Equitable Growth Profile of the
Cape Fear Region

Summary

The Cape Fear region is experiencing a demographic transformation characterized by a diversifying younger population and a rapidly growing senior population that is predominantly White. As the region's labor force grows increasingly diverse, closing wide and persistent racial gaps in economic opportunity and outcomes will be key to the region's future growth and prosperity.

Equitable growth is critical for the region's prosperity. By creating pathways to good jobs, connecting younger generations with older ones, building communities of opportunity throughout the region, and ensuring educational and career pathways for all youth, the region's leaders can put all residents on the path toward reaching their full potential, and secure a bright economic future for all.

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Introduction
Foreword

Over the past two years, FOCUS has engaged in a bottom-up approach to understand where we are and where we want to be in the future as our region experiences unprecedented growth. Listening to residents throughout the region, again and again, we heard their aspirations to reach their full potential and contribute to the growth and vitality of their communities. As a region, we must set in place the policy and planning framework to provide these opportunities.

The FOCUS effort is led by a diverse team of community stakeholders working to find solutions to the region's challenges. We believe that developing a shared understanding about how we can leverage the region's demographic transformation to secure a prosperous future for all is a critical first step.

That is why we partnered with PolicyLink and the USC Program for Environmental and Regional Equity (PERE) to produce this Equitable Growth Profile. It provides an excellent starting point for understanding the challenges and opportunities of our region's shifting demographics and the extent to which our region's diverse communities can access the resources and opportunities they need to participate and prosper. We hope that this profile is widely used by public, private, and community leaders working to create a stronger, more just, and more resilient region.

Chris May

Executive Director,
Cape Fear Council of Governments

Jennifer Rigby

Chair,
FOCUS Consortium

Introduction
Overview

Across the country, regional planning organizations, local governments, community organizations and residents, funders, and policymakers are striving to put plans, policies, and programs in place that build healthier, more vibrant, more sustainable, and more equitable regions.

Equity – ensuring full inclusion of the entire region's residents in the economic, social, and political life of the region, regardless of race, ethnicity, age, gender, neighborhood of residence, or other characteristics – is an essential element of the plans.

Knowing how a region stands in terms of equity is a critical first step in planning for equitable growth. To assist communities with that process, PolicyLink and the Program for Environmental and Regional Equity (PERE) developed a framework to understand and track how regions perform on a series of indicators of equitable growth.

This profile was developed to help FOCUS implement its plan for equitable growth. We hope that it is broadly used by advocacy groups, elected officials, planners, business leaders, funders, and others working to build a stronger and more equitable Cape Fear.

The data in this profile are drawn from a regional equity database that includes the largest 150 regions in the United States. This database incorporates hundreds of data points from public and private data sources including the U.S. Census Bureau, the U.S. Bureau of Labor Statistics, the Behavioral Risk Factor Surveillance System (BRFSS), and the Integrated Public Use Microdata Series (IPUMS). Note that while we disaggregate most indicators by major racial/ethnic group, figures for the Asian/Pacific Islander population as a whole often mask wide variation. Also, there is often too little data to break out indicators for the Native American population. See the "Data and methods" section for a more detailed list of data sources.

Introduction
Defining the region

For the purposes of the equitable growth profile and data analysis, we define the Cape Fear region as the three-county area of Brunswick, New Hanover, and Pender counties in North Carolina. All data presented in the profile use this regional boundary. Minor exceptions due to lack of data availability are noted in the "Data and methods" section.

Introduction
Why equity matters now

The face of America is changing.
Our country's population is rapidly diversifying. Already, more than half of all babies born in the United States are people of color. By 2030, the majority of young workers will be people of color. And by 2043, the United States will be a majority people-of-color nation.

Yet racial and income inequality is high and persistent.
Over the past several decades, long standing inequities in income, wealth, health, and opportunity have reached unprecedented levels. And while most have been affected by growing inequality, communities of color have felt the greatest pains as the economy has shifted and stagnated.

Strong communities of color are necessary for the nation's economic growth and prosperity.
Equity is an economic imperative as well as a moral one. Research shows that equity and diversity are win-win propositions for nations, regions, communities, and firms. For example:

• More equitable nations and regions experience stronger, more sustained growth.[1]
• Regions with less segregation (by race and income) and lower income inequality have more upward mobility. [2]
• Companies with a diverse workforce achieve a better bottom-line.[3]
• A diverse population better connects to global markets.[4]

The way forward is an equity-driven growth model.
To secure America's prosperity, the nation must implement a new economic model based on equity, fairness, and opportunity.

Metropolitan regions are where this new growth model will be created.
Regions are the key competitive unit in the global economy. Metros are also where strategies are being incubated that foster equitable growth: growing good jobs and new businesses while ensuring that all – including low-income people and people of color – can fully participate and prosper.

[1] Manuel Pastor, "Cohesion and Competitiveness: Business Leadership for Regional Growth and Social Equity," OECD Territorial Reviews, Competitive Cities in the Global Economy, Organisation For Economic Co-Operation And Development (OECD), 2006; Manuel Pastor and Chris Benner, "Been Down So Long: Weak-Market Cities and Regional Equity" in *Retooling for Growth: Building a 21st Century Economy in America's Older Industrial Areas* (New York: American Assembly and Columbia University, 2008); Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future" (Federal Reserve Bank of Cleveland: April 2006), http://www.clevelandfed.org/Research/workpaper/2006/wp06-05.pdf.

[2] Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez, "Where is the Land of Economic Opportunity? The Geography of Intergenerational Mobility in the U.S." http://obs.rc.fas.harvard.edu/chetty/website/v2/Geography%20Executive%20Summary%20and%20Memo%20January%202014.pdf

[3] Cedric Herring. "Does Diversity Pay?: Race, Gender, and the Business Case for Diversity." *American Sociological Review*, 74, no. 2 (2009): 208-22; Slater, Weigand and Zwirlein. "The Business Case for Commitment to Diversity." *Business Horizons* 51 (2008): 201-209.

[4] U.S. Census Bureau. "Ownership Characteristics of Classifiable U.S. Exporting Firms: 2007" Survey of Business Owners Special Report, June 2012, http://www.census.gov/econ/sbo/export07/index.html.

Introduction
What is an equitable region?

Regions are equitable when all residents – regardless of race/ethnicity, nativity, neighborhood of residence, age, gender, or other characteristics – are fully able to participate in the region's economic vitality, contribute to its readiness for the future, and connect to its assets and resources.

Strong, equitable regions:

- Possess **economic vitality**, providing high-quality jobs to their residents and producing new ideas, products, businesses, and economic activity so the region remains sustainable and competitive.

- Are **ready for the future**, with a skilled, ready workforce, and a healthy population.

- Are **places of connection**, where residents can access the essential ingredients to live healthy and productive lives in their own neighborhoods, reach opportunities located throughout the region (and beyond) via transportation or technology, participate in political processes, and interact with other diverse residents.
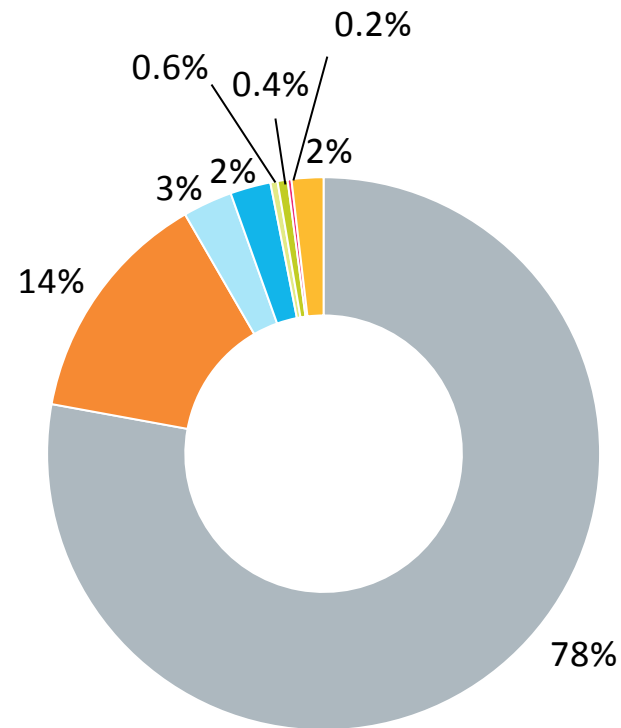
Demographics

Who lives in the region and how is this changing?

Cape Fear is less diverse than most other regions, ranking in the bottom third of the top 150 metropolitan regions in demographic diversity. In 2012, just over 22 percent of the region's residents were people of color, compared with 36 percent nationwide.

Race/Ethnicity and Nativity, 2012

- White
- Black
- Latino, U.S.-born
- Latino, Immigrant
- API, U.S.-born
- API, Immigrant
- Native American and Alaska Native
- Other or Mixed Race

78%
14%
3%
2%
0.6%
0.4%
0.2%
2%

Source: IPUMS.
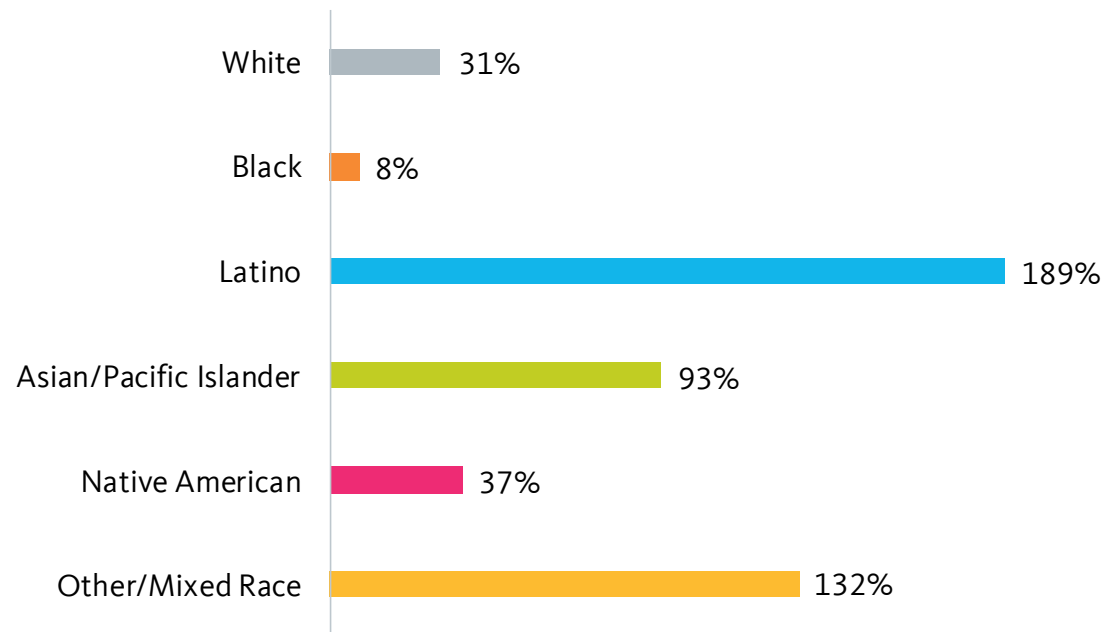Note: Data represent a 2008 through 2012 average.

Demographics

Who lives in the region and how is this changing?

Communities of color are the region's fastest growing groups. In the past decade, the region's Latino population grew by 189%, adding nearly 13,000 people to the total population. Other/mixed race and Asian populations also experienced rapid growth (132% and 93%, respectively).

Growth Rates of Major Racial/Ethnic Groups, 2000 to 2010

Group	Growth
White	31%
Black	8%
Latino	189%
Asian/Pacific Islander	93%
Native American	37%
Other/Mixed Race	132%

Source: U.S. Census Bureau.

Demographics

Who lives in the region and how is this changing?

In 1990, Cape Fear was predominantly African American and White.

Racial/Ethnic Composition by
Census Tracts, 1990

Race/Ethnicity
1 dot = 200 people
- ● Non-Hispanic White
- ● Black
- ● Latino
- ● Asian/Pacific Islander
- ● American Indian or Alaska Native
- ● Other or Mixed Race

Source: U.S. Census Bureau; GeoLytics, Inc.
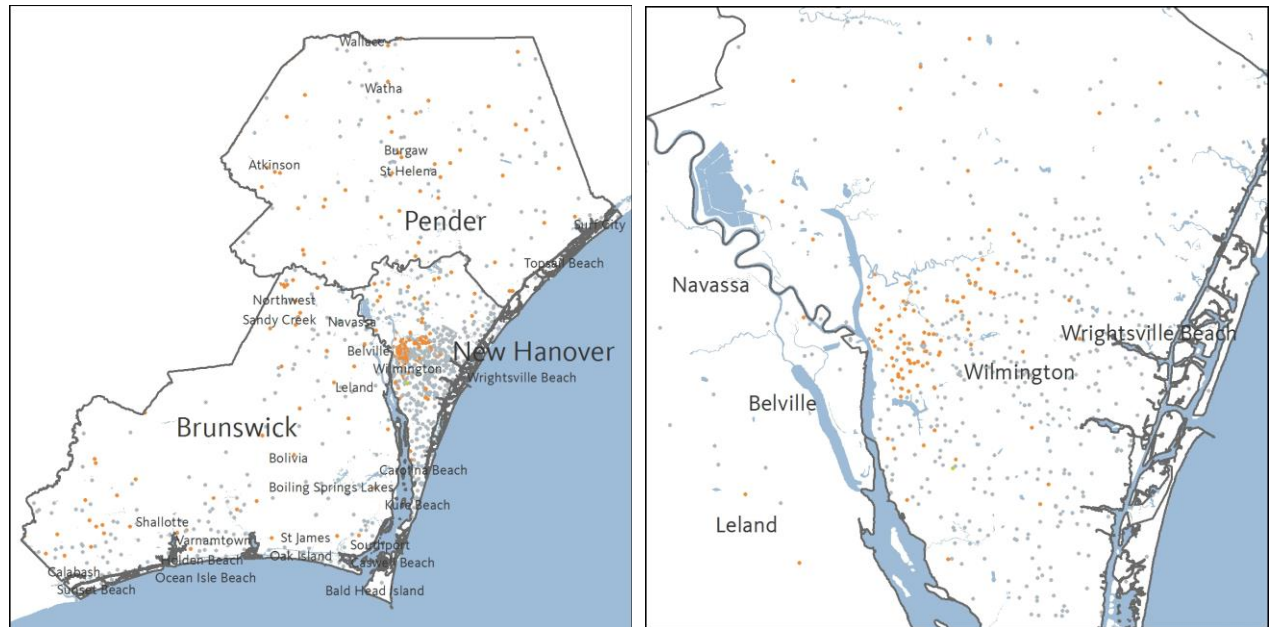
Demographics

Who lives in the region and how is this changing?

Today there is a more diverse mix of racial/ethnic groups living in the region. There is a growing Latino and Asian population, particularly in New Hanover County.

