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APPENDIX B

Distribution of Nonfarm Residential Mortgage Debt Between Owner-Occupied and Rental Housing

THE distributions of residential mortgage debt between one- to four-family and multifamily housing and of mortgage holdings among types of holder are published in some detail for all the postwar period. But the breakdown by type of debtor or between owner-occupied and rental housing, like the sector distribution of tangible housing assets, is a difficult problem. It is not reported on by mortgagees, who are the main sources of mortgage information, and the distinction does not appear in most of the official mortgage data.

One official estimate of this distribution is made: the flow-of-funds unit of the Federal Reserve Board, aiming at consumer and other sector balance sheets, distinguishes owner-occupied housing debt, which it treats as a consumer sector liability, from rental housing debt, which it treats as a business sector liability. It is these estimates, with the allocation to sectors somewhat changed, that appear in the balance sheets of Volume II.

The Federal Reserve Board makes these estimates in a somewhat arbitrary way. Starting with an allocation based on the 1950 Housing Census, it assigns all net change in one- to four-family mortgage debt outstanding, as derived from the Federal Home Loan Bank Board (FHLBB) series, to the consumer sector. An estimate of mortgage debt on owner-occupied houses, independent of the FRB series except for the 1950 starting point, can be built up from Housing Census and FHLBB data. These estimates serve as a check on the FRB series, and can supply us with some further breakdowns of the total.

The main anchor of our estimates is the 1950 census. From it we can derive estimates for the value of mortgaged owner-occupied one-unit and two- to four-unit properties as well as data on the amount of mortgage debt itself (Table B-1). For 1956 we were able to estimate, from the National Housing Inventory, the value of and the debt on mortgaged one-unit properties (Table B-2). For two- to four-unit mortgaged properties only value data were given. Therefore, the debt-to-value ratio for these properties had to be estimated in order to calculate the mortgage debt on them.

Both the debt-to-value ratio for mortgaged properties and the proportion of properties that are mortgaged depend partly on the rate of new building, since the highest debt-to-value ratios are those on new houses. The increase in the debt-to-value ratio for one-family proper-

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ties between 1950 and 1956 was roughly 5 per cent, but we did not consider the same increase likely for two- to four-family housing where the ratio of new building to existing stock and the increase in the percentage of property mortgaged (by value) were much smaller. To take account of this lower building rate for two- to four-family houses, we assumed that the increase in their debt-to-value ratio bore the same relationship to that for one-family houses as the increase in their ratio of mortgaged to total property. This assumption produced a debt-to-value ratio for 1956 only about $\frac{1}{2}$ per cent higher than in 1950 for two- to four-family houses. Because the difference was so small, the 1950 ratio was finally used for both years. For 1960, preliminary data from the *1960 Census of Housing* provide a third benchmark observation on the mortgage debt of owner-occupiers.

These three estimates cover a large share of one- to four-family debt outstanding, ranging from over 85 per cent in 1950 to almost 89 per cent in 1956, to judge from the FHLBB data which we have used for interpolation between the Census benchmarks (Table B-3) despite some differences in coverage, discussed below. Before 1950 a gradual increase in the home-owners' share of total debt was assumed, to match the growth in their share of tangible housing assets.

The resulting annual series follows that of the Federal Reserve Board fairly well until 1950, after which the FRB estimates rise more rapidly, reaching a level in 1960 about \$10 billion higher than the Census figure for that year. This discrepancy produces two widely divergent figures for other mortgage debt on one- to four-family housing: about \$6 billion by the FRB method compared to roughly \$17 billion implied by the NBER calculations. The full results of the *1960 Census of Housing* will settle the question more definitely.

As was mentioned earlier, there are a number of differences in concept and coverage between the Census data, used here to estimate debt on owner-occupied one- to four-unit properties, and the Federal Home Loan Bank Board series for debt on all one- to four-unit structures.

Among the differences are the inclusion in the FHLBB series of construction loans and other temporary financing (although most of these are not to owner-occupiers), some loans on joint home and business properties and on some properties classified by the Census as farm, and certain other loans excluded by the Census, and the exclusion from the FHLBB series of contracts to purchase, which are part of the Census total.¹

There are also some differences in size classification of properties. Some of the sources used by the Federal Home Loan Bank Board

¹ *U.S. Census of Housing: 1950*, Vol. IV, pp. XXX-XXXIII.

