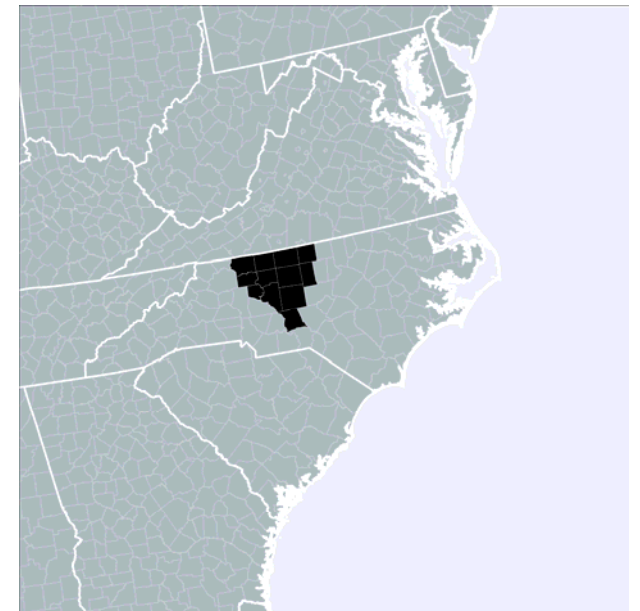Equitable Growth Profile of the

Piedmont Triad Region

Summary

Communities of color are driving the Piedmont Triad's population growth, and their ability to participate in the economy and thrive is central to the region's success now and in the future. But slow growth in jobs and economic activity – along with rising inequality and wide racial gaps in income and opportunity – place the region's economic future at risk.

Equitable growth is the path to sustained economic prosperity. By growing good jobs, investing in its increasingly diverse workforce, and infusing economic inclusion into its economic development and growth strategies, the region's leaders can put all residents on the path toward reaching their full potential and secure a bright economic future for the Piedmont Triad.

List of indicators

List of indicators

Do all residents have access to a car?

Percent of Households without a Vehicle by Race/Ethnicity, 2010

Do all residents earn enough to cover housing and transportation costs?

Average Housing and Transportation Costs as a Percent of Household Income by County, 2009

ECONOMIC SECURITY

Is poverty low and decreasing?

Poverty Rate by Race/Ethnicity, 2000 and 2010

Is working poverty low and decreasing?

Working Poverty Rate by Race/Ethnicity, 2000 and 2010

STRONG INDUSTRIES AND OCCUPATIONS

What are the region's strongest industries?

Strong Industries Analysis, 2010

What are the region's strongest occupations?

Strong Occupations Analysis, 2011

SKILLED WORKFORCE

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

Share of Working-Age Population with an Associate's Degree or Higher by Race/Ethnicity and Nativity, 2010 and Projected Share of Jobs that Require an Associate's Degree or Higher, 2020

PREPARED YOUTH

Are youth ready to enter the workforce?

Share of 16-24-Year-Olds Not Enrolled in School and without a High School Diploma, 1990 to 2010

Disconnected Youth: 16-24-Year-Olds Not in Work or School, 1980 to 2010

ECONOMIC BENEFITS OF EQUITY

How much higher would GDP be without racial economic inequities?

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

Introduction
Foreword

Equity and inclusion have become the guiding pillars of the Piedmont Together plan to build a resilient, prosperous economy and a better quality of life for all of the Piedmont Triad's residents.

The Piedmont Together effort is led by a diverse team of community stakeholders working to find solutions to the region's challenges. Broad resident engagement in the planning process has been a priority from the beginning. Our region has not included the voices of all residents, especially marginalized groups, in planning processes. We knew that deep, meaningful engagement was critical to build trust and create a plan that truly reflects the diverse communities of our region.

Yet, after the first rounds of engagement it became clear that seeking input from traditionally underserved groups was essential but insufficient. We also needed to build a shared narrative about why inclusion matters to the region's future, and specific strategies to ensure that the plan steered regional growth and development toward truly equitable outcomes.

This Equitable Growth Profile represents that new approach. Developed in partnership with PolicyLink and the USC Program for Environmental and Regional Equity (PERE), it tells the story of how our region is growing and why equity is our path to broadly shared prosperity. It points to what we need to do to ensure

that all of our residents can access the resources and opportunities they need so they, and all of us, can thrive in the coming decades. We hope that you join us in building this more equitable and sustainable future for all in the Triad.

Mark E. Kirstner
Director of Planning
Piedmont Authority for Regional Transportation

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 Piedmont Together 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 Piedmont Triad.

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
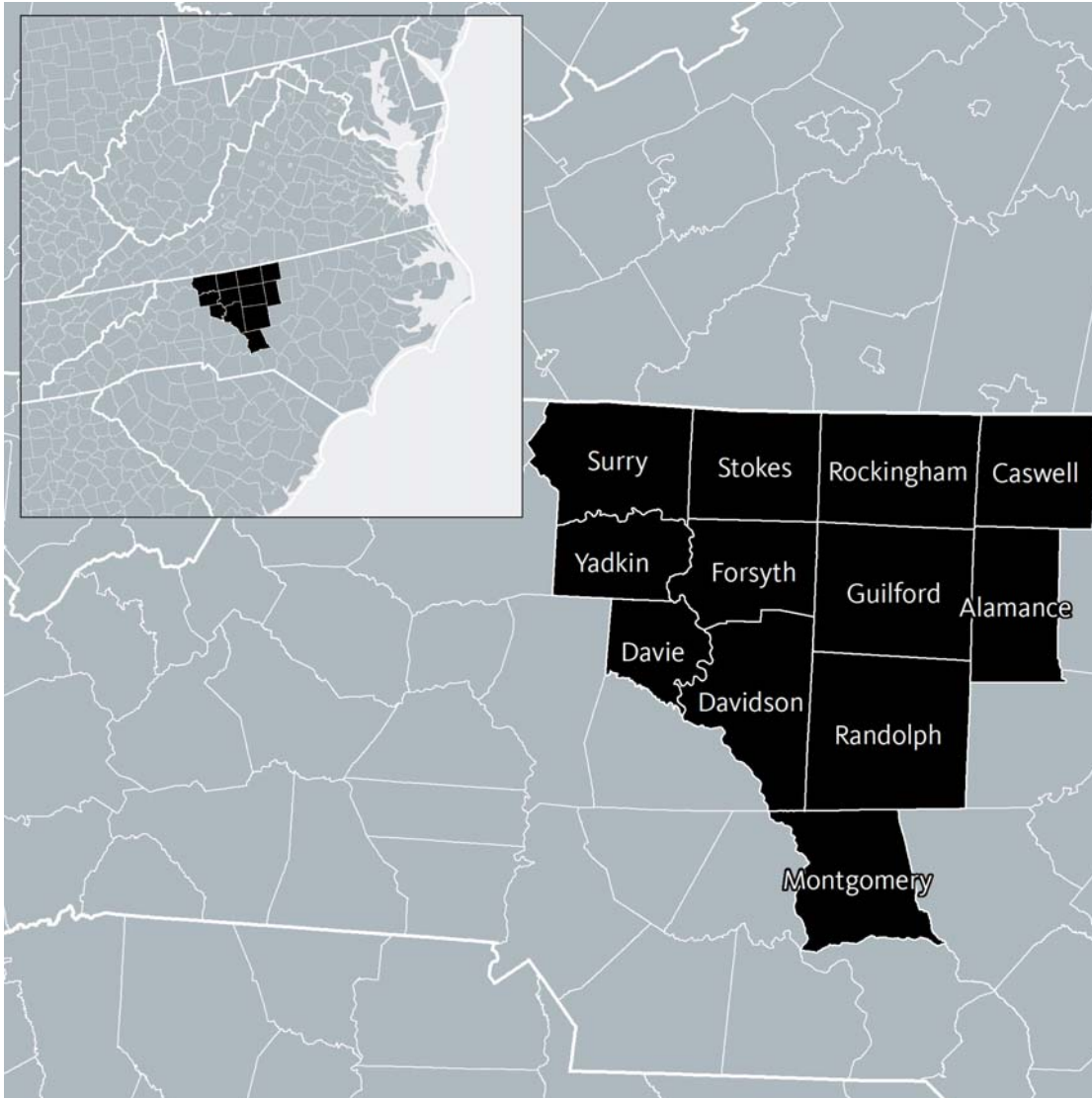
For the purposes of this profile, we define the region as the 12 counties that are included in the Piedmont Together regional plan and shown on this map. All data presented in the profile use this regional boundary. Minor exceptions due to lack of data availability are noted in the "Data and methods" 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: 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?

The Piedmont Triad is a moderately diverse region. In 2010, one-third (33 percent) of the region's residents were people of color, compared to 36 percent nationwide.

Race/Ethnicity and Nativity, 2010

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

0.6% 1.4% 0.4%

5%

4%

2%

20%

67%
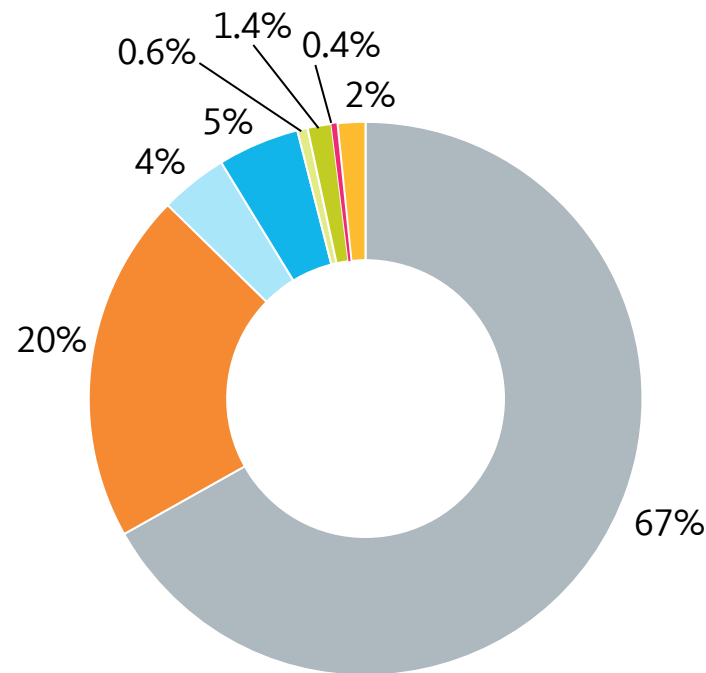
Source: IPUMS; U.S. Census Bureau.
Note: Graph based on 2006 through 2010 IPUMS data on people by race/ethnicity and nativity, adjusted to match 2010 census results on people by race/ethnicity.

Demographics

Who lives in the region and how is this changing?

Communities of color are driving population growth.
Between 2000 and 2010, the Latino population grew 96 percent, adding 70,000 residents. The Asian population also grew 81 percent, adding about 15,000 residents.