Racial/Ethnic Composition by Census Tracts, 2010

Race/Ethnicity
1 dot = 200 people
- Non-Hispanic White
- Black
- Latino
- Asian/Pacific Islander
- American Indian or Alaska Native
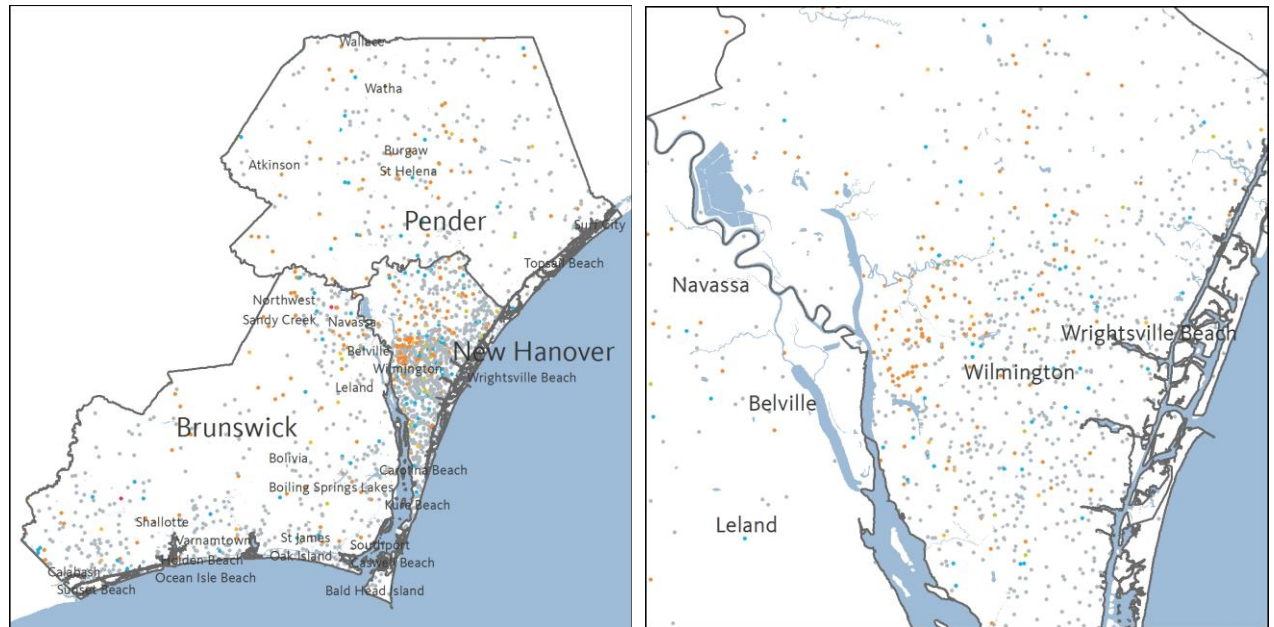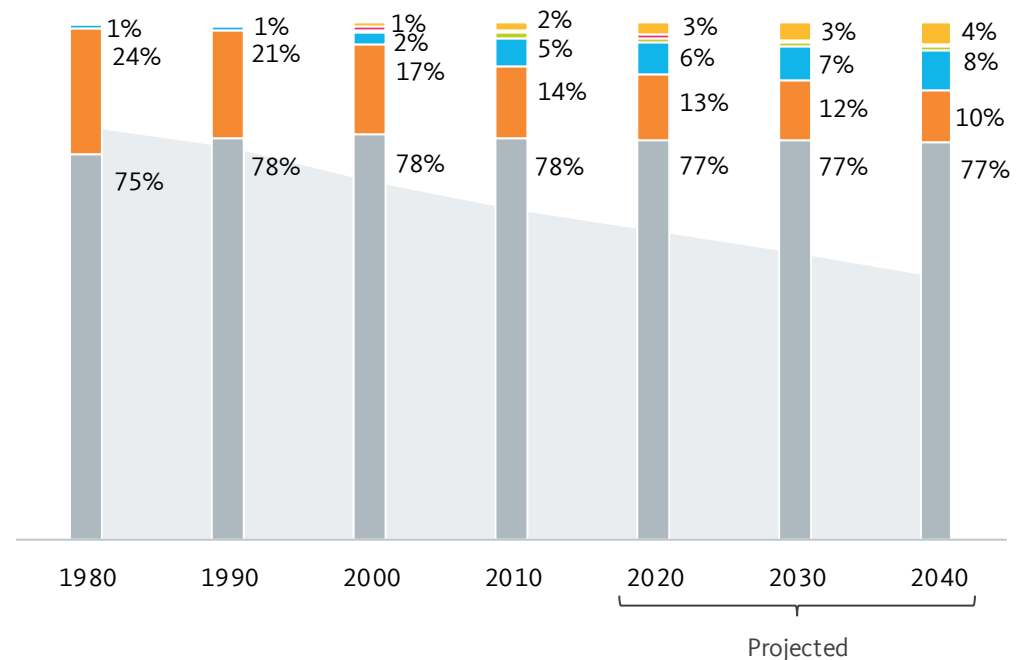- Other or Mixed Race

Source: U.S. Census Bureau; GeoLytics, Inc.

Demographics

Who lives in the region and how is this changing?

The region's people of color population is growing more diverse in its racial/ethnic composition. While the Black population is declining as a share of the total population, the Latino population is quickly growing. For the next 30 years, people of color will continue to represent between 22 to 23 percent of the total population.

Racial/Ethnic Composition,
1980 to 2040

- U.S. % White
- Other
- Native American
- Asian/Pacific Islander
- Latino
- Black
- White

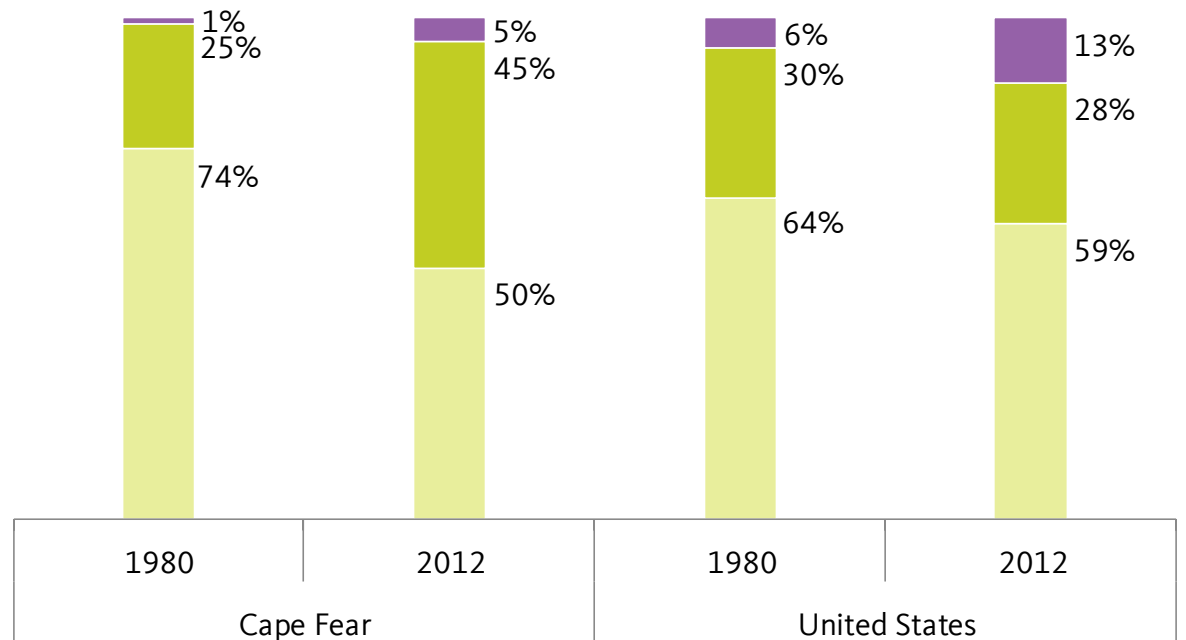| 1980	1990	2000	2010	2020	2030	2040
1%	1%	1%	2%	3%	3%	4%
24%	21%	2%	5%	6%	7%	8%
		17%	14%	13%	12%	10%
75%	78%	78%	78%	77%	77%	77%

Projected

Demographics

Who lives in the region and how is this changing?

An increasing number of Cape Fear's residents migrated to North Carolina from another state. In 2012, half of the region's residents were born outside of North Carolina, a dramatic increase from 26% in 1980. Unlike the national trend, an increasing amount of this in-migration is from U.S.-born residents.

Population by Place of Birth, 2012

- Foreign Born
- U.S.-born, Out-of-State
- U.S.-born, In-State

	Cape Fear		United States	
	1980	2012	1980	2012
Foreign Born	1%	5%	6%	13%
U.S.-born, Out-of-State	25%	45%	30%	28%
U.S.-born, In-State	74%	50%	64%	59%

Source: IPUMS.
Note: Data represent a 2008 through 2012 average.

Demographics

Who lives in the region and how is this changing?

By 2040, 23 percent of the region's residents will be people of color. A quarter of New Hanover and Pender counties' residents will be people of color, compared with 19 percent in Brunswick County. Between 2010 and 2040, a quarter of the region's future growth will come from people of color.

Percent People of Color by County, 1980 to 2040

Less than 20%
20% to 34%
35% to 49%
50% or more

1980   2010   2040

Source: U.S. Census Bureau; Woods & Poole Economics, Inc.
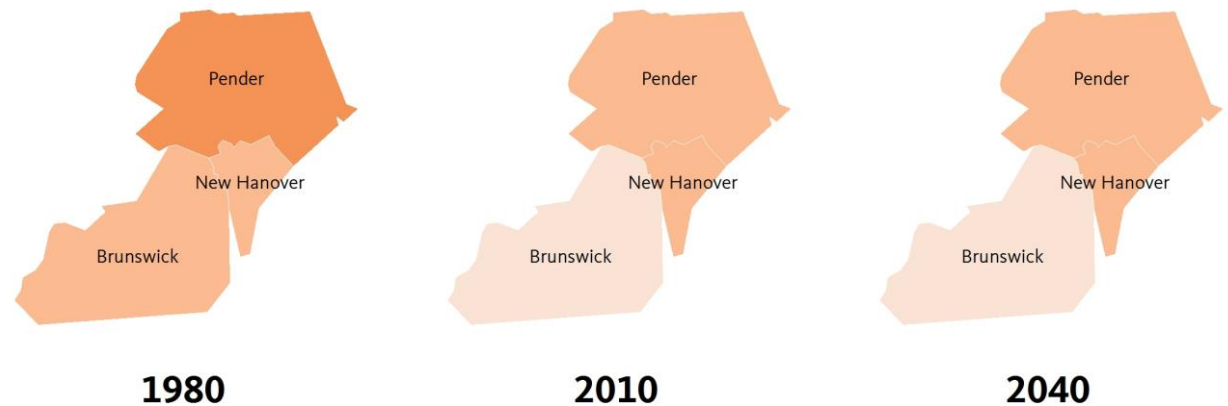
Demographics

Who lives in the region and how is this changing?

A quarter of the region's population growth in the past decade came from people of color. Three in every 10 of New Hanover County's and about one in every five of Pender and Brunswick counties' new residents were people of color.

Share of Population Growth
Attributable to People of Color
by County, 2000 to 2010

County	Share
Cape Fear	25%
Pender	18%
Brunswick	20%
New Hanover	31%

Source: U.S. Census Bureau.
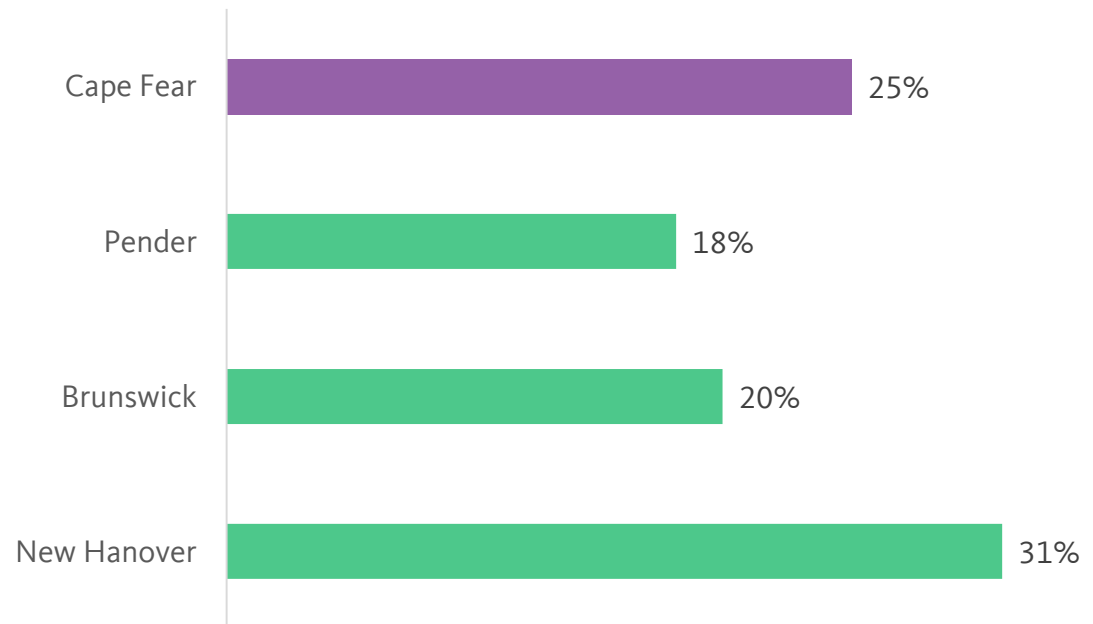
Demographics

Who lives in the region and how is this changing?

There is a growing racial generation gap. Today, 33 percent of youth in the region are people of color, compared with 13 percent of seniors. This 20-percentage point gap has more than tripled since 1980 but remains below the national average (26 percentage points). Unlike many other regions, the senior population in Cape Fear has become less diverse as large numbers of White retirees relocate to the region.

