

# HOUSING STARTS: BACKGROUND AND DERIVATION OF ESTIMATES, 1945-82

By David Siskind\*

## Introduction

Housing starts are one of the most carefully scrutinized of the monthly economic data series released by the Federal Government. And so they should be. Since the end of World War II, the trend in this statistical series has been a most important bellwether of the health of the Nation's economy. Since 1945, a steady decline in housing starts has always been a precursor to an economic recession. Conversely, there has been no economic recovery without a prior sustained rise in housing starts from the recession low.

Starts data prior to 1945 were based on secondary sources. They were derived by ratio estimating procedures using permit authorization and population data for urban areas and population data for nonfarm rural areas.<sup>1</sup> The only reliable data were those available on an annual basis. Monthly starts statistics, when available, were not reliable.

Post-war work on monthly starts statistics can be divided into two distinct periods: 1945-58 (Bureau of Labor Statistics) and 1959 to the present (Bureau of the Census). This article provides a brief description of the procedures used by the Bureau of Labor Statistics (BLS) to estimate housing starts and a detailed description of the current Bureau of the Census survey procedures (sample copies of pertinent data collection forms are shown at the end of this article).

## Definitions and Scope

Housing units are counted as started when excavation begins for the footings or foundations. For multifamily buildings, all units in a structure are included in the count of units started when excavation for the building is started. Land clearing, other development, or stockpiling of materials at the building site are not, by themselves, considered to indicate the start of construction.

Data are collected on starts of all major types of housekeeping residential units intended for nontransient occupancy with the exception of mobile homes. Housekeeping units in mixed-use buildings are covered if the residential space is a substantial share of total floor area. All types of nonhousekeeping residential units (e.g., dormitories and nursing homes) are excluded. Farm houses and second homes were not covered by the data prior to 1959 but they have been since then.

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<sup>1</sup> See U.S. Department of Commerce, Bureau of the Census, *Housing Construction Statistics, 1889-1964* (U.S. Government Printing Office, Washington, D.C., 1966) for a detailed description of compilation and sources used to estimate housing starts prior to 1945.

The starts data cover both privately and publicly owned units. Data on privately owned housing are based primarily on information provided by building permits, whereas statistics on publicly owned housing (contract awards) are based on information provided monthly by various Federal agencies, including the U.S. Department of Housing and Urban Development (HUD). HUD provides information on the number of housing units in projects for which public housing agencies (PHA's) have given a developer notice to proceed with construction. Data from other agencies refer to the time that a construction contract was awarded by the Federal Government. The HUD programs (new construction only) that are included in the Census Bureau's public housing statistics are: (1) low-income public housing; (2) Indian public housing; and (3) Section 8 housing owned by a PHA at the time of construction. Units in structures built by private developers for sale upon completion to local public housing authorities under the HUD "Turnkey" program are classified as private housing.

## Bureau of Labor Statistics Procedures<sup>2</sup>

The Bureau of Labor Statistics (BLS) procedures for estimating housing starts were adopted in 1946 and revised in 1954. Basic similarities underlying the data collection and starts estimation procedures before and after 1954 enable one to synthesize the methods into a single statement. The BLS starts estimates were based on a two-part survey: one part covered building permit issuing places and the other covered rural nonfarm areas which did not issue building permits.

Each month, estimates were made of housing starts in *permit-issuing places* on the basis of the number of units authorized. Preliminary estimates of housing starts were made from returns from a sample of permit-issuing places. Final estimates were based on returns from the entire universe and imputations for nonrespondents. The number of permit-issuing places rose from approximately 5,200 in 1946 to about 7,000 in mid-1954.

No direct measurement was made of the rate at which authorized units were actually started. Instead, a small sample of builders who had obtained permits the previous year were surveyed at irregular intervals. They were asked to report the months in which particular authorized buildings were started. On the bases of the replies, monthly permit use patterns were developed which, when applied to total authorizations, converted them into starts: x percent of the units authorized in a given month automatically

<sup>2</sup> *Ibid.*, pp. 9-11.

started in that month, y percent in the month after authorization, z percent the following month, and so forth. These patterns were applied mechanically to the data on total permits issued to obtain estimates of monthly starts.

The patterns were not adjusted for unusual weather conditions, material or labor shortages, sudden changes in financial conditions, or strikes. They did not reflect the short- and medium-term impacts of economic or political events.<sup>3</sup>

To estimate housing starts in *nonpermit areas*, BLS selected a sample of land areas in these jurisdictions to represent the universe. One-third of these areas were canvassed each month so that over a 3-month period all areas were covered. The number of starts located in the sample areas was weighted to obtain a total of starts in the nonpermit areas.

