

**A General Consideration of  
Possible Economic Impacts of  
Potentially Reducing Crime through  
West Side Revive Demonstration Projects**

Prepared for  
Reverend Matthew J. Watts, President and CEO  
HOPE Community Development Corporation  
Charleston, West Virginia

Prepared by  
The Center for Community Growth and Development  
College of Business  
Marshall University

November 24, 2014

**Authors:**

Rishav Bista, PhD  
Michael A. Newsome, PhD  
Becky Tomasik, PhD

**Corresponding Author**

Michael A. Newsome, PhD  
Professor of Economics  
(304) 696-2613  
[newsome@marshall.edu](mailto:newsome@marshall.edu)

# CONTENTS

---

- Executive Summary..... 1
- 1 Introduction ..... 3
- 2 Comparing Charleston’s West Side to Charleston as a whole ..... 3
  - Table 1: Basic Characteristics of Charleston and West Side Census Tracts ..... 6
- 3 Potential Economic Impact of HOPE Projects through Reductions in Crime and Recidivism..... 7
  - 3.1 A General Framework for Considering Potential Economic Impacts of HOPE Projects ..... 7
    - Figure 1: Flow Chart of the Potential HOPE Project Economics Impacts through Effects on Crime ... 8
  - 3.2 Broadly Categorizing the Primary-Targeted Outcomes of Hope Projects ..... 9
    - 3.2.1 The HOPE Neighborhood Housing and Economic Stabilization Project Initiative ..... 9
    - 3.2.2 The HOPE Innovative Workforce, Economic and Small Business Development Center..... 10
    - 3.2.3 The HOPE Youth and Family Services Clearinghouse..... 10
    - 3.2.4 The HOPE Extreme Exploration Career Awareness STEAM Center ..... 10
    - 3.2.5 State-of-the-Art Early Childhood Development Center..... 11
    - 3.2.6 The HOPE Health, Fitness and Wellness Center ..... 11
    - 3.2.7 Community Development School Pilot Project..... 11
    - 3.2.8 LAUNCH Project ..... 12
  - 3.3 A Brief Review of the Literature Relating Project Outcomes to Crime Reduction ..... 12
    - 3.3.1 Relationship between Improvements in Education and Crime ..... 12
    - 3.3.2 Relationship between Education and Recidivism ..... 14
    - 3.3.3 Relationship between Home Ownership/Value and Crime ..... 15
  - 3.4 A Brief Review of the Literature on the Value of Reducing Crime..... 16
    - 3.4.1 Economic Impacts of Reducing Violent Crime ..... 16
    - 3.4.2 Economic Impacts of Reducing Property Crime..... 17
- 4 Conclusions Regarding the Potential Economic Impact of HOPE Projects ..... 18
- References ..... 19

## EXECUTIVE SUMMARY

---

The purpose of this paper is to review previous research and attempt to show how investments in education, home ownership, and home value on the West Side of Charleston can lead to positive economic impacts for the West Side and beyond. The focus is on how these investments may reduce crime and recidivism, and lead to measurable economic improvements.

Using US Census tract data we find that the West Side includes around 10% of Charleston's population and households. Compared to Charleston residents, West Side residents are slightly younger, much more likely to be black or African American, less likely to have completed high school, and much less likely to have completed a bachelor's degree. Whether male or female, West Side residents are much less likely to be married. West Side residents are more likely to be unemployed, and those West Side residents who do work are less likely to work 35 or more hours per week. The median worker income on the West Side is only about half of that for Charleston as a whole. West Side residents are much more likely to have a disability and much less likely to have health insurance.

Compared to Charleston households, West Side households have a much lower income and are much less likely to have any earnings at all. West Side families are less likely to have lived in the same house for at least 1 year. West Side families are much more likely to fall below the poverty line and are much more likely to receive cash public assistance and food stamps.

Compared to houses in Charleston as a whole, West Side houses are more likely to be vacant. Those that are occupied are much more likely to be occupied by renters than owners. On average, the value of owner-occupied houses on the West Side is less than half the value of such houses in Charleston as a whole.

We develop a framework to analyze the potential economic impacts of West Side projects which primarily target improvements in education, increased homeownership, and improved property values. Our framework shows how these primary-targeted outcomes are associated with the specific secondary outcomes of reductions in violent crime, property crime, and recidivism. These primary-targeted outcomes and secondary outcomes together can lead to economic impacts: increased property values, increased productivity, decreased incarceration costs, and decreased crime prevention costs.

We show how the stated goals of HOPE Development Corporation demonstration projects, which fall under the West Side of Charleston Revitalization and Transformation Initiative, are associated with the primary-targeted outcomes in our framework. Some demonstration projects have already taken actions leading to primary-targeted outcomes.

We look at the relationships between education and crime, and education and recidivism. We also examine the relationships between homeownership and crime, and property values and crime. Previous literature suggests increases in education, home ownership, and property values

are associated with lower rates of crime and recidivism. We review studies that have valued the economic impacts of reducing violent and property crime and find some well-established estimates.

Using our framework and the results from previous research on relationships and economic impacts, we develop general guidelines as to the potential economic impacts of HOPE programs. One way HOPE programs can improve education is through increased high school graduation rates. We indicate that these types of HOPE programs could possibly lead to as much as a 1.36 percentage point reduction in the likelihood of incarceration. HOPE programs might also increase the average years of schooling for the community. We indicate the annual tangible savings of a one year increase in average years of schooling might amount to \$830,492 in reduced crime costs for the Charleston area. Some HOPE programs target property value and homeownership. Improvements in property value and reductions in crime are correlated, and compared to higher valued properties, lower valued properties are correlated more with reductions in crime rates. With the lower housing values on the West Side, it can be inferred that increases in home values might lead to important economic impacts.