Racial Generation Gap:
Percent People of Color (POC)
by Age Group, 1980 to 2010

—— Percent of seniors who are POC
—— Percent of youth who are POC

33%

31%

6 percentage point gap

25%

20 percentage point gap

13%

1980   1990   2000   2010
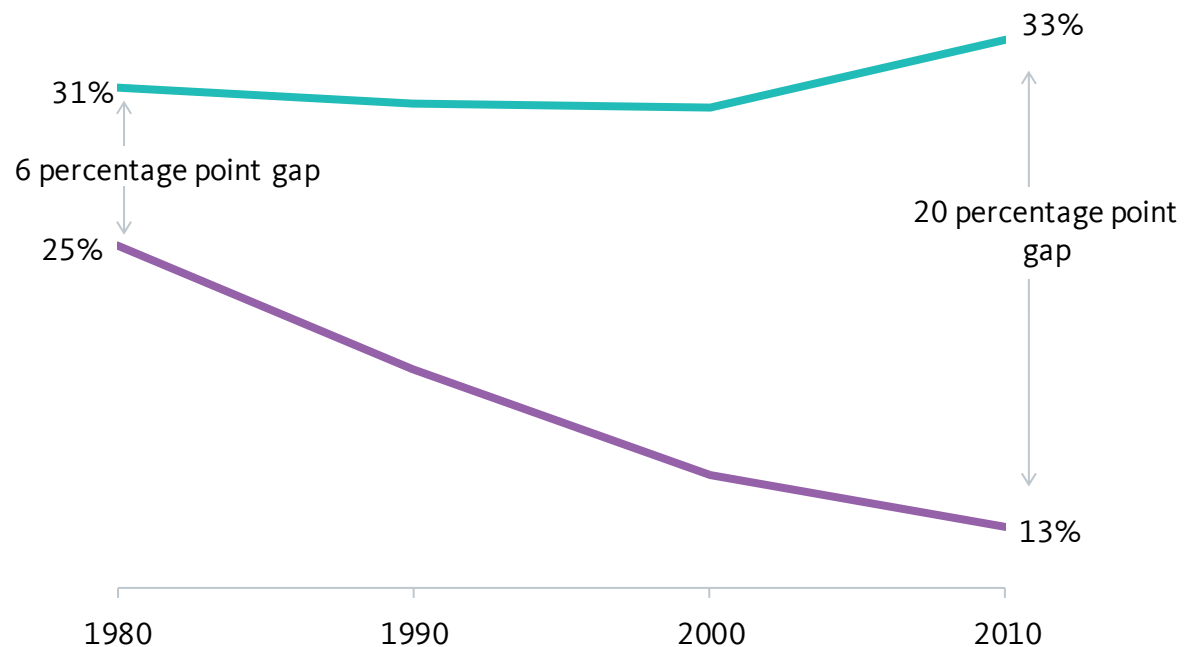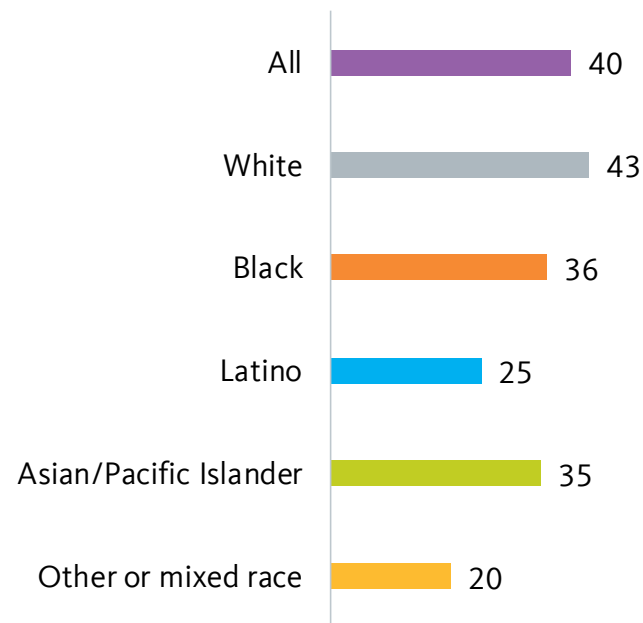
Source: U.S. Census Bureau.
Note: Youth include persons under age 18 and seniors include those age 65 or older.

Demographics

Who lives in the region and how is this changing?

The region's fastest-growing demographic groups are comparatively young. The region's other/mixed race population has a median age of 20, and the Latino population has a median age of 25, whereas the White population has a median age of 43.

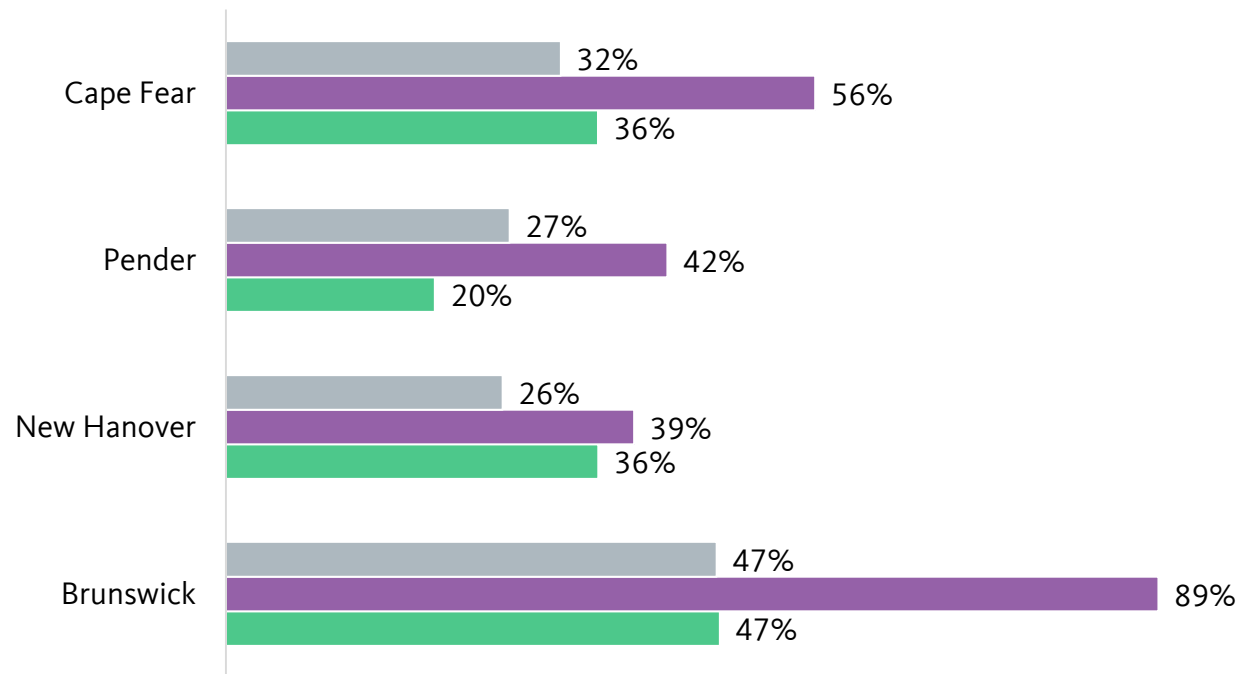Median Age by Race/Ethnicity, 2012

Race/Ethnicity	Median Age
All	40
White	43
Black	36
Latino	25
Asian/Pacific Islander	35
Other or mixed race	20

Source: IPUMS.
Note: Data represent a 2008 through 2012 median.

Demographics

Who lives in the region and how is this changing?

The region's White senior population increased by 56 percent in the last decade. Brunswick County saw the fastest growth, with the population nearly doubling from 11,100 to 21,000. Across all counties in the region, the net increase in the senior population (from both aging and migration) was faster than the overall rate of population growth.

Growth Rates of the Total Population, White Seniors, and Youth of Color, 2000 to 2010

- ■ Total population
- ■ White seniors
- ■ Youth of color

Cape Fear
- Total population: 32%
- White seniors: 56%
- Youth of color: 36%

Pender
- Total population: 27%
- White seniors: 42%
- Youth of color: 20%

New Hanover
- Total population: 26%
- White seniors: 39%
- Youth of color: 36%

Brunswick
- Total population: 47%
- White seniors: 89%
- Youth of color: 47%
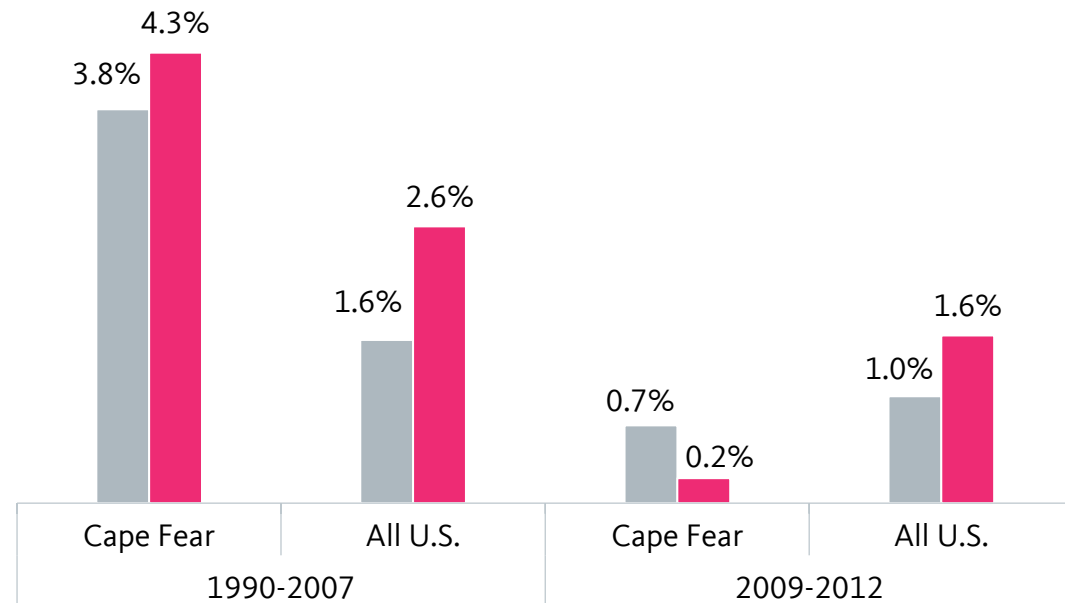
Source: U.S. Census Bureau.

Inclusive growth

Is economic growth creating more jobs?

Cape Fear was hit hard by the Great Recession. Since the downturn ended in 2009, regional growth in both employment and GDP has been slower than the United States overall. This sluggishness contrasts with the region's relatively robust growth in the prior two decades.

Annual Average Growth
in Jobs and GDP, 1990 to 2007
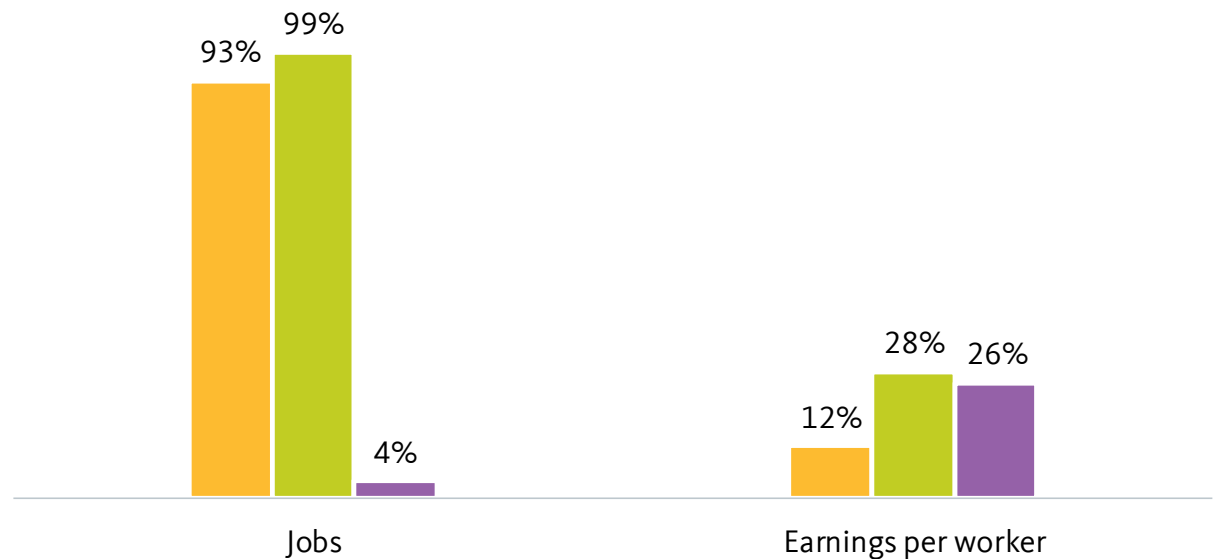and 2009 to 2012

■ Jobs
■ GDP

	Cape Fear	All U.S.	Cape Fear	All U.S.
	1990-2007		2009-2012	
Jobs	3.8%	1.6%	0.7%	1.0%
GDP	4.3%	2.6%	0.2%	1.6%

Source: U.S. Bureau of Economic Analysis.

Inclusive growth

Is the region growing good jobs?

In the past two decades, job gains have been strongest for low- and middle-wage jobs – nearly doubling – while the number of high-wage jobs remained essentially flat. Pay for middle- and high-wage workers grew twice as fast as it did for low-wage workers during this period.

Growth in Jobs and Earnings
by Industry Wage Level, 1990
to 2012

- Low-wage
- Middle-wage
- High-wage

93%   99%

4%

12%   28%   26%

Jobs

Earnings per worker

Source: U.S. Bureau of Labor Statistics; Woods & Poole Economics, Inc. Universe includes all jobs covered by the federal Unemployment Insurance (UI) program.
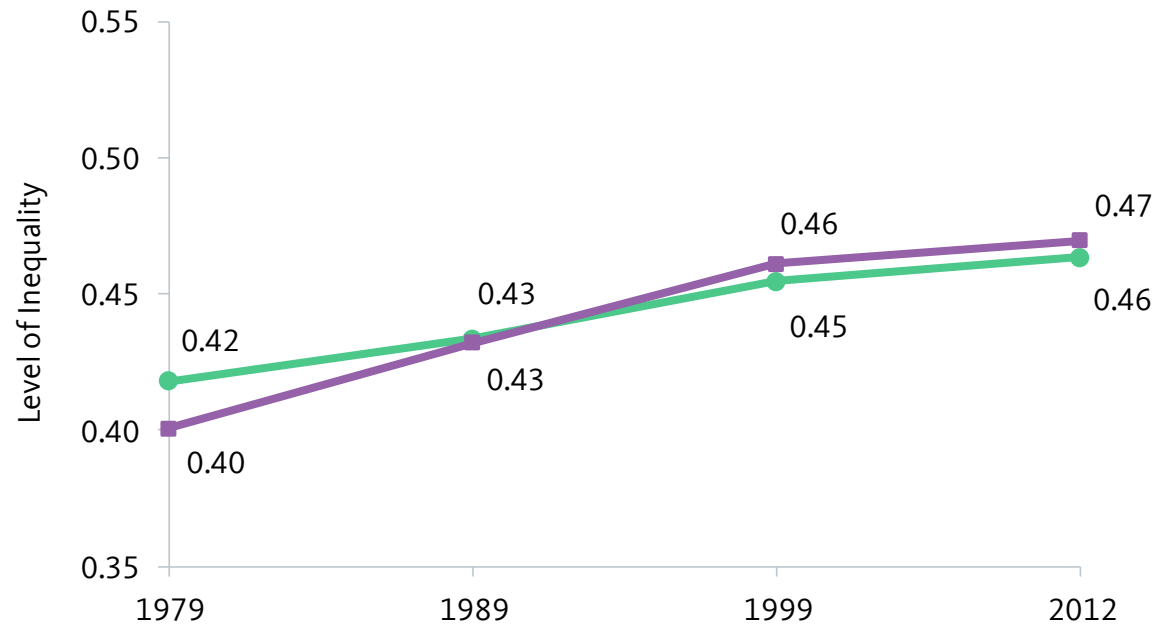
Inclusive growth

Is inequality low and decreasing?

Income inequality is on the rise in the region. Inequality in Cape Fear is in line with the national average and has increased consistently over the past three decades.