Unfortunately, this nonpermit survey was often restricted by lack of funds, necessitating a reduction in areas covered and probably resulting in an understatement of starts in these areas. It should be noted that new residential construction in these nonpermit-issuing areas in the late 1940's and 1950's was proportionately much greater than in the 1960's and 1970's. There were far fewer county permit systems during the earlier decades, and activity was high in many nonpermit-issuing counties adjacent to expanding metropolitan areas. BLS estimates also *excluded* new farm housing starts, which during some years were significant.

A study completed in 1964 which drew heavily upon data from the 1950 and 1960 Censuses of Housing and other sources, indicates that the BLS statistics had understated starts by approximately 25 percent for the period 1945 through 1958, ranging from 48 percent for the 1945-49 period to 19 percent for 1955 through 1958.<sup>4</sup>

Not until the 1964 study was completed did it become possible to evaluate accurately the success of the immediate post-war housing programs. In the period 1947 through 1949, 4.1 million housing units were started, according to the revised figures; this was 45 percent higher than the original estimate.

## Bureau of the Census Procedures

On July 1, 1959, the Bureau of the Census was officially assigned the responsibility for estimating housing starts.<sup>5</sup>

<sup>3</sup> For additional information on BLS sample design and methodology, see U.S. Department of Labor, "Estimating National Housing Volume", BLS Bulletin No. 1168.

<sup>4</sup> For a description of the methods used, see Bureau of the Census, *Construction Reports*, C 20-59 and 60, issued May and June 1964. For a description of the technique used to distribute the revised Census annual estimates to a monthly series, see *Construction Review*, July 1964.

<sup>5</sup> A Construction Statistics Office was officially set up in January, 1959, to supervise the transfer of responsibility for compiling new housing and construction statistics from the Construction Statistics Division of the Bureau of Labor Statistics, (U.S. Department of Labor) and the Business and Defense Services Administration (U.S. Department of Commerce) to the Construction Statistics Division of the Bureau of the Census.

Two major decisions were made at the outset: estimates would be based on direct measurement of housing units actually started in both permit-issuing and nonpermit-issuing areas, and farm housing would be included in the estimates.

## Building Permit Data

Building permits provide the raw material from which Census enumerators select the owners who will be contacted to determine the rate at which buildings are started in the approximately 16,000 places now covered by permit-issuing systems.<sup>6</sup> In 1979 and 1980, about 90 percent of all new housing was constructed in these places. However, Census does not canvass all 16,000 places each month. Permit authorizations from a subsample of approximately 3,700 places are used to derive the preliminary monthly estimates, while revised figures are based on returns from about 8,000 places. These samples for the preliminary and revised estimates are designed to represent the total 16,000-place universe.<sup>7</sup>

## Starts in Permit-Issuing Places

Estimates of starts in permit-issuing jurisdictions are based on a direct survey of building owners in 843 such places located in 137 Primary Sampling Units (PSU's).<sup>8</sup> Approximately 40 percent of all units authorized by permits are located in these 843 places. Included are 239 jurisdictions which in 1976 and 1977 each authorized 1,200 or more units.<sup>9</sup> The remaining 604 places are a probability sample representing the other 15,000-plus places. For purposes of estimating total starts, each of the 843 sample permit-issuing jurisdictions is assigned a weight ranging from 1 (self-representing) to 107, depending upon the number of housing units authorized in the base period 1976-77.

On the first workday of the calendar month, well trained Census interviewers visit each permit office in the sample. They are familiar with the operations of the offices they visit. When a new place is brought into the survey, *Form SOC-903, Questionnaire for Building Permit Official* is prepared, detailing the operations of the permit office as they relate to the survey. Each month the interviewer makes certain that every permit issued during the survey month is available for review.

<sup>6</sup> For a description of the building permit-issuing universe, see Construction Reports C40-80-13, *Housing Units Authorized by Building Permits and Public Contracts*, July 1981, pp 375-397.

<sup>7</sup> The sample includes all places which authorized 1,200 units or more in 1976-77 and a subsample of the remaining permit places.

<sup>8</sup> A Primary Sampling Unit (PSU) is a county or group of counties representing similar groupings throughout the country. Some PSU's are self-representing; others represent between 40 to 50 other PSU's.

<sup>9</sup> For technical reasons, a handful of comparable jurisdictions are not included.



tained. The same survey showed that permits were obtained for all multifamily buildings started in permit-issuing places.

