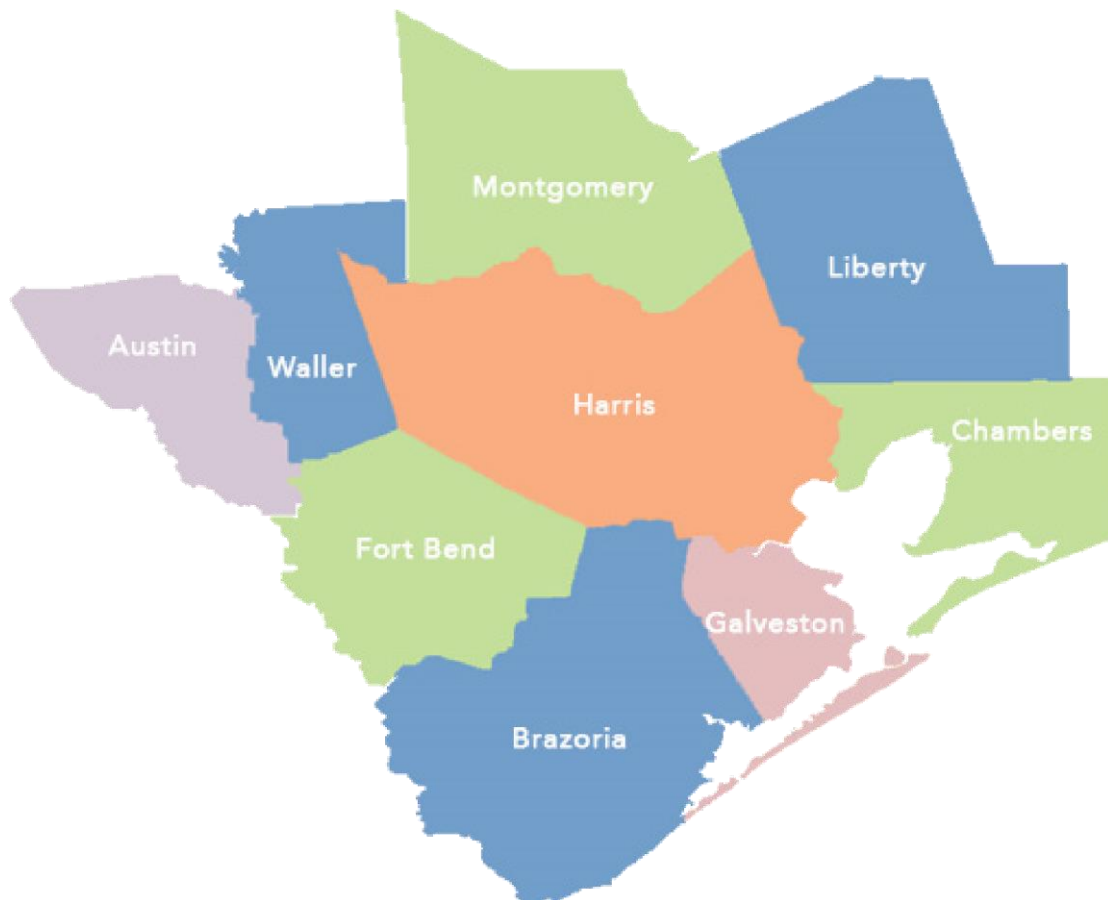


People Matter

A Population Analysis of The Houston-The Woodlands-Sugar Land, Texas MSA

Urban and Regional Economic Development

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Introduction:

Regions are comprised of a myriad of factors that drive or deter development. While jobs and industry are critical factors of development they would simply cease to be without the people and population needed to sustain such industry. When analyzing the drivers and deterrents of development in Houston, we must first understand that people matter and are the root of such development. We will first consider the population of Houston at a high level and then drill down into population changes and composition as well as compare and contrast the racial diversity and education attainment of Houston relative to the US population as a whole.

Population Level:

The Houston-The Woodlands-Sugar Land, TX Metropolitan Statistical Area (HWS MSA) is the nation's 5th and Texas' largest MSA with an estimated population of 6,892,427 in 2017 (US Census - PEPAANNRES). The HWS MSA comprises 2.1% of the total United States population (325,719,178) and 24% of the Texas population (28,304,596).

The HWS MSA contains the counties of Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller. Population sizes are shown in Table 1. The City of Houston is contained within Harris County, thus making it the largest county.

| Geography | 2017 Population |
|-------------------------------------|--------------------|
| <i>Harris County, Texas</i> | 4,652,980 |
| <i>Fort Bend County, Texas</i> | 764,828 |
| <i>Montgomery County, Texas</i> | 570,934 |
| <i>Brazoria County, Texas</i> | 362,457 |
| <i>Galveston County, Texas</i> | 335,036 |
| <i>Liberty County, Texas</i> | 83,658 |
| <i>Waller County, Texas</i> | 51,307 |
| <i>Chambers County, Texas</i> | 41,441 |
| <i>Austin County, Texas</i> | 29,786 |

Table. 1. Source: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017

On average, the population of Houston has increased by 135,000 residents per year for a total growth of 971,941 people from 2010-2017 (US Census - PEPTCOMP).

