Market Absorption of Apartments

Characteristic Report
(Apartments Completed in 2010)

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Questions regarding these data, or for further information on the Survey of Market Absorption of Apartments Data, may be directed to Housing and Household Economic Statistics Division, Telephone 301-763-3199 or Contact George Boyd at george.t.boyd@census.gov

INTRODUCTION

Because of the construction boom of the early 1970's both private industry and Government have had an urgent need for information on the nature of the demand for rental housing. For over thirty years, The Survey of Market Absorption (SOMA) has continued to measure how soon privately financed, nonsubsidized, unfurnished units in buildings with five or more units are rented or sold (absorbed) after completion. The *2010 Characteristics Report* provides details about units constructed in 2010, yet not necessarily absorbed, such as number of bedrooms, asking rent, and asking price. This publication is of a great value to builders, bankers, market analysts, land planners, and Government officials trying to measure the needs for Federal, State and local assistance in providing better housing for everyone.

The statistics are based on a survey conducted by the Bureau of the Census, U.S. Department of Commerce, for the Department of Housing and Urban Development. As with all surveys, estimates may vary from actual values because of sampling variation or other factors. All statements in this report have undergone statistical testing and are significant at the 90-percent confidence level.

HIGHLIGHTS[1]

- *NEW CONSTRUCTION, PRIVATE, UNFURNISHED:* In 2010, two-bedroom units were the predominant size built, accounting for about 48 percent of newly constructed rental apartments, followed by one-bedroom units (37 percent). The third group comprised units with three or more bedrooms (10 percent), and the smallest group, efficiencies (no bedrooms), accounted for about 6 percent of new 2010 rental completions. (Table 1 and Chart A)

- *REGIONS:* The South, with 47 percent, had the majority of new, unfurnished rental completions of any region, followed by the West, with 27 percent. The Midwest (20 percent) ranked third, while the Northeast had the smallest proportion (7 percent) of new rental completions in 2010. (Table 1 and Chart B)

- *RENT:* In 2010, about 35 percent of the completed unfurnished rental apartments had an asking rent of $1,250 or more – by far the largest proportion of rental completions based on asking rent. There was no significant difference between the next largest proportion - units renting for less than $850 (19 percent) and units in the $850 to $945 range (17 percent). Units renting between $950 and $1,049 accounted for 12 percent of the rentals. Units in the $1,050 to $1,149 and $1,150 to $1,249 ranges reported the lowest percentage, both at 8 percent. (Table 1)

[1]Details may not sum to totals because of rounding.

- *RENT:* The median monthly asking rent for all unfurnished rental apartments completed in 2010 was $1,066--not statistically different than the median rent for unfurnished apartments completed in 2009, $1,085 - in 2010 dollars ($1,067 in 2009 dollars). There was no significant difference in median asking rent among the four bedroom categories. (Table 2 and Chart C)

- *ABSORPTIONS:* The 3-month absorption rate for unfurnished rental units with an asking rent of $850 or less was 75 percent in 2010. This was not significantly different than the 3-month absorption rate for units renting between $850 and $949 (73 percent), but both of these categories were higher than the 3-month absorption rates for units renting for $950 to $1,049 (55 percent) and those renting for more than $1,250 (52 percent). There were no significant differences when comparing the remaining 3-month absorption rates of all other ranges against each other. (Table 2)

- *ABSORPTIONS (BEDROOMS):* There were no statistically significant differences among 3-month absorption rates for unfurnished apartments built in 2010 based on the number of bedrooms in a unit. (Table 2).

