

# Can the National Homeownership Rate Be Significantly Improved by Reaching Underserved Markets?

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## *Abstract*

Motivated by a renewed interest in homeownership, the U.S. Department of Housing and Urban Development developed techniques to study patterns of ownership. A baseline model is used to forecast homeownership in 2000 and then extended to illustrate how policy initiatives designed to overcome race- and income-based barriers to ownership could affect the national homeownership rate and the rates of ownership by specific subgroups. Another technique uses American Housing Survey data to estimate how these initiatives could affect household location and the choice of housing type.

This article clearly demonstrates that even limited success in reducing race- and income-based disparities will result in a significant increase in the national homeownership rate and dramatic increases for subgroups, such as minorities, young households, and low-income households, that have low rates of homeownership. Thus, these techniques affirm the importance of focusing on access and affordability.

**Keywords:** Homeownership; Discrimination; Demographics

## **Introduction**

As a result of renewed interest in increasing the national homeownership rate, the U.S. Department of Housing and Urban Development (HUD) has developed new techniques for illustrating how policies to overcome barriers related to income and race could affect the national homeownership rate and the homeownership rates of important populations. This article applies these new tools to demonstrate how such policies might increase the national homeownership rate and even more dramatically increase the ownership rates of populations whose rates are now low.<sup>1</sup>

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<sup>1</sup> For background on trends and patterns in homeownership, see the HUD articles in *U.S. Housing Market Conditions* (1994a, 1994b).

Early in 1994, Fannie Mae committed itself to making homeownership more widespread by the year 2000 through a program called *Showing America A New Way Home*. Later in 1994, HUD Secretary Henry Cisneros brought together almost 50 private entities, national associations, government agencies, and nonprofit organizations to explore ways to increase homeownership. In November, President Clinton directed Cisneros to formulate a national strategy to help more Americans become homeowners by 2000. Cisneros presented the president with a strategy including 100 actions in May 1995 (HUD 1995a). In addition, HUD has proposed transforming the Federal Housing Administration into a public corporation to make it a more effective tool to help families who want to buy homes.

All these efforts seek to raise the national homeownership rate, independent of such fundamentals as income, the relative costs of producing rental and owner-occupied housing, and the relative tax treatment of rental and owner-occupied housing. The policies under consideration would work around the fundamentals by making the market fairer and more efficient. The HUD models are designed to illustrate what could be accomplished by policies of this type and how they could affect specific groups and the housing market.

This article has three goals:

1. To discuss HUD's projections of homeownership patterns in 2000, assuming no change in current patterns
2. To explain how HUD predicts the effects on homeownership rates of strategies to reduce racial and income barriers and to report a specific illustration
3. To describe how HUD simulates the consequences for housing markets of successful strategies to increase homeownership

First, we show how HUD extrapolates from current patterns to estimate homeownership patterns in 2000. Then we discuss the predicted patterns and explain why analysts and policy makers should be concerned with the patterns of homeownership as well as the overall homeownership rate. The year 2000 estimates serve as a baseline against which to measure change. In the next three sections, we describe HUD's gap model, explain why it is useful in the current efforts to boost homeownership, and describe a specific application. Finally, we describe the technique

used to study some limited housing market effects and apply it to the results of this application.

### **Projecting current trends to the year 2000**

Because the end of the millennium is a natural focal point for any long-run policy initiative, the HUD analysis concentrates on the year 2000. The first step was to derive a baseline projection of homeownership patterns in 2000 based strictly on current patterns—that is, without any policy interventions. To determine how policy interventions can alter the future, we first must know what the future would be like without any policy interventions.

For this purpose, HUD started with household projections by Masnick and McArdle (1993), who estimated the number of households for 35 population groups defined by 7 age ranges and 5 household types. It was necessary to extend these projections because Masnick and McArdle did not disaggregate their household projections by race. Minorities have lower homeownership rates, and the minority share of the population is expected to increase over the decade. Therefore, the baseline needs to take this effect into account.

HUD reestimated the baseline by splitting the Masnick and McArdle groups by race and income using data from the American Housing Survey (AHS) (the income split is important for the gap analysis discussed later). Five income categories and two race categories (non-Hispanic whites and minorities) are used. These additional disaggregations increase the number of groups to 350 (7 age ranges by 5 household types by 2 race categories by 5 income groups).

