifts to participants. Of the 508 participants, around 53% did not received any gifted funds. The distribution in Figure 6 shows how gifted funds were allocated. Just over 26 percent received between $3,000 and $4,000.

Figure 6. Distribution of Gifted Funds
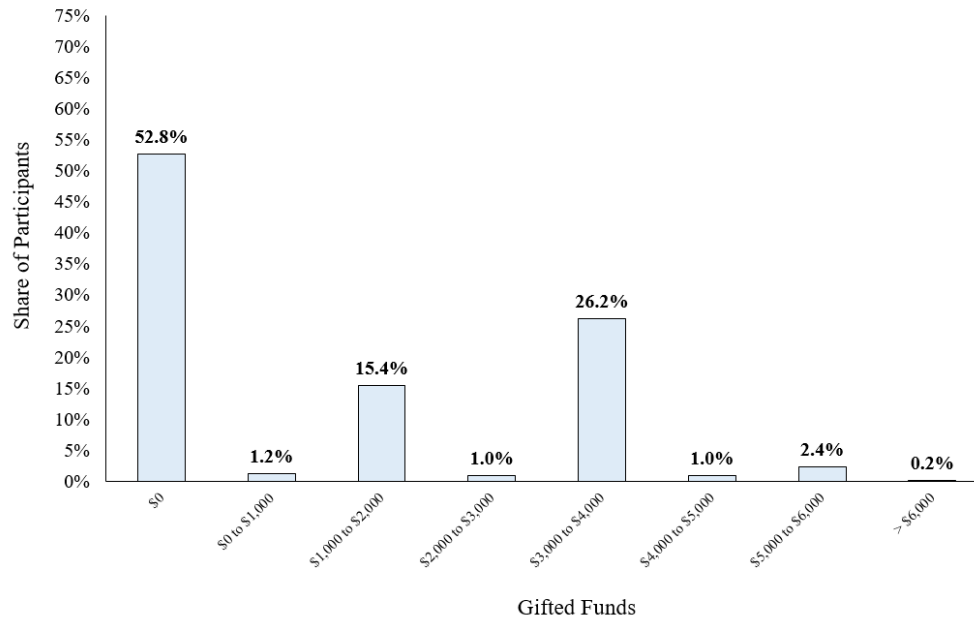
With the total county funds and the net equity calculated, we then estimate the lost interest on county government loans since they were provided to participants interest free. Using treasury bond rates, we find that as of October 2020, lost interest on these funds is equal to approximately $2,629,236. The sum of gifted funds, lost interest, and unrecoverable loans from foreclosures is equal to $4,524,508 (total costs).[8] With the costs calculated, we can then calculate the return on investment (ROI). This is summarized in Table 6 below. Taking the net equity and dividing it by the total costs, we get the ROI which is equal to 5.49. Interpreting the ROI, for every $1 dollar spent on the program, $5.49 of accumulated equity is generated.

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[7] Note: The Total Debt from Government Loans, as was stated earlier, includes the 0% interest loans from NCHFA, NSP, and the WS/FC Consortium HOME funds. In general, these loans will be repaid by the participant when the home is paid off, sold, or no longer occupied by the homeowner, or a cash-out refinance occurs. However, if the home is foreclosed on, we assume that the county then becomes responsible for paying back the loans.

[8] Total gifted funds = $1,048,247, Lost interest on county government loans = $2,629,236, and Unrecoverable loans from foreclosures = $847,025.

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Table 6. Return on Investment

Number of Participants	Total Net Equity	Total Costs	ROI
508	$24,844,990.0	$4,524,508.0	5.49

We examine how net equity varies across groups pf participants. If systematic differences exist, this can better help the CED target certain participants, especially to offset any potential "red flags" in outcomes. To analyze these average differences, we adjust accumulated wealth by *time* and *timing*.[9] We analyzed differences across relationship statuses, specifically married, single, and divorced participants. We do this using both a paired t-test and a simple linear regression. Though there are differences, none of them are statistically significant. We also analyzed racial differences in accumulated wealth. Like for marital status, there are not significant differences in FCHP outcomes across racial groups, in terms of accumulated wealth.