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

Group	Growth Rate
White	3%
Black	18%
Latino	96%
Asian/Pacific Islander	81%
Native American	23%
Other	80%

Source: U.S. Census Bureau.
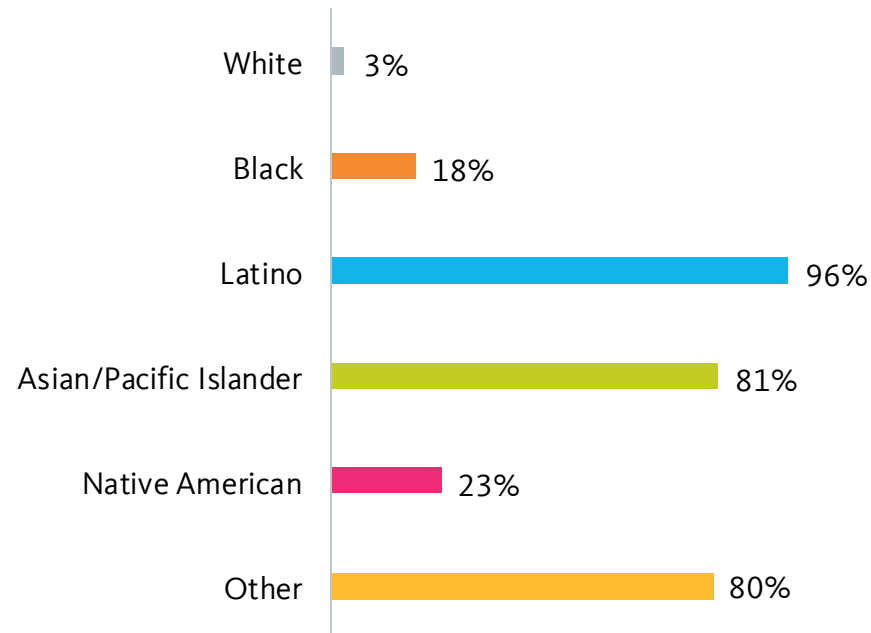
Demographics

Who lives in the region and how is this changing?

People of color are quickly becoming the majority. Latinos
will continue to drive growth, increasing from 9 to 26 percent
of the population by 2040. When the nation becomes majority
people of color around 2043, the region will already be 53
percent people of color.

Racial/Ethnic Composition, 1980 to 2040

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

Year	White	Black	Latino	Asian/Pacific Islander	Native American	Other	U.S. % White
1980	80%	19%			0.2%	1%	
1990	79%	19%	1%			1%	
2000	73%	19%	5%	1%		1%	
2010	67%	20%	9%	2%		2%	
2020	62%	21%	12%	3%		2%	
2030	54%	21%	18%	3%		3%	
2040	47%	20%	26%	4%		3%	

Projected

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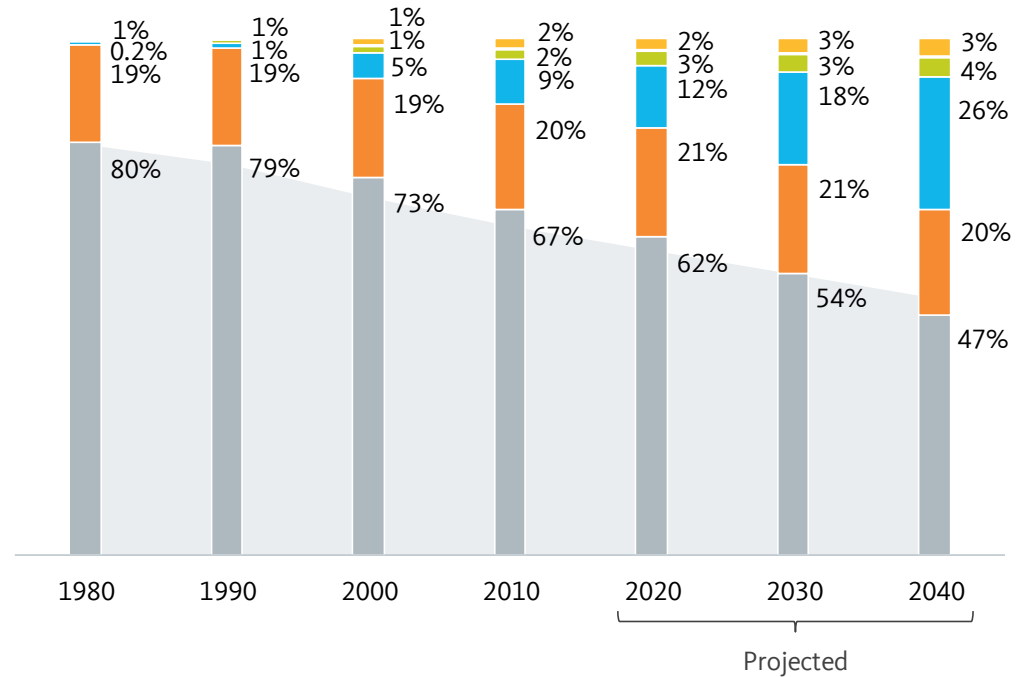
Demographics

Who lives in the region and how is this changing?

The share of people of color is growing throughout the region. Forsyth and Guilford counties (home to Winston-Salem and Greensboro, respectively) are nearly majority of color today. By 2040, four of the Triad's 12 counties will be majority people of color.

Percent People of Color by
County, 1980 to 2040

▢ Less than 30%
▢ 30% to 39%
▢ 40% to 49%
▢ 50% or more

1980

2010

2040

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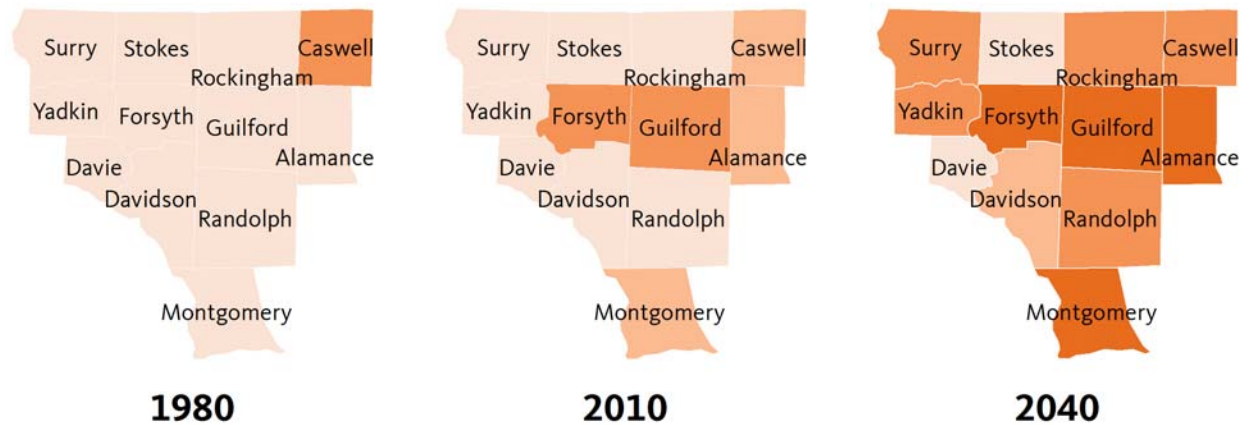
Demographics

Who lives in the region and how is this changing?

In the past decade, people of color contributed the vast majority of net population growth (84 percent).
Communities of color drove growth in all Piedmont Triad counties except Caswell, Stokes, and Davie. Caswell is the only county where the people of color population is declining and the white population is growing.

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

	County	Share
	Piedmont Triad	84%
Urban	Guilford	99%
	Forsyth	92%
	Randolph	74%
	Alamance	66%
	Davidson	53%
Rural	Surry	100%
	Rockingham	100%
	Yadkin	72%
	Montgomery	63%
	Davie	31%
	Stokes	23%
	Caswell	0%

Source: U.S. Census Bureau.
Note: Caswell county saw a decline in both the white and people of color populations over the decade.
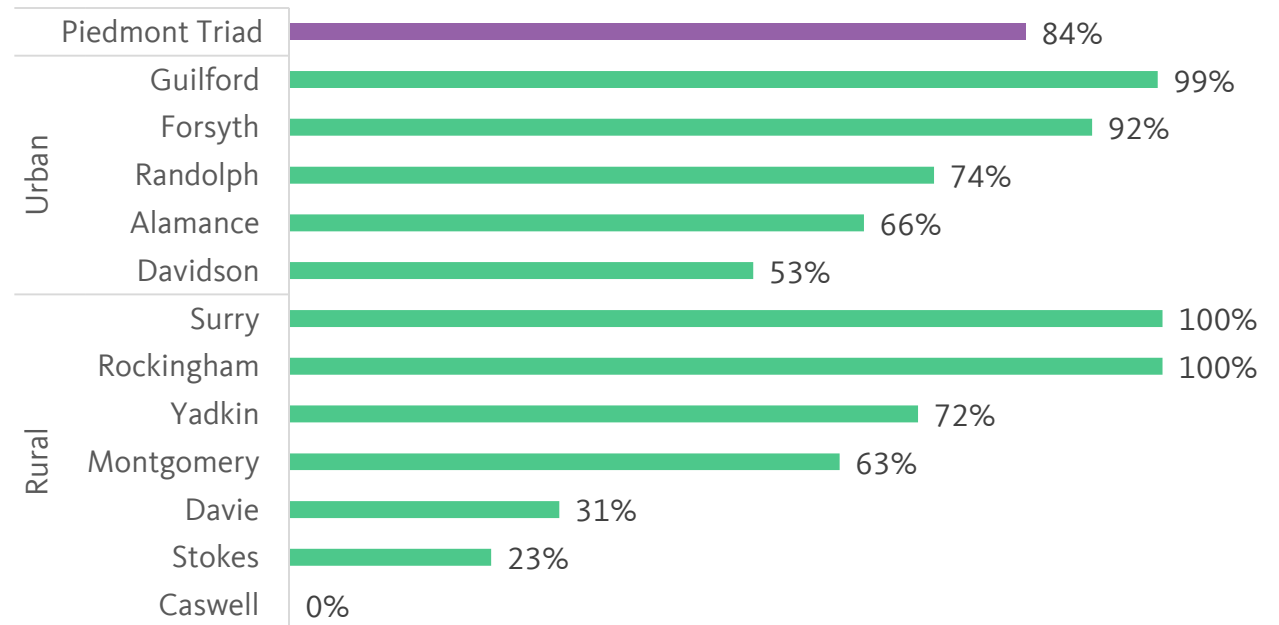
Demographics

Who lives in the region and how is this changing?

There is a growing racial generation gap. Today, 44 percent of youth are people of color, compared to 17 percent of seniors. This 27-percentage point gap has tripled since 1980 and is above the national average (26 percentage points).

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

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

44%

27 percentage
point gap

25%

9 percentage point gap

16%

17%

1980　　　1990　　　2000　　　2010

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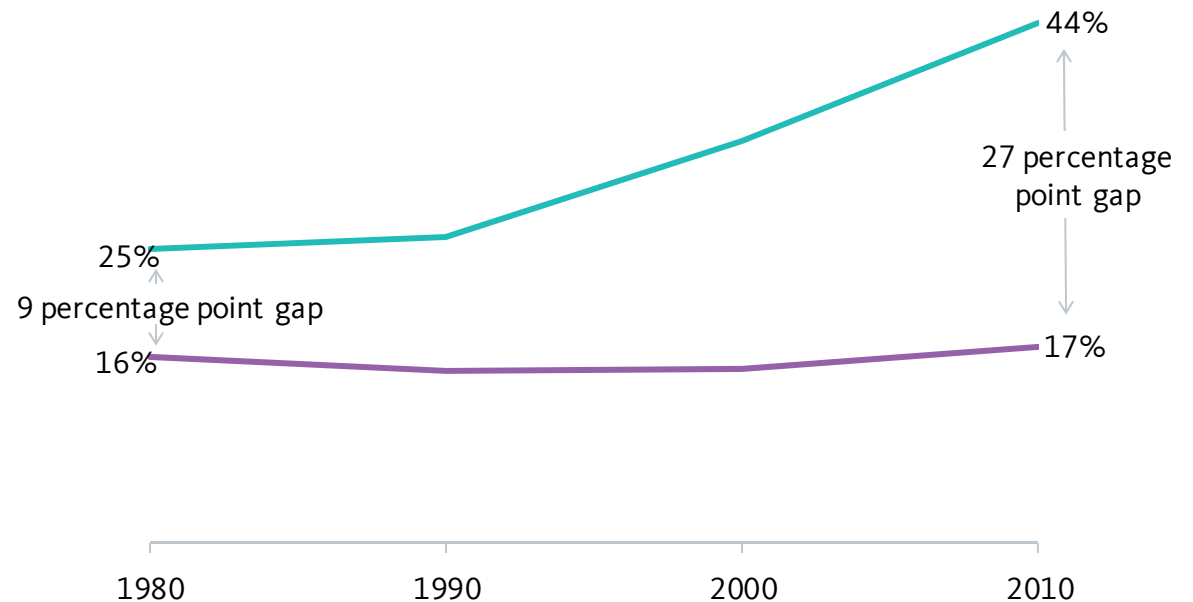
Demographics

Who lives in the region and how is this changing?

