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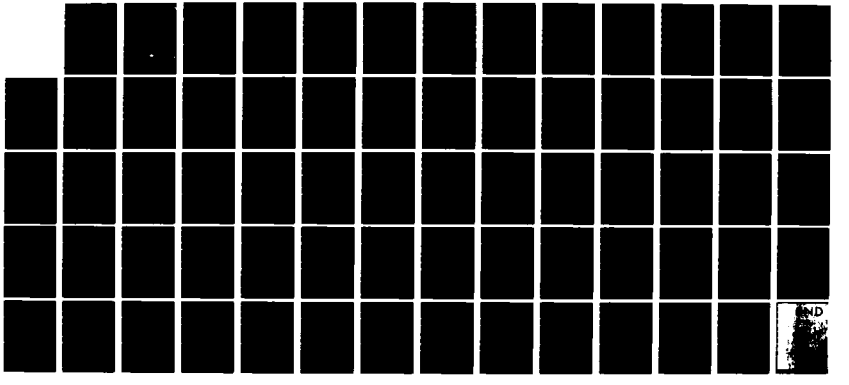

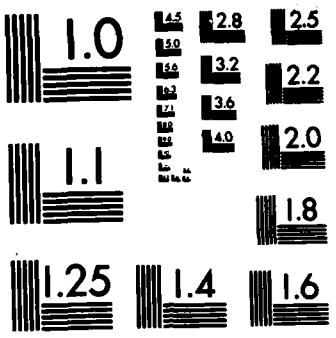

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AN ECONOMIC EVALUATION OF VARIABLE HOUSING ALLOWANCES IN THE COLORADO SPRINGS MILITARY HOUSING AREA

LT COL WILLIAM J. WEIDA
MAJOR MICHAEL S. ANSELMI
MAJOR FRANKLIN L. GERTCHER
LT MICHELLE D. JOHNSON

DEPARTMENT OF ECONOMICS

JANUARY 1983

DEAN OF FACULTY

UNITED STATES AIR FORCE ACADEMY

Editorial Review by Captain Franklin J. Hillson
Department of English
U.S. Air Force Academy
Colorado Springs, CO 80840

This research report is presented as a competent treatment of the subject, worthy of publication. The United States Air Force Academy vouches for the quality of the research, without necessarily endorsing the opinions and conclusions of the author.

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Director of Research and Continuing
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20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This study evaluates the current Department of Defense Variable Housing Allowance (VHA) Program for military families with dependents. It is exclusively for the Colorado Springs Military Housing Area (MHA), although the methodology could easily be applied to other MHA in the continental United States. For the Colorado Springs MHA, we conclude that VHA entitlements are too low for pay grades O-1 and E-6 and below. For O-2, O-3, and E-7 through E-9, the current VHA entitlements are too high. We were unable to make a determination for O-4 and above. We also explored the implications of including homeowner (Continued)

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imputed rents in Department of Defense VHA calculations. We conclude that if imputed rents were included, VHA would be substantially lower for all pay grades. We recommend that all military members be advised on how their VHA entitlements are calculated, and how the quality of housing they choose affects their respective entitlements. We also recommend that VHA entitlements be updated quarterly between annual VHA surveys by indexing entitlements to housing cost inflation rates.

AN ECONOMIC EVALUATION

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VARIABLE HOUSING ALLOWANCES

IN

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TABLE OF CONTENTS

ABSTRACT

This study evaluates the current Department of Defense Variable Housing Allowance (VHA) program for military members with dependents. Our study is exclusively for the Colorado Springs Military Housing Area (MHA), although the methodology could easily be applied to other MHAs in the continental United States.

We begin with a review of Public Law 96-343, which instituted the VHA program. We then compare the current program with the provisions of the Public Law. We follow with a set of maps and tables which show military family concentrations in the Colorado Springs MHA. We also provide median rents based on June-August 1981 data. We then calculate VHA amounts for each pay grade based on the latest data available from the Colorado Springs MHA, and we compare these amounts to current VHA entitlements. We conclude that for pay grades O-1 and E-6 and below, the current entitlements are too low. For O-2, O-3, and E-7 through E-9, the current entitlements are too high. We were unable to make a determination for O-4 and above, for reasons which are explained in the study. We also explore the implications of including homeowner imputed rents in the Department of Defense VHA data base. We conclude that if imputed rents were included, VHA entitlements would be substantially lower across all pay grades.

We end our study with a summary of our findings and with two policy recommendations. First, we recommend an education program for all military personnel on how VHA entitlements are calculated, and how the quality of housing they choose affects their VHA entitlements. We also recommend that VHA entitlements be updated quarterly between annual VHA surveys by indexing VHA entitlements to housing cost inflation rates.

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I. INTRODUCTION

Statement of the Problem

On September 8, 1980, Congress passed Public Law 96-343, which authorized the Department of Defense (DOD) to provide Variable Housing Allowances (VHA) to military members who live in private housing adjacent to military installations within the continental United States. According to the law, VHA entitlements are based on the difference between the average monthly housing cost in a given geographical area for members of the same pay grade, and 115 percent of the Basic Allowance for Quarters (BAQ) to which the members of the pay grade are nominally entitled.[1] Based on Public Law 96-343 and previous mandates, the DOD implemented a VHA program for military families on October 1, 1980.

