Market Absorption of Apartments

ANNUAL 2012 –ABSORPTIONS
(Apartments Completed in 2011)

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS
U.S. Department of Housing
and Urban Development

INTRODUCTION

For over forty years, the Survey of Market Absorption (SOMA) has been measuring how soon privately financed, nonsubsidized, unfurnished units in buildings with five or more units are rented or sold (absorbed) after completion. In addition, the survey collects data on characteristics such as number of bedrooms, asking rent, and asking price. This publication continues to be of 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 estimates in this report are based on responses from a sample of the population. As with all surveys, estimates vary from actual values because of sampling variation or other factors. All comparisons made in this report have undergone statistical testing and are significant at the 90-percent confidence level.

The Annual Report is produced at the end of the first quarter of the current year and details absorption information for all privately financed, nonsubsidized, unfurnished units in buildings with five or more units from the previous year. Every five years, a comprehensive report is produced that includes ten (10) additional tables. These additional tables also provide historical data restricted to privately financed, nonsubsidized, unfurnished rental apartments and condominium/cooperative units.

Quarterly Reports are also produced and released three months after the end of the absorption quarter. For example, units completed/constructed in the First Quarter (January, February, and March) will have their initial absorptions recorded in the Second Quarter (April, May, and June). In July and August, the data are analyzed and a report is released to the public the first week of September. For additional information, see SAMPLE DESIGN below.

HIGHLIGHTS[1]

- *NEW SOMA TABLE:* Starting with this annual report, SOMA introduces a new data table to complement tables 1, 2 and 3. The new Table 4 reports on "Absorption Rates for Unfurnished Apartments Completed by Units in Building by Number of Floors in Building for the United States".

- *NEW CONSTRUCTION – ALL APARTMENTS:* In 2011, there were approximately 74,700 privately financed, nonsubsidized, unfurnished, rental apartments in buildings of five units or more completed in permit-issuing areas in the United States. This is the lowest number reported since 1993 (77,200 units). (Tables 1 and 9; Chart 11A-2)

- *ABSORPTION RATES:* Fifty-nine percent of the unfurnished rental apartments built in the United States in 2011 were absorbed (rented) within the first three months of completion, 73 percent within six months, 83 percent within nine months, and 88 percent within twelve months. (Table 1) When comparing 2011 absorption rates for 3, 6, 9, and 12-month periods, over the past ten years (Chart 11A-3), the 3-month rate was higher than the 2009 and 2010 absorption rates. The 6-month absorption rate was lower than the 2003, 2004 and 2005 absorption rates. The 9-month absorption rate was lower than the 2004 and 2005 rates. Whereas,

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

the 12-month absorption rate for 2011 was lower than those reported in 2002, 2003, 2004, and 2005.

➢ *REGIONS (RENTALS):* The South region accounted for 52 percent of the new unfurnished rental unit completions in 2011. The Midwest was second with 25 percent, followed by the Northeast (15 percent), while the West reported only nine percent of new 2011 rental completions (Chart A). The 3-month absorption rates did not differ statistically among the regions. (Table 1)

➢ *METROPOLITAN AREAS:* Of the units constructed in 2011, there were 71,300 units built inside Core Based Statistical Areas[2] (CBSA's), which accounted for 96 percent of new unfurnished rental apartments; of those, 52 percent were built inside principal cities of CBSA's. That number did not differ significantly from the 48 percent reported built outside principal cities (suburbs). Of the 74,700 privately financed, nonsubsidized, unfurnished, rental apartments in buildings of five units or more, approximately four percent were constructed outside CBSA's. There were no significant differences found among the 3-month absorption rates for the units Inside CBSA's (58 percent), Outside CBSA's (73 percent), Inside Principal Cities (60 percent), and Outside Principal Cities (56 percent). (Table 1)

➢ *RENT:* The median asking rent for unfurnished apartments completed in 2011, was $1,084 (Tables 2 & 3; Chart B). This did not differ not differ significantly

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[2] The term "core based statistical area" (CBSA) became effective in 2000 and refers collectively to metropolitan and micropolitan statistical areas.

from the $1,110 median[3] in 2010. In 2011, the highest percentage of units

rented, were for those in the $950 or less (30 percent) or $1,350 or more (26

percent) ranges – these ranges did not differ significantly. The lowest

percentage of rentals (6 percent each), were in the $1,150 - $1,249 and $1,250 -

$1,349 ranges.

The 3-month absorption rates for units renting for $950 or less (68 percent),

$1,350 or more (62 percent), and those in the $1,050 - $1,149 range (62 percent)

did not differ significantly.   However, all three had higher 3-month absorption

rates than those in the $950 - $1,049 range (41 percent). Those in the $950 -

$1,049 range did not differ significantly from those in the $1,150 - $1,249 and

$1,250 - $1,349 ranges.