Further adjustments are made in the preliminary and revised estimates of starts to account for starts which occur before a permit is obtained and for occasions when respondents do not report starts until a month or two after buildings have actually been started. Adjustments are made by region and type of structure. These adjustments range from 2 to 7 percent for preliminary figures to less than 2 percent for the revised figures.<sup>12</sup>

### Starts in Areas Not Issuing Building Permits

Currently, approximately 10 percent of all new units are started outside permit-issuing jurisdictions; about 90 percent of these starts are single-family houses. Census develops estimates of starts in these areas by means of a two-part survey in a sample of 89 Primary Sampling Units. In the first part, Census establishes for each PSU a panel of persons knowledgeable about new construction—called “sources”—such as builders, building material dealers, rural mail carriers, utility company workers, health department employees, fire fighters, and tax assessors. (See *Form SOC-920A—Section V, Source List.*) Approximately 500 persons are on the 89 source panels. Each month, these sources provide information to the Census interviewers on starts in the land areas within the PSU not covered by permits. The interviewer enters this information—on location, type of structure, etc.—on *Form 921, Nonpermit (NP)/Listing Sheet*. All sites are visited to determine if work was actually started on the footings or foundation.

Although building materials at a site or cleared and graded land do not constitute a start, they indicate a potential start and the interviewer returns each month to the site until work is started on the footings or foundation. If the owner cannot be contacted, the interviewer completes some basic items on the appropriate forms by questioning the source, workers at the site, or neighbors. Source-reported starts are multiplied by the appropriate PSU weight (ranging from 1 to 105) and the sum represents the total number of starts reported by sources.

<sup>12</sup> For a more detailed technical description, contact the Construction Statistics Division, Bureau of the Census (301-763-5731).

Although sources report on the location of most actual and potential starts, they cannot be expected to be aware of all new units started in their areas during a given month. As a check on the quality of the reports from the sources, the interviewers each month search for unreported new starts by traveling every paved and unpaved road within 170 selected land area segments in the nonpermit sections of the 89 PSU's.<sup>13</sup> Roads are traveled in alternate directions every other month so that any starts missed because of a blocked view from one side of the road will be spotted the following month. When an interviewer locates a start which was not reported by a source, he/she prepares a *Form SOC-900 or 900A, Survey of Housing Starts, Sales and Completions*, indicating it is a non-source start (Item 11). These starts are weighted by factors of either 200 or 400 to obtain a subtotal, which in turn is added to the number reported by sources to derive an estimate of all starts in nonpermit areas.<sup>14</sup>

During an average month, sources provide leads to between 1,200 and 1,300 new starts; interviewers independently locate an additional 50-60 starts in all the land area segments. When weighted as indicated above, the unreported starts located by interviewers account for 30-40 percent of total starts in areas not requiring permits.

### Conclusion

This article has described the procedures the Federal Government has used since 1945 to estimate housing starts in permit-issuing places and in places that do not issue permits. Estimates are currently made of total U.S. starts; starts in the four Census regions; and starts in structures with 1 unit, 2 units, 3 and 4 units, and 5 units or more.

All statistics based upon samples are subject to sampling errors, and these sampling errors are reported in the housing starts reports. The relative standard error of the estimate of total starts is usually about 4 percent, while that for housing permit authorizations is only about 2 percent.

<sup>13</sup> A segment is the equivalent of a Census tract which contains from 1,000 to 1,200 households.

<sup>14</sup> According to a Census study, sources become aware of just about all new starts in their areas sooner or later.

The following supplemental data are available in various C20 Housing Starts reports:

1. New Privately Owned Housing Units Authorized, but Not Started, in Permit Issuing Places at End of Period (Inventory of Unused Permits).
2. New Privately Owned Housing Units Started, By Location and Type of Structure.
3. New Privately Owned Housing Units Started, By Purpose of Construction (For Sale, For Rent, Contractor Built, Owner Built).
4. Selected Characteristics of New Privately Owned Buildings Started With 5 Units or More.
5. Total Time From Start of Construction to Completion of Private Residential Buildings.
6. Condominium Ownership and Townhouse Construction.

TABLE

Total Public and Private Housing Starts 1900-1981 (units in thousands)