# 1 INTRODUCTION

---

In this paper, we briefly review previous research and attempt to show how investments in education, home ownership, and home value on the West Side of Charleston can lead to positive economic impacts for the West Side and beyond. First, we compare the socio-demographic characteristics of the West Side to those of Charleston. Then we develop a general framework to show how investments in education, home ownership, and home value might lead to economic benefits derived from reductions in crime. We describe specific investment examples involving the HOPE Development Corporation's West Side Revive demonstration projects. Then we review previous academic studies relating improvements in education, home ownership, and home value to reductions in crime. We also review academic studies that place specific economic values on crime reductions. The focus is on studies with measured impacts. In the final section of this paper we discuss how the research may be useful in studying specific West Side investment issues.

## 2 COMPARING CHARLESTON'S WEST SIDE TO CHARLESTON AS A WHOLE

---

In Charleston, West Virginia, the US Census tracts roughly corresponding to the area known as the West Side are tracts 1, 7, and 8. These three tracts are located north of the Kanawha River and south of 7<sup>th</sup> Avenue and Washington Street West. The westernmost tract, tract 1, extends into an area known as "North Charleston." Tract 7 makes up the central portion of the West Side. Tract 8 is the easternmost tract and is bounded to the east by interstate 64. The census tract immediately east of the West Side, and east of Interstate 64, includes Charleston's central business, entertainment, and shopping district.

Table 1 lists selected socio-demographic characteristics for the three west side census tracts and Charleston as a whole (US Census Bureau 2014). Together, the populations of the west side census tracts make up 9.7% of the entire Charleston population.

Overall, the median age of the West Side is 38.6 years, which is younger than the median age of Charleston as a whole, 42.3.<sup>1</sup> However, the three tracts have very different median ages. Tract 7 has the youngest median age at 33.7, while tract 8 has the oldest median age at 44.3.

The median household income of the West Side is \$25,825.<sup>2</sup> This is only 54.3% of the median household income of Charleston as a whole, \$47,582. Of the three West Side census tracts, tract 7 has the highest median household income at \$28,603, while tract 8 has the lowest at \$22,463.

---

<sup>1</sup> This statistic for the West Side is calculated by weighting the individual census tract characteristics by each tract's population.

<sup>2</sup> This statistic for the West Side is calculated by weighting the individual census tract characteristics by each tract's total number of households.

Concerning race, blacks make up 32.3% of the population of tract 7. This is around 4 times greater than the black population of Charleston (8.1%). Tract 1 is 13.2% black and tract 8 is 18.5% black. As a whole, blacks make up 22.7% of the West Side population.<sup>1</sup>

For the West Side, the percentage of population with a high school degree is 77.0%, compared to 90.1% for Charleston.<sup>1</sup> At 67.3%, tract 1 has a particularly low high school degree percentage. For the West Side, the percentage of the population with a bachelor's degree is 10.2%, which is much lower than that of the percentage for Charleston (38.2%).<sup>1</sup> Only 4.6% of the tract 1 population has a bachelor's degree.

The percentage of the West Side male population that is married is 24.6%.<sup>1</sup> This is around half of the married percentage for males in all of Charleston (45.5%). The percentage of the West Side female population that is married is 25.2%, while the percentage for females in all of Charleston is 39.9%.

Concerning average family size, there is very little difference between the West Side and total Charleston populations. However, families in tract 7, with 3.3 members on average, do tend to be larger than families in all other parts of Charleston, with 2.9 members on average.

The households of the west side census tracts make up 10.4% of all Charleston households. The median value of owner-occupied homes on the West Side is \$64,789.<sup>2</sup> This is 45.7% of the value of such homes in Charleston as a whole (\$141,900). Whereas 12% of the housing units in Charleston as a whole are vacant, around 18.2% of those on the West Side are vacant.<sup>2</sup> In tract 8, the percentage of vacant housing is particularly high (21%).

While 39.3% of the housing units in Charleston are occupied by renters, around 60% of the housing units on the West Side are occupied by renters.<sup>2</sup> In tract 8, the percentage of housing units occupied by renters is particularly high (67.1%).

Whereas 82.5% of the households in Charleston have lived in the same house for at least 1 year, only around 72.9% of the households on the West Side have lived in the same house for at least 1 year.<sup>2</sup> In tract 8, only 69% of the households have lived in the same house for at least 1 year.

The unemployment rate for Charleston as a whole is 7.5%. The unemployment rate for the West Side is 11.3%.<sup>1</sup> The unemployment rate in tract 1, 18.2%, is particularly high. Whereas 59% of employed persons in Charleston work 35 or more hours per week, only around 49.8% of the employed persons living on the West Side work 35 or more hours per week.<sup>1</sup> The median worker earnings on the West Side are \$16,277.<sup>1</sup> This is only 53.4% of the median worker earnings for Charleston as whole (\$30,455).

While 73.4% of the households in Charleston have some earnings, only around 64.8% of the households on the west side have some earnings.<sup>2</sup> Whereas 14% of all Charleston families fall below the poverty level, around 32% of all West Side families fall below the poverty level.<sup>2</sup>

The percentage of households receiving cash public assistance on the West Side is 6.0%.<sup>2</sup> This is greater than the percentage of households for Charleston as a whole (3.4%). However, there is a lot of variation across the West Side census tracts. Tract 1 has a particularly large percentage of households receiving cash public assistance (10.5%). Tract 7 has fewer households receiving cash public assistance (2.9%) than Charleston as a whole. Whereas 15.1% of the households in Charleston receive food stamps or SNAP (Supplemental Nutrition Assistance Program) assistance, around 27.2% of the households on the West Side receive such assistance.<sup>2</sup>

On the West Side, the percentage of population with a disability is 23%.<sup>1</sup> This is higher than the percentage of the Charleston population with a disability (15.2%). On the West Side, the percentage of the population without health insurance is 24.3%.<sup>1</sup> This is around twice the percentage for Charleston as a whole (12.2%).

Most workers in Charleston (50.1%) work in management, business, science, and arts occupations. Most workers in tract 1 work in sales and office occupations. Most workers in tracts 7 and 8 work in service occupations.