The region's fastest-growing demographic groups are also comparatively young. The region's Latino and mixed race populations, for example, have median ages of 23 and 17 years, compared to the white population's median age of 42 years.

Median Age by Race/Ethnicity, 2010

Race/Ethnicity	Median Age
All	38
White	42
Black	33
Latino	23
Asian/Pacific Islander	31
Native American	35
Other or mixed race	17

Source: IPUMS.
Note: Data represents a 2006 through 2010 median.
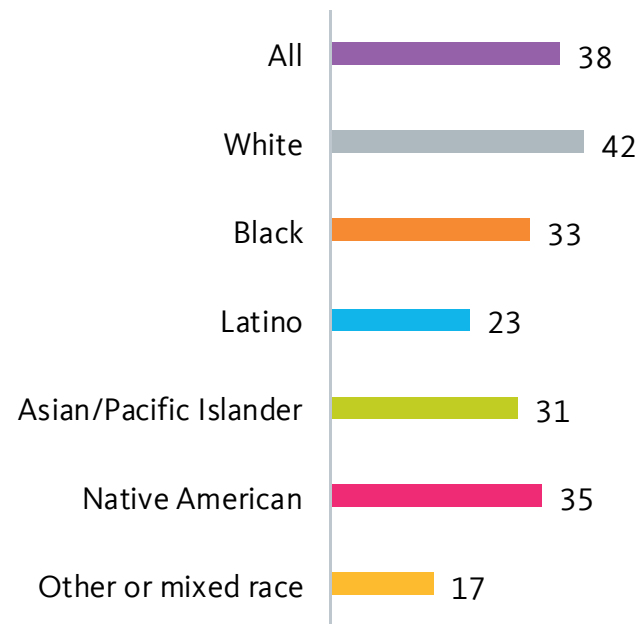
Inclusive growth

Is economic growth creating more jobs?

The region is struggling to recover from the Great Recession.
Since 2009, the Piedmont Triad has experienced slower growth
in both jobs and GDP than the United States overall. Job growth
has been half the national average; GDP growth has lagged
even further behind.

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

■ Jobs
■ GDP

	1990-2007		2009-2012	
	Piedmont Triad	All U.S.	Piedmont Triad	All U.S.
Jobs	1.1%	1.6%	0.5%	1.0%
GDP	1.8%	2.6%	0.3%	1.6%

Source: U.S. Bureau of Economic Analysis.
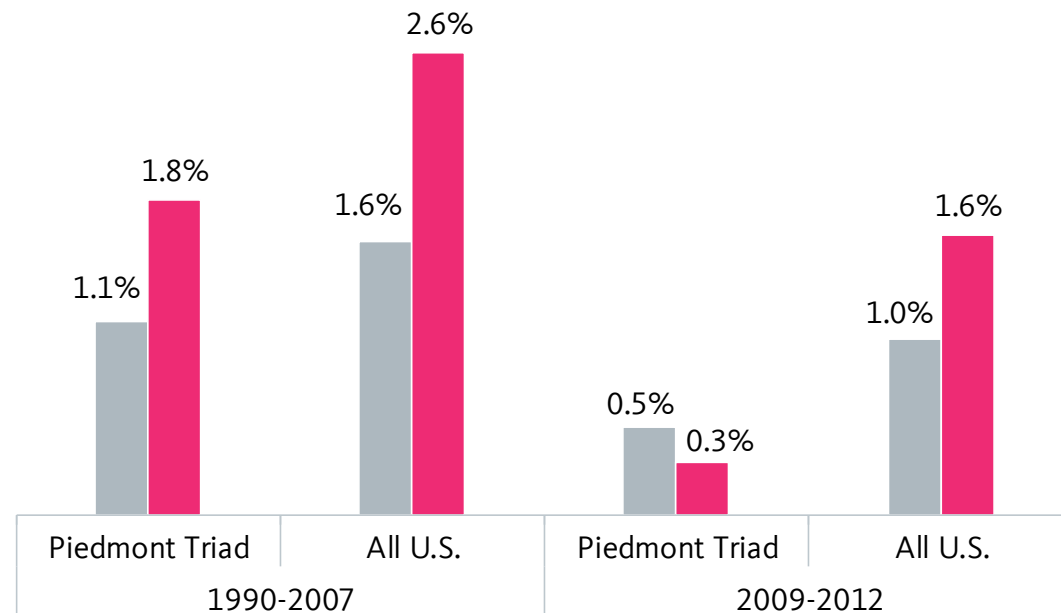
Inclusive growth
Is the region growing good jobs?

There is a hollowing out of middle-wage jobs in the Piedmont Triad. Over the past two decades, the region only grew low- and high-wage jobs, while middle-wage jobs in sectors such as manufacturing declined. While the low-wage sector is growing, earnings for these workers have stagnated.

Growth in Jobs and Earnings by Industry Wage Level, 1990 to 2010

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

Jobs: Low-wage 25%, Middle-wage -11%, High-wage 15%

Earnings per worker: Low-wage 1%, Middle-wage 19%, High-wage 16%

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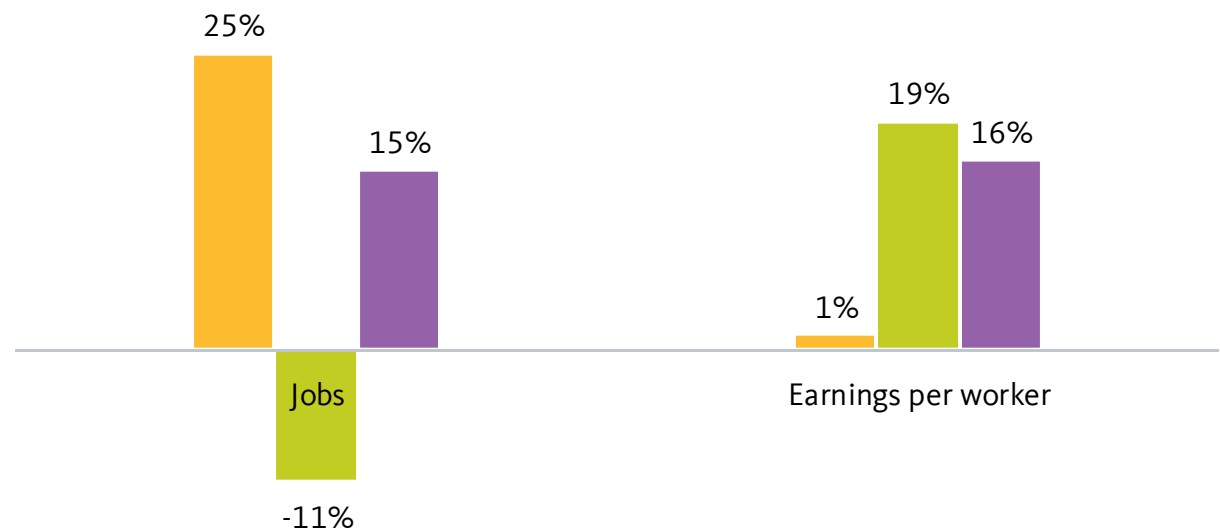
Inclusive growth

Is inequality low and decreasing?

Income inequality is on the rise. Income inequality in the region is lower than the national average, but has steadily increased over the past three decades.

Level of Income Inequality, 1979 to 2010

■ Piedmont Triad
■ 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).

Source: IPUMS.
Note: Data for 2010 represents a 2006 through 2010 average.

Inclusive growth
Are incomes increasing for all workers?

Wage growth is uneven across the income spectrum, and shows much higher gains for the top earners. The median worker in the region only experienced a 7 percent income increase over the past three decades, compared with an 18 percent increase for the worker at the 90th percentile.

Real Earned-Income Growth
for Full-Time Wage and Salary
Workers Ages 25-64,
1979 to 2010

■ Piedmont Triad
■ United States

5%   5%   7%   14%   9%   18%   22%

-6%   -4%   -3%

10th Percentile   20th Percentile   50th Percentile   80th Percentile   90th Percentile

Source: IPUMS. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data for 2010 represents a 2006 through 2010 average.
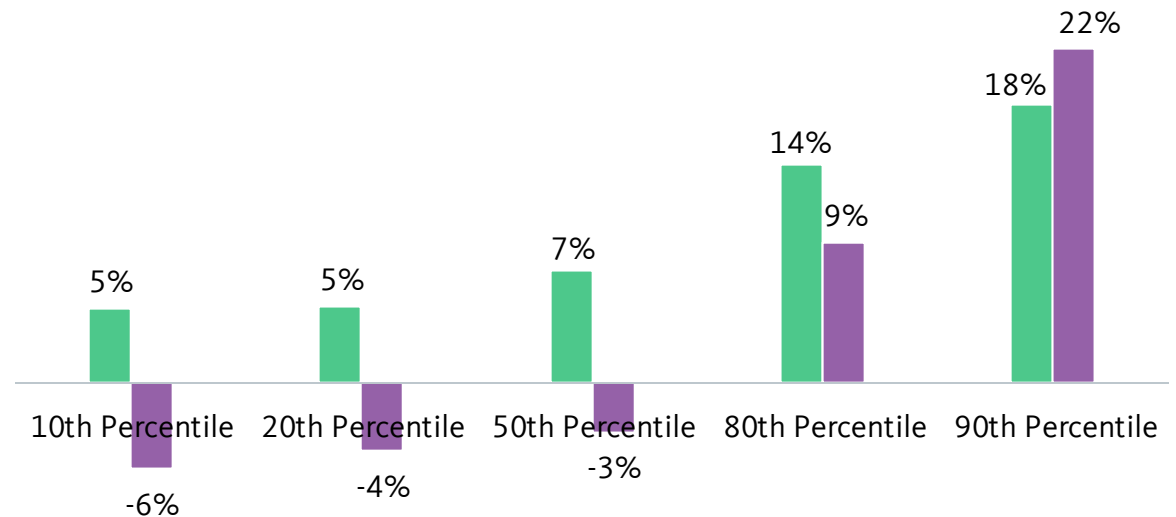
Inclusive growth
Are incomes increasing for all workers?

Wages have declined for most workers of color over the past decade. Wage growth has been uneven across racial/ethnic groups. Since 2000, median hourly wages have declined for Asians, Latinos, and blacks, while wages have increased for whites and people of other/mixed race.