Year	Total Public & Private	Total Public	Total Private	Private Housing Starts				
				Single Family	Multi-Family	Percent Distribution		
						Total	Single Family	Multi-Family
1900	189	—	189	123	66	100.0%	65.1%	34.9%
1901	275	—	275	177	98	100.0	64.4	35.6
1902	240	—	240	171	69	100.0	71.3	28.7
1903	253	—	253	175	78	100.0	69.2	30.8
1904	315	—	315	207	108	100.0	65.7	34.3
1905	507	—	507	336	171	100.0	66.3	33.7
1906	487	—	487	316	171	100.0	64.9	35.1
1907	432	—	432	291	141	100.0	67.4	32.6
1908	416	—	416	286	130	100.0	68.7	31.3
1909	492	—	492	328	164	100.0	66.7	33.3
1910	387	—	387	251	136	100.0%	64.9%	35.1%
1911	395	—	395	249	146	100.0	63.0	37.0
1912	426	—	426	258	168	100.0	60.6	39.4
1913	421	—	421	264	157	100.0	62.7	37.3
1914	421	—	421	263	158	100.0	62.5	37.5
1915	433	—	433	262	171	100.0	60.5	39.5
1916	437	—	437	267	170	100.0	61.1	38.9
1917	240	—	240	166	74	100.0	69.2	30.8
1918	118	—	118	91	27	100.0	77.1	22.9
1919	315	—	315	239	76	100.0	75.9	24.1
1920	247	—	247	202	45	100.0%	81.8%	18.2%
1921	449	—	449	316	133	100.0	70.4	29.6
1922	716	—	716	437	279	100.0	61.0	39.0
1923	871	—	871	513	358	100.0	58.9	41.1
1924	893	—	893	534	359	100.0	59.8	40.2
1925	937	—	937	573	365	100.0	61.2	39.0
1926	849	—	849	491	358	100.0	57.8	42.2
1927	810	—	810	454	356	100.0	56.0	44.0
1928	753	—	753	436	317	100.0	57.9	42.1
1929	509	—	509	316	193	100.0	62.1	37.9
1930	330	—	330	227	103	100.0%	68.8%	31.2%
1931	254	—	254	187	67	100.0	73.6	26.4
1932	134	—	134	118	16	100.0	88.1	11.9
1933	93	—	93	76	17	100.0	81.7	18.3
1934	126	—	126	109	17	100.0	86.5	13.5
1935	221	5	216	182	34	100.0	84.3	15.7
1936	319	15	304	239	65	100.0	78.6	21.4
1937	336	4	332	266	66	100.0	80.1	19.9
1938	406	7	399	316	83	100.0	79.2	20.8
1939	515	57	458	373	85	100.0	81.4	18.6
1940	603	73	530	448	83	100.0%	84.5%	15.7%
1941	706	86	620	533	86	100.0	86.0	13.9
1942	356	55	301	252	49	100.0	83.7	16.3
1943	191	7	184	136	47	100.0	73.9	25.5
1944	142	3	139	115	24	100.0	79.4	20.6
1945	326	1	325	290	35	100.0	89.2	10.8
1946	1,023	8	1,015	937	78	100.0	92.3	7.7
1947	1,268	3	1,265	1,152	113	100.0	91.3	8.9
1948	1,362	18	1,344	1,180	164	100.0	87.7	12.2
1949	1,466	36	1,430	1,229	201	100.0	85.9	14.1
1950	1,952	44	1,908	1,689	220	100.0%	88.5%	11.5%
1951	1,491	71	1,420	1,275	145	100.0	89.8	10.2
1952	1,504	58	1,446	1,304	142	100.0	90.2	9.8
1953	1,438	36	1,402	1,251	151	100.0	89.2	10.8
1954	1,551	19	1,532	1,397	135	100.0	91.2	8.8
1955	1,646	19	1,627	1,494	132	100.0	91.8	8.1
1956	1,349	24	1,325	1,195	130	100.0	90.2	9.8
1957	1,224	49	1,175	980	195	100.0	83.4	16.6
1958	1,382	68	1,314	1,048	266	100.0	79.8	20.2
1959	1,554	37	1,517	1,234	283	100.0	81.3	18.7
1960	1,296	44	1,252	995	257	100.0%	79.5%	20.6%
1961	1,365	52	1,313	974	339	100.0	74.2	25.8
1962	1,492	29	1,463	991	472	100.0	67.7	32.3
1963	1,635	32	1,603	1,012	591	100.0	63.1	36.9
1964	1,561	32	1,529	971	558	100.0	63.5	36.5
1965	1,510	37	1,473	964	509	100.0	65.4	34.6
1966	1,196	31	1,165	779	386	100.0	66.9	33.1
1967	1,322	30	1,292	844	448	100.0	65.3	34.7
1968	1,545	37	1,508	889	608	100.0	59.6	40.3
1969	1,500	33	1,467	811	656	100.0	55.3	44.7
1970	1,469	35	1,434	813	621	100.0%	56.7%	43.3%
1971	2,085	33	2,052	1,151	901	100.0	56.1	43.9
1972	2,379	22	2,357	1,309	1,048	100.0	55.5	44.5
1973	2,058	13	2,045	1,132	913	100.0	55.4	44.6
1974	1,353	15	1,338	888	450	100.0	66.4	33.6
1975	1,171	11	1,160	892	268	100.0	75.9	23.1
1976	1,547	10	1,538	1,162	376	100.0	75.6	24.4
1977	2,002	15	1,987	1,451	536	100.0	73.0	27.0
1978	2,036	13	2,020	1,433	587	100.0	70.9	29.1
1979	1,760	15	1,745	1,194	551	100.0	68.4	31.6
1980	1,313	21	1,292	852	440	100.0%	64.9%	35.1%
1981	1,100	16	1,084	705	379	100.0	65.0	35.0