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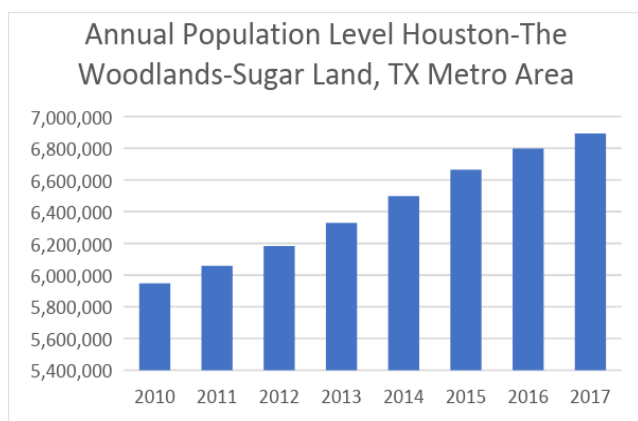


Fig. 1. Source: (PEPANNRES: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017)

| Year | Annual Growth HWS MSA | Annual Growth US |
|---------|-----------------------|------------------|
| 2010-11 | 110,528 | 2,305,859 |
| 2011-12 | 125,779 | 2,348,992 |
| 2012-13 | 145,827 | 2,241,233 |
| 2013-14 | 167,309 | 2,388,020 |
| 2014-15 | 167,325 | 2,417,314 |
| 2015-16 | 133,823 | 2,366,096 |
| 2016-17 | 94,417 | 2,313,243 |

Table 2. Source: (PEPANNRES: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017)

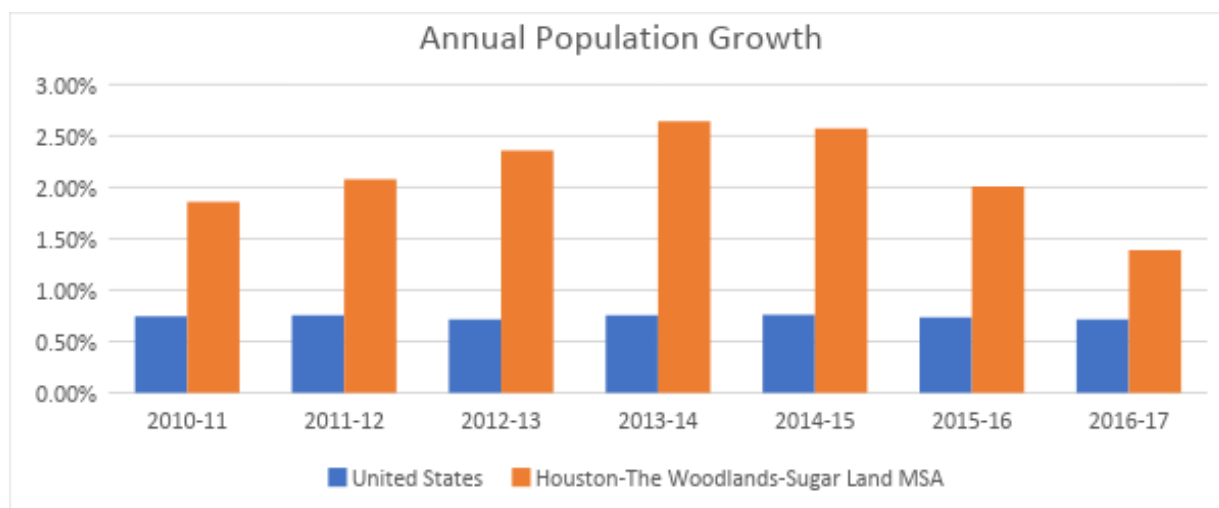


Fig. 3. Source: (PEPANNRES: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017)

In percentage terms, the HWS MSA population is growing at an average rate of 2.13% per year, while Texas is growing at 1.65% per year and the US grows at 0.74% per year. As shown in Figure 3, the rate of population growth increased from 2010-2014 before declining into the present day (US Census - PEPANNRES).

In absolute terms, in 2016 and 2017 the annual population growth in Texas and the HWS MSA decreased by approximately 50,000 and 35,000 residents per year, respectively. Perhaps even more unusual, the US Census Bureau estimates that the City of Houston will have added only one-third or 8,000 of 30,000 projected residents in 2017, falling suddenly and significantly behind all other cities in the Texas Triangle – and that does not even include the possible population shifts after the widespread devastation of Hurricane Harvey

(Harden). One possible explanation for this recent downturn in population growth may be the relative bust years for the oil and gas industry from 2014-2016 (“Oil Price Fluctuations”).

However, even with this slowing of growth, the annual growth rate of Houston was nearly twice that of the entire US at its lowest in 2016-17. Due to this above average growth rate, the HWS MSA contributed 5.8% of net population growth in the US from 2010-2017 and 30.77% of net population growth in Texas from 2010-2017.

Breakdown of Net Population Change:

Net population change consists of combining net natural births and deaths with net domestic and international immigration.

Births and Deaths

From 2010-2017, the HWS MSA had net population growth of 436,331 more births than deaths. This may be attributed to a relatively younger population which we will explore later on. Moreover, Houston has 2.6 births per each death as compared to only 1.5 births per death for the United States as a whole.

| Geography | Births | Deaths | Natural Increase |
|---|------------|------------|------------------|
| United States | 28,703,158 | 18,975,711 | 9,727,447 |
| Houston-The Woodlands-Sugar Land, TX Metro Area | 703,048 | 266,717 | 436,331 |

Tab. 3. Source: PEPTCOMP: Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2017

Domestic Migration

Net migration can be broken down into the sum of in and out-migration. From 2010-2017, 273,005 more people moved to the HWS MSA than left for other parts of the United States. This is congruent with national trends, with ageing regions seeing a decline in population, and regions such as the Sun Belt, and the Texas Triangle, with their relatively younger populations and robust economies seeing greater population growth.

| | International | Domestic | Total |
|---|---------------|----------|-----------|
| United States | 7,233,626 | (X) | 7,233,626 |
| Houston-The Woodlands-Sugar Land, TX Metro Area | 260,385 | 273,005 | 533,390 |

Tab. 4. Source: PEPTCOMP: Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2017

