Data for Decision Makers

City *Data for Decision Makers* User's Guide

Sandra Burke, Bailey Hanson, Jay Maxwell, and Christopher Seeger

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The city[1] *Data for Decision Makers* (DDM) profile provides current indicators for Iowa's cities and counties. The DDMs provide a profile of the city, a way to compare among cities, and a comparison of the city to the county. Using the recently released State of Iowa DDM, comparisons with the state and the U.S. are also possible. The DDMs are designed to help Iowa's residents and policy makers understand the situations and contexts of their communities.

This user's guide provides an overview of the topics in the DDM, gives background information about the indicators, as well as providing other resources about the topics and the data. The DDMs are updated periodically as new releases of data are available. The city DDMs are provided in 2-page or 4-page format depending on the size of the community. Towns that are smaller than 350 have the 2-page layout. The *Data for Decision Makers* are accessed from the Iowa State University Extension and Outreach Indicators Program site.[2]

The data on pages one and two of the city DDM are from the **Decennial Census**es carried out by the Census Bureau.[3] The Bureau is required by federal law to protect the confidentiality of any individual person's responses. With advances in computing technology and the rapid growth of outside databases in the last decade or two, there are new and real concerns about data privacy.

Through the decades the Bureau has used a number of different methods to safeguard privacy. The Bureau defines **Disclosure Avoidance**[4] as the process to protect the privacy of an individual's responses. For the 2020 Decennial Census, the Bureau implemented a new system of disclosure avoidance for privacy protection. The new disclosure avoidance method for the 2020 Decennial Census is based on **Differential Privacy**.[4] Differential Privacy is a mathematical framework that randomly adds or subtracts a small amount from a count *before* data are published to somewhat obscure the original

value. Thus, there is added uncertainty or "noise" in the published data for geographic regions that protects privacy.

While this newer disclosure avoidance system works well for most geographic areas, it can and does produce some inconsistent and improbable results for very small population areas. Because of the likelihood of higher levels of uncertainty for small population areas and groups, the city DDM tables are progressively modified as towns get smaller and smaller in total population. For towns below 350, the tables on pages one and two in the DDMs have items and rows deleted. Additional adjustments were made for towns smaller than 200 with more revisions for towns smaller than 100, smaller than 30, and smaller than 20. For Iowa's smallest towns with total populations of 4 - 19, just one page of basic counts are given in the city DDM. For any of Iowa's towns, a user can find the original and complete community data on the Census Bureau's data retrieval site.[5] As an additional note, the DDM tables on race and Hispanic Origin as well as housing are in different locations for the smaller towns.

Population - Page One
Total Population for the city, neighboring cities, the county, and the state are on page one of the DDM. These data come from the 2000 through 2020 Decennial Censuses.[3] Also included are the city populations by sex. The population totals are used to calculate the percentage changes that are shown for the cities, the county, and the state.

Demographics - Page Two
Data on race, Hispanic origin, age, households, families, and couples are on page two (page one for towns smaller than 350). These data are from the Decennial Censuses.[3] For **race**, respondents self-selected one or more categories.[6] Those choosing more than one race are reported in the "two or more races" category in this profile. **Hispanic origin** is considered to be an ethnic group, not a race category. Persons of Hispanic origin can be of any race.[6]

Various **age group**s are reported along with the median age,[7] age dependency ratios,[8] and a population pyramid.[9] The **median age** shows the midpoint of the age distribution with half of the residents being below the median in age and the other half being above. A higher median age is an indicator of an overall older population.

Age dependency ratios indicate the typically dependent population compared with those of working age and show the population that usually relies on others for the goods and services they consume.[8] A higher age dependency ratio can result from larger numbers of children, larger numbers of older persons, or both relative to the working age population.

The **population pyramid**[9] visually shows the age and sex structure for the city and is a useful way to compare across age and sex groups. Each bar (except the top bar) represents a 5-year age group with females on the right and males on the left. In these visuals, the length of the bar shows the percent of the total population for each age/sex group. Use caution when visually comparing population pyramids among cities and counties as the percentage scale used across the bottom may vary. For towns size 30 - 99 the population pyramid is reduced while towns smaller than 30 do not show a population pyramid.