Table 1: Basic Characteristics of Charleston and West Side Census Tracts

Characteristic	West Side Census Tracts			
	Charleston	1	7	8
Total Population (Percentage of Charleston Total)	51,224	1,255 (2.5)	2,005 (3.9)	1,746 (3.4)
Median Age	42.3	38.4	33.7	44.3
Median Household Income in \$s	47,582	26,607	28,603	22,463
Race as % of Total Population				
White	82.9	73.2	49.6	68.5
Black or African American	8.1	13.2	32.3	18.5
Education as % of Population Over Age 25				
High School Graduate	90.1	67.3	80.2	80.2
Bachelor's Degree	38.2	4.8	7.9	16.8
Married as % of Population Over Age 15				
Males	45.5	27.8	20.7	26.8
Females	39.9	35.6	21.3	22.1
Average Family Size	2.9	2.9	3.3	2.9
Total Households (Percentage of Charleston Total)	23,483	592 (2.5)	935 (4.0)	910 (3.9)
Median Owner-Occupied Household Value in \$s	141,900	54,000	57,400	79,400
Vacant Housing Units as % of Total	12.0	15.8	17.0	21.0
Renter Occupied Housing Units as % of Total	39.3	56.3	51.3	67.1
Household Living in Same House at Least 1 Year	82.5	81.5	71.3	69.0
% Unemployment	7.5	18.2	11.0	6.7
Working 35 or More Hours per Week as % of Employed	59.8	46.1	57.0	44.1
Median Earnings for Workers in \$s	30,455	17,315	17,283	14,375
% Households with Earnings	73.4	62.5	69.0	62.0
% of Families Below Poverty Level in past 12 Months	14.0	28.1	32.9	33.6
% Households Receiving Cash Public Assistance Income	3.4	10.5	2.9	6.3
% Households Receiving Food Stamps or SNAP	15.1	31.3	22.1	29.8
% Population Ages 18-64 with a Disability	15.2	19.0	17.4	32.4
% Population without Health Insurance	12.2	17.8	28.2	24.4
Occupation Classification as % of Workers:				
Management, Business, Science and Arts	50.1	10.0	18.6	25.0
Service	16.5	16.4	49.4	51.3
Sales and Office	22.2	42.9	18.5	14.9
Nat. Resources, Construction, and Maintenance	4.6	12.1	5.9	2.4
Production, Trans., and Material Moving	6.5	18.6	7.6	6.4

Note: Data from US Census Bureau, 2008-2012 American Community Survey 5-Year Estimates, American Fact Finder Advanced Search.



### 3 POTENTIAL ECONOMIC IMPACT OF HOPE PROJECTS THROUGH REDUCTIONS IN CRIME AND RECIDIVISM

---

In this section, we consider the potential economic benefits of HOPE Development Corporation projects through the projects' potential impacts on crime and recidivism. First, we discuss the general framework we use in the following analysis. Second, we broadly categorize the HOPE projects and indicate the primary-targeted outcomes of each. Third, we indicate how previous studies have related these primary-targeted outcomes to the secondary outcomes of reductions in violent crime, recidivism, and property crime. Fourth, we review the literature on the economic impacts of reducing violent crime and property crime.

#### 3.1 A GENERAL FRAMEWORK FOR CONSIDERING POTENTIAL ECONOMIC IMPACTS OF HOPE PROJECTS

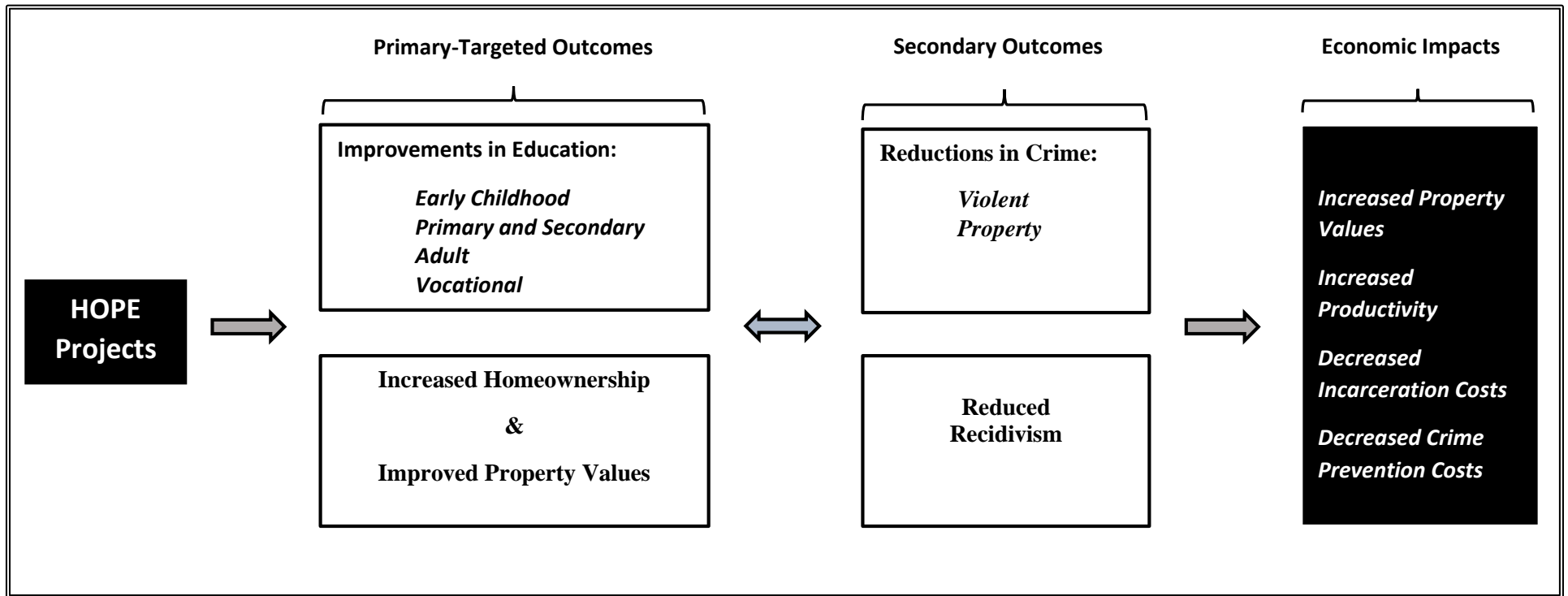
Figure 1 graphically represents the framework we use to analyze the potential economic impacts of Hope projects. This flow chart does not represent a complete or testable model. Instead it is presented as a reasonable pathway through which the activities of the HOPE Community Development Corporation may lead to measurable economic impacts. Considering this pathway along with estimates of economic impacts from previous studies, we can broadly infer the general types of economic impacts HOPE Community Development Corporation projects may have.