It seems appropriate, nearly two years later, to evaluate the VHA Program in terms of whether it achieves the objectives set forth in Public Law 96-343. Accordingly, the purpose of this study is to evaluate the current VHA program in the Colorado

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[1]Public Law 96-343, September 11, 1980. Public Law 345, August 11, 1955, which amends Sections 401 through 409, Title VIII, of the National Housing Act, June 27, 1934, is an earlier expression of Congressional concern with regard to military family housing. Public Law 345 authorized the Secretary of Defense to assure that members of the military services had the opportunity and the income necessary to obtain suitable housing for their respective families.

Springs Military Housing Area (MHA).[2]

Overview

In Section II, we set the stage for our evaluation by reviewing the provisions of Public Law 96-343. We then briefly compare the current DOD methodology for evaluating VHA entitlements to the provisions of the Public Law.

In Section III, we provide maps which show the concentrations of Air Force families, by pay grade, within the Colorado Springs MHA. We then discuss comparable housing cost differences across geographical locations within the current MHA, and we consider other possible MHA as alternatives to the current configuration.

In Section IV, we evaluate the VHA program by comparing current VHA entitlements to VHA amounts based on the lodging costs experienced by military members who obtained private rental housing in the Colorado Springs MHA during June-August 1981.[3] We hypothesize that current VHA entitlements are lower than our

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[2]Our study is based on housing cost data available locally for the Colorado Springs MHA. The Defense Manpower Data Center (DPMC/MPXA) has a data base which includes all MHA within the continental United States. As of this date, we do not have access to the DPMC/MPXA data base.

[3]We use June-August 1981 data because they are the latest data available for this study.

calculated amounts for each pay grade. Further, we expect that this discrepancy grows larger as we progress in time from one annual VHA calculation to the next. We conclude Section IV by testing this hypothesis against our Colorado Springs MHA data base.

In Section V, we evaluate the current VHA program by comparing the current DOD VHA housing cost data base to the provisions of Public Law 96-343. Under the current DOD interpretation, only private renter observations are included in the VHA data base. Since home ownership is certainly a viable housing alternative for many military families, VHA entitlements based exclusively on observations of private rents are likely to be biased.[4] Based on the findings of previous studies, we hypothesize that VHA entitlements are biased on the high side by the exclusion of home ownership imputed rents.[5] If this

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[4]Based on the 1978 DOD Annual Military Family Housing Survey, approximately 40 percent of all military families within the continental United States own homes. For officers, the portion of home owners approaches 75 percent. Although we have no data for the last three years, we expect that these percentages remain approximately the same in 1981 even though the high interest rates experienced over the last 18 months may eventually cause this percentage to decrease.

[5]See Gertcher, F.L.. An Economic Analysis of Military Family Response to the Current Department of Defense Military Family Housing Program, Dissertation, University of Hawaii, Copyright 1981.

hypothesis is true, then the current DOD housing cost data base results in VHA entitlements which are inconsistent with Public Law 96-343. We conclude Section V by testing our hypothesis against our Colorado Springs MHA data base.

Clearly, if both of the hypotheses mentioned above are true, we have two sources of bias working in opposite directions with regard to VHA entitlements. The net effect will determine the nature of our policy recommendations, which we shall present in Section VI, our final section.

II. PROVISIONS OF PUBLIC LAW 96-343

Among other things, Public Law 96-343 improves or adds certain special pays and allowances to the military compensation package. With regard to VHA, the law specifies that the monthly VHA entitlement for any military member is the difference between the average monthly housing cost in a given geographical area for military members of the same pay grade and 115 percent of the BAQ to which that member is nominally entitled. Thus, all military members of a given pay grade stationed in a given geographical area should receive the same VHA entitlement.

The language of Public Law 96-343 is very general. The details of implementation are left open to DOD interpretation. Of specific interest for this study, the DOD may designate the size and shape of geographical areas and may designate the nature

of the housing cost data base to be used to calculate VHA entitlements.

Based on Public Law 96-343, the DOD has created Military Housing Areas (MHAs) by including all zip code areas within reasonable commuting distance of a given military installation. When the commuting distances of two or more installations overlap, the MHA has been expanded to include all such installations.

Although to our knowledge it has not occurred, the law leaves open the possibility of gerrymandering zip code areas to benefit a particular installation. We explore this possibility in more detail in Section III.

We also note that Public Law 96-343 does not indicate the frequency of calculation for VHA entitlements. Currently, the DOD calculates entitlements on an annual basis. Secular changes in housing costs that occur between annual calculations are not accounted for in the DOD methodology. We explore the possibility of quarterly updates in Section VI.

Finally, we note that the DOD has interpreted "average monthly housing cost" to mean "average monthly lodging cost." In turn, monthly lodging cost is defined as follows:

Lodging cost = rent + utilities + maintenance

The DOD calculates an average (mean) lodging cost based on

observations of the rent, utilities, and maintenance costs incurred by military families who choose to rent homes in the private market.

