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ABSTRACT

Current tax law provides tax advantages to owner-occupied housing that increase with a household's income. This well understood fact has led to periodic proposals to substitute a tax credit equal to, say, 25 percent of housing-related expenses for their current deductibility. Because all of the tax reforms considered in this paper (Hall-Rabushka, Kemp-Kasten and Bradley-Gephardt) move toward a flat rate schedule, they all will sharply reduce the tax-advantages of owner-occupied housing to higher income households relative to lower income households. In fact, our analysis suggests that all reforms will lower the price of obtaining housing services from owner-occupied housing for these households and raise it for higher-income households. The "breakeven" income at which the price of these housing services would be unchanged is about \$55,000 for Kemp-Kasten and Hall-Rabushka probably \$10,000 less for Bradley-Gephardt.

The price of renting housing should rise under all reforms, probably by 5 to 10 percent. In combination with the decline in the price of obtaining housing services for middle and lower income households, this should give a significant boost to homeownership. Under Kemp-Kasten, ownership rates will rise for four-member households with AGI (as renters) of under \$60,000; for higher income households ownership could decline marginally. The breakeven income level is roughly \$40,000 for Bradley-Gephardt and \$35,000 or Hall-Rabushka.

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Tax Reform and Housing^{*}

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There are two housing decisions for a household: whether to own or rent and how much housing to obtain, given that one owns or rents. Second or vacation houses for personal use only are part of the "how much" decision (and housing renovation spending is one method of getting more housing). The two decisions are affected differently by taxes. To a first approximation, tenure choice depends on the average tax rate at which interest and property taxes are deductible and the return on own equity is exempt, while the quantity decision depends on the marginal tax rate (Hendershott and Slemrod, 1983). Assuming that households itemize, and it is difficult to imagine that many households (except for the wealthy) purchasing homes today would not itemize given the current level of interest rates, both of these tax rates would depend on the entire "tax schedule" -- the standard deduction, the value of personal exceptions, and the marginal rates applicable to different increments of taxable income. The tenure choice tax rate also depends on the deductibility of nonhousing-related items (state and local taxes other than property taxes, medical expenses, etc.). More specifically, if an excess standard deduction exists -- if the standard deduction exceeds nonhousing-related deductions -- then part of housing-related deductions are wasted (do not reduce taxable income).

A number of tax plans have been proposed as substitutes for the present tax system, the most prominent being Hall-Rabushka (the pure flat rate tax), Bradley-Gephardt, and Kemp-Kasten. This paper considers the likely impact of these three plans, relative to current law, on the demand for owner and rental housing per household and on the homeownership rate.¹ These proposals change

every aspect of the tax schedule and, to different degrees, alter the treatment of both nonhousing and housing related deductions. They also change the tax treatment of rental housing which would affect both the amount of housing demanded by renters and the homeownership rate.

We do not calculate changes in the quantities of owner and rental housing demanded and in the homeownership rate. Rather, we compute changes in the prices of obtaining housing services by owning and renting. The directional changes in these prices indicate whether more or less housing would be demanded by households at different income levels (under different tax regimes) and the change in the ratio of these prices indicates whether the homeownership rate is likely to rise or fall. Before-tax incomes and all prices except those of obtaining housing services are held constant throughout the analysis.

Calculations are performed first with constant interest rates, and then with rate changes that seem to be plausible responses to enactment of the reforms.

The paper is divided into three sections and a summary. Section I computes the impact of the reforms on the prices of obtaining housing services from owner-occupied housing and thus on the quantity of owner-occupied housing demanded. Section II computes the impact on the price of obtaining rental housing services and thus on the quantity of them demanded and, in conjunction with the earlier analysis, on the homeownership rate. The computations are redone in Section III after allowing for reform-induced declines in interest rates.

I. Current Law and the Reforms

The top panel of Table 1 presents taxable income and a variety of tax rates for households with adjusted gross income, assuming they rented, of $17\frac{1}{2}$, $27\frac{1}{2}$, 40, and 70 thousand dollars. Separate data are computed for renting and owning households. The calculations assume:

- (1) the households have the average nonhousing itemized deductions of their income classes (based on 1981 SOI data),
- (2) the households file jointly and claim 4 total exemptions,
- (3) owning households with middle and lower incomes finance 90 percent of their purchases with a 12.65 percent (13 percent including the cost of mortgage default insurance) fixed-rate mortgage, purchase a house of size such that their mortgage payments equal 28 percent of their income, and pay property taxes equal to 1.2 percent of the house value, and
- (4) higher income owning households will purchase a house such that their payments equal 30 percent of their income.

