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The tax reforms passed in 1986 bring sweeping changes to the way people make their investment decisions. In the housing sector, where many Americans have their biggest investment, the tax structure plays a particularly strong role. This issue of the *Business Review* examines these issues from two perspectives.

In "Housing Costs After Tax Reform," Theodore Crone looks at how the new tax law recasts people's decisions about whether to rent a home or to buy one. Several factors enter into the decision, such as new income tax rates, new capital gains provisions, and the changes in rents and housing prices that are likely to occur.

Edwin S. Mills, in "Dividing Up the Investment Pie: Have We Overinvested in Housing?" assesses the impact of tax provisions and other economic factors on capital allocation between housing and non-housing assets in the U.S. economy. Using statistical tests and a new comprehensive data set, he investigates the difference between the private and social rates of return to investment in housing and non-housing, and how that difference might affect GNP.

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The Federal Reserve Bank of Philadelphia is part of the Federal Reserve System—a System which includes twelve regional banks located around the nation as well as the Board of Governors in Washington. The Federal Reserve System was established by Congress in 1913 primarily to manage the nation's monetary affairs. Supporting functions include clearing checks, providing coin and currency to the banking system, acting as banker for the Federal government, supervising commercial banks, and enforcing consumer credit protection laws. In keeping with the Federal Reserve Act, the System is an agency of the Congress, independent administratively of the Executive Branch, and insulated from partisan political pressures. The Federal Reserve is self-supporting and regularly makes payments to the United States Treasury from its operating surpluses.

In calculating their 1986 taxes, many taxpayers undoubtedly took the opportunity to estimate what their federal income taxes would have been under the new law that began to take effect in January of this year. The good news for most of us is that our total tax bill would have been lower under the new law.

Before we run out to spend this extra money, however, we should consider some more subtle changes that the new law will introduce into our financial planning. For example, the costs of some of our most important purchases will change. In the area of housing, both rents and the after-tax cost of owner-occupied housing will rise as a result of tax reform. Households will have to factor in these changes in costs in deciding *whether* to rent or buy and *how much* housing to rent or buy. All indications are that owning one's home in the U.S. will become relatively more attractive as a result of the new tax law. However, whether they rent or buy, Americans are likely to settle for less in the way of housing—that is, smaller, less expensive homes.

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INCREASES IN RENTS

Why should we expect rents to rise in response to the recent changes in the tax law? Simply put, the owners of rental property will be charging higher rents to compensate for several provisions of the new law that would otherwise reduce their after-tax return. The after-tax return to a landlord depends upon the rent plus any capital gain from his property minus all his costs, including maintenance and taxes. Total taxes are determined by the interaction of a number of provisions of the tax code. Landlords are likely to react to any changes in the law that increase their tax payments by raising rents as soon as market conditions allow.

Three major changes in the law reduce the return to landlords. These include the lengthening of depreciation schedules, a reduction in marginal income tax rates, and an increase in capital gains taxes. Rental property will now be depreciated over a longer time span: under the old law the period was 19 years , and under the new law it is 27½ years. Furthermore, the yearly depreciation will be constant over the entire period rather than concentrated in the early years of a property's depreciable life. These two changes combine to push some deductions into the later years of a rental investment. The reduction in depreciation allowances for the first year illustrates the effect of these changes. First-year depreciation is now about 3.6 percent of the value of the property rather than the previous 8.8 percent. As a general rule, taxpayers do better to receive a deduction or write-off earlier rather than later, because the tax savings that result from the write-off can be used to earn income in later years. Since landlords now can claim less depreciation in the early years of their investment, their total after-tax return will be lower.