Median Hourly Wage by
Race/Ethnicity, 2000 and 2010

■ 2000
■ 2010
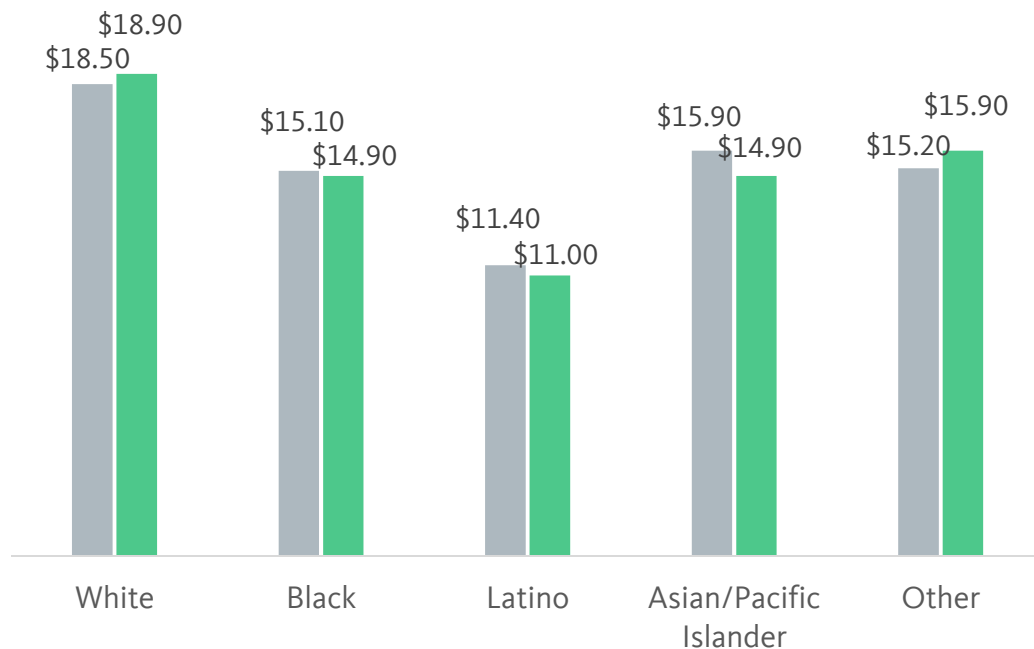
	White	Black	Latino	Asian/Pacific Islander	Other
2000	$18.50	$15.10	$11.40	$15.90	$15.20
2010	$18.90	$14.90	$11.00	$14.90	$15.90

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: Data for 2010 represents a 2006 through 2010 average. Dollar values are in 2010 dollars.

Inclusive growth

Is the middle class expanding?

The middle class is shrinking. Since 1979, the share of households with middle-class incomes dropped from 40 percent to 36 percent, while the share of lower-income households grew from 30 to 37 percent.

Households by Income Level, 1979 and 2010
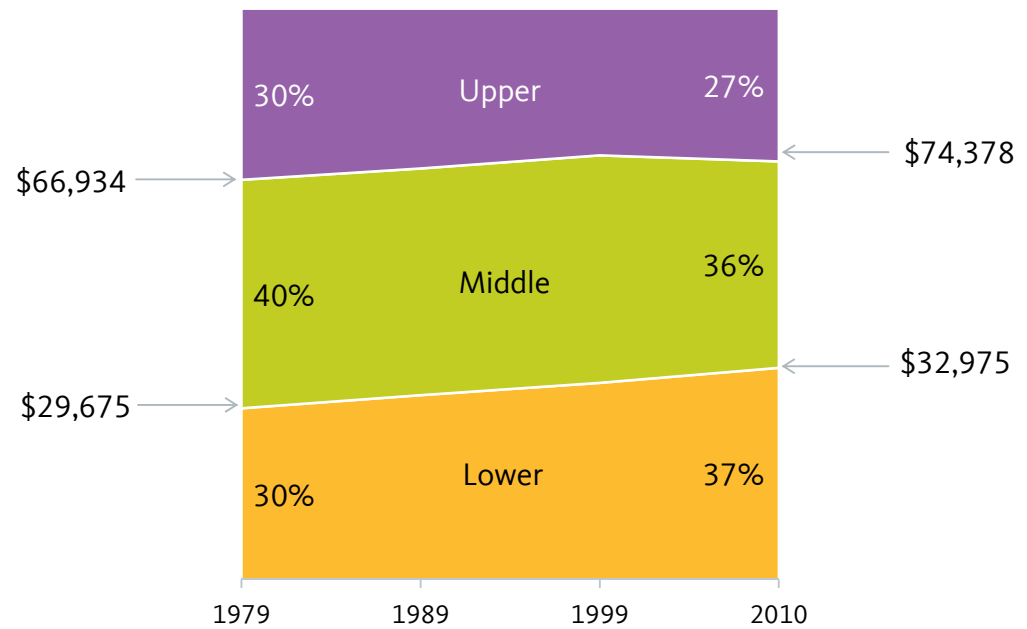
30%	Upper	27%
$66,934		$74,378
40%	Middle	36%
$29,675		$32,975
30%	Lower	37%

1979　　1989　　1999　　2010

Source: IPUMS. Universe includes all households (no group quarters).
Note: Data for 2010 represents a 2006 through 2010 average. Dollar values are in 2010 dollars.

Inclusive growth

Is the middle class becoming more inclusive?

The demographics of the middle class reflect the region's changing demographics. While the share of households with middle-class incomes has declined since 1979, middle-class households have become more racially and ethnically diverse as the population has become more diverse.

Racial Composition of Middle-Class Households and All Households, 1980 and 2010

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

	1979		2010	
	Middle-Class Households	All Households	Middle-Class Households	All Households
Asian, Native American or Other	1%	0.5%	3%	3%
Latino	0.4%	0.5%	5%	5%
Black	15%	16%	20%	21%
White	84%	83%	72%	71%

Source: IPUMS. Universe includes all households (no group quarters).
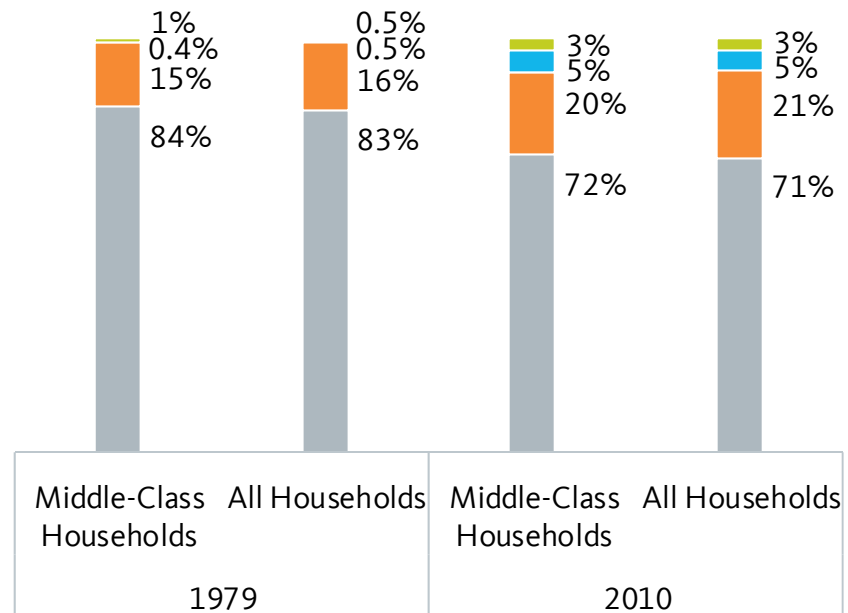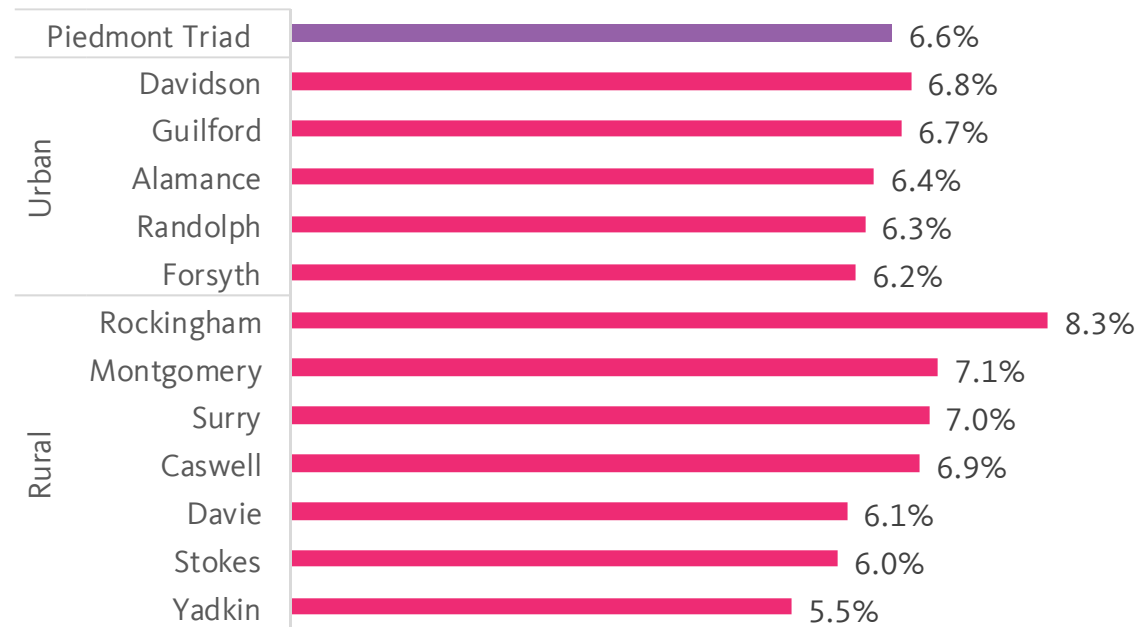Note: Data for 2010 represents a 2006 through 2010 average.

Full employment

How close is the region to reaching full employment?

Unemployment rates across the region are generally on par with the national average. In March 2014, the regional unemployment rate was 6.6 percent, compared to the U.S. rate of 6.7 percent. Rockingham County had a particularly high unemployment rate, while Yadkin County had a particularly low rate.

Unemployment Rate by
County, March 2014

	County	Rate
	Piedmont Triad	6.6%
Urban	Davidson	6.8%
	Guilford	6.7%
	Alamance	6.4%
	Randolph	6.3%
	Forsyth	6.2%
Rural	Rockingham	8.3%
	Montgomery	7.1%
	Surry	7.0%
	Caswell	6.9%
	Davie	6.1%
	Stokes	6.0%
	Yadkin	5.5%

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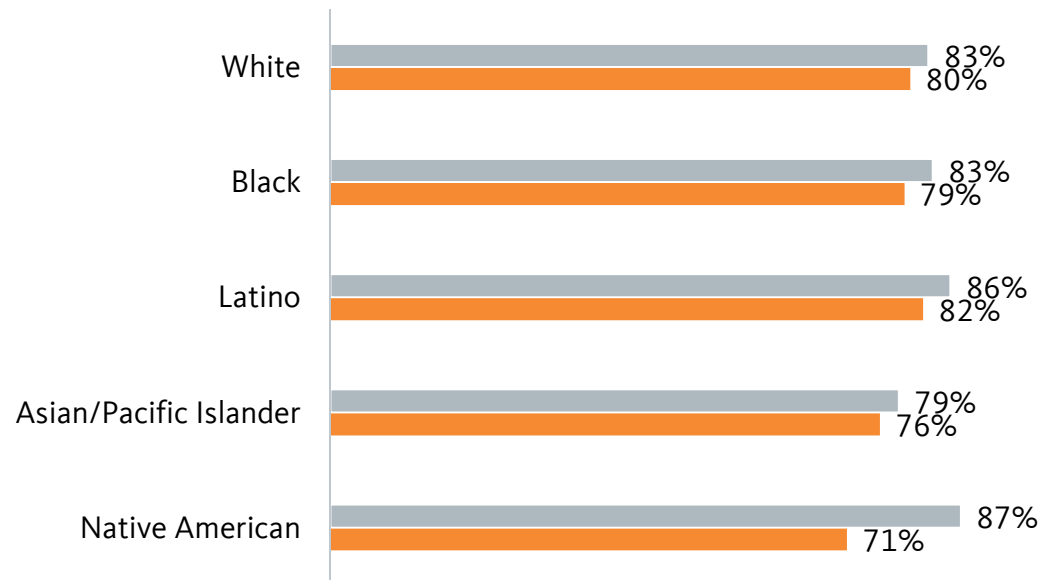
Full employment

How close is the region to reaching full employment?

