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Volume Author/Editor: Leo Grebler, David M. Blank, and Louis Winnick

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Chapter Author: Leo Grebler, David M. Blank, Louis Winnick

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CHAPTER VIII

HAVE CONSUMER PREFERENCES FOR HOUSING WEAKENED?

If successive generations of American families have purchased new homes embodying less and less real capital, the decline of expenditures can be partly explained by changes in the composition of new construction and in the physical characteristics of the dwelling unit. But there seem to be other causes, whose exploration must occasionally trespass the limits set by reliable data. It seems very likely that there has been an important downgrading of housing in the preference scale of consumers.

Generally speaking, the amount of housing a family will purchase is a function of real family income, tastes, and the price of houses relative to the prices of other goods and services. As is true for nearly all consumer goods, the larger the family's income, the more expensive a house it will buy, while a high price relative to other goods acts to restrain housing demand. An alteration in taste is always difficult to isolate, but, in general, if changes in the amount of housing the average family purchases cannot be explained by income and price effects a strong presumption is established that some modification in family tastes, i.e. some shifting in its scale of preferences with respect to a given commodity, has taken place. For example, if past experience has shown that the average family tends to buy 20 per cent more shoes in response to a 50 per cent increase in income (assuming no change in the relative price of shoes), an unchanged volume of shoe purchases in the face of doubled average income would indicate a shift of preferences away from shoes.

The ability to detect a shift in preferences for a good or service depends on what is known about expected consumer reaction to income and price changes. There are few reliable studies of income and price elasticity with respect to the total purchase price of a house. Nevertheless, there is sufficient evidence to suggest that housing has suffered a decline in consumers' preferences.

Income and Price Elasticities

Families in each higher income class typically purchase higher-priced houses than do families of lower income, although the capital value of houses purchased for occupancy does not increase proportionately with the increase in family income (Table 35). It is highly probable that the relationship between the incomes of tenant occupants and the capital value of the dwelling units they occupy is quite similar, judging

TABLE 35

Relationship between Average Property Valuation and Borrowers' Annual Income, New and Existing Single-Family Owner-Occupied Houses with FHA-Insured Mortgages, 1941

	EXISTING HOUSES		NEW HOUSES	
INCOME CLASS	*Average Value*[a]	*Ratio of Value to Income*	*Average Value*[a]	*Ratio of Value to Income*
Under $1,000	$ 2,531	312%	$ 2,904	329%
1,000 to 1,499	3,134	240	3,518	269
1,500 to 1,999	3,765	216	4,247	244
2,000 to 2,499	4,463	200	4,976	223
2,500 to 2,999	5,072	189	5,507	205
3,000 to 3,499	5,538	177	5,989	191
3,500 to 3,999	6,208	169	6,506	177
4,000 to 4,999	7,105	161	7,122	162
5,000 to 6,999	8,465	148	8,327	148
7,000 to 9,999	10,398	130	8,890	112
10,000 and over	13,435	98	11,461	82

[a] Including land. The series would rise somewhat less sharply if value were defined exclusive of land, since other FHA data show that the ratio of land value to total property value rises with the increase in property value.

Source: *Annual Report*, Federal Housing Administration, December 31, 1941, p. 34, reproduced in Ernest M. Fisher, *Urban Real Estate Markets: Characteristics and Financing*, National Bureau of Economic Research, 1951, pp. 84 and 87. Similar data are available in FHA annual reports for somewhat earlier periods and for the war and postwar periods. All show the same general picture. Data for 1941 are presented here because of the view that this year was characterized by relatively normal relationships in the housing market.

by rent-income ratios obtained from budget studies.[1] This form of relationship, of course, holds for most types of consumer goods and services. The positive income elasticity of demand for residential structures suggests that the major rise in real income per capita which has occurred over the past sixty years should have increased average real capital per dwelling unit.[2]

Available figures also suggest how much an average family may be willing to increase its expenditure for housing in response to a change

[1] A more precise measure would relate families with differing *per capita* incomes and the prices of the homes they purchase or occupy, since there is a positive correlation between family size and family income. There is no question, however, that families of a given size but with higher per capita incomes purchase or occupy higher-priced dwelling units than do families of the same size but with lower per capita incomes. Thus Duesenberry and Kistin have estimated the per capita or per household marginal propensity to spend on rent (paid and imputed) to be .15, family size held constant. James S. Duesenberry and Helen Kistin, "The Role of Demand in the Economic Structure," in Wassily Leontief *et al.*, *Studies in the Structure of the American Economy, 1919-1939*, Oxford, 1953, p. 469.