The new tax law also lowers marginal income tax rates for all taxpayers. The 14 tax brackets in the old law will be replaced by two official brackets in the new law when it is fully effective in 1988—a 15 percent bracket and a 28 percent bracket. Above certain income levels, however, the 15 percent bracket and personal exemptions will be phased out. Thus, the new law really mandates four brackets—15 percent, 28 percent, 33 percent, and 28 percent again after the phase-outs (see Table 1). As long as an investment generates a positive return, lower income tax rates are a plus. But any time an investment generates a negative return *for tax purposes,* lower tax rates reduce the value of that investment as a tax write-off. The value of any tax write-off depends upon the taxpayer's marginal rate, that is, the highest tax bracket in which he pays taxes. For example, for a taxpayer who was in the 42 percent tax bracket under the previous law, every dollar subtracted from his taxable income was worth 42 cents in tax savings. If he is now in the 28 percent tax bracket, every dollar subtracted is only worth 28 cents in tax savings. In the early years of an investment in rental property, the cash flow less depreciation for tax purposes is generally negative. Therefore, in the early years, the investment generates a tax write-off against other income. Since marginal tax rates are reduced under the new tax law, the value of these write-offs is reduced for all landlords.[1]

A third feature of the new tax law that reduces the return to the owners of rental property is the increased tax rate on capital gains. In periods of

[1]The value of real estate investments as tax write-offs is further reduced by the fact that these write-offs now can be taken only against certain types of income called "passive income." Passive income is defined as income from a trade or business in which the taxpayer does not materially participate, such as a limited partnership, and all rental income. Wages and salaries are clearly not passive income, and neither are interest, dividends, annuities, or royalties. In the case of rental income, small landlords (less than $100,000 in adjusted gross income) may deduct up to $25,000 in rental losses from nonpassive income as long as they are active in the management of the property. This provision is gradually phased out for landlords whose adjusted gross income exceeds $100,000. Other changes in the tax law also will affect certain types of rental property. In the case of new structures, construction period interest and taxes are now depreciated over 27½ years along with other structure costs. This is less advantageous than deducting these costs over 10 years, as in the pre-1987 tax system. And for historically certified buildings, the tax credit for rehabilitation costs has been reduced from 25 percent to 20 percent.

TABLE 1

Marginal Tax Rates	Adjusted Gross Income	
	Single person	Family of four
15 percent	$4,900 - $22,800	$12,800 - $42,600
28 percent	$22,800 - $48,100	$42,600 - $84,700
33 percent	$48,100 - $105,500	$84,700 - $205,700
28 percent	over $105,500	over $205,700

rising property values, much of the return to rental housing is in the form of capital gains. Prior to the enactment of the new law, only 40 percent of long-term capital gains were included in taxable income. With a top income tax bracket of 50 percent, this resulted in a maximum tax rate on total capital gains of 20 percent. The partial exclusion of capital gains has now been eliminated. Beginning in 1988, capital gains income will be taxed at the same rate as income from any other source. For some taxpayers that will mean a capital gains tax rate of 33 percent.

Landlords will raise rents to bolster after-tax returns. It is unlikely that individuals will continue to invest in rental property as long as the after-tax rate of return is considerably below the level that prevailed before tax reform.[2] Investment will decline and vacancy rates will fall until rents can be raised sufficiently to restore the landlords' after-tax rate of return.

The key to estimating how much rents will increase as a result of the new tax law is calculating the rate of return that landlords could expect under the pre-1987 law. If we specify rents and costs as a proportion of property value, it is relatively simple to calculate the after-tax cash flow from rental property. These income and cost items will vary among different housing markets and, indeed, from property to property. But some estimates are available for average rents, maintenance costs, property taxes, and transaction costs, such as agents' fees and loan origination fees.[3] Using these estimates along with the pre-1987 tax rates and depreciation schedules, we calculated the after-tax rate of

[2]This statement and the analysis to follow are based on the assumption that the new tax law will not affect the *after-tax* rate of return on capital in the long run. It is what economists call a partial equilibrium analysis as opposed to a general equilibrium analysis.