People of color are less attached to the labor force. Since 1990, labor force participation rates have declined more among people of color than among whites.

Labor Force Participation Rate
by Race/Ethnicity,
1990 and 2010

■ 1990
■ 2010

White
83%
80%

Black
83%
79%

Latino
86%
82%

Asian/Pacific Islander
79%
76%

Native American
87%
71%

Source: IPUMS. Universe includes the civilian non-institutional population ages 25 through 64.
Note: Data for 2010 represents a 2006 through 2010 average. One result of this is that the full impact of the Great Recession is not reflected, and the apparent trends may change as new data become available.

Full employment

How close is the region to reaching full employment?

People of color are much more likely to be jobless than white residents. The unemployment rate of blacks and people of other/mixed race is double the rate of white unemployment. The unemployment rate of Asians in the region is also high, at 9.6 percent.

Unemployment Rate by
Race/Ethnicity, 2010

Race/Ethnicity	Unemployment Rate
All	7.1%
White	5.7%
Black	11.1%
Latino	7.9%
Asian/Pacific Islander	9.6%
Native American	7.1%
Other	11.1%

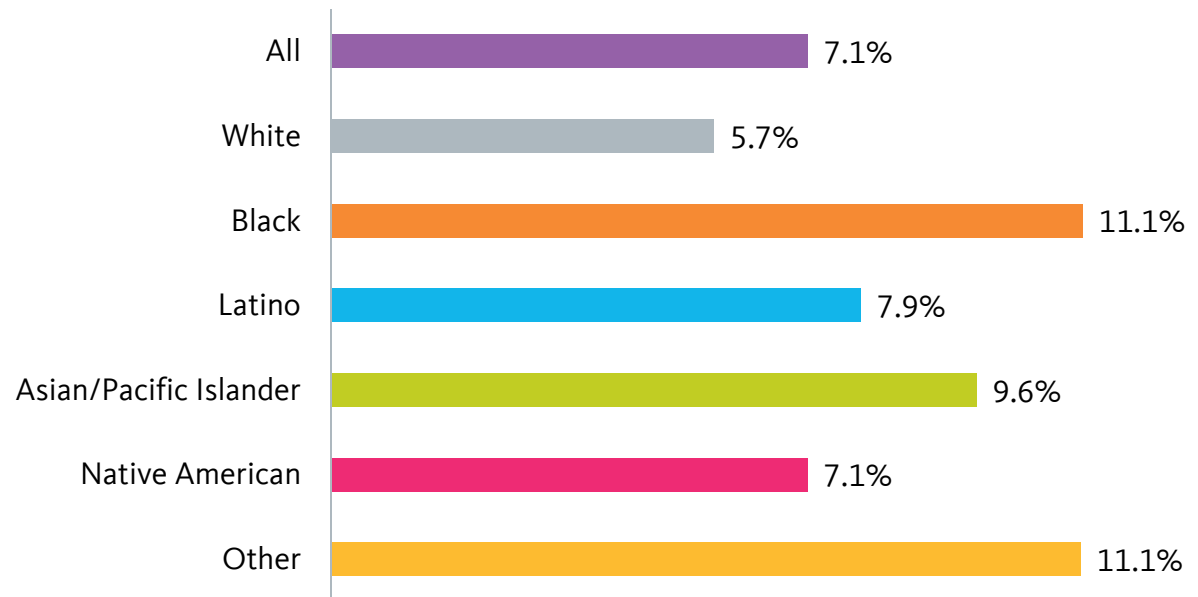Source: IPUMS. Universe includes the civilian non-institutional population ages 25 through 64.
Note: Data for 2010 represents a 2006 through 2010 average. One result of this is that the full impact of the Great Recession is not reflected, and the apparent trends may change as new data become available.

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

Unemployment decreases as education levels rise, but racial gaps persist. At every level of educational attainment, blacks have higher unemployment than whites. College-educated Asians, blacks, and Latinos are all more likely to be unemployed than their white counterparts.

Unemployment Rate by
Educational Attainment and
Race/Ethnicity, 2010

— White
— Black
— Latino
— Asian/Pacific Islander

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: Data represents a 2006 through 2010 average.
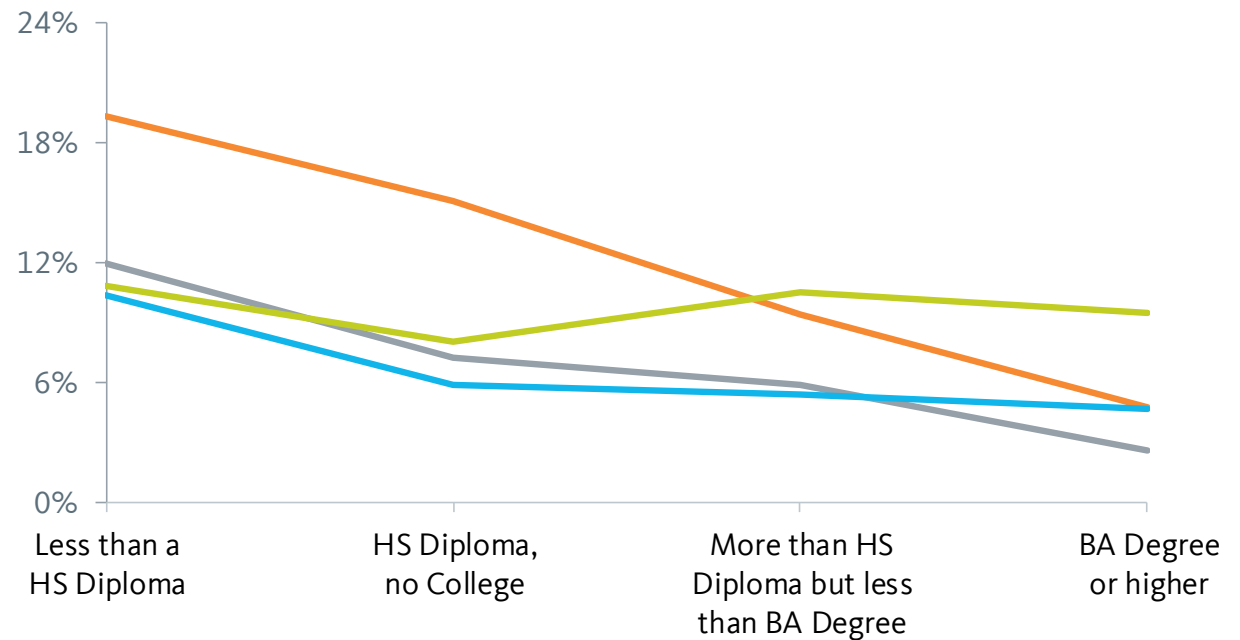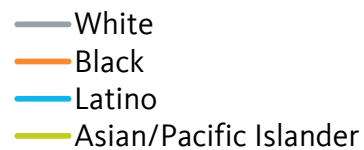
Access to good jobs
Can workers access high-opportunity jobs?

Latino immigrants, Asian immigrants, and blacks with college degrees are less likely to hold high-opportunity jobs. Among college-educated workers, four-fifths of whites (80 percent) are likely to hold high-opportunity jobs, compared with just over half (51 percent) of Latino immigrants.

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

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

	White	Black	Latino, Immigrant	API, Immigrant
High-opportunity	80%	71%	51%	76%
Middle-opportunity	12%	17%	26%	9%
Low-opportunity	8%	12%	23%	15%
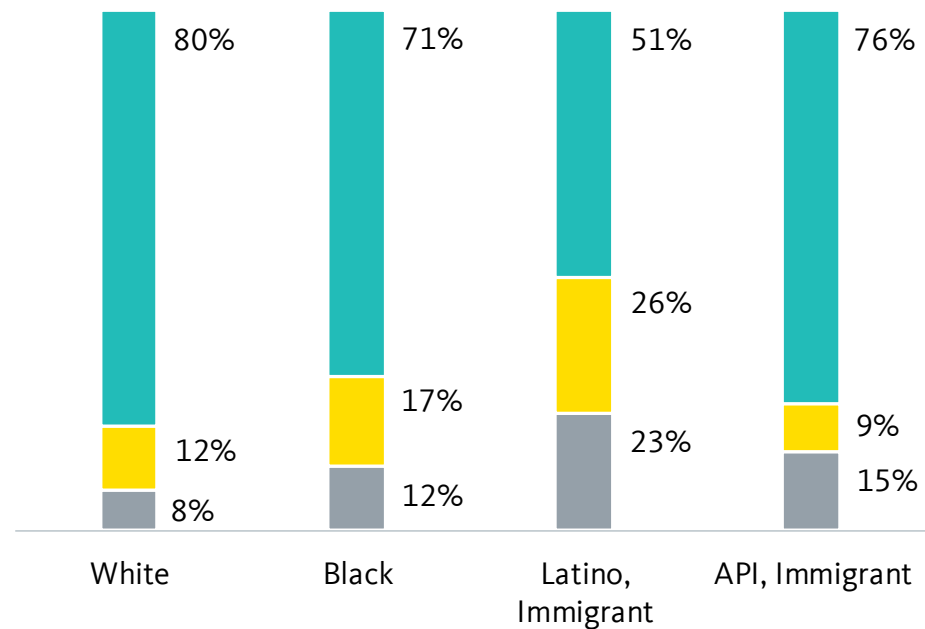
Source: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian noninstitutional population ages 25 through 64. While data on workers is from the Piedmont Triad region, the opportunity ranking for each worker's occupation is based on analysis of the Greensboro-High Point, Winston-Salem, and Burlington Core Based Statistical Area as defined by the U.S. Office of Management and Budget.
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?

Blacks and Latinos earn lower wages than whites at every education level. People of color with four-year college degrees still earn $6/hour less than their white counterparts.

Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2010
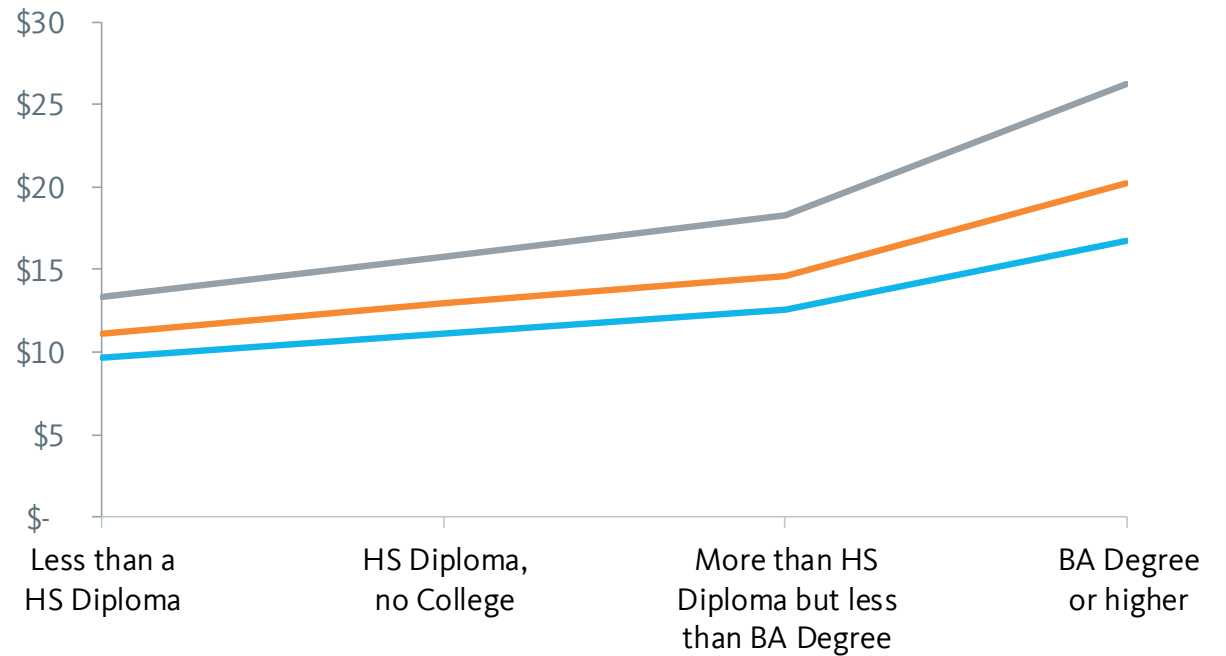
—— White
—— Black
—— Latino

Less than a HS Diploma

HS Diploma, no College

More than HS Diploma but less than BA Degree

BA Degree or higher

Source: IPUMS. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data represents a 2006 through 2010 average. Dollar values are in 2010 dollars.

Access to good jobs

Do all residents have access to a car?

People of color are more likely to be carless. African Americans are three times less likely than whites to have a vehicle at home.

Percent of Households without a Vehicle by Race/Ethnicity, 2010
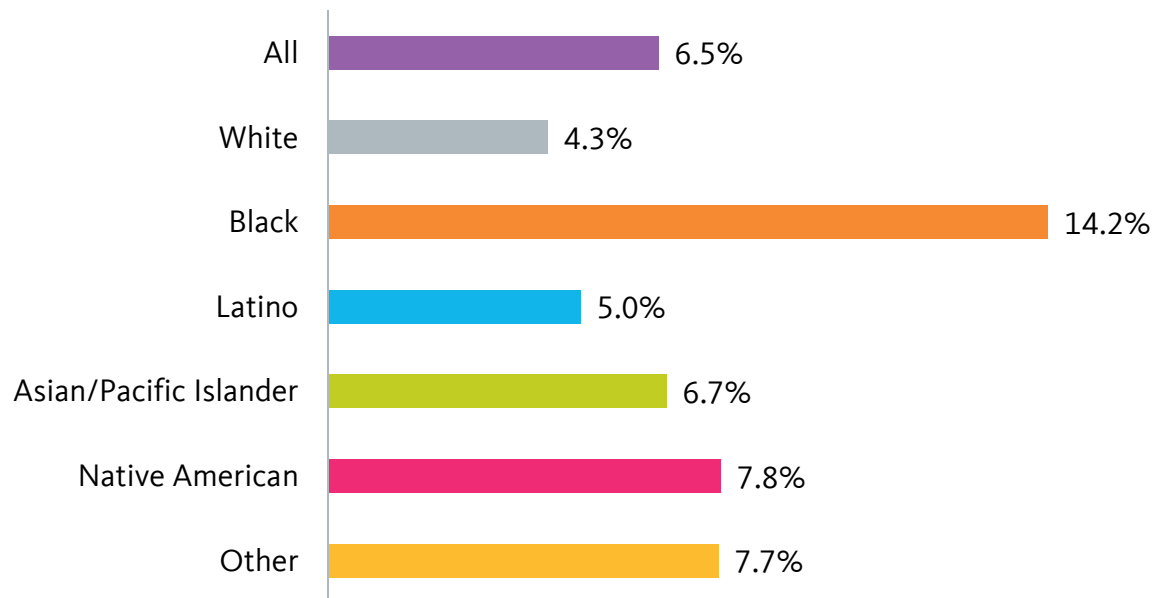
Race/Ethnicity	Percent
All	6.5%
White	4.3%
Black	14.2%
Latino	5.0%
Asian/Pacific Islander	6.7%
Native American	7.8%
Other	7.7%

Source: IPUMS.
Note: Data represents a 2006 through 2010 average.

Access to good jobs
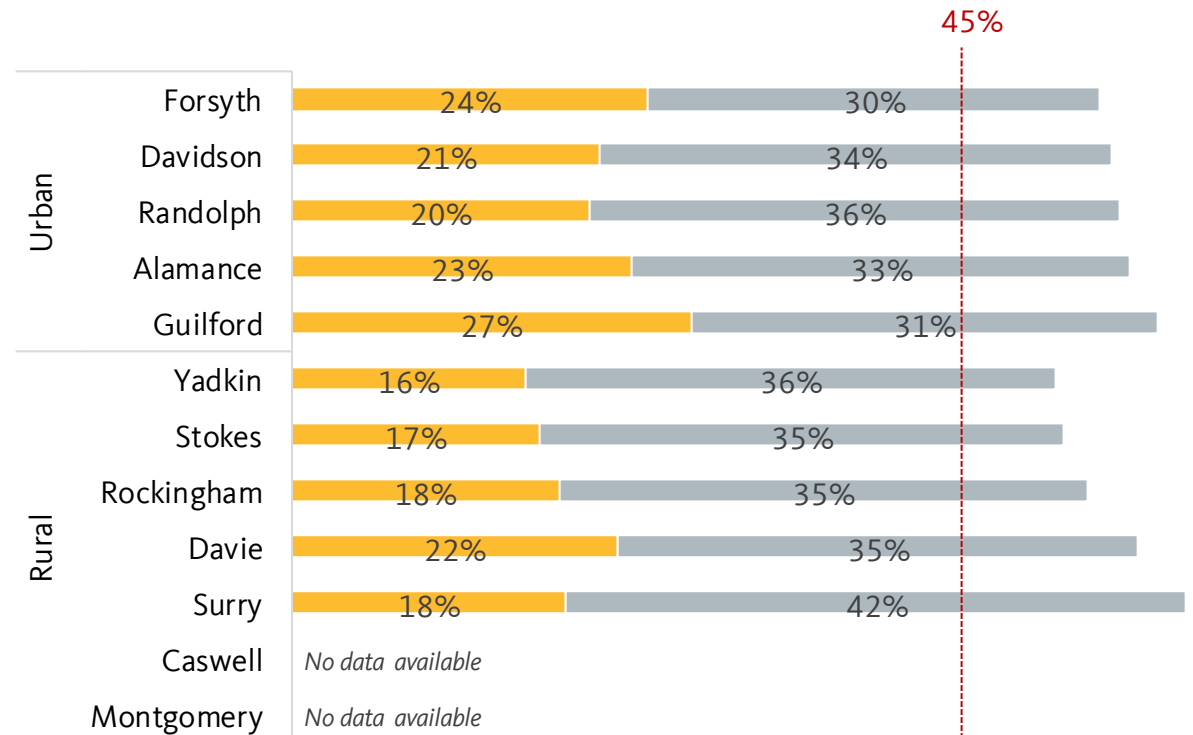
Do all residents earn enough to cover housing and transportation costs?

Regionwide, people are paying too much for housing and transportation. In all 12 counties, housing and transportation costs typically exceed 45 percent of household income, which is considered an affordability threshold. These expenses are highest in Surry County, at 60 percent of income.

Average Housing and Transportation Costs as a Percent of Household Income by County, 2009

- Housing
- Transportation

	Housing	Transportation
Urban		
Forsyth	24%	30%
Davidson	21%	34%
Randolph	20%	36%
Alamance	23%	33%
Guilford	27%	31%
Rural		
Yadkin	16%	36%
Stokes	17%	35%
Rockingham	18%	35%
Davie	22%	35%
Surry	18%	42%
Caswell	*No data available*	
Montgomery	*No data available*	

45%

Source: Center for Neighborhood Technology, H+T Affordability Index.
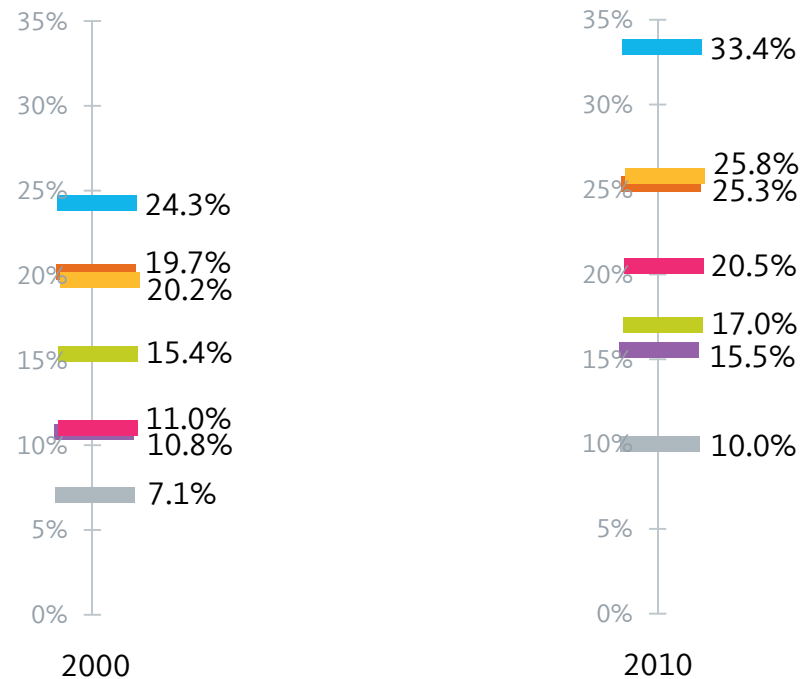
Economic security

Is poverty low and decreasing?

Poverty is on the rise, and it is higher for all groups of color.
One out of every three Latinos and one out of every four
African Americans and those of other or mixed race currently
live in poverty.