As can be seen, under current law the average tax rates nearly triple, for both renters and owners, as income rises from $\$17\frac{1}{2}$ thousand to $\$70$ thousand; the marginal rates increase by about $2\frac{1}{2}$ times.²

The next three panels provide comparable data for the three tax reforms. Assuming no impact on interest rates, average tax burdens under Kemp-Kasten (KK) and Bradley-Gephardt (BG) appear to be about as progressive as under current law (maybe a little more progressive for KK owners and BG renters). In contrast, progressivity is significantly reduced under Hall-Rabushka (HR); the average tax rates do not double for either renters or owners.

Table 1: Data Relevant to the Demand for Owner-Occupied Housing
Under Various Tax Regimes

Current Law	Adjusted Gross Income			
	17,500	27,500	40,000	70,000
Renter:				
Taxable Income	13,500	23,109	34,297	59,831
Average Tax Rate	.077	.110	.147	.214
Marginal Tax Rate	.16	.18	.28	.38
Owner:				
Taxable Income	8,569	15,180	22,744	37,580
Average Tax Rate	.036	.060	.076	.102
Marginal Tax Rate	.14	.16	.18	.33
Tenure Choice Tax Rate	.1433	.1779	.2523	.3615
Kemp-Kasten				
Renter:				
Average Tax Rate	.069	.116	.143	.178
Marginal Tax Rate	.20	.20	.20	.28
Owner:				
Average Tax Rate	.031	.071	.091	.101
Marginal Tax Rate	.20	.20	.20	.20
Tenure Choice Tax Rate	.1336	.1638	.1876	.2513
Bradley-Gephardt				
Renter:				
Average Tax Rate	.050	.083	.101	.172
Marginal Tax Rate	.14	.14	.14	.30
Owner:				
Average Tax Rate	.047	.064	.073	.127
Marginal Tax Rate	.14	.14	.14	.14
Tenure Choice Tax Rate	.016	.0700	.1033	.1534
Hall-Rabushka				
Renter:				
Average Tax Rate	.079	.116	.131	.139
Marginal Tax Rate	.19	.19	.19	.19
Owner:				
Average	.081	.119	.135	.142
Marginal	.00	.00	.00	.00
Tenure Choice	.00	.00	.00	.00

Under KK, the marginal tax rates relevant to the quantity of owner-occupied housing demanded are all 0.20 over this income range. This is less than that applicable under current law for households with AGI (if they rented) above about \$45,000 and more for households with AGI below this amount. Thus, *ceteris paribus*, housing demand would be stimulated for middle and low income households (in the absence of affordability constraints) and reduced for high income households. Under BG, the marginal tax rates roughly track those existing under current law over this income range but are slightly less, implying a minor reduction in housing demand across the board. However, because interest is deductible at only the 0.14 rate, the demand by higher income households will be more sharply reduced. (As a partial offset, higher income wealthy households will increase the portion of housing that is equity financed -- the tax rate at which own equity finance is implicitly deductible is the higher 30 percent.) The zero deductibility under HR implies a significant drop in housing demand in the absence of a decline in before-tax interest rates (see below).

We next consider the tax rate relevant to the tenure choice. For the income levels considered, this rate lies between the marginal tax rates for owners and renters under current tax law. Such would not be the case for lower income households (AGI on renter basis below about \$16,000) because a significant part of their housing deductions would be wasted (their nonhousing deductions are less than their standard deduction). This phenomenon is very clear under both the KK and BG plans. These plans effectively eliminate the deduction for medical exemptions (only over 10 percent of AGI), and KK eliminates the deduction for state and local income taxes. Moreover, BG raises the standard deduction from the current \$3,400 to \$6,000 (KK raises this to \$3,500). Thus the excess standard deductions are substantial except at high

incomes, and at other than high incomes the tenure choice tax rate is an average of zero and the marginal rate (14 or 20 percent). The resultant tenure choice tax rate for KK is slightly less than under current law for households with AGI below \$30,000 but a quarter less for those with higher incomes. For BG, the tenure choice tax rate is less than half that under current law for all AGI and is zero for those with AGI below about \$16,000 (the excess standard deduction exceeds housing-related expenses). For HR, the tenure choice tax rate, like the quantity choice tax rate, is zero.