Benefits to the County, from Paid Property Taxes

We estimate the total property taxes paid by FCHP since they purchased their homes till October of 2020. For the 508 participants in our sample, they have paid around $6.2 million in property taxes.

Table 7. Property Taxes Paid by FCHP[10]

Number of Participants	Property Taxes Paid, as Of October 2020	Avg. Property Taxes Paid Per Participant
508	$6,225,641.1	$12,255.2

Modeling Foreclosures

Among the 508 participants, 40 of them had their homes foreclosed, or 7.9% of the total. The 40 foreclosures were spread across many of the years largely between 2008 to 2014 (see Figure 9). The first set of foreclosures occurred in 2008, where 6 of the 40 participants had their homes foreclosed on. Note that 39 of the 40 foreclosures occurred within six years of the 2008 Great Recession, and only one foreclosure has occurred since then.

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[9] We adjust for time because participants who have owned their home for more years will have accumulated more wealth because they have paid off a greater amount of the loan principal. Regarding timing, we adjust accumulated wealth by when participants purchased their homes relative to the Great Recession (Before, During, or After). To estimate these average differences, adjusted for time and timing, we estimate simple linear regressions

[10] To estimate property taxes paid, we used the tax assessment values for each property and the appropriate property tax rates, for each relevant year. For each year in which participants live in their home, we multiply the tax assessed value of it by the appropriate tax rate. Taxes paid are prorated, since some participants purchased their new homes in the middle of a given year.

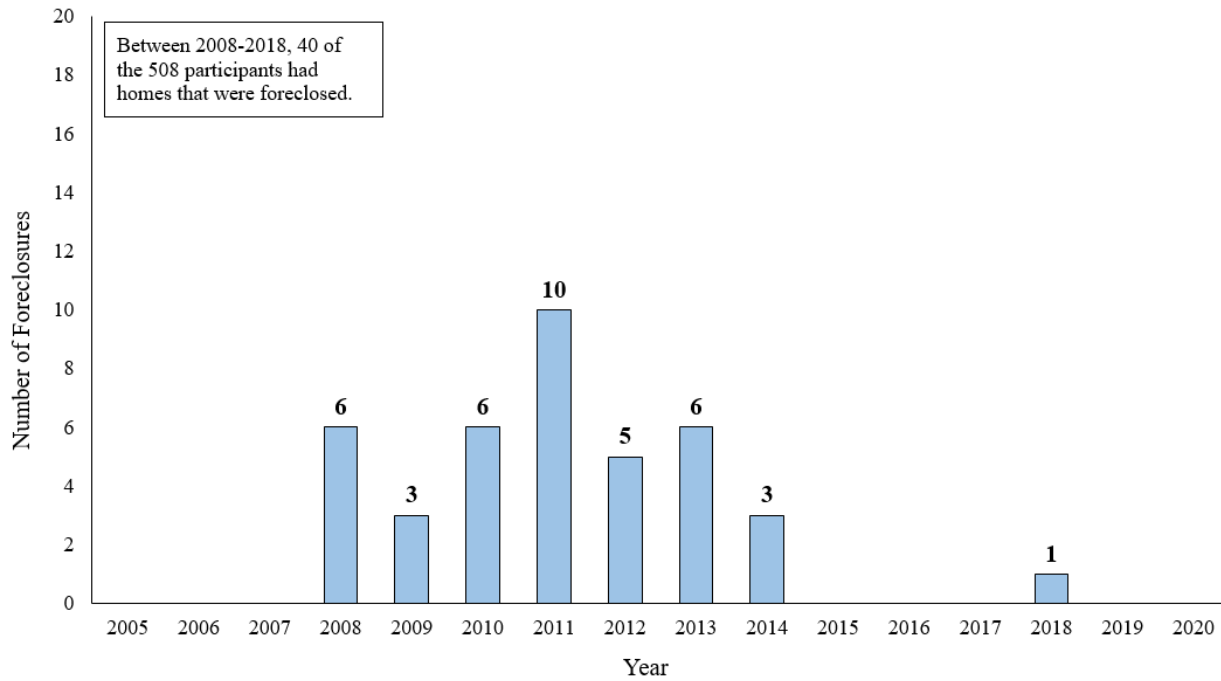Figure 7. Distribution of Total Foreclosures, 2005-2020 (n=40)

