PolicyLink

PERE
USC Program for Environmental & Regional Equity

An Equity Profile of the

Houston-Galveston Region

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Equity Profiles are products of a partnership between PolicyLink and PERE, the Program for Environmental and Regional Equity at the University of Southern California.

The views expressed in this document are those of PolicyLink and PERE, and do not necessarily represent those of the Houston-Galveston Regional Plan Coordinating Committee.

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Summary

This analysis of equity in the Houston-Galveston region finds that communities of color are driving the region's population growth and are essential to the region's economic success now and into the future. While the region demonstrates overall economic strength and resilience, wide racial gaps in income, health, and opportunity – coupled with declining wages, a shrinking middle class, and rising inequality – place its economic future at risk.

To secure a prosperous future, the region's leaders must take steps to build a more equitable and sustainable economy. Critical strategies include growing good jobs, connecting unemployed and low-wage workers to job training and career opportunities, and increasing access to economic opportunity throughout the region. Implementing these strategies would put all the region's residents on the path to reaching their full potential, bringing shared economic prosperity regionwide.

Introduction

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 characteristic – is an essential element of the plans.

Knowing how a region stands in terms of equity is a critical first step in planning for greater equity. To assist communities with that process, PolicyLink and the Program for Environmental and Regional Equity (PERE) developed an equity indicators framework that communities can use to understand and track the state of equity in their regions.

This document presents an equity analysis of the Houston-Galveston region. It was developed to help the Houston-Galveston Regional Plan Coordinating Committee effectively address equity issues throughout its process of planning for a more integrated and sustainable region. PolicyLink and PERE also hope this will be a useful tool for advocacy groups, elected officials, planners, and others.

The data in this profile are drawn from a regional equity database that includes data for 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 Survey, and Woods and Poole Economics. See the "Data and methods" section of this profile for a detailed list of data sources.

Introduction
Defining the region

Throughout this profile and data analysis, the Houston-Galveston region is defined as the 13-county area served by the Houston-Galveston Area Council and depicted on the map to the right. 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 beginning on page 83.

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 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 growth.[1]
- Companies with a diverse workforce achieve a better bottom-line.[2]
- A diverse population better connects to global markets.[3]

The way forward: an equity-driven growth model.

To secure America's prosperity, the United States 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, and the level where strategies are being incubated that bring about robust job growth that is linked to low-income communities and communities of color.

[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] 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.

[3] 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 their race/ethnicity/nativity, neighborhood of residence, or other characteristics – are fully able to participate in the region's economic vitality, contribute to the region's readiness for the future, and connect to the region's 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.

Introduction
Equity indicators framework

The indicators in this profile are presented in four sections. The first section describes the region's demographics. The next three sections present indicators of the region's economic vitality, readiness, and connectedness. Below are the questions answered within each of the four sections.

Demographics:
Who lives in the region and how is this changing?
- Racial/ethnic diversity
- Demographic change
- Population growth
- Racial generation gap

Economic Vitality:
How is the region doing on measures of economic growth and well-being?
- Is the region producing good jobs?
- Can all residents access good jobs?
- Is growth widely shared?
- Do all residents have enough income to sustain their families?
- Is race/ethnicity/nativity a barrier to economic success?
- What are the strongest industries and occupations?

Readiness:
How prepared are the region's residents for the 21st century economy?
- Does the workforce have the skills for the jobs of the future?
- Are all youth ready to enter the workforce?
- Are residents healthy?
- Are racial gaps in education and health decreasing?

Connectedness:
Are the region's residents and neighborhoods connected to one another and to the region's assets and opportunities?
- Do residents have transportation choices?
- Can residents access jobs and opportunities located throughout the region?
- Can all residents access affordable, quality, convenient housing?
- Do neighborhoods reflect the region's diversity? Is segregation decreasing?
- Can all residents access healthy food?

Demographics

Demographics
Highlights
Who lives in the region and how is it changing?

- Houston-Galveston is one of the nation's most diverse regions, with growing representation from all major racial/ethnic groups.
- The region has experienced dramatic growth and change over the past several decades, with the share of people of color increasing from 35 percent to 60 percent since 1980.
- Diverse communities, especially Latinos and Asians, are driving growth and change in the region and will continue to do so over the next several decades.
- The people-of-color population is growing rapidly in every county within the region, and by 2040 all but three counties will be majority people of color.
- There is a large and growing racial generation gap between the region's mainly white senior population and its increasingly diverse youth population.

People of color:

60%

Diversity rank
(out of largest 150 regions):

#9

Number of counties that are majority people of color:

5/13

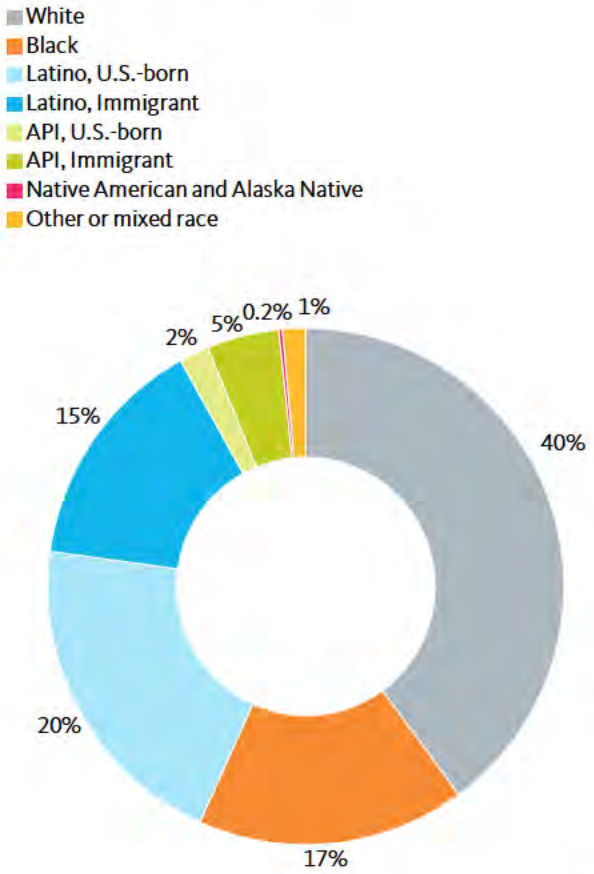
Demographics

One of the most diverse regions

Sixty percent of residents in the Houston-Galveston region are people of color, including many different racial and ethnic groups. The Asian population has a diversity of ethnic backgrounds: large groups include Vietnamese, Asian Indians, and Chinese/Taiwanese. The Latino population is predominantly of Mexican ancestry (78 percent), with a significant but much smaller share of people of Salvadoran ancestry.

Houston-Galveston is majority people of color

1. Race, Ethnicity, and Nativity, 2010



Sources: IPUMS; U.S. Census Bureau. 2006-2010 IPUMS data adjusted to match 2010 Census results.

Diverse Asian population and predominantly Mexican-Ancestry Latino population

2. Latino and Asian Populations by Ancestry, 2006-2010

Latino

Ancestry	Population
Mexican	1,562,052
Salvadoran	139,872
All other Latinos	288,922
Total	**1,990,846**

Asian/Pacific Islander

Ancestry	Population
Vietnamese	90,833
Asian Indian	82,088
Chinese or Taiwanese	68,174
Filipino	35,919
Pakistani	20,295
All other Asians	49,976
Total	**347,284**

Source: IPUMS.

Demographics

One of the most diverse regions

(continued)

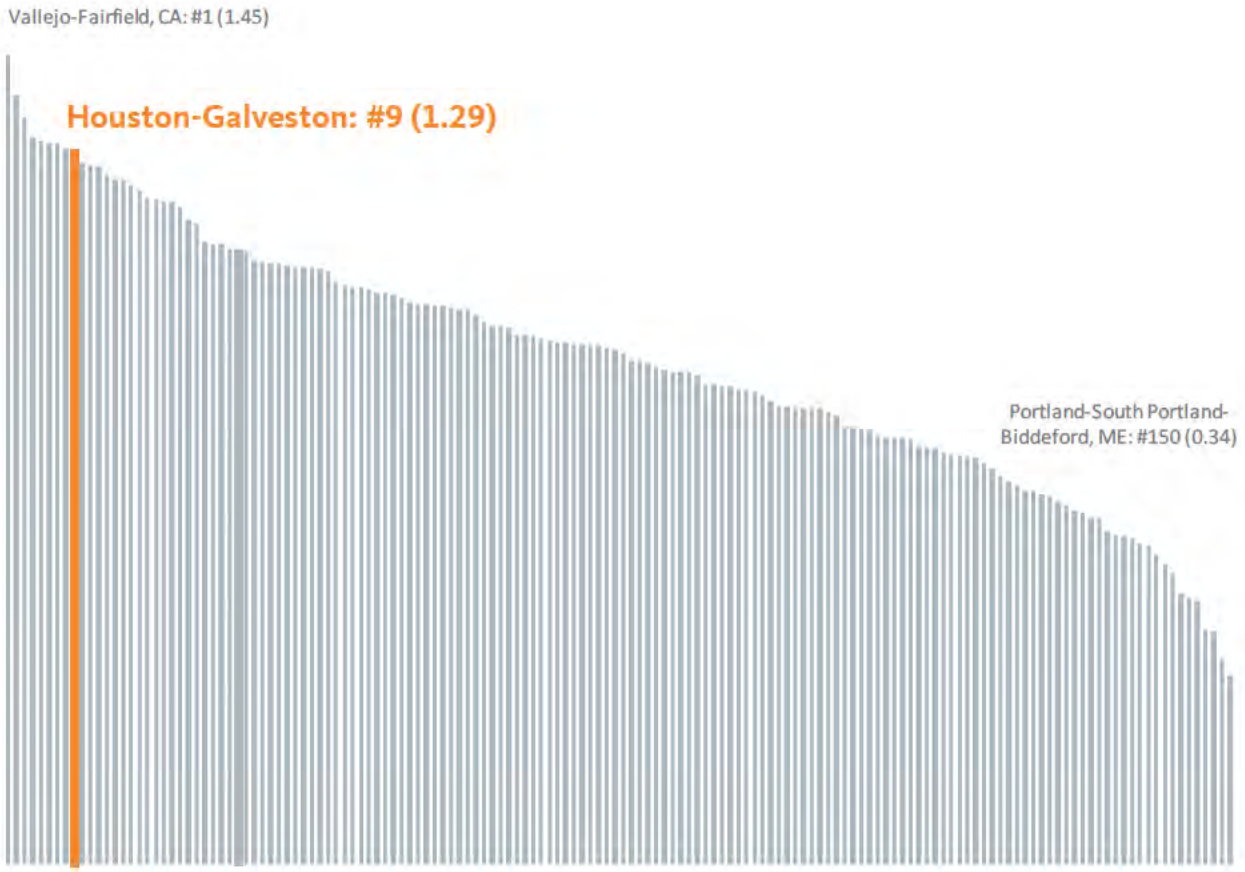
Houston-Galveston is the nation's ninth most diverse metropolitan region out of the largest 150 regions. Houston-Galveston has a diversity score of 1.29, making it more diverse than any similarly sized metro area in the South, including Dallas (1.23), Miami (1.21) and Atlanta (1.18).

The diversity score is a measure of racial/ethnic diversity a given area. It measures the representation of the six major racial/ethnic groups (white, black, Latino, API, Native American, and other/mixed race) in the population. The maximum possible diversity score (1.79) would occur if each group were evenly represented in the region – that is, if each group accounted for one-sixth of the total population.

Note that the diversity score describes the region as a whole and does not measure racial segregation, or the extent to which different racial/ethnic groups live in different neighborhoods. Segregation measures can be found on pages 66-67.

Houston-Galveston is the 9th most diverse region

3. Diversity Score in 2010: Largest 150 Metros Ranked



Source: U.S. Census Bureau.

Demographics

Dramatic growth and change over the past several decades

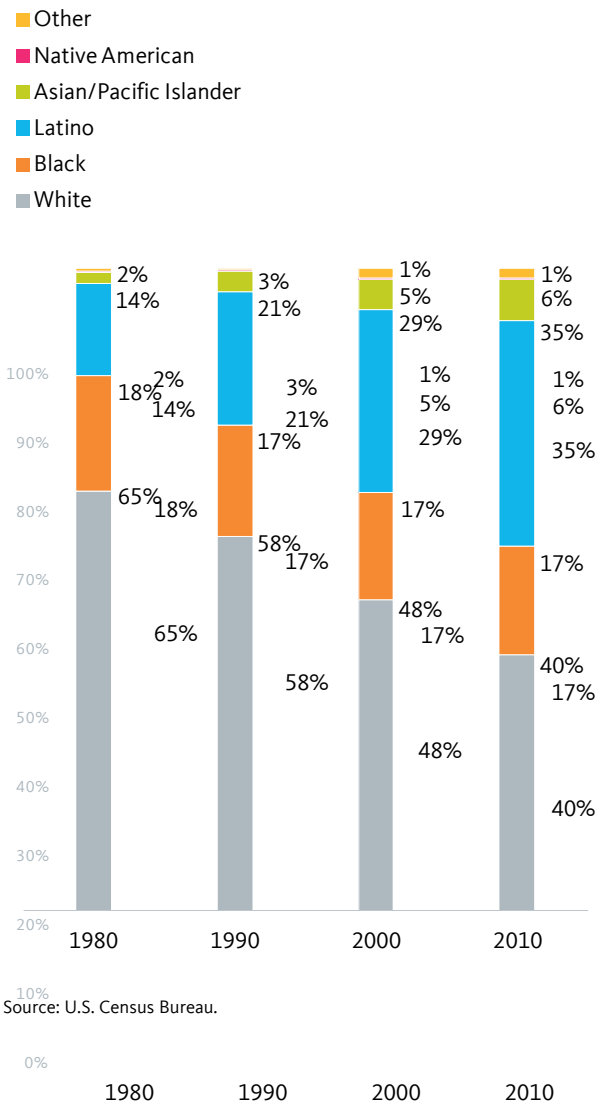
Houston-Galveston has experienced explosive population growth since 1980. It had the 32nd fastest growth rate among the largest 150 regions, growing from 3.3 million to 6.1 million.

In the same time period, it has become a majority people-of-color region, increasing from 35 percent people of color to 60 percent people of color.

People of color have driven the region's growth over the past three decades, contributing 79 percent of the growth in the 1980s, 92 percent of the growth in the 1990s, and 93 percent of the growth in the 2000s.

The population has rapidly diversified

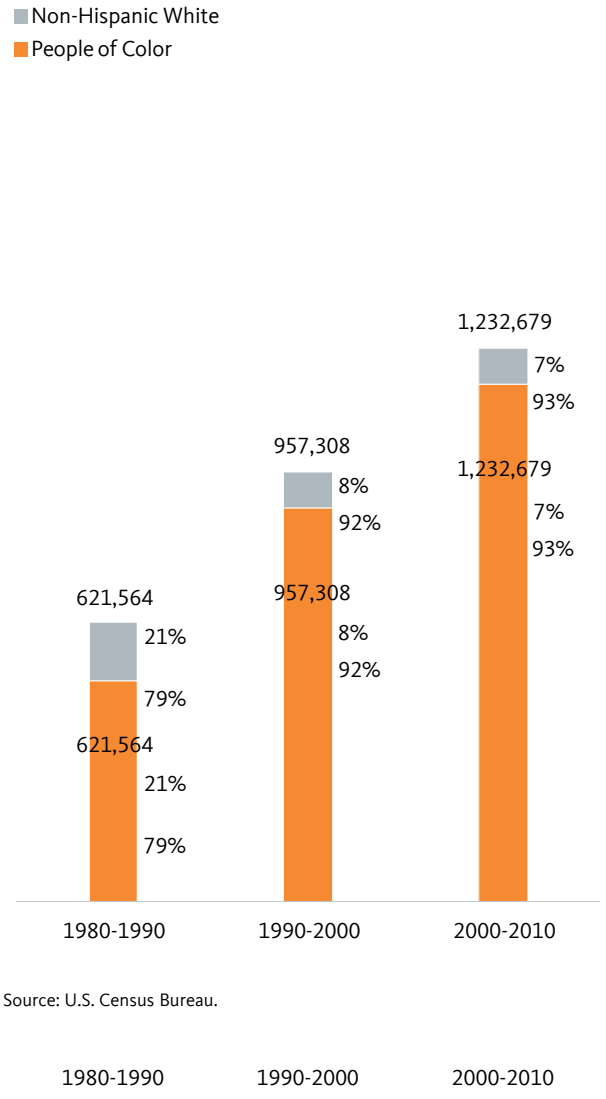
4. Racial/Ethnic Composition, 1980 to 2010



Source: U.S. Census Bureau.

People of color have driven the region's growth since 1980

5. Composition of Net Population Growth by Decade, 1980 to 2010



Source: U.S. Census Bureau.

Demographics

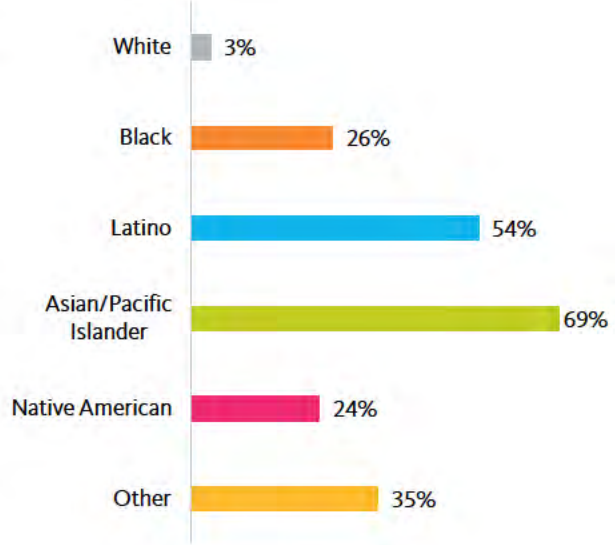
Latinos and Asians are leading the region's growth

Over the past decade, Houston-Galveston's Latino population grew 54 percent, adding 753,000 residents. The Asian population also grew rapidly – 69 percent – but because the Asian population share is smaller, the number of Asian residents only grew by 159,000. The African American and Native American populations both grew by about a quarter, and the non-Hispanic white population only grew by 3 percent (81,000 residents).

Most of the growth in the Latino population (62 percent) is not due to immigration but to new births among Latino U.S. residents. On the other hand, most of the growth in the Asian population (64 percent) came from immigrants.

The Latino and Asian populations experienced the most growth in the past decade, while the white population experienced the slowest growth

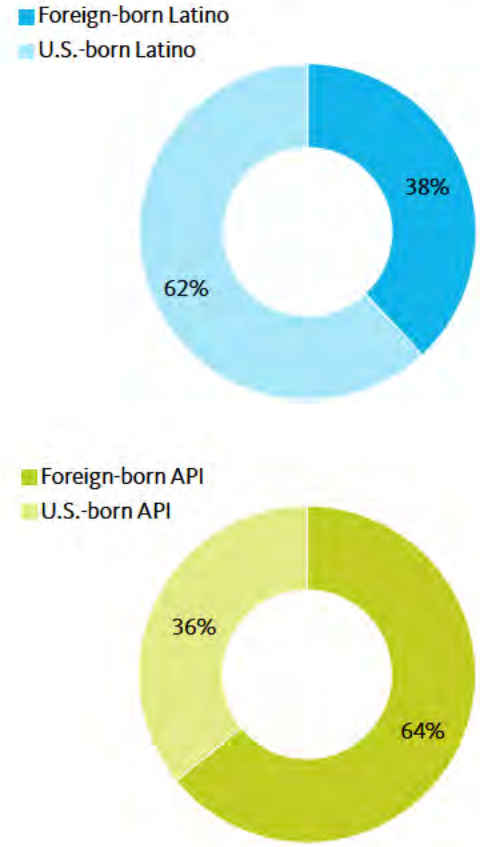
6. Growth Rates of Major Racial/Ethnic Groups, 2000 to 2010



Source: U.S. Census Bureau.

Latino population growth was mainly due to an increase in U.S.-born Latinos, while Asian population growth was largely due to immigration

7. Share of Net Growth in Latino and Asian Population by Nativity, 2000 to 2006-2010



Source: IPUMS.

Demographics

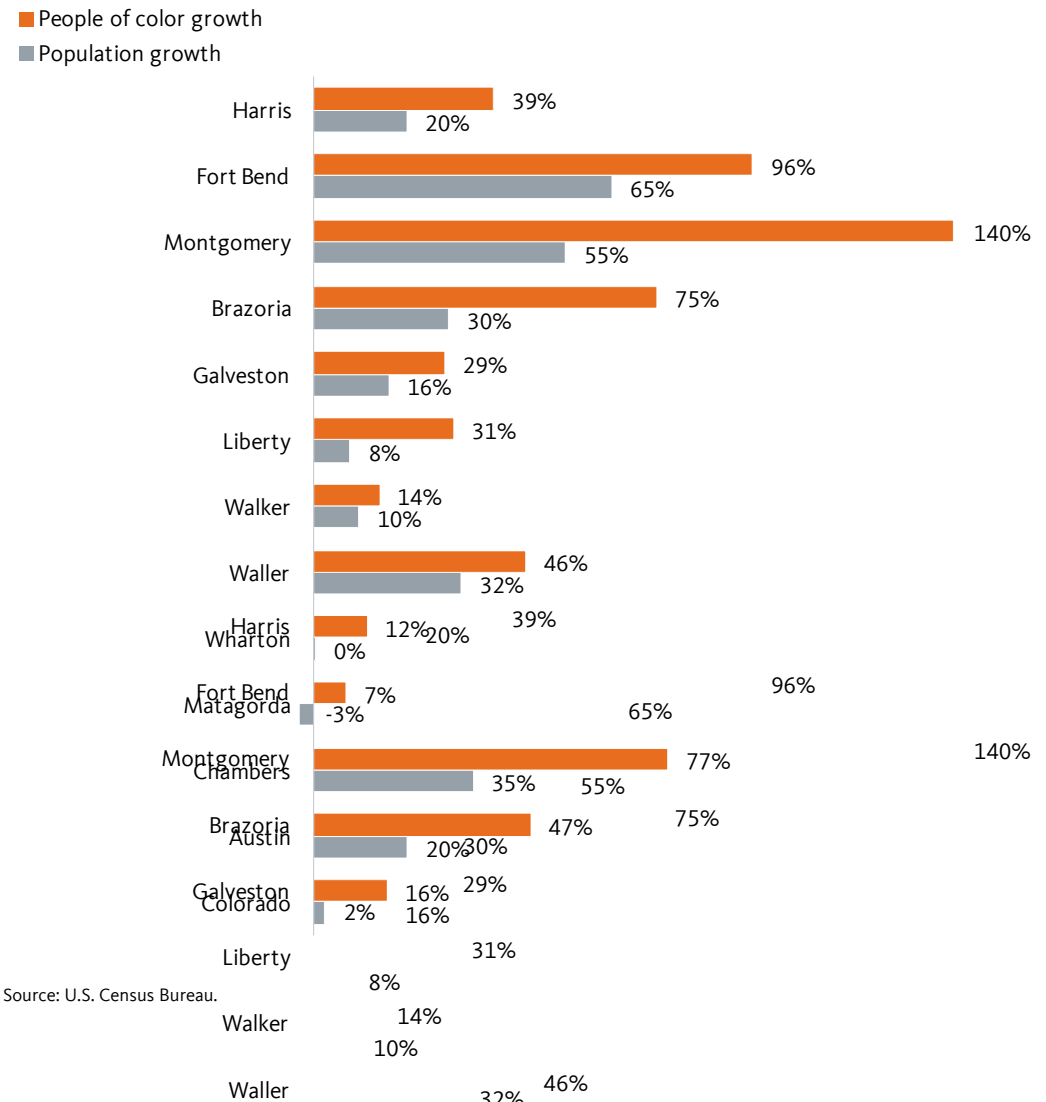
People of color are driving growth throughout the region

All but one county in the region experienced population growth over the past decade, and in every county within the region, the people-of-color population grew at a much faster rate than the population as a whole.

Harris County, home to 67 percent of the region's residents, grew 20 percent overall but its people-of-color population grew nearly twice as fast, at 39 percent. The counties bordering Harris (Fort Bend, Montgomery, Chambers, Waller, and Brazoria) had fast population growth and significant growth in their people-of-color populations. Outlying counties such as Colorado, Wharton, and Matagorda saw little, if any, population growth.

The people-of-color population is growing faster than the overall population in every county

8. Percent Change in Population, 2000 to 2010 (in descending order by 2010 population)



Source: U.S. Census Bureau.

Demographics

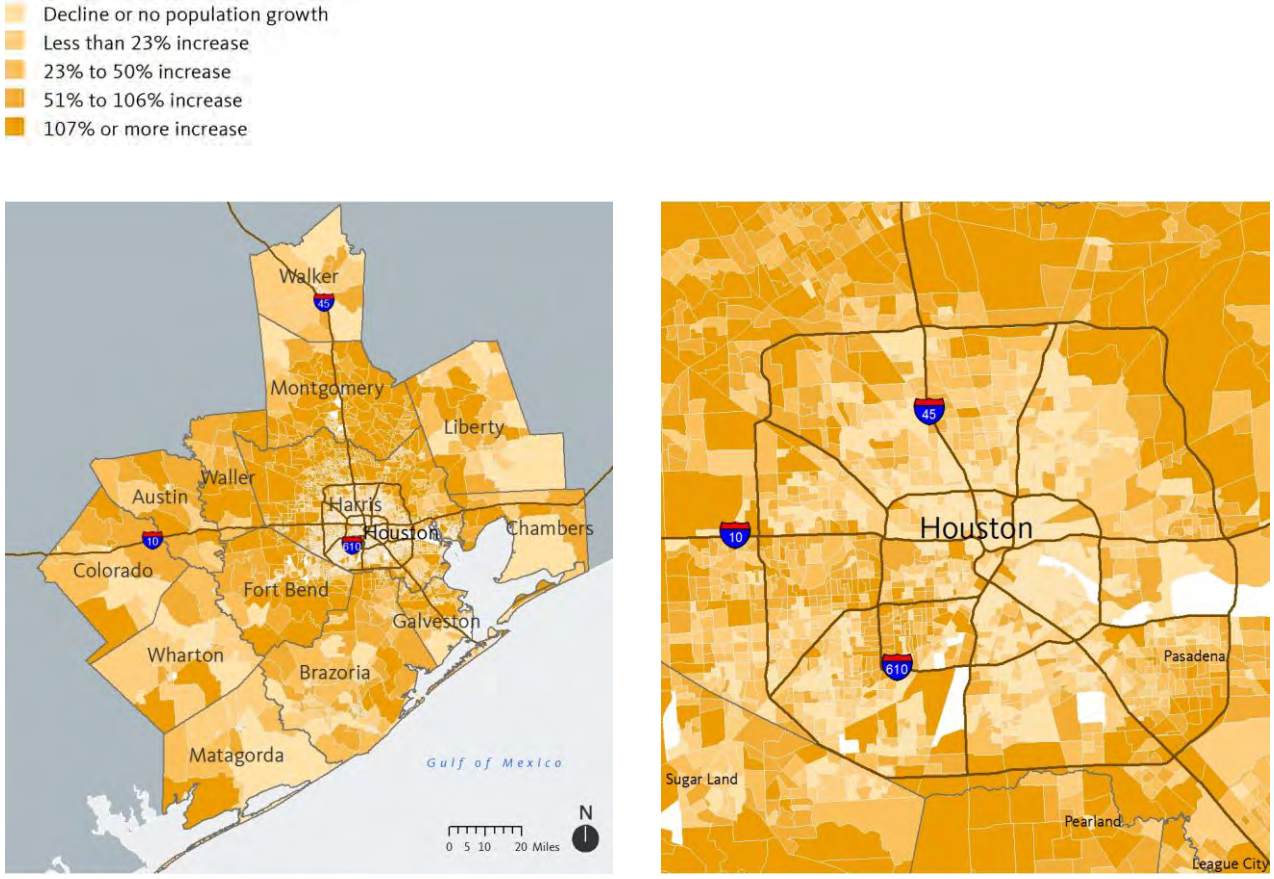
People of color are driving growth throughout the region

(continued)

Mapping the growth in people of color by census block group illustrates how rapidly growing communities of color can be found in every county in the region. Montgomery and Fort Bend Counties are home to many growing communities of color, and the people-of-color population has more than doubled in many block groups over the past decade. Growth in communities of color is slower in Harris County, except around its fringes, but the people-of-color population there is already large (67 percent).

Significant growth in communities of color throughout the region

9. Percent Change in People of Color by Census Block Group, 2000 to 2010



Sources: U.S. Census Bureau; Geolytics.
Note: To more accurately visualize change, block groups with a small populations (50 or fewer people in either 2000 or 2010) were excluded from the analysis. Excluded block groups are shaded in white.

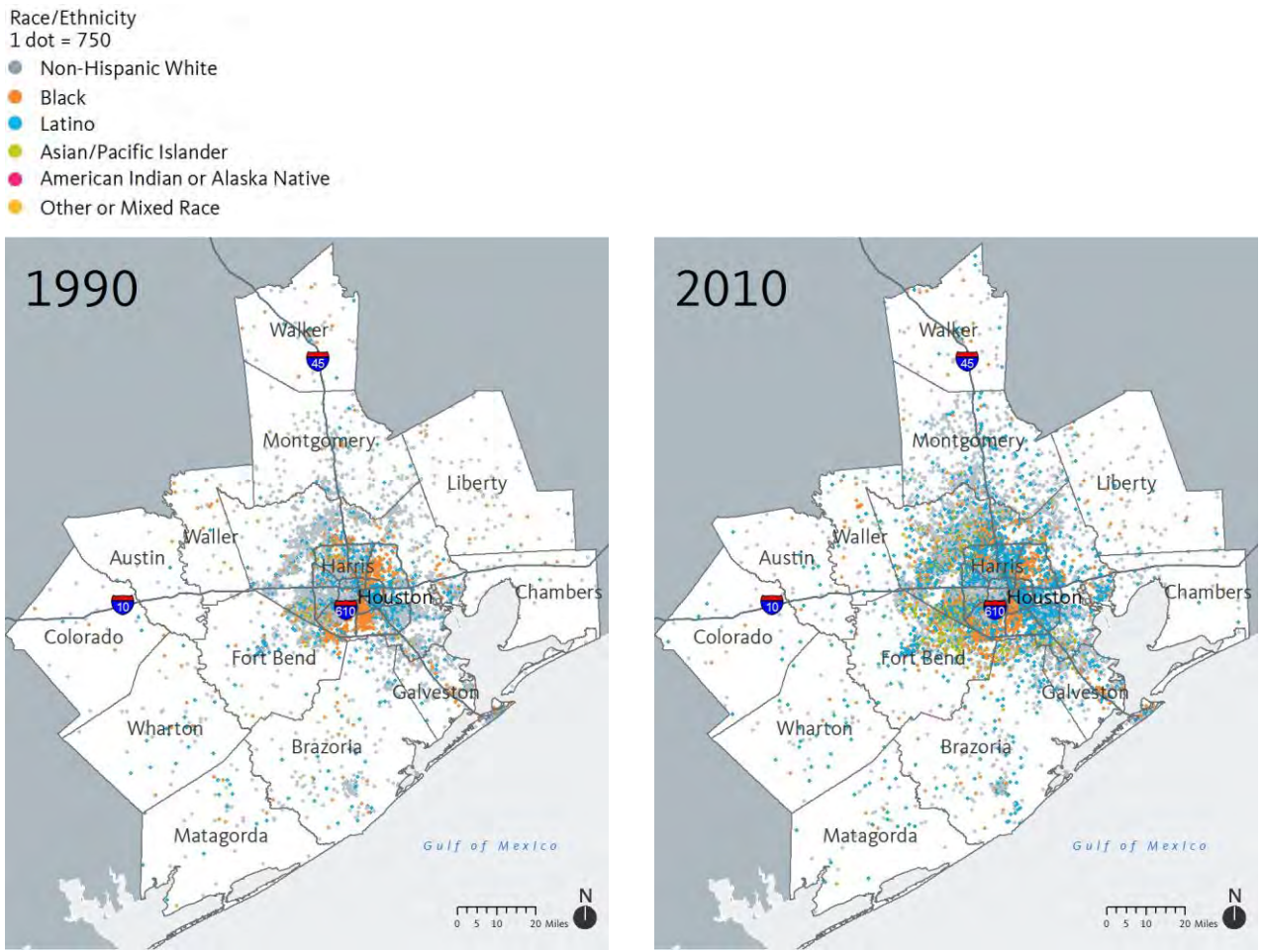
Demographics

Suburban areas are becoming more diverse

Since 1990, population growth has spread outward from Harris County, and that growth is also increasingly diverse. In most counties, all racial and ethnic groups are growing. In Fort Bend, for example, whites, African Americans, Asians, and Latinos all grew at roughly equal rates. Harris County, however, experienced a decline in its white population (by nearly 180,000), but saw increases in all other groups.