Note: Details may not add to totals due to rounding.  
Source: Bureau of the Census, U.S. Department of Commerce

9/7

RECEIVED SEP 12 1983

Dear Mike -

Instead of sending you the 17 page study I mentioned, I have merely noted my estimates of farm construction on the enclosed table which appeared in Home Hoyt's "Real Estate Issues."

Somewhere in the depths of their library, I'm certain CE must have a C20 report which carries the data. Official government figures do not contain farm starts prior to 1959.

Since you are only going back 30 years, the farm starts really will not effect the 1950-1959 published numbers to any significant degree - running about 40,000 per year.

About the Carlin living down the block - his name is Carlin.

If I can be of any help in this and related areas, just

get in touch. I am also free for consulting provided it does not interfere with my wife's travel plans. Took in 2 Eldonhostels and a trip to the Canadian Rockies this past summer.

Stay well.

Yours,  
David

9/8

Re the table. Prior to 1950, I also revised the total figures based on the Census of Housing of 1940 and 1950. But since you are interested in 3 decades - and primary singles, I did not think it necessary to send the entire study.

## REVISED HOUSING STARTS, 1910 - 1958

This study will attempt to show that statistical data from the Census of Housing indicates that the current series on housing starts seriously understates residential building activity between 1910-1944. These statistics also make it possible to estimate total starts - nonfarm and farm - for the period 1910 - 1958. Finally, this study attempts to link, on a comparable basis, the housing starts series prepared by the Bureau of the Census since 1959 with housing starts statistics going back to 1910.

### I. INTRODUCTION

From time to time, history is rewritten because of discoveries - archeological finds, private papers made public, public documents redesigned. This study is an attempt to revise an existing statistical series using data available for some time but overlooked - the Decennial Census of Housing. Although the decennial Census statistics are based on a 20 percent sample, the figures for the 1910-1939 period are consistent with the data collected in the 1940 and 1950 censuses. Those presently published for the



period 1910-1945 are based on building permits issued in a limited number of cities, and the best judgement of experts in the field at the time the estimates were made.

## II. HOUSING STARTS: NONFARM

In 1963, the Bureau of the Census revised the annual nonfarm housing starts statistics prepared by the Bureau of Labor Statistics for the period 1945-1959. No attempt was made in 1963 to examine the accuracy of the starts statistics prior to 1945. The overall magnitude of the 1945-1959 revisions, based in large part upon the statistics in 1960 Census of Housing publications, indicated beyond doubt that the figures for earlier year should have been examined. The difference between the revised 1945-1959 Census figures and those of the Bureau of Labor Statistics (BLS) were sufficiently large to make the pre-1945 figures suspect. In 1945, there was a 56 percent difference between the Census and BLS series; in 1950, the difference was still very high - 40 percent. In fact, for the period 1945-1950, the revised Census starts figure totaled 7,397,000 - 45 percent above the BLS total of 5,081,000.

The first Census of Housing was taken in 1940. The question "year built" was asked for a 20 percent sample of households and the following information was derived for a three decade period:

Table 1. Number of Dwelling Units by Year Built, For the United States, Urban and Rural, 1940 <sup>1/</sup>

(units in thousands)

Time Period	U. S. Total (a)	Urban and Rural Nonfarm			Rural Farm (e)
		Total (b)	Urban (c)	Rural Nonfarm (d)	
1930-1939	5,528.1	4,238.2	2,193.2	2,045.0	1,289.9
1920-1929	8,515.3	7,252.9	5,488.3	1,764.6	1,262.3
1910-1919	6,445.5	5,008.7	3,784.5	1,224.2	

<sup>1/</sup> In 1950, based on a 20 percent sample, the results were as follows:

Table 2. Number of Dwelling Units by Year Built, For the United States, Urban and Rural, 1950 <sup>2/</sup>

(units in thousands)

Time Period	U.S. Total (a)	Urban and Rural Nonfarm			Rural Farm (e)
		Total (b)	Urban (c)	Rural Nonfarm (d)	
1945 or later	5,964.1	5,320.0	3,365.8	1,954.2	626.2
1940-1944	3,228.4	2,911.0	2,154.1	756.9	317.4
1930-1939	5,897.6	4,979.6	3,303.5	1,676.1	918.0
1920-1929	8,893.7	7,893.2	6,464.4	1,428.8	1,000.4

<sup>2/</sup> Because of population shifts during the period between 1940 and 1950, there was a change in land areas classified urban, rural nonfarm and rural farm. Hence, housing classification among the three areas are not directly comparable between these two Census periods. It should be noted that between 1910 and 1939 there was a shift from rural farm to nonfarm and that some buildings originally located on farms appear in the nonfarm category. However, although we cannot compare the detail directly, we can compare U.S. totals.