Table 8 presents the rate of foreclosures by IDA status. Participants of IDA program had a 8.2% foreclosure rate, while non-IDA participants had a foreclosure rate of 7.7%. This is an important result worth highlighting because it suggests the IDA participants did not have substantially different foreclosure outcomes from the non-IDA participants.[11]

Table 8. Foreclosures and IDA Status

Participant Type	Rate of Foreclosures
IDA (n=195)	8.2%
Non-IDA (n=313)	7.7%

Table 9 contains the results of a logistic regression. The estimated model has Foreclosure as the variable to predict. The explanatory variables are age at purchase, whether the participant is black, whether the participant is a single head of household, credit score at purchase, debt ratio, income, whether the participant is a salaried employee, whether he/she is a full-time employee, monthly mortgage, whether the participant purchase before or after the Great Recession, and the new city where the participant moved.

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[11] A chi-square test shows the difference between the foreclosure rates to be highly statistically insignificant.

Table 9. Modeling Foreclosure[12]

Independent Variable	Marginal Effect*	Std. Err.	z	p-value
Demographic				
Race, Black	- 0.0016	0.0127	-0.12	0.901
Age, at Purchase	-0.0009	0.0008	-1.12	0.262
Single Head of Household	0.0644	0.0266	2.42	0.015
Unknown whether Single Head of Household	0.1002	0.0389	2.58	0.010
Size of Household	0.0042	0.0045	0.94	0.349
Economic				
Credit Score	-0.00012	0.00006	-2.21	0.027
Debt Ratio	0.2136	0.1120	1.91	0.057
Income	3.71e-07	9.84e-07	0.38	0.706
Salaried Employee	-0.0141	0.0142	-0.99	0.320
Employment Type, Full-Time	-0.0276	0.0164	-1.69	0.092
Employment Type, Missing	-0.0369	0.0289	-1.27	0.203
IDA Participant	-0.0048	0.0110	-0.44	0.661
Newly Purchased Home				
Mortgage	-6.34e-07	0.00005	-0.01	0.989
Bought Pre Great Recession	-0.0043	0.0118	-0.36	0.715
Bought Post Great Recession	-0.0581	0.0196	-2.97	0.003
Location, Kernersville	0.0231	0.0180	1.28	0.201
Location, Rural Hall	-0.0150	0.0221	-0.68	0.497
Location, Pfafftown	0.0111	0.0320	0.35	0.729
Location, Other Towns	-0.0164	0.0317	-0.52	0.604

Five of the marginal effects are statistically significant at least at the 5% level, which are the two single head of household indicator variables, credit score, debt ratio, full-time employee indicator, and the indicator for buying after the Great Recession. The marginal effect for the full-time employment indicator is significant at the 10% level. We summarize the results as follows (See Table 10):

Table 10. Summary of Logistic Regression Results

Change in Variable	Probability Home is Foreclosed On	Statistical Confidence Level
Participant is a single head of household, instead of not being so	Increases by 6.4%	95%
Credit score increases by 50 points	Decreases by 0.6%	95%
Debt ratio increases by 0.1 percentage point	Increases by 2.1%	90%
Participant is a full-time employee, relative to part-time	Decreases by 2.8%	90%
Participant purchased their home after the Great Recession, relative to during	Decreases by 5.8%	99%

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[12] To interpret results of a logistic regression, logit coefficient estimates must be transformed into marginal effects. Marginal effects allow for the results to be interpreted as changes in the probability, as a result of a unit change in a particular covariate. The effects in Table 9 were calculated by holding the variables constant at their means.