[3]See Theodore M. Crone, "Changing Rates of Return on Rental Property and Condominium Conversions," Federal Reserve Bank of Philadelphia, Working Paper 85-1 (1984). The rent-to-property value ratios for 27 metropolitan areas reported in that working paper were brought up to their 1983 levels using rental and housing value increases estimated from the Annual Housing Survey. 1983 was the latest year available for the survey when these calculations were made. The average rent-to-value ratio for these 27 metropolitan areas was .08. For the calculations here, maintenance costs were set at 2.6 percent of the property's value, property taxes at 2 percent, buying costs at 2.5 percent, and selling costs at 7.5 percent. See Frank DeLeeuw and Larry Ozanne, "Housing" in *How Taxes Affect Economic Behavior*, ed. Henry J. Aaron and Joseph A. Pechman (Washington: Brookings Institution, 1981).

return for owners of rental property.[4] For property that was held for 19 years and then sold, the annual after-tax rate of return would have been 11 percent. Selling the property before that time or holding it for a longer period would have resulted in a lower after-tax rate of return.

How much would landlords have to raise rents in order to achieve that same 11 percent after-tax rate of return under the new tax law? Using exactly the same scenario—a 19-year holding period and interest rates at the same level—a landlord would have to increase his rent by 27 percent. Though this estimate seems high, it is consistent with other estimates based on similar calculations.[5] However, this comparison does not take into consideration some other possible effects of the change in the tax law.

Rental increases will not need to be as high as 27 percent if landlords adapt to the new law by holding property for a longer period of time. And they will have to hold the property longer in order to claim the same amount of depreciation because a large portion of the deductions now come later in the life of the investment. Delaying the sale of the property also postpones the payment of capital gains taxes which are higher under the new law. But even if a landlord holds his property for 28 years, that is, until the end of its depreciable life for tax purposes, he would still have to raise rents by 19 percent to maintain an 11 percent after-tax rate of return.

One other possible effect of the new tax law may lower the necessary rent increases. Since lenders are concerned about their after-tax return and borrowers about their after-tax cost of funds, the tax law should have the effect of generally lowering interest rates. For example, if a lender's marginal tax rate drops from 40 percent to 28 percent, he can accept a somewhat lower market rate of interest on his money and still receive the same after-tax return. Many borrowers, on the other hand, are able to deduct interest payments as a cost of doing business. Thus, if a borrower's marginal tax rate drops, he will be willing to borrow only at a somewhat lower market rate because the tax savings from the interest deductions will be less. It is not easy to calculate the net effect of these forces on the market interest rate. Major economic forecasting services, however, have estimated reductions of one-quarter to three-quarters of a percentage point in long-term interest rates due to the new tax law. Let us take the midpoint of these estimates and assume that interest rates will fall by one-half a percentage point as a result of the new law which means a lower borrowing cost for the landlord. With this decline in interest rates, a landlord who extends the holding period for his property from 19 to 28 years would have to increase rents by only 16 percent in order to achieve the same after-tax return as he received prior to 1987.

These estimates of rental increases clearly depend upon what changes in the economy and in people's investment strategies result from the recent tax reforms. Under one scenario the estimate is as high as 27 percent; under another it is only 16 percent. Which is more likely? A major tax reform such as that enacted in 1986 should lead to the kinds of adjustments in financial markets and in the economic behavior of property owners which we have discussed. Therefore, it seems reasonable to assume that

[4]For the calculations reported here, we used the interest rates that prevailed in January 1986, that is, a mortgage rate of 10.4 percent and a 10-year Treasury-bond rate of 9.19 percent. We assumed a long-term inflation rate of 5 percent which is close to the expected average annual inflation rate over the next 10 years of 5.39 percent as reported in Richard Hoey's *Decision-Makers Poll*, conducted in December,1985 and published by Drexel Burnham Lambert in January 1986. The 5 percent inflation rate applies to rental property values and all prices.

[5]With no interest rate change, one recent study estimates that rents would have to increase between 19 and 33 percent depending upon one's assumption about the landlord's marginal tax rate. See James R. Follain, Patric H. Hendershott, and David C. Ling, "Real Estate and the Tax Reform Act of 1986," paper prepared for the Brookings National Issues Forum (December 1986). Assuming a 10-year holding period, Douglas B. Diamond estimates that, other things remaining equal, rents on a typical multifamily project would have to increase by 24 percent to provide the same after-tax rate of return under the new law as under the old one. See Douglas B. Diamond, Jr., "Impacts on Rental Housing Development," *Home Building After Tax Reform*, The National Association of Home Builders (November 1986).