Since there are no data on this shift from rural farm to rural nonfarm to urban by year structure built, the decennial Census of Housing total will have to suffice.

Table 3. Comparison of Number of Dwelling Units by Year Built: Reported 1940 and 1950

(units in thousands)

Year Built	Number of housing units		
	Census year reported		
	1940 (a)	1950 (b)	Difference (b) - (a)
1945 or later	-	5,964.1	-
1940-1944	-	3,228.4	-
1930-1939	5,897.6	5,528.1	369.5
1920-1929	8,515.3	8,893.7	378.4
1910-1919	6,445.5	NA	NA

It would appear that whether reported in the Census of 1940 or 1950, the total number of housing units built during the decade of the 30's was about 5.9 million and during the 20's about 8.5 million. It is true that by 1940, some of the units built during the 1920's and 30's would have disappeared from inventory but the number was probably small and will be ignored for this analysis. Besides, the 1950 figures for the decades of the twenties and thirties are higher than those reported in 1940 Census. Therefore, by using the 1940 Census figures, we may be dealing with a minimum figure and possibly a more accurate one. For comparability with the published housing starts data, which excluded farm housing, we should subtract the

rural farm total from the U. S. tables.<sup>1/</sup> We will assume that during the thirties about 4,240,000 nonfarm units were built (table 4). We will also assume that units started prior to 1920 and completed during that decade were equal to units started during the last years of the 1930's and finished during the forties; and that the same holds true of the twenties. Therefore, for this analysis, the number reported built can be equated to the number started. I propose we accept the statistics in table 1, column b, as equivalent to nonfarm starts for the three decades in that table and table 2, column b, line 2, for the 1940-1944 period. This will definitely understate starts during the teens, and twenties because of some disappearances of units built during these decades from inventory during the twenties and thirties respectively. However, even if the figures were adjusted upward one or two percent to account for these disappearances, the numbers involved in the adjustment would be relatively small. Likewise many of the "quanset huts" erected during World War II had disappeared by the time of the 1950 Census and were therefore not in the 1940-1944 figures derived from that census.

Table 4 below compares these statistics with the published series.

<sup>1/</sup> No adjustment is being made for new farm housing built in urban areas.

The number was probably small.

Table 4. Comparison of Number of Nonfarm Dwelling Units Reported  
In Census With Published Series

Time Period	Units in thousands		Differences: Decennial/Published	
	Decennial Census	Published	Units (Col. b - Col. a)	Percent (Col. a ÷ Col. b)
1940-1944	2,904	1,998 <sup>1/</sup>	- 906	145.8
1930-1930	4,233	2,734 <sup>1/</sup>	-1054	155.0
1920-1929	7,253	7,034 <sup>2/</sup>	- 219	103.1
1910-1919	5,009	3,593 <sup>3/</sup>	-1416	139.4

1/ Bureau of Labor Statistics, vs. Department of Labor, "Nonfarm Housing Starts, 1889 to 1958, Bulletin 1260 (1959) p. 15 and 24.

2/ Wickens, David L., "Residential Real Estate," 1941 p. 296. National Bureau of Economic Research, Inc. Mr. Wickens' estimates for the 1980's were revised upward by BLS. It is interesting to note that the estimate for the 1920's prepared by David Wickens was far superior to those prepared for the other period.

3/ Blank, David M., "The Volume of Residential Construction, 1889 to 1950," "Technical Paper Number 9 (1954) p.p. 41, 67, 68. National Bureau of Economic Research, Inc.

It becomes obvious from these Census statistics that the currently published nonfarm housing starts statistics for the 3-1/3 decades under analysis are understated. More important, the figures for the earlier decades are consistent in both the 1940 and 1959 Census of Housing Statistics.

There is no reason not to use the present annual starts series to distribute the new decennial control totals. Therefore, the new totals were distributed proportionately within each period; in effect, each number was multiplied by the adjustment factor in Table 4, column d. The revised estimates of new nonfarm housing units started, 1910-1944 are presented in Table 5. (The 1945-1959 estimates revised in 1964 were retained unchanged.)