Modeling Accumulated Net Wealth

Table 11 displays the results from a linear regression. In this model, the dependent variable is the natural log of accumulated net wealth, from moment of purchase to October 2020, as a result of purchasing a home as a FCHP participant. The independent variables include the participants' race, disability status, age at purchase, head of household status, size of household, credit score at purchase, debt ratio, payment-to-income ratio, income, employment type, employee type, IDA status, years in the home as of October 2020, monthly mortgage, time of purchase relative to Great Recession, location of new home, square footage of home, and number of bedrooms in new home.

Table 11. Modeling Accumulated Net Wealth

Independent Variable	Coefficient	Std. Err.	t	p-value
Demographic				
Race, Black	0.0457	0.0798	0.57	0.567
Race, Hispanic	0.1552	0.1415	1.10	0.273
Race, Other	-0.2815	0.3079	-0.91	0.361
Race, Missing	-0.2819	0.4265	-0.66	0.509
Has Disability	0.0582	0.1864	0.31	0.755
Disability Status Missing	0.1665	0.5940	0.28	0.779
Age, at Purchase	0.0011	0.0033	0.34	0.735
Single Head of Household	-0.0943	0.0752	-1.25	0.211
Unknown whether Single Head of Household	0.0009	0.7715	0.00	0.999
Size of Household	-0.0044	0.0250	-0.18	0.861
Economic				
Credit Score	0.0008	0.0004	2.17	0.031
Debt Ratio	0.1487	0.4925	0.30	0.763
Pay-to-Income Ratio	-1.2592	0.8971	-1.40	0.161
Income	6.71e-06	6.23e-06	1.08	0.282
Salaried Employee	0.0940	0.0684	1.38	0.170
Salaried Employee, Missing	0.1259	0.5992	0.21	0.834
Employment Type, Full-Time	0.0173	0.0985	0.18	0.861
Employment Type, Missing	-0.0352	0.6244	-0.06	0.955
Newly Purchased Home				
IDA Participant	0.1800	0.0613	2.94	0.004
Years in Home	0.1687	0.0112	15.10	< 0.001
Mortgage	-0.0002	0.0003	-0.65	0.516
Bought Pre Great Recession	-0.2741	0.0797	-3.44	0.001
Bought Post Great Recession	0.7588	0.1003	7.56	< 0.001
Location, Kernersville	0.1191	0.1254	0.95	0.343
Location, Rural Hall	0.0765	0.0951	0.80	0.422
Location, Pfafftown	0.2705	0.1851	1.46	0.145
Location, Other Towns	0.2673	0.1357	1.97	0.049
Square Footage	0.0006	0.0001	4.60	< 0.001
Number of Bedrooms	0.1571	0.5006	1.97	0.049
Constant	7.1683	0.5006	14.32	<0.001

Eight of the coefficient estimates are significant at least at the 5% level, which are credit score, square footage of home, number of bedrooms, whether the participant is an IDA participant, years in home as of October 2020, whether participant purchased home before or after the Great Recession, and whether participant purchased a home in an Other town (Clemmons, Lewisville, etc.) relative to Winston-Salem. We interpret the results as follows (see Table 12):

Table 12. Summary of Linear Regression Results[13]