HOPE projects have complex and inter-related goals. We have simplified these goals into two categories of primary-targeted outcomes. The first category of primary-targeted outcomes includes improvements in education. Each improvement in education may occur at one or more of four different education levels: early childhood, primary and secondary, adult, and vocational education. The second category of primary-targeted outcomes includes increased homeownership and improved property values.

The primary-targeted outcomes may be associated with secondary outcomes. These outcomes are "secondary" in that they are not the explicit intended purpose of HOPE project activities. Secondary outcomes include reductions in crime and reduced recidivism. The double-headed arrow in Figure 1 indicates that we do not propose the primary-targeted outcomes cause the secondary outcomes. We only propose that they are related. For example, while it may be true that improvements in home values can reduce the incentives for the population to engage in property crime, it also may be true that reductions in property crime lead to improved home values.

Finally, Figure 1 shows that the primary-targeted outcomes and the secondary outcomes can be associated with economic impacts. One such economic impact, increased property value, may be both a direct result of HOPE projects' primary-targeted outcomes and an indirect result of secondary outcomes. Other economic impacts may include increased productivity, decreased incarceration costs, and decreased crime prevention costs.

Figure 1: Flow Chart of the Potential HOPE Project Economics Impacts through Effects on Crime



- Notes:
1. This flow chart considers the economic impacts which might occur through reductions in crime and recidivism only. HOPE projects may also create economic impacts through other changes. Note that the benefits may possibly accrue to neighborhoods outside of, as well as inside, the west side of Charleston.
  2. The double-headed arrow indicates correlation and not causation. It is possible that improvements in education, and increased homeownership and improved property values, may cause reductions in crime and recidivism. It is also possible that reductions in crime and recidivism may bring about improvements in education, homeownership and property values.

### 3.2 BROADLY CATEGORIZING THE PRIMARY-TARGETED OUTCOMES OF HOPE PROJECTS

The HOPE Community Development Corporation projects fall under the West Side Revive Initiative. West Side Revive's full name is The West Side of Charleston Revitalization and Transformation Initiative. The Initiative has several Demonstration Projects. The Demonstration Projects are to create a "Model Healthy Choice Neighborhood and Community". Some of these projects are ongoing and others are in the planning stages. These projects require the coordinated action of many community partners.

Below, each of the seven different HOPE demonstration projects are described. For each project, we list the explicit stated goals, the actions taken so far, and the relevant primary-targeted outcomes, as described above.

#### 3.2.1 The HOPE Neighborhood Housing and Economic Stabilization Project Initiative

The Goals of this Project:

- To provide on-the-job training (housing rehab, weatherization, demolition, and construction)
- To provide safe, affordable, energy-efficient, private housing for rent or ownership to individuals and families with low to moderate income on the West Side.

Actions Taken So Far:

- Purchased 26 properties
- Demolished 12 properties
- Prepared 12 properties for rehab
- Provided on-the-job training for 26 low income individuals
- Provided classroom training for 56 individuals

Primary-Targeted Outcomes:

- Improvements in Education (Adult)
- Improvements in Education (Vocational)
- Increased Homeownership
- Improved Property Values

### 3.2.2 The HOPE Innovative Workforce, Economic and Small Business Development Center

The Goals of this Project:

- To provide job training, job referrals and support services

Actions Taken So Far:

- Purchased a building at 1100 Central Avenue
- Provided services to 3000 individuals

Primary-Targeted Outcomes:

- Improvements in Education (Vocational)

### 3.2.3 The HOPE Youth and Family Services Clearinghouse

The WV DHHR Secretary designated the West Side of Charleston for a Senate Bill 611 pilot project and picked HOPE CDC as the lead organization to manage and operate a clearinghouse.

The Goals of this Project:

- To act as a youth and family services clearinghouse to coordinate comprehensive wrap-around services for at-risk youth and their families

Actions Taken So Far:

- Purchased a building at 1039 Central Avenue to house the clearinghouse

Primary-Targeted Outcomes:

- Improvements in Education (Early Childhood)
- Improvements in Education (Primary and Secondary)
- Improvements in Education (Adult)

### 3.2.4 The HOPE Extreme Exploration Career Awareness STEAM Center

STEAM is an acronym standing for Science, Technology, Engineering, Arts, and Math.

The Goals of this Project:

- To provide a state-of-the-art hands-on center to expose students, parents, teachers, coaches, and faith and community leaders to the world of STEAM and the associated education and career opportunities

Actions Taken So Far:

- In the early stages of this initiative

Primary-Targeted Outcomes:

- Improvements in Education (Primary and Secondary)
- Improvements in Education (Adult)
- Improvements in Education (Vocational)

### 3.2.5 State-of-the-Art Early Childhood Development Center

The Goals of this Project:

- To provide prenatal to pre-K care instruction to families

Actions Taken So Far:

- Developed relationships with the West Side School Superintendent's Early Child Learning Center and the Marshall University June Harless Early Childhood Development Center

Primary-Targeted Outcomes:

- Improvements to Education (Early Childhood)

### 3.2.6 The HOPE Health, Fitness and Wellness Center

The Goals of this Project:

- To develop a Fitness and Wellness Center for the West Side.

Actions Taken So Far:

- Developed relationships with WVU Extension, Charleston Area Medical Center Healthy Kid Coalition, and the Charleston YMCA

Primary-Targeted Outcomes:

- Improvements in Education (Adult)
- Increased Property Values

### 3.2.7 Community Development School Pilot Project

This initiative is part of Senate Bill 359, which requires many changes to the public education system.