interest rates will fall enough and landlords will hold rental properties long enough to keep rental increases closer to the 16 percent estimate than to the 27 percent estimate.[6]

Moreover, these rental increases will not occur overnight. They reflect the *long-term* effects of the new tax law. How soon these increases are put in place will depend upon how quickly the supply of rental housing adjusts to the new tax situation. In order for landlords to impose substantial rent increases, construction of rental units will have to slow and vacancy rates will have to fall in most housing markets. The adjustment will be slower in areas like the southwest where rental vacancy rates are high and faster in the northeast where rental markets are tighter.

INCREASES IN HOMEOWNER COSTS

Renters can expect their housing costs to increase by as much as 16 percent as a result of the new tax law, but they will not be alone. Homeowners will also face cost increases. Even though the major homeowner tax deductions—mortgage interest and property taxes—are retained in the new tax law, other changes will result in higher after-tax housing costs for homeowners.

Changes in deductions and lower marginal tax rates will raise homeowner costs. The new tax law introduced major changes in the standard deduction and in many deductions not related to housing. Since all taxpayers can claim the standard deduction, only the itemized deductions over and above the level of the standard deduction result in a decrease in taxes. Under the new tax law the standard deduction is higher. In 1986 it was $3,670 for married couples filing jointly, but beginning in 1988 it will be $5,000.[7] Therefore, it will take more itemized deductions to reach the level of the standard deduction—itemized deductions for which the taxpayer receives no reduction in total taxes. Since many non-housing deductions have been eliminated, such as state and local sales taxes and interest on consumer debt, more homeowners will have to use some of their housing deductions to bring their itemized deductions up to the level of the standard deduction. For this portion of their housing deductions they will receive no decrease in their total tax bill. For example, suppose a married couple has $4,000 in deductions not related to housing and $7,000 in mortgage interest and property tax deductions from their home, for a total of $11,000. Only $6,000 of the housing deductions will result in a lowering of their tax bill, because without the housing deductions the couple would not have itemized and would have received a $5,000 standard deduction.

Lower marginal tax rates also serve to increase homeowner costs by lowering the value of housing deductions. Lower tax rates affect homeowners just as they do landlords, and the value of housing deductions, like all others, has been reduced. If a couple with $6,000 in housing deductions was in the 38 percent tax bracket under the old law and now is in the 28 percent bracket, the tax savings from their housing deductions has dropped from $2280 to $1680.

How much more will it cost to own a home? To illustrate how much homeowner costs will increase under the new tax law, we can look at the after-tax costs of an owner-occupied home for a typical family in the first year of their housing investment.[8] These costs, of course, will vary

[6]Taking all of the effects of the tax law changes into consideration, Follain, Hendershott, and Ling predict a 10 to 15 percent increase in residential rents. Diamond estimates that they will increase 15 to 20 percent.

[7]For single taxpayers the standard deduction will rise from $2,480 to $3,000.

