FALL 1994

Regional VIEW

HGAC

Sizing Up Households

Average household size—not exactly the hottest topic to hit the talk show circuit. Yet, household size can be very revealing about who we are. Average household size and how it has changed has important implications for demand of both public and private goods and services. For example, a change in average household size from 2.54 to 3.20 persons represents more than a 25% increase in population. That kind of difference is likely to have consequences for school district planners, gas station owners, and tax payers of all kinds. So read on—Oprah and Rush don't know what they are missing.

Although the Census Bureau calculates average household size for us, it may be helpful to understand how it is done. First, find the *household population*, which is simply the total population, minus the persons living in group quarters. *Group quarters* refers to the institutional population, including those persons residing in places such as jails, nursing homes, dormitories and shelters. The household population is then divided by the total number of households (also defined as occupied housing units) to get average household size. Consequently, there are two factors that affect average household size: changes in the household population and changes in the number of households. For example, average household size may have decreased because of an increase in the number of housing units. At the same time, it may also reflect an aging population characterized by many single person households.

## Using Average Household Size

Understanding average household size is useful for more than holding a dinner conversation with a Census demographer who has never seen Oprah. It can be especially useful when trying to figure out what the population is, for years that

Snapshot: Personal Income

This issue, Snapshot looks at personal income data from the Bureau of Economic Analysis. In 1992, the national per capita personal income (PCPI) was $ 20,105. The average annual growth rate of PCPI over the past ten years was 4.5%. Texas had a 1992 PCPI of $18,437. This was 92% of the national average and ranked 31st in the U.S.

The average annual growth rate of PCPI for the region was 4.7%, slightly higher than the State's but lower than the national average. However, the PCPI for the region in 1992, $21,098, was higher than both the state and national average.

See page 8 for more information.
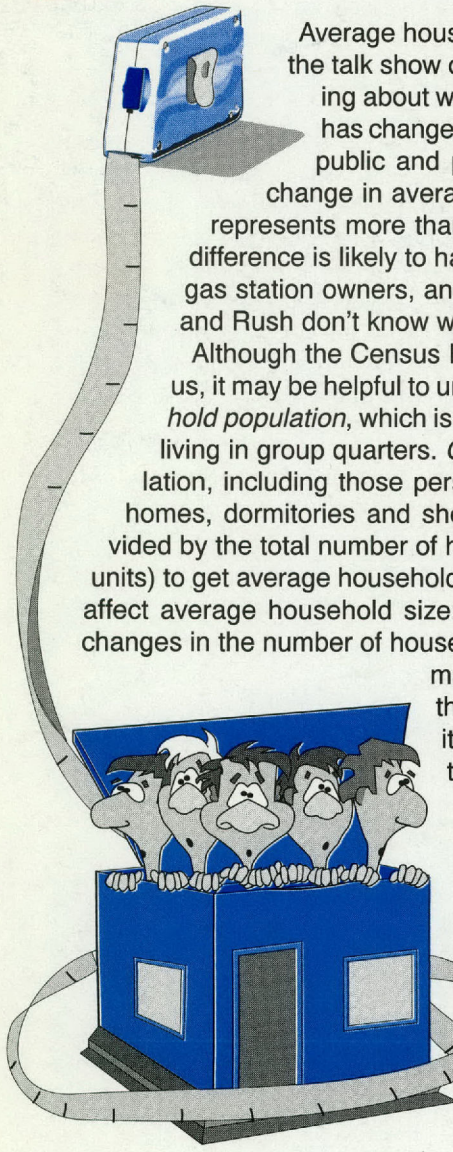
Austin County's per capita was 90% of the State average and 83% of the national average. From 1982 to 1992, Austin's PCPI ranking fell from 37th in the State to 92nd. The county's average annual growth rate from 1982 to 1992 at 3.3% was lower than the State's 4.5 %.

Among the region's counties, Austin ranked near the bottom in the percentage of Net Earnings of Personal Income. It had the second highest percentage of Dividends, Interest, and Rent.