The Goals of this Project:

- To coordinate activities within the community

Actions Taken So Far:

- The State School Superintendent designated the five schools on the West Side as the Community Development Pilot Project and HOPE is the lead community based organization to coordinate activities

Primary-Targeted Outcomes:

-Improvements in Education (Primary and Secondary)

### 3.2.8 LAUNCH Project

The Goals of this Project:

-To coordinate the efforts of existing early childhood projects, identify problems related to mental illness and substance abuse and promote physical, emotional, cognitive, social and behavioral wellness in children from birth through age eight

Actions Taken So Far:

-In the early stages of this initiative. This 5-year project will serve approximately 200 families in the first two years and increase to 500 by year five.

Primary-Targeted Outcomes:

-Improvements in Education (Early Childhood)

-Improvements in Education (Adult)

## 3.3 A BRIEF REVIEW OF THE LITERATURE RELATING PROJECT OUTCOMES TO CRIME REDUCTION

In this section, we look at the relationships between education and crime, education and recidivism, and homeownership and property values and crime. Previous literature suggests increases in education, home ownership, and property values are associated with lower rates of crime and recidivism.

### 3.3.1 Relationship between Improvements in Education and Crime

Several studies have estimated the relationship between education and crime. Moretti (2005) proposes several theoretical reasons for expecting a relationship between education and crime. First, schooling increases the economic returns to work. An increase in individual wage rates leads to increasing opportunity costs for crime. Second, education may directly increase the psychic cost of committing crime. Third, schooling could alter preferences in indirect ways. Moretti (2005) asserts that education may help teenagers better understand all the consequences of their decisions, and ultimately make them more far-sighted and more risk-averse. Becker and Mulligan (1997) mention that schooling may increase the patience or risk aversion exhibited by individuals. More patient and more risk averse individuals would place more weight on the possibility of future punishments. Fourth, schooling may also affect individual tastes for crime. Finally, according to Moretti (2005), it is possible that criminal behavior is characterized by strong state dependence, so the probability of committing a crime today depends on the amount of crime committed in the past. School attendance may have long-lasting effects on criminal participation, by keeping youth off the street and occupied during the day.

There are various empirical studies that estimate the benefits of schooling in terms of reduced crime. Findings from Lochner and Moretti (2004) based on FBI data on arrests that distinguish among different types of crimes indicate that completing high school reduces the probability of incarceration by about 0.76 percentage points for whites and 3.4 percentage points for blacks. Additionally, the reduction in the probability of imprisonment associated with more schooling is substantially larger for blacks than for whites. For example, in 1980 the difference between high school dropouts and college graduates is 0.8% for whites and 3.5% for blacks. Furthermore, they find that states that raise high school graduation rates through increases in compulsory schooling experience significant declines in incarceration rates. One extra year of schooling results in a 0.10 percentage point reduction in the probability of incarceration for whites and a 0.37 percentage point reduction for blacks. The differences in average education between blacks and whites can explain as much as 23% of the black-white gap in incarceration rates. The biggest impacts of graduation are associated with murder and assault (collectively classified as violent crimes), and motor vehicle theft (property crime). They estimate the additional social benefits of education to be about 14-26% of the private returns to schooling, suggesting that a significant part of the social returns to education comes in the form of benefits from crime reduction. Moretti (2005) states that a one-year increase in average years of schooling reduces murder and assault by almost 30%, motor vehicle theft by 20%, arson by 13%, and burglary and larceny by about 6%. Similarly, Lochner (2008) asserts that empirically, an increase in educational attainment significantly reduces subsequent violent and property crime yielding sizeable social benefits.

There are also social savings from crime reduction associated with high school completion. Lochner and Moretti (2004) suggest that a 1% increase in male high school graduation rates would save as much as \$1.4 billion annually in reduced costs from crime incurred by victims and society at large. Their estimation of additional social benefits from education amounts to around \$1,170- \$2,100 per additional male high school graduate or 14-26% of the private return to schooling. According to Alliance for Excellent Education (2006), a 5% increase in male high school graduation rates in the state of West Virginia is expected to lead to annual crime-related savings of around \$99.5 million, with a \$5.7 million increase in additional annual earnings. The total benefit to the state economy is around \$105.2 million.

Quantifying the relationship between education and crime may prove to be difficult. Moretti (2005) asserts that the key difficulty in estimating the effect of education on criminal activity is that unobserved characteristics affecting schooling decisions are likely to be correlated or associated with unobservable factors influencing the decision to engage in crime. He provides an example where individuals who grow up in poor inner-city neighborhoods may be more likely to drop out from school, and at the same time may be more likely to engage in criminal activities. Hence, we might observe a negative correlation between crime and education even if there is no causal effect of education on crime. The correlation between education and crime may not be causal, but might simply reflect the influences of disadvantaged family background, bad peer influence and poverty in general.

### 3.3.2 Relationship between Education and Recidivism

According to Karpowitz and Kenner (n.d.), nearly one and a half million individuals are housed in adult correctional facilities in the United States. The typical offender is undereducated, unemployed and living in poverty before incarceration. Inside US prisons, 19% of adult inmates are illiterate, and up to 60% are functionally illiterate. In contrast to this, the national adult illiteracy rate stands at 4%. Up to 23% of adults are functionally illiterate. Harer (1994) mentions that most people are released from prison into the community unskilled, undereducated, and highly likely to become involved in crime again. Rates of recidivism in the United States are extraordinarily high, ranging from 41% to 71%. According to Karpowitz and Kenner (n.d.), prison education is far more effective at reducing recidivism than boot camps, shock incarceration, or vocational training. Smith and Tracy (1997) find that simply attending school behind bars reduces the likelihood of re-incarceration by 29%. Translated into savings, every dollar spent on education returned more than two dollars to the citizens in reduced prison costs.