Households[10] (occupied housing units) are the main units for which Census Bureau survey data are collected. Each household has one designated householder and there may be from one to several persons living at each location. In the households table, the percentages given show each group's part of all households.

Households are divided into subcategories by two different methods. One method (family or nonfamily)[10] is based on the presence or absence of family relationships among the household members and the householder. In order to be classified as

a **family**, a household must have at least two persons living together, one of whom is related to the householder by birth, marriage, or adoption.

Non-family households[10] have no relatives of the householder present and frequently are householders who are living alone. Using family relationships (birth, marriage, or adoption) has been the traditional way to classify households and the data using this method has good comparability across survey years.

The Census Bureau has introduced an additional way that households are divided into subcategories. This second method (couple or noncouple)[10] is based on the presence or absence of a **couples relationship** for the householder. The couples relationship can be as a married spouse or as an unmarried partner and can be of the opposite or same sex.[10] The reporting of same-sex couples changed between 2010 and 2020. The 2020 data reported for the couples categories (except for married couples) does *not* have good comparability with data from earlier decades. In this DDM, the 2020 data are reported but 2010 items for cohabiting couples, which are not comparable to 2020, are omitted.

The couples table is omitted for towns smaller than 350 and in its place is a housing table. **Housing** data provided in the DDM include the total number of **housing units**, a count of those that are vacant, and whether the occupied units are **owned or rented**. For towns size 350 or larger, housing data are on page 3.

The American Community Survey (ACS)[11] The information on income along with educational attainment, housing, occupation, employment, earnings, and poverty comes from the American Community Survey (ACS)[11] carried out by the Census Bureau. The ACS provides social, economic, and detailed housing information that before 2010 was included in the Decennial Censuses. The ACS information is gathered annually with a **sample survey**[12] methodology that is different from the Decennial Census. Instead of surveying every person and household as in the Decennial Census, the ACS **samples** households and reports **estimates** for each data item, not counts.

The ACS data in these city DDMs are **5-year, pooled estimates** rather than point-in-time counts. Although 1-year estimates[11] pooled across 12 months are available for large population areas (65,000+), the 1-year estimates are not available for most of Iowa's geographies. In order to provide the DDM profiles for all the cities and counties and to have comparability across the reported data, the estimates pooled across five calendar years are used for these profiles.

Another aspect of the ACS that needs consideration is that sampling methods always involve some level of **uncertainty** in the estimates produced. A sampling estimate is not likely to be the exact true value that is present in the population. The difference between the true population value and the sampling estimate is called sampling error.[13]

The Census Bureau provides a **margin of error** (**MOE**)[13] statistic for each estimate. The MOE indicates the level of uncertainty and reliability associated with the sample estimate. The MOE is reported as +/- a numerical value that should be added to or subtracted from the point estimate value which then gives the upper and lower bounds of a 90% confidence interval around the estimate. The interval represents the range within which the true value of the estimate is expected to be with a level of confidence of 90%. In some cases, especially for *small geographic areas* or *subgroup populations*, margins of error can be relatively large. For this DDM, MOEs that are half or more of the size of the point estimate value are considered to be unreliable and the point estimate values and MOE values are suppressed (shown as ***) in the DDM.[13] Any suppressed item is available, however, from the Census Bureau site.[5] For areas or subgroups for which the city data are suppressed, users should use the county or the state level estimates as an approximation of the level in a city.

Socioeconomics - Pages Three - Four
Income, housing, education, earnings, poverty, and other socioeconomic data from the ACS are reported on pages three and four of the DDM. An **income distribution**[14] for households is provided along with **median income** for households and families. The median amount indicates the income level for which half the households are above and half are below. Because families may have more than one person with income, family household median income is usually higher than that for all households. **Per capita income** is the average income per person. There can be significant differences among the cities in these income indicators.

Housing[15] data provided in the DDM from the ACS include the total number of **housing units**, occupancy by **owners or renters**, along with median **housing value** and median **rent**. The **age of the housing** is indicated by the percentages built by decade. Some cities and counties have significant portions of their housing built before 1940. Median housing values, median rents, and the age of housing units vary significantly among Iowa's regions.

Educational attainment,[16] reported for persons age 25 and older, shows those completing at least high school and those with a bachelor's degree or higher. There are often significant variations among the cities in the percentage of residents who have completed at least a bachelor's degree.