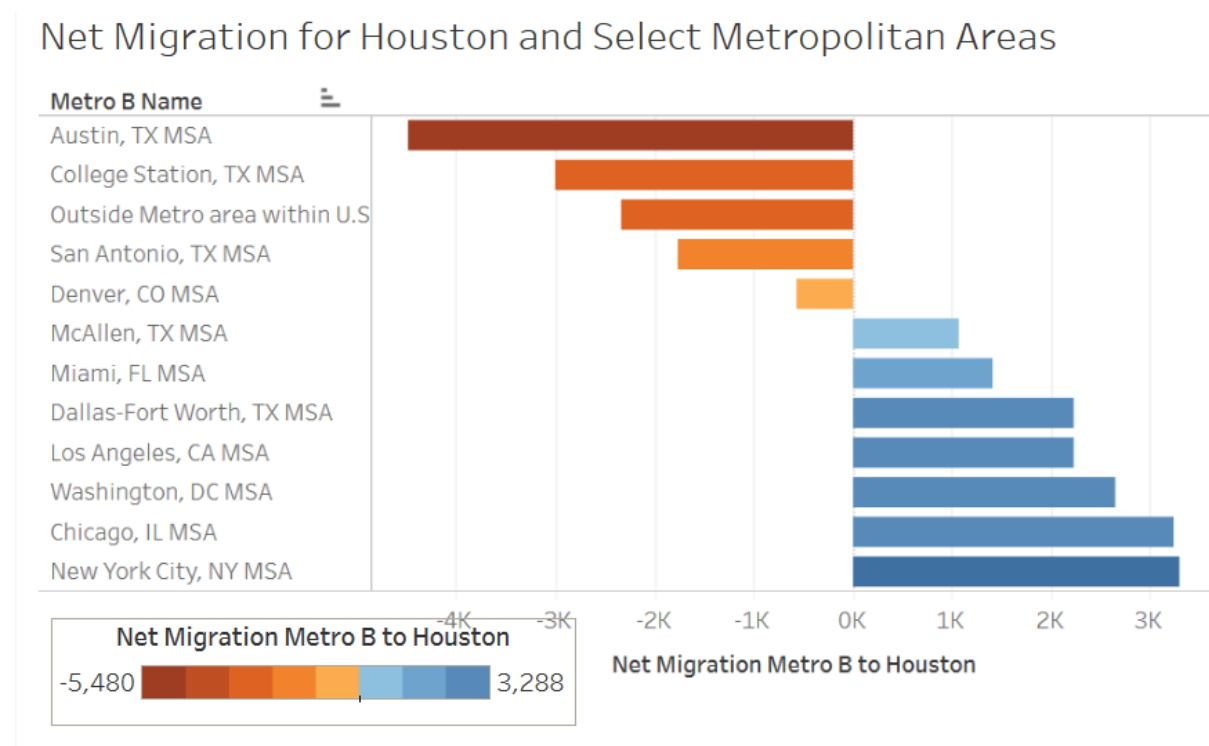


Figure 4. Source: (US Census – Metro to Metro Migration flows 2011-2015)

Breaking down specific net metro-metro migration trends in Fig. 4, the Houston MSA loses most residents to other major metropolitan areas within Texas. Taking into account in-flow and out-flow, a net of over 5,000 people migrated to Austin and thousands more to College Station and San Antonio. However, Houston also gains residents through migration with approximately 3,000 new Houstonians arriving from Chicago and New York City between 2011 and 2015.

Additionally, over 1,000 come from Miami, Washington DC and Los Angeles. Interestingly, the Dallas-Fort Worth MSA loses over 2,000 residents per year who choose Houston as their new MSA of residence, perhaps due to Houston's relative housing affordability and an opportunity-rich job market.

International Migration

According to US Census Bureau population estimates, 260,385 international immigrants moved to the HWS MSA from 2010-2017. However, the ACS 1-Year Estimates suggest that there are 400,198 foreign born residents who have resettled in Houston since 2010 (ACS 1-year). Given the domestic migration patterns above, it is possible that this discrepancy may be accounted for by foreign born immigrants moving to the HWS MSA from other parts of Texas or the US.

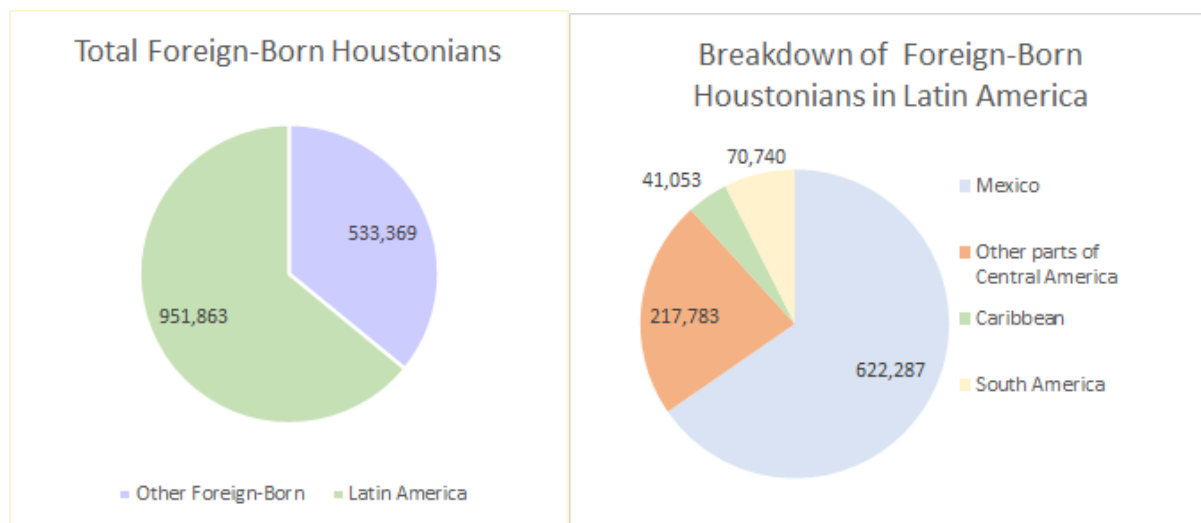


Figure 5 2012-2016 American Community Survey 5-Year Estimates

Of 1,485,232 foreign born residents living in the HWS MSA, 64% were born in Latin America— Mexico, Central America, South America or the Caribbean. Mexican-born residents composed 42% of all foreign-born residents. (ACS 5-year)

Of the 400,198 foreign born residents who have moved to the MSA since 2010, 363,402 are not citizens and 36,796 are citizens. This low percentage of US naturalization is a well-documented trend, explained by 1) the high number of ineligible immigrants who are either “unauthorized” or have Temporary Protected Status, especially from El Salvador and Honduras and 2) up to 350,000 legal permanent residents are eligible for naturalization but have significant financial and educational barriers to access (Migration Policy Institute).