Diversity is spreading outwards

10. Racial/Ethnic Composition by Census Block Group, 1990 and 2010



Sources: U.S. Census Bureau; Geolytics.

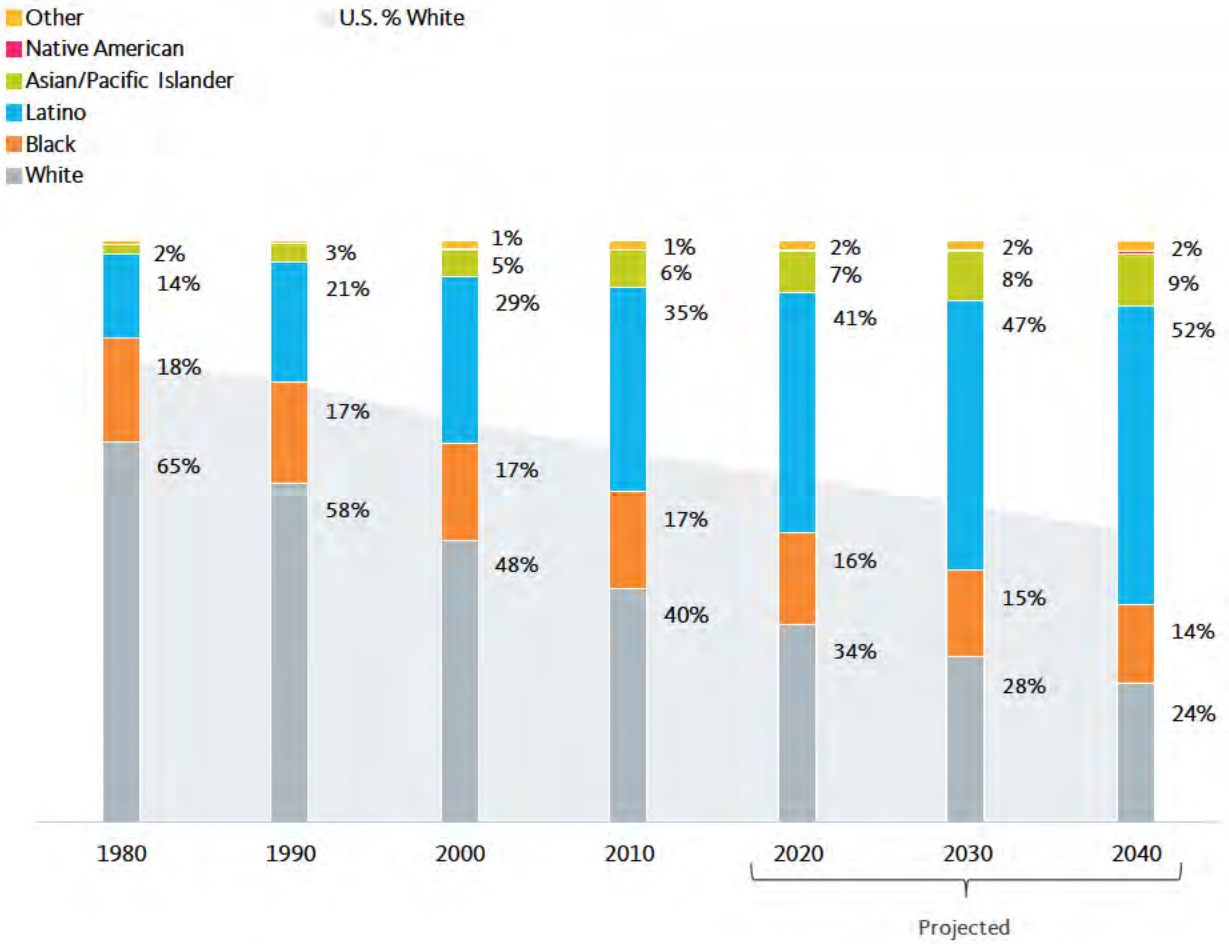
Demographics

At the forefront of the nation's demographic shift

The Houston-Galveston region has long been more diverse than the nation as a whole. While the country is projected to become majority people of color by the year 2043 Houston-Galveston passed this milestone in the 1990s. By 2040, 76 percent of the region's residents are projected to be people of color and the region will be majority Latino. This would rank the region 13th among the 150 largest metros in terms of their share of people of color.

The share of people of color is projected to increase through 2040

11. Racial/Ethnic Composition, 1980 to 2040



Sources: U.S. Census Bureau; Woods & Poole Economics.

Demographics

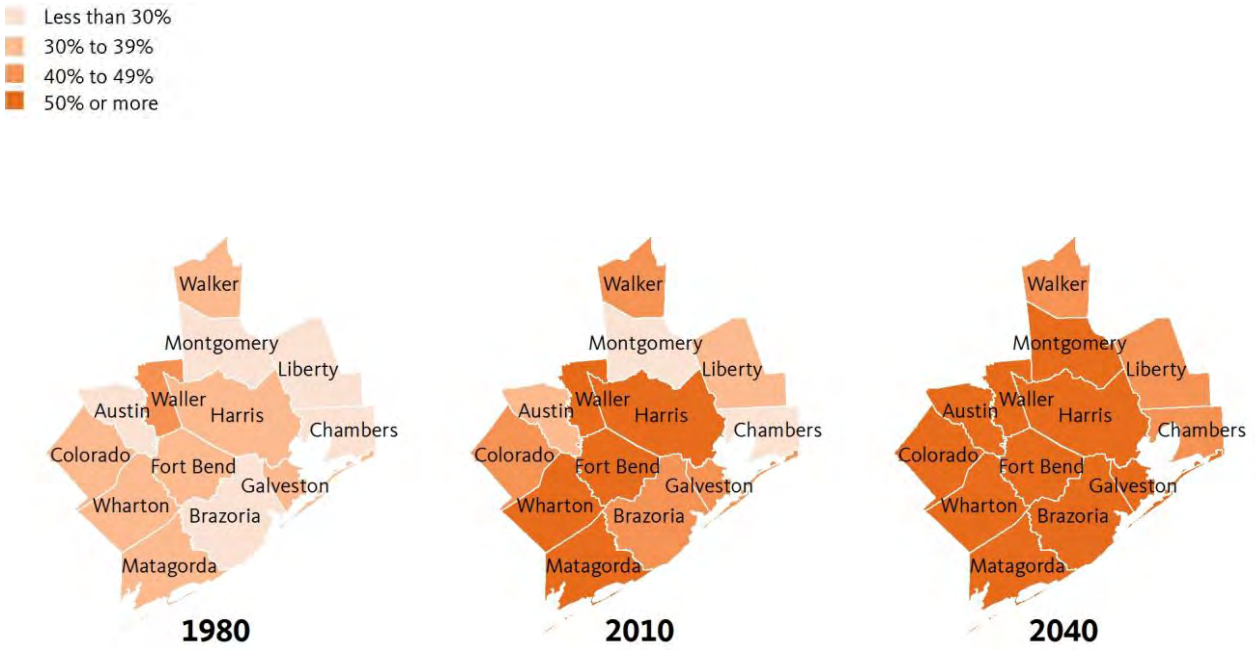
At the forefront of the nation's demographic shift

(continued)

In 1980, Houston-Galveston did not have a single county that was majority people of color. Now, Waller, Harris, Fort Bend, Wharton, and Matagorda Counties have majority people-of-color populations. By 2040, all but three counties will be majority people of color, with the other three counties nearing that milestone.

All but Walker, Liberty, and Chambers Counties will be majority people of color by 2040

12. Percent People of Color by County, 1980 to 2040



Sources: U.S. Census Bureau; Woods & Poole Economics.

Demographics

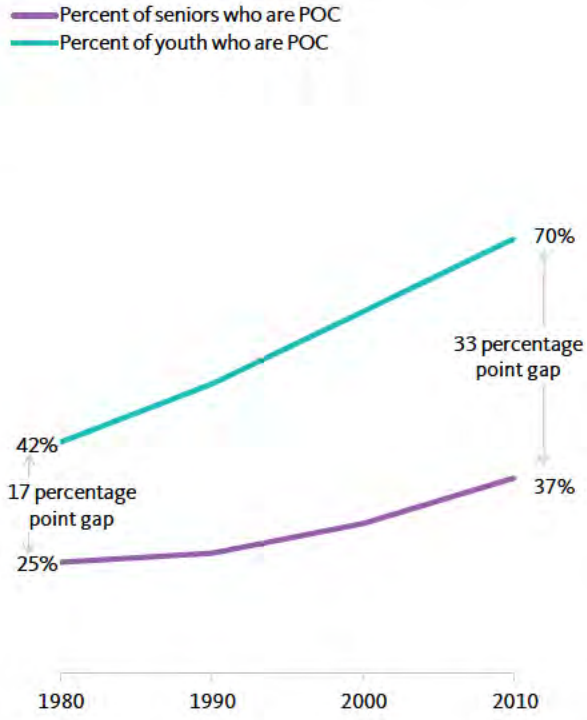
A growing racial generation gap

Youth are leading the demographic shift occurring in the region. Today, 70 percent of Houston-Galveston's youth (under age 18) are people of color, compared with 37 percent of the region's seniors (over age 64). This 33 percentage point difference between the share of people of color among young and old can be measured as the racial generation gap. Houston-Galveston's racial generation gap has nearly doubled since 1980.

The median age by race/ethnicity chart illustrates how the region's fast-growing Latino population is much more youthful than its white population, The median age of the Latino population is 26, which is 14 years younger than the median age of 40 for the white population. The region's black and other/mixed race populations are also younger than average.

The racial generation gap between youth and seniors has nearly doubled since 1980

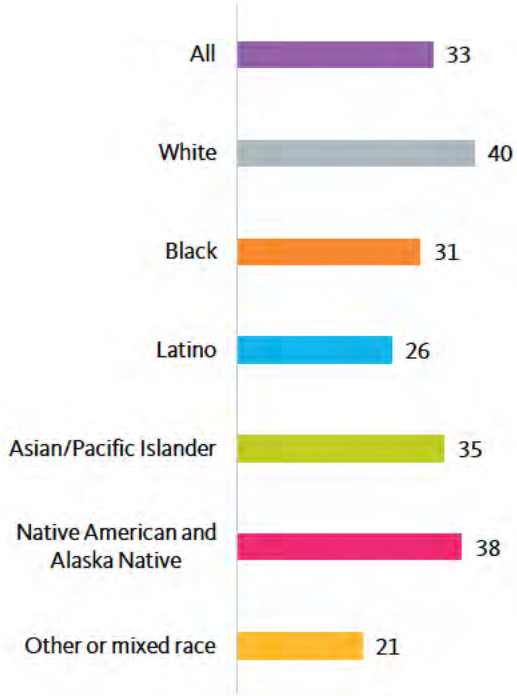
13. Percent People of Color (POC) by Age Group, 1980 to 2010



Source: U.S. Census Bureau.
Note: Gap value may not equal the difference in percentages shown due to rounding.

The region's Latinos, people of mixed racial backgrounds, and blacks are much younger than other groups

14. Median Age by Race/Ethnicity, 2006-2010



Source: IPUMS.

Demographics

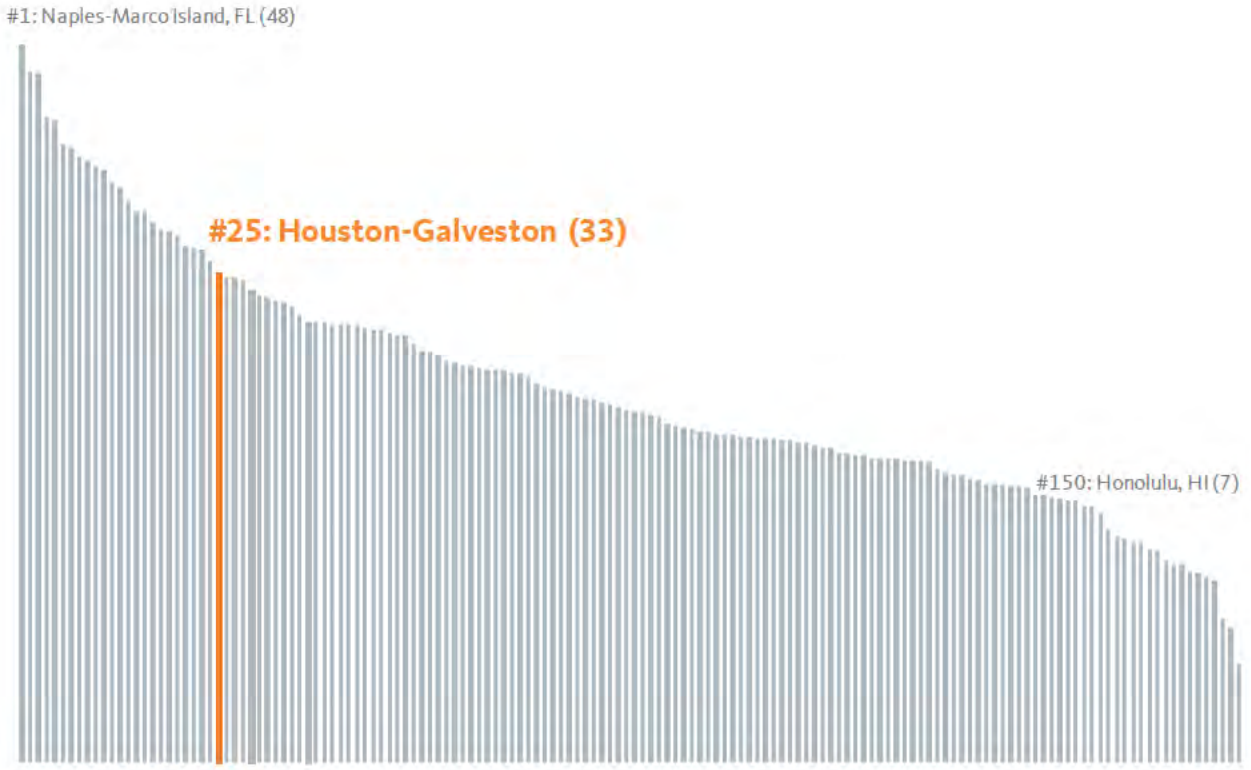
A growing racial generation gap

(continued)

Houston-Galveston's 33 percentage point racial generation gap is much larger than the national average (26 percentage points), ranking the region 25th among the largest 150 regions on this measure.

Houston-Galveston has a large racial generation gap

15. The Racial Generation Gap in 2010: Largest 150 Metros Ranked



Source: U.S. Census Bureau.

Economic vitality

Economic vitality

Highlights

How is the region doing on measures of economic growth and well-being?

- Houston-Galveston's economy has shown strong growth over the past few decades. However, amid rapid population growth, job growth is not keeping up.
- At the same time, income inequality has sharply increased in the region, and the majority of workers have seen their wages decline since 1979.
- Since 1990, poverty and working poverty rates in the region have exceeded national averages, and rates are highest for communities of color.
- Although education is a leveler, racial and gender gaps persist in the labor market. At nearly every level of educational attainment people of color have worse outcomes than whites, and both white women and women of color do worse that their male counterparts.

Percentage real wages dropped for bottom 10 percent (1979 to 2006-10):

-25%

Working poverty rank (out of largest 150 regions):

#11

Income inequality rank (out of largest 150 regions):

#13

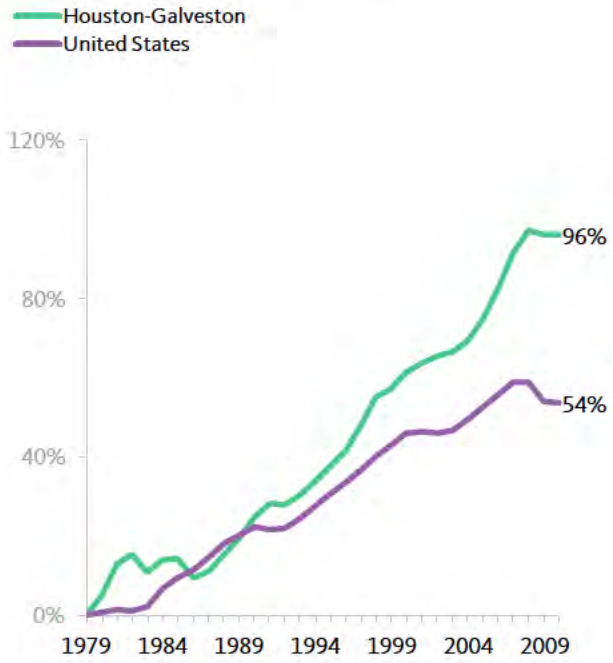
Economic vitality

Strong long-term economic growth

Economic growth, as measured by increases in jobs and Gross Regional Product (GRP) – the value of all goods and services produced within the region – has been consistently strong in Houston-Galveston over the past several decades. After a downturn in the mid-to-late 1980s, the region passed the national average in job growth in the early 1990s and GRP growth in the late 1990s, and has outperformed the nation since.

Job growth has consistently outpaced the national average since 1990

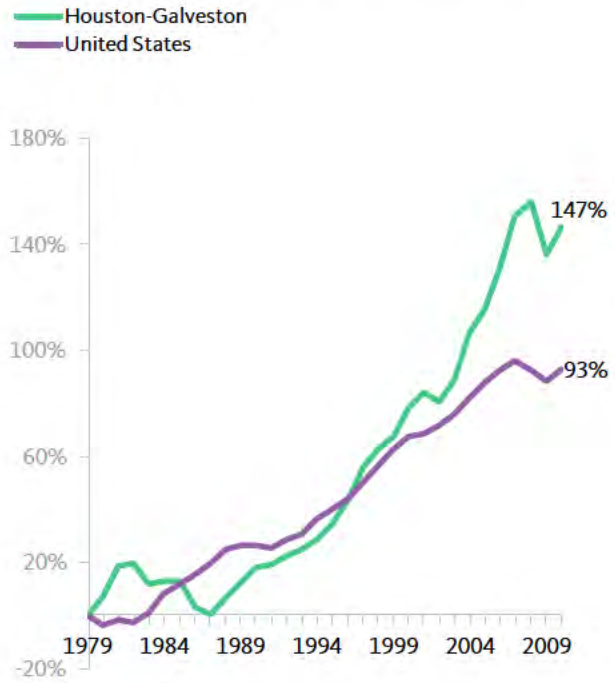
16. Cumulative Job Growth, 1979 to 2010



Source: U.S. Bureau of Economic Analysis.

Gross Regional Product (GRP) growth has outpaced the nation since 1997

17. Cumulative Growth in Real GRP, 1979 to 2010



Source: U.S. Bureau of Economic Analysis.

Economic vitality

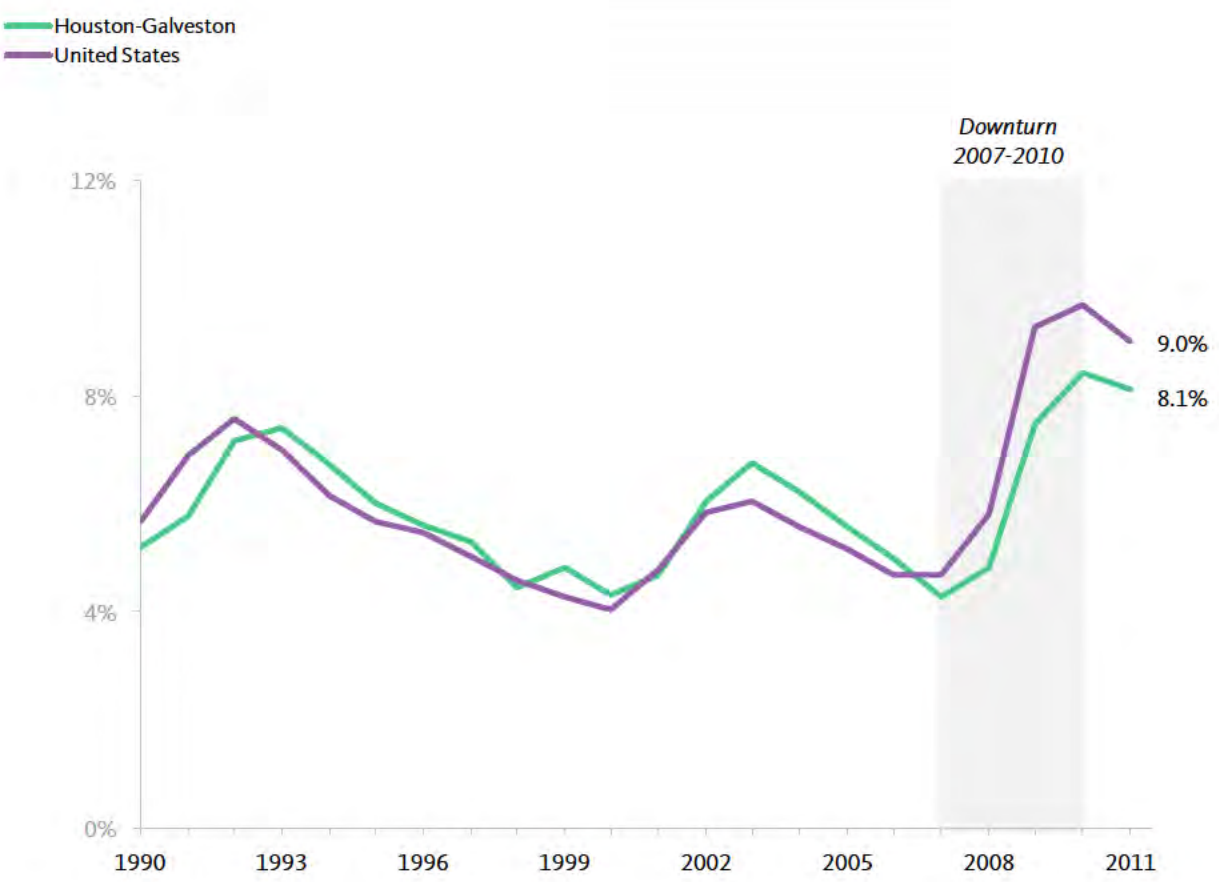
Economic resilience through the downturn

Houston-Galveston's economy showed signs of resilience during the economic downturn. Despite a sharp rise in unemployment during the 2007 to 2010 downturn, unemployment remains below the national average.

According to recent data from the Brookings Institution, the region's positive performance has continued since the end of the recession. As of March 2013, Houston-Galveston ranks 7th among the 100 largest regions in its economic recovery, based on measures of employment, unemployment, GRP, and housing prices.

Unemployment remains below the national average

18. Unemployment Rate, 1990 to 2011



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

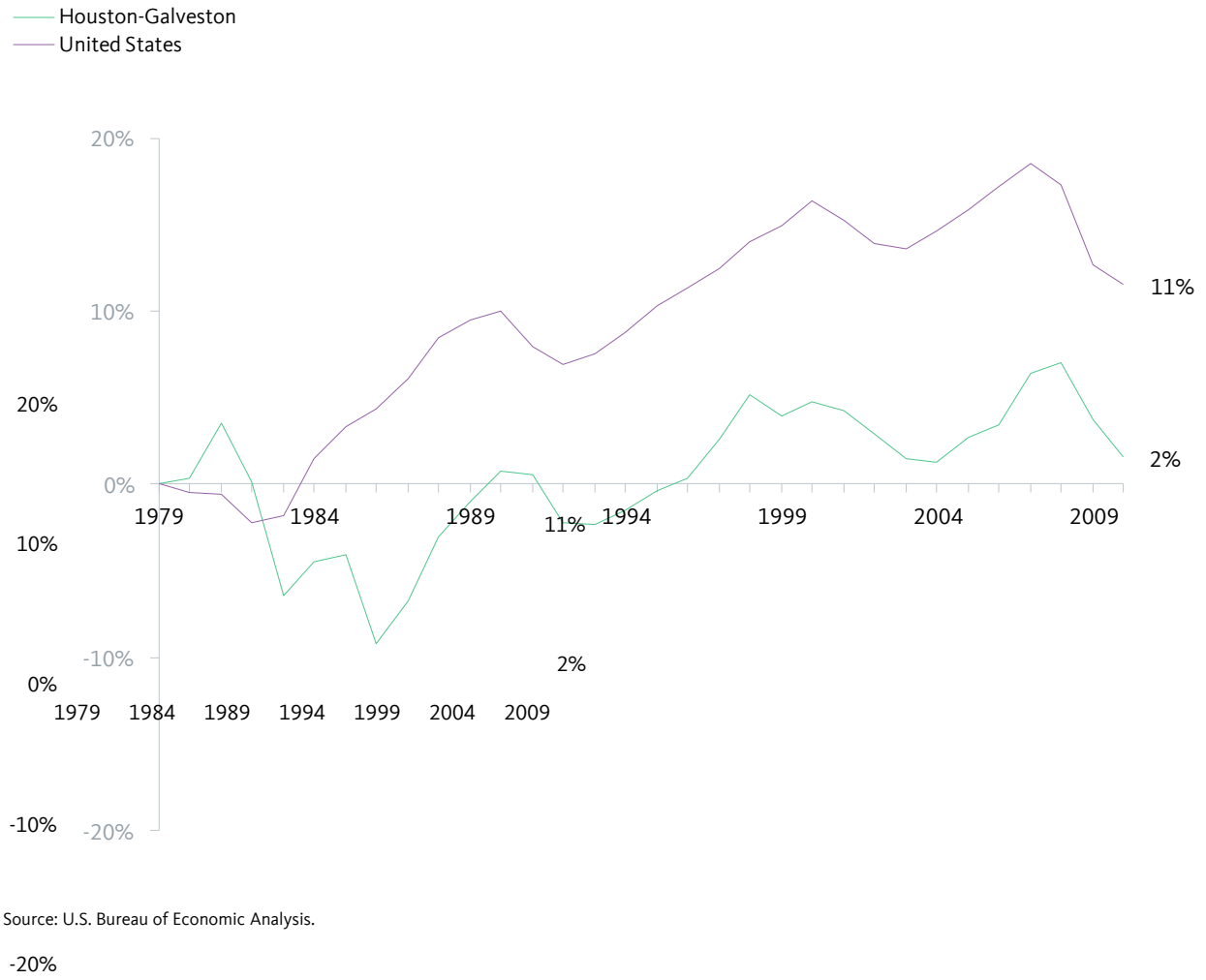
Economic vitality

Job growth is not keeping up with population growth

While overall job growth is essential, the real question is whether jobs are growing at a fast enough pace to keep up with population growth. Despite the region's strong job growth, job growth per person has been slower than the national average for the past few decades. The number of jobs per person has only increased by 2 percent since 1979, while it has increased by 11 percent for the nation overall.

Job growth relative to population growth has been lower than the national average since 1983

19. Cumulative Growth in Jobs-to-Population Ratio, 1979 to 2010



Source: U.S. Bureau of Economic Analysis.

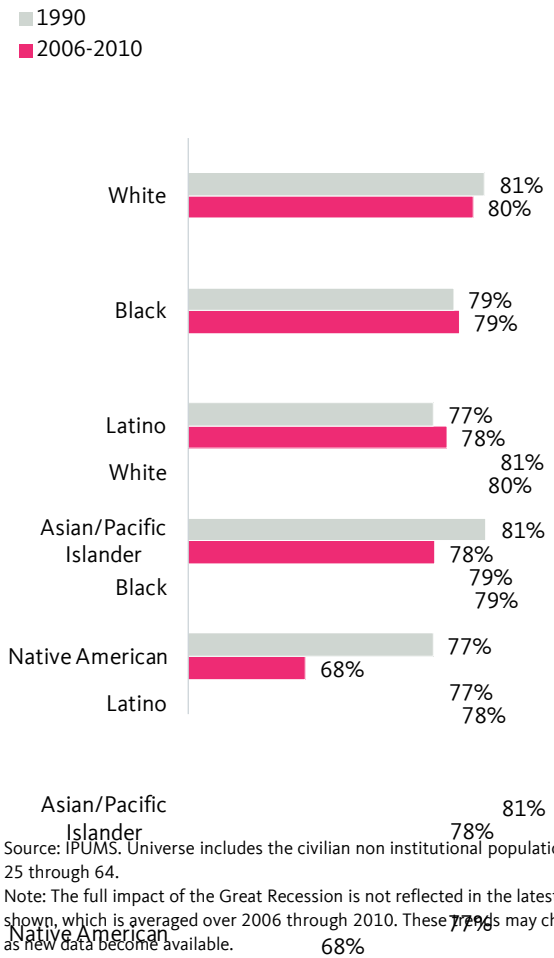
Economic vitality

Unemployment higher for people of color

Another key question is who is getting the region's jobs? Examining unemployment by race over the past two decades, we find that, despite some progress, racial employment gaps persist in the Houston-Galveston region. With the notable exception of Native Americans, all the region's racial and ethnic communities participate in the labor force (either working or actively seeking employment) at similar rates, but African Americans, Latinos, and Native Americans face much higher levels of unemployment compared with whites and Asians.

Most of the region's racial/ethnic groups participate in the labor market at similar rates

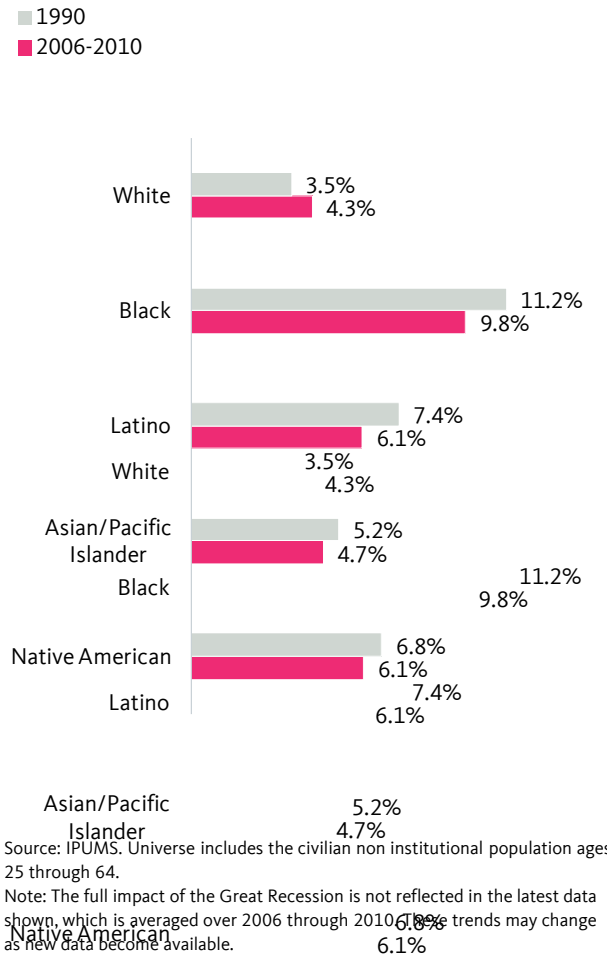
20. Labor Force Participation Rate by Race/Ethnicity, 1990 and 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64.
Note: The full impact of the Great Recession is not reflected in the latest data shown, which is averaged over 2006 through 2010. These trends may change as new data become available.

