



DRIVERS OF HOUSING DEMAND: PREPARING FOR THE IMPENDING ELDER BOOM

Technical Appendices

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Appendix A: Methodology for projected household mix for New Orleans in 2020

The projections of the 2020 household mix for New Orleans were generated from population projections for the New Orleans metro using a cohort-component forecasting model. These population projections started with Census 2010 population counts by age for the metro, and applied Center for Disease Control (CDC) Age-Specific Death Rates (ASDR) for Louisiana for 2001 to estimate the number of people who survive to the following year in each age group. The ASDR for 2001 was used knowing that the denominator for these rates was the most certain given its proximity to the Census 2000 head count. Survival rates were also calculated for females in order to estimate births each year, which were derived using the 2009 U.S. fertility rate for females ages 15 to 44. In addition, the CDC estimated sex ratio of births from 1940-2002 was used to determine the number of females born each year to sustain the projections. Births were added to each year's age-specific estimates and survival rates for each year calculated.

Next, metro area households by type were calculated based on 2010 metro area headship rates by age of householder. Due to limited tabulations by the Census Bureau, our household types “with children” had to be more narrowly defined as households with children under age 18 who are *related* to the head of household. (Households with children *not related* to the head of household are included among households “without children but not alone.”) Then, the shares of all metro households by type that were in Orleans in 2010 were used to calculate the number of projected households by type that will be in Orleans in 2020. This first set of household projections for Orleans, referred to as Scenario 1 in the report, assumes zero net in-migration and factors in only expected births and deaths. The household projections were derived from metro area population projections because Scenarios 2 and 3, described in more detail in the paragraphs below, rely on metro level inputs. Orleans Parish household projections in Scenario 1 would be only slightly different if they were derived from population projections for the city (rather than for the metro) because of differences in the distribution of the population by sex and age between Orleans Parish and the New Orleans metro.

Scenario 2 varied from Scenario 1 in two ways. First, this scenario assumes that the total number of householders ages 55 to 64 that currently reside in the city, remain in the city until 2020. Using Census 2010 counts of individuals 55 to 64, age specific mortality rates were applied to calculate the number of individuals that would survive to be 65 to 74 years old. These numbers were calculated for both the metro area and the city itself. Then, geographically specific headship rates from Census 2010 were applied to both to determine the number of households living alone, the number living with children, and the number not living with children but not living alone in both Orleans and the metro area. For the resulting metro area households, the share that would be in New Orleans was calculated based on the 2010 share of metro households by type that are in New Orleans. These numbers were compared to the number of such households calculated for New Orleans itself and the difference derived. This difference was added to the households age 65 and older in Scenario 2. Secondly, this scenario assumes that all households in New Orleans with children under age 6 (but no older children), who might otherwise move to the suburbs when their children reach school age, decide to stay in the city. Based on 2010 Census data, households with (only) children under 6 years old are more likely to live in the city than households with children 6 to 17 years old. The 2010 share of metro area households with children 6 to 17 years old that live in New Orleans was applied to the 2010 number of households in New Orleans that have (only)

children under 6 years old to determine the expected number of households with young children who will remain in the city once those children reach school age. This number was compared to the current number of households with children under 6 and the difference derived. This difference was added to the householders ages 15 to 64 with children projected for 2020.

Scenario 3 differed from Scenario 1 in that it assumes a much more optimistic metro area population growth rate similar to the growth rate of 9.2 percent over the last 10 years enjoyed by the Memphis metro area. To calculate the Memphis metro's growth rate from 2000 to 2010, the geography of the Memphis metro was standardized to match the 2010 definition of the Memphis metro's geographic boundaries. This scenario is perhaps the most hypothetical of the three in that there are no demographic drivers that would suggest such optimistic population growth by 2020 in the New Orleans metro. For this reason, the age structure of Scenario 1 was maintained in Scenario 3, and each age group was simply increased by 6.3 percent above the Scenario 1 projection levels for 2010 to yield a 9.2 percent growth rate for the entire metro from 2010 to 2020. Lacking any specific information (such as job growth projections or immigration rates) upon which to base age-specific migration rates, a standard percentage increase was simply applied to all age groups. Should the New Orleans metro experience robust job growth before 2020, it is likely that the region would experience a larger influx of working age adults and their children rather than older adults. In any case, even with robust economic growth, the associated influx of working age adults is highly unlikely to be as large as the number of adults currently in New Orleans who will age into the 65 plus age bracket by 2020.