Future Population Trends and Challenges:

Using the Census Bureau’s “Mapping America’s Futures: Population” tool, the Urban Institute projects a nationwide increase of 49 million people from 2010-2030. While some regions are projected to grow slowly or lose their population to age and domestic out-migration (e.g. the Great Lakes region), the “Texas Triangle” region including Austin, Dallas-Fort Worth and Houston, is poised to be one of the fastest growing areas in the country (Urban Article).

In the fastest growth scenario, the Texas Triangle will grow from 19.5 to 25.9 million at an average rate of 1.4% per year with the city of Houston topping 7.6 million by 2030 (Urban 7). Under all growth scenarios, the Texas Triangle is poised to stay well above the national growth average. The young age of the Houston population is one of the leading factors driving such explosive growth. Here, the median age in Houston is 33.9 years as compared to a national median of 37.7 years. Moreover, Houston has the lowest median age of any major metro area in the country (ACS 5 Year - 2012-2016). Such a significantly younger population affords numerous challenges and benefits to Houston.

Driving such growth rates are two key factors – migration and birth rates. Many young workers both domestically and internationally are drawn to Houston for the low cost of living, ample amenities afforded by being the 5th largest city in the nation, and most of all abundant employment opportunities. With no state income taxes and relatively low median monthly rent, many younger people are migrating to Houston for economic opportunity.

These same factors that make Houston desirable to work in also make Houston an ideal place to raise a family. Houston remains consistent with the larger national trend for falling birth rates as seen in other developed countries. Driving the surge in young population in Houston is not so much native Houstonians having more children, but rather immigrant families immigrating with young children or immigrants looking to start a family in Houston (US Census Bureau).

An increasing share of children and young people is not without its challenges. Namely, the population is growing faster than fixed infrastructure can keep up. School overcrowding continues to be an increasing challenge as families are moving to neighborhoods faster than schools can be financed and built. To alleviate this, some school districts are raising class sizes, bringing in mobile trailer classrooms, or in extreme cases busing students to underfilled schools to balance out school capacity. All such actions are detrimental to student education, with larger class sizes, newer teachers, poorer learning environments and at times being forced to move schools and commute longer to school – student's education is suffering as a result of a surging young population (Knipp).

While a growing younger working age population suggests Houston will be a robust economy for years to come, such long-term success relies on the age distribution remaining skewed to the young. Should this trend reverse in the future, there won't be enough younger workers to take care of the today's workers as they age and retire.

Currently, Houston is poised for continued population, and by extension economic growth driven by the migration of younger people to Houston and strong birth rates amongst the immigrant community in Houston. As the age distribution evolves and population migrates to different areas of Houston, fixed resources such as school capacity will continue to lag. Such lags are inevitable growing pains of a growing younger population and will necessitate creative solutions to ensure young Houstonians have the education and services needed to productively contribute to the Houston economy.

Racial Composition of Houston:

Racial Composition Compared to U.S.

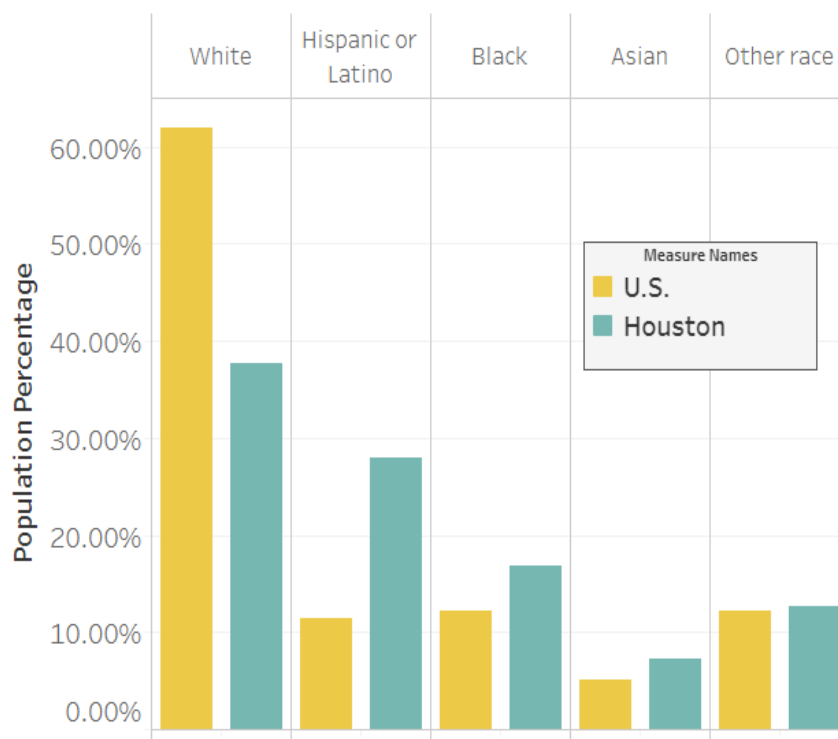


Figure 6 American Community Survey 5 Year, 2012-2016

The largest ethnic group in the Houston MSA is non-Hispanic whites, representing 38% of the population. Unsurprisingly, because of the considerable number of Mexican and Central American immigrants in Texas, Houston exhibits much more racial diversity compared with the United States on a whole. Most notably, the Hispanic proportion of the population in Houston, at 28%, is more than double that of the United States on average.