- *CORE BASED STATISTICAL AREAS:* The majority (59 percent) of 2010 unfurnished rental units were completed inside principal cities of core based statistical areas (CBSAs), about 21 percentage points greater than the 38 percent built outside the nation's principal cities. Only three percent of new rental units were completed outside CBSAs and were absorbed at a 3-month rate of 72 percent. This 3-month absorption rate was not significantly different than that of the rate for inside (49 percent) and outside (66 percent) principal cities, which also did not differ from one another. (Table 3)

- *AMENITIES:* Of the 90,500 unfurnished rental apartments completed in 2010, air conditioning was available in 90 percent of the units, while about 73 percent had a swimming pool available. Approximately 6 percent of the units included electricity in the monthly rent while natural gas was not an available option to 61 percent of the units. (Table 4 and Chart D)

- *CONDOS AND CO-OPS:* Approximately 18,900 condominium and cooperative apartments were completed in 2010, about 19,500 fewer than similar completions in 2009. The Northeast (39 percent) and the West (35 percent) lead the nation in Condominium and Cooperative construction but were not significantly different from each other. There was no significant difference in the percent of overall construction between the South (18 percent) and the Midwest (8 percent). Within 3 months, 43 percent of the condominium and cooperative units built in 2010 had been sold (absorbed), and there were no significant differences between the 3-month absorption rates among the four regions. (Table 5)

- *CONDOS:* The median asking price for all new condominium apartments built in 2010 exceeded the upper level of the highest asking price range, and thus, cannot be compared to the 2009 median asking price (which also exceeded the highest range). (Chart E). Seventy-two percent of all new condominiums built in 2010 had two bedrooms or more, of those 5,400 (41%), were absorbed within three months. (Table 6 and Chart F)

- *CONDOS AND CO-OPS:* Seventy percent of those condominiums built in 2010 had a median asking price above $400,000, a statistically larger proportion than in any of the other asking price ranges. Whereas, approximate 10 percent of the new condominium construction in 2010 had an asking selling price between $200,000 and $349,999. There were no statistical differences among 3-month absorption rates for condominium units built in 2010 based on asking price range. (Table 6 and Chart B)

- *ALL APARTMENTS:* In 2010 approximately 146,500 apartments in residential buildings with five units or more were completed – 113,300 fewer completions than what SOMA reported in 2009. Of the 146,500 units, 62 percent were nonsubsidized, unfurnished rental apartments; 21 percent were subsidized and tax credit units; 13 percent were condominiums and cooperatives; 1 percent were furnished rental units; and the remaining 4 percent were not in the scope of the survey. (Table 8)

- *ALL APARTMENTS (UNFURNISHED):* Preliminary estimates from the Survey of Market Absorption show that, during 2010, a total of 90,500 privately financed, nonsubsidized, unfurnished rental apartments in buildings of five units or more were completed in permit-issuing areas in the United States. This total is about 73,800 fewer than the estimated 164,300 completions in 2009. The 2010 total number of privately financed, nonsubsidized, unfurnished rental apartments in buildings of five units or more was the lowest reported by SOMA since 1993 (77,200). (Table 8)

CHARACTERISTICS OF THE DATA

All statistics from the SOMA refer to apartments in newly constructed buildings with five units or more. Absorption rates reflect the first time an apartment is rented after completion or the first time a condominium or cooperative apartment is sold after completion. If apartments initially intended to be sold as condominium or cooperative units are, instead, offered by the builder or building owner for rent, they are counted as rental apartments. Units categorized as subsidized and tax credited are those built under two Department of Housing and Urban Development programs (Section 8, Low Income Housing Assistance and Section 202, Senior Citizens Housing Direct Loans) and all units in buildings containing apartments in the Federal Housing Administration (FHA) rent supplement program. The data on privately financed units include privately owned housing subsidized by state and local governments. Time-share units, continuing care retirement units, and turnkey units (privately built for and sold to local public housing authorities after completion) are outside the scope of the survey.

Tables 1 through 4 are restricted to privately financed, nonsubsidized, unfurnished rental apartments. Table 5 is restricted to privately financed, nonsubsidized, condominium and cooperative apartments, while Table 6 is limited to privately financed, nonsubsidized condominium apartments only. Table 7 covers privately financed, nonsubsidized, furnished rental apartments and Table 8 is a historical summary of the totals for all types of newly constructed apartments in buildings with five units or more. Estimates published in this report are preliminary and are subject to revision in the H-130, Market Absorption of Apartments annual report.

NOTE TO DATA USERS

The SOMA adopted new ratio estimation procedures in 1990 to derive more accurate estimates of completions.[2] This new procedure was used for the first time in processing annual data for 1990. Please use caution when comparing completions in 1990 and following years with those in earlier years.