II. The Price of Obtaining Housing Services from Owner-Occupied Housing

To obtain the services of a capital unit such as a house for a year, one must pay for the financing and "upkeep". The financing cost is the real interest rate; upkeep includes maintenance and a charge for economic depreciation to the extent that the capital is not fully maintained. In addition, taxes must be paid and tax savings, owing to deductions, are earned. To a first approximation, the annual cost of obtaining the use of a dollar's worth of owner-occupied housing to the j th household (co_j) under current law is

$$co_j = (1-\tau_j)i - \pi + \gamma_s d + m + (1-\tau_j)p \quad (1)$$

where i is the mortgage rate, π is the expected rate of appreciation in the house, d is the depreciation rate (which is applied to only the structure portion, γ_s , of the house), m is the maintenance rate, p is the property tax rate, and τ_j is the relevant tax rate of the j th household. As discussed in the previous section, τ_j depends intricately on the tax schedule and different values need to be employed in calculations of the cost of owning generally and of owning an additional dollar of housing.

Equation (1) holds when the risk-adjusted after-tax costs of equity and debt financing are equal, expectations regarding future inflation, interest, and tax rates are constant, and there are no transactions or selling costs (Hendershott and Shilling, 1982). More generally, $(1-\tau_j)i$ is replaced by $(1-\tau_j)v_t i + (1-v_t)e_j$, where v_t is the ratio of the loan value in period t to the initial house value and e_j is the after-tax cost of equity finance for the j th household. We assume that e_j equals the maximum of $(1-\tau_j)i$ and $0.7i$ (a proxy for the tax exempt rate) plus a 0.03 risk premium, that v_0 equals 0.9 and that the mortgage amortizes over 30 years. We also assume selling costs of 6 percent of the house sale value and a holding period of eight years. Lastly, the other assumptions are an i (including a 35 basis point default premium) of 0.13, π of 0.05, m of 0.035, γ_s of 0.83, d of 0.012, and p of 0.012. With these assumptions, the costs for the quantity-demanded and tenure choice decisions, under current law and the reform proposals, are those listed in Table 2.³

The prices or costs of owner-occupied housing decline with income under current law because the deductions are worth more as incomes rise (τ_j increases). Under each of the three reform proposals this is not true regarding the quantity-demanded decision because all households deduct at the same tax rates, 0.20 under KK, 0.14 under BG, and 0.00 under HR. (Of course, the higher the tax rate the lower the price of housing services.) There is exception. At high income levels own-equity becomes cheaper under Bradley-Gephardt (funds invested elsewhere are taxed at the 30 percent rate) and thus the price falls. This should induce these households to shift toward equity financing, and the numbers in parentheses reveal that a shift to a 75 percent loan-to-value ratio does reduce the price slightly. The price relevant to the tenure choice is also constant across income classes for Hall-Rabushka. The

Table 2:

The Service Prices or Costs of Owner-Occupied Housing

	AGI (renter)	Present Law	<u>Kemp-Kasten</u> Level	% Δ	<u>Bradley-Gephardt</u> Level	% Δ	<u>Hall-Rabushka</u> Level	% Δ
QUANTITY	17,500	.1278	.1196	-6	.1278	0	.1471	15
DEMANDED	27,500	.1251	.1196	-4	.1278	2	.1471	18
DECISION	40,000	.1224	.1196	-2	.1278	4	.1471	20
	70,000	.1025	.1196	17	.1258 (.1254) ^a	23 (22) ^a	.1471	43
TENURE	17,500	.1275	.1271	0	.1418	11	.1471	15
CHOICE	27,500	.1231	.1237	0	.1357	10	.1471	19
DECISION	40,000	.1142	.1210	6	.1328	16	.1471	29
	70,000	.0990	.1139	15	.1260 (.1241) ^a	27 (25) ^a	.1471	49

^aThe numbers in parentheses are based on a 75, not 90, percent initial loan to value ratio. In this case the mortgage default fee is saved, and the average premium on equity financing is assumed to be 0.025, not 0.03.

tenure-choice price declines somewhat with income under the other reforms because the excess standard deduction eats up a smaller portion of housing-related deductions the greater is income, and thus the size of the house.