There are many reasons to believe this diversity trend will only continue, largely due to immigration and birth rates among immigrants. According to Migration Policy Institute, a quarter of Houstonians are foreign-born, and 44% of children under 18 have at least one foreign-born parent. Houston is home to 1.6 million immigrants as of 2016, and the immigrant community has grown 23% since 2010. While the Mexican-born population has dropped within Houston by 4% since the 2016 presidential election, overall immigration growth continues in the metropolitan area. Here, immigrants from Central America increased by 34%, and the population of Asian immigrants grew by 29% between 2010 and 2017, and the African immigrant population grew even more rapidly at 82% (Migration Policy Institute, 2018).

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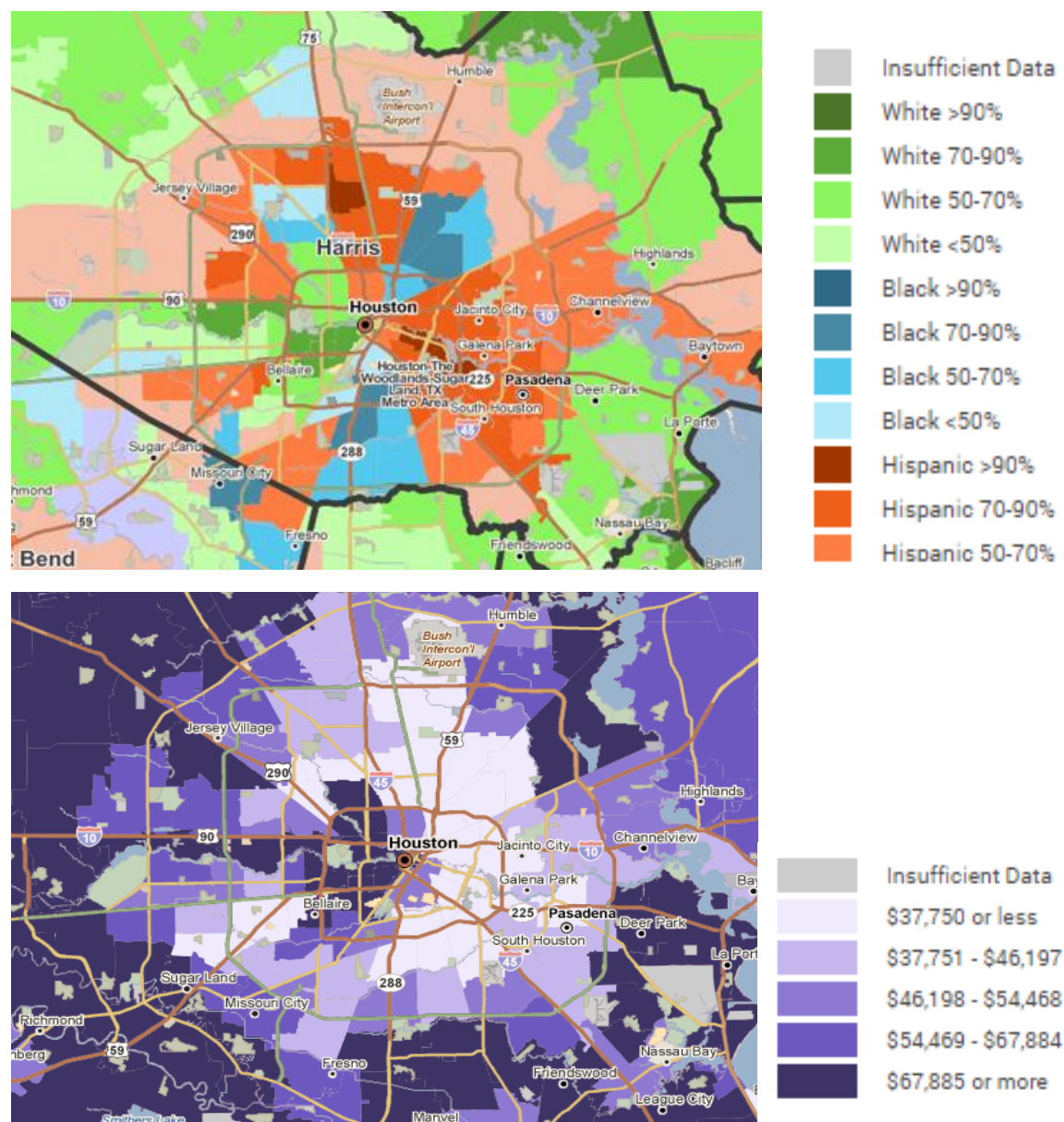


Figure 7 Policy Map, ACS 2012-2016 Top by Racial Concentration. Bottom by Median Area Income

While Houston is very diverse, it is highly segregated. The map above displays predominant race by zip code for Harris County, and demonstrates significant geographical segregation among disparate ethnic groups. This has numerous potential policy implications for the region, particularly when we compare this predominant race map with a map of median household income. It can clearly be seen that predominantly white regions correlate with higher income, and zip codes characterized by being majority minority have a lower median household income on average.