SAMPLE DESIGN

The U.S. Census Bureau designed the survey to provide data concerning the rate at which privately financed, nonsubsidized, unfurnished units in buildings with five or more units are rented or sold (absorbed). In addition, the survey collects data on characteristics such as number of bedrooms, asking rent, and asking price.

Buildings for the survey came from those included in the Census Bureau's Survey of Construction (SOC).[3] For the SOC, the United States is first divided into primary sampling units (PSUs), which are stratified based on population and building permits. The PSUs to be used for the survey are then randomly selected from each stratum. Next, a sample of geographic locations that issue permits is chosen within each of the selected PSUs. All newly constructed buildings with five units or more within sampled places and a subsample of buildings with one to four units are included in the SOC.

For the SOMA, the Census Bureau selects, each quarter, a sample of buildings with five or more units that have been reported in the SOC sample as having been completed during that quarter. The SOMA does not include buildings in areas that do not issue permits. In each of the subsequent four quarters, the proportion of units in the quarterly sample that are sold or rented ("absorbed") are recorded, providing data for absorption rates 3, 6, 9, and 12 months after completion.

ESTIMATION

Beginning with data on completions in the fourth quarter of 1990 (which formed the base for absorptions in the first quarter of 1991), the Census Bureau modified the estimation procedure and applied the new estimation procedure to data for the other 3 quarters of 1990 so that annual estimates using the same methodology for 4 quarters could be derived. The Census Bureau did not perform any additional re-estimation of past data.

Using the original estimation procedure, the Census Bureau created design-unbiased quarterly estimates by multiplying the counts for each building by its base weight (the inverse of its probability of selection) and then summing over all buildings. Multiplying the design-unbiased

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[2]See ESTIMATION section below.

[3]See http://www.census.gov/const/www/newresconstdoc.html#sample for further details on the SOC sample design.

estimate by the following ratio-estimate factor for the country as a whole provides the following estimate:

> Total Units in Buildings with Five Units or More in permit-issuing areas as estimated by the SOC for that quarter DIVIDED by Total Units in Buildings with Five Units or More as estimated by the SOMA for that quarter

Beginning with January 2001 completions, the SOC revised its methodology for estimating the number of units completed for 5+ multi-unit structures. See

> *http://www.census.gov/ftp/pub/const/www/new_methodology_const.html*

for these changes. Thus, caution is required when comparing data from 2001 and forward to any estimates prior to 2001.

In the modified estimation procedure, instead of applying a single ratio-estimate factor for the entire country, the Census Bureau computes separate ratio-estimate factors for each of the four geographic regions. Multiplying the unbiased regional estimates by the corresponding ratio-estimate factors provides the final estimates for regions. The Census Bureau obtains the final estimates for the country by summing the final regional estimates.

This procedure produces estimates of the units completed in a given quarter that are consistent with published figures from the SOC and reduces, to some extent, the sampling variability of the estimates of totals. Annual absorption rates are obtained by computing a weighted average of the four quarterly estimates.

Absorption rates and other characteristics of units not included in the interviewed group or not accounted for are assumed to be identical to rates for units about which data were obtained. The non-interviewed and not-accounted-for cases constitute less than 2 percent of the sample housing units in this survey.

ACCURACY OF THE ESTIMATES

The SOMA is a sample survey and consequently all statistics in this report are subject to sampling variability. Estimates derived from different samples would differ from these.

Two types of possible errors are associated with data from sample surveys: non-sampling and sampling.

Non-sampling Errors

In general, non-sampling errors can be attributed to many sources: inability to obtain information about all cases in the sample, difficulties with definitions, differences in interpretation of questions, inability or unwillingness of the respondents to provide correct information, and data

processing errors. Although no direct measurements of any bias that might result from non-sampling errors has been obtained, the Census Bureau thinks that most of the important response and operational errors were detected during review of the data for reasonableness and consistency.