Poverty Rate by Race/Ethnicity, 2000 and 2010

- ■ All
- ■ White
- ■ Black
- ■ Latino
- ■ Asian/Pacific Islander
- ■ Native American
- ■ Other

2000

- 24.3%
- 19.7%
- 20.2%
- 15.4%
- 11.0%
- 10.8%
- 7.1%

2010

- 33.4%
- 25.8%
- 25.3%
- 20.5%
- 17.0%
- 15.5%
- 10.0%

Source: IPUMS. Universe includes all persons not in group quarters.
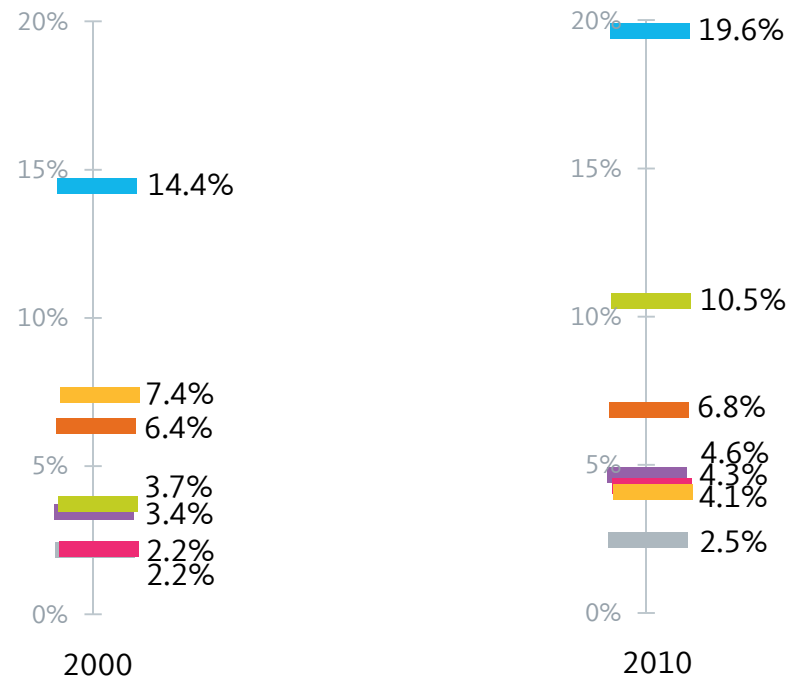Note: Data for 2010 represents a 2006 through 2010 average.

Economic security

Is working poverty low and decreasing?

Working poverty is also on the rise, and is particularly high for Latinos and Asians. Latinos and Asians are much more likely to be working poor (working full-time for an income below 150 percent of the poverty level) compared to other groups.

Working Poverty Rate by Race/Ethnicity, 2000 and 2010

- ■ All
- ■ White
- ■ Black
- ■ Latino
- ■ Asian/Pacific Islander
- ■ Native American
- ■ Other

2000

- 14.4%
- 7.4%
- 6.4%
- 3.7%
- 3.4%
- 2.2%
- 2.2%

2010

- 19.6%
- 10.5%
- 6.8%
- 4.6%
- 4.3%
- 4.1%
- 2.5%

Source: IPUMS. Universe includes the civilian noninstitutional population ages 25 through 64 not in group quarters.
Note: Data for 2010 represents a 2006 through 2010 average.

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

Health care, education, and management are strong and growing. Manufacturing – which traditionally provides many good, middle-skill jobs for people without college degrees – is highly concentrated in the region and employs many people, but is experiencing severe job losses.

	Size	Concentration	Job Quality	Growth		
	Total employment	Location Quotient	Average annual wage	Change in employment	% Change in employment	Real wage growth
Industry	(2010)	(2010)	(2010)	(2000-10)	(2000-10)	(2000-10)
Manufacturing	98,120	1.7	$47,159	-81,583	-45%	10%
Health Care and Social Assistance	92,654	1.1	$40,017	24,189	35%	-2%
Retail Trade	73,343	1.0	$24,658	-9,520	-11%	-5%
Accommodation and Food Services	55,179	1.0	$13,858	8,584	18%	-7%
Administrative and Support and Waste Management and Remediation Services	45,262	1.2	$24,182	-1,809	-4%	8%
Wholesale Trade	29,449	1.0	$49,949	-1,556	-5%	2%
Finance and Insurance	28,870	1.0	$59,081	-186	-1%	0%
Construction	28,093	1.0	$38,864	-12,133	-30%	-3%
Transportation and Warehousing	24,921	1.2	$39,701	-9,952	-29%	-4%
Professional, Scientific, and Technical Services	22,127	0.6	$55,419	-1,130	-5%	0%
Other Services (except Public Administration)	15,937	0.7	$25,617	-2,429	-13%	-3%
Education Services	14,449	1.1	$54,412	3,461	31%	11%
Management of Companies and Enterprises	14,330	1.5	$71,991	1,309	10%	9%
Information	8,506	0.6	$50,000	-4,857	-36%	-3%
Arts, Entertainment, and Recreation	7,823	0.8	$19,356	1,055	16%	-6%
Real Estate and Rental and Leasing	6,766	0.7	$36,971	-1,402	-17%	9%
Agriculture, Forestry, Fishing and Hunting	1,515	0.3	$28,337	-267	-15%	-22%
Utilities	1,396	0.5	$61,072	-915	-40%	-11%
Mining	485	0.1	$47,999	-125	-20%	2%

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?

Health diagnostics, postsecondary teaching, business operations, and computer operations are strong and growing occupations. These job categories all pay good wages, employ many people, and have experienced strong growth in recent years.

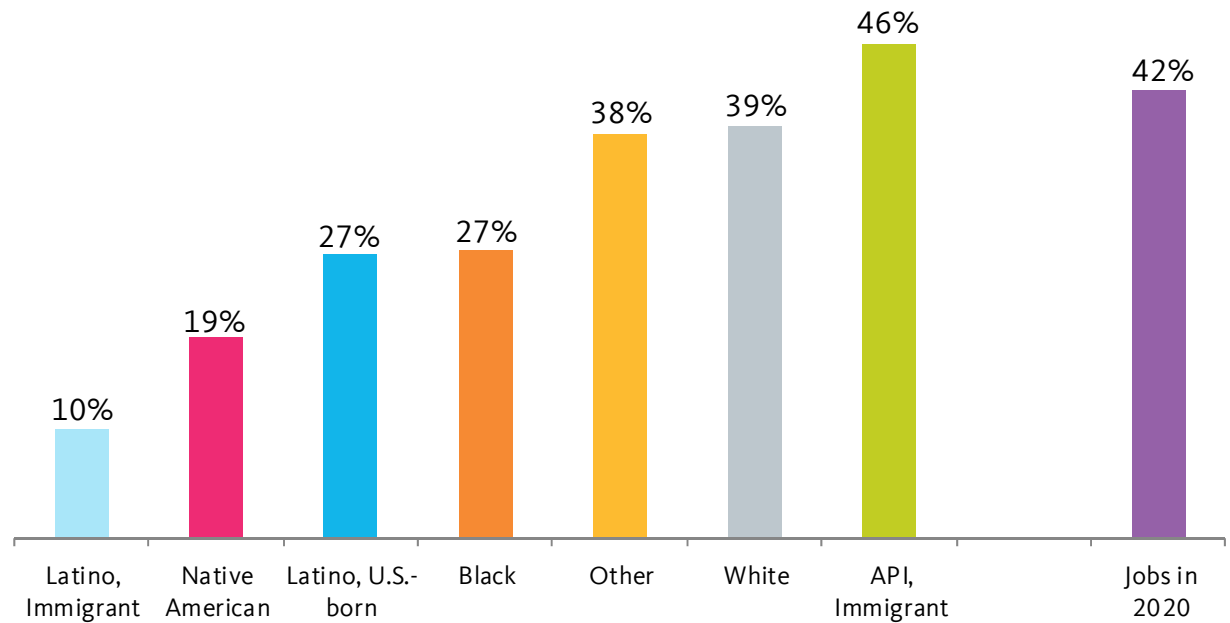| Occupation	Employment	Job Quality Median Annual Wage	Real Wage Growth	Growth Change in Employment	% Change in Employment	Median Age
	(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2006-10 avcg)
Health Diagnosing and Treating Practitioners	21,280	$75,781	5%	4,880	30%	44
Preschool, Primary, Secondary, and Special Education School Teachers	17,070	$41,612	8%	2,130	14%	41
Business Operations Specialists	14,890	$56,258	9%	4,040	37%	44
Health Technologists and Technicians	13,250	$41,309	0%	4,340	49%	38
Computer Occupations	11,350	$70,335	-1%	2,130	23%	40
Financial Specialists	8,650	$57,861	2%	360	4%	45
Top Executives	8,380	$110,550	13%	-1,930	-19%	49
Other Management Occupations	7,640	$79,138	9%	350	5%	46
Supervisors of Office and Administrative Support Workers	6,370	$46,751	0%	-410	-6%	45
Operations Specialties Managers	6,330	$96,246	11%	-2,040	-24%	44
Postsecondary Teachers	5,100	$61,933	6%	1,700	50%	45
Sales Representatives, Services	5,090	$54,609	12%	670	15%	44
Supervisors of Production Workers	4,110	$49,360	-2%	-1,490	-27%	45
Engineers	3,550	$76,469	-2%	-180	-5%	42
Supervisors of Construction and Extraction Workers	2,700	$50,405	-1%	-680	-20%	44
Supervisors of Installation, Maintenance, and Repair Workers	2,630	$55,895	-1%	-340	-11%	47
Other Sales and Related Workers	2,530	$37,296	16%	50	2%	48
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	2,230	$109,309	12%	-1,380	-38%	43
Lawyers, Judges, and Related Workers	1,390	$110,200	-7%	40	3%	47
Librarians, Curators, and Archivists	1,260	$43,311	-5%	470	59%	51
Supervisors of Protective Service Workers	1,170	$57,891	10%	640	121%	46
Physical Scientists	800	$58,021	-3%	240	43%	40

Source: U.S. Bureau of Labor Statistics; IPUMS. Universe includes all nonfarm wage and salary jobs. Analysis reflects the Greensboro-High Point, Winston-Salem, and Burlington Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

Skilled workforce

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

The region will face a skills gap unless education levels increase. By 2020, 42 percent of the state's jobs will require an associate's degree or above. Only 27 percent of U.S.-born Latinos and blacks, 10 percent of Latino immigrants, and 19 percent of Native Americans have that level of education.

Share of Working-Age Population with an Associate's Degree or Higher by Race/Ethnicity and Nativity, 2010 and
Projected Share of Jobs that Require an Associate's Degree or Higher, 2020

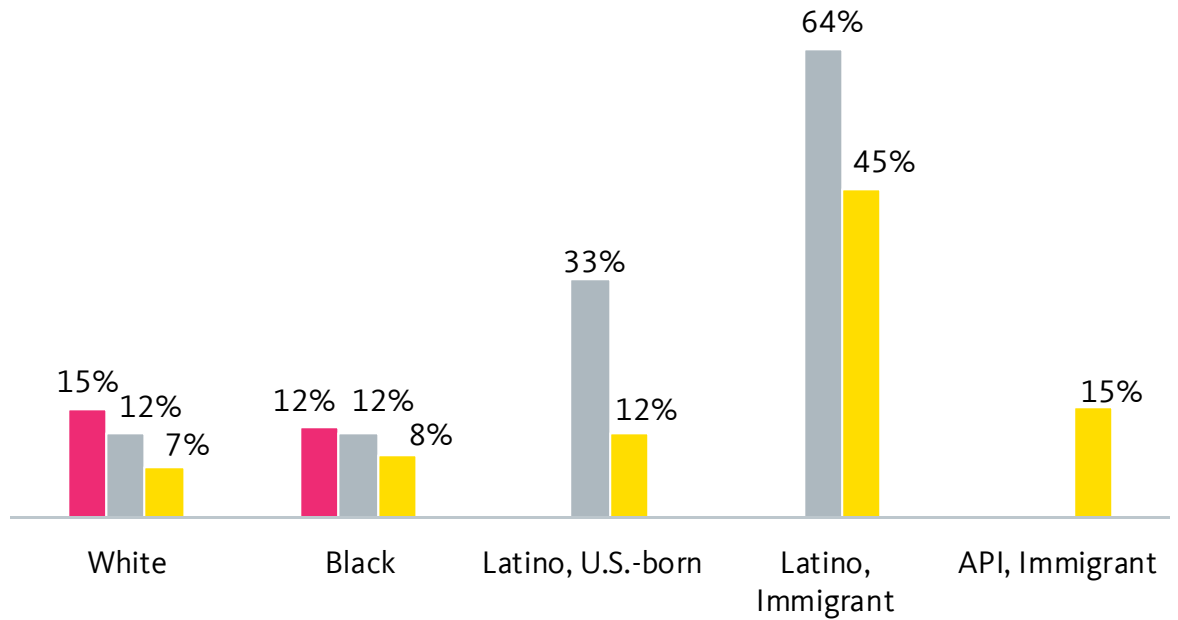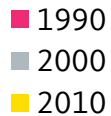| Category	Value
Latino, Immigrant	10%
Native American	19%
Latino, U.S.-born	27%
Black	27%
Other	38%
White	39%
API, Immigrant	46%
Jobs in 2020	42%

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 2010 by race/ethnicity/nativity represents a 2006 through 2010 average and is at the regional level; data on jobs in 2020 is at the state level for North Carolina.