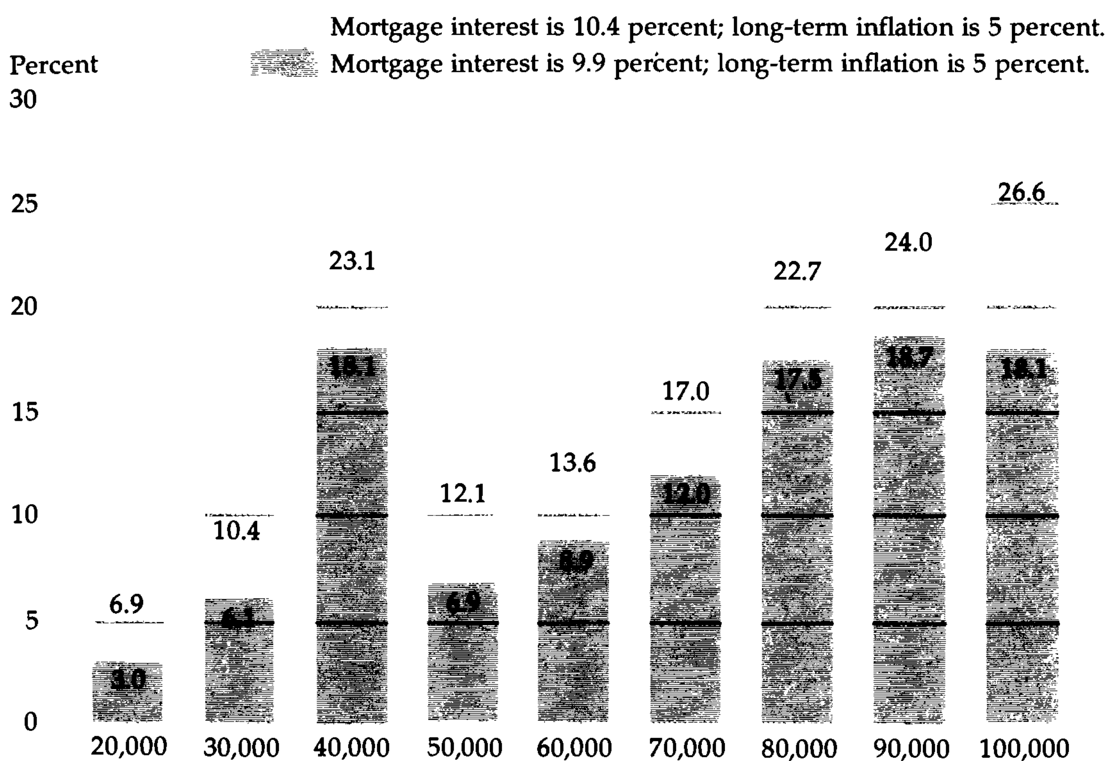
[8]In calculating increases in homeownership costs, care must be taken to make comparisons for the same tax year. The tax rates established in the tax reform bill will become fully effective only in 1988. The standard deduction, the personal exemption, and all the tax brackets used under the previous tax law would have changed by 1988 because of the provisions for indexing for inflation. Due to the low rate of inflation in 1986 and the relatively low expectations for inflation in 1987, tax brackets, deductions, and exemptions have been adjusted using an average annual rate of inflation of 3 percent for 1986 and 1987.

with the value of the house and with the family's marginal tax rate. If we exclude the one-time costs associated with buying a house, the first-year costs will include the mortgage payments, maintenance costs, property taxes, and the forgone interest on the family's equity in the house. From this sum should be subtracted the capital gains accrued over the year and the tax savings derived from deductions related to housing.

The full bars in Figure 1 show the percentage change in first year homeowner costs due to changes in the tax law for a typical family of four who purchases a home valued at twice its annual income. These increases assume no change in interest rates. The first-year costs increase by 6.9 percent for a family earning $20,000 a year and by 26.6 percent for a family earning $100,000 a year. In general, the percentage increase in housing costs due to tax changes is greater at the higher levels of income. The one exception is in the $40,000 income range, where housing cost increases are substantially greater than at some higher income levels. Since the new tax brackets are considerably broader than the old ones, our typical taxpayer in the $40,000 range will see a sharp decline in his marginal tax rate—from 28 percent to 15 percent—and a corresponding decline in the value of his housing related deductions.

Interest rates are a key determinant of the cost

FIGURE 1



NOTE: To keep this chart consistent with the rest of the discussion in this article, we have adjusted the pre-1987 tax rates, standard deduction, and exemptions to their presumed 1988 levels. The interest rates and inflation rates are the same as those used for the rent examples in the text.

of owner-occupied housing. If the new tax law does lead to a decline in long-term interest rates of one-half a percentage point, as some forecasters suggest, the increase in homeownership costs for a typical family at all income levels will be a good deal less, because a lower interest rate will result in a lower monthly mortgage payment. The darker portions of the bars in Figure 1 show the increase in first-year homeownership costs assuming interest rates decline by one-half a percentage point (the same as in our rent example). Increases still range from about 3 percent to almost 19 percent. These increases are for first-year costs only, and the average yearly cost will depend upon the family's length of stay in the house they buy. Nevertheless, increases in the first-year costs are indicative of increases in the average yearly costs.