Income Inequality, 1979 to 2012

■ Cape Fear
■ United States

Inequality is measured here by the Gini coefficient, which ranges from 0 (perfect equality) to 1 (perfect inequality: one person has all of the income).
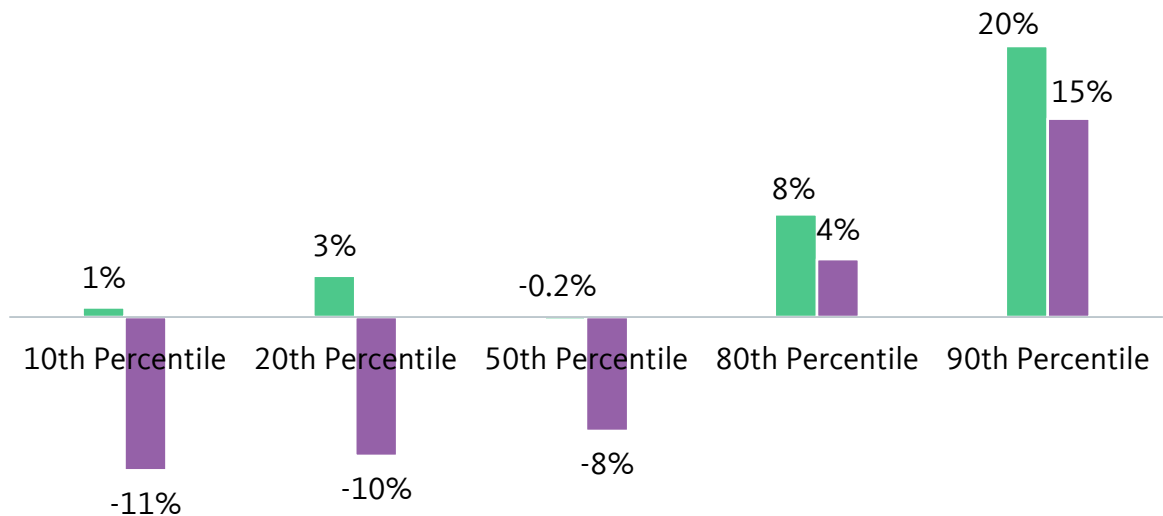
Inclusive growth
Are incomes increasing for all workers?

Wages have stagnated for low- and middle-income workers.
A worker earning the region's median income has not experienced a wage gain in the past three decades, compared with a 20 percent gain for a worker at the 90th percentile of income. Cape Fear workers fared better in this period compared with workers nationally.

Real Earned-Income Growth for Full-Time Wage and Salary Workers, 1979 to 2012

- Cape Fear
- United States

	10th Percentile	20th Percentile	50th Percentile	80th Percentile	90th Percentile
Cape Fear	1%	3%	-0.2%	8%	20%
United States	-11%	-10%	-8%	4%	15%

Source: IPUMS. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data for 2012 represent a 2008 through 2012 average.

Inclusive growth

Are incomes increasing for all workers?

There are wage discrepancies between White workers and workers of color. White workers in the region earn more than other groups, but wages have declined in the region since 2000. Latino workers take home less pay than both Whites and Blacks.

Median Hourly Wage by
Race/Ethnicity, 2000 and 2012

■ 2000
■ 2012
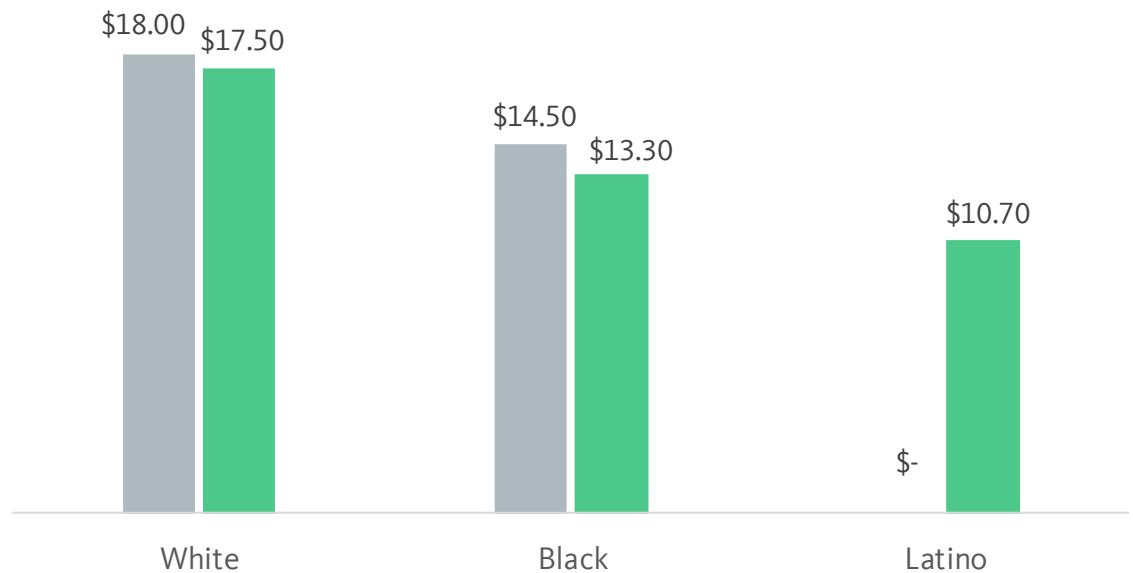
$18.00 $17.50

$14.50 $13.30

$10.70

$-

White   Black   Latino

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: The wage for Latinos in 2000 is excluded due to small sample size. Data for 2012 represent a 2008 through 2012 average. Values are in 2010 dollars.
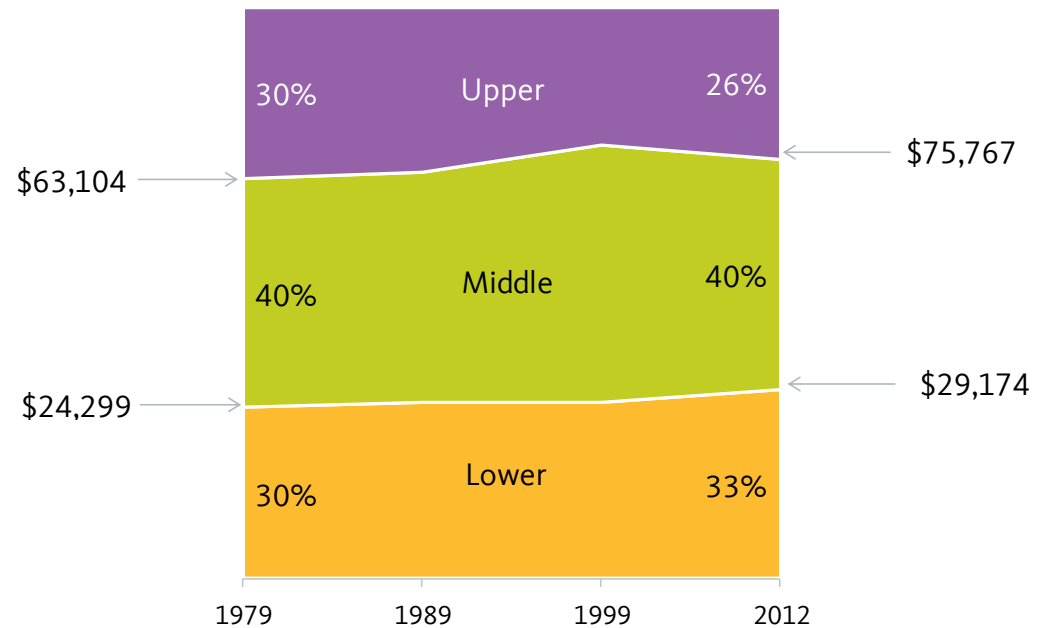
Inclusive growth
Is the middle class expanding?

The region's share of lower-income households has grown.
Since 1979, the share of households with upper-class incomes declined from 30 percent to 26 percent as the share of lower-incomes households grew from 30 to 33 percent.

Households by Income Level,
1979 to 2012

Source: IPUMS. Universe includes all households (no group quarters).
Note: Data for 2012 represent a 2008 through 2012 average. Dollar values are in 2010 dollars.

Inclusive growth

Is the middle class becoming more inclusive?

The middle class has become less diverse over the last 30 years. African American households now represent a much smaller share of the middle class than in 1979, but they also represent a smaller share of the population overall.

Racial Composition of Middle-Class Households and All Households, 1979 and 2012

- ■ Asian, Native American or Other
- ■ Latino
- ■ Black
- ■ White
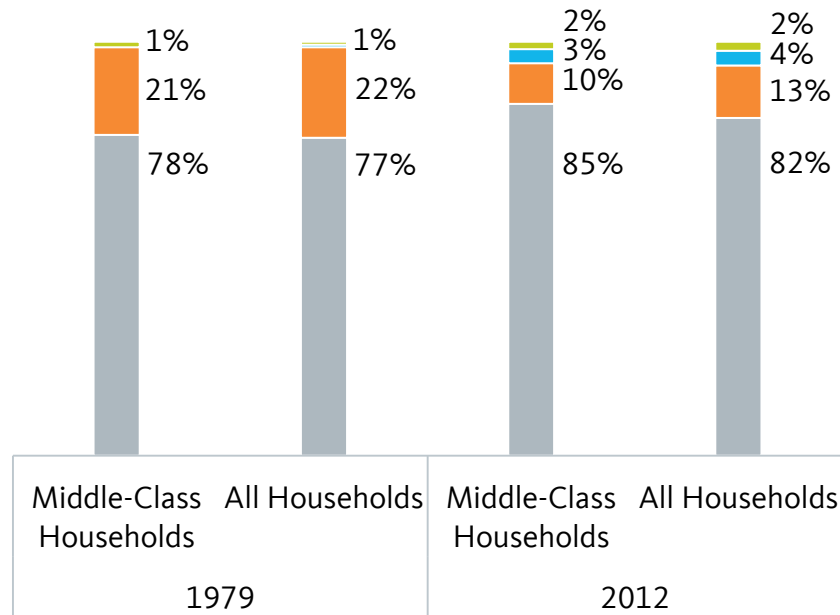
1979		2012	
Middle-Class Households	All Households	Middle-Class Households	All Households

Source: IPUMS. Universe includes all households (no group quarters).
Note: Data for 2012 represent a 2008 through 2012 average.

Full employment

How close is the region to reaching full employment?

Regional unemployment is on par with the national average.
As of October 2014, Cape Fear's unemployment rate was 5.5 percent, compared with the U.S. rate of 5.7 percent. Brunswick County had the highest rate (6.0 percent), and New Hanover had the lowest (5.2 percent).

Unemployment Rate by
County, October 2014

Cape Fear Region	5.5%
Brunswick	6.0%
Pender	5.8%
New Hanover	5.2%

Source: U.S. Bureau of Labor Statistics. Universe includes the civilian noninstitutional population ages 16 and older.

Full employment
How close is the region to reaching full employment?

African Americans face higher rates of joblessness than other groups in the region. Among Blacks, 14 percent are unemployed compared with 8 percent of Whites and 7.2 percent of Latinos.

Unemployment Rate by
Race/Ethnicity, 2012
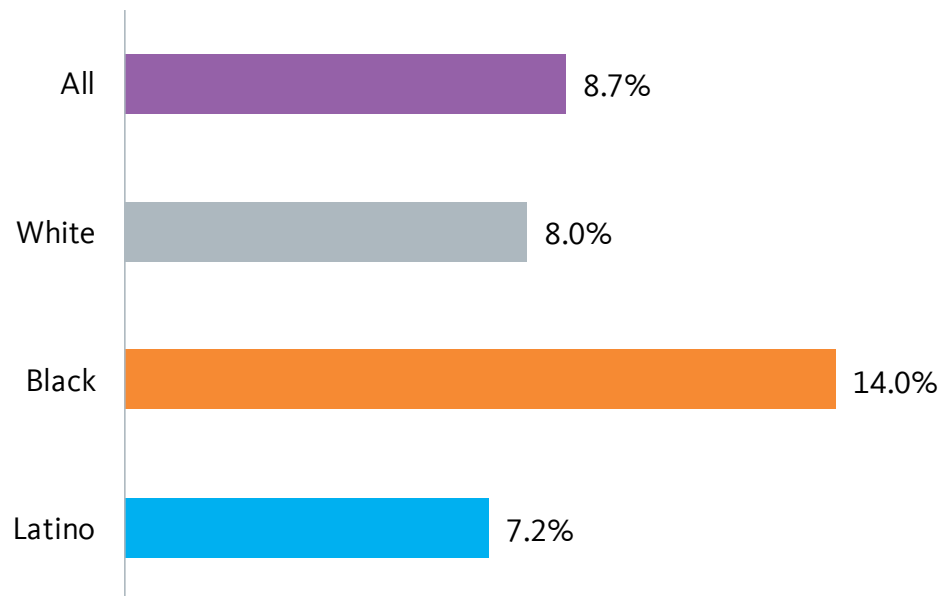
All	8.7%
White	8.0%
Black	14.0%
Latino	7.2%

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: The full impact of the Great Recession is not reflected in the data shown, which is averaged over 2008 through 2012. These trends may change as new data become available.

Full employment
How close is the region to reaching full employment?

The employment gaps between Whites and people of color are most narrow for workers with the lowest and highest levels of education. Workers of color with a bachelor's degree or higher have comparable unemployment rates to their White counterparts.

Unemployment Rate by Educational Attainment and Race/Ethnicity, 2012
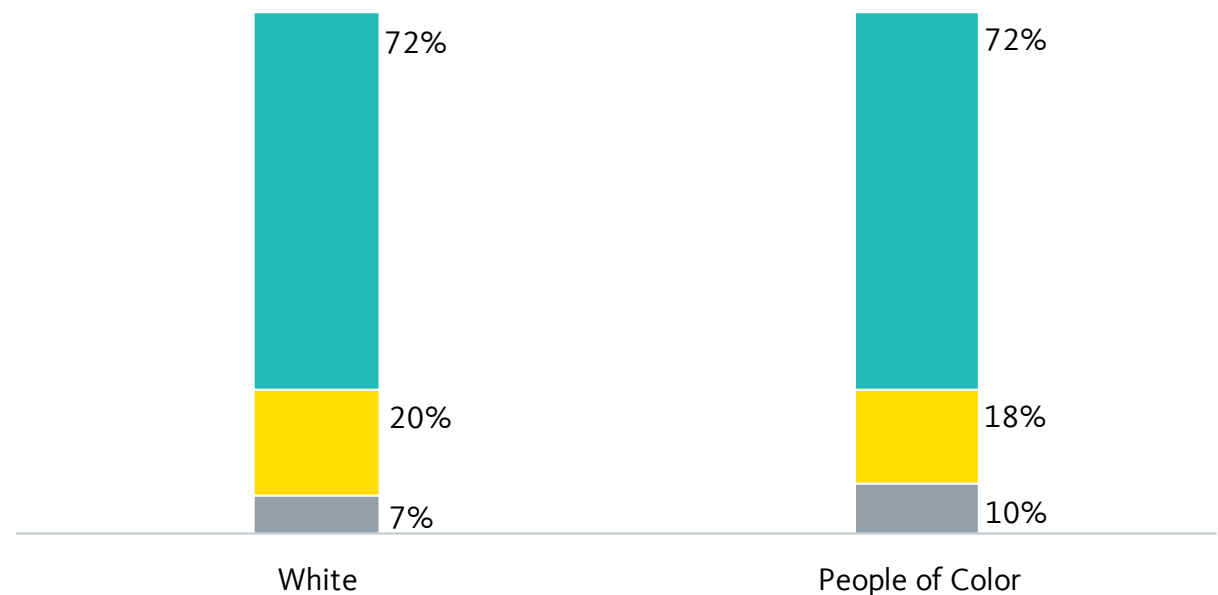
—— White
—— People of Color

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: Data represent a 2008 through 2012 average.
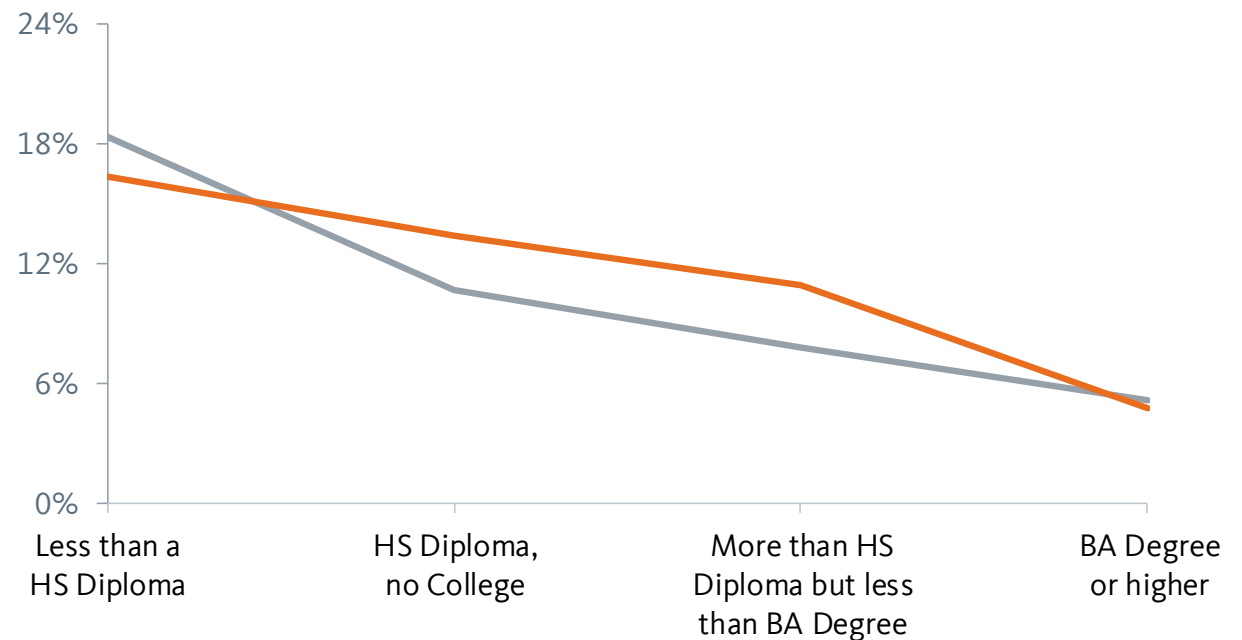
Access to good jobs

Can workers access high-opportunity jobs?