In 1992, Brazoria County was ranked 5th in PCPI in the region with its net earnings percentage being the 3rd highest. The County's State ranking of PCPI fell from 34th in 1982 to 65th in 1992. Brazoria County's PCPI in 1992 was 96% of the State's average and 88 % of the national average. Like most of the counties in the region, Brazoria's PCPI average annual growth rate from 1982 to 1992 of 3.8% lagged behind the State's and the Nation.
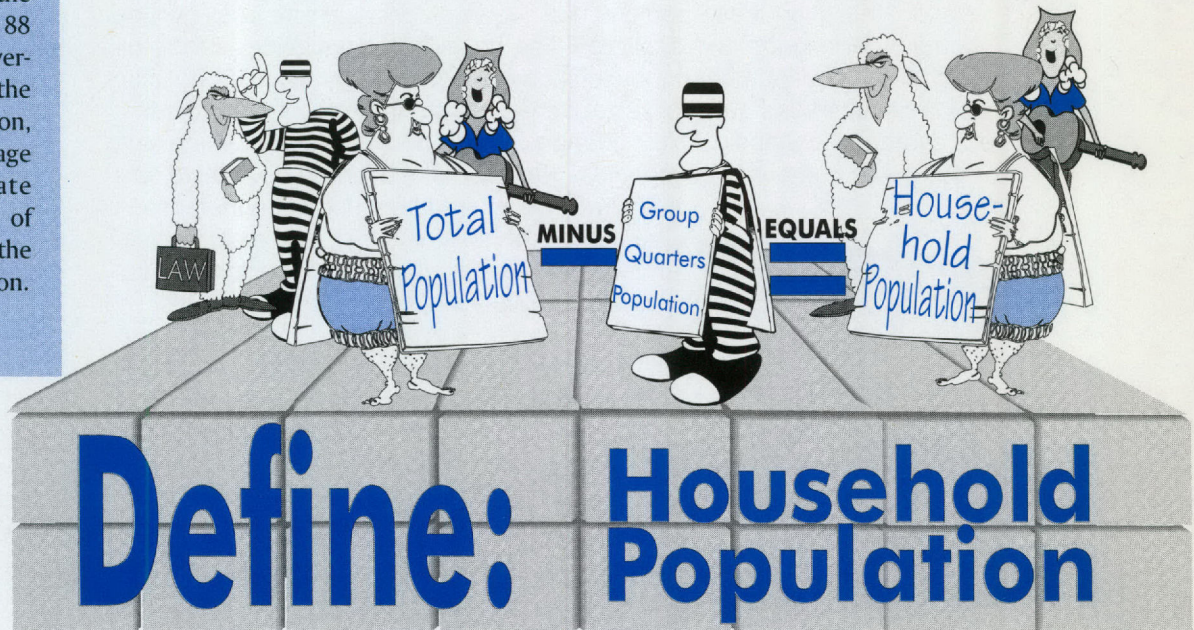
don't end with a "0." The Census is only taken every ten years; in the meantime, anyone interested in the population size is going to have to guess at it. Demographers consider