Steurer, Smith, and Tracy (2001) find a 20% lower recidivism for those who received a GED certificate and completed vocational training. Furthermore, they also report some important findings on impacts of postsecondary education on recidivism. Focusing their analysis on postsecondary correctional education, they find that prisoners who completed an Associate's Degree recidivated at the rate of 27.2% and those who completed a Baccalaureate Degree recidivated at the rate of 7.8%. These numbers were based on an eight year study. Karpowitz and Kenner (n.d.) mention that over the years, increasingly sophisticated statistical tools have been used to control for prior educational level, age, commitment offense, post-release employment and self-selection: factors that might dilute the finding that education slashes rates of recidivism. The results remain utterly compelling. Fabelo (2000) finds that inmates with higher levels of education tend to have lower recidivism rates. Inmates with a 9th grade education or higher had an 18% lower recidivism rate than those with a 4th grade education or lower (14% were re-incarcerated after two years compared to 17%). Prison education has a positive impact in reducing recidivism for those inmates who improve their educational level.

Fabelo (2000) further mentions that young property crime offenders are at the highest risk for recidivism. This risk is reduced when high risk nonreaders become readers. High risk nonreaders who learned to read had a 37% lower recidivism rate than high risk nonreaders who did not learn to read (19% recidivism rate compared to 30%). High risk offenders who were functionally illiterate and became functionally literate also benefited from their educational achievement, resulting in a 17% lower recidivism rate (24% recidivism rate compared to 29%). Older property crime offenders who became literate also benefited from a 14% lower recidivism rate (19% recidivism rate compared to 22%). In general, prisoners who were released having earned a GED in prison had lower recidivism rates than those who did not complete one. Fabelo (2000) further mentions that targeting young offenders who have higher recidivism rates, and an ability to advance faster with less instruction, may be a more effective approach than focusing on older offenders who have the greatest educational deficits but lowest recidivism rates.



### 3.3.3 Relationship between Home Ownership/Value and Crime

Examining the effect of crime on property values can prove to be a difficult issue. This is because both crime and property values affect one another. Crime reduces property value and property value reduces crime. However, the literature makes it clear that there is a strong correlation between the two. In the US, the annual direct costs of crime are more than a trillion dollars. That is not the full measure of the cost of crime in the US. There are indirect costs of crime, including fear, anxiety, and the opportunity costs of victims and criminals. These costs act as a negative amenity that can be partially captured by the housing market (Pope and Pope 2012).

Pope and Pope (2012) look at the crime drop in the 90s to examine the effect this decrease had on housing prices. They find a strong correlation between a drop in crime and increases in property value. It is important to note that they observe a correlation, but have no way of determining causation between the two effects. The estimated elasticity between housing prices and violent crime is -0.15. This means that a 10% increase in housing values is correlated with a 1.5% decrease in violent crime. The estimated elasticity between housing prices and property crime is -0.39. This means that a 10% increase in housing prices is correlated with a 3.9% decrease in property crime. These effects seem to be larger when the crime reduction is larger.

A Federal Reserve Bank of New York Staff Report examines the effect of installing permanent police stations in low income communities in Rio de Janeiro on crime and property values (Frischtak and Mandel 2012). Even though this study deals with another country, the results can be particularly useful, as these permanent police stations were established around venues for the 2014 World Cup and the 2016 Summer Olympics, not around historically bad crime areas. In this way, these permanent police stations act as a natural experiment on the effect of reducing crime on property values which helps eliminate potential biases in the estimated elasticities. Decreasing crime benefits lower valued properties disproportionately, reducing the inequality among properties. In Rio de Janeiro, homicides and robberies declined after 2009. Housing price inequality fell between 2009 and 2011. This can be partially attributed to the establishment of the Pacifying Police Unit (UPP) program that began in late 2008. The basic objective is the renewed assertion of the rule of law and the abatement of drug gang-related crimes. The areas that had a UPP established nearby showed an increase in home and apartment sales of 5-10%, a decrease in homicides of 10-25% and a decrease in robberies of 10-20%. The results show that the lowest valued properties are most affected by changes in the crime rate. This suggests that reducing crime in lower income areas will raise property values by a larger amount than reducing crime in higher income areas.

Another way to reduce crime and improve property values would be through encouraging home ownership in an area. Ni and Decker (2009) find a strong negative correlation between home ownership and both violent and property crime. Several studies suggest this relationship can be partially attributed to homeowners being more attached to their communities and therefore more invested in community affairs (Rossi and Weber 1996) (DiPasquale and Glaeser 1999). Ni and Decker find that a 1% increase in lagged home ownership leads to a 1.3 -1.5% drop in per

capita property crime and a 1% drop in per capita violent crime. Therefore, programs designed to encourage home ownership can have significant effects on crime reduction.

### 3.4 A BRIEF REVIEW OF THE LITERATURE ON THE VALUE OF REDUCING CRIME

In this section we look at the economic impacts of reducing violent and property crime. The focus is on studies that have specific crime cost estimates.

#### 3.4.1 Economic Impacts of Reducing Violent Crime

According to Shapiro and Hassett (2012), violent crimes impose concrete economic costs on the victims and family members in terms of lost earnings, and physical and emotional tolls. Violent crime also imposes significant costs on societies via lower property values, higher insurance premiums and reduced investment in high-crime areas. Finally, it also imposes significant costs on taxpayers who bear the financial burden of maintaining police operations, courts, prisons etc. They find the total cost of the criminal justice system for violent crimes in 2010 was around \$22.2 billion. The policing cost of violent crimes amounted to \$4.6 billion, the correctional costs amounted to \$15.4 billion and court costs amounted to around \$2.2 billion. Guerino, Harrison and Sabol (2011) calculate the cost of incarceration per inmate in 2010 to be around \$33,400. They estimate that violent crime cost Americans more than \$42 billion in direct costs, including the associated costs of police, courts, and correctional institutions, out-of-pocket-medical expenses borne by victims, and lost earnings by both victims and perpetrators who are arrested and convicted. These costs amount to \$137 per citizen in 2010. Corso et al. (2007) estimate the cost of medical care for assault victims to be around \$4.3 billion annually, while Guerino, Harrison and Sabol (2011) find that we spend \$74 billion annually on incarcerating 2.3 million criminals. Shenk and Klaus (1984) calculate the direct victim-related costs of crime in 1981 nationwide totaled \$22.9 billion (2010 dollars), and in a follow up study 10 years later find that direct victim-related costs grew to \$27.4 billion (2010 dollars).