Access to high-opportunity is comparable between people of color and Whites with a bachelor's degree or higher. Nearly three-quarters of college-educated Whites and people of color hold high-opportunity jobs. College-educated people of color are still more likely to hold low-opportunity jobs than Whites.

Jobs by Opportunity Level by Race/Ethnicity held by Workers with a Bachelor's Degree or Higher, 2011

- High-opportunity
- Middle-opportunity
- Low-opportunity

White
72%
20%
7%

People of Color
72%
18%
10%

Source: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian noninstitutional population ages 25 through 64.
Note: High-opportunity jobs are those that rank among the top third of jobs on an "occupation opportunity index," based on five measures of job quality and growth. See the "data and methods" section for a description of the index.
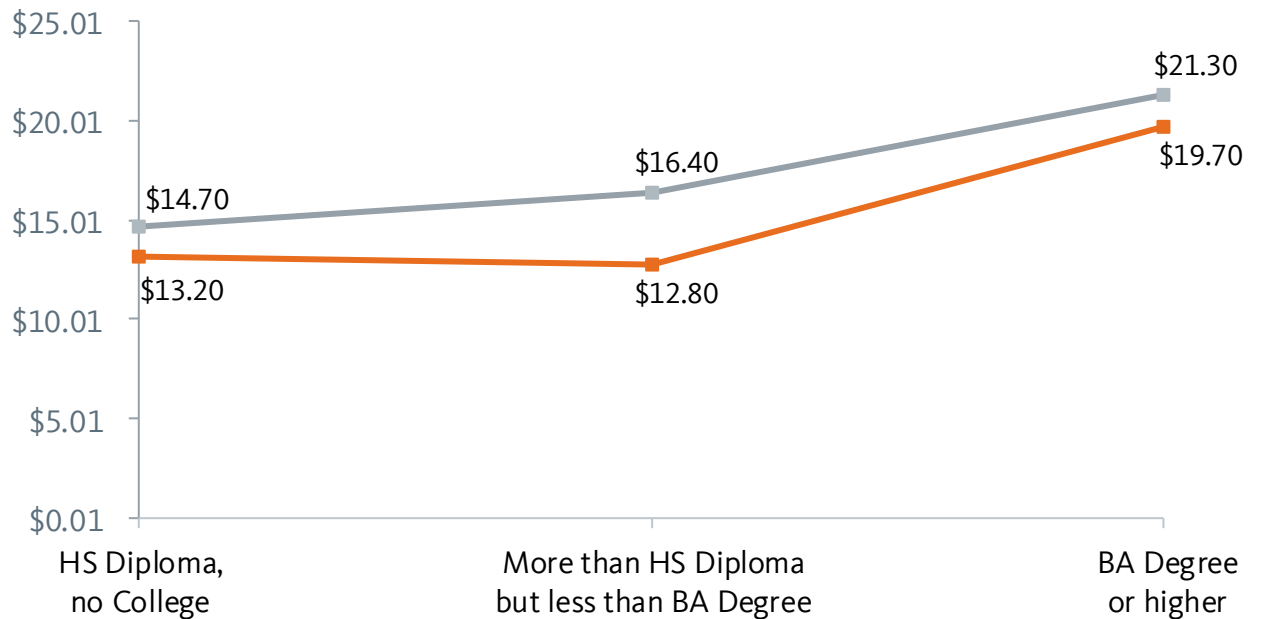
Access to good jobs
Can all workers earn a living wage?

People of color earn lower wages than Whites at every level of education. Even among workers with a four-year college degree, people of color still earn less per hour less than their White counterparts.

Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2012
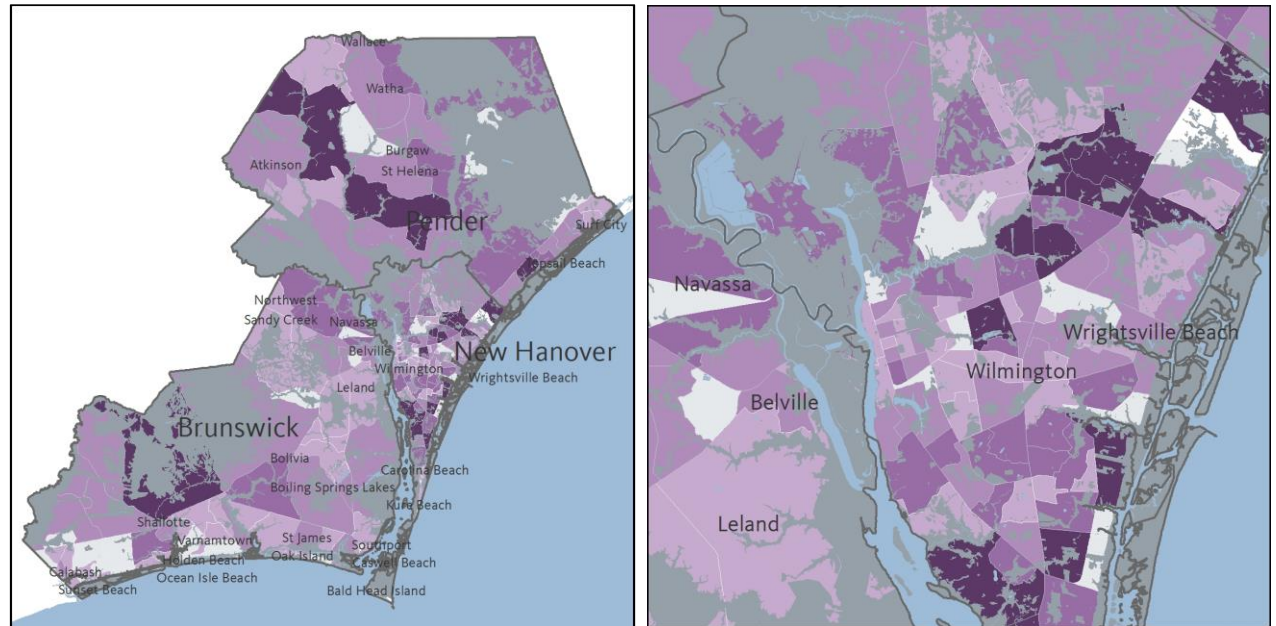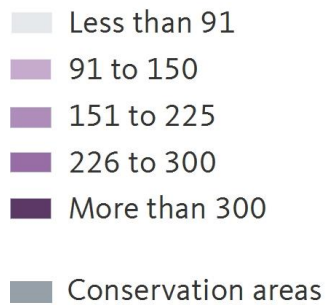
—— White
—— People of Color

$25.01

$21.30

$20.01

$19.70

$16.40

$15.01

$14.70

$13.20

$12.80

$10.01

$5.01

$0.01

HS Diploma,
no College

More than HS Diploma
but less than BA Degree

BA Degree
or higher

Access to good jobs

Can all workers earn a living wage?

The region's low-wage workers – those earning less than $1250/month – predominantly reside adjacent to the coastal areas or further inland. New Hanover County has the largest number of low-wage workers (22,000), followed by Brunswick County (10,300), and Pender County (5,500).

Total Low Wage Workers by Block Group, 2010

Less than 91

91 to 150

151 to 225

226 to 300

More than 300

Conservation areas

Source: U.S. EPA Smart Location Database/Census LEHD, 2010.
Note: Total low wage workers reflects the number of workers earning $1250/month or less by home location. Areas in white are missing data.
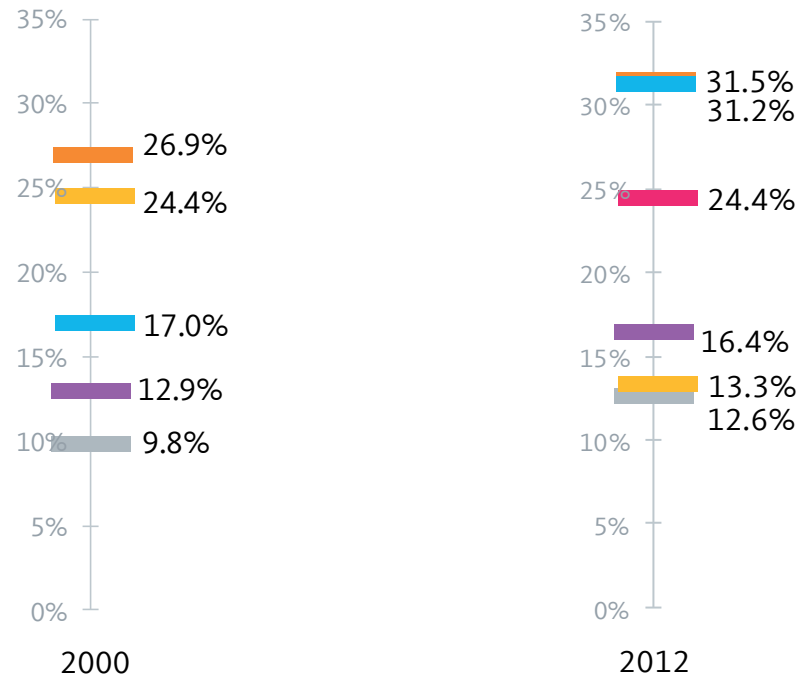
Economic security

Is poverty low and decreasing?

Poverty is on the rise in the region, and is higher among communities of color than Whites. Nearly one out of every three African Americans and Latinos live in poverty, compared with one out of every eight Whites.

Poverty Rate by
Race/Ethnicity,
2000 and 2012

- All
- White
- Black
- Latino
- Asian/Pacific Islander
- Other

2000

- 26.9%
- 24.4%
- 17.0%
- 12.9%
- 9.8%

2012

- 31.5%
- 31.2%
- 24.4%
- 16.4%
- 13.3%
- 12.6%

Source: IPUMS. Universe includes all persons not in group quarters.
Note: Data for 2012 represent a 2008 through 2012 average.

Economic security

Is poverty low and decreasing?

Nearly 8 percent of the region's residents live in high-poverty neighborhoods (with poverty rates of 40 percent or higher). However, people of color are much more likely to live in these neighborhoods than Whites: 15.9 percent of people of color live in high-poverty tracts compared with 5.3 percent of Whites. In terms of the geography of poverty, the coastal communities have lower poverty rates compared with inland communities.

Percent of Population Below the Poverty Level by Census Tract and High People-of-Color Tracts, 2010

Less than 10%
10% to 19%
20% to 29%
30% to 39%
40% or more

37% or more people of color
Conservation areas
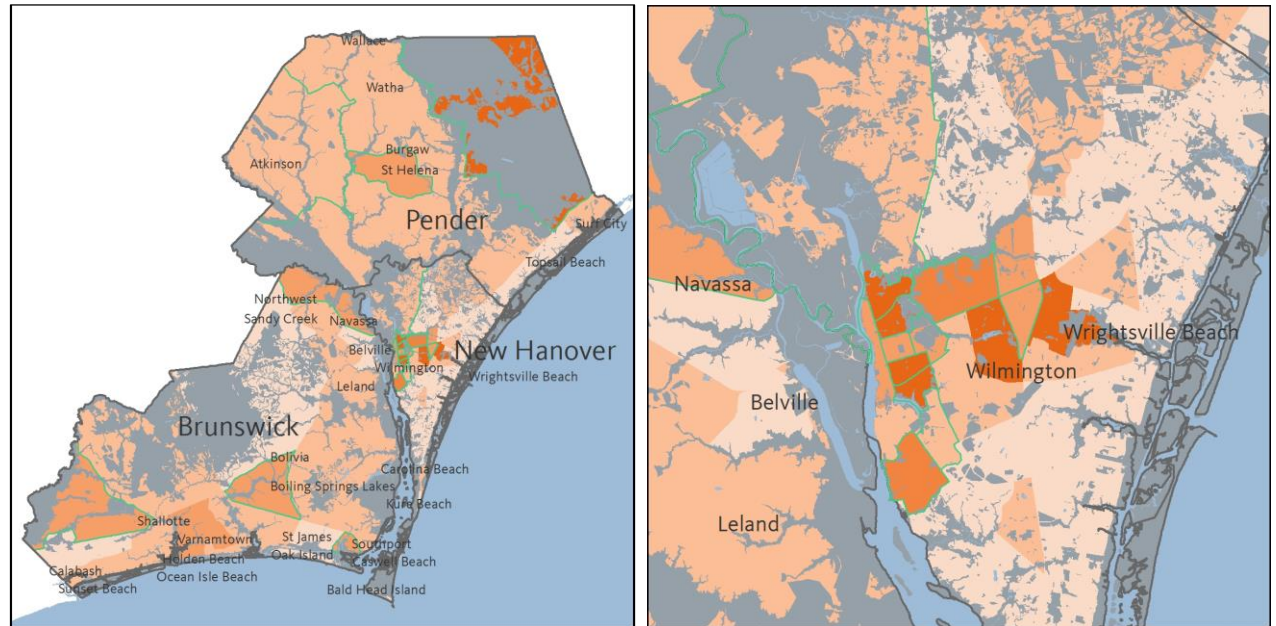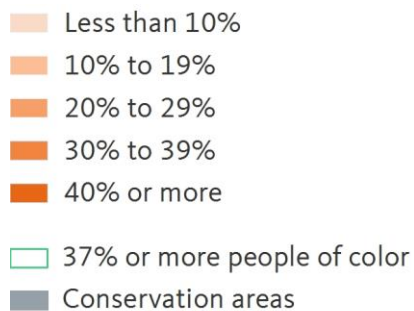
Source: U.S. Census Bureau.
Note: Areas in white are missing data.

Economic security

Is working poverty low and decreasing?