WILL IT STILL PAY TO BUY A HOME?

Both rents and homeowner costs are going to increase as a result of the new tax bill. The question facing many families will be the same as it was before tax reform: "Given that we intend to remain in our next residence for, say, five years, should we rent or buy?" The answer to this question depends upon the family's after-tax rate of return on owner-occupied housing compared to its next best opportunity. In terms of the after-tax return, we can consider the next best investment opportunity for many homeowners to be tax-exempt municipals or government securities, depending on their tax bracket. By calculating an after-tax return on owner-occupied housing for each income group, a "critical income level" for homeownership can be determined for any expected length of stay in the same house. Any family above that critical income level would do better by investing in owner-occupied housing. Any family below that income level would fare better by renting and investing in long-term Treasury securities or tax-exempt municipals. Figure 2 (p. 10) shows critical income levels for homeownership under the pre-1987 law. At a 5 percent inflation rate, our typical four-person family which earns $40,000 or more a year (in 1988 dollars) and intends to remain in the home at least 10 years would fare better by buying the home. A family whose annual income was less or who intended to stay for a shorter period would fare better by renting.

The return to homeownership and therefore the critical income level for homeownership are highly dependent upon the inflation rate. Even though higher rates of inflation translate into higher interest rates, the increase in interest payments by the homeowner is more than offset by the greater appreciation in the value of the house as long as the house appreciates at the rate of inflation. To illustrate, Figure 2 compares the critical income levels for homeownership under two different assumptions about the long-term inflation rate—5 percent and 8 percent. Clearly the higher the inflation rate the higher the return to owner-occupied housing. Regardless of how long people stay in a home, the critical income level for homeownership declines as the inflation rate increases.

If the inflation rate remains unchanged, the effect of the new tax code on the critical income levels for homeownership depends upon how the tax changes will affect rents and interest rates. Figure 3 (p. 11) compares the critical income levels under the old law to two scenarios under the new law: no change in interest rates with rents up 19 percent, and one-half percent lower interest rates with rents up 16 percent. The critical income level is universally lower under the new law than under the old one. Under the old law, our typical family who intends to remain in a home for 10 years would have to have an income of $40,000 to make homeownership preferable to renting. Under the new tax law with no change in interest rates, homeownership is preferable as long as the family income is $34,000 or greater. We can also look at the issue starting with income rather than the intended length of stay. A family with an initial income of $35,000 would have to remain in the home 14 years under the old tax law in order to make homeownership preferable to renting and