Prepared youth

Are youth ready to enter the workforce?

More of the region's youth are getting high school degrees, but Latino immigrants are more likely to be behind. Overall, the region's Latino and Asian youth are still much less likely to finish high school than its white and black youth.

Share of 16-24-Year-Olds Not Enrolled in School and without a High School Diploma by Race/Ethnicity and Nativity, 1990 to 2010
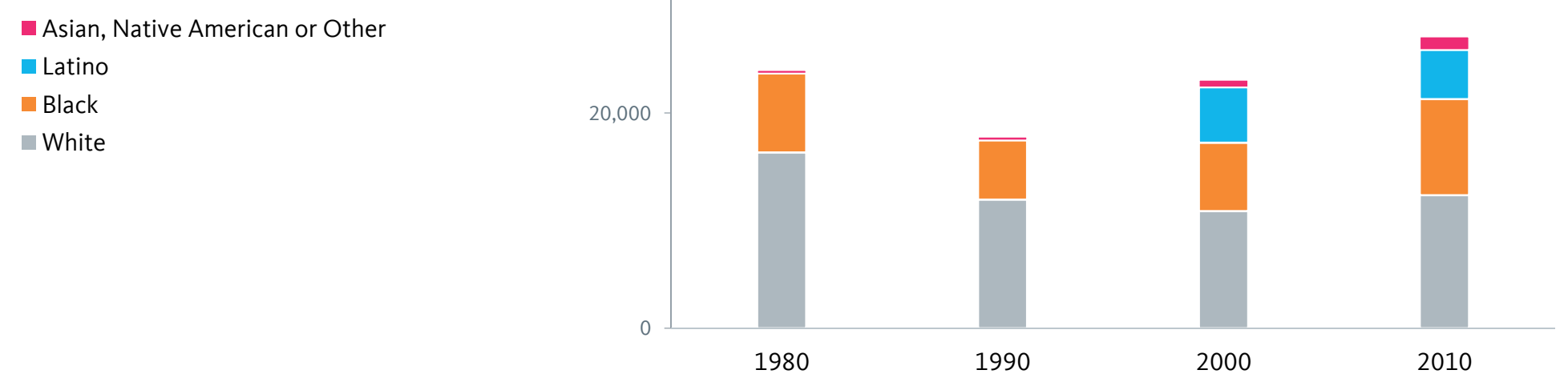
■ 1990
■ 2000
■ 2010

White: 15% 12% 7%
Black: 12% 12% 8%
Latino, U.S.-born: 33% 12%
Latino, Immigrant: 64% 45%
API, Immigrant: 15%

Source: IPUMS.
Note: Data for 2010 represents a 2006 through 2010 average.

Prepared youth
Are youth ready to enter the workforce?

A growing number of youth are disconnected from work and school. Youth of color are more likely to be disconnected. Among the region's 27,000 disconnected youth, 54 percent are of color, compared with 44 percent of youth overall.

Disconnected Youth: 16-24-Year-Olds Not in School or Work, 1980 to 2010

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

Economic benefits of equity

How much higher would GDP be without racial economic inequalities?

**The Piedmont Triad Region's GDP would have been $9.5
billion higher in 2012 if there were no racial gaps in income**.

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

- GDP in 2012 (billions)

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

$72.2

$81.6

Equity
Dividend:
$9.5 billion
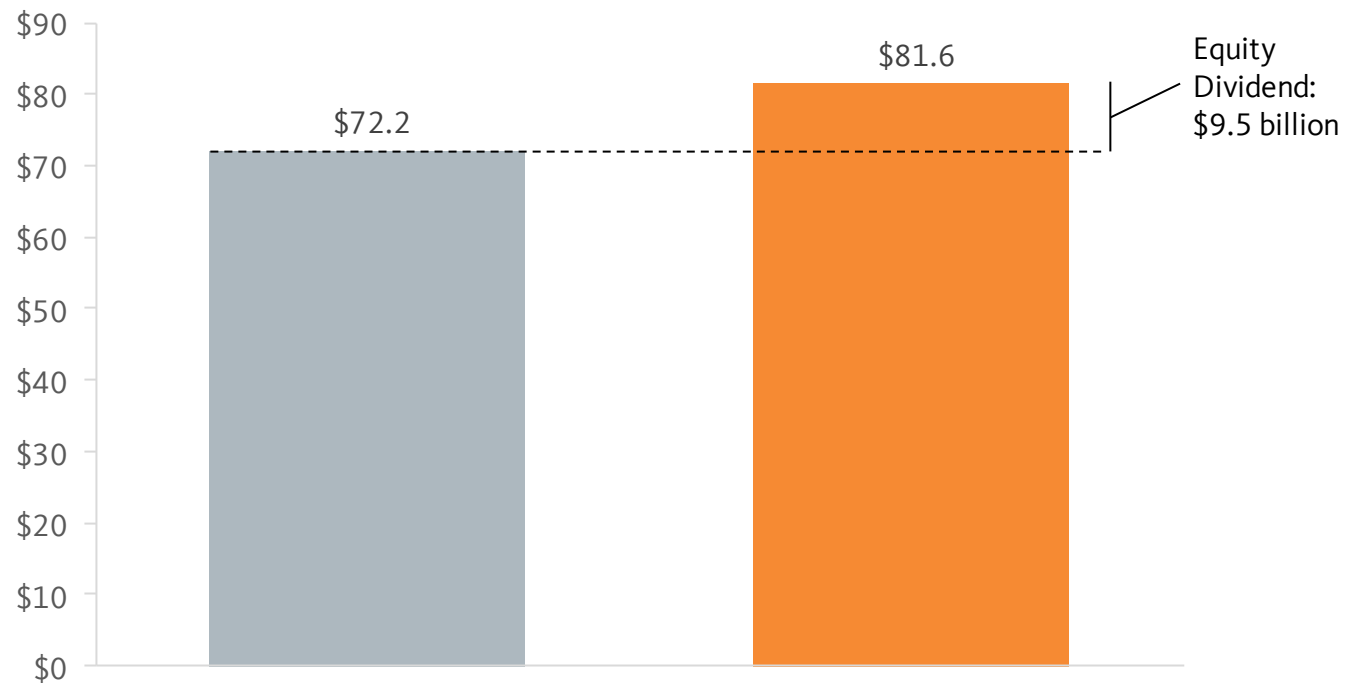
Source: Bureau of Economic Analysis; IPUMS.
Note: "Equity dividend" may not match difference in values reported in chart due to rounding. Dollar values are in 2012 dollars.

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 2010

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 equity 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 were assembled to match the 12 counties that are served by the Piedmont Authority for Regional Transportation.

While much of the data and analyses presented in this equity 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,

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)
	2008 National Population Projections
	2010 TIGER/Line Shapefiles, 2010 Counties
Woods & Poole Economics, Inc.	2011 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
	Occupational Employment Statistics
Center for Neighborhood Technology	H+T Affordability Index
Georgetown University Center on Education and the Workforce	Recovery: Job Growth And Education Requirements Through 2020; State Report

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

while more regionally-specific data may be available for some indicators, the data in this profile draws 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 response 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 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. If the geography of the profiled region does not conform to the "official" metro area definitions used by the U.S. Office of Management and Budget, then we substitute the "custom" profiled region in place of the best corresponding official metro area(s). For example, for the profile created for the 12-county area served by the Piedmont Authority for Regional Transportation, we substitute the 12-county region in for the official Winston-Salem and Greensboro-High Point metropolitan areas.

• 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 analyses are 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 2006 through 2010 "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 2006 through 2010 files are from the ACS and cover only about 1 percent of the U.S. population each. The five-year ACS microdata file was used to improve the statistical reliability and to achieve a sample size that is comparable to that available in previous years.

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 (i.e., unweighted N < 100).

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 2006-2010 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 2006-2010 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 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 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 national projections from the U.S. Census Bureau of the population by race/ethnicity (the 2008 National Population Projections). However, because those projections are based on the 2000 census and the 2010 census has since been released, we made some minor adjustments to incorporate the recently released 2010 census results and to ensure consistency in the racial/ethnic categories included in our historical analysis of demographic change.

While our categorization of race/ethnicity includes a non-Hispanic other category (including other single race alone and those identifying as multiracial), the 2008 National Population Projections follow OMB 1997 guidelines and essentially distribute the non-Hispanic other single race alone group across the other defined racial ethnic categories. 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 by 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 the 2008 National Population Projections to get the projected number of people by race/ethnicity.

County and regional projections
Projections of the racial/ethnic composition by region and county are also presented. These are based on initial county-level projections from Woods & Poole Economics, Inc. However, given that they were made prior to the release of the 2010 Census, and they use a different categorization of race than we use, a careful set of adjustments were made to incorporate the recently released 2010 Census results and to ensure consistency with the racial/ethnic categories included in our

historical analysis of demographic change. Once all adjustments were made at the county level, the results were aggregated to produce a final set of projections at the regional and state levels.

Similar to the 1990 MARS file described above, the Woods & Poole projection follows the OMB Directive 15 race categorization, assigning all persons identifying as "other race" or multiracial to one of the 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 and multiracial group from each of these five categories. This was done by comparing the Woods & Poole projections for 2010 to the actual 2010 census results, figuring out the share of each racial ethnic group in the Woods & Poole data that was composed of others and multiracials in 2010, and applying it forward to later projection years. From these projections we calculated the county-level distribution by race/ethnicity in each

Data and methods
Adjustments made to demographic projections
(continued)

projection year for the five groups (white, black, Latino, Asian/Pacific Islander, and Native American), exclusive of others and multiracials.

To estimate the county-level "other" and multiracial share of the population 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 and 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 for the six-group racial/ethnic distribution in each county, which was then applied to projections of the total population by county from Woods & Poole to get projections of the number of people for each of the six racial/ethnic groups. Finally, these county-level projections were adjusted to match our

adjusted national projections by race/ethnicity using a simple iterative proportional fitting (IPF) procedure.

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, and no available county-level estimates for any year, 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. Because the regional definition used for this particular equity profile does not match the official metropolitan area definition used by BEA, the GRP data reported are an aggregation of our final county-level estimate of gross product across the counties contained in the region.

Adjustments at the state and national levels
While data on Gross State Product (GSP) are not reported directly in the equity 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.

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

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 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 18 and 34, 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

straight-line approach. Finally, we standardized the Woods & Poole 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 2010

The analysis on page 18 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 35 and jobs by opportunity level on page 28 are related and based on an analysis that seeks to classify occupations in the region by opportunity level.

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.

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 35 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 order to align closely with the occupation codes reported for workers in the American Community Survey microdata, making the analysis reported on page 28 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 excluded.

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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