Income Compared to the United States:

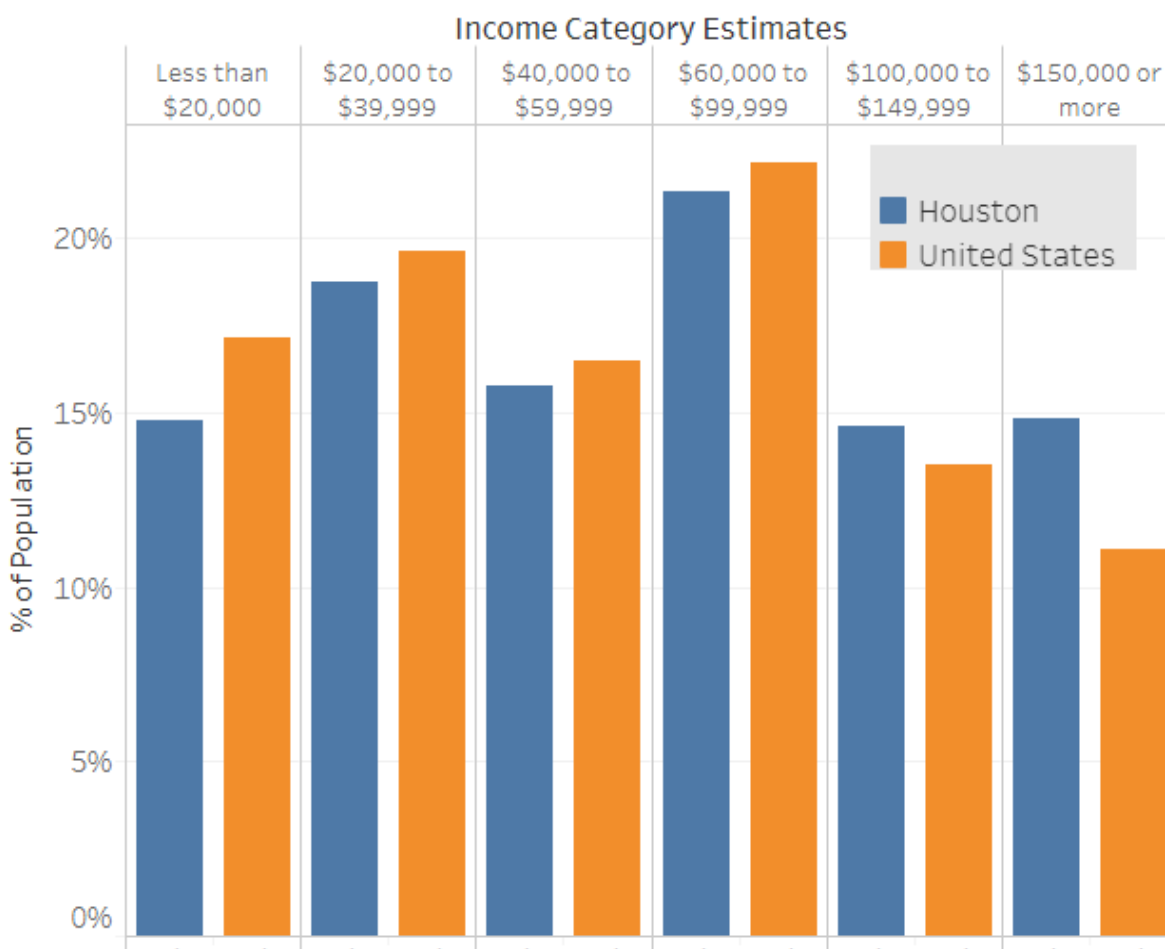


Figure 8 American Community Survey, 2012-2016 5 Year

While the median income in Houston is slightly higher than the United States overall, aggregating by income brackets provides added context. Consider that a lower proportion of Houstonians make \$99,999 or less than the United States on average, and the converse is also true: Houston residents are more likely to be making more than \$100,000 than the rest of the United States. Given Houston's booming energy industry, lax zoning regulations, and stature as one of the largest international ports in the United States, it is hardly unexpected for many Houstonians to be thriving off of this prosperity (American Association of Port Authorities). However, despite this relative wealth, 14.76% of Houston residents live in poverty, which the next section will explore in more depth.

On Poverty:

This drilldown on poverty by birthplace, derived from the 2012-2016 5 Year ACS, provides some clues as to who gets to enjoy the prosperity of Houston, and who may have been left behind. As stated earlier in this report, Houston has one of the highest domestic net migration rates in the country. Knowing that migrants are more likely to be skilled and well-educated, it comes as little surprise that individuals born outside the state of Texas experience the lowest levels of poverty in Houston (9.72%).