Appendix B: Methodology for projected elderly population for New Orleans in 2030

The projection of New Orleans' population 65 years and older by 2030 was based on the same cohort-component forecasting model applied to the New Orleans metro as described in Appendix A. However, we created just one projection factoring in only expected births and deaths in order to illustrate the growth in older adults in the city. As a result, for this population projection, the forecasting model is applied to the Census 2010 population counts by age for Orleans Parish rather than for the New Orleans metro.

Appendix C: Methodology for estimating current supply of, and future need for, housing for the elderly

We scanned the supply of four types of housing developments targeted to the elderly for which data was available: independent living for the elderly, assisted living homes, continuing care retirement communities (CCRCs), and nursing homes. There is not a single data source that adequately covers all of these housing types, so we combined the two data sources described below to estimate the total number of units or beds by housing type.

- InfoUSA is a commercial database marketing firm that maintains a proprietary database of more than 14 million U.S. businesses organized by industrial classifications. The company's researchers compile information from telephone and business directories and state and local government records, verifying records by telephone and updating records with U.S. Postal Service information files. The InfoUSA database was used to compile a list of all independent living developments, assisted living developments, CCRCs, and nursing homes. Web site: <http://www.infousa.com>
- To verify the accuracy of InfoUSA and to maximize coverage of nursing home facilities, we also used data from Nursing Home Compare, an online database of Medicare and Medicaid certified skilled nursing facilities maintained by the Department of Health and Human Services. Data in Nursing Home Compare come from two sources: Centers for Medicaid and Medicare Services' Online Survey, Certification, and Reporting (OSCAR) database and a national database known as the Minimum Data Set (MDS) Repository. OSCAR includes nursing home characteristics and health code deficiencies issued during the three most recent state inspections, and are reported by state survey agencies. MDS includes data on the health, physical functioning, and mental status of nursing home residents. Web site: <http://www.medicare.gov/NHCompare>

Both data sources provided address-level data, which we geocoded to obtain census geographic identifiers. From InfoUSA, we obtained data on all businesses with the four Standard Industrial Classification (SIC) codes listed below.¹ These industry codes encompass the four types of senior housing described earlier as independent living developments for the elderly, assisted living homes, CCRCs, and nursing homes.

- Residential Care (8361)
- Nursing and Personal Care (8059)
- Intermediate Care (8052)²
- Skilled Nursing Care Facilities (8051)

Each of the above SIC codes contain multiple sub-categories, some of which were irrelevant for our analysis of elderly housing (for example, foster homes, juvenile correction homes, etc.). Such records were filtered out by SIC code, when possible, and by hand for categories that contained both relevant

¹ Full definitions of SIC codes are available at the following web address: <http://www.census.gov/epcd/www/sic.html>

² Note that there were no records included in the data with a SIC code of 8052.

and irrelevant records. Table 1 lists the codes retained in the database, although it is important to note that within some categories irrelevant records were removed by hand.

Table 1: SIC Codes retained for housing inventory

SIC Code	Description
805101	Nursing & Convalescent Homes
805902	Convalescent Homes
805904	Retirement Communities & Homes
805906	Homes & Institutions
805909	Personal Care Homes
805917	Long Term Care Facility
836105	Residential Care Homes
836116	Group Homes
836102	Homes-Adult

The InfoUSA dataset also includes a secondary SIC code which identifies additional functions of each residence. Using these codes, and supplementing with internet research, we categorized facilities in the InfoUSA that offered multiple types of housing as CCRC. We also used Internet research to decide that some nursing home facilities from our second source, Nursing Home Compare, offered other types of housing options and were therefore CCRCs.