their guesses better than others and call their guesses "estimates." One way of estimating population is to multiply the average household size by the number of housing units in an area. For example, an average household size of 2.7 applied to 100 houses gives an estimate of 270 persons. This simple approach can be refined, based on a variety of factors. Single family homes may have a different average household size than apartment units. Average household size may vary between renters and owners, or by the occupants' race and ethnicity.
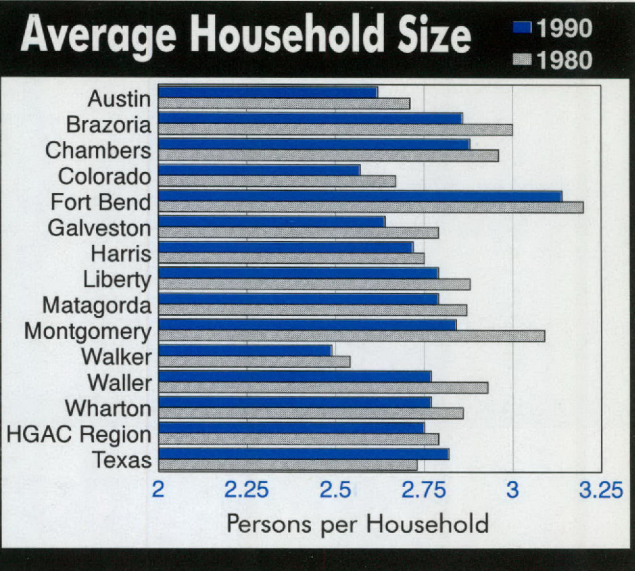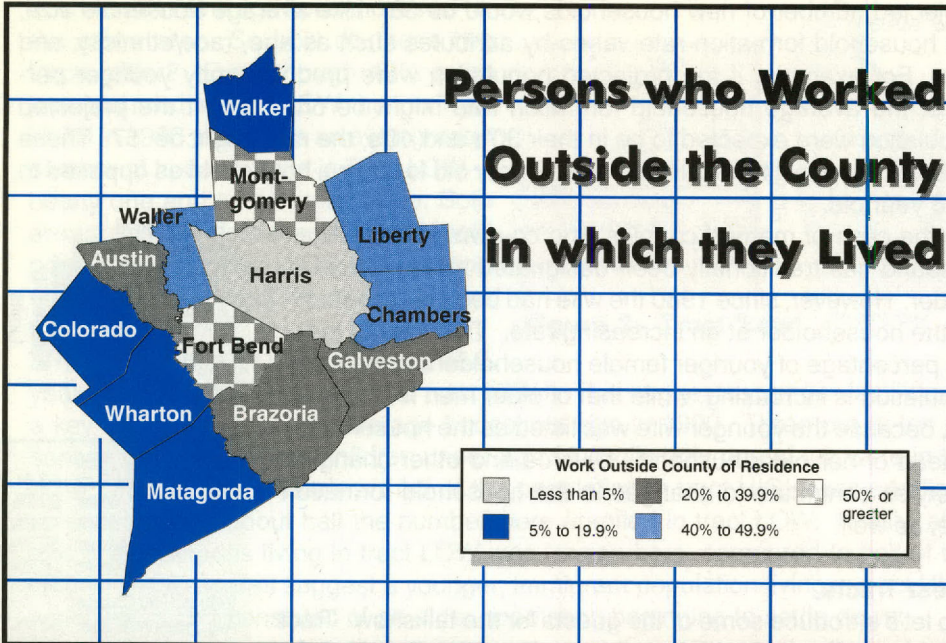
Household Formation Rates