To complete the projections, HUD used the 1991 AHS to derive separate homeownership rates for each of these groups (table 1). Race is categorized as white and minority because the AHS sample size is too small to report blacks and Hispanics separately. Although the AHS has data on more than 50,000 households, it does not have observations for all 350 groups; table cells are left blank for groups with no observations.

### **Year 2000 baseline**

HUD applied the 1991 homeownership rates to the projected number of households in each group to derive a baseline national

Table 1. Homeownership Rates by Group, Percent of Households, 1991

Annual Household Income (\$)	Married Couples						One Adult					
	With Children			Without Children			With Children			Without Children		
	Minority	White*	Minority	White*	Minority	White*	Minority	White*	Minority	White*	Minority	White*
Householders < 25 years												
< 20,000	6	24	13	20	2	8	8	9	5	8	5	7
20,000-39,999	14	32	23	31	20	15	10	10	2	19	2	12
40,000-59,999	13	64	12	53	61	61	35	35	30	38	30	43
60,000-79,999		69		67								
≥ 80,000	40	100		54								31
Householders 25-34 years												
< 20,000	22	40	21	31	9	22	7	14	8	14	8	19
20,000-39,999	33	64	36	46	22	42	14	31	19	31	19	28
40,000-59,999	65	79	43	59	62	62	22	45	38	45	38	48
60,000-79,999	85	90	73	73	62	61	49	49	57	49	57	65
≥ 80,000	82	89	70	70	0	58	55	55		55		
Householders 35-44 years												
< 20,000	36	62	26	62	19	37	9	33	19	33	19	42
20,000-39,999	57	79	44	72	38	59	27	39	33	39	33	54
40,000-59,999	72	88	52	82	58	80	47	59	60	59	60	72
60,000-79,999	80	93	78	88	79	89	56	59	69	59	69	67
≥ 80,000	83	96	79	91	52	82	59	62	75	62	75	79
Householders 45-54 years												
< 20,000	44	71	46	77	26	53	26	42	37	42	37	53
20,000-39,999	64	81	61	80	49	78	37	54	48	54	48	68
40,000-59,999	79	87	77	89	69	83	38	70	58	70	58	86
60,000-79,999	90	96	86	94	74	95	72	71	82	71	82	85
≥ 80,000	96	97	92	96	76	86	68	68	86	68	86	93

Table 1. Homeownership Rates by Group, Percent of Households, 1991 (continued)

Annual Household Income (\$)	Married Couples						One Adult					
	With Children		Without Children		With Children		Without Children		With Children		Without Children	
	Minority	White*	Minority	White*	Minority	White*	Minority	White*	Minority	White*	Minority	White*
<b>Householders 55-64 years</b>												
< 20,000	74	80	76	87	33	40	32	62	45	66		
20,000-39,999	72	88	80	90	24	92	46	67	66	80		
40,000-59,999	84	88	90	95	100	80	39	84	44	84		
60,000-79,999	100	96	94	96	100	100	62	100	100	95		
≥ 80,000	90	95	96	98	100	100	67	80	81	97		
<b>Householders 65-74 years</b>												
< 20,000	32	75	77	89		29	40	66	55	79		
20,000-39,999	84	90	88	95	100	49	76	84	74	83		
40,000-59,999	100	68	85	97		100	29	74	89	89		
60,000-79,999		100	100	96			83	100	100	100		
≥ 80,000		100	94	97			100	100	100	100		
<b>Householders 75+ years</b>												
< 20,000	52		76	86		100	53	62	57	69		
20,000-39,999		81	96	91			78	74	87	89		
40,000-59,999			100	95				73	74	86		
60,000-79,999			100	94				85	100	92		
≥ 80,000			100	97				74	100	90		

Source: David A. Vandembroucke, HUD, based on special tabulations by Paul E. Burke, HUD.

Note: A blank cell indicates that no observations were made for this group.

\*Non-Hispanic.

homeownership rate. The baseline projection for the year 2000 is 65 percent.

If homeownership patterns remain essentially unchanged, demographic trends will result in 68,407,000 homeowners out of an estimated 104,977,000 households in 2000. The number of homeowners in the fourth quarter of 1994 from the Current Population Survey, adjusted for the undercount in the 1990 census, was 63,947,000 (HUD 1995b). Thus, the expected change in the number of homeowners between 1994 and 2000 is 4,460,000.