Change in Independent Variable	Change in Accumulated Wealth	Statistical Confidence Level
Credit score increases by 100 points	Increases by 7.6%	95%
Participant was an IDA participant, relative to being a non-IDA participant	Increases by 19.7%	99%
Years lived in home increases by 1	Increases by 18.4%	99%
Participant bought home prior to the Great Recession, relative to during it	Decreases by 24.0%	99%
Participant bought home after the Great Recession, relative to during it	Increases by 113.6%	99%
Participant purchased home in Clemmons, Lewisville, Belews Creek, Germanton, Walkertown, etc., relative to Winston-Salem	Increases by 30.6%	90%
Square footage of home increases by 100 sq ft	Increases by 5.8%	99%
Number of bedrooms increases by 1	Increases by 17.0%	95%

Discussion

The FCHP is a program that has wide ranging effects, not only on the participants themselves, but also Forsyth County's larger community. In this brief, we have presented and discussed a handful of key findings from the CSEM project. In general, our findings suggest that this program is a highly effective mechanism to promote wealth accumulation among low-income people. Not only is it effective at generating wealth, it also appears to be a highly efficient and cost effective program.

Key Set of Findings

Net Wealth [14]
- For every $1 dollar spent on the program, $5.49 of accumulated equity is generated.
- Total net equity is equal to $24.9 million and the average net equity is $48,986, as of October 2020.
- In terms of accumulated net wealth, blacks and whites had very similar outcomes.
- IDA participants accumulated significantly more wealth than non-IDA participants, as of October 2020. Holding constant *many* factors, like years spent in the home, IDA participants accumulated 19.7% more net wealth than non-IDA participants. The annual return on equity for IDA participants is $297 higher than non-IDA participants.
- As credit score increases by 100 points, accumulated wealth increases by 7.6%.
- Participants who purchased prior to the Great Recession, relative to during it, accumulated wealth decreases by around 24.0%.
- When a home is bought after the Great Recession, compared to during it, accumulated wealth

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[13] The model uses a log transformed version of net equity because this has multiple desirable statistical properties. Since the model has a log transformed dependent variable, the coefficient estimates must be manipulated prior to interpreting them as marginal changes. The formula to do this is: $\%\Delta\ Accumulated\ Net\ Equity = 100 \cdot \left(e^{\beta} - 1\right)$

[14] The average participant, as of October 2020, has lived in their home for around 9 years. Therefore, this is net wealth built over an average of 9 years.

increases by around 113.6%.

Paid Property Taxes
- Of the 508 participants, as of October 2020, they have paid $6.2 million in property taxes. Per participant, the average property taxes paid is around $12,255.

Foreclosures
- Of the 508 participants, as of October 2020, only 7.9% have had their houses foreclosed. Most occurred around, or soon after, the Great Recession.
- Being a single head of household significantly predicts foreclosure, as does credit score, debt ratio, and being a full-time employee relative to a part-time one.
- As credit score increases by 50 points, the probability of foreclosure decreases by 0.6%.
- As debt ratio increases by 0.1 percentage points, the probability of foreclosure decreases by 2.1%.
- If a full-time employee, relative to part-time, the probability of foreclosure decreases by 2.8%.
- When a home is purchased after the Great Recession, relative to during it, the probability of foreclosure decreases by 5.8%.

Home Values
- From 2005 to 2020, the average FCHP participant's home has appreciated by around 32.2%.
- Homes built in 1970-1989 that participants purchased appreciated the most, by around 36.3%.
- Participants with higher credit scores purchased homes that tended to remain more valuable.
- Those with higher debt ratios bought homes that remain less valuable.

Next Steps

The data and information surrounding the FCHP are vast. We intend to continue analyzing what we find and publishing our results. Therefore, this report is likely to be one of multiple reports. Future reports will include analyses of pre- and post-move neighborhood comparisons (crime rates, demographic compositions, etc.), migration analyses, and deeper dives into home values, among other things. In addition to analyzing currently available data, representatives from Forsyth County's CED Department are interested in creating a survey that asks past FCHP participants to describe their quality of life after receiving the down payment subsidy and financial training. This survey will serve to gauge these household's health, access to jobs, social mobility, satisfaction with local education, and overall well-being.

Acknowledgments