If she knew the average household size, a real estate developer could decide whether to build one bedroom townhomes, or four bedroom single family homes. But how would she know how many housing units to build? By using the household formation rate, of course! The *household formation rate* is closely related to the concept of average household size. It is simply the number of householders as a percentage of the total population. The census defines householder as "the household member (or one of the members) in whose name the home is owned, being bought, or rented. If there is no such person...any adult household member." If the projected population for an area with a household formation rate of .38 is 100, the

Average Household Size 1990 1980

Austin
Brazoria
Chambers
Colorado
Fort Bend
Galveston
Harris
Liberty
Matagorda
Montgomery
Walker
Waller
Wharton
HGAC Region
Texas

2   2.25   2.5   2.75   3   3.25

Persons per Household

Define: Household Population

Total Population **MINUS** Group Quarters Population **EQUALS** Household Population

Persons who Worked Outside the County in which they Lived

Work Outside County of Residence

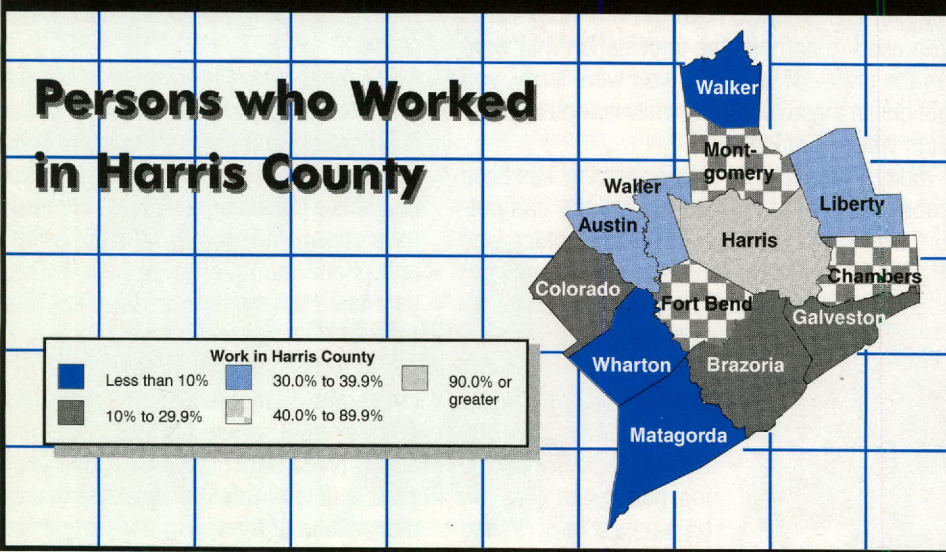|	
Less than 5%	20% to 39.9%
5% to 19.9%	40% to 49.9%
	50% or greater

HI HO, HI HO,

For quite a few people in the region, going to work means crossing the county line. In Fort Bend, Montgomery, and Liberty counties, more than half of all persons reported working outside their county of residence in the 1990 Census. Less than two of ten workers in Walker, Wharton, and Matagorda traveled to another county to work.

Harris County appears to be the destination county for many of the workers who leave their county of residence. In Fort Bend and Montgomery Counties, almost all of the workers who leave the counties are heading for Harris. Yet, only half of the workers leaving Austin County work in Harris and fewer than one of ten workers in Colorado, Wharton, and Matagorda counties work in Harris County.

it's off to work we go!

Persons who Worked in Harris County

Work in Harris County

Less than 10%	30.0% to 39.9%
10% to 29.9%	40.0% to 89.9%
	90.0% or greater

Chamber County's PCPI was 89% of the State average and 92% of the nation's. From 1982 to 1992, the County's PCPI grew more slowly than the state at 3.1% which was reflected in its drop in ranking from 35th to 100th among all counties. The counties net earnings as a percentage of PCPI was the fourth highest in the region compared to its 9th ranking in transfer payments.

In 1992, Colorado County had the highest percentage of Dividends, Interest, and Rent in the region. It also was the lowest in terms of net earnings. The County's PCPI grew faster than the State's but lower than the nation's. From 1982 to 1992, the County moved from 102nd to 91st in the State. However, PCPI was still only 90% of the State's in 1990.

While Fort Bend County's PCPI was 110% of the State's and 101% of the nation's, its average annual growth rate over the past ten years of 3.4% was slower than both the State's and the nation. Subsequently, the County fell from 9th to 23rd in PCPI state ranking. Fort Bend's PCPI ranked 2nd in the region and the county's net earnings percentage placed first.

projected number of new households would be 38. Like average household size, the household formation rate varies by attributes such as age, race/ethnicity, and sex. For example, if the projected population were predominantly younger persons, the average household formation rate might be only .32. If the projected population were expected to be in their 30's and 40's, the rate might be .57. These differences reflect the likelihood of a 22 year old forming a household as opposed to a 36 year old.

In the case of married couples who co-own a house, the husband has traditionally been designated as the householder. However, since 1980 the wife had been designated as the householder at an increasing rate. This means that the percentage of younger female householders in the total is increasing, while that of older men is decreasing, because the younger wife was listed as the householder instead of her older husband. Divorce and other changing lifestyles contribute to changes in the household formation rate, as well.