Shapiro and Hassett (2014) find that violent crimes also inflict other, more intangible costs, including the pain and suffering of victims, a reduced quality of life for everyone, and lower investment levels and property values. Nationwide, these intangible costs come to an estimated \$156 billion per year. In their case study across 8 American cities, they find that the intangible pain and suffering borne by the victims of these violent crimes amounted to \$13.9 billion per year, ranging from \$216 million per year in Seattle to \$4.2 billion in Chicago. These annual intangible costs average more than \$1,200 per person across the eight cities.

Reduction in violent crimes implies reduction in costs which in turn results in savings. These savings include lower expenditures on law enforcement and the justice system, additional revenue that each city could expect to collect from applying local taxes and the income earned by those who otherwise would have been victims or perpetrators of those crimes. Shapiro and Hassett (2014) find that a 10% reduction in violent crimes nationwide would save Americans nearly \$1.5 billion in victim-related costs and \$2.2 billion in law enforcement and judicial costs

while increasing economic output by \$540 million. Similarly, a 25% reduction in these crimes would save Americans \$3.6 billion in victim-related losses and nearly \$5.6 billion in law enforcement and judicial spending, while increasing the economy's output by nearly \$1.4 billion annually.

Shapiro and Hassett (2014) estimate the savings from municipal budgets from a 25% reduction in violent crime range from \$6 million annually in Seattle to \$59 million in Chicago. They assert that the largest economic benefits, however, arise from the impact of lower rates of violent crime on housing values. They find that a 10% reduction in homicides should lead to a 0.83% increase in housing values the following year, and a 25% reduction in homicides should produce a 2.1% increase in housing prices over the next year. For example, a 10% reduction in homicides could increase the value of the housing stock of the Boston area by \$4.4 billion in the following year.

### 3.4.2 Economic Impacts of Reducing Property Crime

One of the main costs associated with property crime is the reduction in property values in the surrounding areas that is associated with higher property crime rates. The estimated elasticity between housing prices and property crime is -0.39 (Pope and Pope 2012). This suggests that if property crime were reduced by 3.9%, there would be a corresponding 10% increase in housing prices. These increases in housing prices can be thought of as benefit to the neighborhood.

Miller, Cohen, and Wiersema (1996) present per-offense crime cost estimates for robbery (\$18,591), arson (\$53,629), larceny/theft (\$529), motor vehicle theft (\$5,720), and burglary (\$2,145). These costs include only police and fire services in criminal justice system costs, and leave out major elements such as legal, adjudication, and corrections costs.

According to McCollister, French and Fang (2010), the property crimes of motor vehicle theft, arson, household burglary, vandalism, stolen property offenses, and larceny/theft generated per-offense tangible costs between \$3,523 (larceny/theft) and \$16,428 (arson). The three main components of tangible costs are victim costs, criminal justice system costs, and crime career costs. Most of these tangible costs are criminal justice system costs. The intangible costs can only be estimated for several property crimes, including motor vehicle theft, arson, household burglary, and larceny/theft. These incomplete estimates range from \$10 (larceny/theft) to \$5,133 (arson). These estimates only include corrected risk-of-homicide cost, not the pain and suffering costs, which could not be estimated for property crimes. The corrected risk-of-homicide cost is defined as the probability of homicide for each offense type multiplied by a cost of premature mortality estimate.

## 4 CONCLUSIONS REGARDING THE POTENTIAL ECONOMIC IMPACT OF HOPE PROJECTS

---

We have reviewed previous research and attempted to show how investments in education, home ownership, and home value on the West Side of Charleston can lead to positive economic impacts for the West Side and beyond. HOPE Community Development Corporation projects, which have the primary-targeted outcomes of improvements in education, increased homeownership, and improved property values can be important in leading to these economic impacts. One reasonable pathway through which HOPE programs may lead to measurable economic impacts is through the secondary outcomes of reductions in violent crime, property crime, and reduced recidivism. Previous studies allow us to provide general guidelines as to the potential value of these economic impacts.

One way HOPE Programs can improve education is through increased high school graduation rates. Lochner and Moretti (2004) find that completing high school reduces the probability of incarceration by about 0.76 percentage points for whites and 3.4 percentage points for blacks. Taking into account the racial demographics of the West Side (as shown in Table 1), completing high school reduces the average likelihood of incarceration by 1.36 percentage points.

HOPE programs might also increase the average years of schooling for the community. Moretti (2005) states that a one-year increase in average years of schooling reduces murder and assault by almost 30%, motor vehicle theft by 20%, arson by 13%, and burglary and larceny by about 6%. According to McCollister, French, and Fang (2010), per-offense tangible costs for aggravated assault is \$19,537. The total number of aggravated assaults in Charleston in 2012 was 103. If average schooling increases by one year in Charleston, aggravated assault might be reduced by 30.9 offenses, leading to a tangible savings of around \$603,000. The one year increase in average years of schooling could also lead to tangible annual savings of \$14,747 in motor vehicle theft, \$8,542 in arson, \$13,327 in burglary, and \$190,876 in larceny. So the annual tangible savings of a one year increase in average years of schooling might amount to \$830,492 in reduced crime costs for the Charleston area.

Since we know that property value and reductions in crime are correlated, HOPE programs that lead to increased property value and homeownership on the West Side may be associated with crime reductions and the ensuing economic impacts. Ni and Decker (2009) find that a 1% increase in lagged home ownership leads to a 1.3% to 1.5% drop in per capita property crime and a 1% drop in per capita violent crime. Pope and Pope (2012) find a strong correlation between a drop in crime and increases in property value. They find that a 10% increase in housing values is correlated with a 1.5% decrease in violent crime. Similarly, they find that a 10% increase in housing prices is correlated with a 3.9% decrease in property crime. We know that, compared to higher valued properties, lower valued properties are correlated more with reductions in crime rates (Frischtak and Mandel 2012). With the lower housing values on the West Side, increases in value might lead to important economic impacts.