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classify by the number of units in a structure, regardless of the number on the property. The Census, in its mortgage tabulations, classifies as one- to four-family only those properties on which the total number of units is four or less. Thus commercial bank call reports, used in the FHLBB series, would classify a row of six one-family houses under one mortgage as one- to four-family housing while the Census would consider it multifamily.

Some indication of the possible importance of this difference between property and structure size classifications is given in Table B-4 which shows all nonfarm rental units by size of structure and mortgaged nonfarm rental units by size of property. The proportion of houses mortgaged among the one- to four-family class appears surprisingly low, while even the minimum estimate of the number of units on mortgaged properties of fifty units and over is 160,000 (about 25 per cent) greater than the number of units in structures of fifty units and over. There is evidence, furthermore, that the minimum estimates are too low; they give a total number of mortgaged rental units of 4.3 million while the Census figure is over 5.2 million,² much closer to the estimate made by using class midpoints. The implication of this calculation is that there are at least 160,000 units, and probably a considerably larger number, which appear in a higher size classification by the property size criterion than by the structure size criterion. Consequently, the estimates of owner-occupied housing debt in Tables B-1 through B-3 are probably somewhat low, and some of the difference between them and total debt may represent not rental housing debt but mortgages on one- to four-unit structures on properties of five units or more.

There is another element in the difference between owner-occupied and total one- to four-family housing debt. All vacant properties, even if they are for sale, are excluded from owner-occupied housing in the Census mortgage data, and therefore appear together with rental housing.

² *U.S. Census of Housing: 1950, Vol. IV, p. XVI.*

TABLE B-1
DATA ON VALUE AND MORTGAGE DEBT FOR OWNER-OCCUPIED
NONFARM PROPERTIES, 1950

	All Properties	Mortgaged Properties	Non- mortgaged Properties
<i>1-Dwelling-Unit Properties Without Business</i>			
1. Number of properties	15,878,421	7,052,170	8,826,251
2. Mean value (dollars)	8,382.2	9,688.4	7,338.6
3. Total value (million dollars)	133,096.1	68,324.2	64,771.9
4. Mortgage debt (million dollars)	28,566.3	28,566.3	
5. Ratio of mortgage debt to value	.214629	.418099	
6. Ratio of value of mortgaged properties to value of all properties	.513345		
<i>2- to 4-Unit Properties</i>			
7. Total value (million dollars)	28,545.7	14,227.0	14,318.7
8. Value of owner-occupied units (million dollars)	15,257.4	7,604.2	7,653.2
9. Value of rental units (million dollars)	13,288.3	6,622.8	6,665.5
10. Total mortgage debt (million dollars)	5,188.1	5,188.1	
11. Mortgage debt on owner-occupied units (million dollars)	2,773.0	2,773.0	
12. Mortgage debt on rental units (million dollars)	2,415.1	2,415.1	
13. Ratio of mortgage debt to value	.181747	.364666	
14. Ratio of value of mortgaged properties to value of all properties	.498394		

SOURCE

- Line 1. All properties: Table A-2, line 1.
Mortgaged properties: *U.S. Census of Housing: 1950*, Vol. IV, Part 1, p. 157.
Nonmortgaged properties: all properties minus mortgaged properties.
2. All properties: Table A-2, line 2.
Mortgaged properties: median value (\$8,500) from *U.S. Census of Housing: 1950*, Vol. IV, Part 1, p. 162, multiplied by mean-to-median ratio (Table A-1, col. 2, line 5).
Nonmortgaged properties: line 3 divided by line 1.
3. All properties and mortgaged properties: line 2 times line 1.
Nonmortgaged properties: all properties less mortgaged properties.
- 4: *U.S. Census of Housing: 1950*, Vol. IV, Part 1, p. 157.
- 5: Line 4 divided by line 3.
- 6: Line 3, mortgaged properties divided by all properties.
- 7: Line 8 plus line 9.
8. All properties: Table A-5, line 14.
Mortgaged properties: Table A-5, line 3 times line 8.
Nonmortgaged properties: all properties less mortgaged properties.
9. All properties: Table A-5, line 16.
Mortgaged properties: Table A-5, line 6 times line 9.
Nonmortgaged properties: all properties less mortgaged properties.
- 10: *U.S. Census of Housing: 1950*, Vol. IV, Part 1, p. 317.
- 11: Line 10 multiplied by ratio of line 8 to line 7.
- 12: Line 10 minus line 11.
- 13: Line 10 divided by line 7.
- 14: Line 7, mortgaged properties divided by all properties.