[2] Net national product per capita in 1929 prices rose from $359 in 1889-1898 to $788 in 1939-1948, an increase of 119 per cent. Simon Kuznets, "Long Term Changes in the National Product of the United States of America since 1870," mimeographed, International Association for Research in Income and Wealth, 1951.

in income (Table 35). With income roughly doubled, i.e. increased from $1,000-1,499 to $2,000-2,499 and from $2,000-2,499 to $4,000-4,999, the average value of a new house purchased increased by about 40 per cent.[3] The doubling of real family income that has occurred since about 1890 suggests, therefore, that the real value of a new dwelling unit should have increased, rather than decreased, by 40 per cent.

There has been a large increase in the relative price of houses over the past sixty years, but it is doubtful whether even this large increase has been enough to offset fully the effect that increased income might have had on a family's expenditure for housing. The general price level rose only 160 per cent over this period, while the residential construction cost index rose about 340 per cent, or more than twice as much.[4] The large increase in the relative price of new housing undoubtedly resulted in some tendency for consumers to reduce their average real expenditure per new dwelling unit.

Duesenberry and Kistin have estimated the elasticity with respect to relative prices (real income held constant) for rental expenditures (paid and imputed) to be .078.[5] If the price elasticity of demand for new dwelling units were comparably low, the increase in the relative price of new housing could alone account for more than a tenth of the decline in real capital per dwelling unit. While it is obviously hazardous to assume a flat 8 per cent price elasticity coefficient, it is clear that a doubling or even a tripling of this value would be insufficient to offset the relatively high income elasticity.

Have the prices of new houses risen strikingly more than other consumer prices because wage rates and materials prices have increased more, and productivity less, in residential building than in the rest of the economy? Although it is difficult to obtain data for residential building alone, data for total building and total construction indicate that the rise in the relative price of residential construction is attributable to all three components.

Average hourly earnings in the building trades increased only slightly

[3] This coefficient appears to have some stability over time. Analyses of 1950 census returns on income and value indicates a roughly comparable income elasticity (*Census of Housing 1950*, Bureau of the Census, Vol. IV, Part 1, "Residential Financing," p. 272). On the basis of more complete 1950 census data, Margaret Reid has derived a coefficient of 30 per cent (*Journal of the American Statistical Association*, June 1954, pp. 337-338).

[4] While the price index implicit in nine-year moving averages of gross national product in current and constant prices rose from 50.4 in 1889 to 130.1 in 1945 (1929 = 100.0), the corresponding cost index implicit in nine-year moving averages of residential construction expenditures in current and constant prices increased from 38.7 to 169.8. Simon Kuznets, "Nine-Year Moving Averages of National Product and Components by Types of Use, 1873-1945," mimeographed, National Bureau of Economic Research, Work Memorandum 19, 1951, pp. 4-6.

[5] Duesenberry and Kistin, *op. cit.*, pp. 451-479.

more than average hourly earnings in all manufacturing industry from 1890 to 1950.[6] However, the weight of wages in the total cost of construction is higher than for most other sectors of the economy. Therefore, a general rise in wages of the magnitude that has been experienced over the last sixty years would have the direct effect of raising costs and prices of construction by significantly more than the increase in the general price level. Leontief, in an analysis of the effect of a specified wage rise in each of eighteen sectors of the economy (wages in all other sectors held constant) upon the price level of a given sector, concluded that the construction industry would experience the third largest increase in costs and prices.[7]

The price of building materials rose almost twice as much as the average wholesale price of all commodities from 1890 to 1950. Building materials prices rose 343.0 per cent from 1890 to 1950, while the prices of all commodities in the wholesale price index increased only 187.4 per cent.[8] The increase in the price of building materials was also greater than the rise in price of any one of the other nine major commodity groups in the wholesale price index.[9]