These projections incorporate two assumptions that might be considered conservative. First, they assume that households in a given group—for example, white married couples with children in which the householder is 45 to 54 years old and who earn between \$40,000 and \$59,999 in 1991 dollars—will have the same homeownership rate in 2000 as the identically defined group of households in 1991. This assumes that, for any given group defined by race, family status, age, and income, outside influences produce no net change in homeownership rates over the decade. Although most factors underlying homeownership rates are well correlated with the characteristics defining the groups, this assumption may be questionable. Using different group definitions, Pitkin and Masnick (1980) found that homeownership rates for most groups increased between 1960 and 1975. However, a review of homeownership rates for various age and household groups since 1982 suggests a flat or even declining trend for most of these groups now (U.S. Bureau of the Census 1995, table 21). The article assumes no change as being most consistent with recent experience.

The projections also assume that real household incomes and income equality will neither increase nor decrease between 1991 and 2000. Real median family income has been virtually flat since the early 1970s, and real average hourly earnings have been declining over the same period. The Consumer Price Index and similar measures probably overstate inflation and therefore bias the reported changes in real income and earnings downward. Without knowing how serious the downward bias is and whether recent trends will continue despite a growing economy, we choose to assume no growth in real incomes and no changes in income equality.

While a projection of the national homeownership rate is interesting in itself, it would also be interesting to know what happens to important groups within the population. Focusing on the

homeownership experience of individual groups offers several advantages. From a welfare perspective, changes in group homeownership rates may be more important than changes in the national ownership rate. In the 1980s, the national homeownership rate dropped from 65.6 to 63.9 percent. During this time, the ownership rate for married couples ages 35 to 55 with children decreased even more. However, groups with higher homeownership rates grew at a faster rate than groups with lower ownership rates. This shift in the population concealed the extent to which ownership choices for each group had actually declined.

Increased homeownership may be an appropriate national goal for two reasons. First, homeownership may be beneficial for families and individuals.<sup>2</sup> If so, the right way to measure whether households actually have better opportunities to become homeowners is to see how tenure patterns change for individual groups. If a more general measurement is used, shifts within the population can obscure progress (or lack of progress) in making homeownership more attainable. A second reason why increased homeownership may be an appropriate national goal is that homeownership may be beneficial to cities and neighborhoods. If so, the national homeownership rate is the correct metric. However, even in this case, the success of policies in promoting homeownership can be judged only after adjustments are made for changes in the distribution of the population among groups. Ultimately, policies are effective only if they alter the homeownership rates of individual groups or, more unlikely, the size of the groups.

We used projections of the number of households in the year 2000 to combine the various groups into larger and more interesting groups (see table 2). Homeownership rates of minorities and whites will still be vastly different. The projected homeownership rate for minorities is 45 percent, compared with 71 percent for whites. Households with incomes below \$20,000 in 1991 dollars will have a homeownership rate of only 48 percent. The homeownership rate rises rapidly with each successive

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<sup>2</sup> Encouraging families to become homeowners has benefits and drawbacks. Homeownership encourages savings and provides all family members, especially children, with a sense of stability. Preliminary research links growing up in an owner-occupied home with lower high school dropout rates, fewer teenage pregnancies, and lower teenage arrest rates (Green and White 1995). On the other hand, homeownership involves high transaction costs and exposes families to the risk of default. While appreciation rates can be high on investments in owner-occupied housing, families can also lose money in buying and selling a home. For some families, investing in a home may be less beneficial than a diversified investment portfolio.