Guest Tracts

So let's introduce some of the guests for the talkshow: Tract 416.01 and Tract 438.31 (see figures 1 and 2). Tract 416.01 is usually just called the "High" tract, since it had the greatest increase in average household size in the H-GAC region. Tract 438.31 goes by "Low," since it had one of the greatest
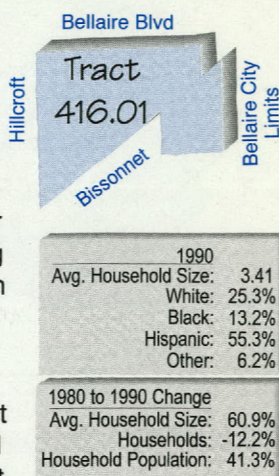
Tract 416.01

1990	
Avg. Household Size:	3.41
White:	25.3%
Black:	13.2%
Hispanic:	55.3%
Other:	6.2%

1980 to 1990 Change	
Avg. Household Size:	60.9%
Households:	-12.2%
Household Population:	41.3%

Figure 1: Tract "High"

decreases in average household size for the same area. So how do these two tracts differ? Even though 40% more persons lived in tract LOW than in Tract HIGH in 1990, there was an even greater number of housing units in Tract LOW— nearly one and a half times more. Both areas posted increases in household population, but tract HIGH lost housing units, while tract LOW nearly tripled them.
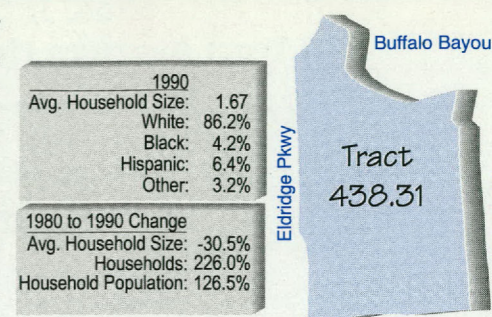
The median age for tract LOW was 30.8 years compared to 24.9 years for tract HIGH. This suggests younger families play a key role in tract HIGH's average household size in 1990. Three out of ten persons in tract HIGH were children under age 18, while only one of ten were in tract LOW. Furthermore, nearly a third of the population in tract HIGH was enrolled in school, but only about half the number were enrolled in tract LOW. Finally, about one of ten persons living in tract LOW was foreign born, compared to half of tract HIGH. These figures suggest a younger, immigrant population living in tract HIGH, while tract LOW consisted of an older population beginning to settle down.

Regional Characteristics

And what does the talk show's guest expert have to say about all of this? Average household size is declining nationally, and the same holds true for Texas and the

Tract 438.31

1990	
Avg. Household Size:	1.67
White:	86.2%
Black:	4.2%
Hispanic:	6.4%
Other:	3.2%

1980 to 1990 Change	
Avg. Household Size:	-30.5%
Households:	226.0%
Household Population:	126.5%

Figure 2: Tract "Low"

Mapmaker, Mapmaker, Make Me a Map

Just a few years ago, if you were going to make a map, you sat at a drafting table and pulled out an assortment of pens, inks, templates and straight edges. You perched on a high stool, strapped on your visor and cinched up the old back brace. And don't forget the index cards you used to compile the information that went on the map. Or maybe, if you were lucky, you got one of those green and white computer printouts with the faded ink.

Today, map making, or *cartography*, has been substantially transformed by desktop computers that can whip through graphics jobs and data processing at speeds that were once little more than the day dreams of ponderous mainframes. Now, pen and ink are replaced by mouse and cursor. The drafting table is a digitizing pad. And that old backache's been traded

in for the beloved Carpal Tunnel Syndrome.

It used to be that cartography was half science and half art. In the 1990's, it may be more correct to say that cartography is half science, half art and half computer. If that sounds like it doesn't add up, then you probably still have India Ink stains on your shirts.

The most recent innovation in the map maker's art is the Geographic Information System, or GIS. A GIS uses computer technology to draw maps and to create databases. A database is just a file that contains a certain type of data. For example, if you have a box of index cards with the names, addresses and phone numbers of all your friends on them, you could put them in a computer file as a database.