Since 2000, the working poverty rate has declined for Whites and African Americans, but has doubled for Latinos. Latinos and Blacks are five and three times more likely to be working poor than Whites in the region, respectively.

Working Poverty Rate by
Race/Ethnicity,
2000 and 2012
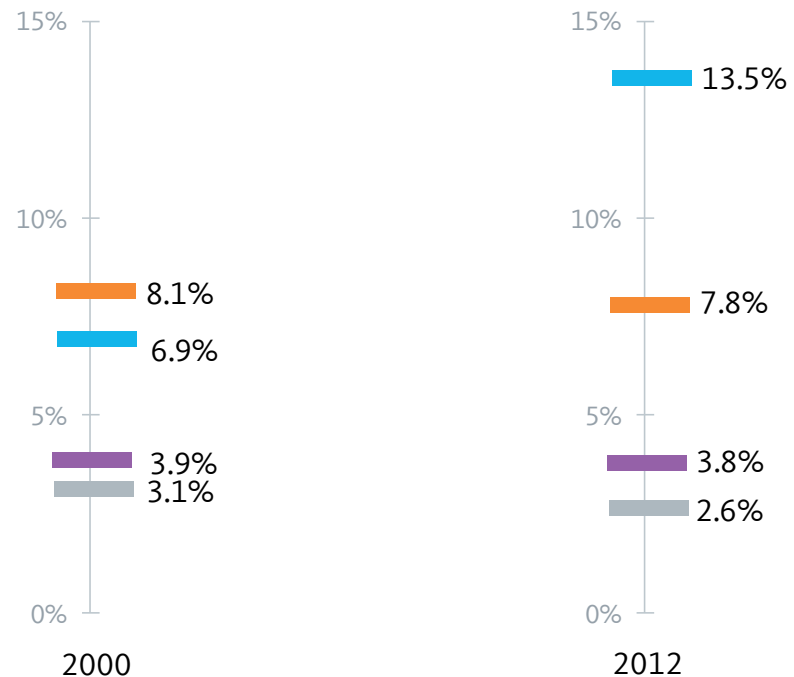
- ■ All
- ■ White
- ■ Black
- ■ Latino

2000

- 8.1% (Black)
- 6.9% (Latino)
- 3.9% (All)
- 3.1% (White)

2012

- 13.5% (Latino)
- 7.8% (Black)
- 3.8% (All)
- 2.6% (White)

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64 not in group quarters.
Note: Data for 2012 represent a 2008 through 2012 average.

Strong industries and occupations
What are the region's strongest industries?

The region has benefited from a diverse job base. Industries along the income spectrum have exhibited strong job and wage gains in recent years. Growing sectors like health care offer pathways to the middle class, and others, like professional, scientific, and technical services, are growing and offer higher earnings.

Industry	Size	Concentration	Job Quality	Growth		
	Total Employment	Location Quotient	Average Annual Wage	Change in Employment	% Change in Employment	Real Wage Growth
	(2010)	(2010)	(2010)	(2000-10)	(2000-10)	(2000-10)
Retail Trade	18,470	1.2	$23,759	1,349	8%	-4%
Accommodation and Food Services	16,915	1.5	$13,760	3,962	31%	1%
Health Care and Social Assistance	14,877	0.9	$37,674	5,193	54%	15%
Construction	8,961	1.6	$44,749	-827	-8%	29%
Manufacturing	7,657	0.6	$64,937	-4,680	-38%	13%
Professional, Scientific, and Technical Services	6,974	0.9	$59,692	1,795	35%	19%
Administrative and Support and Waste Management and Remediation Services	6,471	0.8	$28,024	911	16%	44%
Wholesale Trade	4,688	0.8	$48,506	518	12%	1%
Finance and Insurance	3,426	0.6	$56,914	652	24%	10%
Other Services (except Public Administration)	3,342	0.7	$24,573	214	7%	7%
Information	3,155	1.1	$42,936	1,042	49%	-7%
Arts, Entertainment, and Recreation	2,937	1.5	$19,192	361	14%	3%
Real Estate and Rental and Leasing	2,872	1.4	$31,988	488	20%	9%
Transportation and Warehousing	2,606	0.6	$36,442	123	5%	26%
Utilities	1,357	2.4	$95,876	9	1%	15%
Education Services	1,143	0.4	$25,031	544	91%	11%
Agriculture, Forestry, Fishing and Hunting	879	0.7	$21,825	31	4%	-6%
Management of Companies and Enterprises	493	0.3	$62,981	-1,025	-68%	4%
Mining	88	0.1	$32,753	-20	-19%	-37%

Source: U.S. Bureau of Labor Statistics; Woods & Poole Economics, Inc. Universe includes all jobs covered by the federal Unemployment Insurance (UI) program.

Strong industries and occupations
What are the region's strongest occupations?

Teachers, health technicians, and engineers represent strong and growing occupations in Cape Fear. These job categories pay good wages, employ many people, and have experienced employment and wage gains in recent years.

|	Employment	Job Quality	Growth			
		Median Annual Wage	Real Wage Growth	Change in Employment	% Change in Employment	Median Age
Occupation	(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)
Health Diagnosing and Treating Practitioners	4,860	$75,888	-31%	3,490	255%	43
Preschool, Primary, Secondary, and Special Education School Teachers	4,190	$38,788	7%	1,210	41%	40
Health Technologists and Technicians	3,110	$37,648	5%	1,250	67%	35
Supervisors of Sales Workers	2,380	$37,888	6%	210	10%	43
Business Operations Specialists	2,240	$58,057	18%	740	49%	46
Top Executives	1,770	$101,085	17%	-190	-10%	49
Other Management Occupations	1,760	$75,274	3%	280	19%	43
Sales Representatives, Wholesale and Manufacturing	1,610	$47,575	-7%	90	6%	40
Counselors, Social Workers, and Other Community and Social Service Specialists	1,530	$42,123	6%	520	51%	38
Engineers	1,500	$88,932	8%	1,110	285%	47
Financial Specialists	1,460	$59,242	9%	330	29%	45
Sales Representatives, Services	1,300	$47,318	4%	320	33%	45
Postsecondary Teachers	1,280	$59,726	14%	660	106%	47
Computer Occupations	1,280	$52,950	1%	560	78%	40
Supervisors of Office and Administrative Support Workers	1,160	$47,530	13%	-260	-18%	45
Law Enforcement Workers	1,050	$40,381	8%	40	4%	38
Other Teachers and Instructors	940	$25,230	-31%	730	348%	39
Supervisors of Construction and Extraction Workers	740	$51,790	9%	-190	-20%	39
Other Sales and Related Workers	740	$36,869	-4%	-60	-8%	40
Operations Specialties Managers	720	$96,433	26%	-180	-20%	48
Supervisors of Production Workers	540	$64,780	23%	-10	-2%	45
Supervisors of Installation, Maintenance, and Repair Workers	540	$56,200	5%	-200	-27%	47
Supervisors of Transportation and Material Moving Workers	530	$52,659	25%	10	2%	43

Source: U.S. Bureau of Labor Statistics; IPUMS. Universe includes all nonfarm wage and salary jobs.
Note: See page 58 for a description of our analysis of opportunity by occupation.

Skilled workforce

Do workers have the education and skills needed for the jobs of the future?

There will be a skills gap in the region unless education levels increase for Blacks and Latinos. By 2020, over two-fifths of jobs in North Carolina will require at least an associate's degree, yet only 16 percent of Latinos and 21 percent of blacks currently have that level of education.

Share of Working-Age Population with an Associate's Degree or Higher by Race/Ethnicity, 2012, and Projected Share of Jobs that Require an Associate's Degree or Higher, 2020

Latino	16%
Black	21%
White	49%
Jobs in 2020	42%
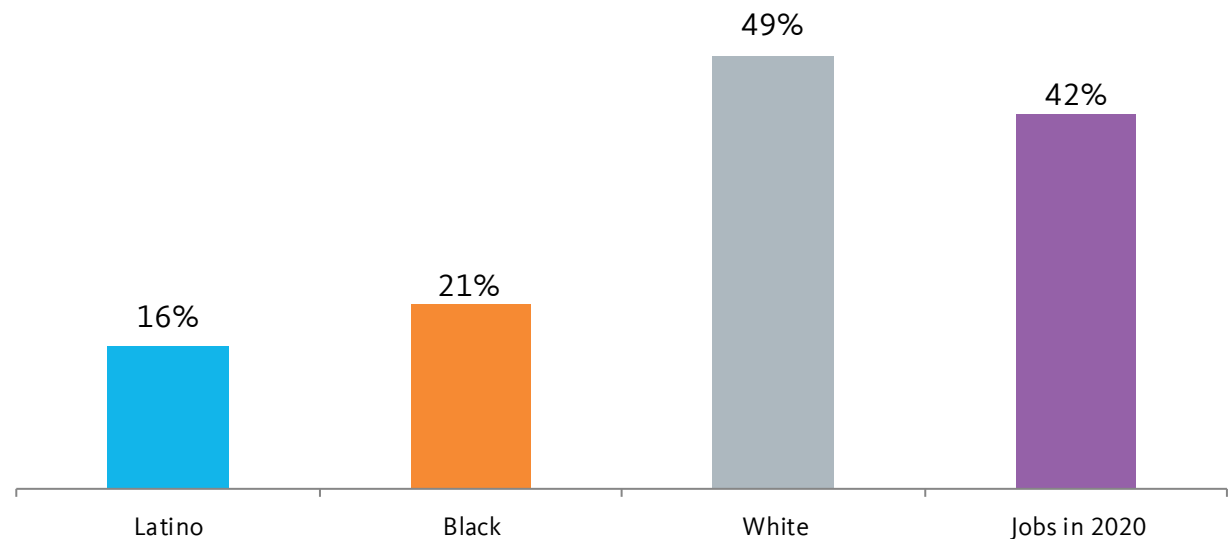
Source: Georgetown Center for Education and the Workforce; IPUMS. Universe for education levels of workers includes all persons ages 25 through 64.
Note: Data for 2012 by race/ethnicity/nativity represent a 2008 through 2012 average and is at the regional level; data on jobs in 2020 represents state-level projections for North Carolina.
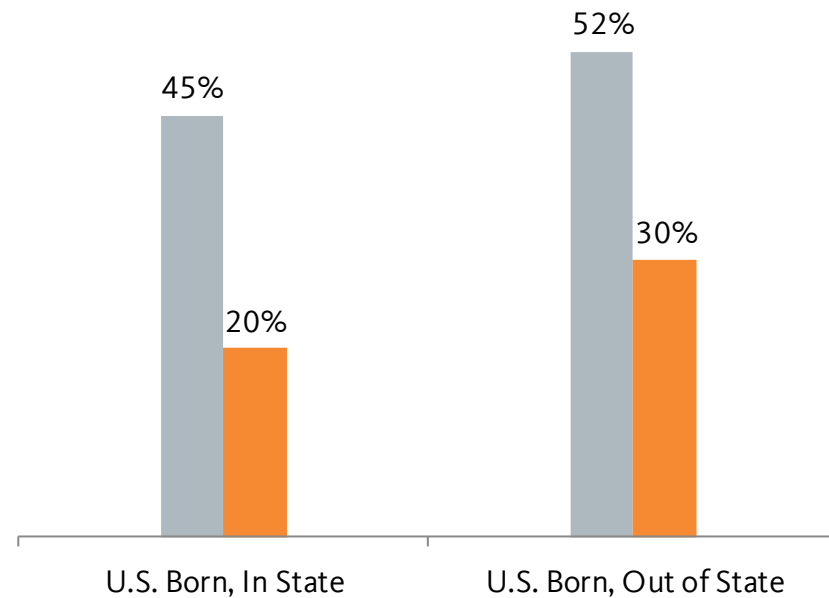
Skilled workforce

Do workers have the education and skills needed for the jobs of the future?

Cape Fear's "home-grown" population has lower levels of education than its out-of-state population. Native North Carolinians who are people of color have the lowest levels of educational attainment of all groups, with only 20 percent holding an associate's degree or higher.

Percent with an Associate's Degree or Higher by Place of Birth, 2012

■ White
■ People of Color

45%
20%
52%
30%

U.S. Born, In State   U.S. Born, Out of State

Source: IPUMS. Universe is population ages 25 through 64.
Note: Data for 2010 represent a 2008 through 2012 average.

Prepared youth

Are youth ready to enter the workforce?

More of the region's youth are getting high school degrees today than in the past. The dropout and non-enrollment rate for African American students has declined significantly since 2000.

Share of 16- to 24-Year-Olds Not Enrolled in School and without a High School Diploma by Race/Ethnicity, 1990 to 2012

■ 1990
■ 2000
■ 2012

White
11%
8%
5%

Black
13%
20%
5%
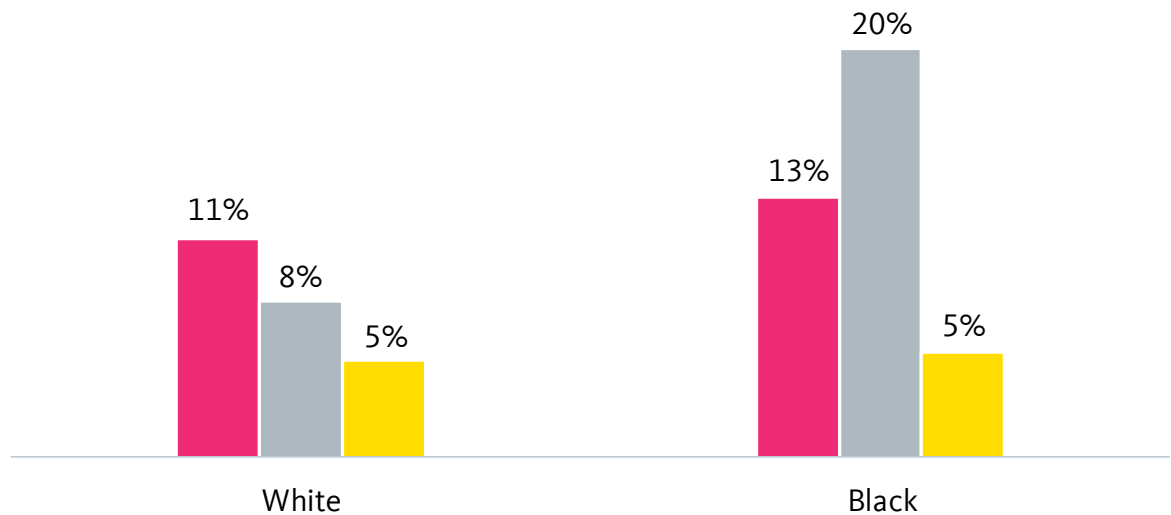
Source: IPUMS.
Note: Data for 2012 represents a 2008 through 2012 average. Data for U.S. born and immigrant Latinos are excluded due to small sample size.
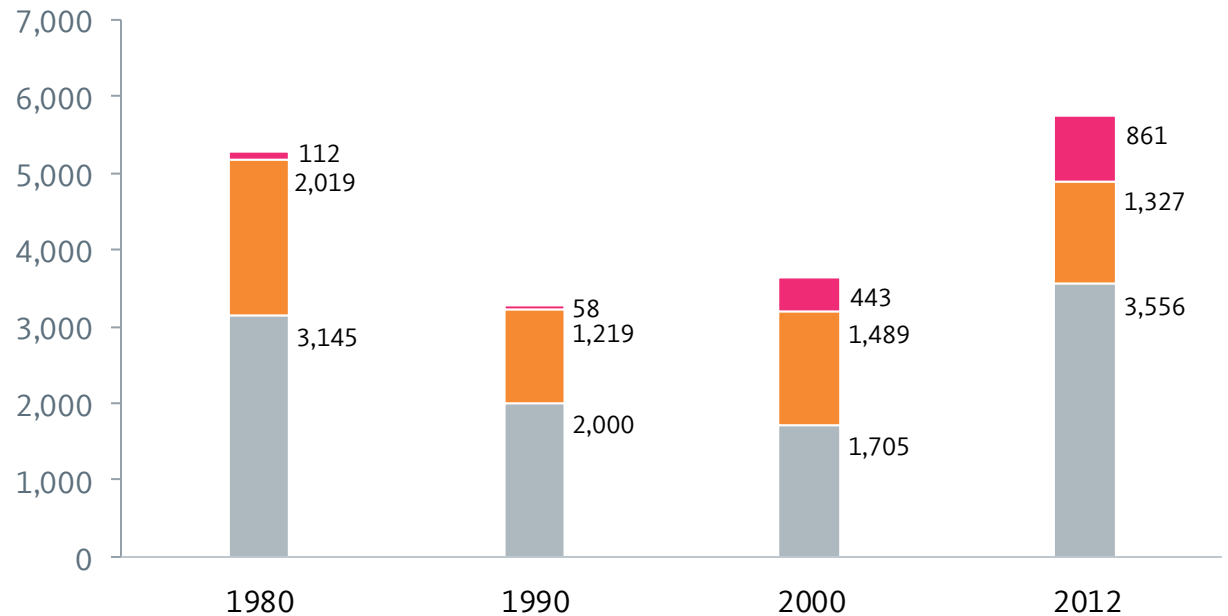
Prepared youth

Are youth ready to enter the workforce?