Table 2. Projected Homeownership Rates by Group, Percent of Households, 2000

Annual Income (\$)*	All Households						Married Couples						One Adult						
	With Children			Without Children			With Children			Without Children			With Children			Without Children			
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	
Householders of all ages																			
<b>All incomes</b>	<b>45</b>	<b>71</b>	<b>65</b>	<b>59</b>	<b>81</b>	<b>76</b>	<b>72</b>	<b>86</b>	<b>84</b>	<b>21</b>	<b>47</b>	<b>35</b>	<b>33</b>	<b>53</b>	<b>49</b>	<b>44</b>	<b>56</b>	<b>52</b>	
< 20,000	31	55	32	32	53	46	65	82	79	13	29	20	32	52	47	34	42	39	
20,000-39,999	47	68	63	49	73	68	70	83	81	32	56	46	33	51	48	46	57	54	
40,000-59,999	63	82	79	71	85	83	71	87	85	61	76	73	38	64	60	51	76	70	
60,000-79,999	81	89	88	84	93	91	89	92	92	74	83	81	53	63	62	70	85	79	
≥ 80,000	86	92	91	85	96	94	91	94	94	73	77	77	56	68	67	84	85	85	
Householders < 25 years																			
<b>All incomes</b>	<b>7</b>	<b>16</b>	<b>13</b>	<b>9</b>	<b>31</b>	<b>25</b>	<b>17</b>	<b>31</b>	<b>29</b>	<b>4</b>	<b>9</b>	<b>6</b>	<b>7</b>	<b>10</b>	<b>9</b>	<b>6</b>	<b>10</b>	<b>9</b>	
< 20,000	5	11	9	6	24	18	13	20	19	2	8	5	8	9	9	5	7	7	
20,000-39,999	12	21	19	14	32	27	23	31	30	20	15	18	5	10	9	2	12	10	
40,000-59,999	18	52	45	13	64	52	12	53	46		61	61		35	32	30	43	38	
60,000-79,999	49	49	29	69	69	32		67	67					0	0			0	
≥ 80,000	40	27	28	40	100	64		54	54					0	0	31	31	31	
Householders 25-34 years																			
<b>All incomes</b>	<b>30</b>	<b>47</b>	<b>42</b>	<b>53</b>	<b>67</b>	<b>63</b>	<b>37</b>	<b>57</b>	<b>55</b>	<b>12</b>	<b>33</b>	<b>22</b>	<b>11</b>	<b>28</b>	<b>24</b>	<b>25</b>	<b>28</b>	<b>27</b>	
< 20,000	11	24	19	22	40	34	21	31	29	9	22	15	7	14	12	8	19	16	
20,000-39,999	24	46	40	33	64	56	36	46	45	22	42	32	14	31	27	19	28	26	
40,000-59,999	54	67	64	65	79	76	43	59	56	62	62	22	45	38	38	48	44	44	
60,000-79,999	77	75	76	85	90	87		73	73	62	61	61		49	49	57	57	57	
≥ 80,000	83	71	75	82	89	84		70	70	0	58	39		55	55	65	65	65	
Householders 35-44 years																			
<b>All incomes</b>	<b>43</b>	<b>71</b>	<b>65</b>	<b>62</b>	<b>86</b>	<b>82</b>	<b>52</b>	<b>81</b>	<b>76</b>	<b>29</b>	<b>56</b>	<b>44</b>	<b>22</b>	<b>42</b>	<b>38</b>	<b>36</b>	<b>55</b>	<b>50</b>	
< 20,000	21	44	35	36	62	52	26	62	48	19	37	28	9	33	26	19	42	35	
20,000-39,999	43	63	58	57	79	74	44	72	66	38	59	50	27	39	37	33	54	48	
40,000-59,999	64	82	79	72	88	86	52	82	78	58	80	74	47	59	57	60	72	69	
60,000-79,999	76	88	87	80	93	92	78	88	87	79	89	87	56	59	59	69	67	68	
≥ 80,000	81	92	90	83	96	94	79	91	89	52	82	81	59	62	62	75	79	78	

*Table 2. Projected Homeownership Rates by Group, Percent of Households, 2000 (continued)*

Annual Income (\$)*	Married Couples												One Adult										
	All Households						With Children			Without Children			With Children			Without Children			Other Households				
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T		
	53	79	74	71	89	86	69	89	86	39	71	59	31	53	48	49	70	64	37	53	47	37	53
Householders 45-54 years																							
<b>All incomes</b>																							
< 20,000																							
20,000-39,999																							
40,000-59,999																							
60,000-79,999																							
≥ 80,000																							
Householders 55-64 years																							
<b>All incomes</b>																							
< 20,000																							
20,000-39,999																							
40,000-59,999																							
60,000-79,999																							
≥ 80,000																							
Householders 65-74 years																							
<b>All incomes</b>																							
< 20,000																							
20,000-39,999																							
40,000-59,999																							
60,000-79,999																							
≥ 80,000																							
Householders 75+ years																							
<b>All incomes</b>																							
< 20,000																							
20,000-39,999																							
40,000-59,999																							
60,000-79,999																							
≥ 80,000																							

Source: David A. Vandembroucke, HUD, based on special tabulations by Paul E. Burke, HUD.  
 Note: M = minority; W = white (non-Hispanic); T = total. A blank cell indicates that no projection was made for this group.  
 \*In 1991 dollars.

income group until 91 percent of all households with incomes of \$80,000 or more will be homeowners.