With a GIS, you could draw a map of the city, or the county, that included dots, or names, or some other symbol, where each of your friends was located. If you were planning to move to a new home, you could tell a GIS to draw a map that only showed the location of friends who were within three miles

of your house and owned a pickup truck. Of course, your database would first have to include information about what kinds of vehicles your friends owned.
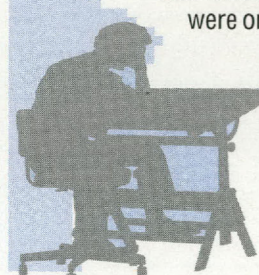
Geographic Information Systems can do some incredibly complex mapping and analysis work in a fraction of the time it used to take. Today's systems allow us to identify potential flood zones and plan evacuation routes. Planners can better manage residential growth and plan ahead for traffic congestion problems. Engineers can keep track of infrastructure maintenance and development. Transit agencies can improve passenger service, by quickly seeing where potential riders live and where their destinations are. A GIS can tell a transit agency how many people live within a quarter mile of a bus stop, how often buses actually stop there, and how long it takes to get where they are going. If there is a better route to use, the GIS can find it by calculating travel times on alternate paths and then drawing a map of the proposed new route.
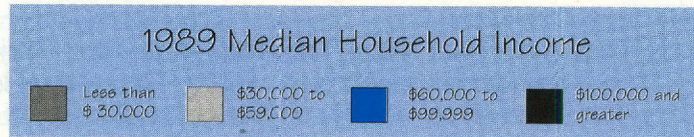
At H-GAC, our GIS is used for mapping census

data and helping us forecast where people and jobs (and congestion) will be, in the future. It helps city governments see patterns of development and plan for growth. Developers can get information on land uses and traffic patterns. Other businesses can find out where their target markets are.

The maps you see in this publication are products of our GIS. Some of them can be produced in minutes, where they might have taken days, just three or four years ago. Nevertheless, they represent only a fraction of the system's ability.

In our next issue of *Regional View*, we will tell you more about how a GIS works and, most importantly, how it can work for you.

If you would like to get more information on our Geographic Information System, or the services and maps it can provide, call the Data Services Department at 713/627-3200. "We're from the government, and we're here to help you."

MONTGOMERY

In 1992, Montgomery County's PCPI was 99% of the State's and 91% of the national average. The County's slow average annual growth rate of 3.4% was reflected in 52nd ranking in 1992 compared to its 19th place in 1982. Growth in Net Earnings over the decade was the third fastest in the region and its 21.2% growth in Income Maintenance was the highest among the 13 counties.

WALKER

Walker County had the lowest PCPI in the region for 1992 which was 64% of the State average and 59% of the nation's average. From 1982 to 1992, Walker County saw only a 3.7% growth in the PCPI, lower than both the State's and the nation's for the same period. In 1982, the County ranked 216th in PCPI while in 1992 it ranked 232nd.

Median Household Income by Changes in Tract Average Household Size

High Change Tracts (greater than 10%): 93.2%, 1.4%, 5.4%

Low Change Tracts (less than -10%): 53.1%, 1.3%, 38.1%, 7.5%

Medium Change Tracts (between -10% and 10%): 43.5%, 0.5%, 52.1%, 3.9%

1989 Median Household Income

- Less than $30,000
- $30,000 to $59,000
- $60,000 to $99,999
- $100,000 and greater

region. As seen in the case of Tract LOW, the population has been forming households at a faster rate than the growth in the household population. In the H-GAC region, the household population increased by 18.8%, while the number of occupied housing units (households) grew by 20.8%. The average household size in six of the region's counties fell faster than the state average, while seven counties had a 1990 average household size that exceeded the State's. The region's household size shrank at only half the state rate, largely because of the influence of Harris County on the region.

Furthermore, the expert would note, be careful about what you generalize for all tracts, based on tracts HIGH and LOW. For example, tract LOW reported a median household income of $15,873 for 1989, while tract HIGH reported $32,558. Looking at the pie charts, above, it would be easy to conclude that low income indicates a large increase in household size. Yet, over two-thirds of the low income tracts had medium changes in household size, as did those with incomes greater than $60,000. Most tracts experienced a medium level of change in household size, regardless of 1990 income levels. Therefore, low income dominates the tracts with the highest increase in household size, but there are more low income tracts found with medium or low changes in household size.