The 12-month absorption rates for units renting in the $950 - $1,049 range (66

percent) did not differ significantly from those in the $1,150 - $1,249 range (71

percent), but this figure was lower when compared to the other rent ranges.   The

units in the $1,150 - $1,249 range also did not differ significantly from those in

the $1,250 - $1,349 range (89 percent), and was also lower than the remaining

ranges. There were no significant differences in the 12-month absorption rates

among units renting for less than $950, $1,050 - $1,149, $1,250 - $1,349, and

those units renting for $1,350 or more. (Table 3)

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[3] The figure shown for the 2010 median has been adjusted to reflect inflation; the Median Asking Rent, as reported in the 2010 publication, was $1,077.

➢ *BEDROOMS:* Of the 74,700 units constructed in 2011, two-bedroom units accounted for 50 percent of the total, followed by one-bedroom units with 31 percent. Unfurnished rental units with 3 bedrooms or more (16 percent) comprised the third most units while efficiencies - no bedrooms (3 percent) accounted for the fewest number (Table 3; Chart C). There were no significant differences between the absorption rates for efficiencies and 1-bedroom units after their three and twelve month absorption periods. The absorption rates for 1-bedroom, 2-bedroom, and 3-bedroom units did not differ significantly among each other. However, the three and twelve month absorption rates for efficiencies were higher when compared to those reported for both the 2-bedroom and 3-bedroom or more units. After 12 months, 88 percent of all the units were absorbed. (Table 3)

➢ *RENT BY NUMBER OF BEDROOMS:* The median asking rent for unfurnished apartments in 2011 was $1,084. Although two-bedroom ($1,091) and 3-bedroom ($1,175) units were not statistically different, both had higher median asking rents than the $983 for a 1-bedroom unit in 2011. Due to median asking rent of an efficiency unit renting for "$950 or less", additional statistical comparisons are not available. (Table 3)

➢ *NUMBER OF UNITS BY NUMBER OF FLOORS:* In 2011, the largest percentage of newly built unfurnished rental apartment units (58 percent) were those constructed in buildings with three floors. Approximately 33,400 of these 3-floor units contained

20 to 49 units each. Units in buildings with four or five floors were next,

accounting for 22 percent of new unfurnished apartments. The lowest

percentages were in units with one to two floors (11 percent) and units with six or

more floors (9 percent). However, the 9 percent and 11 percentage did not differ

significantly from each other. (Table 4)

➤ *AMENITIES:* In 2011, of the 74,700 newly built unfurnished rental apartments, 99

percent came equipped with a dishwasher, 97 percent included air conditioning,

and 59 percent had a swimming pool available. The cost of electricity was

included as part of the asking rent in nine percent of the newly built units.

Propane or natural gas was not available in 60 percent of the units constructed,

and twelve percent charged for parking. (Table 5; Chart D)

➤ *CONDOMINIUMS AND COOPERATIVE UNITS:* In 2011, approximately 11,300

condominium and cooperative apartments were constructed. This figure

represents the smallest amount of construction reported since SOMA began in

1970 (Table 9; Chart 11A-4). Of the 11,300 units, the Northeast reported the

most construction (58 percent) followed by the West with 30 percent. The South

(9 percent) and the Midwest (3 percent) did not differ statistically. There were no

significant differences in the absorption rates among the four geographical

regions after three and twelve month for 2011. By the end of 12 months 90

percent of all condominium and cooperative units were absorbed. (Table 6)

➢ *CONDOMINIUM SELLING PRICE:* The median asking price for all condominium apartments built in 2011 was over $450,000 (exceeding our upper range). Of the approximately 11,000 condominiums, seventy-seven percent of all new condominiums built in 2011 had two or more bedrooms. Approximately two percent of the new condominiums were efficiencies with no bedroom. (Table 7)

➢ *REGIONS (CONDOMINIUMS):* Of the approximately 11,000 condominiums completed in 2011, 58 percent were constructed in the Northeast compared to 31 percent in the West. Construction in both of those regions was greater than the South (8 percent) and Midwest (3 percent) regions – which, in themselves, were not statistically different. There were no differences in the 3-month and 12-month absorption rates among the four regions for condominiums. (Table 7; Chart A)

➢ *METROPOLITAN AREAS (CONDOMINIUMS):* Approximately 98 percent of the new condominium units built in 2011 were completed inside CBSAs. Of those units inside CBSA's, 65 percent were built inside principal cities and 35 percent were built outside principal cities (Chart 11A-5). The 3-month absorption rate for condominiums built outside of the CBSA's, inside principal cities of CBSA's, and outside principal cities of CBSA's, did not differ significantly. (Table 7)

➢ *NEW CONSTRUCTION:* The 129,900 apartments of all types constructed in buildings of five or more units in 2011 is the lowest number reported by SOMA

since 1993 when there were approximately 124,800 units constructed. (Table 9; Chart 11A-1). Additionally, in 2011, approximately 28 percent of the total new units constructed were reported as being federally subsidized or receiving some type of tax credit. This is the largest percentage ever reported by SOMA in the history of the survey (Chart 11A-6).