The percentage changes in the prices or costs indicate the impact of the reforms relative to current law. For the quantity-demanded prices, the pattern of change is that noted above in our discussion of tax rates. Lower income households will demand more housing under Kemp-Kasten because the value of their deductions increases, and higher income households demand less for the opposite reason. The same pattern holds under Bradley-Gephardt, but only those with incomes under \$17,500 demand more housing. With Hall-Rabushka all households demand less housing and high income households would demand much less. For the tenure decision, the changes in these prices must be compared to changes in the price of obtaining housing services from rental housing.

III. Rental Housing and the Tenure Decision

The approximate annual cost of renting a dollar's worth of housing (cr) can be obtained from an expression analogous to equation (1):

$$(1-\tau)cr = (1-\tau)i - (1-\tau_g^*)\pi + \gamma_s d + (1-\tau)(p+o+m) - \tau\gamma_s d^*, \quad (2)$$

where τ is now the tax rate of the marginal investor in rental housing, τ_g^* is the concurrent equivalent tax rate on capital gains, o is the operating expense rate, and d^* is the annual-equivalent rate at which the rental structure can be depreciated for tax purposes. Equation (2) differs from (1) in a number of important ways: the returns to investors in rental housing -- both cr and π --

are taxed (the latter lightly owing to deferral and a low statutory rate), maintenance expenditures are deductible, and some depreciation measure is also deductible. The various tax reforms affect τ , τ_g^* and d^* .

Equation (2) is, like (1), an approximation. Actual calculations require specification of an initial loan-to-value ratio (v_o), an amortization period, a required after-tax return on equity (e), a holding period, recapture provisions, and the treatment of construction period interest and property taxes. We assume $v_o = 0.78$, a 30 year loan, $e = 0.7i + 0.03$, $\pi = 0.05$, $\gamma_s = 0.914$, $d = 0.017$, and $p + o + m = 0.035$. The assumed tax treatments under current law and the tax reforms are listed in Table 3. The holding period is determined optimally following Hendershott and Ling (1984); to a first approximation, the optimal period is that which maximizes $\tau d^* - \tau_g^* \pi$. With this period, cr is calculated following Hendershott and Shilling (1982). The bottom row of the table indicates that the KK and BG plans would raise the cost of renting by 14 percent, while HR would raise it by 29 percent. This would clearly reduce the quantity of rental housing demanded by existing renters.

Tenure choice and thus the homeownership rate depends on the ratio of the cost of obtaining housing services from owner housing relative to that from rental housing. The remainder of Table 4 reports this ratio under current law and the three reforms. The fact that these ratios are all below unity does not, of course, mean that all family households with incomes above \$17,500 will be owners. Those with shorter expected holding periods or with greater aversion to or less talent for maintenance will have higher costs for owning and thus could prefer to rent.

Table 3:

Taxation of Rental Housing

	Current Law	Kemp-Kasten	Bradley-Gephardt	Hall-Rabushka
Income Tax Rate	.49	.25	.30	.19
Capital Gains Rate	(.4).49	.25	.30	.19 ^a
Recapture	Yes	N.A.	N.A.	N.A.
Indexation	No	Yes	No	No
Cost Recovery Period	18 years	18 years	40 years	N.A.
Depreciation Method	175% DB	175% DB	250% DB	expensing
Recovery of Construction Period Interest & Taxes	10 years	10 years	10 years	expensing
Cost of Rental Housing	.1319	.1500	.1501	.1706
Percentage Change From Current Law	-	14	14	29

^a While capital gains are not taxed at the personal level, they are taxed at the business level because all sale proceeds are included in taxable income.

Table 4:

Changes in the Ratio of the Cost of Owning to the Cost of Renting

Ratio of Costs at AGI of	Present	<u>Kemp-Kasten</u>	<u>Bradley-Gephardt</u>	<u>Hall-Rabuska</u>
	Law	Level % Δ	Level % Δ	Level % Δ
17,500	.967	.847 -12	.945 -2	.862 -11
27,500	.933	.825 -12	.905 -3	.862 -8
40,000	.867	.807 -7	.885 2	.862 -
70,000	.751	.759 1	.840 12	.862 15

All reforms lower the cost of owning relatively for households with income below about \$40,000 (about \$70,000 for KK) and thus would increase ownership among these households. In contrast, the ownership rate would decline under BG and HR for households with incomes over \$40,000 (over about \$70,000 for KK).