Two important patterns are highlighted in table 2. At every income level, minorities in general have substantially lower homeownership rates than whites. And, for both whites and minorities, the homeownership rate rises with income. While these patterns may not be as consistent or as pronounced in specific groups, they are still easily discernible. The race and income effects cannot be explained away by differences in age or household type. The persistence and importance of these patterns underlie the primary model HUD has developed.

## Gap model

The patterns in table 2 correspond to two themes frequently heard in discussions of how to increase homeownership: the need to make homeownership more affordable and the need to eliminate discriminatory barriers to homeownership. Broad classes of policies can be grouped under these two headings. Therefore, it seems useful to explore what could happen if the differences in homeownership based on income and race could be reduced.

In table 2, examine the group of married couples with children in which the household head is 35 to 44 years old. The AHS allows splitting this class into 10 finer groups by income (5 groups) and race (2 groups). The ownership rates of four of these finer cohorts are shown in table 3.

*Table 3. Projected Homeownership Rates for Married Couples 35–44 Years Old with Children, by Income and Race, 2000*

Income (\$)	Minority (%)	White* (%)
20,000–39,999	57	79
80,000+	83	96

\*Non-Hispanic.

Consider a goal of reducing both race- and income-based differences, or gaps, by 50 percent. If successful, the white \$20,000–\$39,999 rate would rise to 87.5 percent and the minority \$80,000+ rate would rise to 89.5 percent. The minority \$20,000–\$39,999 rate would increase to 78.75 percent, based on both income and racial adjustments. Revised figures are shown in table 4.

**Table 4. Projected Homeownership Rates for Married Couples 35–44 Years Old with Children, by Income and Race, Goal for 2000**

Income (\$)	Minority (%)	White* (%)
20,000–39,999	78.75	87.5
80,000+	89.50	96.0

\*Non-Hispanic.

This process can be repeated for all the age and family-type groups in table 2. The groups can then be combined to produce an estimate of the national homeownership rate under the assumption that income- and race-based gaps will be reduced by 50 percent.

A 50 percent reduction in these gaps, however, would be a very unrealistic goal, considering the current discrimination in housing and mortgage markets and the past discrimination in labor markets, which resulted in lower wealth levels. It would be hard enough to make a sizable reduction in current discrimination without having to overcome the results of past discrimination. Similarly, it would be hard to overcome half the effects of income differences. Higher income persons have different incentives for buying rather than renting and have different capacities to absorb other expenses.

Nevertheless, this gap method allows calculation of the national homeownership rate achievable by any proportionate reduction in the income- and race-based gaps. Examples of the national homeownership rate achieved by various combinations of reductions in the income and race gaps are presented in table 5.

**Table 5. Projected National Homeownership Rate, 2000**

Reduction in Income-Based Difference (%)	Reduction in Race-Based Difference (%)										
	0	10	20	30	40	50	60	70	80	90	100
0	65.0	65.3	65.7	66.0	66.4	66.8	67.1	67.5	67.9	68.2	68.6
10	66.8	67.1	67.5	67.8	68.1	68.5	68.8	69.2	69.5	69.9	70.2
20	68.6	68.9	69.2	69.5	69.9	70.2	70.5	70.9	71.2	71.6	71.9
30	70.4	70.7	71.0	71.3	71.6	71.9	72.2	72.6	72.9	73.2	73.6
40	72.2	72.5	72.7	73.0	73.3	73.6	73.9	74.2	74.6	74.9	75.2
50	74.0	74.2	74.5	74.8	75.1	75.3	75.6	75.9	76.2	76.6	76.9
60	75.8	76.0	76.3	76.5	76.8	77.0	77.3	77.6	77.9	78.2	78.5
70	77.6	77.8	78.0	78.3	78.5	78.8	79.0	79.3	79.6	79.9	80.2
80	79.4	79.6	79.8	80.0	80.2	80.5	80.7	81.0	81.3	81.6	81.8
90	81.2	81.4	81.6	81.8	82.0	82.2	82.4	82.7	82.9	83.2	83.5
100	83.0	83.1	83.3	83.5	83.7	83.9	84.1	84.4	84.6	84.9	85.2