## REFERENCES

---

- Alliance for Excellent Education Issue Brief. 2006. *Saving Futures, Saving Dollars: The Impact of Education on Crime Reduction and Earnings*. Issue Brief, Washington, DC: The Alliance for Excellent Education.
- Becker, Gary S., and Casey B. Mulligan. 1997. "The Endogenous Determination of Time Preference." *Quarterly Journal of Economics* 112 (3): 729-758.
- Bureau of Justice Statistics. 2014. *Arrest Data Analysis Tool (Agency Level Counts)*. November. <http://www.bjs.gov/index.cfm?ty=datool&surl=/arrests/index.cfm#>.
- Corso, Phaedra S, James A Mercy, Thomas R Simon, Eric A Finkelstein, and Ted R Miller. 2007. "Medical Costs and Productivity Losses Due to Interpersonal and Self-Directed Violence in the United States." *American Journal of Preventative Medicine* 32 (6): 474-482.
- DiPasquale, Denise, and Edward L Glaeser. 1999. "Incentives and Social Capital: Are Homeowners Better Citizens?" *Journal of Urban Economics* 45: 354-384.
- Fabelo, Tony. 2002. "The Impact of Prison Education on Community Reintegration of Inmates: The Texas Case." *Journal of Correctional Education* 106-110.
- Frischtak, Claudio, and Benjamin R. Mandel. 2012. *Crime, House prices, and Inequality: The Effect of UPPs in Rio (Staff Report No. 542)*. New York: Federal Bank of New York.
- Guerino, Paul, Paige M Harrison, and William J Sabol. 2012. "Prisoners in 2010." *Bureau of Justice Statistics*. February 9. Accessed November 8, 2014. <http://www.bjs.gov/content/pub/pdf/p10.pdf>.
- Harer, Miles D. 1994. *Recidivism Among Federal Prisoners Released in 1987*. Washington, DC: Federal Bureau of Prisons, Office of Research and Evaluation.
- Hellman, Daryl, and Joel Naroff. 1979. "The Impact of Crime on Urban Residential Property Values." *Urban Studies* 16: 105-112.
- Karpowitz, Daniel, and Max Kenner. n.d. "Education as Crime Prevention: The Case for Reinstating Pell Grant Eligibility for the Incarcerated." *St. Cloud State University Center for Continuing Studies*. Bard College Bard Prison Initiative. Accessed November 20, 2014. <http://www.stcloudstate.edu/continuingstudies/distance/documents/EducationasCrimePreventionTheCaseForReinstatingthePellGrantforOffendersKarpowitzandKenner.pdf>.
- Klaus, Patsy A. 1994. "The Costs of Crime to Victims: Crime Data Brief." *Bureau of Justice Statistics*. February. Accessed November 22, 2014. <http://www.bjs.gov/content/pub/ascii/COCTV.TXT>.
- Lochner, Lance. 2008. "Education and Crime." In *The International Encyclopedia of Education*. Oxford.
- Lochner, Lance, and Enrico Moretti. 2004. "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports." *American Economic Review* 94 (1): 155-189.

- Lynch, Allen K., and David W. Rasmussen. 2001. "Measuring the Impact of Crime on House Price?" *Applied Economics* 33: 1981-1989.
- McCollister, Kathryn E, Michael T French, and Hai Fang. 2010. "The Cost of Crime to Society: New Crime-specific Estimates for Policy and Program Evaluation." *Drug and Alcohol Dependence* 108 (1): 98-109.
- Miller, Ted R, Mark A. Cohen, and Brian Wiersema. 1996. *Victim Costs and Consequences: A New Look*. Washington, DC: US Department of Justice National Institute of Justice.
- Moretti, Enrico. 2005. "Does Education Reduce Participation in Criminal Activities?" *Symposium on the Social Costs of Inadequate Education Conducted at Teachers College*. New York: Columbia University.
- Ni, Jinlan, and Christopher Decker. 2009. "The Impact of Homeownership on Criminal Activity: Empirical Evidence from United States' County Level Data." *Economic and Business Journal: Inquiries and Perspectives* 2: 17-37.
- Pope, Devin G, and Jaren C Pope. 2012. "Crime and Property Values: Evidence from the 1990s Crime Drop." *Regional Science and Urban Economics* 42 (1): 177-188.
- Rossi, Peter H, and Eleanor Weber. 1996. "The Social Benefits of Homeownership: Empirical Evidence from National Surveys." *Housing Policy Debate* 7: 1-35.
- Shapiro, Robert J, and Kevin A Hassett. 2012. "The Economic Benefits of Reducing Violent Crime." *Center for American Progress*. June 19. Accessed November 8, 2014. <https://www.americanprogress.org/issues/economy/report/2012/06/19/11755/the-economic-benefits-of-reducing-violent-crime/>.
- Shenk, J. Frederick, and Patsy A. Klaus. 1984. "The Economic Cost of Crime to Victims." *Bureau of Justice Statistics*. April. Accessed November 18, 2014. <http://www.bjs.gov/content/pub/pdf/eccv.pdf>.
- Steurer, Stephen J., Linda Smith, and Alice Tracy. 2001. *Three State Recidivism Study*. Washington, DC: Office of Correctional Education, United States Department of Education.
- Thaler, Richard. 1978. "A Note on the Value of Crime Control: Evidence from the Property Market." *Journal of Urban Economics* 5 (1): 137-145.
- Tracy, Chris, and Cheryl Johnson. 1994. *Review of Various Outcome Studies Relating Prison Education to Reduced Recidivism*. Huntsville, Texas: Windham School System.
- US Bureau of Labor Statistics. 2014. *Consumer Price Index - All Urban Consumers*. November. <http://data.bls.gov/cgi-bin/surveymost?cu>.
- US Census Bureau. 2014. "American Fact Finder." *2008-2012 American Community Survey 5-Year Estimates*. November. <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.