[6] An index (1929 = 100.0) of average hourly earnings in the building trades shows a rise from 24.6 in 1890 to 234.0 in 1950, or an increase of 851.2 per cent. An index of average hourly earnings in manufacturing industry rises from 29.8 in 1890 to 258.8 in 1950, or 768.5 per cent. The building trades index was derived by linking three series: for 1890-1926, a series on average hourly earnings (union) in the building trades from Paul H. Douglas, *Real Wages in the United States, 1890-1926*, Houghton Mifflin, 1930 (see *Historical Statistics*, Bureau of the Census, Series D-126, p. 67); for 1926-1939, a Bureau of Labor Statistics index of union wage rates in the building trades (see *Historical Statistics*, Series D-152, p. 69); and for 1939-1950, a series on hourly earnings in building construction from *Economic Indicators*, Council of Economic Advisers (see *Statistical Abstract of the United States*, Bureau of the Census, 1952, Table 227, p. 191). The index for manufacturing was similarly derived by linking three series: for 1890-1926, a series on average hourly earnings in all manufacturing industry from Douglas, *op.cit.* (see *Historical Statistics*, Series D-124, p. 67); for 1926-1945, a BLS series on average hourly earnings in manufacturing (see *Historical Statistics*, Series D-117, p. 67); and for 1945-1950, a series on hourly earnings in all manufacturing from *Economic Indicators* (see *Statistical Abstract*, 1952, Table 227, p. 191).

[7] Wassily Leontief, "Wages, Profits and Prices," *Quarterly Journal of Economics*, November 1946, p. 33. These calculations were based on the structural relationships in the American economy in 1939.

[8] *Statistical Abstract*, 1952, Table 325, p. 273.

[9] Among the factors resulting in the relative increase in building materials prices has been the increasing pressure in recent periods on this country's decreasing timber resources. Although the percentage increase in lumber prices from 1913 to 1939 was only slightly greater than the rise in prices of all building materials, the percentage rise in lumber prices from 1939 to 1950 was about double that for all building materials. *Construction and Building Materials, Statistical Supplement*, Dept. of Commerce, May 1951, p. 46. Another factor is again the relatively large weight of wages in the total costs of the suppliers of building materials. In Leontief's analysis of the effects of wage increases on prices in major economic sectors, while construction ranked third highest out of eighteen sectors in terms of the effect of a wage rise in each given industry on prices of the given industry,

Improved techniques and equipment and better product design have increased productivity in the construction industry, but the increment may have been offset by other factors, including changes in the age, skill, and effort of the work force and in the organization of the industry. It is extremely difficult to form any judgment as to the net effect of these and other factors on changes in the efficiency of site operations. However, scattered evidence described in Appendix C suggests that increases over the last six decades cannot have been very great and probably have been substantially less than productivity increases in the rest of the economy.

The increase in the relative price of new construction, however, has probably been partially offset in the last few decades by the opening up to residential construction of large quantities of cheaper land outside the centers of urban areas as a result of the development of automobile transportation. The ratio of land cost to construction expenditure for new units has declined. Thus the increase in total acquisition cost (including land cost) of new residential facilities, relative to the general price level, has probably been less than the relative increase in construction cost alone.

Other Demand Factors

Two other factors have importantly affected the average real capital value of new houses. The first is the decline in the size of the nonfarm household. This decline, about 20 per cent for average household size and somewhat larger for incremental household size since the turn of the century, and the factors underlying it have been discussed in Chapter V. One might expect that smaller families would need fewer rooms and so reduce expenditure per dwelling unit. This expectation is supported by cross-section data, both in terms of number of rooms per dwelling unit occupied by and in terms of rent paid by (or imputed to) families of different size but with the same per capita income. Data from the 1935-1936 study of consumer purchases show that smaller households (in given per capita income groups and in given cities) tend to occupy dwelling units with a smaller number of rooms.[10] Similarly, data from the 1940 Housing Census indicate that smaller households (within given geographical regions and given per capita

it ranked highest in terms of the effects of a wage rise throughout the economy on prices in each sector. The difference in the rank of construction in the two analyses suggests the important effect on building materials prices of the historical rise in wages in this country. Leontief, *loc. cit.*

[10] *Family Expenditures in Selected Cities, 1935-36*, Bureau of Labor Statistics, Vol. 1, *Housing*, Bulletin No. 648, 1941, Table 3 in Tabular Summary. The family income data in this table were adjusted to a per capita basis for the present purpose.

income groups) in general pay (or have imputed to them) lower rents than larger households.[11]

However, the number of rooms occupied declines less, proportionately, than the number of persons in the household.[12] The decline in construction expenditure per dwelling unit would be even less proportionate because the cost of certain facilities in the dwelling unit, such as the kitchen, toilet, and bath, does not drop in proportion to reductions in the size of the dwelling unit. Similarly, the decline in rents paid by (or imputed to) smaller families (per capita income held constant) is less than proportionate to the decline in family size.[13] Thus the historical decline in the size of the nonfarm household has undoubtedly tended to decrease real capital per dwelling unit, but by a smaller percentage than the decline in household size.