A growing number of the region's youth are disconnected from work and school. Among the 5,700 disconnected youth in the area, 62 percent are White; 23 percent are Black; and 15 percent are Latino, Asian, Native American or Other or mixed race. Youth of color are disproportionately represented among this population – they are 25 percent of 16 to 24-year-olds, but are 38 percent of disconnected youth.

Disconnected Youth: 16- to 24-Year-Olds Not in School or Work, 1980 to 2012

■ Latino, Asian, Native American or Other
■ Black
■ White

Chart data:

Year	White	Black	Latino, Asian, Native American or Other
1980	3,145	2,019	112
1990	2,000	1,219	58
2000	1,705	1,489	443
2012	3,556	1,327	861

Source: IPUMS.
Note: Data for 2012 represent a 2008 through 2012 average.

Economic benefits of equity

How much higher would GDP be without racial economic inequalities?

If racial gaps in income had been closed in 2012, the regional economy would have been $1.3 billion stronger: a 9 percent increase.

Actual GDP and Estimated
GDP without Racial Gaps in
Income, 2012

■ GDP in 2012 (billions)

■ GDP if racial gaps in income
were eliminated (billions)

$18
$16
$14
$12
$10
$8
$6
$4
$2
$0

$14.8

$16.1

Equity
Dividend:
$1.3 billion
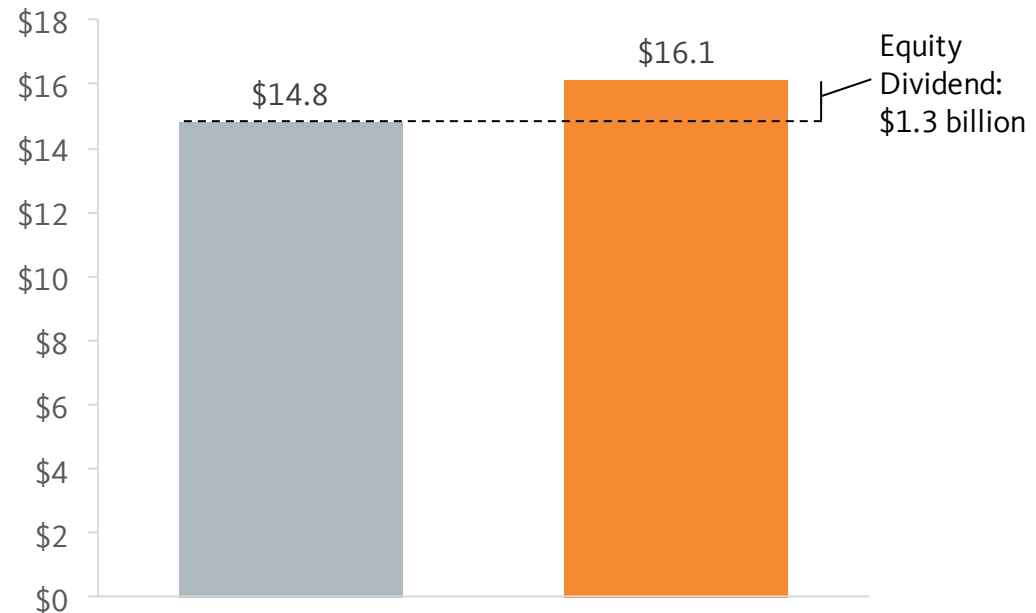
Data and methods

Data source summary and regional geography

Selected terms and general notes
Broad racial/ethnic origin
Nativity
Other selected terms
General notes on analyses

Summary measures from IPUMS microdata

Adjustments made to census summary data on race/ethnicity by age

Adjustments made to demographic projections
National projections
County and regional projections

Estimates and adjustments made to BEA data on GDP
Adjustments at the state and national levels
County and metropolitan area estimates

Middle-class analysis

Assembling a complete dataset on employment and wages by industry

Growth in jobs and earnings by industry wage level, 1990 to 2012

Analysis of occupations by opportunity level

Estimates of GDP without racial gaps in income

Data and methods
Data source summary and regional geography

Unless otherwise noted, all of the data and analyses presented in this equitable growth profile are the product of PolicyLink and the USC Program for Environmental and Regional Equity (PERE).

The specific data sources are listed in the table on the right. Unless otherwise noted, the data used to represent the region covers the three-county area of Brunswick, New Hanover, and Pender counties.

While much of the data and analysis presented in this equitable growth profile are fairly intuitive, in the following pages we describe some of the estimation techniques and adjustments made in creating the underlying database, and provide more detail on terms and methodology used. Finally, the reader should bear in mind that while only a single region is profiled here, many of the analytical choices in generating the underlying data and analyses were made with an eye toward replicating the analyses in other regions and the ability to update them over time. Thus, while more regionally specific

Source	Dataset
Integrated Public Use Microdata Series (IPUMS)	1980 5% State Sample
	1990 5% Sample
	2000 5% Sample
	2010 American Community Survey, 5-year microdata sample
	2012 American Community Survey, 5-year microdata sample
U.S. Census Bureau	1980 Summary Tape File 1 (STF1)
	1980 Summary Tape File 2 (STF2)
	1980 Summary Tape File 3 (STF3)
	1990 Summary Tape File 2A (STF2A)
	1990 Modified Age/Race, Sex and Hispanic Origin File (MARS)
	1990 Summary Tape File 4 (STF4)
	2000 Summary File 1 (SF1)
	2010 Summary File 1 (SF1)
	2012 National Population Projections, Middle Series
	Cartographic Boundary Files, 2000 Census Tracts
	2010 TIGER/Line Shapefiles, 2010 Counties
	2010 TIGER/Line Shapefiles, 2010 Census Tracts
	2010 TIGER/Line Shapefiles, 2010 Census Block Groups
	2010 Longitudinal Employer-Household Dynamics (LEHD)
Geolytics	1990 Long Form in 2000 Boundaries
	2010 Summary File 1 in 2000 Boundaries
Woods & Poole Economics, Inc.	2014 Complete Economic and Demographic Data Source
U.S. Bureau of Economic Analysis	Gross Domestic Product by State
	Gross Domestic Product by Metropolitan Area
	Local Area Personal Income Accounts, CA30: regional economic profile
U.S. Bureau of Labor Statistics	Quarterly Census of Employment and Wages
	Local Area Unemployment Statistics
	Occupational Employment Statistics
Georgetown University Center on Education and the Workforce	Updated projections of education requirements of jobs in 2020, originally appearing in: Recovery: Job Growth And Education Requirements Through 2020; State Report
U.S. Environmental Protection Agency (EPA)	Smart Location Database (Version 2.0)

Data and methods
Data source summary and regional geography
(continued)

data may be available for some indicators, the data in this profile draw from our regional equity indicators database that provides data that are comparable and replicable over time. At times, we cite local data sources in the Summary document.

Data and methods
Selected terms and general notes

Broad racial/ethnic origin

In all of the analyses presented, all categorization of people by race/ethnicity and nativity is based on individual responses to various census surveys. All people included in our analysis were first assigned to one of six mutually exclusive racial/ethnic categories, depending on their responses to two separate questions on race and Hispanic origin as follows:

• "White" and "non-Hispanic White" are used to refer to all people who identify as White alone and do not identify as being of Hispanic origin.

• "Black" and "African American" are used to refer to all people who identify as Black or African American alone and do not identify as being of Hispanic origin.

• "Latino" refers to all people who identify as being of Hispanic origin, regardless of racial identification.

• "Asian," "Asian/Pacific Islander," and "API" are used to refer to all people who identify as Asian or Pacific Islander alone and do not identify as being of Hispanic origin.

• "Native American" and "Native American and Alaska Native" are used to refer to all people who identify as Native American or Alaskan Native alone and do not identify as being of Hispanic origin.

• "Other" and "other or mixed race" are used to refer to all people who identify with a single racial category not included above, or identify with multiple racial categories, and do not identify as being of Hispanic origin.

• "People of color" or "POC" is used to refer to all people who do not identify as non-Hispanic White.

Nativity

The term "U.S.-born" refers to all people who identify as being born in the United States (including U.S. territories and outlying areas), or born abroad of American parents. The term "immigrant" refers to all people who identify as being born abroad, outside of the United States, of non-American parents.

Other selected terms

Below we provide some definitions and clarification around some of the terms used in the equity profile:

• The terms "region," "metropolitan area," "metro area," and "metro," are used interchangeably to refer to the geographic areas defined as Metropolitan Statistical Areas by the U.S. Office of Management and Budget, as well as to the region that is the subject of this profile as defined previously.

• The term "communities of color" generally refers to distinct groups defined by race/ethnicity among people of color.

• The term "full-time" workers refers to all persons in the IPUMS microdata who reported working at least 45 or 50 weeks (depending on the year of the data) and usually worked at least 35 hours per week during the year prior to the survey. A change in the "weeks worked" question in the 2008 American Community Survey (ACS), as compared with prior years of the ACS and the long form of the decennial census, caused a dramatic rise in the share of respondents indicating that they worked at

Data and methods
Selected terms and general notes
(continued)

least 50 weeks during the year prior to the survey. To make our data on full-time workers more comparable over time, we applied a slightly different definition in 2008 and later than in earlier years: in 2008 and later, the "weeks worked" cutoff is at least 50 weeks while in 2007 and earlier it is 45 weeks. The 45-week cutoff was found to produce a national trend in the incidence of full-time work over the 2005-2010 period that was most consistent with that found using data from the March Supplement of the Current Population Survey, which did not experience a change to the relevant survey questions. For more information, see http://www.census.gov/acs/www/Downloads/methodology/content_test/P6b_Weeks_Worked_Final_Report.pdf.

General notes on analyses

Below we provide some general notes about the analyses conducted:

- In the summary document that accompanies this profile, we may discuss rankings comparing the profiled region to the largest 150 metros. In all such instances, we are referring to the largest 150 metropolitan statistical areas in terms of 2010 population.
- In regard to monetary measures (income, earnings, wages, etc.) the term "real" indicates the data have been adjusted for inflation, and, unless otherwise noted, all dollar values are in 2010 dollars. All inflation adjustments are based on the Consumer Price Index for all Urban Consumers (CPI-U) from the U.S. Bureau of Labor Statistics, available at ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt.
- Note that income information in the decennial censuses for 1980, 1990, and 2000 is reported for the year prior to the survey.

Data and methods
Summary measures from IPUMS microdata

Although a variety of data sources were used, much of our analysis is based on a unique dataset created using microdata samples (i.e., "individual-level" data) from the Integrated Public Use Microdata Series (IPUMS), for four points in time: 1980, 1990, 2000, and 2008 through 2012 pooled together. While the 1980 through 2000 files are based on the decennial census and cover about 5 percent of the U.S. population each, the 2008 through 2012 files are from the American Community Survey (ACS) and cover only about 1 percent of the U.S. population each. Five years of ACS data were pooled together to improve the statistical reliability and to achieve a sample size that is comparable to that available in previous years. Survey weights were adjusted as necessary to produce estimates that represent an average over the 2008 through 2012 period.

Compared with the more commonly used census "summary files," which include a limited set of summary tabulations of population and housing characteristics, use of the microdata samples allows for the flexibility to create more illuminating metrics of equity and inclusion, and provides a more nuanced view of groups defined by age, race/ethnicity, and nativity in each region of the United States.

The IPUMS microdata allows for the tabulation of detailed population characteristics, but because such tabulations are based on samples, they are subject to a margin of error and should be regarded as estimates – particularly in smaller regions and for smaller demographic subgroups. In an effort to avoid reporting highly unreliable estimates, we do not report any estimates that are based on a universe of fewer than 100 individual survey respondents.

A key limitation of the IPUMS microdata is geographic detail: each year of the data has a particular "lowest level" of geography associated with the individuals included, known as the Public Use Microdata Area (PUMA) or "County Groups." PUMAs are drawn to contain a population of about 100,000, and vary greatly in size from being fairly small in densely populated urban areas, to very large in rural areas, often with one or more counties contained in a single PUMA.

Because PUMAs do not neatly align with the boundaries of metropolitan areas, we created a geographic crosswalk between PUMAs and the region for the 1980, 1990, 2000, and 2008-2012 microdata. This involved estimating the share of each PUMA's population that falls inside the region using population information from Geolytics for 2000 census block groups (2010 population information was used for the 2008-2012 geographic crosswalk). If the share was at least 50 percent, the PUMAs were assigned to the region and included in generating regional summary measures. For the remaining PUMAs, the share was somewhere between 50 and 100 percent, and this share was used as the "PUMA adjustment factor" to adjust downward the survey weights for individuals included in such PUMAs in the microdata when estimating regional summary measures.

Data and methods
Adjustments made to census summary data on race/ethnicity by age

For the racial generation gap indicator, we generated consistent estimates of populations by race/ethnicity and age group (under 18, 18-64, and over 64 years of age) for the years 1980, 1990, 2000, and 2010, at the county level, which was then aggregated to the regional level and higher. The racial/ethnic groups include non-Hispanic White, non-Hispanic Black, Hispanic/Latino, non-Hispanic Asian and Pacific Islander, non-Hispanic Native American/Alaskan Native, and non-Hispanic other (including other single race alone and those identifying as multiracial). While for 2000 and 2010, this information is readily available in SF1 of each year, for 1980 and 1990, estimates had to be made to ensure consistency over time, drawing on two different summary files for each year.

For 1980, while information on total population by race/ethnicity for all ages combined was available at the county level for all the requisite groups in STF1, for race/ethnicity by age group we had to look to STF2, where it was only available for non-

Hispanic White, non-Hispanic Black, Hispanic, and the remainder of the population. To estimate the number of non-Hispanic Asian and Pacific Islanders, non-Hispanic Native Americans/Alaskan Natives, and non-Hispanic others among the remainder for each age group, we applied the distribution of these three groups from the overall county population (of all ages) from STF1.