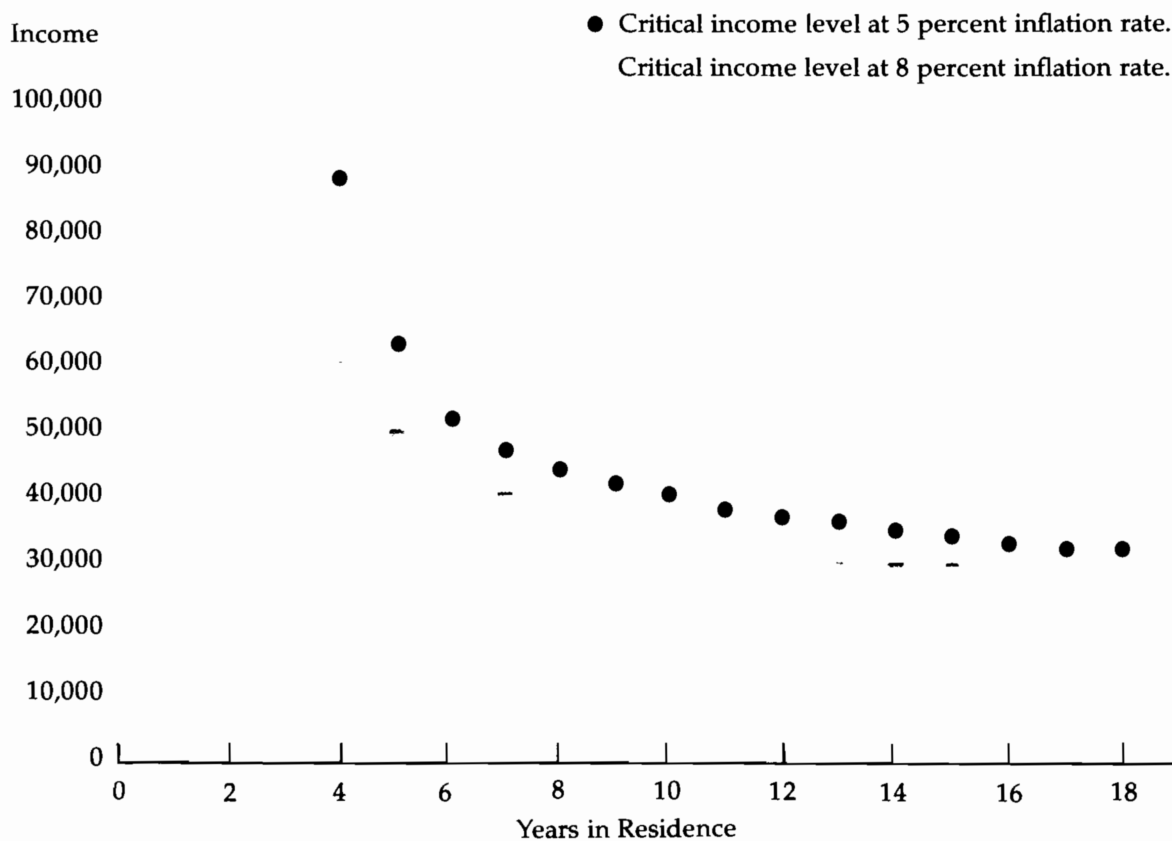
buying securities. Under the new law, they would have to remain only 10 years.

What if the new tax law results in a lower level of interest rates? In this case, the family who intends to remain in the house for 10 years would have to earn only $31,000 a year under the new tax law to make buying preferable to renting. The advantages to homeownership are even greater under this scenario than in the case of no change in interest rates. Both of the scenarios depicted in Figure 3 indicate that, far from discouraging homeownership, the new tax law will encourage it even more than the old one.

THE BOTTOM LINE

What is the bottom line? What can we say with confidence about the new tax law's effect on housing costs, the demand for housing, and homeownership? The changes that affect landlords will result in a rise in rents. Even though most of the deductions that homeowners enjoy are retained, other changes in the law will raise