All communities of color have higher unemployment rates than whites

21. Unemployment Rate by Race/Ethnicity, 1990 and 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64.
Note: The full impact of the Great Recession is not reflected in the latest data shown, which is averaged over 2006 through 2010. These trends may change as new data become available.

Economic vitality

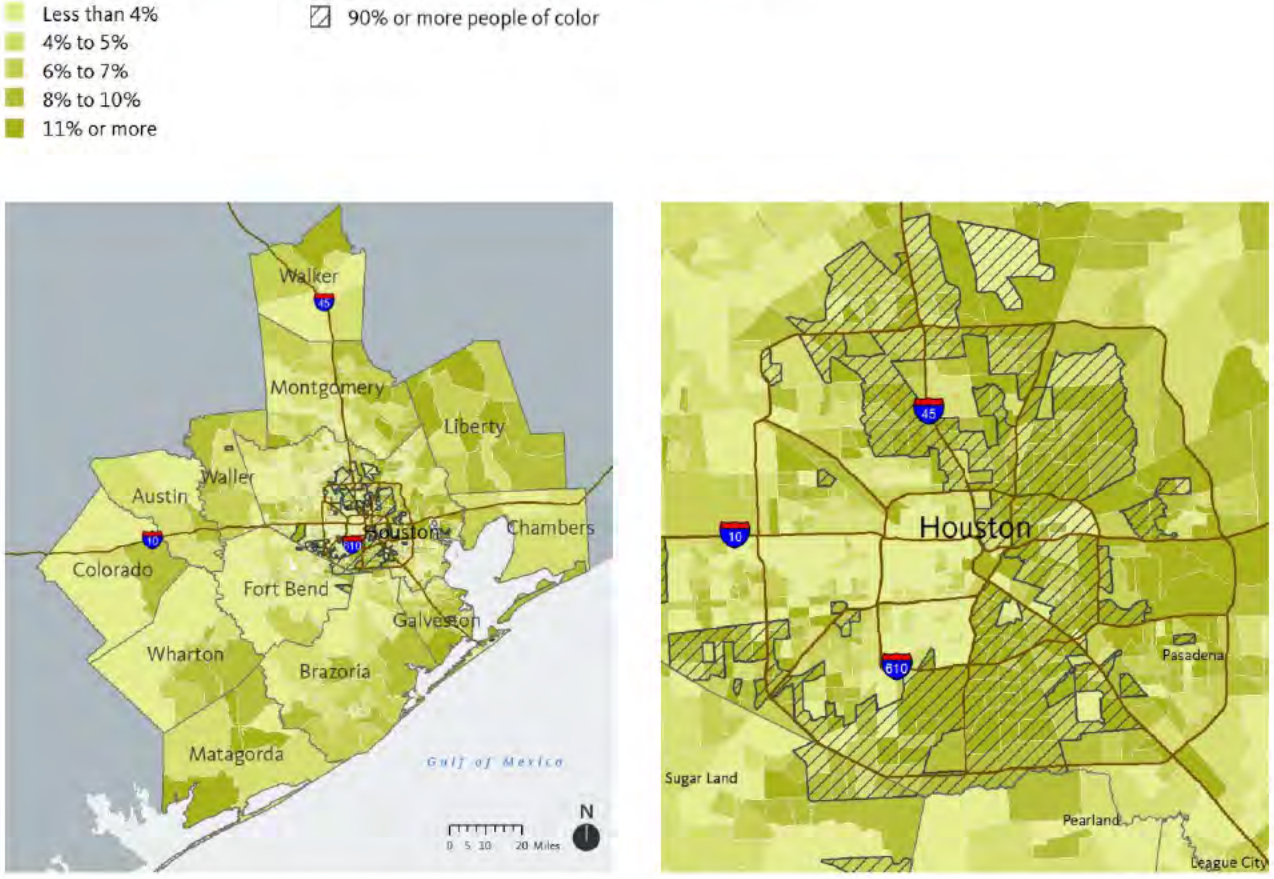
High unemployment in urban communities of color and rural areas

Knowing where high-unemployment communities are located in the region can help the region's leaders develop targeted solutions.

As the maps to the right illustrate, concentrations of unemployment exist in communities of color in Harris County as well as in rural communities located in Liberty, Waller, and Galveston Counties on the outskirts of the region. One in four of the region's unemployed residents live in neighborhoods where at least 90 percent of residents are people of color.

Clusters of unemployment can be found in Harris County, communities of color, and rural areas

22. Unemployment Rate by Census Tract and High People-of-Color Tracts, 2006-2010



Source: U.S. Census Bureau. Areas in white are missing data.
Note: One should keep in mind when looking at this map and other maps displaying a share or rate that while there is wide variation in the size (land area) of the census tracts in the region, each has a roughly similar number of people. Thus, a large tract on the region's periphery likely contains a similar number of people as a seemingly tiny tract in the urban core, and so care should be taken not to assign an unwarranted amount of attention to large tracts just because they are large.

Economic vitality

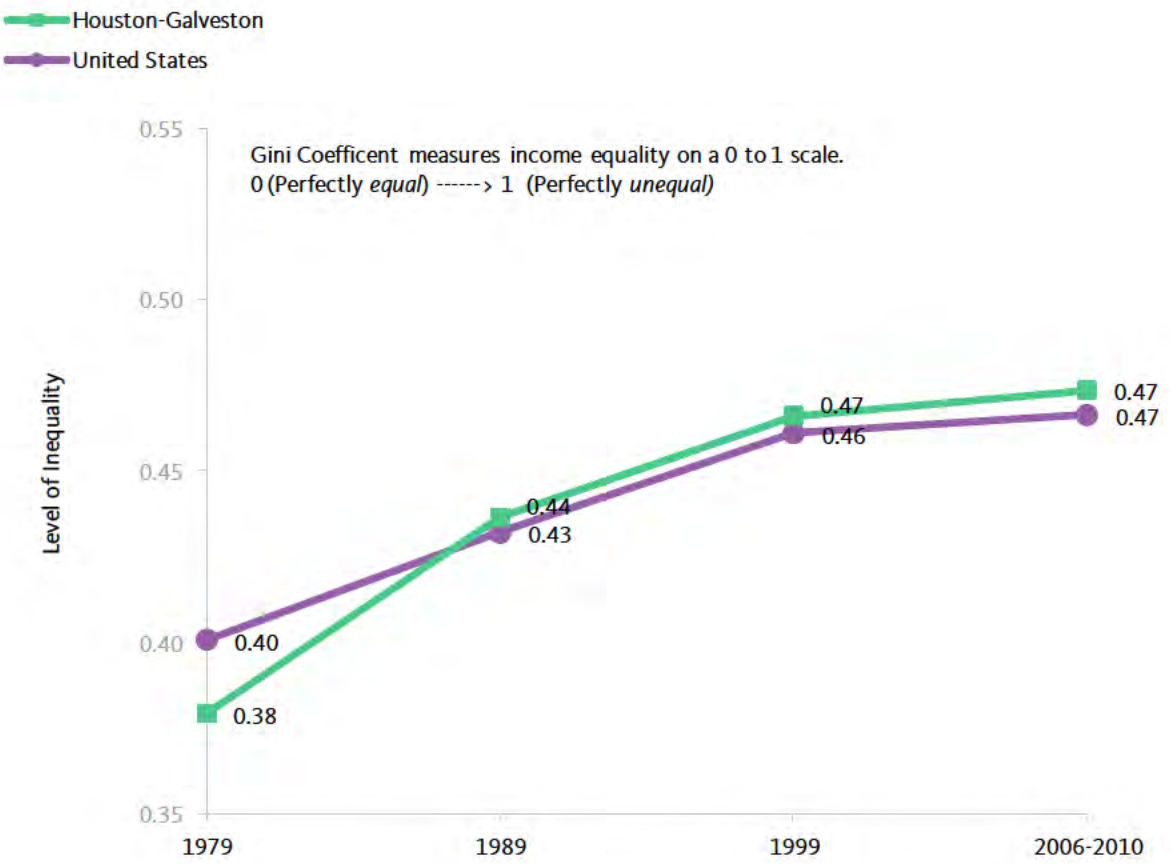
Increasing income inequality

Income inequality has grown sharply in the region over the past 30 years, and at a faster rate than the nation as a whole.

Inequality here is measured by the Gini coefficient, which is the most commonly used measure of inequality. The Gini coefficient measures the extent to which the income distribution deviates from perfect equality, meaning that every household has the same income. The value of the Gini coefficient ranges from zero (perfect equality) to one (complete inequality, one household has all of the income).

Household income inequality has increased sharply since 1979

23. Gini Coefficient, 1979 to 2006-2010



Source: IPUMS. Universe includes all households (no group quarters).

Economic vitality

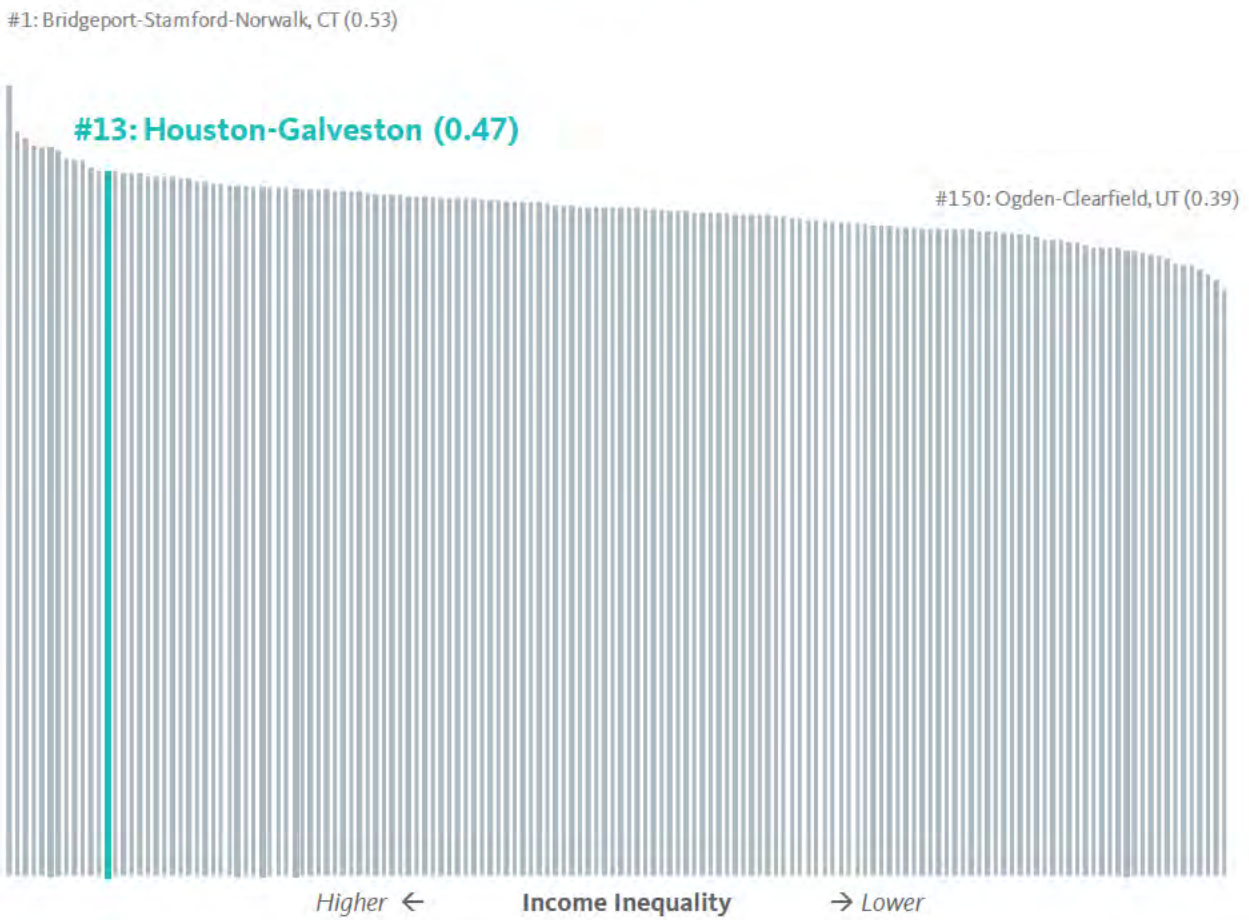
Increasing income inequality

(continued)

In 1979, Houston-Galveston ranked 100th out of the largest 150 regions in terms of income inequality. Today, it ranks 13th, leaving it between El Paso (12th) and Mobile, AL (14th). This represents the 3rd largest increase among the largest 150 metros. Compared with other similarly sized metros in the South, the level of inequality in Houston-Galveston is slightly higher than Dallas (0.46) or Atlanta (0.45) but lower than Miami (0.49).

Houston-Galveston's inequality rank is 13th compared with other regions

24. The Gini Coefficient in 2006-2010: Largest 150 Metros Ranked



Source: IPUMS. Universe includes all households (no group quarters).

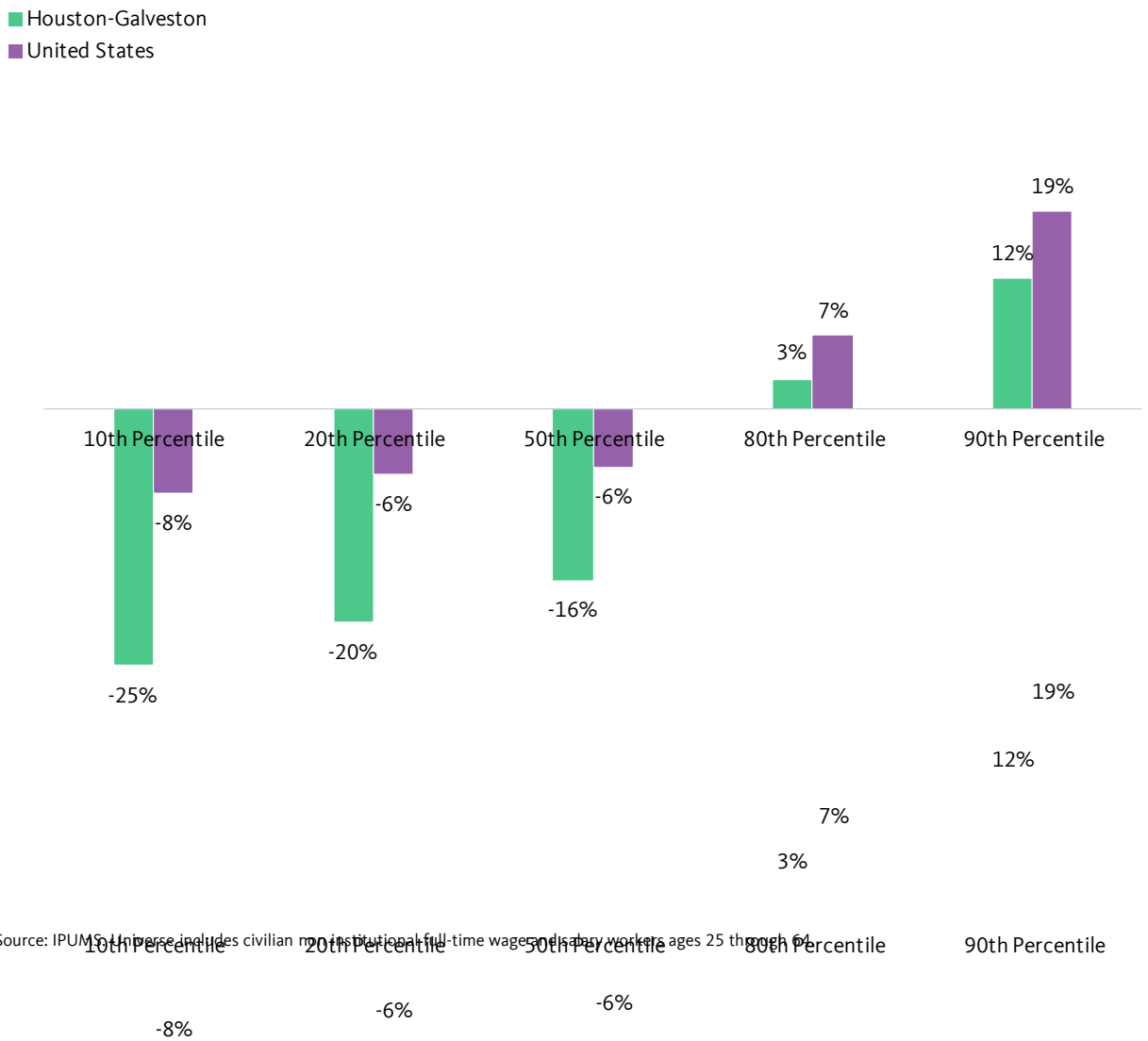
Economic vitality

Declining or stagnant wages for most workers

Declining wages play an important role in the region's increasing inequality. After adjusting for inflation, wages have declined or stagnated for the vast majority of Houston-Galveston's workers over the past three decades. Wage decline has been more severe in the region than it has been nationwide, and it has been steepest for the lowest-paid workers. Wages fell 25 percent for workers in the 10th percentile (earning less than 90 percent of all workers), and 20 percent for those in the 20th percentile, while wages increased by 12 percent for workers in the 90th percentile.

Wages drop or stagnate for the majority of full-time workers

25. Real Earned Income Growth for Full-Time Wage and Salary Workers Ages 25-64, 1979 to 2006-2010



Source: IPUMS. Universe includes civilian non-institutional full-time wage and salary workers ages 25 through 64.

Economic vitality

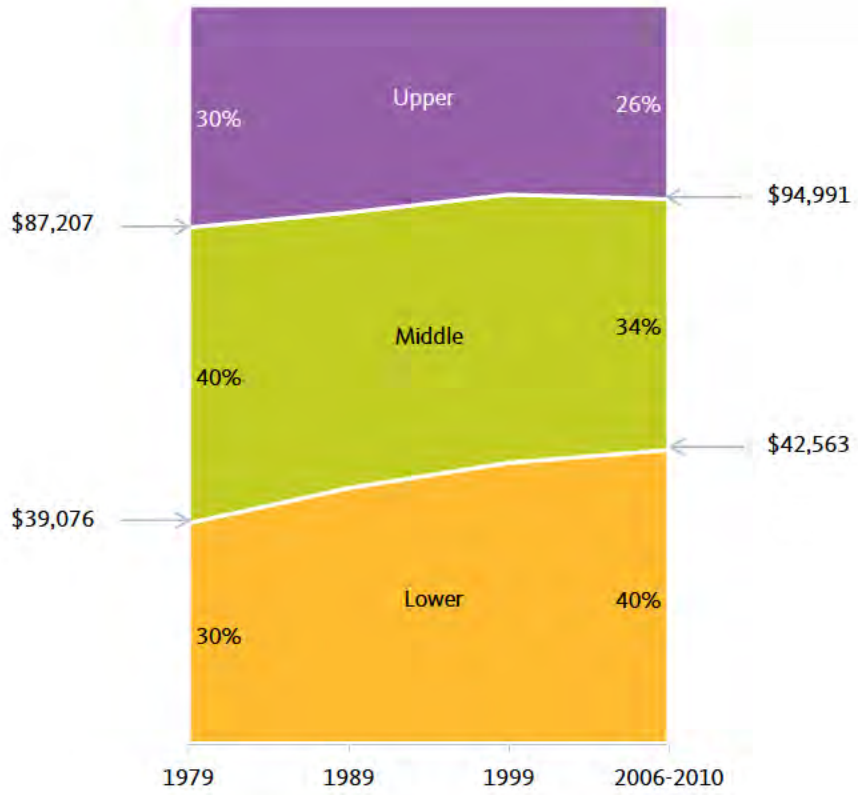
A shrinking middle class

Houston-Galveston's middle class is shrinking: since 1979, the share of households with middle-class incomes decreased from 40 to 34 percent. The share of upper-income households also declined, from 30 to 26 percent, while the share of lower-income households grew from 30 to 40 percent.

In this analysis, middle-income households are defined as having incomes in the middle 40 percent of household income distribution. In 1979, those household incomes ranged from $39,076 to $87,027. To assess change in the middle class and the other income ranges, we calculated what the income range would be today if incomes had increased at the same rate as average household income growth. Today's middle class incomes would be $42,563 to $94,991, and 34 percent of households fall in that income range.

The share of middle-class households declined since 1979

26. Household by Income Level, 1979 and 2006-2010 (all figures in 2010 dollars)



Source: IPUMS. Universe includes all households (no group quarters).

Economic vitality

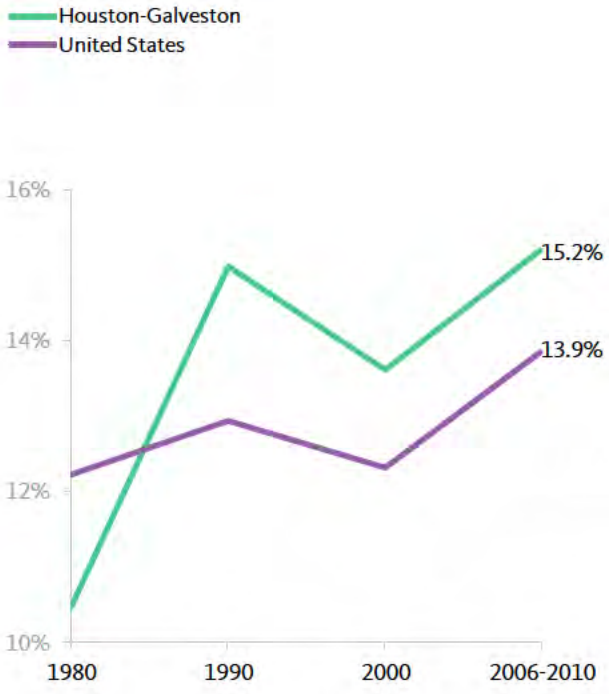
Growing poverty and working poverty

Poverty has increased rapidly in Houston-Galveston over the past 30 years, and has surpassed the national average since 1990. Today, about one in every six Houston-Galveston residents (15.2 percent) live below the poverty line, which is about $22,000 a year for a family of four.

Working poverty, defined as working full-time with an income below 150 percent of the poverty level, has also risen sharply in the region. One in every fifteen of the region's 25 to 64-year-olds are working poor (6.4 percent).

Higher than average poverty since 1990

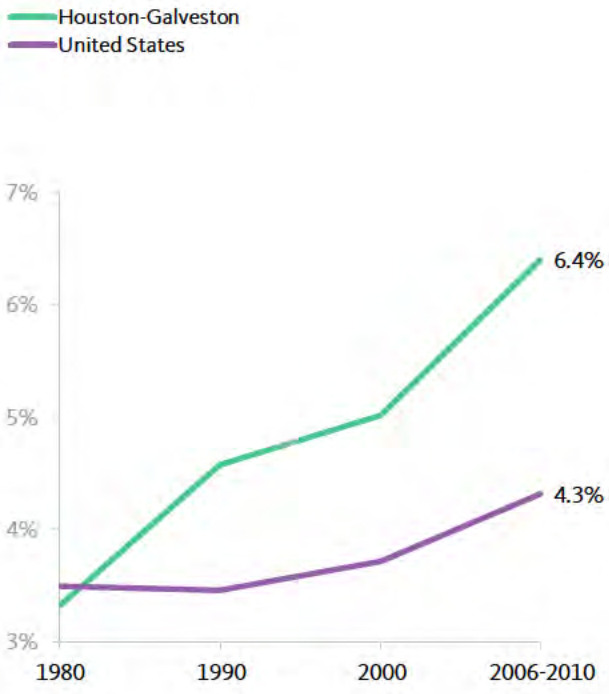
27. Poverty Rate, 1980 to 2006-2010



Source: IPUMS. Universe includes all persons not in group quarters.

Higher than average working poverty since 1990

28. Working Poverty Rate, 1980 to 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64 not in group quarters.

Economic vitality

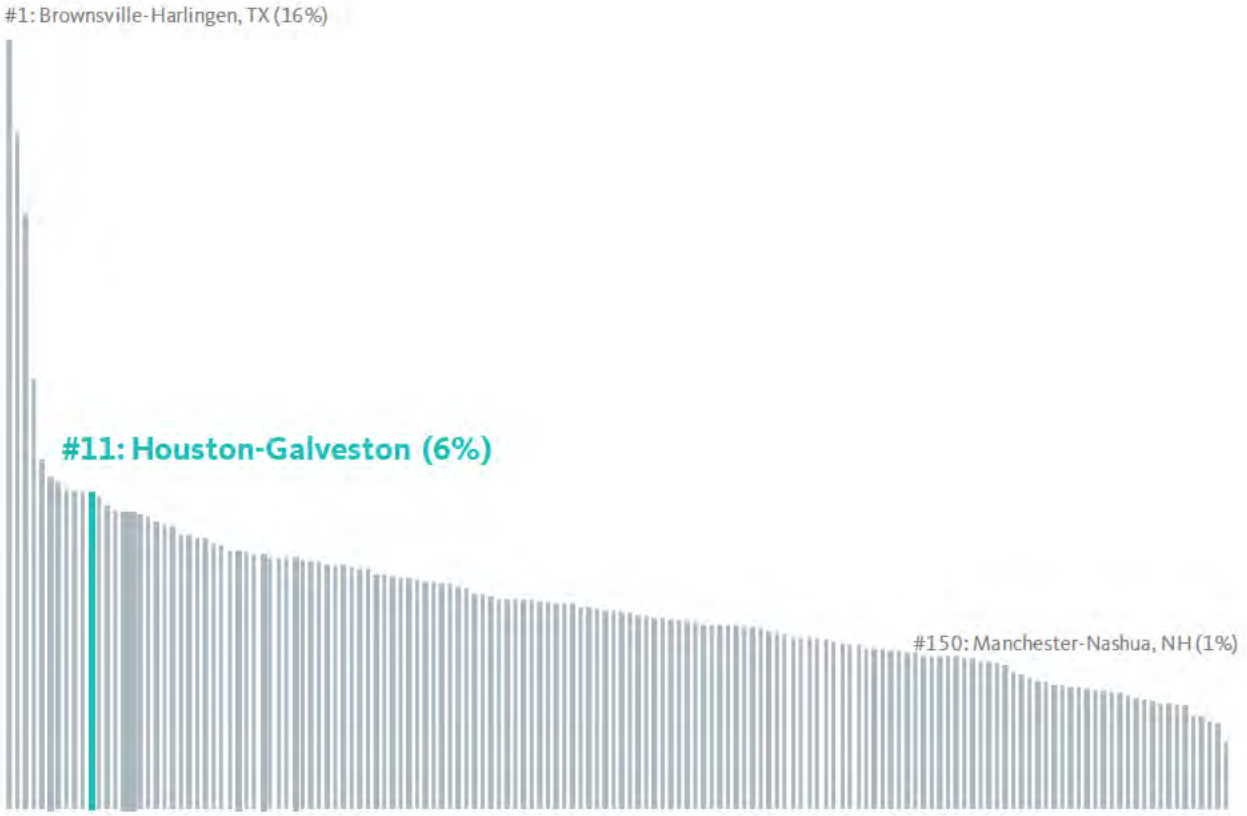
Growing poverty and working poverty

(continued)

Houston-Galveston has the 11th highest rate of working poverty among the largest 150 metros. Its poverty rate places it 39th out of 150. Overall to other similarly sized metros in the South, the working poverty rate in Houston-Galveston (6.4 percent) is slightly higher than Dallas and Miami (both 6 percent), and much higher than Atlanta (4.2 percent).

Houston-Galveston has the 11th highest working poverty rate

29. Working Poverty Rate in 2006-2010: Largest 150 Metros Ranked



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64 not in group quarters.

Economic vitality

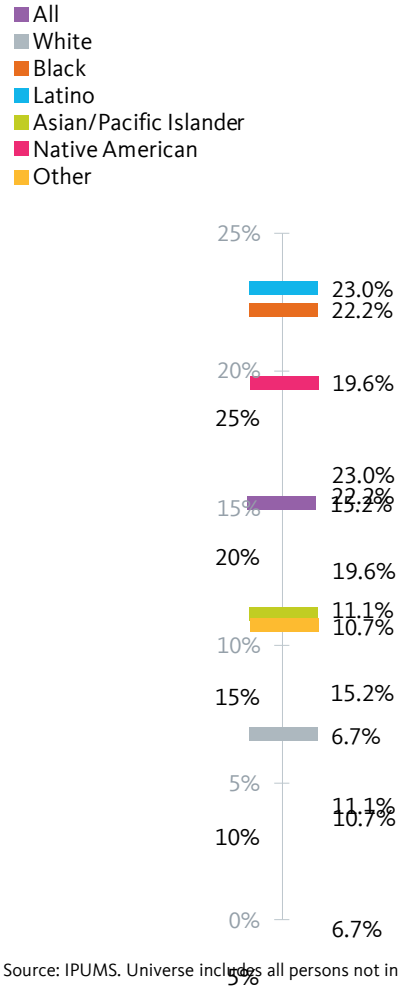
Higher poverty and working poverty for people of color

Nearly one in every four of the region's African Americans and Latinos, and about one in every five Native Americans, live below the poverty level – compared with about one in 15 whites. Poverty is also higher for Asians and people of other or mixed racial background compared with whites.

Latinos are much more likely to be working poor compared with all other groups, with a 13.6 percent working poverty rate compared with the 6.4 percent average. African Americans also have an above average working poverty rate. Whites have the lowest rate of working poverty, at less than 2 percent.

Poverty is highest for Latinos and African Americans

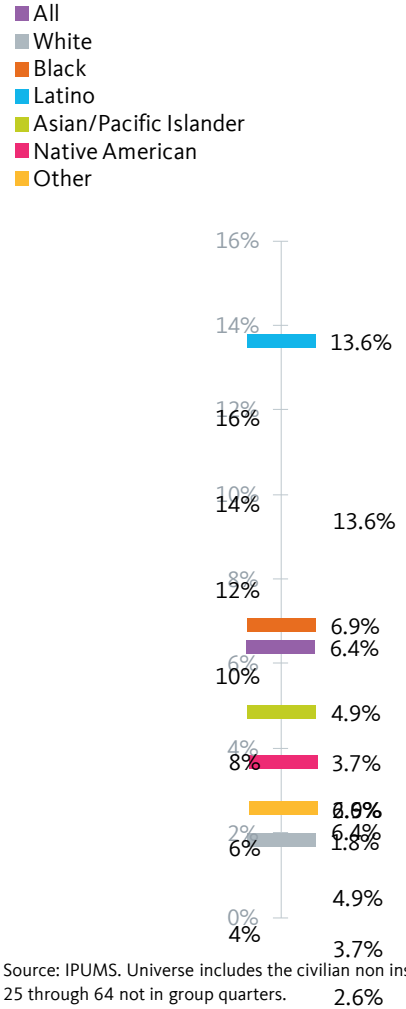
30. Poverty Rate by Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes all persons not in group quarters.