The five **occupation groups**[17] reported in the DDM are the main, broad categories used to classify work. Occupation describes and categorizes the kind of work, main activities, and duties that a person does on the job. These five groups are the broadest categories used to summarize more than 30,000 job titles. In Iowa, questions may arise about farm occupations. There is not just one single category for all farmers. In general, persons engaged in farm management or ownership are likely classified in the management/business category but farm workers and hired labor are probably classified in the natural resources category.

The DDM includes estimates of **employment** and **unemployment**.[14] Persons who are considered to be in the **labor force** are those who are employed along with those who are not employed but are looking for work. A portion of the persons categorized as not in the labor force are those who are retired.

Earnings[18] are reported for persons who have wage or salary income from employment. One set of **median earnings**, reported by sex, is for all persons that are employed regardless of the extent or hours that they work and including persons who work part-time. Earnings are also reported separately for those who work **full-time and year round**. In general, median earnings for males tend to be higher than those for females. In some cases, the median earnings of women working full-time and year round may be less than the amount for all men even though that figure includes men working part-time.

Poverty[19] is usually thought about in terms of not having enough money to meet basic needs of food, clothing and shelter. It is usually measured by income indicators. Poverty data from the ACS show, based on household or family size and composition, the number or percent of persons or house-holds whose income fell below a set of dollar value thresholds specified by the U.S. Department of Health and Human Services.[19] If a family's or an individual's income was less than the dollar value of the appropriate threshold, then that family and every individual in it was considered to be in poverty. The dollar value thresholds are revised annually based on inflation in the prices of consumer goods. In general, poverty status is not determined for people who live in group quarters such as college dorms or institutions.

The city DDM has a table for poverty status by age and family type. For many smaller cities, the estimates for some of these groups are suppressed. This is due to the small number of persons or households in these groups that result in poverty estimates that are unreliable with large margins of error.[13] For groups for which the city poverty data are not given, users should use the county or state level estimates as an approximation of the level in the city. As an additional note, county-level estimates of poverty level by race and Hispanic origin are included in the county DDMs although some of the data items are also suppressed due to the small number of persons in some of the race groups.

Disability status[20] includes respondents who report difficulties or life activity limitations in one or more areas of functioning. These include hearing, vision, cognition, ambulation, self-care, or independent living. **Health insurance coverage**[20] broadly classifies the types of coverage into private or public coverage. Any given respondent may have several kinds of coverage or may have none. Both dis-ability and health insurance coverage are reported only for the civilian, non-institution-alized population.[20]

The *Data for Decision Makers* provide the most recent ACS, Decennial Census, and estimate data that are available when the DDMs are updated and published. The ACS items are updated annually, usually in December, while the Decennial Census items are only updated every 10 years. The dates reported for any specific set of data items are the time frame during which the **data were collected**.

One aspect of any data collection process is that there is *lag time* between when the data are collected, the time needed to process the data, and the time when the data can be published by an agency. Most often, these data processes cannot be sped up without compromising data quality or reliability. The Community and Economic Development data team makes every effort to report the most recent data that are available at the time when the DDM reports are published.