Table 5

Estimated Number of New Nonfarm Housing Units Started, 1910-1958

<u>Year</u>	<u>Number of Units</u>	<u>Year</u>	<u>Number of Units</u>	<u>Year</u>	<u>Number of Units</u>	<u>Year</u>	<u>Number of Units</u>
1910	536	1922	731	1934	195	1946	1,023
1911	551	1923	900	1935	343	1947	1,268
1912	594	1924	923	1936	494	1948	1,362
1913	587	1925	968	1937	521	1949	1,466
1914	587	1926	877	1938	629	1950	1,952
1915	604	1927	835	1939	800	1951	1,491
1916	610	1928	776	1940	-	1952	1,504
1917	335	1929	525	1941	-	1953	1,438
1918	165	1930	512	1942	-	1954	1,551
1919	440	1931	394	1943	-	1955	1,646
1920	254	1932	208	1944	-	1956	1,349
1921	463	1933	144	1945	326	1957	1,224
						1958	1,382

Note: Annual totals for period 1945-1958 derived by Nathan Schein and published in Bureau of the Census, Construction Report, Series C20 - 59 and 60, Housing Starts, May-June, 1964.

### III. Housing Starts: RURAL FARM

Prior to 1959, housing starts statistics were limited to the nonfarm sector. The Bureau of Labor Statistics and previous estimators of new housing starts made no estimates for Farm housing starts in their calculations. When the Bureau of the Census was assigned the responsibility for measuring new housing starts, it designed a sample survey which measured both nonfarm and farm starts. During the 1960's the Census Bureau published two series of new housing statistics - total starts and total nonfarm starts. In 1970, the latter series was dropped. Therefore, since 1959, the Census Bureau has been publishing monthly data on total housing starts. As indicated earlier, although the basic data were available in 1963 when the 1945-1959 nonfarm statistics were revised, no attempt was made at that time to estimate the farm starts for that period and thus derive a figure comparable to the total starts measured by Census since 1959. This section will be divided into two parts - derivation of decennial and quinquennial estimates of Farm housing starts and distribution of those estimates annually 1910-1959.

#### 1. Estimates: Quinquennial and Decennial

The five and ten year estimates are derived from the Bureau of the Census, Census of Housing for 1940, 1950 and 1960. The Census of Housing provides data on "year built" by decade for 1910-1919, 1920-1929, and 1930-1939. In the 1950 and 1960 censuses, data on "year built" are available for selected periods - 1940-1944, 1945-1949, 1950-1954 and 1955-1958. The earlier assumption to equate "year built" with "year started" is carried over to this section.



The control totals for new farm starts 1910-1958, are presented in the following table.

Table 6  
Estimates of New Farm Housing Starts by Decade, 1910-1958  
(Thousands of Units)

<u>Decade</u>	<u>Number of units</u>
1910 - 1919	1,436,800
1920 - 1929	1,262,300
1930 - 1939	1,289,900
1940 - 1949	943,600
1940 - 1944	317,400
1945 - 1949	626,200
1950 - 1958	383,300
1955 - 1958	155,700

Source: Bureau of the Census - 1940, 1950, 1960 Censuses of Housing.

## 2. Annual Distribution of Estimates

Farm housing cannot be distributed proportionately with the nonfarm sector because different economic forces affect the two segments. There are three series of farm-statistics which may be examined and evaluated in considering the distribution of the decade control totals in table 6 into an annual series: value of new construction put in place for farm operator dwellings in current dollars and in constant dollars, and gross farm income. The last was included on the assumption that farm construction may be affected by farm income. These data are presented in table 7,

columns 1-3 for the period 1910-1958. A percent distribution was derived for each of these categories for each of the time periods in table 6; and this percentage distribution was applied to the control total in that table for each time period. The result - estimated number of units started - is displayed in table 7, columns 4-6.

One can dispute the merits or weakness of anyone of the three distributions in the series in table 7, columns 4-6. In some years, the figures for all three are relatively close; in others, quite different. For some periods, two of the three series are virtually the same, and then diverge significantly. After careful consideration, the choice was narrowed to the distributions based on expenditures of owner-occupied farm dwellings and finally to the series based on constant dollars in table 7, column 4. The constant dollar series was selected because that series more than the other measures the actual physical quantity of the amount put in place, so called "brick and mortar". It is adjusted for price fluctuations and is probably a more accurate reflection of physical quantity put in place.

#### IV. Conclusion

The revised series of total new nonfarm and farm housing starts, 1910-1959, presented in table 8, shows an increase of about 20 percent - almost 7½ million units - over the previous totals. All evidence indicates that considerably more housing was built during the period 1910-1948 than previously calculated.