Working poverty is highest for Latinos

31. Working Poverty Rate by Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64 not in group quarters.

Economic vitality

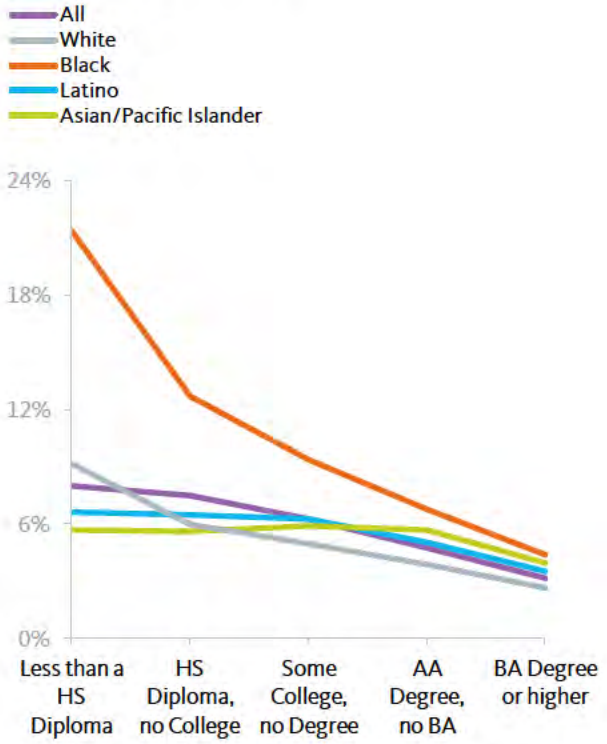
Education is a leveler but racial economic gaps persist

In general, unemployment decreases and wages increase with higher educational attainment. But at nearly every education level, Houston-Galveston's communities of color have worse economic outcomes than whites.

Among college graduates, unemployment levels are similar by race, but wages still remain $9/hour lower for Latinos and blacks compared with whites. Wages for Asians with less than a bachelor's degree are also well below those of their white counterparts, and even college-educated Asians earn less than white college graduates. The unemployment rates for African Americans who have not gone to school beyond high school are particularly high compared with other groups with the same level of education.

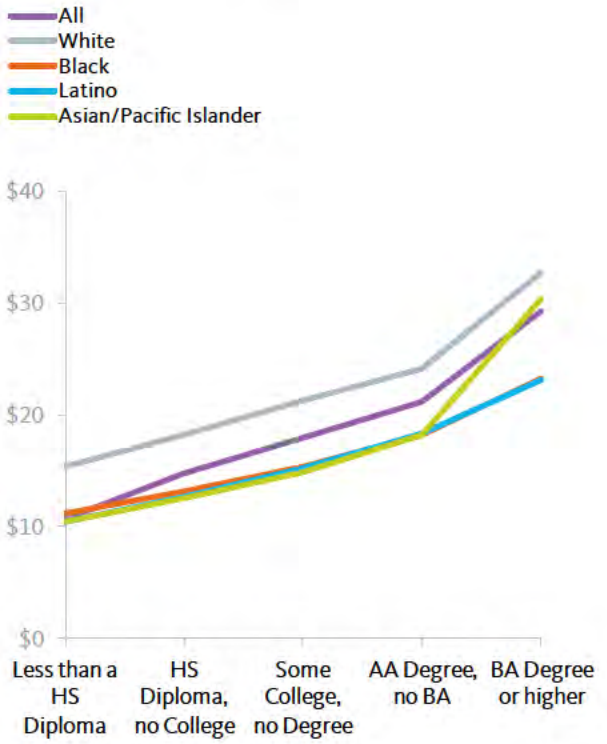
People of color have higher unemployment and lower wages than whites at nearly every education level

32. Unemployment Rate by Educational Attainment and Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64.

33. Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes civilian non institutional full-time wage and salary workers ages 25 through 64.

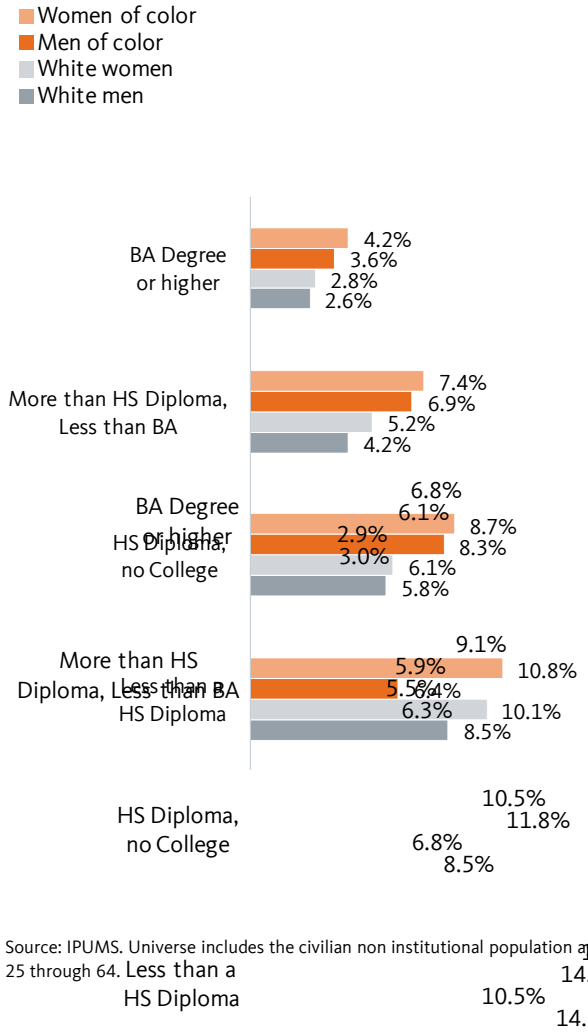
Economic vitality

There is also a gender gap in work and pay

At every level of education, white women and women of color have higher unemployment rates and earn lower wages than their male counterparts. Women of color consistently face the highest unemployment rates and earn the least among all groups. Gender gaps in unemployment and wages are highest among those without high school degrees, but college-educated white men also earn substantially higher wages than their female counterparts.

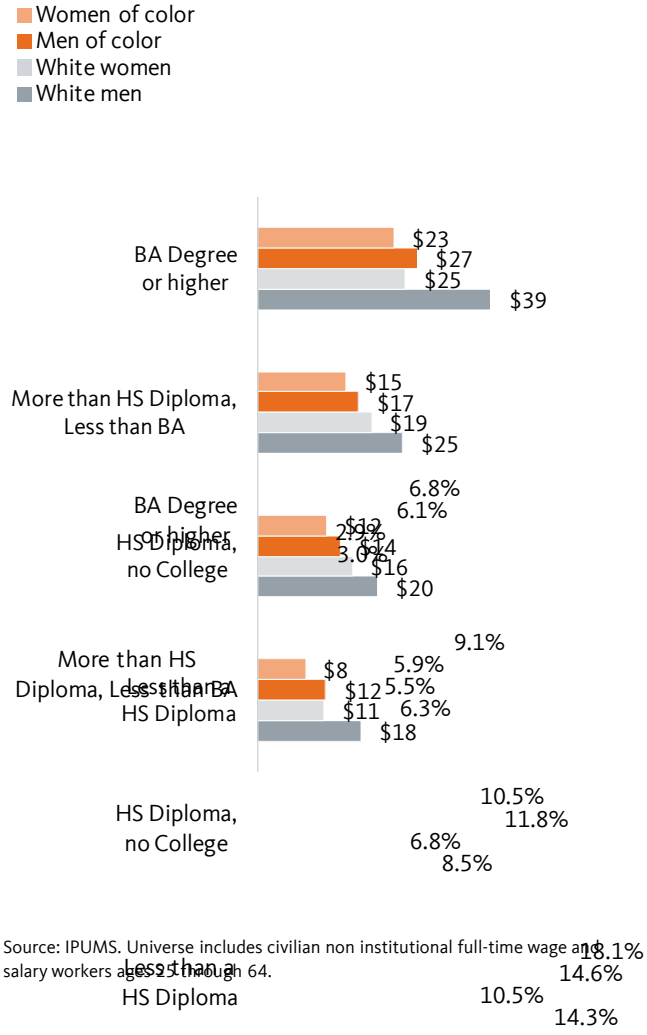
Women of every education level earn less and are more likely to be unemployed

34. Unemployment Rate by Educational Attainment, Race/Ethnicity, and Gender, 2006-2010



Source: IPUMS. Universe includes the civilian non institutional population ages 25 through 64.

35. Median Hourly Wage by Educational Attainment, Race/Ethnicity, and Gender, 2006-2010



Source: IPUMS. Universe includes civilian non institutional full-time wage and salary workers ages 25 through 64.

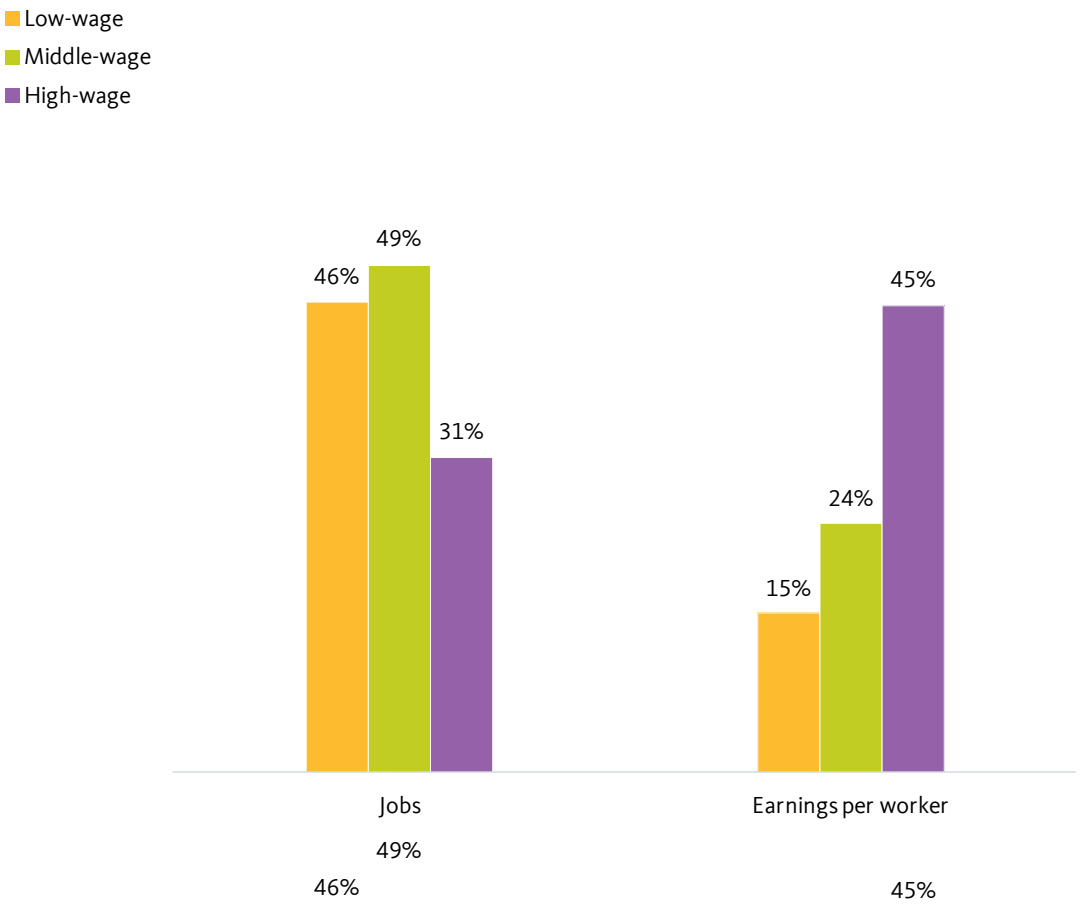
Economic vitality

Growing low-wage jobs – but also middle-wage ones

Following the national trend, over the past two decades, many of the jobs that Houston-Galveston added were low-wage ones. But while the U.S. economy as a whole is mainly adding low- and high-wage jobs, Houston-Galveston is primarily growing low- and middle-wage jobs, with less growth in high-wage jobs. Middle-wage job growth is a strong point, because some of these jobs, such as those in construction and warehousing, are often accessible to workers without four-year college degrees. Unfortunately, wage growth has been much faster for high-wage workers, with much slower wage growth for low- and middle-wage workers.

The fastest job growth is in low- and middle-wage jobs, but high-wage jobs had the most wage growth

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



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

Economic vitality

Wage growth fast at the top, slow at the bottom

The region's high-wage workers have fared well over the past two decades. Those working in management and mining (i.e., the region's oil and gas industries), for example, have seen their incomes nearly double. Some middle-wage workers, such as those in finance, information, and transportation, have also seen strong wage growth. But the wages of most low-wage workers have barely budged, if at all. With average annual earnings of $17,416, the region's 211,378 hotel and restaurant workers actually earn less today than they did two decades ago, and the incomes of the region's 267,622 retail workers have stagnated.

A widening wage gap by industry sector

37. Industries by Wage-Level Category in 1990

Wage Category	Industry	Average Annual Earnings 1990 ($2010)	Average Annual Earnings 2010 ($2010)	Percent Change in Earnings 1990-2010	Number of Jobs 2010
High	Mining	$83,854	$158,225	89%	81,506
	Management of Companies and Enterprises	$70,873	$136,597	93%	19,548
	Professional, Scientific, and Technical Services	$66,714	$89,041	33%	177,391
	Utilities	$62,981	$105,597	68%	17,915
	Manufacturing	$57,285	$73,763	29%	220,780
	Wholesale Trade	$56,629	$74,282	31%	132,906
Middle	Finance and Insurance	$52,974	$83,901	58%	86,357
	Information	$50,084	$66,056	32%	32,421
	Transportation and Warehousing	$49,295	$66,330	35%	104,397
	Construction	$48,026	$58,451	22%	173,606
	Education Services	$41,079	$50,450	23%	34,821
	Health Care and Social Assistance	$40,541	$43,989	9%	257,383
	Real Estate and Rental and Leasing	$34,154	$48,508	42%	49,408
Low	Agriculture, Forestry, Fishing and Hunting	$30,142	$31,994	6%	5,330
	Administrative and Support and Waste Management and Remediation Services	$26,743	$40,493	51%	165,993
	Retail Trade	$26,470	$27,563	4%	267,622
	Other Services (except Public Administration)	$26,468	$31,891	20%	76,892
	Arts, Entertainment, and Recreation	$25,261	$34,778	38%	27,807
	Accommodation and Food Services	$18,227	$17,416	-4%	211,378

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

Economic vitality

Identifying the region's strong industries

Understanding which industries are strong and competitive in the region is critical for developing effective strategies to attract and grow businesses. To identify strong industries in the region, 19 industry sectors were categorized according to an **"industry strength index"** that measures four characteristics: size, concentration, job quality, and growth. Each characteristic was given an equal weight (25 percent each) in determining the index value. "Growth" was an average of three indicators of growth (change in the number of jobs, percent change in the number of jobs, and wage growth). These characteristics were examined over the last decade to provide a current picture of how the region's economy is changing.

Industry strength index =

Size (2010)	+ Concentration (2010) +	Job quality (2010) +	Growth (2000 to 2010)
Total Employment The total number of jobs in a particular industry.	**Location Quotient** A measure of employment concentration calculated by dividing the share of employment for a particular industry in the region by its share nationwide. A score >1 indicates higher-than-average concentration.	**Average Annual Wage** The estimated total annual wages of an industry divided by its estimated total employment.	**Change in the number of jobs** **Percent change in the number of jobs** **Real wage growth**

Note: This industry strength index is only meant to provide general guidance on the strength of various industries in the region, and its interpretation should be informed by an examination of individual metrics used in its calculation, which are presented in the table on the next page. Each indicator was normalized as a cross-industry z-score before taking a weighted average to derive the index.

Economic vitality

Mining, management, health care, and professional services dominate

According to the industry strength index, the region's strongest industries are **mining** (which includes oil and gas), **management**, **health care**, **professional services**, **manufacturing**, **wholesale trade**, **and construction**. Mining ranks first due to its high concentration of jobs in the region, high and growing wages, and relatively large and growing employment base. Management, with rapid job growth and high and growing annual wages, ranks second. Health care ranks third, its strength coming from its large size and fast job growth.

Mining, management, health care, professional services, and wholesale trade are strong and expanding in the region

38. Industry Strength Index

	Size	Concentration	Job Quality	Growth			Industry Strength Index
	Total employment	Location Quotient	Average annual wage	Change in employment	% Change in employment	Real wage growth	
Industry	(2010)	(2010)	(2010)	(2000 to 2010)	(2000 to 2010)	(2000 to 2010)	
Mining (includes oil and gas)	81,506	6.3	$158,225	18,935	30%	25%	176.6
Management of Companies and Enterprises	19,548	0.5	$136,597	10,797	123%	38%	58.3
Health-Care and Social Assistance	257,383	0.8	$43,989	84,298	49%	5%	42.8
Professional, Scientific, and Technical Services	177,391	1.2	$89,041	28,788	19%	11%	39.1
Manufacturing	220,780	1.0	$73,763	-16,128	-7%	15%	14.4
Wholesale Trade	132,906	1.2	$74,282	13,665	11%	15%	13.0
Construction	173,606	1.6	$58,451	-899	-1%	17%	12.8
Administrative and Support and Waste Management and Remediation Services	165,993	1.1	$40,493	4,205	3%	25%	-3.6
Accommodation and Food Services	211,378	1.0	$17,416	47,952	29%	-1%	-6.3
Retail Trade	267,622	0.9	$27,563	12,893	5%	-5%	-7.1
Finance and Insurance	86,357	0.8	$83,901	2,935	4%	12%	-8.4
Utilities	17,915	1.6	$105,597	-236	-1%	-21%	-17.5
Transportation and Warehousing	104,397	1.3	$66,330	3,203	3%	-7%	-17.7
Real Estate and Rental and Leasing	49,408	1.3	$48,508	1,883	4%	7%	-35.6
Education Services	34,821	0.7	$50,450	8,802	34%	8%	-39.0
Other Services (except Public Administration)	76,892	0.9	$31,891	6,237	9%	4%	-47.9
Arts, Entertainment, and Recreation	27,807	0.7	$34,778	3,016	12%	21%	-50.7
Information	32,421	0.6	$66,056	-15,631	-33%	1%	-62.2
Agriculture, Forestry, Fishing and Hunting	5,330	0.2	$31,994	-1,173	-18%	9%	-86.2

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

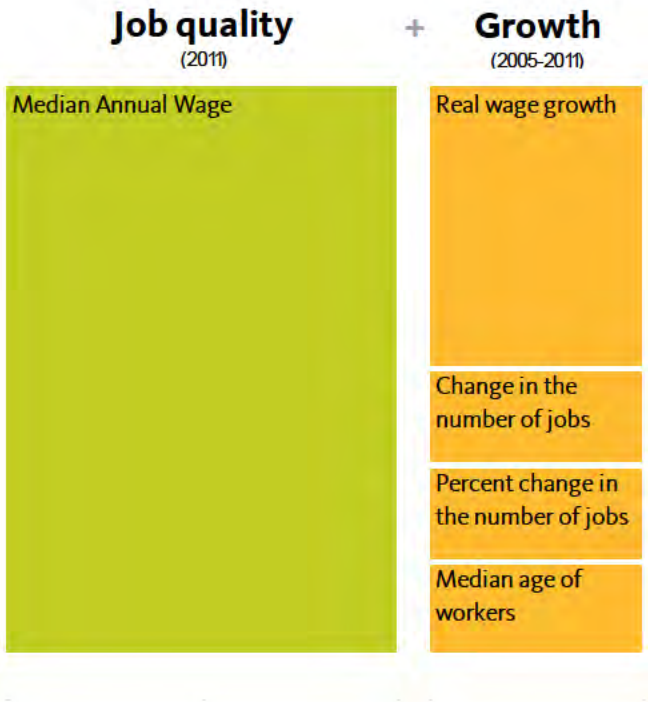
Economic vitality

Identifying high-opportunity occupations

Understanding which occupations are strong and competitive in the region can help leaders develop strategies to connect and prepare workers for good jobs. 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. A high median age of workers indicates that there will be replacement job openings as older workers retire.

Job quality, measured by the median annual wage, accounted for two-thirds of the occupation opportunity index, and growth accounted for the other one-third. Within the growth category, half was determined by wage growth and the other half was divided equally between the change in number of jobs, percent change in the number jobs, and median age of workers.

Occupation opportunity index =



Note: Each indicator was normalized as a cross-occupation z-score before taking a weighted average to derive the index.

Economic vitality

Identifying high-opportunity occupations

(continued)

Once the occupation opportunity index score was calculated for each occupation, occupations were sorted into three categories (high-, middle-, and low-opportunity). The average index score is zero, so an occupation with a positive value has an above-average score while a negative value represents a below-average score.

Because education level plays such a large role in determining access to jobs, we present the occupational analysis for each of three educational attainment levels: workers with a high school degree or less; workers with more than a high-school degree but less than a BA; and workers with a BA or higher.

Note: The occupation opportunity index and the three broad categories drawn from it are only meant to provide general guidance on the level of opportunity associated with various occupations in the region, and its interpretation should be informed by an examination of individual metrics used in its calculation, which are presented in the tables on the following pages.

Economic vitality

High-opportunity occupations for workers with a high school degree or less

Water transportation, extraction, and supervisorial positions in manufacturing, construction, transportation, and extraction are high-opportunity jobs for workers without postsecondary education

39. Occupation Opportunity Index: Occupations by Opportunity Level for Workers with a High School Degree or Less

		Employment	Job Quality	Growth				Occupation Opportunity Index
			Median Annual Wage	Real Wage Growth	Change in Employment	% Change in Employment	Median Age	
	Occupation	(2011)	(2011)	(2011)	(2005 to 2011)	(2005 to 2011)	(2005 to 2011)	
High-Opportunity	Water Transportation Workers	4,860	$62,336	44.5%	1,000	25.9%	39	0.92
	Supervisors of Production Workers	13,380	$64,190	11.6%	-1,020	-7.1%	46	0.58
	Supervisors of Construction and Extraction Workers	17,070	$58,000	11.7%	5,140	43.1%	44	0.49
	Supervisors of Transportation and Material Moving Workers	7,290	$50,642	2.8%	890	13.9%	43	0.11
	Other Construction and Related Workers	4,820	$46,540	14.1%	1,070	28.5%	38	0.11
	Extraction Workers	15,860	$42,409	22.3%	390	2.5%	35	0.05
Middle-Opportunity	Other Installation, Maintenance, and Repair Occupations	62,390	$38,925	5.4%	10,880	21.1%	41	-0.08
	Supervisors of Building and Grounds Cleaning and Maintenance Workers	4,510	$34,354	18.0%	-640	-12.4%	42	-0.16
	Metal Workers and Plastic Workers	50,310	$35,018	5.4%	4,990	11.0%	40	-0.26
	Motor Vehicle Operators	61,520	$31,804	3.2%	3,740	6.5%	43	-0.35
	Construction Trades Workers	99,160	$34,365	6.5%	920	0.9%	35	-0.36
	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	27,140	$37,458	-6.3%	240	0.9%	38	-0.42
	Material Recording, Scheduling, Dispatching, and Distributing Workers	72,860	$30,713	-4.5%	9,640	15.2%	39	-0.46
	Other Personal Care and Service Workers	42,880	$19,741	16.6%	10,680	33.2%	37	-0.47
Low-Opportunity	Other Production Occupations	42,980	$30,119	-3.1%	3,150	7.9%	40	-0.51
	Assemblers and Fabricators	29,320	$26,769	0.6%	4,320	17.3%	39	-0.55
	Other Transportation Workers	5,930	$24,092	17.2%	-50	-0.8%	31	-0.55
	Cooks and Food Preparation Workers	48,810	$19,097	3.0%	20,130	70.2%	34	-0.57
	Printing Workers	3,580	$31,397	-8.4%	-60	-1.6%	40	-0.59
	Nursing, Psychiatric, and Home Health Aides	33,100	$21,025	5.3%	5,810	21.3%	40	-0.61
	Food and Beverage Serving Workers	119,060	$18,097	16.2%	15,210	14.6%	26	-0.61
	Supervisors of Food Preparation and Serving Workers	14,970	$27,934	3.4%	-3,440	-18.7%	37	-0.61
	Personal Appearance Workers	8,160	$24,212	3.2%	1,150	16.4%	39	-0.61
	Grounds Maintenance Workers	14,380	$21,770	11.8%	970	7.2%	34	-0.63
	Helpers, Construction Trades	9,010	$27,387	7.0%	-1,760	-16.3%	30	-0.63
	Textile, Apparel, and Furnishings Workers	7,630	$19,879	6.4%	-140	-1.8%	43	-0.67
	Material Moving Workers	81,600	$25,312	3.6%	-920	-1.1%	34	-0.67
	Building Cleaning and Pest Control Workers	52,580	$19,168	7.3%	-5,640	-9.7%	43	-0.73
	Food Processing Workers	8,440	$21,430	-7.4%	2,430	40.4%	39	-0.79
	Other Food Preparation and Serving Related Workers	22,710	$17,933	12.0%	1,330	6.2%	27	-0.80
	Retail Sales Workers	155,330	$19,528	-4.5%	10,680	7.4%	29	-0.85
	Other Protective Service Workers	29,150	$20,707	-12.4%	6,810	30.5%	37	-0.86
	Animal Care and Service Workers	3,080	$18,719	-7.1%	1,250	68.3%	29	-0.96

Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have less than a high school degree. Analysis reflects the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

Economic vitality

High-opportunity occupations for workers with more than a high school degree but less than a BA

Plant and system operators and supervisors of service workers are high-opportunity occupations for workers with more than a high school degree but less than a BA

40. Occupation Opportunity Index: Occupations by Opportunity Level for Workers with More Than a High School Degree but Less Than a BA

		Employment	Job Quality	Growth				Occupation Opportunity Index
			Median Annual Wage	Real Wage Growth	Change in Employment	% Change in Employment	Median Age	
	Occupation	(2011)	(2011)	(2011)	(2005 to 2011)	(2005 to 2011)	(2005 to 2011)	
High-Opportunity	Plant and System Operators	16,940	$63,410	6.9%	-400	-2.3%	45	0.49
	Supervisors of Protective Service Workers	3,520	$60,736	0.6%	1,450	70.0%	46	0.43
	Supervisors of Installation, Maintenance, and Repair Workers	10,400	$60,510	-0.1%	1,150	12.4%	48	0.39
	Supervisors of Office and Administrative Support Workers	29,020	$53,070	9.8%	3,950	15.8%	44	0.31
	Drafters, Engineering Technicians, and Mapping Technicians	20,530	$53,644	0.1%	-50	-0.2%	43	0.13
Middle-Opportunity	Law Enforcement Workers	24,170	$48,645	0.6%	1,990	9.0%	40	0.00
	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	10,140	$42,312	2.6%	3,550	53.9%	38	-0.11
	Life, Physical, and Social Science Technicians	9,180	$45,950	-4.7%	2,200	31.5%	40	-0.11
	Fire Fighting and Prevention Workers	4,540	$43,788	--	--	--	36	-0.13
	Health Technologists and Technicians	49,550	$41,424	1.2%	6,280	14.5%	38	-0.15
	Other Office and Administrative Support Workers	78,780	$28,751	7.7%	20,950	36.2%	40	-0.21
	Supervisors of Sales Workers	29,950	$43,167	-10.1%	1,860	6.6%	42	-0.26
	Secretaries and Administrative Assistants	78,830	$37,062	2.8%	-3,350	-4.1%	44	-0.29
	Other Healthcare Support Occupations	25,280	$29,221	13.6%	5,600	28.5%	34	-0.35
	Financial Clerks	63,510	$33,558	-0.6%	160	0.3%	41	-0.42
Low-Opportunity	Other Education, Training, and Library Occupations	20,380	$25,757	2.9%	3,560	21.2%	42	-0.51
	Information and Record Clerks	92,670	$28,957	-0.1%	5,740	6.6%	35	-0.54
	Entertainment Attendants and Related Workers	8,000	$18,998	15.8%	-700	-8.0%	25	-0.78

Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have at least a high school degree but less than a BA. Analysis reflects the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget .

Economic vitality

High-opportunity occupations for workers with a BA degree or higher

Legal fields, advertising, engineering, and management are all high-opportunity occupations for workers with a BA degree or higher

41. Occupation Opportunity Index: All Levels of Opportunity for Workers with a BA Degree or Higher

		Employment	Job Quality	Growth				Occupation Opportunity Index
			Median Annual Wage	Real Wage Growth	Change in Employment	% Change in Employment	Median Age	
	Occupation	(2011)	(2011)	(2011)	(2005 to 2011)	(2005 to 2011)	(2005 to 2011)	
High-Opportunity	Lawyers, Judges, and Related Workers	10,910	$152,685	11.3%	-590	-5.1%	45	2.87
	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	10,810	$111,558	8.7%	1,180	12.3%	43	1.78
	Operations Specialties Managers	29,900	$108,406	8.0%	4,260	16.6%	43	1.72
	Engineers	52,260	$103,075	7.4%	14,900	39.9%	43	1.70
	Other Management Occupations	35,500	$97,892	26.9%	810	2.3%	45	1.67
	Top Executives	49,210	$104,353	-3.3%	6,030	14.0%	47	1.53
	Physical Scientists	11,360	$102,217	-3.0%	3,000	35.9%	46	1.45
	Health Diagnosing and Treating Practitioners	75,760	$89,005	10.9%	9,470	14.3%	43	1.30
	Postsecondary Teachers	23,910	$77,177	5.2%	12,100	102.5%	44	1.03
	Computer Occupations	62,810	$76,045	0.0%	15,040	31.5%	40	0.86
	Business Operations Specialists	66,120	$66,994	5.3%	13,240	25.0%	42	0.69
	Sales Representatives, Wholesale and Manufacturing	41,620	$60,039	4.5%	8,050	24.0%	43	0.46
	Financial Specialists	43,480	$63,605	0.3%	3,410	8.5%	42	0.43
	Preschool, Primary, Secondary, and Special Education School Teachers	99,080	$52,085	6.2%	20,230	25.7%	40	0.36
	Other Healthcare Practitioners and Technical Occupations	4,150	$55,989	0.8%	2,120	104.4%	40	0.27
	Architects, Surveyors, and Cartographers	3,780	$64,021	-12.6%	-1,130	-23.0%	42	0.20
	Legal Support Workers	7,280	$50,351	14.0%	-570	-7.3%	40	0.18
	Librarians, Curators, and Archivists	3,340	$49,713	0.0%	370	12.5%	53	0.16
	Sales Representatives, Services	30,880	$53,242	-16.3%	15,370	99.1%	41	0.12
	Specialists	20,720	$45,891	10.3%	4,460	27.4%	42	0.12
Middle-Opportunity	Media and Communication Workers	7,900	$48,017	-3.5%	1,500	23.4%	41	-0.05
	Art and Design Workers	8,830	$38,629	-2.5%	1,550	21.3%	42	-0.27
	Other Sales and Related Workers	13,710	$38,696	-8.9%	-420	-3.0%	44	-0.37
Low-Opportunity	Other Teachers and Instructors	16,480	$26,765	3.6%	-1,040	-5.9%	42	-0.55
	Entertainers and Performers, Sports and Related Workers	4,100	$32,466	-18.3%	90	2.2%	33	-0.76

Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have a BA degree or higher. Analysis reflects the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget .

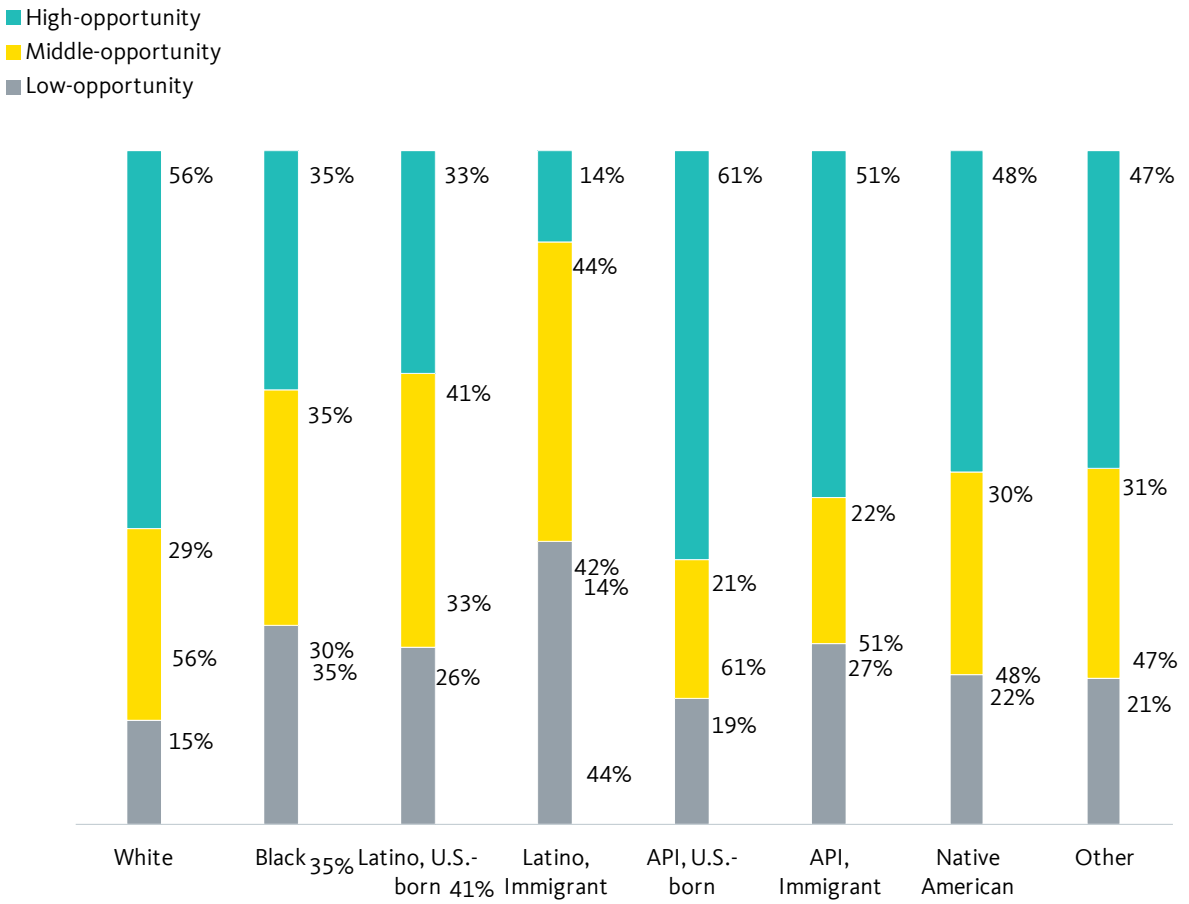
Economic vitality

Access to high-opportunity jobs by race/ethnicity/nativity

Examining access to high-opportunity jobs by race/ethnicity and nativity, we find that U.S.–born Asian/Pacific Islanders (APIs) and whites are most likely to be employed in the region's high-opportunity occupations. Immigrant APIs, Native Americans, and people of other or mixed racial background have moderate access to high-opportunity occupations. Latino immigrants are by far the least likely to be in these occupations, followed by U.S.-born Latinos, and African Americans. Differences in education levels play a large role in determining access to high-opportunity jobs, but racial discrimination, work experience, social networks, and, for immigrants, legal status and English language ability are also contributing factors.

Latino immigrants, U.S.-born Latinos, and African Americans are least likely to access high-opportunity jobs

42. Opportunity Ranking of Occupations by Race/Ethnicity/Nativity, All Workers



Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian non institutional population ages 25 through 64. While data on workers are from the H-GAC 13-county region, the opportunity ranking for each worker's occupation is based on analysis of the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

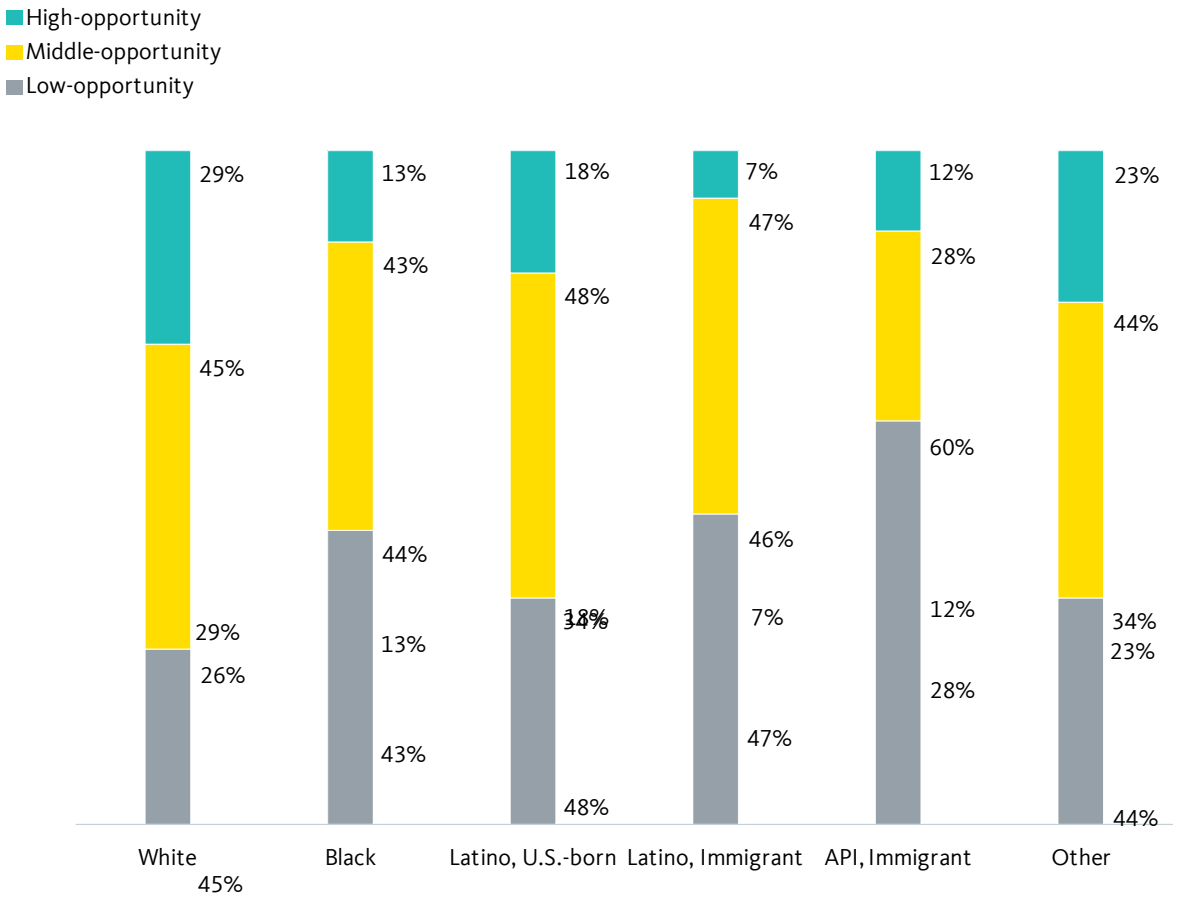
Economic vitality

Access to high-opportunity jobs for workers with a high school degree or less

Among workers with low education levels, whites and people of other or mixed racial backgrounds are most likely to be in high-opportunity jobs, followed by U.S.-born Latinos. Among the immigrant groups shown, Latino immigrants are by far the least likely to be in high-opportunity jobs, but have a relatively large representation in middle-opportunity jobs, while API immigrants have a higher share in both high- and low-opportunity jobs. African Americans tend to be in jobs with lower levels of opportunity.

Of those with low education levels, Latino immigrants, API immigrants, and African Americans are least likely to access high-opportunity jobs

43. Opportunity Ranking of Occupations by Race/Ethnicity/Nativity, Workers with Low Educational Attainment



Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian non institutional population ages 25 through 64 with less than a high school degree. While data on workers are from the H-GAC 13-county region, the opportunity ranking for each worker's occupation is based on analysis of the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

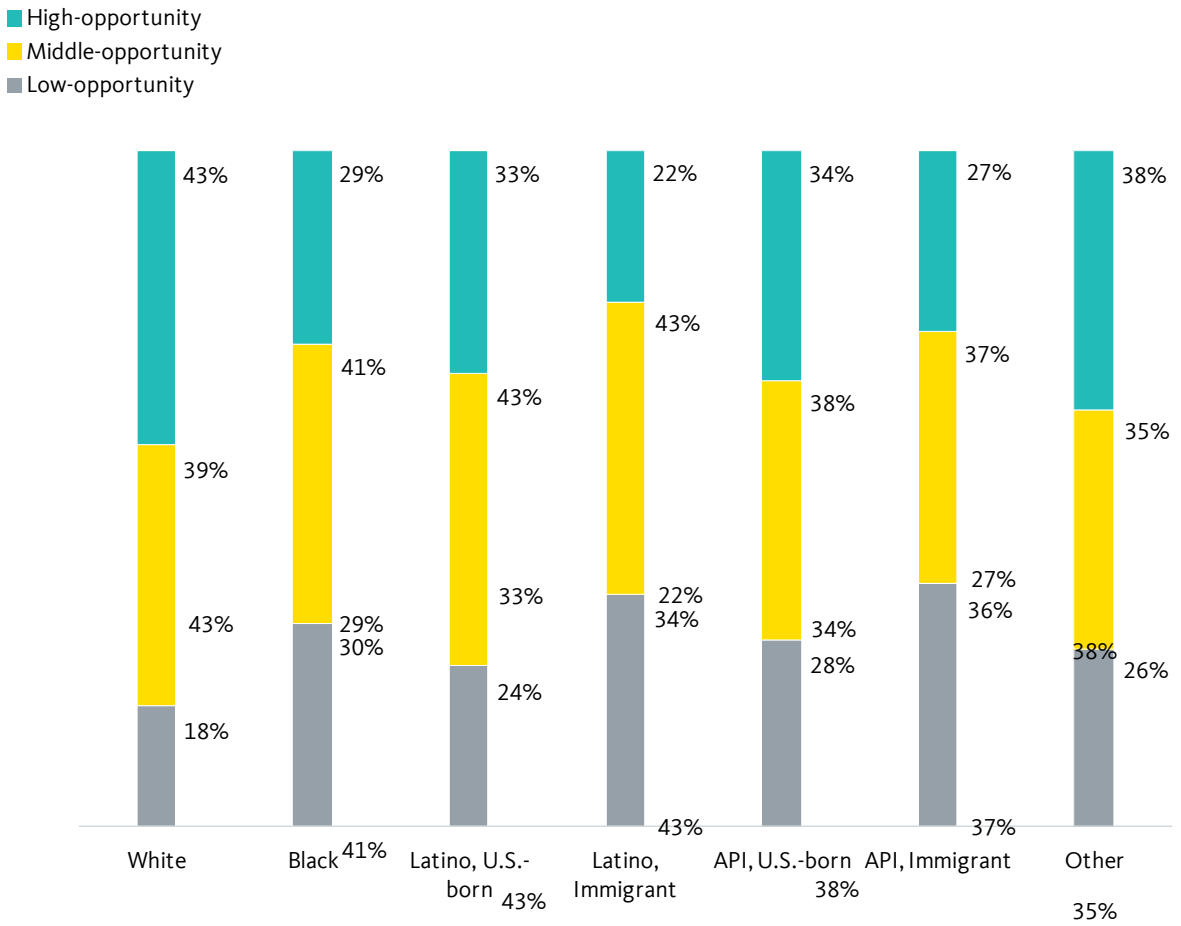
Economic vitality

Access to high-opportunity jobs for workers with more than a high school degree but less than a BA

Differences in job opportunity are generally smaller for workers with middle education levels. Whites and people of other or mixed race backgrounds are most likely to be found in high-opportunity jobs. U.S.-born APIs and U.S.-born Latinos have moderate access to high-opportunity jobs. Immigrants (both Latino and API) and African Americans are the most likely to be in low-opportunity jobs.

Of those with middle education levels, Latino immigrants, API immigrants, and African Americans are least likely to access high-opportunity jobs

44. Opportunity Ranking of Occupations by Race/Ethnicity/Nativity, Workers with Middle Educational Attainment



Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian non institutional population ages 25 through 64 with at least a high school degree but less than a BA. While data on workers are from the H-GAC 13-county region, the opportunity ranking for each worker's occupation is based on analysis of the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

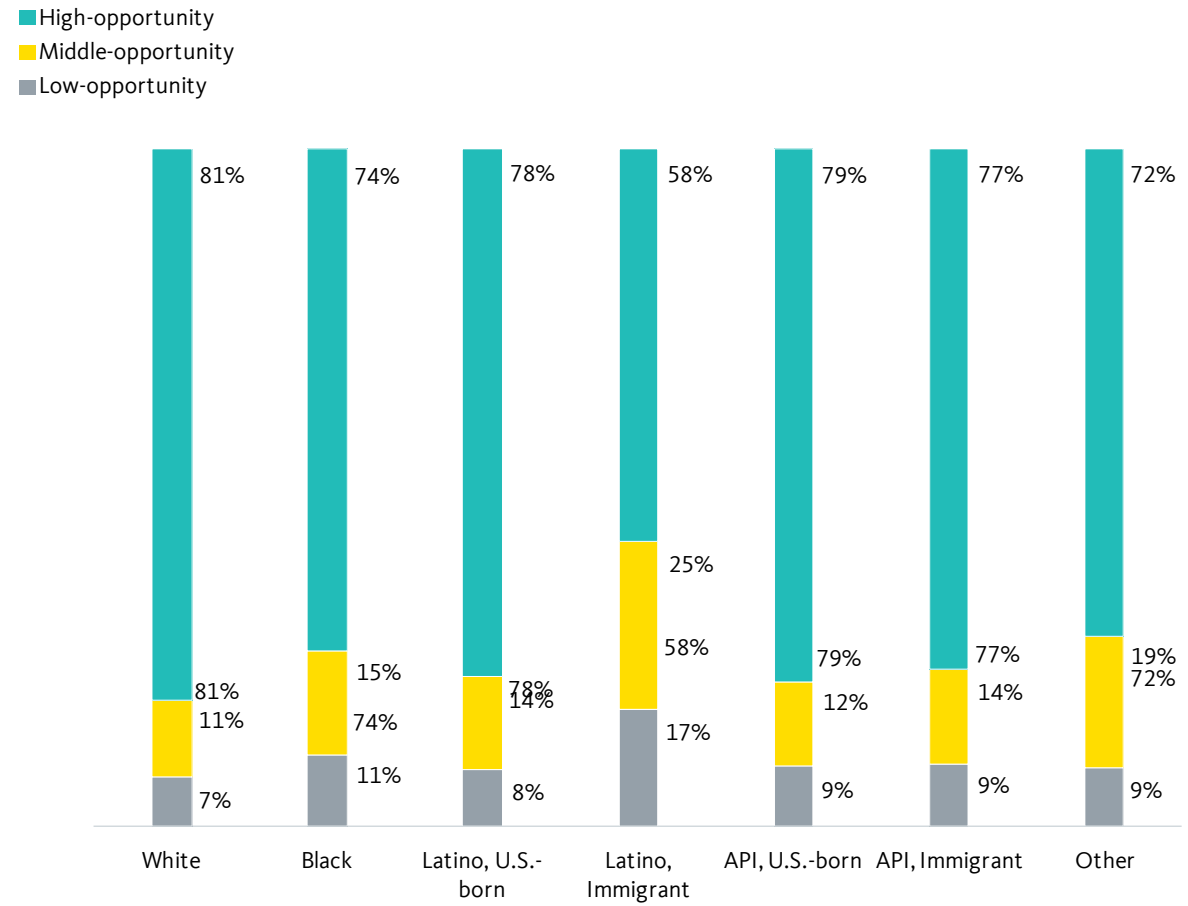
Economic vitality

Access to high-opportunity jobs for workers with a BA or higher

Differences in access to high-opportunity occupations tend to decrease even more for workers with college degrees, though a racial/ethnic/nativity gap remains. Whites are the most likely to be in high-opportunity occupations, but most groups are less than 10 percentage points behind. Latino immigrants with college degrees have by far the least access to high-opportunity jobs and the highest representation in both low- and middle-opportunity occupations.

Differences in occupational opportunity by race/ethnicity/nativity shrink somewhat for college-educated workers

45. Opportunity Ranking of Occupations by Race/Ethnicity/Nativity, Workers with High Educational Attainment

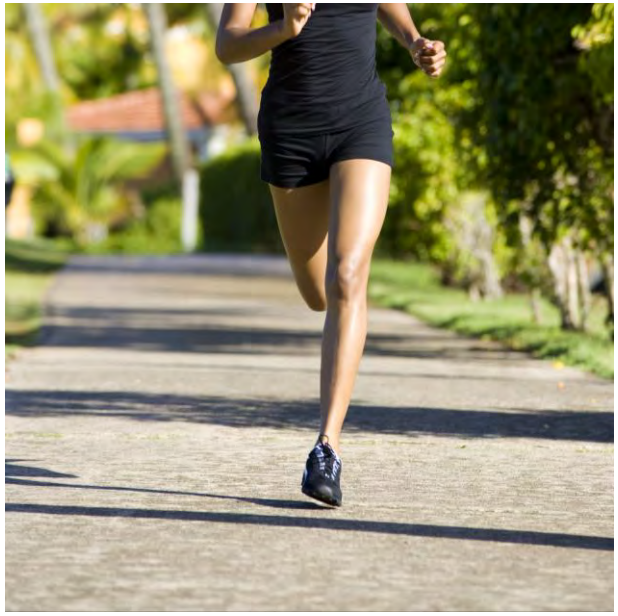


Sources: U.S. Bureau of Labor Statistics; IPUMS. Universe includes the employed civilian non institutional population ages 25 through 64 with a BA degree or higher. While data on workers are from the H-GAC 13-county region, the opportunity ranking for each worker's occupation is based on analysis of the Houston Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

25%

15%

Readiness



Readiness
Highlights
How prepared are the region's residents for the 21st century economy?

- There is a skills and education gap for people of color, with a larger portion of future jobs requiring an associate's degree or higher than those with the requisite education level.
- Education levels differ dramatically among immigrant groups. For example, South American immigrants have high education levels and Central American immigrants have low education levels.
- Educational attainment and pursuit of it has increased dramatically for youth of color, but the number of youth that are disconnected from school and work remains high.
- Communities of color are facing significant health challenges, with over 70 percent of the region's African Americans and Latinos obese or overweight.

Percent of the population with an associate's degree or higher:

35%

Disconnected youth rank (out of largest 150 regions):

#30

Percent of adults that are overweight or obese:

63%

Readiness

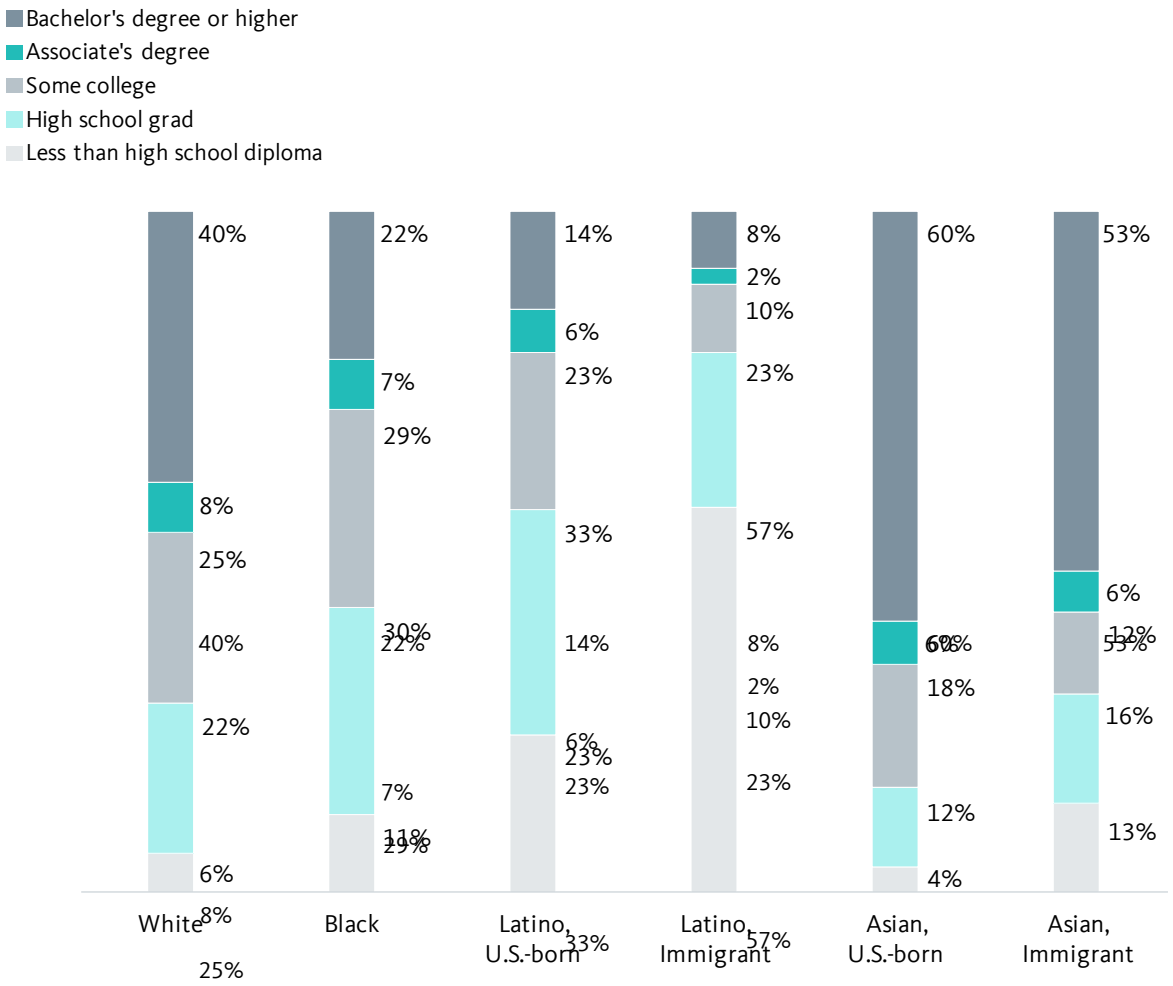
An education and skills gap for people of color

According to the Georgetown Center for Education and the Workforce, by 2018 34 percent of Texas's jobs will require an associate's degree or above. Today, 35 percent of the region's workers have that level of education, there are large differences in educational attainment by race/ethnicity and nativity. Only 29 percent of African Americans, 20 percent of US-born Latinos, and 10 percent of Latino immigrants have an associate's degree or higher.

While not shown in the graph, people of every race/ethnicity/nativity improved their education levels since 1990. Despite this progress, Latinos and African Americans, who will account for an increasing share of the region's workforce, are still less prepared for the future economy than their white counterparts.

There are wide gaps in educational attainment

46. Educational Attainment by Race/Ethnicity/Nativity, 2006-2010



Source: IPUMS. Universe includes all persons ages 25 through 64.

Readiness

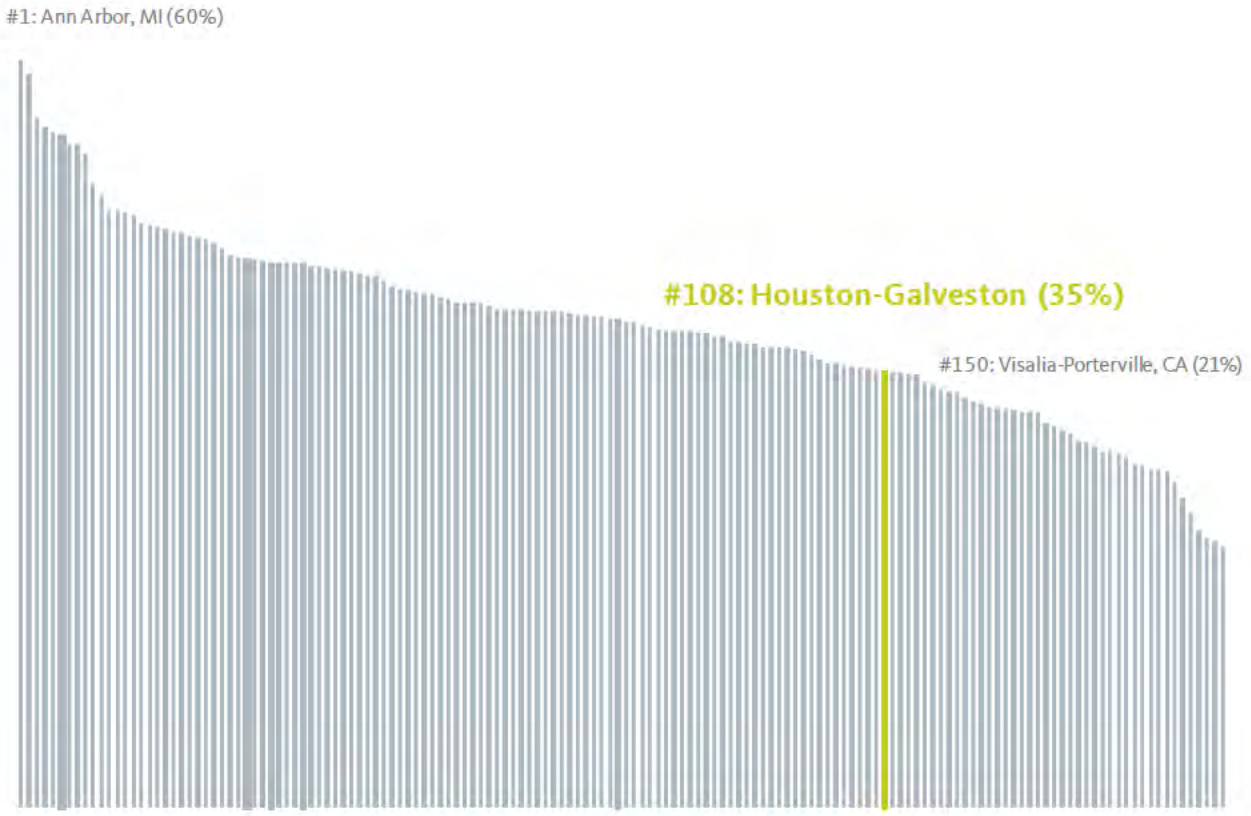
Relatively low education levels regionally

Houston-Galveston ranks in the bottom third of the largest 150 metro regions on the share of residents with an associate's degree or higher, well behind similarly sized southern metros.

The region also ranks 13th highest among the 150 metros in the share of residents with less than a high school education (19 percent) behind Dallas (17 percent) and San Antonio (16 percent) which rank 18th and 22nd, respectively.

The region is among the bottom third for residents with an associate's degree or higher among the largest 150 regions

47. Percent of the Population with an Associate's Degree or Higher in 2006-2010: Largest 150 Metros Ranked



Source: IPUMS. Universe includes all persons ages 25 through 64.

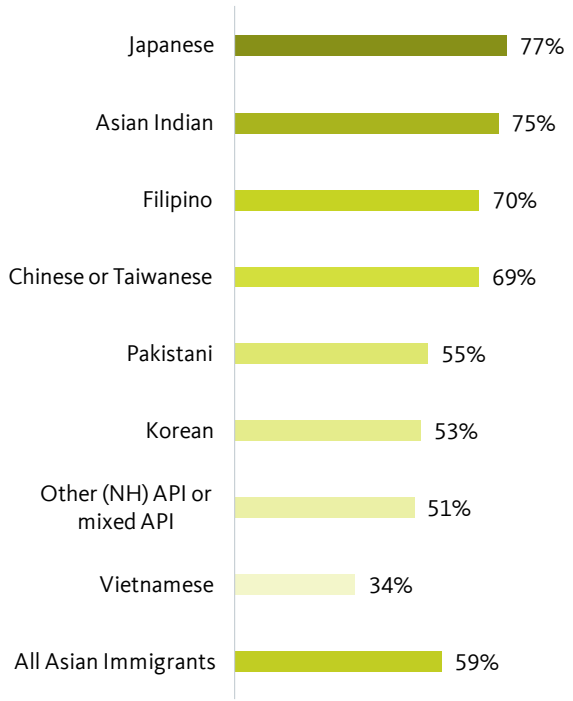
Readiness

High variation in education levels among immigrants

Immigrants from Central America and Mexico tend to have very low education levels while those from South America tend to have higher education levels (for example, 71 percent of immigrants from Venezuela have at least an associate's degree). Overall, education levels are much higher among Asian immigrants but still there is variation: for example, only 34 percent of Vietnamese immigrants have an associate's degree or higher compared with 77 percent of Japanese immigrants.

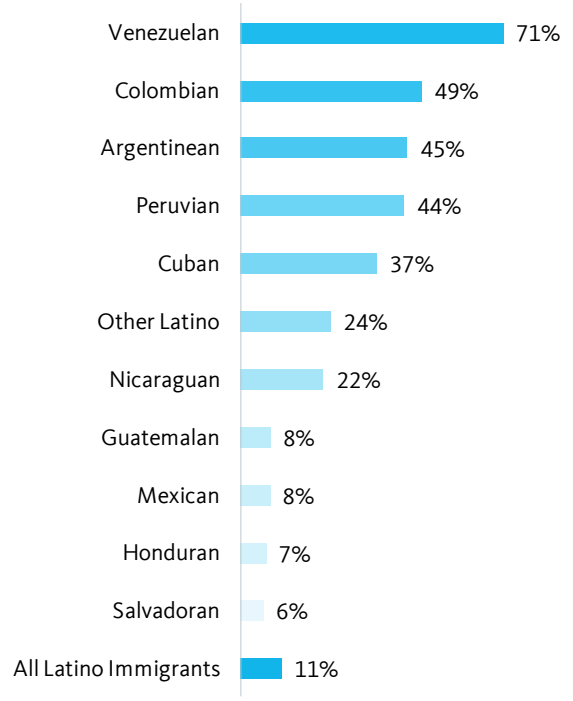
Asian immigrants tend to have higher education levels compared with Latino immigrants, but there are major differences in educational attainment among immigrants by country of origin

48. Asian Immigrants, Percent with an Associate's Degree or Higher by Origin, 2006-2010



Source: IPUMS. Universe includes all persons ages 25 through 64.

49. Latino Immigrants, Percent with an Associate's Degree or Higher by Origin, 2006-2010



Source: IPUMS. Universe includes all persons ages 25 through 64.