IV. The Impact of Reform-Induced Declines in Interest Rates

The level of interest rates in an economy depends on many factors. One of these is the tax treatment of interest expense. The more liberally interest expense can be deducted, the higher a pretax interest rate are borrowers willing to pay. More generally, if i_{at} is the composite equilibrium after-tax rate of return borrowers are willing to pay at the margin and τ_x is the marginal tax rate of these borrowers, then

$$i = i_{at} / (1 - \tau_x). \quad (3)$$

That is, the pretax rate is simply the after-tax rate grossed up for the tax rate. Again, τ_x is greater the more liberally is interest deducted.

In our earlier calculations, we held i constant, implicitly assuming no change in τ_x . This seems patently inappropriate. All of the reforms cut the deductibility of interest for households and corporate and nonincorporated businesses. The extreme case is Hall-Rabushka under which no interest is deducted, i.e., $\tau_x = 0$. The biggest difficulty is determining τ_x under current law. We arbitrarily set it equal to 0.3. Thus i_{at} equals 0.091 (a real after-tax rate of 4 percent plus a 5 percent expected inflation premium), and i will fall from 0.13 to 0.091 if Hall-Rabushka is adopted. We set $\tau_x = 0.25$ under both Kemp-Kasten and Bradley-Gephardt; thus i declines to 0.1213.

The pretax interest rate, i_{at} , could also change. For one thing, reduced taxation of business capital, such as was provided for in the ERTA of 1981, would tend to raise the pretax rate (see Hendershott and Shilling, 1982), while increased taxation, such as implemented in the TEFRA of 1982 and the DRA of 1984, would act to lower i_{at} . For another, saving could respond insofar as the after-tax return to savers is changed. While the change in the rate paid to domestic savers is unclear (and the directional impact on saving is uncertain in any event), the after-tax return to foreign savers is certainly lowered (the pretax rate falls and their tax rate is presumably unchanged), and this would tend to reduce their demand for American securities and thus raise i_{at} .⁴ We leave a full consideration of these factors until a later date and simply treat i_{at} as a constant.

Tables 5 and 6 are analogues to Tables 2 and 4 except that the tax reforms are assumed to have reduced the level of interest rates. The six percent (87 basis point) lower interest rate triggered by KK and BG reduces the percentage change in the cost of owner-occupied housing induced by both KK and BG by six percent at all income levels. The 30 percent decline in interest rates under HR reduces the percentage change in the cost of owner-occupied housing by 30 percent for family households with incomes under \$30,000 and by up to nearly 40 percent at incomes of \$75,000. With allowance for interest rate declines, HR is as favorable to owner-occupied housing as BG and more favorable than KK. In fact, if affordability is a major constraint on the quantity of housing demanded, then the sharp decline in rates under HR would substantially increase demand.⁵

The cost of rental housing rises less with KK and BG when interest rates are allowed to adjust downward. Thus, the quantity of rental housing demanded by existing households will still fall. In contrast, with HR the cost of rental housing now declines, suggesting an increase in rental housing demand.

Table 5:

The Service Prices or Costs of Owner Occupied Housing When the Tax Reforms Induce a Decline in Interest Rates^a

	AGI (renter)	Present Law	Kemp-Kasten		Bradley-Gephardt		Hall-Rabushka	
			Level	Δ%	Level	Δ%	Level	Δ%
QUANTITY	17,500	.1278	.1130	-12	.1207	-6	.1098	-14
	27,500	.1251	.1130	-10	.1207	-4	.1098	-12
DEMANDED	40,000	.1224	.1130	-8	.1207	-1	.1098	-10
DECISION	70,000	.1025	.1130	10	.1188 ^b (.1172)	16 ^b (14)	.1098	7
TENURE	17,500	.1275	.1198	-6	.1338	5	.1098	-14
	27,500	.1231	.1168	-5	.1281	4	.1098	-11
CHOICE	40,000	.1142	.1143	0	.1246	9	.1098	4
DECISION	70,000	.0990	.1076	9	.1189 ^b (.1166)	20 ^b (18)	.1098	11

^aThe interest rate (including default premium) is 13 percent for current law, 12.13 percent for KK and BG, and 9.1 percent for HR.