The second factor that may have reduced the average real expenditure per new dwelling unit is a change in the market served by new housing construction. More families further down in the income pyramid may have bought new houses over the last decade, and the supply of new units may have oriented itself toward this change. If this is true, this trend may be a result of rising real income, or changes in the preference patterns of some groups of consumers, or the increasing trend toward income equality, at least in the recent past,[14] or changing mortgage terms, influenced by government action over the past two decades. The long-term increase in the ratio of mortgage funds invested in new residential construction to the total acquisition costs of such construction (Chapter XI) certainly made it possible for lower income families to acquire new houses and, in fact, may be evidence of such a movement.[15]

[11] Eric Schiff, "Family Size and Residential Construction," *American Economic Review*, March 1946, pp. 111-112. On the basis of cross classifications presented in census reports, Schiff calculated median monthly rents (paid or imputed) for households of different size for each of five income classes in each of sixteen analysis groups. One-person households and the lowest and highest income classes ($1 to 499 and $5,000 or more) were excluded from the analysis. Each analysis group comprised households with identical attributes with regard to geographical location, urban or rural nonfarm location, and tenure. The family income data were converted to a per capita basis for the present analysis.

[12] *Family Expenditures in Selected Cities, 1935-1936.*

[13] Schiff, *loc. cit.* Since per capita rent expenditures and rooms occupied per capita rise with a decline in household size (per capita income held constant), a decline in household size, *ceteris paribus*, probably leads to an increase in aggregate residential construction expenditures, despite a decline in construction expenditure per dwelling unit.

[14] See Simon Kuznets, *Shares of Upper Income Groups in Income and Savings*, National Bureau of Economic Research, 1953.

[15] In the case of new multi-family rental units an opposite tendency may have been at work. Multi-family structures were originally designed for the low income urban dweller but were later adopted by the more opulent classes.

Per Capita Value of Residential Capital

The effect of both of the above factors is eliminated by analysis of the per capita value of the total stock of residential capital in constant prices. This value is not affected by the changing size of household or by the composition of new home purchasers in any particular year.

The data in Table 36 show that consumers have not reacted to rising income by increasing their outlay for housing. Neither the per capita

TABLE 36

Per Capita Value of Residential Capital in Decade Years and Per Capita[a] Amount of Gross Residential Capital Formation by Decades, in Constant Prices, 1890-1950

(*dollars*)

Year	*Residential Capital*	*Decade*	*Gross Residential Capital Formation*
1890	658	1890-1899	1,754
1900	793	1900-1909	1,371
1910	792	1910-1919	1,368
1920	747	1920-1929	2,146
1930	870	1930-1939	1,716
1940	779	1940-1949	885
1950	703[b]		

[a] Per person added to the nonfarm population in each decade.

[b] The population total was reduced by 5 per cent in order to maintain the same coverage as in the case of residential capital data (see Appendix D). The figure might be further raised to $740 on the ground that capital formation was underestimated during the 1940-1949 decade. But even if a wealth estimate from the 1950 Housing Census (believed to be too high) were substituted, the per capita amount of housing would have been only $775, leaving the main line of the discussion unchanged.

Source: Residential capital from Table D-1; gross residential capital formation from Table B-6; population data from Table 23.

value of residential capital nor its companion measure, the per capita amount[16] of residential gross capital formation, shows any significant over-all rise over the period 1890-1950. The per capita value of residential capital (depreciated cumulated structure values) rose somewhat through 1930 but declined to earlier levels during the depression

[16] Since capital formation is largely a response to population increase, per capita capital formation is measured on the basis of the increase in nonfarm population during each decade. The increment to population is not equivalent to the actual number of persons accommodated in new dwelling units, for which no data exist. When residential capital formation is related to the total nonfarm population by decades, a sharp decline is noted, from $507 in 1890-1899 to $477 in 1920-1929 to $203 in 1940-1950.

and World War II decades. Capital formation per capita declined through World War I, but increased sharply during the 1920-1929 decade, to be followed by further decline.