The four corners of table 5 have specific meanings:

1. The upper left corner is the 65.0 percent projection assuming no policy intervention.
2. The lower right corner (85.2 percent) is the maximum rate that could be achieved by complete elimination of income- and race-based differences within each age and family-type group. Further substantial increases are possible only through other types of changes such as a major increase in the proportion of married couples among all households.
3. The upper right corner (68.6 percent) is the rate achieved by eliminating all race-based differences but no income-based differences. This effect is relatively small because it is projected that minorities will compose only 22 percent of households in 2000.
4. The lower left corner (83.0 percent) is the rate achieved by reducing all the income-based differences but none of the race-based differences. Note that progress along this dimension produces much larger increases in the homeownership rate than equal progress along the race dimension. Progress along the race dimension affects only a small portion of the population (22 percent), while progress along the income dimension affects a much larger proportion (91 percent).

### **Usefulness of gap model analysis**

The gap model is nothing more than a series of straightforward mathematical calculations. Its usefulness depends on the extent to which these calculations can be associated with policies proposed or under development.

HUD developed the gap model to study strategies to raise the homeownership rate without altering some of the fundamental determinants of tenure choice. Fannie Mae's *Showing America A New Way Home* campaign and the related national campaign being organized by Secretary Cisneros call for intensive and broad-based efforts to make homeownership more attainable. However, neither campaign envisions significant changes in real income, the relative costs of producing rental or owner-occupied housing, or other key variables that influence households to choose homeownership. These factors are taken as givens, and the focus is on helping those currently excluded from the market.

Many of the policies suggested can be characterized as efforts to overcome barriers related to income and race.

The gap model fits this context well. For each age and household-type group, the model takes the homeownership rate for whites earning \$80,000 or more in 1991 dollars as the maximum achievable rate, assuming that high-income whites are generally free to exercise their tenure preferences. Given current tax treatment, mobility patterns, and the relative costs of rental and owner-occupied housing, high-income whites choose the tenure that best fits the needs of their families. The model also assumes that homeownership rates of minorities and lower income households are constrained and that, if they could, these households would choose to be homeowners at the same rate as high-income whites of similar age and household type.<sup>3</sup>

The model has obvious limitations. The most important is that it cannot predict how much a particular action will affect the income- or race-based gap and therefore cannot predict how much that action might affect the homeownership rate.

The model ignores changes in the fundamentals, such as real income or the tax treatment of housing. However, the model can also be used to study the effect of higher real income. To use the model to study real income growth, we would have to assume that real income growth affects tenure choice only for households earning less than \$80,000 in 1991 dollars and then develop an algorithm to redistribute households among income classes.

Another important limitation is that the 35 homeownership rates for high-income whites used as the basis for gap reduction are subject to measurement error. In most cases, the AHS samples are small for high-income whites of particular ages and household types. In some cases, the sample was too small to estimate a base homeownership rate, and a rate had to be assigned on the basis of neighboring rates.

A less serious limitation is that the model assumes that the effect of any action or combination of actions is the same for all groups. For example, in most applications, it is assumed that the

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<sup>3</sup> The model likewise assumes that, for each age and household-type group, the difference between the homeownership rates of minority and white households earning \$80,000 or more a year is the measure of racial constraint absent any income constraint. In other words, if there were only racial constraints, then all minority households in a given age and household-type group would have the same homeownership rate as minority households earning \$80,000 or more a year.

income-based gap is reduced by a constant percentage for all groups and that the race-based gap is reduced by a constant (but perhaps different) percentage for all groups. This constant-percentage assumption is not a necessary feature of the model. Analyses may be done in which different gap reductions are assumed for different groups.

However, the gap model does not explain why the gaps exist. For example, the race-based gap could result from a number of causes. Outright discrimination in housing markets is one explanation. But minority households also have lower wealth than similar white households, a factor that makes it more difficult for minority households to purchase homes. Similarly, poorer credit histories are one reason that lower income families have lower homeownership rates. We must know the reasons behind the gaps to construct effective policies to narrow the gaps.<sup>4</sup> Although the gap model does not provide insights on the reasons for gaps, by showing which groups have the biggest gaps, the data suggest which reasons may be most important.