After attributing each facility to one of the four types of senior housing, we merged the records from our two data sources. Using address information, we checked for duplicate records by hand. Because different information is available from each of the two sources, we did not remove duplicates until all relevant information was merged into the primary record. Thus, for example, the total number of employees from the InfoUSA record was preserved along with the rest of the information from the Nursing Home Compare record. This was important for estimating the total number of units for some facilities, as described in the next step. Table 2 summarizes how records from each source were classified by housing type.

Table 2: Housing Type Classification by Source File

		Housing Type Classification			
		Independent Living Home	Assisted Living Home	Nursing Home	CCRC/Multiple Levels of Care
Source File	InfoUSA	Residential Care (SIC 8361)	Nursing & Personal Care (SIC 8059)	Nursing Care (SIC 8051)	Any combination of two or more categories
	Nursing Home Compare	NA	NA	All records	

Our final step was to estimate the total number of units (or beds) by housing type. The Nursing Home Compare database includes information on total units, and thus we did not need to create estimates for most nursing home facilities. However, InfoUSA does not include the total number of units in a facility. Thus, for the other housing types we estimated the number of units using a national ratio of employees to units from the *Overview of Assisted Living 2009* report,³ which provides this ratio for each of the different types of senior housing nationally. We then used that ratio to develop an estimate of total units from the number of employees, which is provided by InfoUSA. For the single nursing home in the InfoUSA database for which we did not have units data from Nursing Home Compare, we used an employee to unit ratio calculated from the other nursing homes in New Orleans, which was then used to estimate the number of beds.

As a final check, we contacted individual facilities to verify their function and the total number of units. Based on information obtained directly from these facilities, we modified the units count for 16 facilities, and 12 facilities were dropped from the final list for not being elderly housing. We were unable to contact 10 facilities to confirm either function or number of units. The final list includes 79 facilities.

To estimate the future need for elderly housing, we calculated the ratio of our estimated current supply of senior housing units to the population age 65 and older (from Census 2010) and applied that ratio to our projected population of those age 65 and older in 2020.

³Assisted Living Federation of America. (2009). 2009 Overview of assisted living. Retrieved October 27, 2011 from <http://www.alfa.org/Mail/StoreHome.asp?MODE=VIEW&STID=1&LID=0&PRODID=16>

Appendix D: Methodology for estimating the future incidence of disability

People 65 and older with disabilities. Estimates of the future disability status of the city's elderly population were made by adapting factors developed in a thorough study of the topic at the national level: Johnson et al, 2007.⁴ Estimates in that study were made via the Urban Institute's *DYNASIM3* microsimulation model and took into account factors such as changing mortality rates, educational attainment, income levels, and age and race distributions.

The American Community Survey (ACS) provides some information about people with disabilities. Specifically, we know whether people had sight or hearing problems (sensory disability) or conditions that substantially limited one or more basic physical activities (ambulatory disability). In addition, people were asked if they had conditions that made it difficult to perform certain daily activities, and their answers were used to identify people with cognitive disabilities, self-care disabilities, or independent living disabilities.

In the ACS 2009, 39 percent of respondents in New Orleans over age 65 reported one or more disabilities. In order to estimate "moderate or serious" disabilities, we used the 2009 ACS microdata to sum those over age 65 who reported 1) two or more disabilities or 2) problems with self-care or independent living. This share was 27.5 percent - closer to the 30.3 percent of the elderly population in 2000 identified as having a "moderate or serious" disability by Johnson et al. (2007), using the Health and Retirement Survey.⁵

Johnson estimates that the moderate/severe disability rate for the elderly will fall modestly, from 30.3 percent in 2000 to 27.9 percent in 2040. Assuming a constant rate of change, the rate is estimated at 29.7 percent for 2010 and 29.1 percent for 2020.