This is impressive evidence that housing has moved downward in the consumer's scale of preferences. Newer consumer goods and services have been more successful in the competition for a place in family budgets. Older commodities, particularly necessities, characteristically account for a declining share of output as other products are accepted by consumers. The proportion of goods classified as "old" and "indispensable" has declined while that of "new" and "dispensable" goods has increased since the latter part of the nineteenth century.[17] The relative decline in the demand for housing appears to have been even more severe than for other groups of "indispensable" commodities. While the share of perishable goods in total output declined, the per capita outlays for such goods in absolute terms nevertheless *increased* substantially: from $127 in 1884-1893 to $233 in 1929-1938[18] (constant prices). Part of the increased use of perishables is a statistical result of the changing composition of this class of goods and reflects the entry of the newer perishables. Nevertheless, the fact remains that while the output of perishables, of which food is the largest constituent, has responded to rising income, another major necessity, housing, has not. During the two decades 1900-1920 and again from 1930 to 1950, housing declined not only in relative terms but also in absolute per capita measures.

Although the average per capita value of residential capital has not increased, some groups in the community probably have increased their use of housing resources. The middle and lower income groups brought into the home ownership market by easier credit may well have increased their expenditures for housing. If so, this tendency was offset by declining preferences for housing among the rich and well-to-do. The ostentatious town house of the nineties has few if any modern counterparts, and every distribution of house rents or prices shows a substantial proportion of upper income families whose housing expenditures hardly reflect their income position.

Furthermore, it would be rash to conclude from the near-constancy of the average per capita real value of housing over 60 years that consumers have derived no increased satisfaction from new housing units. For example, more efficient space arrangements may well have

[17] Simon Kuznets, "Long Term Changes in the National Product of the United States of America since 1870," mimeographed, International Association for Research in Income and Wealth, 1951, Part V, p. 33.

[18] Simon Kuznets, *National Product since 1869*, National Bureau of Economic Research, 1946, p. 106, Table II-8, col. 6, and p. 107, Table II-9, col. 1.

compensated for a decline in size (measured either by floor area or by number of rooms) so that decreased capital expenditures may have resulted in no decrease, and conceivably even in an increase, in satisfaction to the user. Similarly, the lightening of the structural frame of the dwelling unit reduces real input but need not significantly affect the durability of the structure or the utility to the user. A change in fashion substituting a fireplace for one foot of ceiling height can raise consumer satisfaction while leading to a net reduction in input. Consumers may not have wished to use part of their larger income to rent or buy larger houses because these require expensive domestic and maintenance services. At the same time the need for housing space was reduced as many activities were shifted away from the household as a result of the automobile and the increased purchase of commodities and services once produced in the home.

The most likely explanation of the small change in the per capita real value of residential capital from 1890 to 1950 is that consumers have chosen to spend part of their increment in income not directly on shelter but on many kinds of consumer capital associated with the house and now considered a vital part of household operation. Statistical measures of residential capital formation depend upon an arbitrary definition of items to be included or excluded in measuring outlays on construction (Chapter III), a definition which falls increasingly short of the full outlay for a dwelling unit as seen from the consumer's point of view. Thus while certain consumer durables, such as oil burners and bathtubs, are captured by the construction data, others, like mechanical refrigerators, washing machines, garden equipment, and Venetian blinds, are not. But even an expanded definition of housing expenditures would not be enough to offset the apparent cut in the slice of family income now being spent for housing.[19]

Thus while the new consumer durables have competed sharply with all other goods in the consumer basket, the outlays for these durables—so many of which have become complementary to the dwelling unit—appear to have been substituted for construction expenditures as

[19] Per capita consumer capital other than housing increased from $218 (in 1929 prices) in 1900 to $452 in 1948. Raymond W. Goldsmith, "A Perpetual Inventory of National Wealth," *Studies in Income and Wealth, Volume Fourteen*, National Bureau of Economic Research, 1951. A large part of the increase in consumer capital is accounted for by automobiles, less directly associated with household operation than the items mentioned above. An attempt to measure the output of durables which might reasonably become part of an expanded definition of residential capital formation would run into almost insurmountable data problems. Sheer gaps exist in the data; in addition, the output of such durables, unlike residential capital formation, historically has borne only a partial relation to population increase, and any allocation to new construction would be exceedingly difficult.

currently defined in greater measure than for other forms of consumer outlay. Such substitution may also have been accelerated by the relatively greater rise in the price of new housing compared with prices of other consumer goods. The same trend is apparent when housing cost is measured as a current flow in the form of rent (Appendix J). While there is no evidence that there has been a long-run decline in the ratio of rent to income, an increasing proportion of the aggregate rent bill represents the cost of services other than that of pure shelter[20] —services related to the operation of a household as encompassed in a modern standard of living.

[20] Such a trend leads directly to a declining capital-product ratio for the residential real estate sector. This topic is more fully explored in Appendix J.