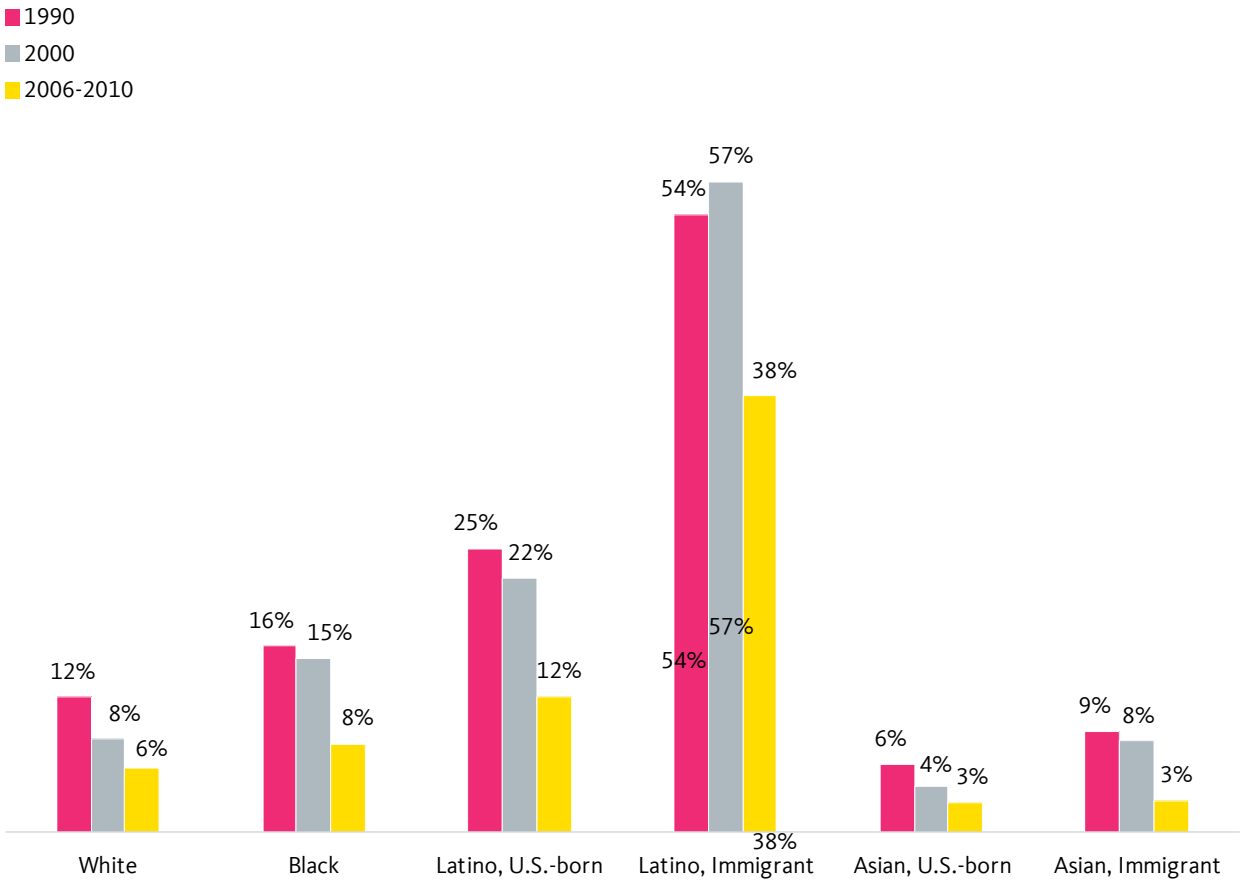
Readiness

More youth are getting high school degrees, but Latino immigrants are more likely to be behind

The share of youth who do not have a high school education and are not pursuing one has declined considerably since 1990 for all racial/ethnic groups. Despite the overall improvement, youth of color (with the exception of Asians) are still less likely to finish high school. Immigrant Latinos have particularly high rates of dropout or non-enrollment, with more than one in three lacking and not pursuing a high school degree.

Educational attainment and enrollment among youth has improved for all groups since 1990

50. Percent of 16-24-Year-Olds Not Enrolled in School and Without a High School Diploma, 1990 to 2006-2010



Source: IPUMS.

Readiness

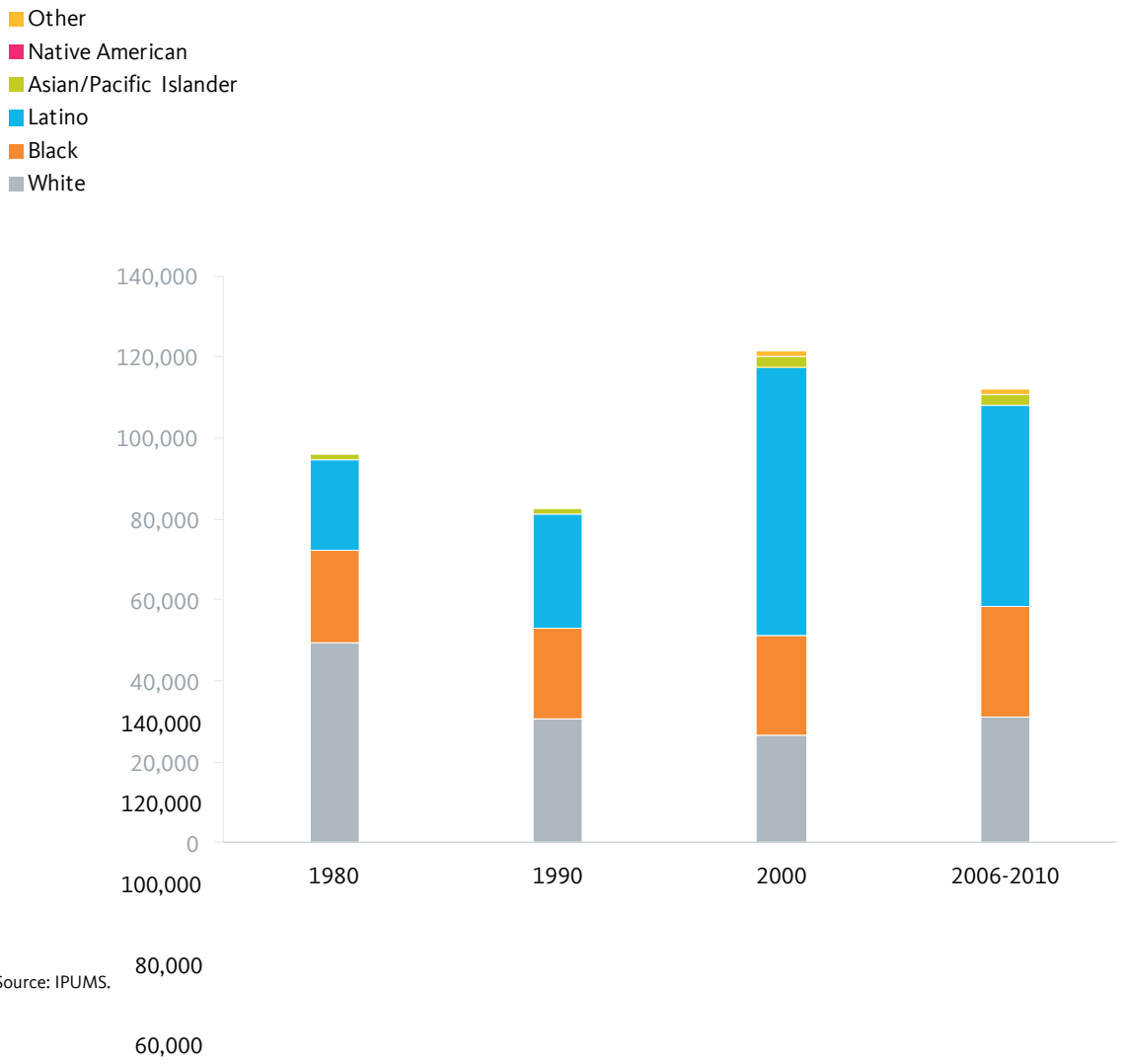
Many youth remain disconnected from work or school

While trends in the pursuit of education have been positive for youth of color, the number of "disconnected youth" who are neither in school nor working remains high. Of the region's 112,000 disconnected youth, 44 percent are Latino, 28 percent are white, and 24 percent are African American. As a share of the youth population, African Americans have the highest rate of disconnection (19 percent), followed by Latinos (18 percent), whites (12 percent), and Asians (8 percent).

Since 2000, the number of disconnected youth decreased slightly. This was due entirely to improvements among Latino youth, since all other groups saw a slight increase. While this is cause for some concern, the improvement among Latino youth is a very positive sign given their importance to the future workforce.

There are over 112,000 disconnected youth in the region

51. Disconnected Youth: 16-24-Year-Olds Not in Work or School, 1980 to 2006-2010



Source: IPUMS.

Readiness

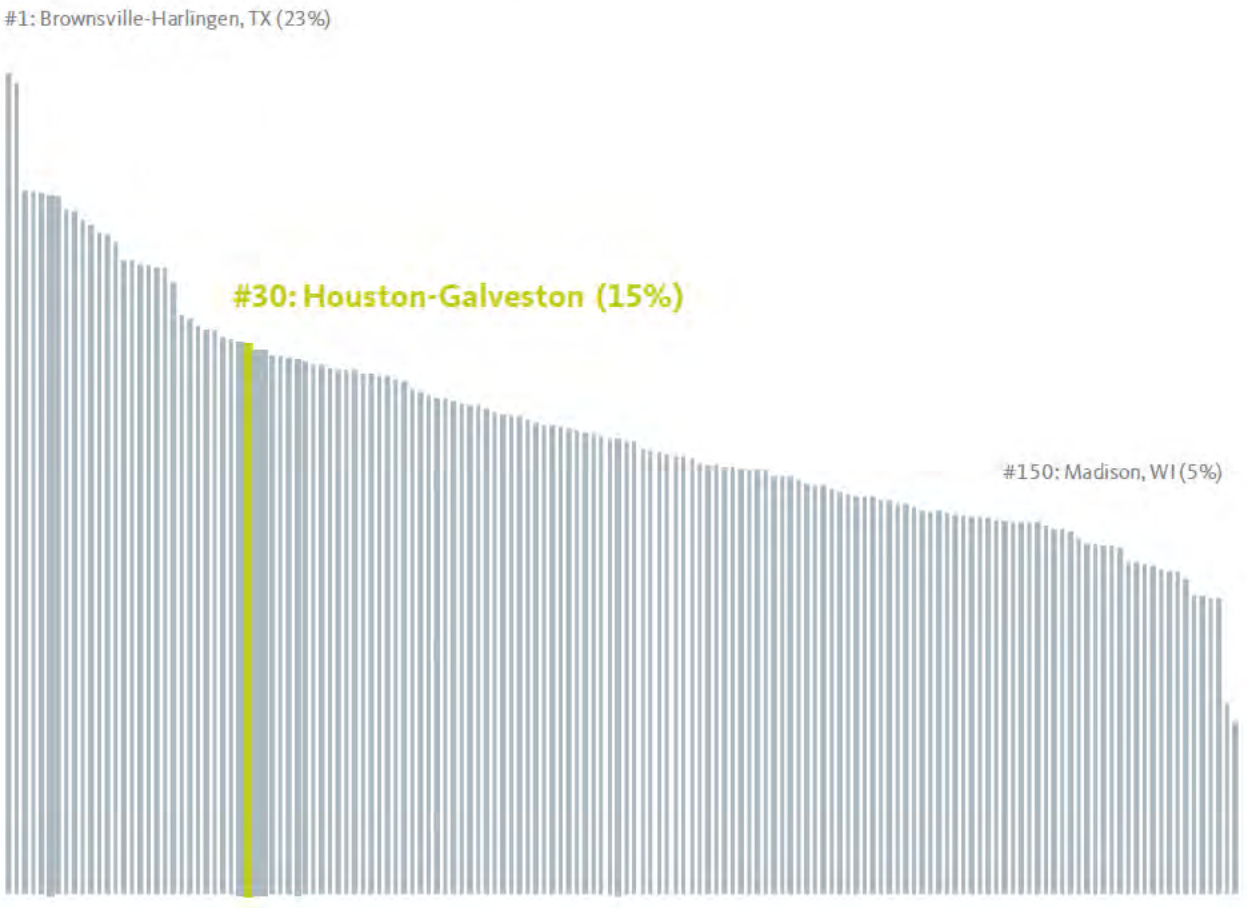
Many youth remain disconnected from work or school

(continued)

Despite the drop in disconnected youth over the last decade, more than one in seven of Houston-Galveston's youth are not in work or school. This places the region at 30th out of the largest 150 metro areas – a ranking that is worse than other similarly sized metro areas in the South, including Dallas, Miami, and Atlanta.

Houston-Galveston ranks among the top third of regions in its share of disconnected youth

52. Percent of 16-24-Year-Olds Not in Work or School, 2006-2010: Largest 150 Metros Ranked



Source: IPUMS.

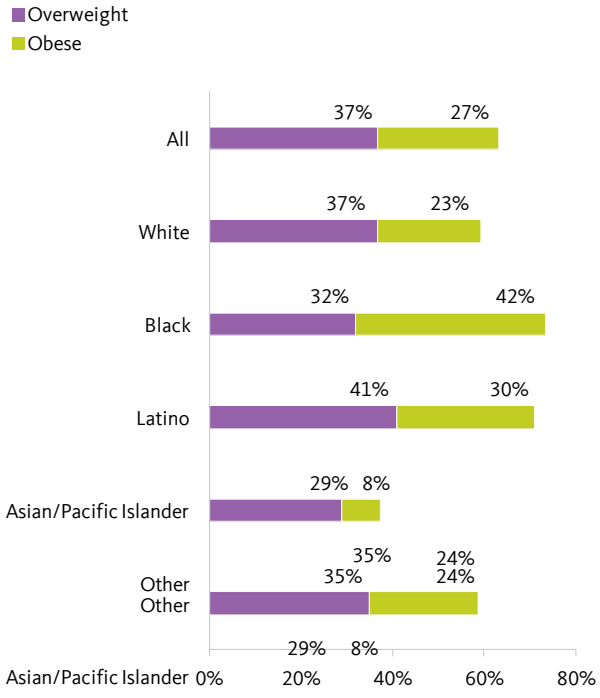
Readiness

Health challenges among communities of color

Obesity, diabetes, and asthma rates among adults in Houston-Galveston are similar to or slightly lower than those in Texas and the nation. The region's African Americans have particularly high risks on all three health indicators, and Latinos are at high risk of being overweight and obese. Only 2 percent of Asians and Latinos have asthma – way below the regional average of 6 percent. Whites do better than average on all measures except for asthma, while Asians show better than average marks across the board.

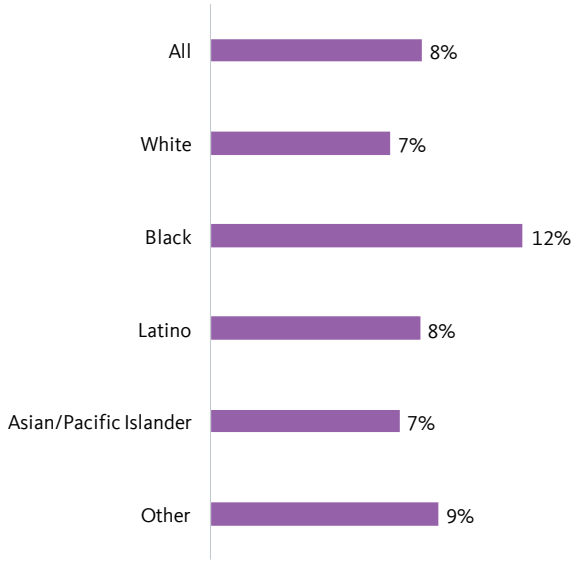
African Americans face above average obesity, diabetes, and asthma rates, while Latinos have high rates of being overweight and obese

53. Adult Overweight and Obesity Rates by Race/Ethnicity, 2006-2010



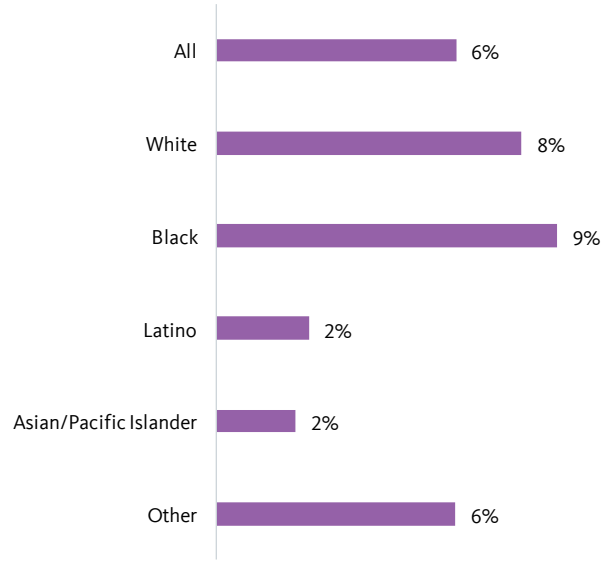
Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older.

54. Adult Diabetes Rates by Race/Ethnicity, 2006-2010



Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older.

55. Adult Asthma Rates by Race/Ethnicity, 2006-2010



Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older.

Connectedness

Connectedness

Highlights

Are the region's residents and neighborhoods connected to one another and to the region's assets and opportunities?

- Like much of the nation, Houston-Galveston is auto dependent, with 79 percent of residents driving alone to work. Many of the neighborhoods with the highest shares of people of color have long commutes.
- Communities of color are more likely to live in neighborhoods of concentrated poverty. Nearly 6 percent of people of color live in high-poverty tracts compared with less than 1 percent of whites.
- Communities of color have higher housing burdens, especially for those who are renters.
- Residential segregation is declining at the regional scale for all groups, but Latino-white segregation has increased, as has isolation for Latinos and Asians.
- Food deserts are clustered around the city of Houston and in rural counties, and are predominantly in people-of-color neighborhoods.

Percent of people of color living in high-poverty tracts:

6%

Percent of renters who are burdened by housing costs:

48%

Rent burden rank (out of largest 150 regions):

#101

Connectedness

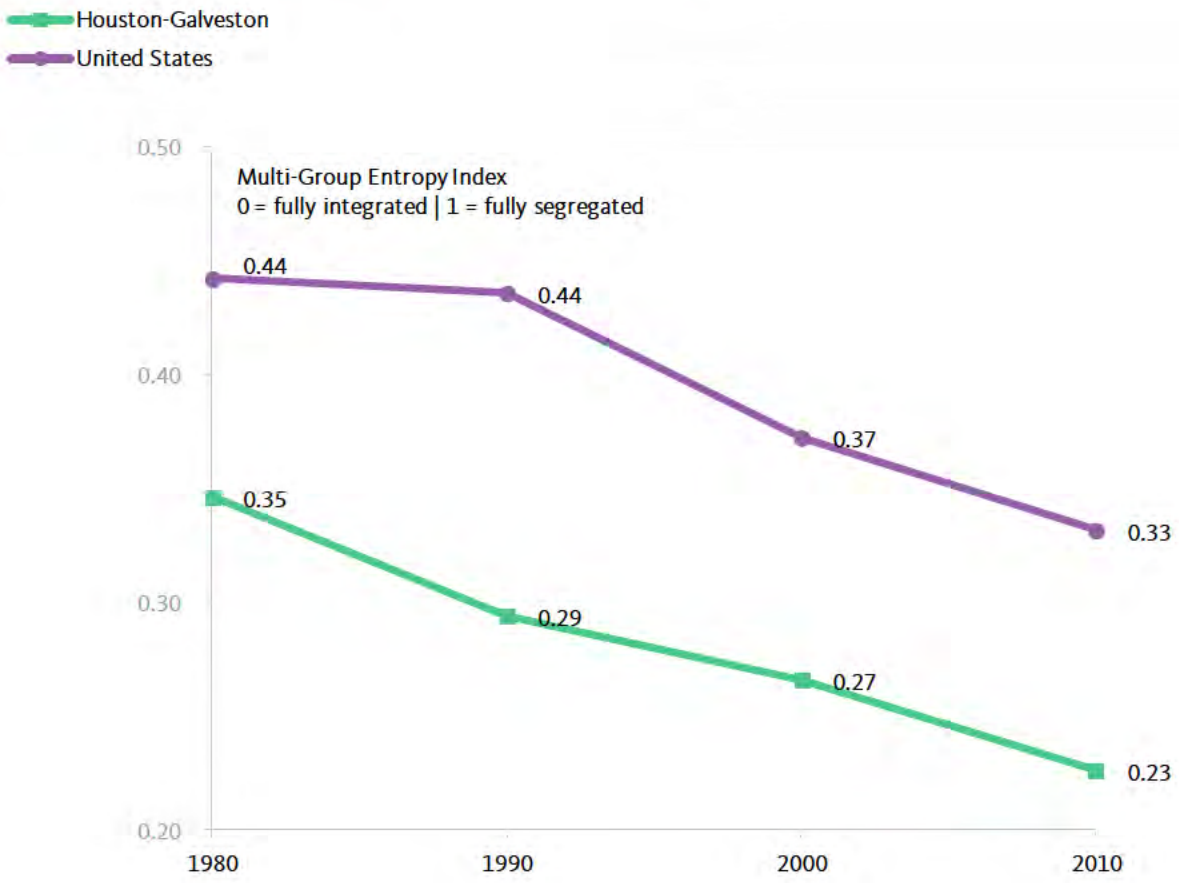
Segregation is decreasing

Houston-Galveston is less segregated by race/ethnicity than the state of Texas overall and the nation, and segregation has steadily declined over time as the region has become more diverse.

Segregation is measured by the entropy index, which ranges from a value of 0, meaning that all census tracts have the same racial/ethnic composition as the entire metropolitan area (maximum integration), to a high of 1, if all census tracts contained one group only (maximum segregation).

Residential segregation is decreasing over time at the regional scale

56. Residential Segregation, 1980 to 2010



Sources: U.S. Census Bureau; Geolytics. See the "Data and methods" section for details of the residential segregation index calculations.

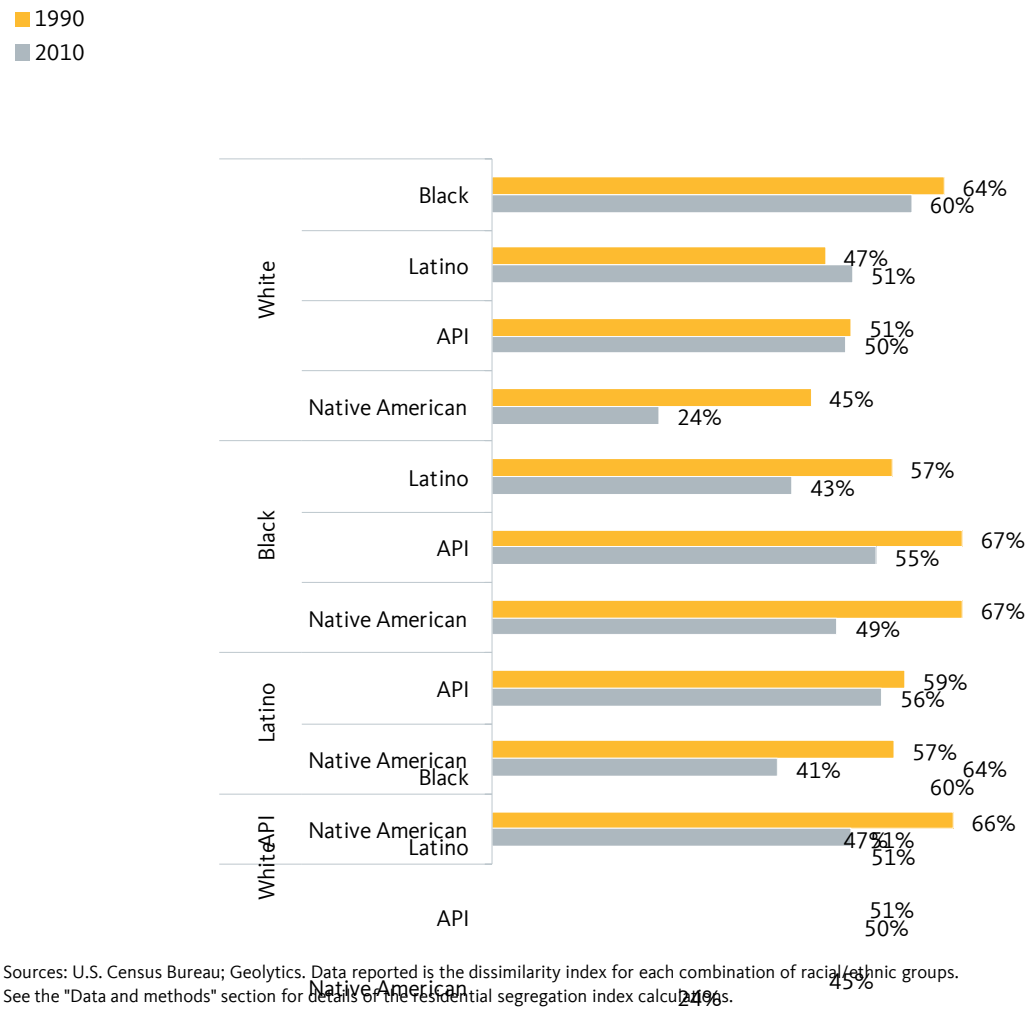
Connectedness

Increased integration among people of color

While racial segregation overall has been on the decline in the region, the trend has largely been due to a rise in integration among communities of color rather than between whites and people of color. As shown by the dissimilarity index, which estimates the share of a given racial/ethnic group that would need to move to a new neighborhood to achieve complete integration, segregation among all groups of color has declined greatly since 1990, with the exception of Latinos and Asians, who only experienced a slight decline in segregation. While segregation between whites and blacks went down slightly, segregation between whites and Latinos increased, and segregation between whites and Asians remained unchanged. Segregation between all groups and Native Americans declined substantially, but this is attributable to the very small size of the Native American population in the region.

Segregation among all groups of color has decreased, but white-Latino segregation increased

57. Residential Segregation, 1990 and 2010, Measured by the Dissimilarity Index.



Sources: U.S. Census Bureau; Geolytics. Data reported is the dissimilarity index for each combination of racial/ethnic groups.
See the "Data and methods" section for details of the residential segregation index calculations.

Connectedness

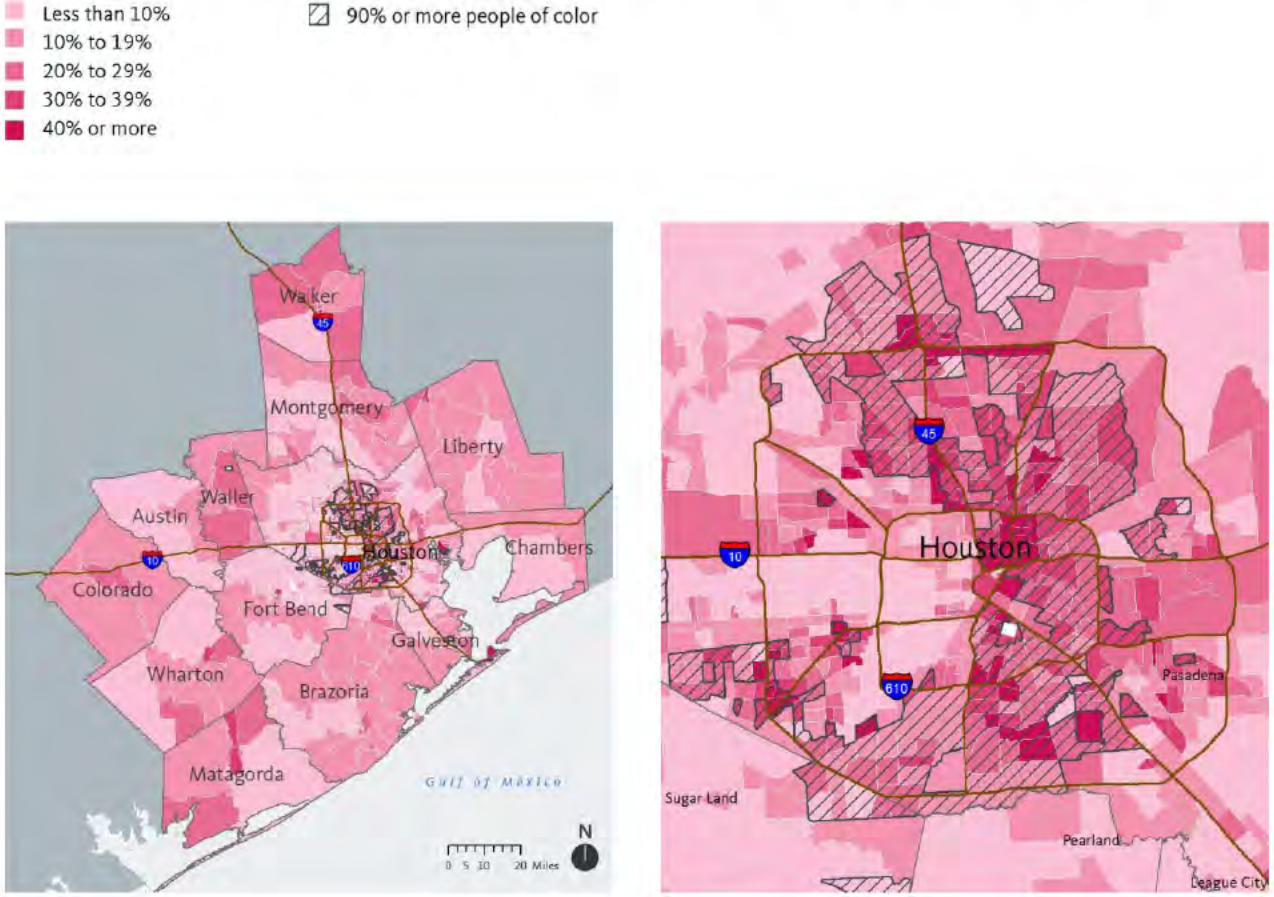
Concentrated poverty a challenge for communities of color

In Houston-Galveston, the share of people living in high-poverty neighborhoods (those with poverty rates 40 percent or higher) has doubled since 1980, rising from 1.8 percent to 3.6 percent. People of color are much more likely to live in these neighborhoods than whites: nearly 6 percent of people of color live in high-poverty tracts compared with less than 1 percent of whites. In neighborhoods with the highest shares of people of color (90 percent or more), the average poverty rate is about 28 percent, compared with 15 percent for the region overall.

As these maps show, high poverty rates are found both in the city of Houston's communities of color and in the cities of Galveston and Baytown in Galveston and Harris county. Most of the counties in the region include neighborhoods with moderately high poverty (20 to 40 percent).

Areas of high poverty (40 percent or higher) are found primarily in the cities of Houston, Galveston, and Baytown

58. Percent Population Below the Poverty Level by Census Tract and High People-of-Color Tracts, 2006-2010



Source: U.S. Census Bureau. Areas in white are missing data.

Connectedness

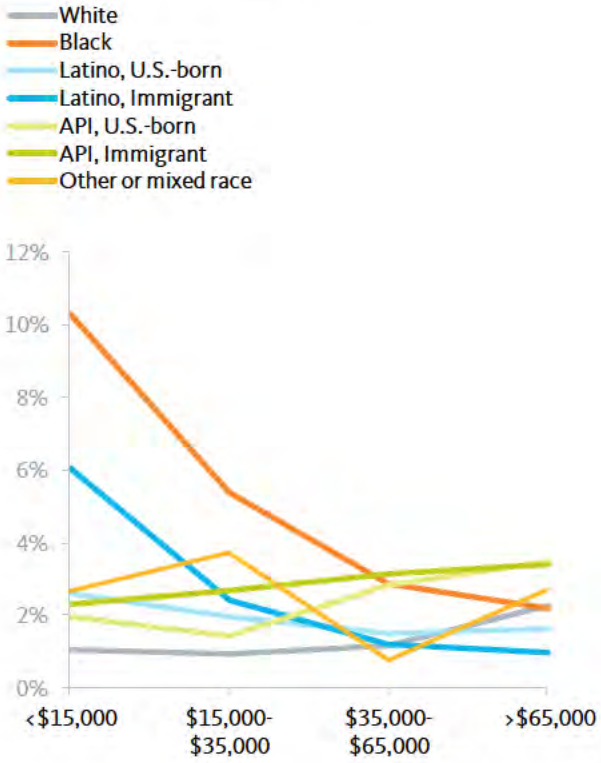
People of color are more likely to rely on the region's transit system to get to work

Income and race both play a role in determining who uses Houston-Galveston's bus and rail system to get to work. Very low-income African Americans and Latino immigrants are most likely to get to work using public transit, but transit use declines rapidly for these groups as incomes increase. For whites and Asians, public transit use actually increases among higher-income workers.