➢ *OTHER UNITS:* Nonsubsidized, unfurnished rental apartments accounted for 57 percent of 2011 completions; nine percent were condominiums and cooperatives; 28 percent were federally subsidized; one percent were furnished rental units; and the remaining five percent were not in the scope of the survey. (Table 9)

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 credit 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 5 are restricted to privately financed, nonsubsidized, unfurnished rental apartments. Table 6 is restricted to privately financed, nonsubsidized condominium and cooperative apartments, while Table 7 is limited to privately financed, nonsubsidized condominium apartments. Table 8 covers privately financed, nonsubsidized, furnished rental apartments and Table 9 is a historical summary of the totals for all types of newly constructed apartments in buildings with five units or more.

NOTE TO DATA USERS

The SOMA adopted new ratio estimation procedures in 1990 to derive more accurate estimates of completions[4]. This new procedure was used for the first time in processing annual data for 1990. Please use caution when comparing the number of 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)[5]. 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. Finally, 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.

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[4] See ESTIMATION section below.
[5] See http://www.census.gov/const/www/newresconstdoc.html#sample for further details on the SOC sample design.

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 were 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 basis 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 three quarters of 1990 so that annual estimates using the same methodology for four 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 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

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 census regions. Multiplying the unbiased regional estimates by the corresponding ratio-estimate factors provides the final estimates for regions. The Census Bureau obtains the final estimate 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 noninterviewed 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 one another. The standard error of a survey estimate is a measure of the variation among the estimates from all possible samples. The methodology for calculating standard errors is explained in the section on Accuracy of the Estimates.

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

Nonsampling Errors

In general, nonsampling 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 errors made in processing the data. Although no direct measurements of the biases have 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 each of the different samples would likely differ from each other. The deviation of a sample estimate from the average from 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.

As calculated for this survey, the standard error also partially measures the variation in the estimates due to errors in responses and by the interviewers (nonsampling errors), but it does not measure, as such, any systematic biases in the data. Therefore, the accuracy of the estimates depends on the standard error, biases, and some additional nonsampling errors not measured by the standard error. As a result, confidence intervals around estimates based on this sample reflect only a portion of the uncertainty that actually exists. Nonetheless, such intervals are extremely useful because they capture all of the effect of sampling error and, in this case, some nonsampling error as well.

If all possible samples were selected, if each of them was surveyed under the same general conditions, if there were no systematic biases, 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.

Tables A, B, and C present approximations to the standard errors of various estimates shown in the report based on completions in 2011. Table A presents standard errors for estimated totals, and Table B presents standard errors of estimated percents. Table C presents standard errors for estimated percentages of condominiums, cooperatives and finished apartments. 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, and C can be obtained by linear interpolation.   For units completed prior to 2011, please reference Tables A-1 to A-3 or B-1 to B-3 in previous Annual Reports. Standard errors for values not shown in those tables can also be obtained by linear interpolation.

ILLUSTRATIVE USE OF THE STANDARD ERROR TABLES

Table 3 of this report shows that 37,000 unfurnished apartments were built as 2-bedroom units in 2011. Table A shows the standard error of an estimate of this size to be approximately 3,840 (see Test A-1). To obtain a 90-percent confidence interval, multiply 3,840 by 1.645 (yielding 6,317), and add and subtract the result from 37,000, yielding limits of 30,683 and 43,317. The actual population value of these units may or may not be included in this computed interval, but one can say that the actual value is included in the constructed interval with a specified confidence of 90 percent.

Table 3 also shows that the rate of absorption after 9 months for those 37,000 units as 2-bedroom units in 2011 was 79 percent. Table B shows the standard error on a 79 percent rate on a base of 37,000 to be approximately 4.2 percent (see Test B-1). Multiply 4.2 by 1.645 (yielding 6.9), and add and subtract the result from 79. The 90-percent confidence interval for the absorption rate of 79 percent is from 72.1 percent to 85.9 percent.

The median asking rent for these 37,000 unfurnished rental apartments with two bedrooms was $1,091. The standard error of this median is about $44.

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, 37,000.
- The estimated standard error from Table B of a 50-percent characteristic on the base of the median ($\sigma 50\%$). In this example (see Test B-2), the estimated standard error of a 50-percent characteristic with the base of 37,000 is about 5.3 percent.
- The length of the interval that contains the median. In this example, the median lies between $1,050 and $1,149. The length of the interval is $100.
- The estimated proportion of the base falling in the interval that contains the median--in this example,12 percent. The standard error of the median is obtained by using the following approximation:

standard error of median

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

For this example, the standard error of the median of $1,091 is:

5.3 x 100/12 = $44

Therefore, 1.645 standard errors equal $72 ($44 x 1.645). Consequently, an approximate 90-percent confidence interval for the median asking rent of $1,019 is between $1,027 and $1,163 ($1,091 plus or minus $72).