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TABLE B-2

DATA ON VALUE AND MORTGAGE DEBT FOR OWNER-OCCUPIED PROPERTIES, 1956

	All Properties	Mortgaged Properties	Non- mortgaged Properties
<i>1-Dwelling-Unit Properties Without Business</i>			
1. Total value (million dollars)	288,920	179,914	109,006
2. Total mortgage debt (million dollars)	79,401	79,401	
3. Ratio of mortgage debt to value	.274820	.441328	
4. Ratio of value of mortgaged properties to value of all properties	.622712		
<i>2- to 4-Unit Properties</i>			
5. Total value (million dollars)	46,144	23,604	22,540
6. Value of owner-occupied units (million dollars)	24,664		
7. Value of rental units (million dollars)	21,480		
8. Ratio of value of mortgaged properties to value of all properties	.511529		
9. Est. total mortgage debt (million dollars)	8,608	8,608	

SOURCE

- Line 1: Table A-6, line 10.
 2: 1956 National Housing Inventory, Vol. II, p. 21.
 3: Line 2 divided by line 1.
 4: Line 1, value of mortgaged properties divided by value of all properties.
 5-7: Table A-6, lines 11, 17, and 16.
 8: Line 5, value of mortgaged properties divided by value of all properties.
 9: Line 5, value of mortgaged properties, multiplied by Table B-1, line 13 (mortgaged properties).

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TABLE B-3

MORTGAGE DEBT ON ONE- TO FOUR-FAMILY
NONFARM HOUSES, ANNUAL ESTIMATES, 1945-60
(million dollars)

Dec. 31 (unless otherwise indicated)	Total (Federal Home Loan Bank Board) (1)	Owner-Occupied (Census and Interpolated) (2)	Owner-Occupied (Federal Reserve Board) (3)
1960	141,288	124,373	135,300
April 1, 1960	133,097	117,163	127,000
1959	130,854	115,273	124,000
1958	117,686	103,976	110,900
1957	107,617	95,357	101,300
1956	99,037	88,009	92,600
1955	88,250	77,977	81,500
1954	75,677	66,485	69,200
1953	66,094	57,732	60,200
1952	58,500	50,803	52,600
1951	51,711	44,646	46,000
1950	45,170	38,770	39,000
April 1, 1950	39,500	33,754	
1949	37,619	32,106	32,100
1948	33,279	28,360	28,000
1947	28,199	23,530	22,900
1946	23,034	19,291	18,400
1945	18,591	15,005	14,400

SOURCE

- Col. 1: *Estimated Home Mortgage Debt and Financing Activity, 1961*, FHLBB, except for April 1, 1950, from *Housing Statistics, Historical Supplement*, FHLBB, October 1961, p. 145.
- 2, April 1, 1950: Table B-1, sum of lines 4 and 10.
Dec. 31, 1956: Table B-2, sum of lines 2 and 9.
April 1, 1960: *U.S. Census of Housing: 1960*, Release of July 20, 1962 entitled "Census Reports \$117 billion in Homeowner Mortgage Debt."
1950-60: interpolated and extrapolated from three benchmarks via col. 1.
1945-49: April 1, 1950 ratio extrapolated back by the ratio of the value of owner-occupied structures to the value of all 1- to 4-unit structures (Table A-10, col. 4, divided by the sum of Table A-10, col. 2, and Table A-20, col. 5).
- 3: *Flow of Funds/Savings Accounts, 1946-1960* (Supplement 5), FRB, December 1961, Table 27L, p. 93, and Table 27Q, p. 94.

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TABLE B-4

DISTRIBUTION OF NONFARM RENTAL HOUSING UNITS BY SIZE OF STRUCTURE
AND SIZE OF PROPERTY, 1950
(number of units)

Size of Structure or Property	All Structures (1)	Mortgaged Properties	
		Est. Using Class Midpoints (2)	Est. Using Class Minima (3)
1-4 units	12,619,852	1,397,186	1,397,186
5-49 units	3,983,903	3,271,025	2,127,311
50 units and over	638,296	1,043,984	797,800
Total	17,242,051	5,712,195	4,322,297

SOURCE

- Col. 1: *U.S. Census of Housing: 1950*, Vol. I, Ch. 1, p. 3.
 2: *U.S. Census of Housing: 1950*, Vol. IV, Part 1, pp. 467, 554, 594, and 605.
 The number of properties in each size class listed in the Census is multiplied by the midpoint of the class.
 3: *Ibid.* The number of properties is multiplied by the lower limit of each class.