Households of color are much less likely to own cars than whites. Across the region, 97 percent of white households have at least one car, but among households headed by a person of color, only 91 percent do. African American, Native American, and Latino households are the most likely to be carless.

Transit use varies by income and race

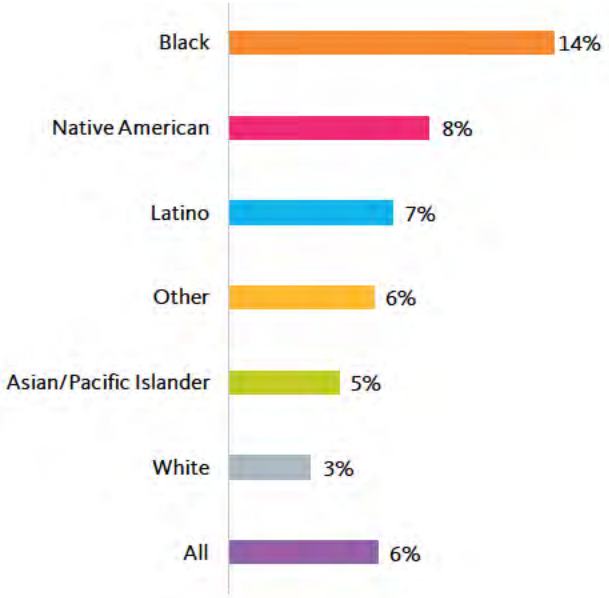
59. Percent Using Public Transit by Annual Earnings and Race/Ethnicity/Nativity, 2006-2010



Source: IPUMS. Universe includes workers ages 16 and older with earnings.

Households of color are less likely to own cars

60. Percent of Households without a Vehicle by Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes all households (no group quarters).

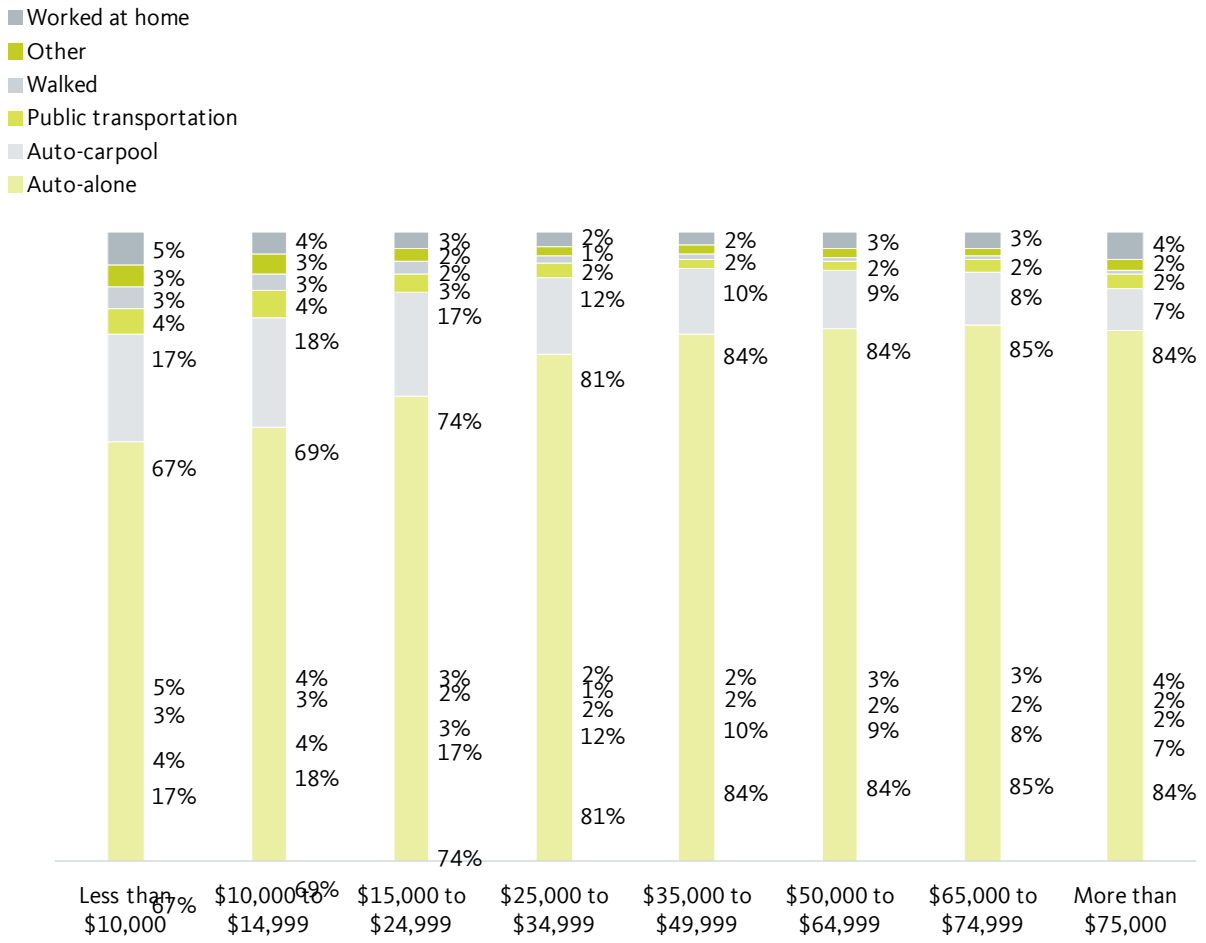
Connectedness

How residents commute varies by income

Most residents in the region – 79 percent – drive alone to work, placing the region in the top third of the largest 150 metros in its share of lone commuters. Single-driver commuting varies by income, however. Only 67 percent of very low-income workers (earning under $15,000 per year) drive alone to work, compared with 84 percent of workers that make over $65,000 a year.

Lower-income residents are less likely to drive alone to work

61. Means of Transportation to Work by Annual Earnings, 2006-2010



Source: U.S. Census Bureau. Universe includes workers ages 16 and older with earnings.

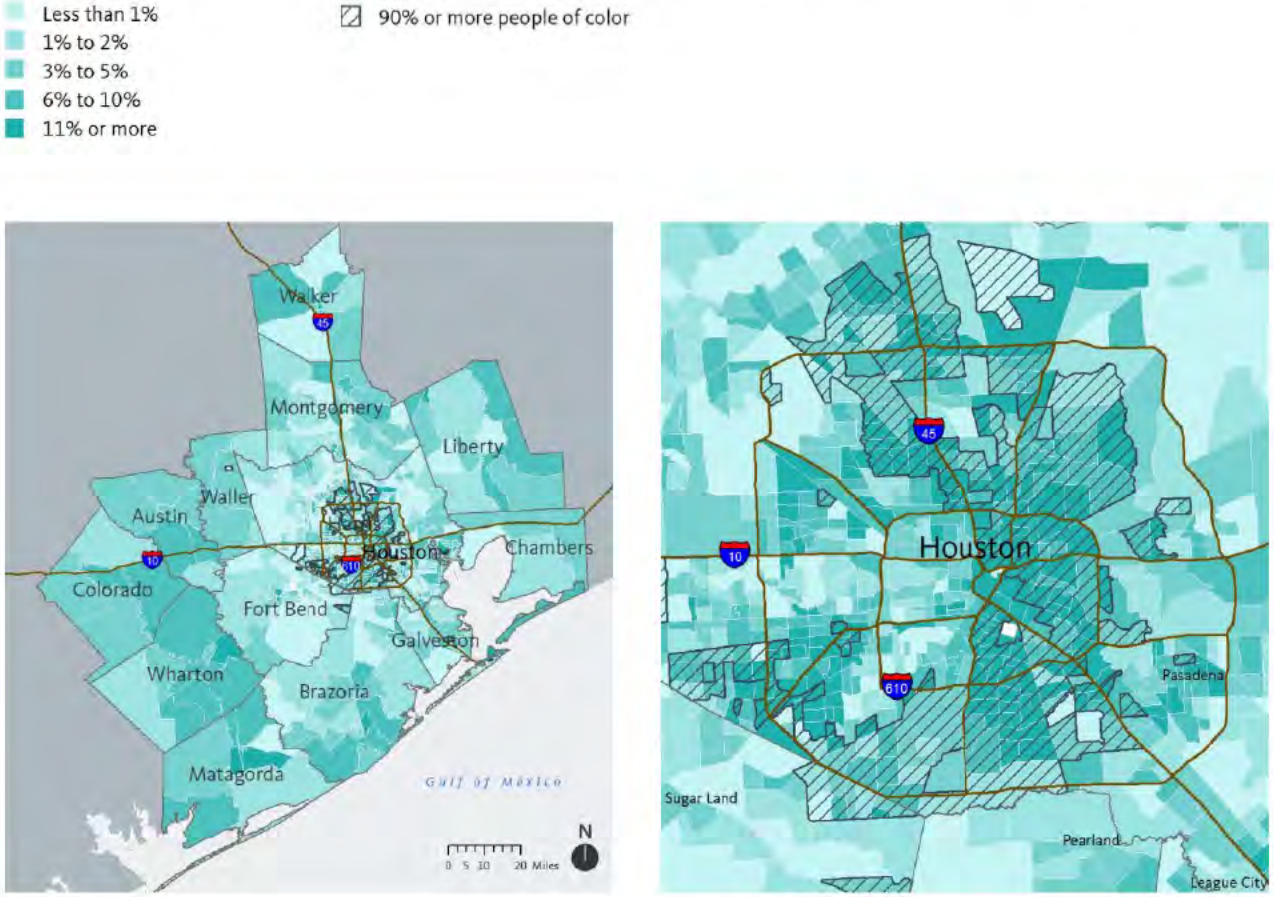
Connectedness

Communities of color are more likely to be carless

Although the vast majority of households have access to at least one vehicle, vehicle access varies across the region. Neighborhoods with relatively high shares of carless households are found not only within the city limits of Houston, but also at the region's periphery. Carlessness is also particularly high in areas with high concentrations of people of color, which are mostly located within Houston proper.

Concentrations of households without a vehicle are focused in the City of Houston and at the region's periphery

62. Percent of Households Without a Vehicle by Census Tract and High People-of-Color Tracts, 2006-2010



Source: U.S. Census Bureau. Areas in white are missing data.

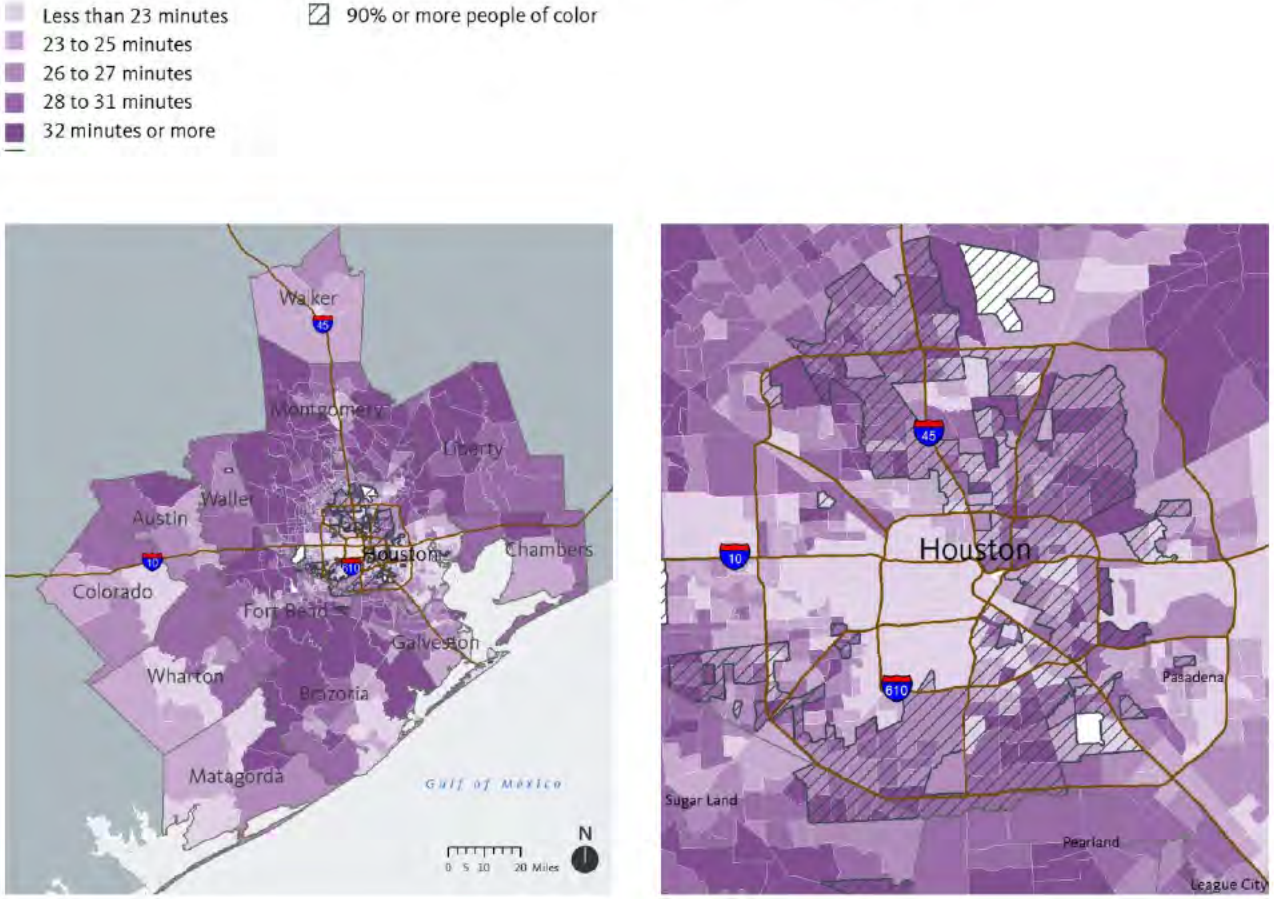
Connectedness

Long commutes for inner-city communities of color and many suburban communities

Workers living in areas west and east of downtown Houston have the shortest commutes. Most, though not all, of the neighborhoods with the highest shares of people of color have medium to long commutes. Many areas of Montgomery, Liberty, Fort Bend, and (to a lesser extent) Brazoria Counties, also have long commutes for workers.

Workers throughout the region have long commute times, including neighborhoods in the City of Houston

63. Average Travel Time to Work by Census Tract and High People-of-Color Tracts, 2006-2010



Source: U.S. Census Bureau. Areas in white are missing data.

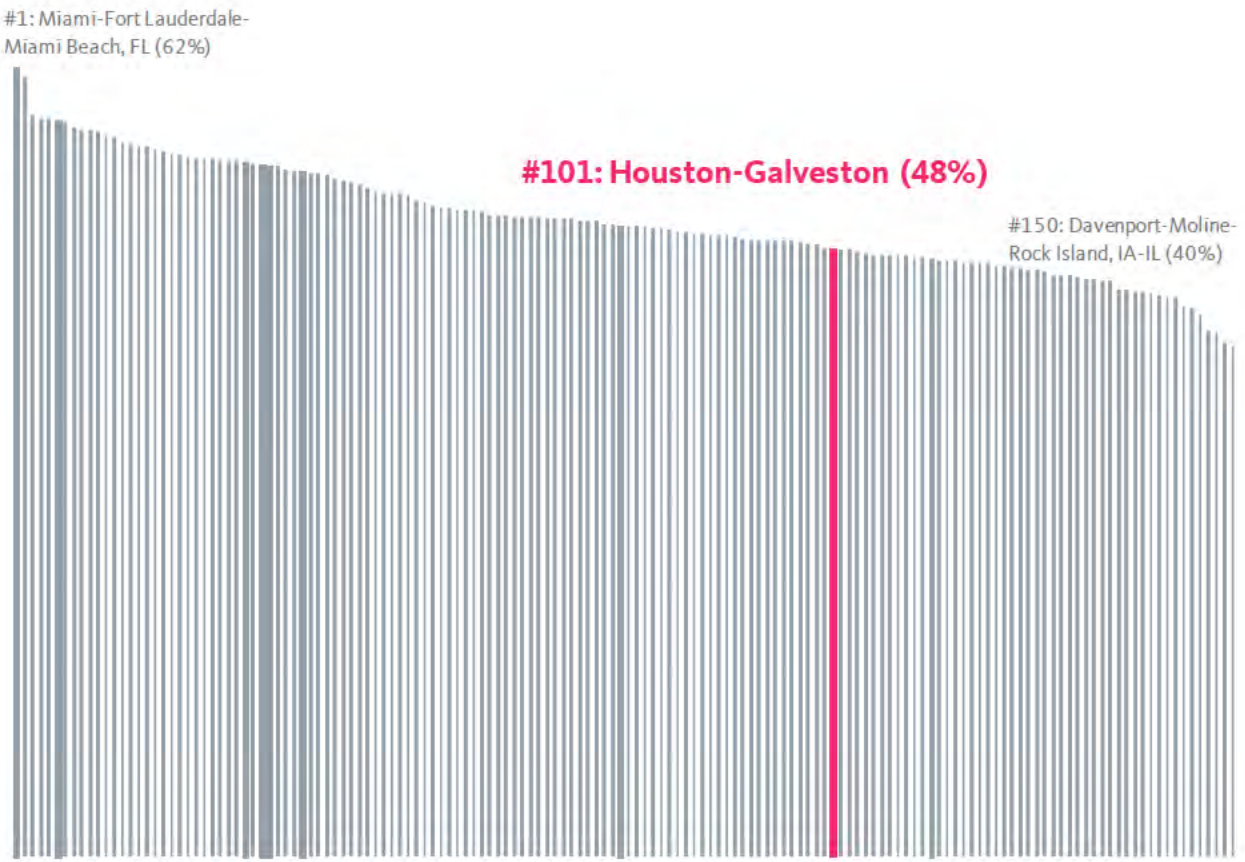
Connectedness

A relatively low-cost housing market

Houston-Galveston has relatively low housing costs, ranking 101st in renter housing burden and 90th in homeowner housing burden among the largest 150 metros. Still, nearly half of renters are housing burdened, defined as spending more than 30 percent of their income on housing. Compared with other similarly-sized Southern metros, this is much better than Miami (62 percent), slightly better than Atlanta (51 percent), and slightly worse than Dallas (47 percent).

Houston-Galveston has a relatively low ranking for rent-burdened households compared with other regions

64. Share of Households that are Rent Burdened, 2006-2010: Largest 150 Metros Ranked



Source: IPUMS. Universe includes renter-occupied households with cash rent (excludes group quarters).

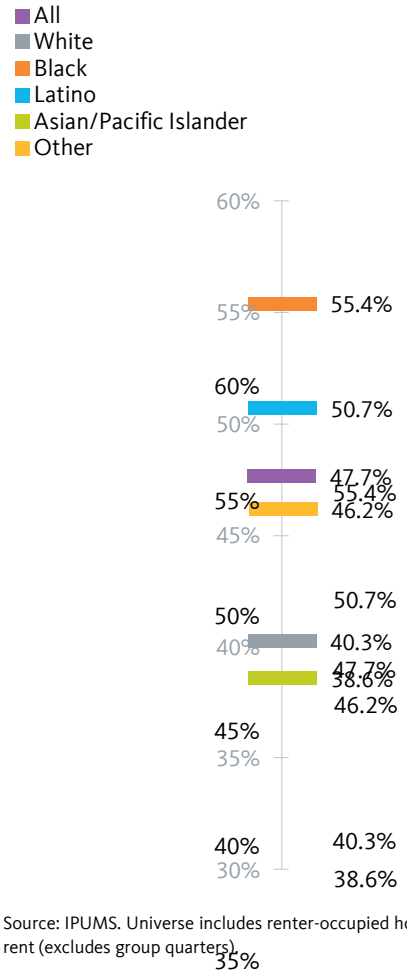
Connectedness

People of color face higher housing burdens

The region's African Americans, Latinos, and people of Other or mixed race are much more likely than whites to spend too large a share of their income on housing, whether they rent or own. Asian homeowners also have higher housing burdens than whites, but this is not the case for Asian renters. Housing burden is defined as paying more than 30 percent of household income toward housing.

African Americans and Latinos have the highest renter housing burden

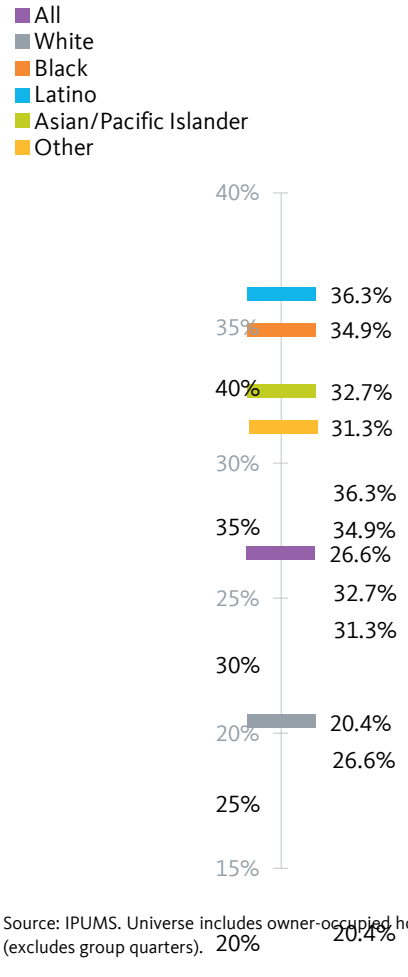
65. Renter Housing Burden by Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes renter-occupied households with cash rent (excludes group quarters).

Latinos and African Americans have the highest homeowner housing burden

66. Homeowner Housing Burden by Race/Ethnicity, 2006-2010



Source: IPUMS. Universe includes owner-occupied households (excludes group quarters).

Connectedness

Jobs-housing mismatch for low-wage workers in some parts of the region

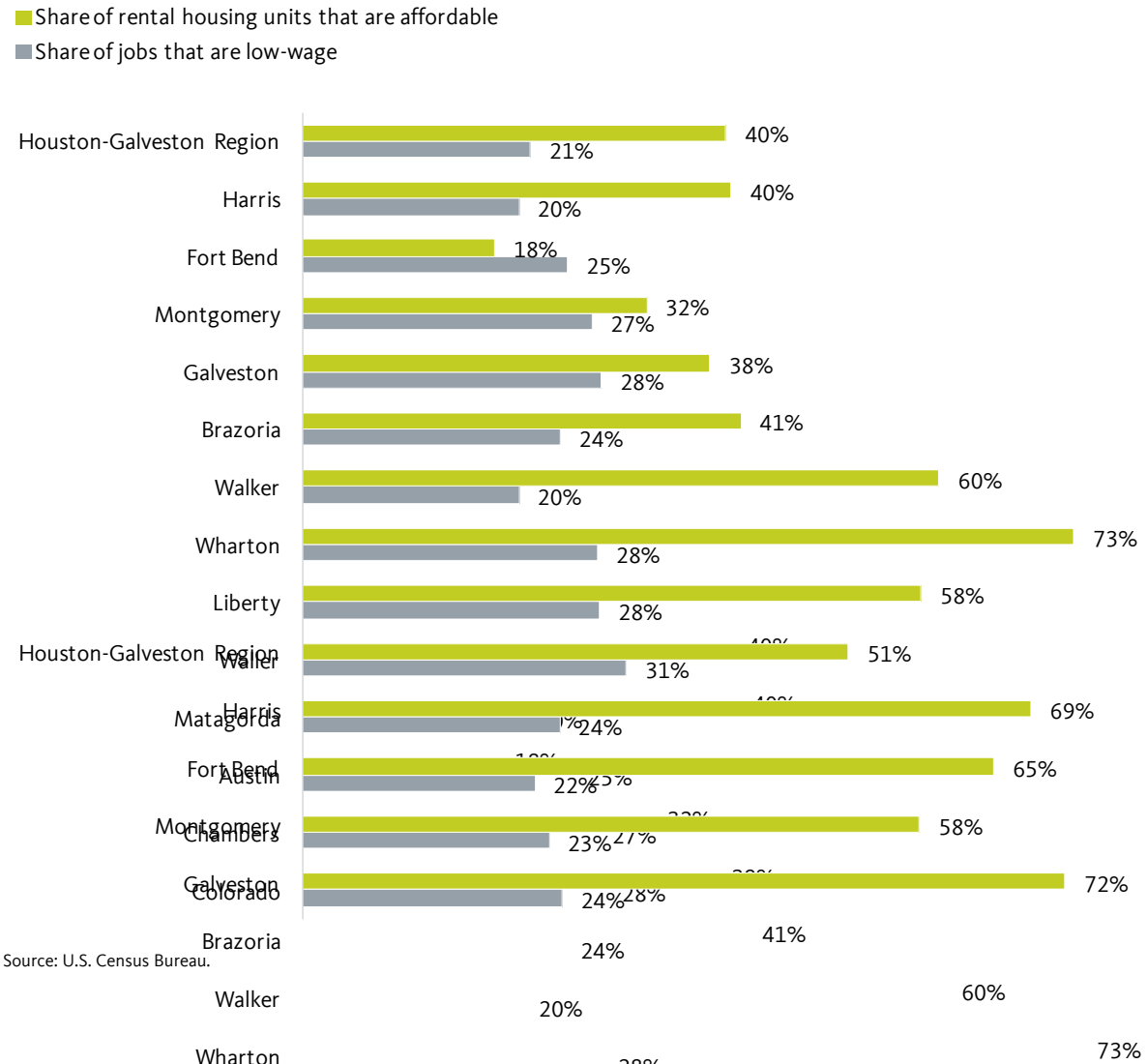
Low-wage workers in the region are likely to find affordable rental housing – but it may not be close to work. Across the region, 21 percent of jobs are low-wage (paying $1,250 per month or less) and 40 percent of rental units are affordable (defined as having rent of $749 per month or less, which would be 30 percent or less of two low-wage workers' incomes).

Among the more densely populated counties surrounding Harris County, Brazoria and Galveston Counties have a relatively high share of affordable rentals and Montgomery is less affordable. Fort Bend has the most room to grow – it is the only county for which the share of low-wage jobs is higher than the share of affordable rental housing.

Beyond the urban core, affordable rentals are relatively abundant, with Wharton, Colorado, and Matagorda counties having the highest shares of affordable rentals.

Some counties have a low-wage jobs - affordable housing gap

67. Low-Wage Jobs and Affordable Rental Housing by County



Source: U.S. Census Bureau.

Connectedness

Jobs-housing mismatch for low-wage workers in some parts of the region

(continued)

A low-wage jobs to affordable rental housing ratio in a county with a higher than regional average ratio indicates a lower availability of affordable rental housing for low-wage workers in that county relative to the region overall.

Fort Bend, Montgomery, and Chambers Counties all have higher ratios than the regional average, indicating a potential shortage of affordable units. Fort Bend's ratio is particularly high, at nearly triple the regional average.

Wide range of jobs-housing ratios throughout the region, with Fort Bend having the highest affordability mismatch

68. Low-Wage Jobs, Affordable Rental Housing, and Jobs-Housing Ratios by County

	Jobs (2010)		Housing (2006-10)			Jobs-Housing Ratios	
	All	Low-wage	All	Rental*	Affordable Rental*	All Jobs: All Housing	Low-wage Jobs: Affordable Rentals
Harris	2,058,280	418,739	1,372,163	558,760	225,638	1.5	1.9
Fort Bend	127,973	31,957	167,620	29,555	5,349	0.8	6.0
Montgomery	127,475	34,717	150,546	33,863	10,971	0.8	3.2
Galveston	91,048	25,622	106,617	30,510	11,715	0.9	2.2
Brazoria	80,684	19,573	101,656	22,821	9,420	0.8	2.1
Walker	25,737	5,235	19,902	7,864	4,718	1.3	1.1
Wharton	13,582	3,770	14,808	3,980	2,894	0.9	1.3
Liberty	13,499	3,775	24,034	4,340	2,531	0.6	1.5
Waller	10,920	3,331	13,499	3,727	1,917	0.8	1.7
Matagorda	10,769	2,604	13,786	3,570	2,451	0.8	1.1
Austin	10,060	2,196	10,447	1,873	1,220	1.0	1.8
Chambers	8,907	2,065	11,080	1,346	783	0.8	2.6
Colorado	6,016	1,470	8,205	1,618	1,163	0.7	1.3
Houston-Galveston Region	**2,584,950**	**555,054**	**2,014,363**	**703,827**	**280,770**	**1.3**	**2.0**

*Includes only those units paid for in cash rent.

Source: U.S. Census Bureau.

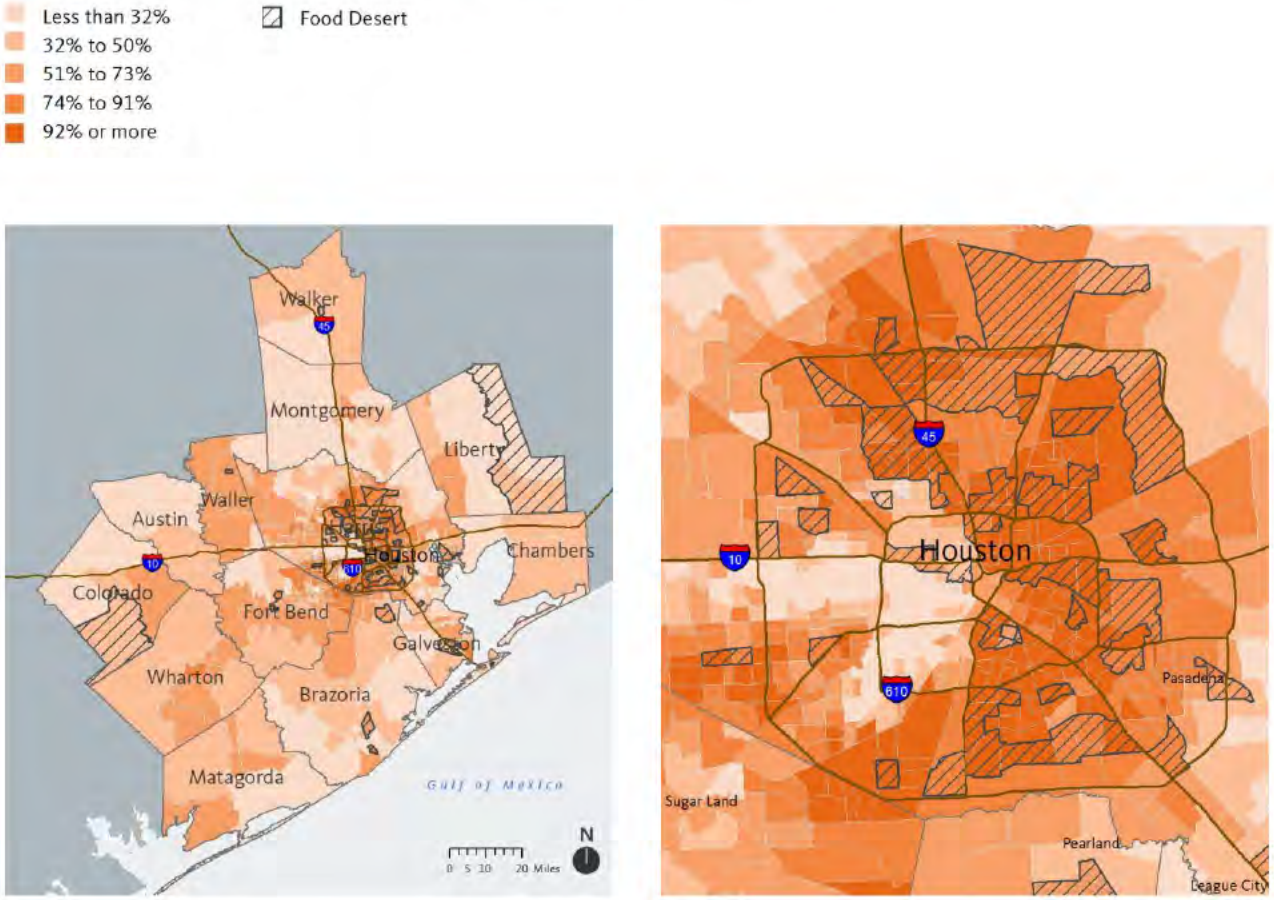
Connectedness

Food deserts are primarily in urban communities of color and rural areas

The region's food deserts, defined as a low-income census tracts where a substantial number or share of residents have low access to a supermarket or large grocery store, are primarily found in neighborhoods that have high shares of people of color. Most are located within Houston city limits and other smaller surrounding cities, such as Galveston, Baytown, Pearland, Richmond, Angleton and Hempstead. Food deserts are also found in the more rural areas of Colorado and Liberty Counties, which are majority white.