FIGURE 2



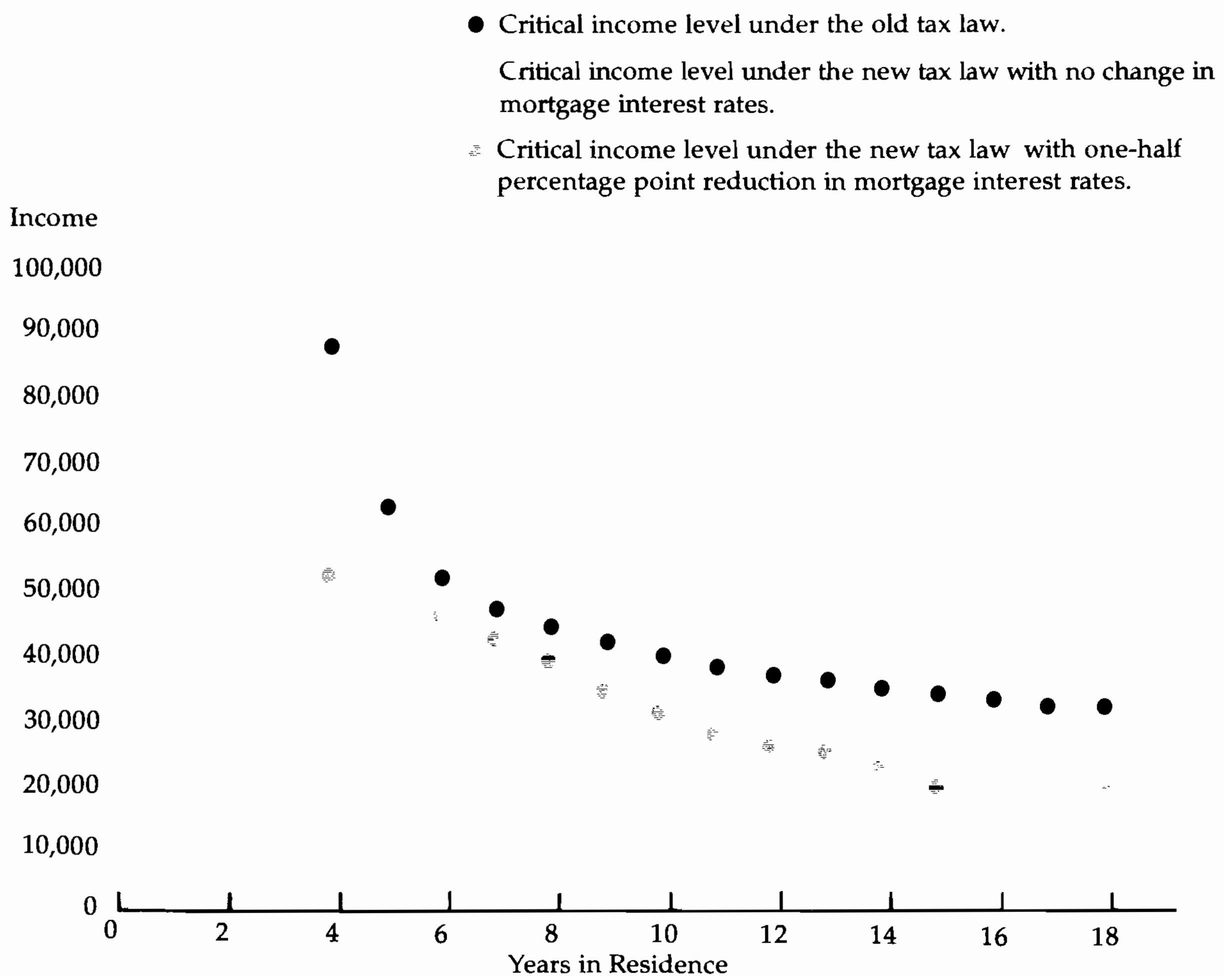
NOTE: The pre-1987 tax rates, standard deductions, and exemptions have been adjusted to their presumed 1988 levels. The interest rates for the calculations, assuming a 5 percent inflation rate, are 10.4 percent for mortgage interest, 9.19 percent for Treasury securities, and 7.74 percent for tax exempt municipals. For consistency, all interest rates are raised by 3 percentage points under the assumption of 8 percent inflation.

the after-tax cost of owning a home. There may still be some debate about *how much* rents and homeowner costs will change, but one result is clear: the cost of housing will rise for everyone.

Normally, when the price of any item rises, the quantity demanded decreases. From this perspective, we would expect a decrease in the amount of housing demanded by both renters and homeowners. That is, they would seek smaller, relatively less expensive homes, and the proportion of the nation's total capital stock devoted to housing would decline over time.[9] But, since the recent tax changes are so broad, the prices of many other items that the typical family purchases are likely to change. Also, the removal of many previously tax-sheltered possibilities in the new tax law could increase the *investment* demand for owner-occupied housing.

[9]See the article by Edwin S. Mills in this issue of the *Business Review*.

FIGURE 3



Moreover, the reduction in the demand for housing due to increased costs will be partially but not totally offset by an increase in disposable income as tax rates are lowered. Thus, without a complete model of the economy, it is impossible to estimate whether total housing demand will actually decline and, if so, by how much.

Since changes in the tax law affect landlords in a negative sense more than they do homeowners, homeownership should rise as a result of tax reform. No matter how long people intend to stay in a house, the new tax law makes homeownership preferable for more families than the old law. The longer the intended stay, the more advantageous the new law is for homeowners. Thus, the new tax law only strengthens the policy of encouraging homeownership in the U.S.