Finally, the gap model has another interesting use. If we want to set a particular goal for the national homeownership rate in the year 2000, the model can determine how extensive the reduction in income- and race-based gaps must be to achieve that target. For example, assume we want to achieve a homeownership rate of 69 percent in 2000. Several combinations can approximate that rate (see table 5). The two cases requiring the least effort are a 20 percent reduction in the income-based gap with a 10 percent reduction in the race-based gap, and a 10 percent reduction in the income-based gap with a 60 percent reduction in the race-based gap.

### **Gap model application**

The demographic results of a gap model application that assumes a 20 percent improvement in both income- and race-based gaps are shown in table 6. These assumptions would produce an increase in the national homeownership rate to 69.2 percent (see table 5). We chose this illustration for two reasons. First, 69 percent is around the top of the range of estimates of the year 2000 homeownership rates that we have seen.

Second, it is not unrealistic to expect this level of reduction in the gaps. A number of steps are being taken to reduce the

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<sup>4</sup> Wachter and Megbolugbe (1992) discuss the factors affecting homeownership, and Savage and Fronczek (1993) discuss barriers to purchasing a home.

**Table 6. Predicted Effects of 20 Percent Reduction in Race- and Income-Based Gaps, by Household Type, 2000**

Household Type	Increase in the Number of Homeowners	Increase in the Homeownership Rate (Percentage Points)
All homeowners	4,416,000	4.2
Minority homeowners	2,097,000	8.9
White, nonminority homeowners	2,319,000	4.1
Households with children	1,682,000	7.7
Married couples with children	975,000	4.0
Single adults with children	707,000	7.7
Households with incomes < \$20,000*	2,529,000	6.7
Households with incomes \$20,000–\$39,999*	1,433,000	4.5
Households with incomes \$40,000–\$59,999*	368,000	2.2
Householders ages 25–44	2,293,000	5.5
Householders ages 25–34	1,226,000	7.1
Householders ages 35–44	1,066,000	4.4

\*In 1991 dollars.

upfront costs of purchasing a home, including new applications of computer technology to save on closing costs and the development of loans with higher interest rates but no closing costs. Outreach efforts will encourage households unaware that they could qualify for homeownership to apply. Special affordable housing efforts by conventional lenders, private mortgage insurers, Fannie Mae, and Freddie Mac will also improve affordability. Meanwhile, all the financial regulators are increasing their efforts to eliminate discrimination in lending and to encourage lenders to reach out to the minority community.

Reducing the income- and race-based gaps by 20 percent results in 4.4 million more homeowners than in the year 2000 baseline (table 6). Almost half of these additional homeowners would be minorities (2.1 million), and more than half would be households with annual incomes of less than \$20,000 (in 1991 dollars). This may seem surprising, but it is a large group (29 million households) with a very low baseline homeownership rate of 48 percent. Given a 20 percent reduction in both gaps, the homeownership rate for this group is still only 55 percent. Young households—those with heads between 25 and 34 years old—account for 1.2 million additional homeowners.

The largest percentage-point changes are for minorities (8.9 points), households with children (7.7 points), single adults with children (7.7 points), and households with heads ages 25 to 34 (7.1 points). Households with incomes between \$20,000 and

\$39,999 experience a percentage-point increase only slightly greater than that for all households (4.5 versus 4.2 points), and households with incomes between \$40,000 and \$59,999 experience a modest increase (2.2 points).

## **Simulating housing market effects**

As HUD contemplated strategies to increase homeownership, it was frustrated by the gap model's inability to distinguish among minority groups. The department also wanted to know how higher homeownership rates might affect where people choose to live and how these choices might indirectly affect cities and suburbs. Finally, HUD wondered about the type of housing new homeowners would choose. By combining the results of the gap model with the data it collects in the AHS, HUD was able to answer some of these questions. The final goal of this article is to explain what HUD did and discuss some of the findings.