Race/Ethnicity

Change in average household size differed according to the racial/ethnic groups of the householders. Tracts that

Changes in Average Household Size...

The table to the right shows the racial/ethnic breakdown of householders according to the change in the tract's average household size from 1980 to 1990. Tracts with the least amount of change had a majority or White householders. Tracts that experienced the most growth were split between Hispanic and White majority tracts.

Tracts by Change in Average Household Size

Tract	White	Black	Hispanic
-10% or less	77.0%	21.7%	1.2%
-9.9% to 9.9%	80.9%	14.6%	4.5%
10% or more	49.0%	7.8%	43.1%

Tracts by Race/Ethnicity

Tract	-10% or less	-9.9% to 9.9%	10% or more
White	20.8%	75.0%	4.2%
Black	29.2%	67.5%	3.3%
Hispanic	4.1%	51.0%	44.9%

The table to the left shows change in average household size for tracts where the majority of householders are of one racial/ethnic group. The White and Black majority tracts had a similar distribution in average household size change. Few Hispanic majority tracts posted large decreases in average household size.

...by Race and Ethnicity

TECHNICAL

FILES

Household

A household includes all persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is or can be occupied as separate living quarters.

Households are classified by type according to the sex of the householder and the presence of relatives. There are two types of householders: family and nonfamily. A family householder is a householder living with one or more persons related to him or her by birth, marriage, or adoption. The householder and all persons in the household related to him or her are regarded as family members. A nonfamily householder is a householder living alone or with nonrelatives only.

Family

A family is a type of household as explained in the Household file. There are two types of families: a married-couple family or other family. A married-couple family is a family in which the householder and his or her spouse are enumerated as members of the same household (they live in the same housing unit). Other Family may be either male householder, no wife present or female householder, no husband present.

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consisted of a majority of Black or White householders, experienced a shrinking average household size. Nearly a third of the majority Black tracts, and one of five White majority tracts, observed low changes in average household size. Nearly half of the Hispanic tracts had a high change in household size with less than five percent showing a low change. Subsequently, the tracts with the highest increase in household size contained a much higher percentage of Hispanic tracts, compared to the medium and low change tracts. A look at the factors contributing to average household size make these changes even more interesting.

For tracts where the majority of householders were either Black or His-

panic, the household population decreased between 1980 to 1990. The majority White tracts' household population expanded over the same period. So why did the average household size for the majority of White tracts fall while growing for the tracts with a majority of Hispanic householders? The reason is that the majority White householder tracts had an even greater increase in the number of households (remember, think occupied housing units). Majority Hispanic tracts sustained a loss of households that overshadowed their population decline. In other words, while population in Hispanic majority tracts got smaller, they had to put the population into an even smaller number of households. In the case of tracts with a

majority of Black householders, the household population declined, as did the number of households. However, these tracts lost population faster than they lost households, so the average household size declined, rather than increased, as in the case of Hispanic majority tracts.

Knowing all about household size and formation rates may not be that useful in an emergency. And there is no telling when Oprah will get around to the topic. But for people trying to decide to where to locate a new business or school, a little bit of knowledge can go a long way in picking the right location.

From 1982 to 1992, Waller County's PCPI grew by an annual average of 5.0%. While this was lower than the national average it was higher than the State's. The PCPI's Net Earnings Component grew even faster at 5.2% for the same period. As a result, the County's PCPI was ranked 133rd in the State for 1992 compared to its 1982 rank of 144th.

Wharton County's PCPI in 1992 was 87% of the State's average and 80% of the nation's average. From 1982 to 1992, PCPI in the County grew 5.1%, moving its PCPI ranking from 137th to 118th in the State. The County's PCPI grew faster than the State for the decade but slower than the nation. Wharton's Dividends, Interest, and Rent percentage of PCPI was the third highest for the region in 1992.