Poverty Level by Birthplace

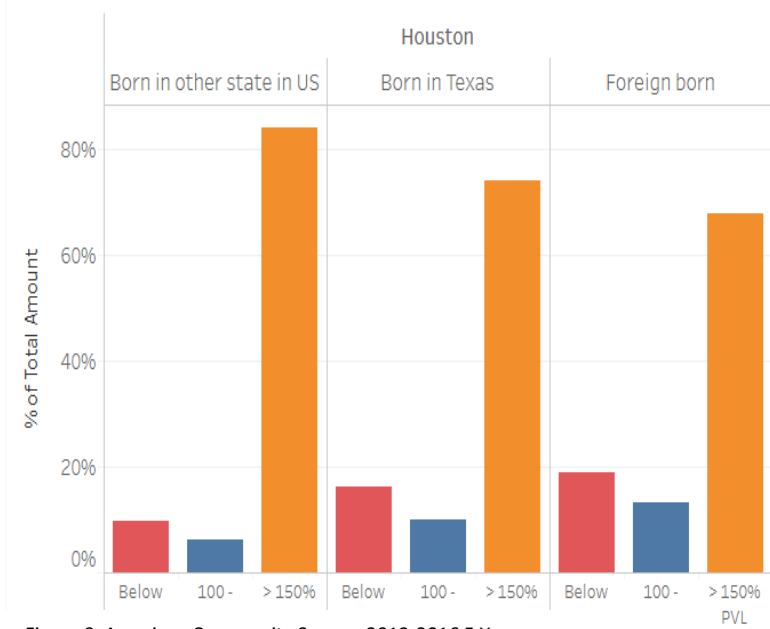


Figure 9 American Community Survey, 2012-2016 5 Year

Poverty Incidence by Birthplace

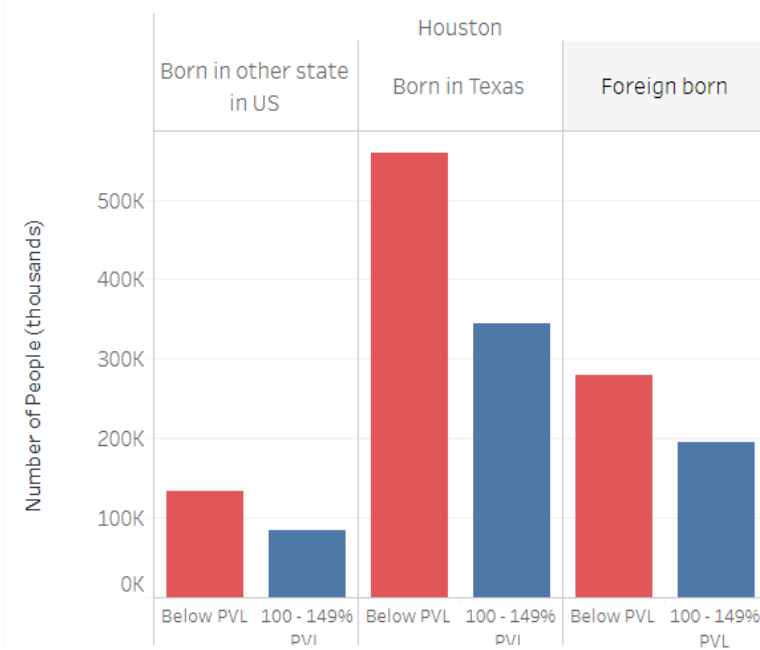


Figure 10 American Community Survey, 2012-2016 5 Year

However, the story is different for Houstonians born in Texas, 16% of whom live in poverty, and foreign-born individuals. The 18.9% of immigrants, however, stand out as the population that has had less than their share of Houston's wealth, with a poverty rate well over the average for the MSA. The Migration Policy Institute estimates that, although immigrants make up 25% of the population, they make up 32% of the workforce

(Migration Policy Institute). Although

foreign-born Houstonians are more likely to work than native United States citizens, lower educational attainment likely leads to immigrant wages being lower than for native-born residents.

Yet despite incidences of poverty among different populations, the figure above highlights that while foreign-born Houstonians are most likely to be in poverty, the most important takeaway from Figure 10 is that over 900,000 Houston MSA residents live below the poverty line, and more than half of them were born in the state of Texas. While explanatory data is limited, a little bit of information on educational attainment may help illuminate this issue.

Educational Attainment

While Houston has 11 universities and colleges, 3 law schools and 12 medical training centers, and on aggregate has education levels comparable to the United States, educational attainment in Houston remains mired in inequity.

Consider the case of graduate degree attainment. While the Houston MSA (11.2%) is close to the national average of 11.7%, such education is not distributed equally across Houston. Rather, 11 neighborhoods have fewer

than one percent of graduate degrees, while four neighborhoods have 25% or more. With almost half of Houstonians having no more than a high school diploma, such a skewed distribution is troubling – as research has shown repeatedly that students are more likely to pursue further education when surrounded by role models and influencers who have pursued degrees. While at the post secondary level, Houston remains competitive with national averages and even has a higher share of bachelors degrees than the US as a whole, the aggregate data hides the disparity of educational attainment between neighborhoods (King).

Unique racial and economic factors in Houston lead to significant divergence for educational attainment at and below the High School level. As the Houston economy has rebounded and increasing employment opportunities exist for those without a high school degree, across all races we have seen a decline in the perception that post secondary education is necessary as we see in this attitudinal graph from the Kinder Institutes 2018 Houston Area Survey.

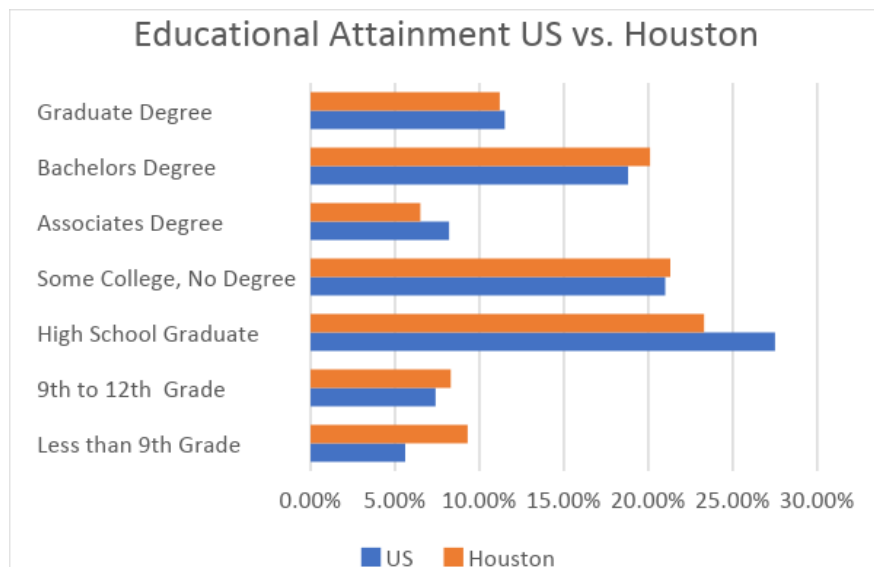


Figure 11 American Community Survey, 2012-2016 5 Year

While Hispanic and Latino education high school graduation rates lag behind native-born whites due in part to immigrants arriving with lower educational level, the Houston Area Survey has shown that Latinos highly value and recognize the need for post-secondary education to attain success in the 21st century.