In 2010, the ratio of the 2009 New Orleans disability rate to the 2010 national disability rate was $0.275/0.297 = 0.927$. Applying the same 2010 city to national ratio to Johnson's national disability rate estimate for 2020 yields a disability rate for New Orleans' elderly at that time of 27.0 percent ($0.291 * 0.927$). This is applied to our projection of the city's elderly population in 2020 yielding a figure of 14,248 elderly residents with disabilities in New Orleans.

To identify how many of the individuals with disabilities would be in group quarters versus living in households, we first calculated from the Census 2010 the number of people over 65 in group quarters most likely to be designed for individuals with disabilities. These included group homes for adults, nursing homes, and "other institutional facilities." This last group includes psychiatric hospitals and psychiatric units, hospitals with patients who have no usual home elsewhere, in-

⁴ Johnson, R. W., Toohey, D., & Wiener, J. (2007). Meeting the long term care needs of the Baby Boomers: How changing families will affect paid helpers and institutions. *The Retirement Project, Discussion Paper 07-04*. Washington, DC: The Urban Institute. Retrieved October 27, 2011 from http://www.urban.org/UploadedPDF/311451_Meeting_Care.pdf.

Brault, M. W. (December 2008). Americans with disabilities: 2005. Washington, DC: U.S. Census Bureau. Retrieved October 27, 2011 from <http://www.census.gov/prod/2008pubs/p70-117.pdf>.

⁵ For more information on the University of Michigan Health and Retirement Study, see <http://hrsonline.isr.umich.edu/>.

patient hospice facilities, military treatment facilities with assigned patients, and residential schools for people with disabilities.

We assumed that the city's elderly residents with disabilities in these particular types of group quarters as a share of the total elderly population with disabilities remained the same from 2010 to 2020 (about 12 percent), resulting in 1,691 of the 14,248 elderly with disabilities in New Orleans living in these group quarters for the disabled in 2020.

People 65 and older without disabilities. We also multiplied the rate of elderly without disabilities in all group quarters (0.95 percent) by the estimated number of elderly without disabilities in 2020, and added that to the estimate of group quarters residents with disabilities above for a total estimate of 2,039 elderly living in group quarters in 2020.

Non-elderly. We know of no similar model-based forecast of the disability rate for the non-elderly, so we assume that the non-elderly rate for the region will remain constant (at the 2010 level of 6.0 percent on average, covering children and the working age population). Applying this rate to the non-elderly population projection for 2020 yields a non-elderly population with disabilities of 18,534 in 2020.

The process for estimating the share of the non-elderly population in and out of group quarters for the population with and without disabilities was similar to that applied for the elderly, assuming the rates for 2010 stay constant.

Appendix E: Definitions of race/ethnicity categories

Throughout this report, we use “white,” “African American,” and “Asian” as shorthand to refer to individuals who are not Hispanic. Our race/ ethnicity categories are based on the Census 2010 definitions, and are briefly described below.⁶

White: The population who indicate they consider their race to be "White." This does not include whites who checked "yes" for Hispanic nor individuals who reported to be two or more races.

Black or African American: The population who indicate they consider their race to be "Black, African American, or Negro." This does not include African Americans who checked "yes" for Hispanic nor individuals who reported to be two or more races.

Asian: The population who indicate they consider their race to be "Asian" or “Native Hawaiian and Other Pacific Islander.” This does not include Asians who checked "yes" for Hispanic nor individuals who reported to be two or more races.

Other race: The population who indicate they consider their race to be something other than "White," "African American," "Asian," or "Native Hawaiian and Other Pacific Islander." This does not include individuals who checked "yes" for Hispanic. However, it does include individuals who reported to be two or more races.

Hispanic or Latino: The population who indicate they consider themselves to be “Hispanic” or “Latino” (regardless of race). The terms “Hispanic” and “Latino” are used interchangeably.

⁶ U.S. Census Bureau. (June 2011). 2010 Census Summary File 1: Technical Documentation. Retrieved October 24, 2011 from <http://www.census.gov/prod/cen2010/doc/sf1.pdf>