Personal Income

The Bureau of Economic Analysis (BEA) provides estimates on Personal Income for all of the counties in the United States. Personal income is the income received by persons from all sources. These sources include production (earnings from work), government and business transfer payments, and government interest. Transfer payments are income payments to persons for which no current services are performed. These are payments by government and business to individuals and nonprofit institutions. Generally, they are paid in monetary form; major exceptions are food stamps and medical vendor payments. Transfer payments are divided into three general categories: Income Maintenance, Unemployment Insurance, and Retirement and other Income. Income maintenance includes foster care payments, supplemental security income benefits, and medicare benefits as well as such programs as Aid to Families with Dependent Children and Food Stamps.

When using per capita personal income, be aware of its limitations. The per capita personal income for an area may be lower than expected because of large institutional population such as college students or prison inmates. Conversely, unusual conditions such as a major construction project can substantially raise the per capita personal income for several years because it attracts highly paid workers. These are just a few of the issues related to the use of per capita personal income.

CMSA Counties: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller

Area	1992 Per Capita Income	Distribution of Personal Income						Average Yearly Increase for Income: 1982 to 1992			
		Net Earn.	Total	Inc. Maint.	Unemp. Insur.	Ret. & Other	Div., Int., & Rent	Net Earn.	Total Trans. Pay.	Div., Int., & Rent	Popu-lation
Austin	$16,654	59.7%	18.5%	1.2%	0.4%	16.9%	21.9%	3.1%	8.0%	3.8%	0.6%
Brazoria	$17,681	76.5%	12.0%	0.8%	0.6%	10.6%	11.5%	4.4%	10.1%	5.5%	1.2%
Chambers	$16,433	75.5%	14.0%	1.1%	0.4%	12.6%	10.5%	2.7%	9.3%	3.8%	0.3%
Colorado	$16,656	50.5%	24.2%	1.7%	0.4%	22.1%	25.3%	3.0%	8.7%	2.5%	-0.8%
Fort Bend	$20,283	83.0%	6.5%	0.5%	0.4%	5.6%	10.5%	8.2%	12.5%	8.2%	4.9%
Galveston	$18,928	72.6%	15.2%	1.3%	0.7%	13.2%	12.2%	4.7%	9.0%	4.8%	0.8%
Harris	$22,298	76.7%	10.1%	1.1%	0.5%	8.4%	13.2%	4.4%	10.3%	5.5%	1.0%
Liberty	$15,442	66.8%	22.3%	2.1%	0.9%	19.3%	10.9%	3.2%	9.9%	2.5%	0.6%
Matagorda	$15,622	65.8%	20.2%	1.9%	1.5%	16.7%	14.0%	6.1%	9.7%	1.9%	0.2%
Montgomery	$19,313	74.8%	12.0%	0.9%	0.5%	10.6%	13.2%	5.5%	12.4%	7.4%	2.9%
Walker	$11,881	63.9%	20.1%	1.7%	0.4%	18.0%	16.0%	4.0%	9.5%	6.1%	1.5%
Waller	$15,733	67.0%	20.5%	2.0%	0.3%	18.2%	12.5%	5.2%	11.7%	3.0%	0.9%
Wharton	$16,055	62.7%	19.6%	2.0%	0.5%	17.2%	17.6%	4.7%	8.9%	1.8%	-0.3%
Region	$21,098	76.2%	10.8%	1.1%	0.5%	9.1%	13.0%	4.7%	10.3%	5.5%	1.2%
Houston-PMSA	$21,737	76.9%	10.1%	1.1%	0.5%	8.5%	13.0%	4.7%	10.5%	5.7%	1.3%
CMSA	$21,367	76.7%	10.5%	1.1%	0.5%	8.9%	12.9%	4.7%	10.3%	5.6%	1.3%
Non-CMSA	$14,806	61.8%	20.3%	1.7%	0.7%	17.8%	17.9%	4.4%	9.1%	3.1%	1.2%
Texas	$18,437	70.9%	14.9%	1.7%	0.7%	17.8%	14.2%	5.6%	9.3%	5.6%	1.4%

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