Sampling Errors

The particular sample used for this survey is one of many possible samples of the same size that could have been selected using the same design. Even if the same questionnaires, instructions, and interviewers were used, estimates from different samples would likely differ from each other. The deviation of a sample estimate from the average of all possible samples is defined as the sampling error. The standard error of a survey estimate provides a measure of this variation and, thus, is a measure of the precision with which an estimate from a sample approximates the average result from all possible samples.

If all possible samples were selected, if each was surveyed under the same general conditions, and if an estimate and its estimated standard error were calculated from each sample, then:

- Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate (i.e., the 68-percent confidence interval) would include the average result from all possible samples.

- Approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate (i.e., the 90-percent confidence interval) would include the average result from all possible samples.

- Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate (i.e., the 95-percent confidence interval) would include the average result from all possible samples.

This report uses a 90-percent confidence level as its standard for statistical significance.

For very small estimates, the lower limit of the confidence interval may be negative. In this case, a better approximation to the true interval estimate can be achieved by restricting the interval estimate to positive values, that is, by changing the lower limit of the interval estimate to zero.

The reliability of an estimated absorption rate (i.e., a percentage) computed by using sample data for both the numerator and denominator depends on both the size of the rate and the size of the total on which the rate is based. Estimated rates of this kind are relatively more reliable than the corresponding estimates of the numerators of the rates, particularly if the rates are 50 percent or more.

In this report, Tables A, B, and C present approximations to the standard errors of various estimates shown. Table A presents standard errors for estimated totals, and Tables B and C

present standard errors for estimated percentages for rental apartments and condominiums, respectively. To derive standard errors that would be applicable to a wide variety of items and could be prepared at moderate cost, a number of approximations were required. As a result, the tables of standard errors provide an indication of the order of magnitude of the standard errors rather than the precise standard error for any specific item. Standard errors for values not shown in Tables A, B, or C can be obtained by linear interpolation.

ILLUSTRATIVE USE OF THE STANDARD ERROR TABLES

Table 3 of this report shows that in 2010, there were about 22,900 new 2-bedroom apartments built inside principal cities. Table A shows the standard error of an estimate of this size to be approximately 2,374. To obtain a 90-percent confidence interval, multiply 2,374 by 1.645 and add and subtract the result (3,905) from 22,900, yielding limits of 18,995 and 26,805. The average estimate of these units completed in 2010 may or may not be included in this computed interval, but one can say that the average is included in the constructed interval with a specified confidence of 90 percent.

Table 3 also shows that the rate of absorption after 3 months for these 2-bedroom apartments built inside principal cities is 55 percent. Table B shows the standard error on a 55 percent rate on a base of 22,900 to be approximately 5.4 percent. Multiply 5.4 by 1.645 (yielding 8.9) and add and subtract the result from 55. The 90-percent confidence interval for the absorption rate of 55 percent is from 46.1 percent to 63.9 percent.

Table 3 also shows that the median asking rent for the estimated 22,900 2-bedroom apartments built inside principal cities was $1,283. The standard error of this median is about $75.

Several statistics are needed to calculate the standard error of a median.

- The base of the median--the estimated number of units for which the median has been calculated. In this example, 22,900.

- The estimated standard error from Table B of a 50-percent characteristic on the base of the median ($\sigma 50\%$). In this example, the estimated standard error of a 55-percent characteristic with the base of 22,900 is about 5 percent.

- The length of the interval that contains the median. In this example, the median lies between $1,250 and $1,349. The length of the interval is $100.

- The estimated proportion of the base falling in the interval that contains the median: in this example, 8 percent (1,900 2-bedroom units renting for $1,250 to $1,349 divided by 22,900 total 2-bedroom units built inside principal cities).

The standard error of the median is obtained by using the following approximation:

$$\text{Standard error of median} = \frac{\sigma 50\% \text{ x length of interval containing the sample median}}{\text{estimated proportion of the base falling within the interval containing the sample median}}$$

For this example, the standard error of the median of $1,283 is:

$$5 \text{ x } 100/8 = \$63$$

Therefore, 1.645 standard errors equal $103. Consequently, an approximate 90-percent confidence interval for the median asking rent of $1,283 is between $1,180 and $1,386 ($1,283 plus or minus $103).