^bThe numbers in parentheses are based on a 75, not 90, percent initial loan-to-value ratio.

Table 6:

Changes in the Ratio of the Costs of Owning to Renting When Interest Rates Are Allowed to Decline in Response to the Reforms

Ratio of Costs at AGI's of	Present	<u>Kemp-Kasten</u>	<u>Bradley-Gephardt</u>	<u>Hall-Rabushka</u>
	Law	Level % Δ	Level % Δ	Level % Δ
Cost of Rental Housing	13.19	14.00 6	14.45 10	12.34 -6
17,500	.967	.856 -12	.926 -4	.890 -8
27,500	.933	.834 -11	.887 -5	.890 -5
40,000	.867	.816 -6	.862 0	.890 3
70,000	.751	.769 2	.823 10	.890 19

As for the tenure choice, the changes in the ratios of costs are virtually unaltered for KK, are about 2 percentage points less at all income levels for BG and are about 3 percentage points greater for HR. The basic theme remains that homeownership will increase for family households with incomes below \$35,000 (HR) to \$65,000 (KK) and will decrease for family households with higher incomes. Because HR is so favorable to rental housing, HR would reduce ownership at all income levels relative to KK and would do so for family households with incomes above \$30,000 relative to BG. BG, too, would result in lower ownership rates relative to KK at all income levels.

V. Summary

Current tax law provides tax advantages to owner-occupied housing that increase with a household's income level. This well understood fact has led to periodic proposals to substitute a tax credit equal to, say, 25 percent of housing-related expenses for their current deductibility.⁶ Because all of the tax reforms being considered go to (nearly) flat rate schedules, they all will sharply reduce the tax-advantages of owner-occupied housing to higher income households relative to lower income households. In fact, our analysis suggests that all reforms will lower the price of obtaining housing services from owner-occupied housing for these households and raise it for higher-income households. The "breakeven" income at which the price of these housing services would be unchanged is about \$50,000 for Kemp-Kasten and probably \$10,000 to \$25,000 less for Bradley-Gephardt and Hall-Rabushka, the difference depending on the amount interest rates decline.

This leveling of marginal tax rates has broad implications for the wealth redistributions of the tax reforms. Even if the reform adopted leaves tax shares unchanged over income ranges, a redistribution of wealth from wealthy to less wealthy (not poor) households is certain to occur. The equilibrium value of land upon which expensive houses are built will decline, and that upon which cheaper houses lie will rise. Expensive houses themselves will fall in price for a period (a very long period in slow growing parts of the country) during which new construction will be minimal. Other tax-sheltered assets, such as tax-exempt bonds, will also decline in value, while fully-taxed bonds will increase in price.

The price of renting housing should rise under all reforms, probably by 5 to 10 percent. In combination with the decline in the price of obtaining housing services by middle and lower income households, this should give a significant boost to homeownership. Under Kemp-Kasten, ownership rates will rise for four-member households with AGI (as renters) of under \$65,000; for higher income households ownership could decline marginally. The breakeven income level for Bradley-Gephardt and Hall-Rabushka is roughly \$35,000 to \$40,000.

Notes

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1. A possible impact on housing even prior to the tenure choice should be noted, namely the impact on how the population forms into households. Some recent evidence suggests that headship rates, and thus the number of households, will be greater the lower are the real prices of housing services derived from owner and rental housing (Hendershott and Smith, 1984).
2. The basic methodology for calculating all the tax rates in Table 1 is laid out in Hendershott and Slemrod (1983). An excellent summary of the tax reform plans is given in Burton (1984).
3. For the exact methodology underlying the calculations, see Hendershott and Shilling (1982).
4. We thank Harvey Galper for drawing this to our attention. Any decline in i_{at} would lower the value of the dollar, a favorable side effect according to most observers.
5. A decline in nominal interest rates would also impact very favorably on the housing finance system, generating positive market value for thrift institutions and FNMA.
6. Higher income households would still have a larger tax advantage than lower income households because the after-tax opportunity cost of their own equity invested in housing is less than that of lower income households. For a full discussion of the advantages of owner-occupied housing under current law, see Hendershott (1983).

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