Food deserts found throughout the region, but concentrated in the city of Houston and in communities of color

69. Percent People of Color by Census Tract, 2010, and Food Desert Tracts



Sources: Geolytics; U.S. Department of Agriculture. See the "Data and methods" section for details.

Connectedness

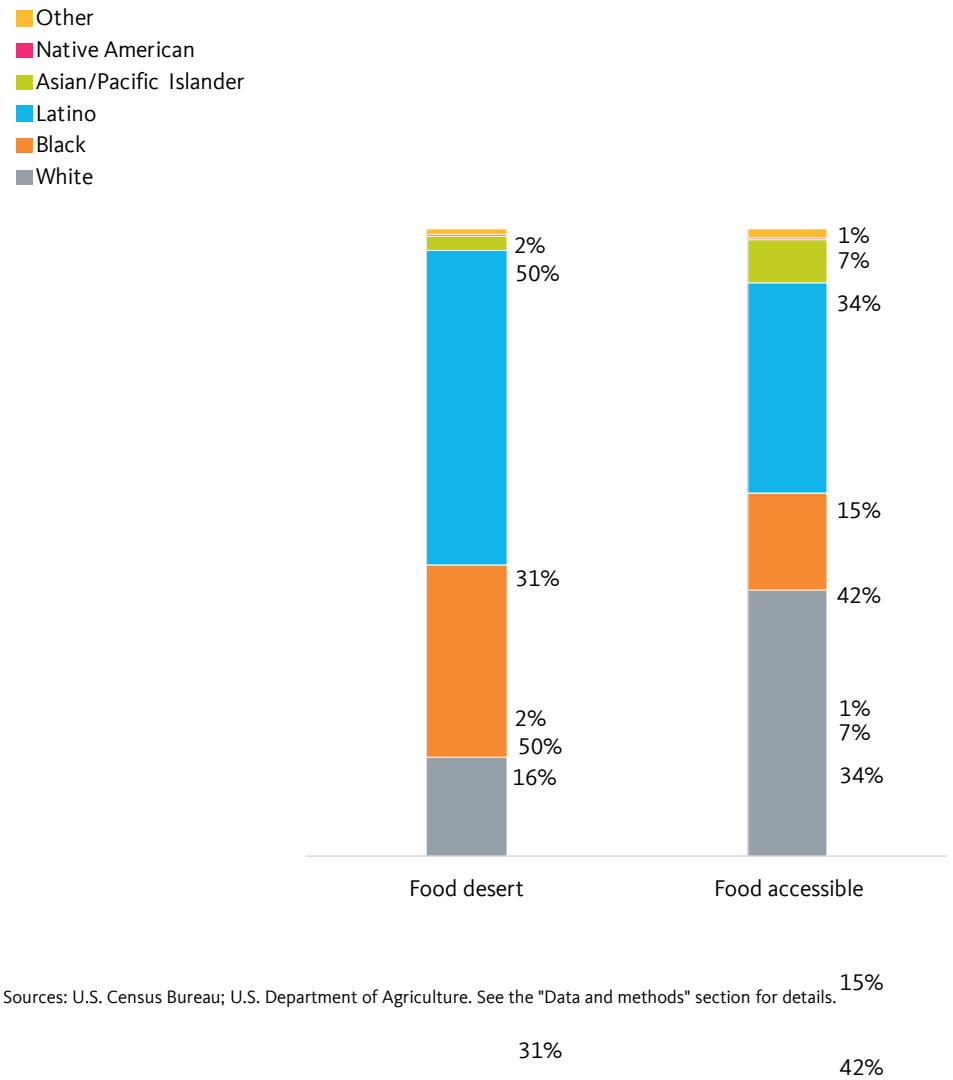
Food deserts are primarily in urban communities of color and rural areas

(continued)

The region's food deserts are home to higher shares of people of color compared with the other neighborhoods in the region. African Americans and Latinos make up a much higher share of the population in food deserts (81 percent) than in areas with better food access (49 percent).

People of color are more likely to live in food deserts

70. Racial/Ethnic Composition of Food Environments, 2010



Sources: U.S. Census Bureau; U.S. Department of Agriculture. See the "Data and methods" section for details.

Implications

Implications
Building a more equitable region

Houston-Galveston has demonstrated remarkable growth over the last few decades, and has proven to be resilient throughout the recession. But growing income inequality and persistent racial inequities among the region's fast-growing communities of color place the region's economic future at risk. To manifest the potential of its population and build a more equitable and sustainable regional economy, Houston-Galveston must take steps to better connect its communities of color to jobs, housing, and quality education from pre-K to college.

PolicyLink and PERE suggest the following areas of focus:

Bridge the racial generation gap

Bridging the racial generation gap between youth of color and a predominantly white senior population will be critical to the region's economy, since support for strong public schools for all children and workforce training are needed to prepare the region's emerging workforce for the jobs of tomorrow. One way to build these bridges is to plan for multigenerational communities, which "make cities and neighborhoods accessible, safe, and inclusive for children, youth, families, adults, and the elderly."[1] This will allow the elderly to age in place at the same time as provide safe and healthy environments for families to raise children. By identifying infrastructure investments that suit these needs, Houston-Galveston can create built environments with appropriate community facilities and public spaces. With active and accessible public engagement in its local and regional planning, Houston-Galveston can develop new diverse leaders for meeting tomorrow's challenges.

Grow good jobs

Houston-Galveston has the unprecedented opportunity to grow jobs in high-opportunity sectors. With sharply increasing inequality and the 11th highest working poverty rate among the largest 150 metropolitan regions, it is imperative that strategies for job growth focus on middle-wage jobs. The region can focus its economic and workforce development efforts on the industry sectors and occupations that show signs of strength and pay living wages. Policies and strategies that ensure strong and rising wages, especially for low-wage workers, should also be supported.

Connect unemployed and low-wage workers to careers in high-growth industries

Houston-Galveston is fortunate to have a number of occupations that show strong potential to grow and create more good-paying jobs. It is vital for Houston-Galveston to connect its connect who have suffered from job losses and low wage growth with middle-skills jobs that pay good wages and offer career opportunities. Houston-Galveston must mobilize its economic and workforce development resources to create workforce partnerships between community colleges and employers, ensuring that all workers – including those who face high barriers to employment or have low educational attainment – can get the advanced training or education they need to succeed. These partnerships will be essential for building a workforce that is prepared for

Implications
Building a more equitable region
(continued)

jobs in the region's strong and growing industries. Additionally, public infrastructure investments throughout the region present an opportunity to build bridges out of poverty. Construction jobs offer workers without a college degree a viable path to a well-paying career.

Identify educational pathways
Educational attainment for African Americans and Latinos remains a critical issue, even as progress has been made over the last few decades to close racial gaps. The high number of youth not in school or work highlights the importance of increasing high school and associate degree graduation rates throughout the region.

Create healthier communities
Investments in healthy communities would reduce health gaps for people of color, create more vibrant places, and strengthen economic productivity and result in overall health-care costs savings. By making neighborhoods healthier – with safe streets for all users, access to healthy food, and good community design – the region can create a supportive built environment for reducing these persistent health gaps.

Expand transportation choices and mobility
It is critical that Houston-Galveston focus its transportation investments to connect transit-dependent residents to employment centers and housing that are affordable for all incomes. Regional planning must incentivize and prioritize the development and preservation of housing that is affordable for the majority of the region's population and that is co-located with multimodal transportation investments. To fulfill the region's economic development and growth goals, Houston-Galveston must coordinate transportation, housing, and economic development investments to address concentrated poverty, segregation, housing, and transportation burdens – all of which have disproportionately negative effects on communities of color.

[1] American Planning Association, "Multigenerational Planning: Using smart growth and universal design to link the needs of children and the aging population." 2011, http://www.planning.org/research/family/briefingpapers/multigenerational.htm.

Data and methods

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 13-county regional definition used by the Houston-Galveston Area Council (HGAC), and includes the following counties: Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton.

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

Source	Dataset
Integrated Public Use Microdata Series (IPUMS)	1980 5% State Sample
	1990 5% Sample
	2000 5% Sample
	2006 through 2010 American Community Survey (ACS), pooled single-year, 1%, samples
	2010 American Community Survey
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)
	2000 Summary File 3 (SF3)
	2010 ACS 5-year Summary File (2010 5-year ACS)
	2010 Summary File 1 (SF1)
	2010 Local Employment Dynamics, LODES 6
	2008 National Population Projections
	Cartographic Boundary Files, 2000 Census Block Groups
	2010 TIGER/Line Shapefiles, 2010 Census Tracts
	2010 TIGER/Line Shapefiles, 2010 Counties
Geolytics	1980 Long Form in 2000 Boundaries
	1990 Long Form in 2000 Boundaries
	2010 Summary File 1 in 2000 Boundaries
U.S. Department of Agriculture	Food Desert Locator
Woods & Poole Economics	2011 Complete Economic and Demographic Data Source
U.S. Bureau of Economic Analysis	Gross Domestic Product by State, 1979 through 2010
	Gross Domestic Product by Metropolitan Area, 1979 through 2010
	Local Area Personal Income Accounts, CA30: regional economic profile, 1979 through 2010
U.S. Bureau of Labor Statistics	Quarterly Census of Employment and Wages
	Local Area Unemployment Statistics
	Occupational Employment Statistics
Centers for Disease Control and Prevention	Behavioral Risk Factor Surveillance System

Data and methods

Data source summary and regional geography

(continued)

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 there may be regionally-specific data available that is more recent and/or illuminating than what is presented here, a necessary and often painful choice was made (given our love of all data!) to disregard such sources to serve the higher purpose of comparability and replicability over time.

Data and methods
Selected terms and general notes

Broad racial/ethnic origin
In all of the analysis 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 U.S., of non-American parents.

Detailed racial/ethnic ancestry
Given the diversity of ethnic origin and substantial presence of immigrants among the Latino and Asian populations, we sometimes present data for more detailed racial/ethnic categories within these groups. In order to maintain consistency with the broad racial/ethnic categories, and to enable the examination of second-and-higher generation immigrants, these more detailed categories (referred to as "origin" or "ancestry") are drawn from the same two questions on race and Hispanic origin. For example, while country-of-origin information could have been used to identify Filipinos among the Asian population or Salvadorans among the Latino population, it could only do so for immigrants, leaving only the broad "Asian" and "Latino" racial/ethnic categories for the U.S.-born population. While this methodological choice makes little difference in the numbers of immigrants by detailed origin we report – i.e., the vast majority of immigrants from El Salvador mark "Salvadoran" under Hispanic origin – it is an important point of clarification.

Data and methods

Selected terms and general notes

(continued)

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 above.
- The term "neighborhood" is used at various points throughout the equity profile. While in the introductory portion of the profile this term is meant to be interpreted in the colloquial sense, in relation to any data analysis it refers to census tracts.
- The term "communities of color" generally refers to distinct groups defined by race/ethnicity among people of color.
- The term "high-poverty neighborhood" refers to census tracts with a poverty rate of greater than or equal to 40 percent.
- The term "high POC tracts" (or "high people-of-color tracts") refers to census tracts in which people of color account for 90 percent of the population or more.
- 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 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 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.

Data and methods

Selected terms and general notes

(continued)

General notes on analyses

Below we provide some general notes about the analysis conducted:

- At several points in the profile we present rankings comparing the profiled region to the "largest 150 metros" or "largest 150 regions," and refer in the text to how the profiled region compares with these 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. For example, for the profile created for the 13-county area served by the Houston-Galveston Area Council, we substitute the 13-county region in for the official 10-county Houston-Baytown-Sugar Land metro area.
- In regard to monetary measures (income, earnings, wages, etc.) the term "real" indicates the data has been adjusted for inflation. 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.
- Some may wonder why the graph on page 33 indicates the years 1979, 1989, and 1999 rather than the actual survey years from which the information is drawn (1980, 1990, and 2000, respectively). This is because income information in the decennial census for those years is reported for the year prior to the survey. While seemingly inconsistent, the actual survey years are indicated in the graphs on page 37 depicting rates of poverty and working poverty, as these measures are partly based on family composition and work efforts at the time of the survey, in addition to income from the year prior to the survey.

Data and methods

Summary measures from IPUMS microdata

About 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 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 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 2006 through 2010 period.

Compared with the more commonly used census "summary files," which includes 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 provide a more nuanced view of groups defined by age, race/ethnicity, and nativity in each region of the United States.

A note on sample size

While the IPUMS microdata allows for the tabulation of detailed population characteristics, it is important to keep in mind that 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 $N < 100$).

Geography of IPUMS microdata

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" in 1980. PUMAs are generally 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.

The major challenge for our purposes is that PUMAs do not neatly align with the boundaries of metropolitan areas, often with several PUMAs entirely contained within the core of the metropolitan area but several other, more peripheral PUMAs straddling the metropolitan area boundary.

The map of 2000 PUMAs shown on the following page illustrates the geographic issue, using the Houston-Galveston region as an example. Each PUMA is given a unique color, and overlaid on the PUMAs are county boundaries and the boundaries of the Houston-Galveston region.

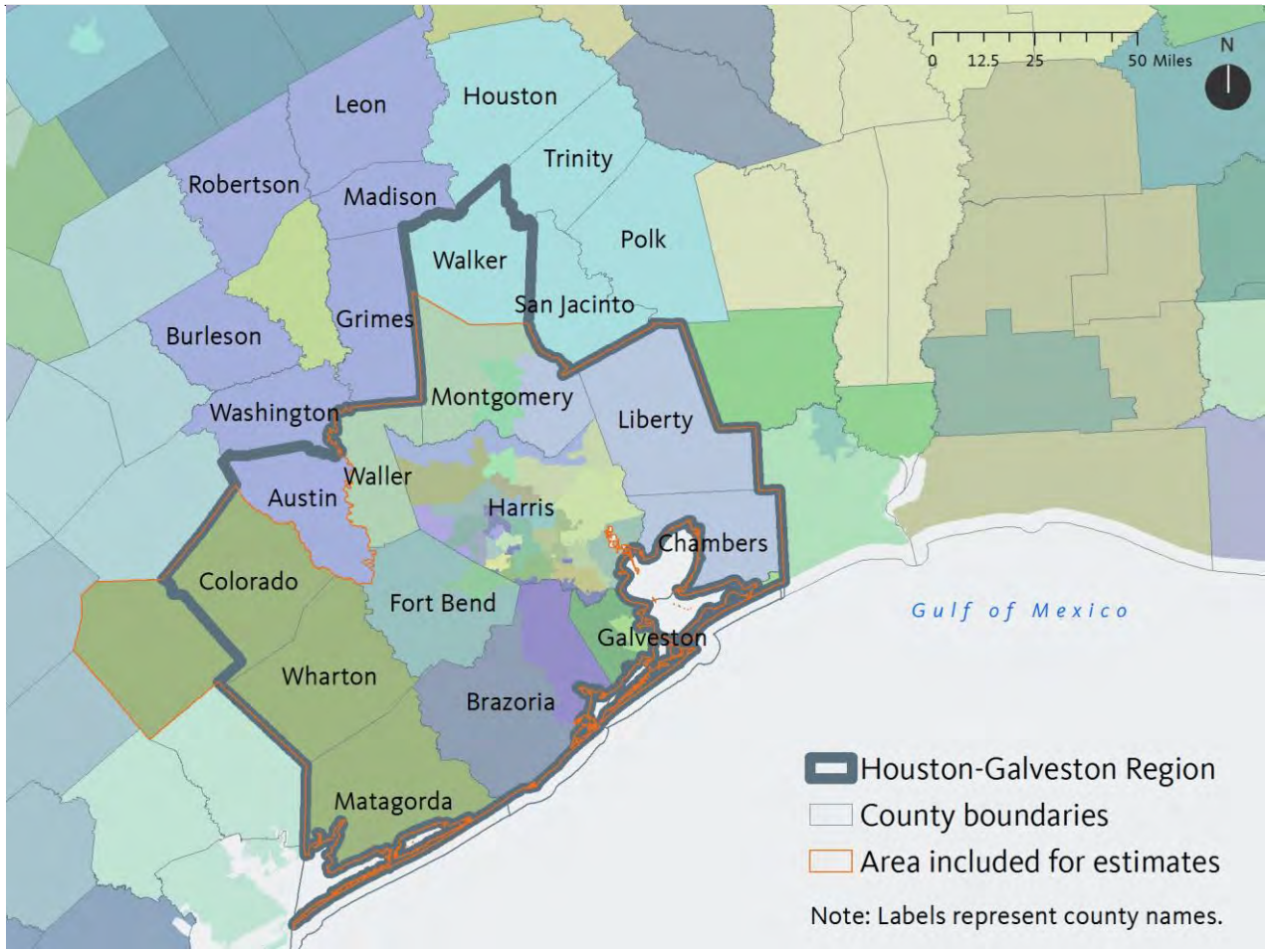
Data and methods

Summary measures from IPUMS microdata

(continued)

The area outlined in orange is the area that was used to generate summary measures for the region from the 2000 microdata. As can be seen, the area used for estimation approximates the region but does not match it perfectly. For example, Lavaca County to the west falls outside the region but is included because it is part of the same PUMA that contains Colorado, Wharton and Matagorda Counties – which are a part of the region.

Walker and Austin Counties, while part of the region, are excluded from our estimates because the PUMAs they are a part of include several counties that fall outside the region. Adding to the challenge is that while the same PUMAs were used for both the 2000 and 2006-2010 microdata, the 1980 and 1990 microdata each have their own distinct PUMA geographies. Thus, in order to summarize measures at the regional level, we had to first create a set of geographic crosswalks between the PUMAs and the region for each year of microdata, down-weighting appropriately when PUMAs extended beyond the regional boundary.



Data and methods

Summary measures from IPUMS Microdata

(continued)

PUMA-to-Region Crosswalk

To create a geographic crosswalk between PUMAs and the region for the 1980, 1990, 2000, and 2006-2010 microdata, we estimated the share of each PUMA's population that fell inside the region using population information for each year from Geolytics at the 2000 census block group level of geography (2010 population information was used for the 2006-2010 geographic crosswalk). If the share was at least 50 percent, then the PUMAs were assigned to the region and included in generating our regional summary measures. For most PUMAs assigned to the region, the share was 100 percent – and we refer to these below as "completely contained" PUMAs. 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. For example, in the map shown earlier, the PUMA containing Lavaca, Colorado, Wharton, and Matagorda Counties was estimated to have 83 percent of its population falling inside the region (in Colorado, Wharton, and Matagorda Counties), and 17 percent outside the region (in Lavaca County). Because we cannot identify where individuals in microdata in this PUMA live – we only know their PUMA – we downweighted all individuals from this PUMA by 17 percent (multiplying their survey weights by 0.83) when making estimates for the region. Finally, we made one final adjustment to the individual survey weights in the microdata to ensure that the weighted sum of the population from the PUMAs assigned to the region matched the regional total population that we got from the official census summary files for each year. In terms of our example shown earlier, our population estimate for the region based on the microdata was likely to be too low given that it excludes Austin and Walker Counties. Thus, we calculated a "regional adjustment factor" that was equal to the total population count we got for the region from the 2000 Census Summary File 1 divided by the weighted sum of the population across the included PUMAs (after applying the PUMA adjustment factor described earlier). Thus, the final adjusted survey weight we used to make all regional estimates was equal to the product of the original survey weight in the IPUMS microdata, the PUMA adjustment factor, and the regional adjustment factor. The table below summarizes the characteristics of the geographic fit for the Houston-Galveston region for each year of the microdata:

	1980	1990	2000	2006-2010
Percentage of regional population from "completely contained" PUMAs	1.0000	0.9680	0.9794	0.9828
Regional adjustment factor	1.0076	1.0105	1.0196	1.0088

Data and methods

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

Demographic change and what is referred to as the "racial generation gap" (pages 24-25) are important elements of the equity profile. Due to their centrality, care was taken to generate consistent estimates of people by race/ethnicity and age group (under 18, 18-64, and over 64) 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 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 taken from the 1990 Modified Age Race Sex (MARS) file – a 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

On page 22, national projections of the non-Hispanic white share of the population are shown. These are based on the latest national projections from the U.S. Census Bureau of the population by race/ethnicity at the time of the analysis (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.

As noted above, 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.

Data and methods

Adjustments made to demographic projections

(continued)

County and regional projections

On page 23, 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 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, GRP, and GSP

The data presented on page 28 on national Gross Domestic Product (GDP) and its analogous regional measure, Gross Regional Product (GRP) – both referred to as GRP in the text – is 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 2010. 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 is 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 NAICS basis occurred in 1997, BEA also provides estimates under a 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, GRP, and GSP

(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

Page 36 of the equity profile shows a decline in the share of households falling in the middle class in the region over the past four decades. To analyze middle-class decline, 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

We report analyses of jobs and wages by industry and "industry strength" on pages 42-45. These analyses were based on a 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' Complete Economic and Demographic Data Source (CEDDS), which contains complete jobs and wages data for broad, two-digit NAICS industries at multiple geographic levels. (Proprietary issues barred us from using CEDDS 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 CEDDS 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 CEDDS data.

To make for a more accurate application of the CEDDS, we made some adjustments to it to better align it with the QCEW. One of the challenges of using CEDDS as a "filler dataset" is that it includes all workers, while QCEW includes only wage and salary workers. To normalize the CEDDS 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 is available on an annual basis, the CEDDS is available on a decadal basis until 1995, at which point it becomes available on an annual basis. For the 1990-1995 period, we estimated the CEDDS annual jobs and wages 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 is 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

Change in jobs and wages by industry/wage level, 1990 to 2010

The analysis presented on pages 42-43 uses our filled-in QCEW dataset (for more on the creation of this dataset, see the previous page, "Assembling a complete dataset on employment and wages by industry"), and seeks to track shifts in regional industrial job composition and wage growth over time 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-, medium-, 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-, medium-, 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/research/reports/2012/04 /26-baltimore-economy-vey.

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

Pages 46-54 of the equity profile present an analysis of "occupational opportunity." The analysis seeks to identify occupations in the region that are of "high opportunity" for workers, but also to associate each occupation with a "typical" level of education that is held by workers in that occupation, so that specific occupations can be examined by their associated opportunity level for workers with different levels of educational attainment. In addition, once each occupation in the region is defined as being of either high, medium, or low opportunity, based on the "Occupation Opportunity Index," this general level of opportunity associated with jobs held by workers with different education levels and backgrounds by race/ethnicity/nativity is examined, in an effort to better understand differences in access to high-opportunity occupations in the region while holding broad levels of educational attainment constant.

There are several 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 pooled 2006-2010 IPUMS American Community Survey (ACS) 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 (i.e., unweighted $N < 30$) 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 data of considerably more detail is available in the OES, it was necessary to aggregate the OES data to the three-digit SOC level in order to associate education levels with the occupations. This information is not available in the OES data, and was estimated using 2010 IPUMS ACS microdata. Given differences in between the two

Data and methods

Analysis of occupations by opportunity level

(continued)

datasets in the way occupations are coded, the three-digit SOC level was the most detailed level at which a consistent crosswalk could be established.

Fourth, while most of the data used in the analysis are regionally specific, information on the education level of "typical workers" in each occupation, which is used to divide occupations in the region into the three groups by education level (as presented on pages 48-50), was estimated using national 2010 IPUMS ACS microdata (for the employed civilian noninstitutional population ages 16 and older). Although regionally specific data would seem to be the better choice, given the level of occupational detail at which the analysis is conducted, the sample sizes for many occupations would be too small for statistical reliability. And, while using pooled 2006-2010 data would increase the sample size, it would still not be sufficient for many regions, so national 2010 data were chosen given the balance of currency and sample size for each occupation.

The implicit assumption in using national data is that the occupations examined are of sufficient detail that there is not great variation in the typical educational level of workers in any given occupation from region to region. While this may not hold true in reality, we would note that a similar approach was used by Jonathan Rothwell and Alan Berube of the Brookings Institution in *Education, Demand, and Unemployment in Metropolitan America* (Washington D.C.: Brookings Institution, September 2011).

We should also note that the BLS does publish national information on typical education needed for entry by occupation. However, in comparing this data with the typical education levels of actual workers by occupation that were estimated using ACS data, there were important differences, with the BLS levels notably lower (as expected). The levels estimated from the ACS were determined to be the appropriate choice for our analysis as they provide a more realistic measure of the level of educational attainment necessary to be a viable job candidate – even if the typical requirement for entry is lower.

Fifth, it is worthwhile to clarify an important distinction between the lists of occupations by typical education of workers and opportunity level, presented on pages 48-50, and the charts depicting the opportunity level associated with jobs held by workers with different education levels and backgrounds by race/ethnicity/nativity, presented on pages 52-54. While the former are based on the national estimates of typical education levels by occupation, with each occupation assigned to one of the three broad education levels described, the latter are based on actual education levels of workers in the region (as estimated using 2006-2010 IPUMS ACS microdata), who may be employed in any occupation, regardless of its associated "typical" education level.

Lastly, it should be noted that for all of the occupational analysis, it was an intentional decision to keep the categorizations by education and opportunity level fairly broad,

Data and methods

Analysis of occupations by opportunity level

(continued)

with three categories applied to each. For the categorization of occupations, this was done so that each occupation could be more justifiably assigned to a single typical education level; even with the three broad categories some occupations had a fairly even distribution of workers across them nationally, but, for the most part, a large majority fell in one of the three categories. In regard to the three broad categories of opportunity level, and education levels of workers shown on pages 52-54, this was kept broad to ensure reasonably large sample sizes in the 2006-2010 IPUMS ACS microdata that were used for the analysis.

Data and methods
Health data and analysis

Health data in this study were taken from the Behavioral Risk Factor Surveillance System (BRFSS) database, housed in the Centers for Disease Control and Prevention. The BRFSS database is created from randomized telephone surveys conducted by states, which then incorporate their results into the database on a monthly basis.

The results of this survey are self-reported and the population includes all related adults, unrelated adults, roomers, and domestic workers who live at the residence. The survey does not include adult family members who are currently living elsewhere, such as at college, a military base, a nursing home, or a correctional facility.

The most detailed level of geography associated with individuals in the BRFSS data is the county. Using the county-level data as building blocks, we created additional estimates for the region, state, and United States.

While the data allow for the tabulation of personal health characteristics, it is important to keep in mind that 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.

To increase statistical reliability, we combined five years of survey data, for the years 2006 through 2010. As an additional effort to avoid reporting potentially misleading estimates, we do not report any estimates that are based on a universe of fewer than 100 individual survey respondents (i.e., unweighted $N < 100$). This is similar to, but more stringent than, a rule indicated in the documentation for the 2010 BRFSS data of not reporting (or interpreting) percentages based on a denominator of fewer than 50 respondents. Even with this sample size restriction, regional estimates for smaller demographic subgroups should be regarded with particular care.

For more information and access to the BRFSS database, please visit http://www.cdc.gov/brfss/index.htm.

Data and methods
Measures of diversity and segregation

In the equity profile we refer to a measure of racial/ethnic diversity (the "Diversity Score" on page 16) and several measures of residential segregation by race/ethnicity (the "multi-group entropy index" on page 66 and the "dissimilarity index" on page 67). While the common interpretation of these measures is included in the text of the profile, the data used to calculate them, and the sources of the specific formulas that were applied, are described below.

All of these measures are based on census-tract-level data for 1980, 1990, 2000, and 2010 from Geolytics. While the data originate from the decennial censuses of each year, an advantage of the Geolytics data we use is that (with the exception of 2000) they have been "re-shaped" to be expressed in 2000 census tracts boundaries, and so the underlying geography for our calculations is consistent over time; the census tract boundaries of the original decennial census data change with each release, which could potentially cause a change in the value of residential segregation indices even if no actual change in residential segregation occurred. In addition, while most all the racial/ethnic categories for which indices are calculated are consistent with all other analyses presented in this profile, there is one exception. Given limitations of the tract-level data released in the 1980 Census, Native Americans are combined with Asians and Pacific Islanders in that year. For this reason, we set 1990 as the base year (rather than 1980) in the chart on page 67, but keep the 1980 data in other analyses of residential segregation as this minor inconsistency in the data is not likely to affect the analyses.

The formulas for the diversity score and the multi-group entropy index were drawn from a 2004 report by John Iceland of the University of Maryland, *The Multigroup Entropy Index (Also Known as Theil's H or the Information Theory Index)* available at: http://www.census.gov/housing/patterns/about/multigroup_entropy.pdf. In that report, the formula used to calculate the Diversity Score (referred to as the "entropy score" in the report), appears on page 7, while the formulas used to calculate the multigroup entropy index (referred to as the "entropy index" in the report), appear on page 8.

The formula for the other measure of residential segregation, the dissimilarity index, is well established, and is made available by the U.S. Census Bureau at: http://www.census.gov/hhes/www/housing/housing_patterns/app_b.html.

Data and methods

Food desert analysis

There are many ways to define a food desert or to measure access to food. The U.S. Department of Agriculture's (USDA's) Healthy Foods Financing Initiative working group defines a food desert as a low-income census tract where a substantial number or share of residents have low access to a supermarket or large grocery store.

To qualify as a "low-income community," a census tract must have either 1) a poverty rate of 20 percent or higher, OR 2) a median family income at or below 80 percent of the statewide or metropolitan area median family income (in the case of urban tracts, the "area median" income applied is the greater of the metro area median and the state median; for rural tracts, the "area median" applied is always the state median).

To qualify as a "low-access community," at least 500 people and/or at least 33 percent of a census tracts' population must reside more than one mile from a supermarket or large grocery store (for rural census tracts, the distance is more than 10 miles).

The USDA's data on population and income are derived from block-level data from the 2000 Census of Population and Housing, which is allocated to a 1-km square grid where it can be matched with data on food access from the Socioeconomic Data and Applications Center.

An inventory of supermarkets and large grocery stores (defined as having at least $2 million in annual sales and similar food departments as those found in a supermarket) was created by the USDA from a directory. The directory consisted of stores authorized to receive Supplemental Nutrition Assistance Program (SNAP) benefits, and was supplemented with data from Trade Dimensions TDLinx (a Nielsen company), a proprietary supermarket store listing – both for the year 2006.

The USDA has released a food desert locator (http://www.ers.usda.gov/data-products/food-desert-locator.aspx) that shows census tracts considered food deserts by the USDA.

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