How to find the *Data for Decision Makers* Web site at: https://indicators.extension.iastate.edu Click on "DDM" at the top of the page, see Figure 1. That will take you to the main DDM page, Figure 2. From that DDM main page click on the cities map, then choose your city from the drop down menu. This users guide will appear as a link in the drop down menu. You will also find DDMs for Iowa's counties, the state, and the state's Senate and House Legislative Districts. Trend reports for many of the indicators in the DDMs are available from the indicators home page by clicking on "Census 2020" (Figure 1). Other topics and reports available from the indicators web site are for county and city retail trade and government finance. These, along with other topics, can be accessed by clicking on "Programs" at the top of the indicators home page (Figures 1, 3).
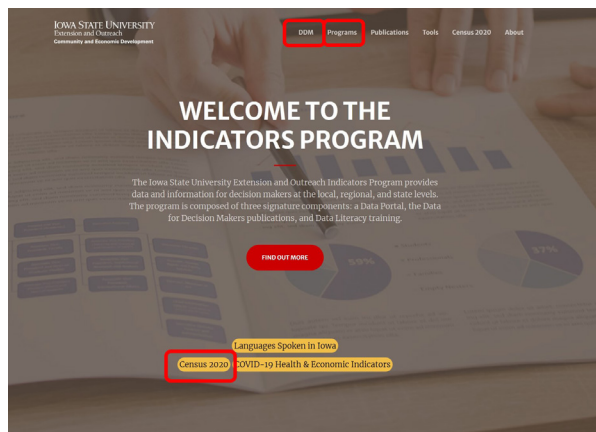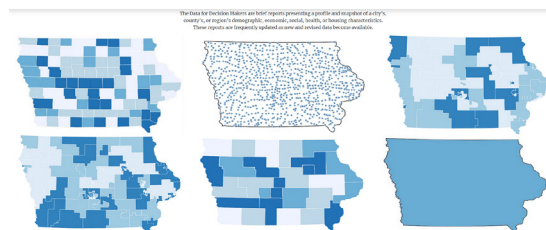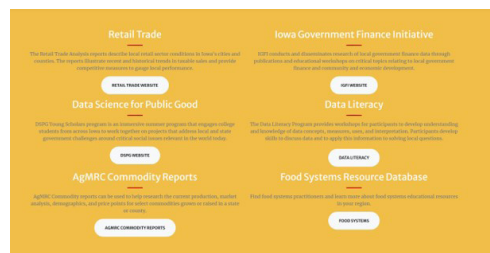
Figure 1.

Figure 2.

Figure 3.

References and Notes:

[1]The city *Data for Decision Makers* include the communities that are legally designated as incorporated places. They have recognized boundaries, elected officials, and provide services to those who live within the boundaries. Other settlement areas know as census designated places are defined by the Census Bureau for statistical purposes only and are not included in the city *Data for Decision Makers* profiles. For communities with population in more than one county, the county given in the DDM is the one that contains the most of the city's population.

[2]*Data for Decision Makers* for Iowa's cities, counties, the state, state legislative districts, federal Congressional districts, Extension regions, health, and housing are updated as new data become available, generally annually. The DDMs can be found at https://indicators.extension.iastate.edu/#DDMs. The *Data for Decision Makers* are part of the Indicators Data Project that is supported by Iowa State University Extension and Outreach through the data team of Extension Community and Economic Development. Additional topics, data, and reports on population trends, retail trade, government finance, and food system resources can be found at: https://indicators.extension.iastate.edu

[3]The **Decennial Census** surveys and counts every housing unit and person in the United States. A Decennial Census is carried out every 10 years in the years ending in zero and is required by the U.S. Constitution to reapportion Congress. The data from the Decennial Census includes total population, age, sex, race, Hispanic Origin, households, families, couples, household relationships, housing units, and housing tenure of owners or renters. More information can be found at: https://www.census.gov and https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-main.html

[4]More information about **Disclosure Avoidance** and **Differential Privacy** can be found at: https://www.census.gov/about/policies/privacy/statistical_safeguards.html and https://www.census.gov/programs-surveys/decennial-census/decade/2020/planning-management/process/disclosure-avoidance.html and https://link.springer.com/chapter/10.1007/11681878_14

[5]The Census Bureau maintains an extensive **data retrieval site** at: https://data.census.gov/

[6]The basic **race categories** include: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Some Other Race. **Hispanic Origin** is considered to be an ethnic group, not a race category. More information regarding the reporting of race and Hispanic Origin can be found at: https://www.census.gov/topics/population/race.html and https://www.census.gov/topics/population/hispanic-origin.html

[7]A **median** is the middle value of a distribution. Half of the values are above the median and half are below.

[8]The **age dependency ratio** compares, by age, those typically not in the labor force with those who typically are in the labor force. Old Age dependency is persons 65+ per 100 persons age 18-64. Child dependency is persons under age 18 per 100 persons age 18-64. The total age dependency ratio is persons under age 18 plus persons 65 or older per 100 persons age 18-64.

[9]In a **population pyramid**, the length of each bar shows the size of each age/sex group relative to the other groups. The length of the bar can represent each group's percent of the total population or the actual population counts of the group. The pyramid is a useful way to compare across age and sex groups. More information on population pyramids can be found at: https://www.census.gov/newsroom/blogs/random-samplings/2016/06/americas-age-profile-told-through-population-pyramids.html.