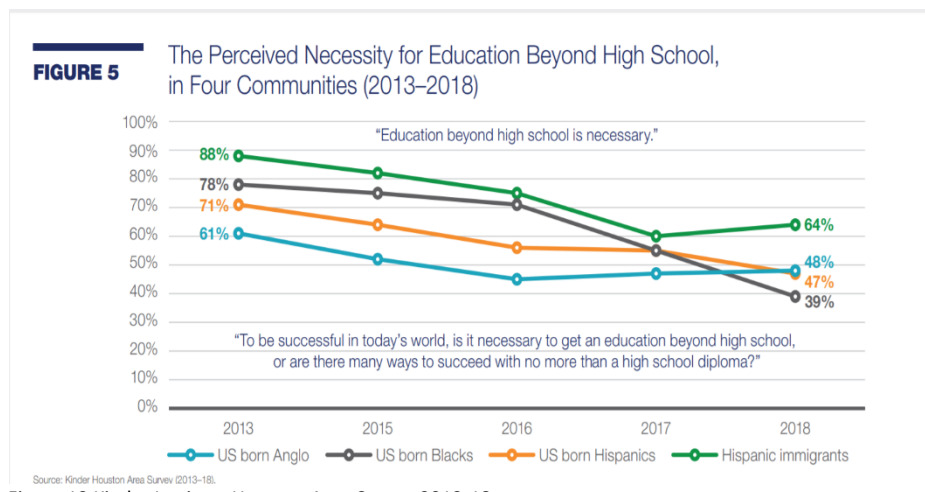


Figure 12 Kinder Institute Houston Area Survey 2013-18

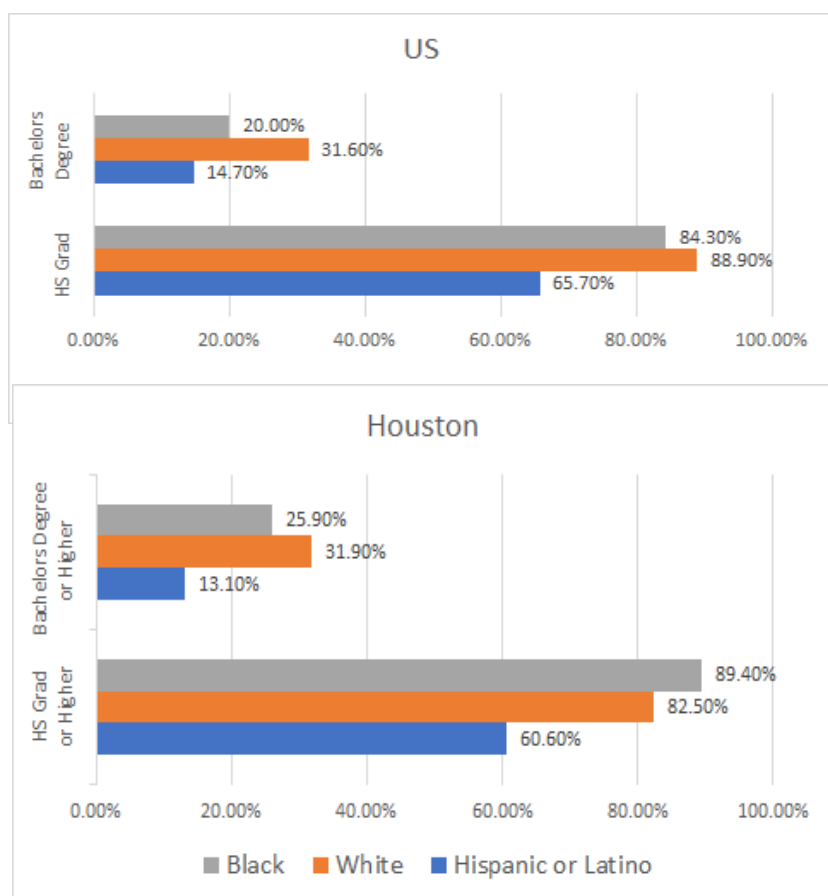


Figure 13 American Community Survey, 2012-2016 5 Year

Indeed, college attainment is much closer to national parity than high school graduation given the outsize focus the Latino community places on education, and more children of immigrants pursuing further education in the United States.

We also see divergence between national and Houston white high school graduation rates. Houston has long enjoyed a strong industrial presence, particularly in the oil and gas, construction, and agriculture industries outside of the urban core of downtown Houston. In these relatively whiter areas there exists an economic disincentive to pursue further education as there are ample well-paying jobs

that do not require even high school credentials. Indeed, as the oil industry has rebounded and more growth occurs in the construction industry, the percentage of whites in Houston believing that “education is necessary beyond High School” has fallen from 61% in 2013 to

only 48% today. However, while some whites leave high school to pursue high-paying jobs, those who stay in school graduate college at slightly higher rates than do whites nationally.

Lastly, blacks graduate both high school and college at relatively higher rates than the US as a whole in Houston. Indeed, Texas has the second highest black high school graduation rate in the United States – 85.2%. This high graduation rate, while encouraging on the surface is actually deceptive in practice. In 2015 Texas passed Senate Bill 149 allowing students to graduate without passing one or more state mandated exams. While the bill was intended to aid those who struggled learning English, critics argue it has made obtaining a Texas high school diploma too easy (Ramirez). While the data for high school graduation is inconclusive, the relatively higher share of black college graduates supports the claim that Houston is succeeding in not just getting its black students to college, but rather succeeding in getting them through college.

Conclusion

Like Dallas and Austin, Houston-The Woodlands-Sugarland metropolitan statistical area is characterized by rapid growth, striking ethnic and racial diversity, and relative prosperity compared to the United States as a whole. While strong population growth has brought diversity and wealth to the Houston MSA, such growth has not come without complications.

As mentioned in this report, Houston's economy can be subject to market fluctuations of oil and gas, the very industries which have made Houston flourish. But when the market is booming, the cost may be lower educational attainment rates for Houstonians who determine education is less important for success. Additionally, the relative prosperity of this metropolis has not reached everyone, and the geographic segregation despite relative diversity in the area may be a big factor, especially in the aftermath of Hurricane Harvey. How Houston can address these challenges as it continues to grow at a remarkable pace may be a determining factor in how long, and to what extent, the rapid development of the Houston MSA persists.

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