The AHS contains detailed information on tenure choice by race, on where homeowners choose to live, and on the type of housing homeowners select. Each sample observation has an AHS weight designed to aggregate up to the 1991 U.S. population. Those weights only need to be adjusted to represent first the population in 2000 assuming no policy interventions and then the population in 2000 with policy interventions.

This adjustment is easily made by using the gap model. First, the 350-cell matrix is transformed into a 700-cell matrix by adding tenure choice as a fifth dimension. The 700 cells are formed from 7 age groups, 5 family types, 5 income groups, 2 racial classifications, and 2 tenure classifications. The number of households in each of the 700 cells can be estimated for (a) 1991, (b) the year 2000 baseline, and (c) any projected homeownership rate in table 5. The AHS weights for observations in each cell are then multiplied by the ratio of (b) to (a) to represent the year 2000 baseline. Similarly, the AHS weights for observations in each cell are multiplied by the ratio of (c) to (a) to represent the year 2000 policy simulation.

After reweighting, we can conceptually ask any AHS question and calculate the answers. In some cases the process is straightforward. For example, we calculated the spatial impact by simply looking at the code used in the AHS to determine whether a housing unit is in a central city, in the suburbs, or elsewhere. In other cases, such as race, adjustments must be made to maintain constant counts of population subgroups.

We used this technique to extend the results from the illustration of reducing both income- and race-based gaps by 20 percent (see table 7). Only selected AHS variables are reported.

**Table 7. Gap Model Simulation of Location- and Race-Specific Effects of 20 Percent Reduction in the Race- and Income-Based Gaps, 2000**

	Absolute Change	Percentage Change
Black homeowners	1,234,000	20.8
Hispanic homeowners	639,000	20.9
Owner-occupants of mobile homes	624,000	12.5
Central-city households	-749,000	-2.2
Central-city homeowners	1,410,000	8.4
Suburban households	206,000	0.4
Suburban homeowners	1,782,000	5.2
Nonmetropolitan households	540,000	2.4
Nonmetropolitan homeowners	1,266,000	7.5

The number of black homeowners increases by 1,234,000, or 20.8 percent. The number of Hispanic homeowners increases by 639,000, or 20.9 percent. By comparison, the number of white homeowners increases by just 4.1 percent (see table 6).

Because of the increase in low-income homeowners (see table 6), we analyzed the potential for expanding the purchase of mobile or manufactured homes. The analysis indicates that the number of manufactured homes occupied by owners could increase by 624,000 over the baseline case; this corresponds to a 12.5 percent increase, almost twice the relative increase in overall homeownership.

The locational implications of increasing the number of homeowners are interesting. The impact on central cities is mixed. Central-city population would decline by 749,000 households, but the number of central-city homeowners would increase by 1,410,000. Both households and the number of homeowners increase in suburbs and nonmetropolitan areas, although the increase in homeowners is much stronger, particularly in the suburbs.

Because these locational implications are based on a number of assumptions, they should be treated cautiously. However, the results do suggest the importance of choosing strategies that are effective and that minimize harmful side effects. If these simulations are correct, the demand for rental housing in central cities will decrease by more than 2 million rental units, while households will be looking for 1.4 million more units to buy. Central

cities now have more than 3.7 million single-family rental homes, and some of the other 11.5 million rental units can be converted to condominium or cooperative sales, so this shift to ownership has no supply constraint (HUD and U.S. Bureau of the Census 1995). However, this would still be a real change in the market. The overall decrease in demand (749,000 units) is also noticeable. Some areas would have fewer problems than average, and some areas would have more. Policies to increase homeownership may destabilize some housing markets, and these effects need to be consciously guarded against in program design. Strategies that encourage homeowners to purchase in central cities would reduce these consequences.

## Conclusions

Demographic trends alone will raise the national homeownership rate to 65 percent by 2000. Yet, the homeownership rate of minorities will still be far less than that of whites, and there will still be large differences in ownership rates between income groups. If these race- and income-based differences can be narrowed, substantial homeownership increases are possible. Reducing both race- and income-based gaps by 20 percent could raise the national ownership rate to 69.2 percent and greatly increase the number of low-income and minority homeowners.

Policies under development by government, industry, and other actors appear to be designed to overcome these income and racial barriers. The models developed in this article cannot predict which of these policies will be successful, but they can verify the importance of focusing on affordability and accessibility. Furthermore, they can provide insights into which target homeownership rates are feasible.

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