For some of the decades revised, the earlier set of statistics for nonfarm construction are not much different from the revised series, i.e. the twenties. For other decades, the differences were significant. However, some of the years in the early twenties saw a boom. The first million plus year, allowing leeway for assumptions was 1923 or 1924. Likewise, the first two million year was 1950. As can be expected, the lowest year during this period was 1933 - the depth of the Great Depression.

These new statistics, if acceptable, will require revision of a related set of Gross National Product expenditures. The value of new construction for this entire period will have to be re-examined and revised upward.

Table 7

Estimates of New Farm Housing Starts, 1910-1958

(dollars in millions)

Year	Farm Operator Dwellings: Value of new construction put in place <sup>1/</sup>		Gross Farm Income <sup>3/</sup>	Estimated starts using per- cent distribution derived		
	Constant \$ <sup>2/</sup> (1)	Current \$ (2)		Current \$ (3)	Col. 1 (4)	Col. 2 (5)
	1910	\$ 496	\$ 111	\$7,495	131	105
1911	472	105	7,213	125	101	99
1912	510	114	7,710	135	109	106
1913	510	114	7,978	135	109	111
1914	514	114	7,793	135	110	108
1915	491	109	8,147	129	105	112
1916	619	154	9,744	164	148	135

Table 7

## Estimates of New Farm Housing Starts, 1910-1958

(dollars in millions)

	(1)	(2)	(3)	(4)	(5)	(6)
1917	667	199	13,410	175	191	185
1918	558	203	16,547	147	195	228
1919	613	273	17,918	161	273	249
1920	548	266	15,944	182	223	154
1921	283	98	10,573	93	82	102
1922	332	119	11,059	110	100	107
1923	378	142	12,167	126	120	117
1924	350	133	12,785	116	112	124
1925	365	141	13,716	121	119	133
1926	352	137	13,302	116	115	128
1927	412	160	13,336	136	135	128
1928	408	156	13,598	135	131	131
1929	381	147	13,938	126	125	135
1930	289	107	11,472	178	209	156
1931	184	59	8,421	113	115	115
1932	87	24	6,405	54	46	88
1933	106	29	7,101	66	57	97
1934	117	32	8,568	72	62	117
1935	197	56	9,666	121	110	137
1936	239	66	10,756	147	129	147
1937	298	96	11,367	184	187	155

Table 7

Estimates of New Farm Housing Starts, 1910-1958  
(dollars in millions)

	(1)	(2)	(3)	(4)	(5)	(6)
1938	244	83	10,149	151	161	138
1939	326	110	10,585	201	214	144
1940	442	139	11,059	81	70	38
1941	498	147	13,851	91	74	48
1942	329	126	18,794	60	63	65
1943	258	109	23,397	47	55	68
1944	205	111	24,448	37	55	85
1945	179	125	25,813	34	32	104
1946	662	409	29,539	127	103	118
1947	718	554	34,146	138	140	137
1948	844	702	34,722	162	178	140
1949	852	683	31,628	164	173	127
1950	785	642	32,291	48	50	42
1951	738	665	37,098	48	47	48
1952	732	665	36,829	48	47	48
1953	673	619	35,070	45	43	46
1954	627	572	33,690	39	41	44
1955	573	532	33,261	39	41	37
1956	549	529	34,415	39	39	38
1957	543	537	34,170	40	39	38
1958	518	514	38,133	38	37	43

## Footnotes from Table 7

- 1/ Construction Statistics, 1955-1964, a supplement to Construction Review, U. S. Department of Commerce, Business and Defence Services Administration, 1965 Source Farm Income Branch, Economic Research Service, U. S. Department of Agriculture.
- 2/ Constant dollars based on 1957-1959 = 100.
- 3/ State Farm Income Statistics, Realized Gross Income, U. S. Department of Agriculture.
- 4/ Percent distributions were applied to totals in time periods in Table 6.

Table 7.

## Revised Estimates

## Total New Nonfarm and Farm Housing Units Started

1910-1958

(units in thousands)

<u>Year</u>	<u>Unit Started</u>	<u>Year</u>	<u>Unit Started</u>	<u>Year</u>	<u>Unit Started</u>
1910	667	1927	971	1943	312
1911	676	1928	911	1944	234
1912	729	1929	651	1945	360
1913	722	1930	690	1946	1,150
1914	722	1931	507	1947	1,046
1915	733	1932	262	1948	1,524
1916	744	1933	210	1949	1,630
1917	512	1934	267	1950	2,000
1918	342	1935	464	1951	1,539
1919	601	1936	641	1952	1,552
1920	435	1937	705	1953	1,483
1921	556	1938	780	1954	1,590
1922	841	1939	1,001	1955	1,685
1923	1,026	1940	918	1956	1,385
1924	1,039	1941	1,075	1957	1,264
1925	1,089	1942	555	1958	1,420
1926	993				