For 1990, population by race/ethnicity at the county level was taken from STF2A, while population by race/ethnicity by age group was taken from the 1990 Modified Age Race Sex (MARS) file – special tabulation of people by age, race, sex, and Hispanic origin. However, to be consistent with the way race is categorized by the Office of Management and Budget's (OMB) Directive 15, the MARS file allocates all persons identifying as "other race" or multiracial to a specific race. After confirming that population totals by county were consistent between the MARS file and STF2A,
we calculated the number of "other race" or multiracial that had been added to each racial/ethnic group in each county (for all

ages combined) by subtracting the number that is reported in STF2A for the corresponding group. We then derived the share of each racial/ethnic group in the MARS file that was made up of "other race" or multiracial people and applied this share to estimate the number of people by race/ethnicity and age group exclusive of the "other race" and multiracial, and finally the number of the "other race" and multiracial by age group.

Data and methods
Adjustments made to demographic projections

National projections

National projections of the non-Hispanic White share of the population are based on the U.S. Census Bureau's 2012 National Population Projections, Middle Series. However, because these projections follow the OMB 1997 guidelines on racial classification and essentially distribute the other single-race alone group across the other defined racial/ethnic categories, adjustments were made to be consistent with the six broad racial/ethnic groups used in our analysis.

Specifically, we compared the percentage of the total population composed of each racial/ethnic group in the projected data for 2010 to the actual percentage reported in SF1 of the 2010 Census. We subtracted the projected percentage from the actual percentage for each group to derive an adjustment factor, and carried this adjustment factor forward by adding it to the projected percentage for each group in each projection year. Finally, we applied the adjusted population distribution by race/ethnicity to the total projected

population from 2012 National Population Projections to get the projected number of people by race/ethnicity.

County and regional projections

Similar adjustments were made in generating county and regional projections of the population by race/ethnicity. Initial county-level projections were taken from Woods & Poole Economics, Inc. Like the 1990 MARS file described above, the Woods & Poole projections follow the OMB Directive 15-race categorization, assigning all persons identifying as other or multiracial to one of five mutually exclusive race categories: White, Black, Latino, Asian/Pacific Islander, or Native American. Thus, we first generated an adjusted version of the county-level Woods & Poole projections that removed the other or multiracial group from each of these five categories. This was done by comparing the Woods & Poole projections for 2010 to the actual results from SF1 of the 2010 Census, figuring out the share of each racial/ethnic group in the Woods & Poole data that was composed of other or multiracial persons

in 2010, and applying it forward to later projection years. From these projections, we calculated the county-level distribution by race/ethnicity in each projection year for five groups (White, Black, Latino, Asian/Pacific Islander, and Native American), exclusive of others or multiracials.

To estimate the county-level share of population for those classified as other or multiracial in each projection year, we then generated a simple straight-line projection of this share using information from SF1 of the 2000 and 2010 Census. Keeping the projected other or multiracial share fixed, we allocated the remaining population share to each of the other five racial/ethnic groups by applying the racial/ethnic distribution implied by our adjusted Woods & Poole projections for each county and projection year.

The result was a set of adjusted projections at the county level for the six broad racial/ethnic groups included in the profile, which were then applied to projections of the total population by county from Woods & Poole to

Data and methods
Adjustments made to demographic projections
(continued)

get projections of the number of people
for each of the six racial/ethnic groups.

Finally, an Iterative Proportional Fitting (IPF)
procedure was applied to bring the county-
level results into alignment with our adjusted
national projections by race/ethnicity
described above. The final adjusted county
results were then aggregated to produce a
final set of projections at the metro area and
state levels.

Data and methods
Estimates and adjustments made to BEA data on GDP

The data on national Gross Domestic Product (GDP) and its analogous regional measure, Gross Regional Product (GRP) – both referred to as GDP in the text – are based on data from the U.S. Bureau of Economic Analysis (BEA). However, due to changes in the estimation procedure used for the national (and state-level) data in 1997, a lack of metropolitan area estimates prior to 2001, a variety of adjustments and estimates were made to produce a consistent series at the national, state, metropolitan area, and county levels from 1969 to 2012.

Adjustments at the state and national levels
While data on Gross State Product (GSP) are not reported directly in the equitable growth profile, they were used in making estimates of gross product at the county level for all years and at the regional level prior to 2001, so we applied the same adjustments to the data that were applied to the national GDP data. Given a change in BEA's estimation of gross product at the state and national levels from a Standard Industrial Classification (SIC) basis to a North American Industry Classification System

(NAICS) basis in 1997, data prior to 1997 were adjusted to avoid any erratic shifts in gross product in that year. While the change to a NAICS basis occurred in 1997, BEA also provides estimates under an SIC basis in that year. Our adjustment involved figuring the 1997 ratio of NAICS-based gross product to SIC-based gross product for each state and the nation, and multiplying it by the SIC-based gross product in all years prior to 1997 to get our final estimate of gross product at the state and national levels.

County and metropolitan area estimates
To generate county-level estimates for all years, and metropolitan-area estimates prior to 2001, a more complicated estimation procedure was followed. First, an initial set of county estimates for each year was generated by taking our final state-level estimates and allocating gross product to the counties in each state in proportion to total earnings of employees working in each county – a BEA variable that is available for all counties and years. Next, the initial county estimates were aggregated to metropolitan area level, and

were compared with BEA's official metropolitan area estimates for 2001 and later. They were found to be very close, with a correlation coefficient very close to one (0.9997). Despite the near-perfect correlation, we still used the official BEA estimates in our final data series for 2001 and later. However, to avoid any erratic shifts in gross product during the years up until 2001, we made the same sort of adjustment to our estimates of gross product at the metropolitan-area level that was made to the state and national data – we figured the 2001 ratio of the official BEA estimate to our initial estimate, and multiplied it by our initial estimates for 2000 and earlier to get our final estimate of gross product at the metropolitan area level.

We then generated a second iteration of county-level estimates – just for counties included in metropolitan areas – by taking the final metropolitan-area-level estimates and allocating gross product to the counties in each metropolitan area in proportion to total earnings of employees working in each

Data and methods
Estimates and adjustments made to BEA data on GDP
(continued)

county. Next, we calculated the difference between our final estimate of gross product for each state and the sum of our second-iteration county-level gross product estimates for metropolitan counties contained in the state (that is, counties contained in metropolitan areas). This difference, total nonmetropolitan gross product by state, was then allocated to the nonmetropolitan counties in each state, once again using total earnings of employees working in each county as the basis for allocation. Finally, one last set of adjustments was made to the county-level estimates to ensure that the sum of gross product across the counties contained in each metropolitan area agreed with our final estimate of gross product by metropolitan area, and that the sum of gross product across the counties contained in state agreed with our final estimate of gross product by state. This was done using a simple IPF procedure.

Data and methods
Middle-class analysis

To analyze middle-class decline over the past four decades, we began with the regional household income distribution in 1979 – the year for which income is reported in the 1980 Census (and the 1980 IPUMS microdata). The middle 40 percent of households were defined as "middle class," and the upper and lower bounds in terms of household income (adjusted for inflation to be in 2010 dollars) that contained the middle 40 percent of households were identified. We then adjusted these bounds over time to increase (or decrease) at the same rate as real average household income growth, identifying the share of households falling above, below, and in between the adjusted bounds as the upper, lower, and middle class, respectively, for each year shown. Thus, the analysis of the size of the middle class examined the share of households enjoying the same relative standard of living in each year as the middle 40 percent of households did in 1979.

Data and methods
Assembling a complete dataset on employment and wages by industry

Analysis of jobs and wages by industry, reported on pages 22 and 38, is based on an industry-level dataset constructed using two-digit NAICS industries from the Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW). Due to some missing (or nondisclosed) data at the county and regional levels, we supplemented our dataset using information from Woods & Poole Economics, Inc., which contains complete jobs and wages data for broad, two-digit NAICS industries at multiple geographic levels. (Proprietary issues barred us from using Woods & Poole data directly, so we instead used it to complete the QCEW dataset.) While we refer to counties in describing the process for "filling in" missing QCEW data below, the same process was used for the regional and state levels of geography.

Given differences in the methodology underlying the two data sources (in addition to the proprietary issue), it would not be appropriate to simply "plug in" corresponding Woods & Poole data directly to fill in the QCEW data for nondisclosed industries.

Therefore, our approach was to first calculate the number of jobs and total wages from nondisclosed industries in each county, and then distribute those amounts across the nondisclosed industries in proportion to their reported numbers in the Woods & Poole data.

To make for a more accurate application of the Woods & Poole data, we made some adjustments to it to better align it with the QCEW. One of the challenges of using Woods & Poole data as a "filler dataset" is that it includes all workers, while QCEW includes only wage and salary workers. To normalize the Woods & Poole data universe, we applied both a national and regional wage and salary adjustment factor; given the strong regional variation in the share of workers who are wage and salary, both adjustments were necessary. Second, while the QCEW data are available on an annual basis, the Woods & Poole data are available on a decadal basis until 1995, at which point they become available on an annual basis. For the 1990-1995 period, we estimated the Woods & Poole annual jobs and wages figures using a

figures using a straight-line approach. Finally, we standardized the CEDDS industry codes to match the NAICS codes used in the QCEW.

It is important to note that not all counties and regions were missing data at the two-digit NAICS level in the QCEW, and the majority of larger counties and regions with missing data were only missing data for a small number of industries and only in certain years. Moreover, when data are missing it is often for smaller industries. Thus, the estimation procedure described is not likely to greatly affect our analysis of industries, particularly for larger counties and regions.

Data and methods
Growth in jobs and earnings by industry wage level, 1990 to 2012

The analysis on page 22 uses our filled-in QCEW dataset (see the previous page) and seeks to track shifts in regional job composition and wage growth by industry wage level.

Using 1990 as the base year, we classified broad industries (at the two-digit NAICS level) into three wage categories: low, middle, and high wage. An industry's wage category was based on its average annual wage, and each of the three categories contained approximately one-third of all private industries in the region.

We applied the 1990 industry wage category classification across all the years in the dataset, so that the industries within each category remained the same over time. This way, we could track the broad trajectory of jobs and wages in low-, middle-, and high-wage industries.

This approach was adapted from a method used in a Brookings Institution report, *Building From Strength: Creating Opportunity in Greater Baltimore's Next Economy*. For more information, see: http://www.brookings.edu/~/media/research/files/reports/2012/4/26%20baltimore%20economy%20vey/0426_baltimore_economy_vey.pdf.

While we initially sought to conduct the analysis at a more detailed NAICS level, the large amount of missing data at the three-to six-digit NAICS levels (which could not be resolved with the method that was applied to generate our filled-in two-digit QCEW dataset) prevented us from doing so.

Data and methods
Analysis of occupations by opportunity level

The analysis of strong occupations on page 38 and jobs by opportunity level on page 31 are related and based on an analysis that seeks to classify occupations in the region by opportunity level. Industries and occupations with high concentrations in the region, strong growth potential, and decent and growing wages are considered strong.

To identify "high-opportunity" occupations in the region, we developed an "Occupation Opportunity Index" based on measures of job quality and growth, including median annual wage, wage growth, job growth (in number and share), and median age of workers (which represents potential job openings due to retirements).

Once the "Occupation Opportunity Index" score was calculated for each occupation, occupations were sorted into three categories (high, middle, and low opportunity). Occupations were evenly distributed into the categories based on employment. The strong occupations shown on page 38 are restricted to the top high-opportunity occupations

above a cutoff drawn at a natural break in the "Occupation Opportunity Index" score.

There are some aspects of this analysis that warrant further clarification. First, the "Occupation Opportunity Index" that is constructed is based on a measure of job quality and set of growth measures, with the job-quality measure weighted twice as much as all of the growth measures combined. This weighting scheme was applied both because we believe pay is a more direct measure of "opportunity" than the other available measures, and because it is more stable than most of the other growth measures, which are calculated over a relatively short period (2005-2011). For example, an increase from $6 per hour to $12 per hour is fantastic wage growth (100 percent), but most would not consider a $12-per-hour job as a "high-opportunity" occupation.

Second, all measures used to calculate the "Occupation Opportunity Index" are based on data for Metropolitan Statistical Areas from the Occupational Employment Statistics

(OES) program of the U.S. Bureau of Labor Statistics (BLS), with one exception: median age by occupation. This measure, included among the growth metrics because it indicates the potential for job openings due to replacements as older workers retire, is estimated for each occupation from the same 2010 5-year IPUMS American Community Survey microdata file that is used for many other analyses (for the employed civilian noninstitutional population ages 16 and older). The median age measure is also based on data for Metropolitan Statistical Areas (to be consistent with the geography of the OES data), except in cases for which there were fewer than 30 individual survey respondents in an occupation; in these cases, the median age estimate is based on national data.

Third, the level of occupational detail at which the analysis was conducted, and at which the lists of occupations are reported, is the three-digit Standard Occupational Classification (SOC) level. While considerably more detailed data is available in the OES, it was necessary to aggregate to the three-digit SOC level in

Data and methods
Analysis of occupations by opportunity level
(continued)

order to align closely with the occupation codes reported for workers in the American Community Survey microdata, making the analysis reported on page 31 possible.

Data and methods
Estimates of GDP without racial gaps in income

Estimates of the gains in average annual income and GDP under a hypothetical scenario in which there is no income inequality by race/ethnicity are based on the IPUMS 2012 5-Year American Community Survey (ACS) microdata. We applied a methodology similar to that used by Robert Lynch and Patrick Oakford in Chapter Two of *All-in Nation: An America that Works for All* with some modification to include income gains from increased employment (rather than only those from increased wages).

We first organized individuals aged 16 or older in the IPUMS ACS into six mutually exclusive racial/ethnic groups: non-Hispanic White, non-Hispanic Black, Latino, non-Hispanic Asian/Pacific Islander, non-Hispanic Native American, and non-Hispanic other or multiracial. Following the approach of Lynch and Oakford in *All-In Nation*, we excluded from the non-Hispanic Asian/Pacific Islander category subgroups whose average incomes were higher than the average for non-Hispanic Whites. Also, to avoid excluding subgroups based on unreliable average

income estimates due to small sample sizes, we added the restriction that a subgroup had to have at least 100 individual survey respondents in order to be included.

We then assumed that all racial/ethnic groups had the same average annual income and hours of work, by income percentile and age group, as non-Hispanic Whites, and took those values as the new "projected" income and hours of work for each individual. For example, a 54-year-old non-Hispanic Black person falling between the 85th and 86th percentiles of the non-Hispanic Black income distribution was assigned the average annual income and hours of work values found for non-Hispanic White persons in the corresponding age bracket (51 to 55 years old) and "slice" of the non-Hispanic White income distribution (between the 85th and 86th percentiles), regardless of whether that individual was working or not. The projected individual annual incomes and work hours were then averaged for each racial/ethnic group (other than non-Hispanic Whites) to get projected average incomes and work

hours for each group as a whole, and for all groups combined.

The key difference between our approach and that of Lynch and Oakford is that we include in our sample all individuals ages 16 years and older, rather than just those with positive income values. Those with income values of zero are largely non-working, and they were included so that income gains attributable to increases in average annual hours of work would reflect both an expansion of work hours for those currently working and an increase in the share of workers – an important factor to consider given measurable differences in employment rates by race/ethnicity. One result of this choice is that the average annual income values we estimate are analogous to measures of per capita income for the age 16 and older population and are notably lower than those reported in Lynch and Oakford; another is that our estimated income gains are relatively larger as they presume increased employment rates.

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