[10]**Households** are **occupied housing units** with at least one person living there. One person in the household is designated as the householder and other persons are categorized by their relationship to the householder. For the 2020 Decennial Census, households were divided into subcategories by two different methods, both of which are reported in the city profile. One method (family or nonfamily) is based on the presence or absence of **family relationships** among the household members and the householder. **Non-family households** have no relatives of the householder present. Using family relationships (birth, marriage, or adoption) has been the usual way to classify households and the data using this method have good comparability between 2010, 2020, and previous Decennial Censuses. In 2020, the Census Bureau introduced an additional method to divide households into subcategories. This second method (couple or noncouple) is based on the presence or absence of a **couple relationship** for the householder. The relationship can be as a **married spouse** or as an **unmarried partner** and can be of the opposite or same sex**.** The 2020 data reported for the second method (except for married couples) does not have good comparability with data from 2010 or earlier Decennial Censuses. The reporting of **same-sex couples** changed between 2010 and 2020. In this profile, the 2020 data are reported, but items for 2010 are omitted. More information is at: https://www.census.gov/topics/families/families-and-households.html and https://www.census.gov/topics/families/same-sex-couples.html

[11]The **American Community Survey (ACS)** is an ongoing survey that provides annual information for the U.S., states, counties, towns, and many other geographic regions. The ACS is the primary source for social, economic, and housing data. The home page for the American Community Survey and guidance is: https://www.census.gov/programs-surveys/acs/.

[12] See **sampling** at: https://en.wikipedia.org/wiki/Sampling_(statistics)

[13]Because the ACS data are based on samples of the population, there is some level of uncertainty or sampling error associated with each estimate. The Census Bureau provides a **margin of error** (**MOE**) that helps to assess the amount of sampling error and the reliability associated with the estimate. The MOE is reported as +/- a numerical value that should be added to or subtracted from the point estimate value and which give the upper and lower bounds of a 90% confidence interval around the estimate. The interval represents the range within which the true value of the estimate is expected to be with a level of confidence of 90%. A smaller MOE relative to the size of the estimate represents a more precise and reliable estimate. As MOEs become relatively larger, the less confidence there is that the point estimate is close to the true population value. In some cases, especially for *small geographic areas* or *subgroup populations*, margins of error can be relatively large. For this DDM, MOEs that are half or more of the size of the point estimate value are considered to be unreliable and the point estimate values and MOE values are suppressed. For areas or subgroups for which the city data are not given, users should use the county level estimates as an approximation of the level in a city. See: https://www.census.gov/programs-surveys/acs/library/handbooks.html

[14]Concepts and measurement of **income, earnings, occupation, and employment** can be found at: https://www.census.gov/topics/income-poverty/poverty.html; https://www.census.gov/topics/employment/labor-force.html; and https://www.census.gov/topics/employment/industry-occupation.html.html**.**

[15]Detailed **housing** information can be found at: https://www.census.gov/topics/housing.html and https://www.census.gov/topics/housing/guidance.html

[16]For **education** measures and information see: https://www.census.gov/topics/education/educational-attainment.html and https://www.census.gov/topics/education.html

[17]**Occupation** classification details are available at: https://www.bls.gov/soc/2018/major_groups.htm

[18]A discussion on **earnings** is at: https://www.census.gov/newsroom/blogs/random-samplings/2010/09/income-vs-earnings.html

[19]**Poverty concepts** and measurement as used in the ACS can be found at: https://www.census.gov/topics/income-poverty/poverty.html and https://www.census.gov/library/publications/2023/demo/p60-280.html**.** Persons in the various types of group quarters who are not included in the population for whom poverty is determined were excluded from the numerator and denominator when calculating poverty rates. Federal poverty information and guidelines can be found at: https://aspe.hhs.gov/poverty-guidelines**.**

[20]More details about **disability status** and **health insurance coverage** can be found at: https://www.census.gov/topics/health/disability.html; https://www.census.gov/topics/health/disability/guidance/data-collection-acs.html; https://www.census.gov/topics/health/health-insurance.html; and https://www.census.gov/topics/health/health-insurance/about/glossary.html

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