Home ownership imputed rents were specifically excluded by the DOD from the lodging cost data base. We were told by Lt Colonel Quayle, DPMC/MPXA, that these data were excluded because home owners pay less than renters in the long run due to the appreciation in the market values of homes over the period of ownership and the income tax advantage.[6] If the DOD expectation with regard to home ownership imputed rents is true, then VHA entitlements based on the current lodging cost data base provide a clear advantage to home owners who receive the same VHA entitlements as their contemporaries in private rental housing. We explore this expectation in more detail in Sections V and VI.

III. DEMOGRAPHICS FOR MILITARY FAMILIES IN THE COLORADO SPRINGS MHA

The following zip code maps show the concentrations of Air Force members in private housing in the Colorado Springs MHA. From the maps, it is apparent that the center of concentration of the Air Force off-base population is slightly east of Academy Boulevard, north of Peterson Air Force Base, and south of Woodmen

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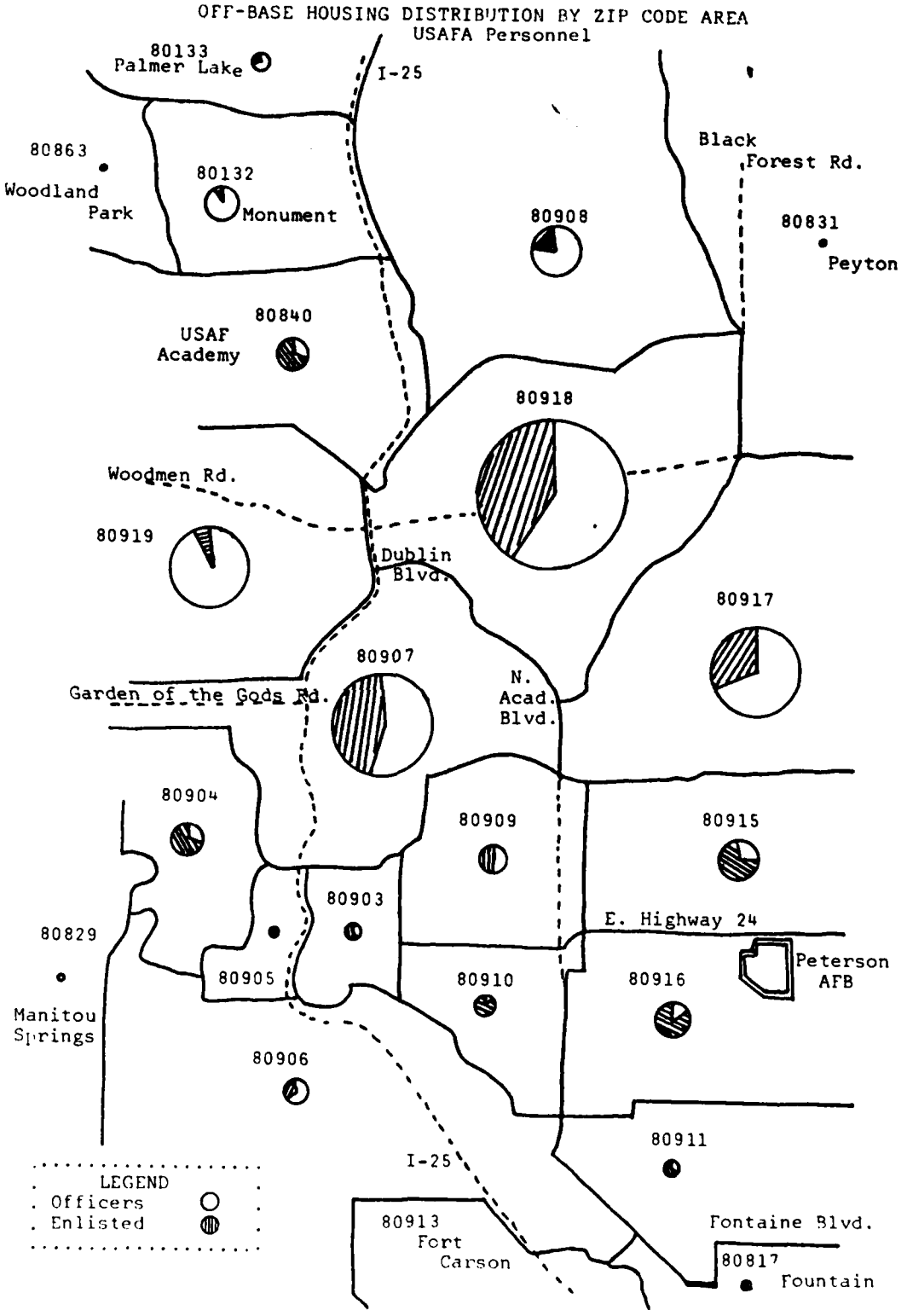
[6]Reference telephone conversation between Lt Colonel Quayle, DPMC/MPXA, and Major Gertcher, USAFA/DFE, on July 17, 1981.

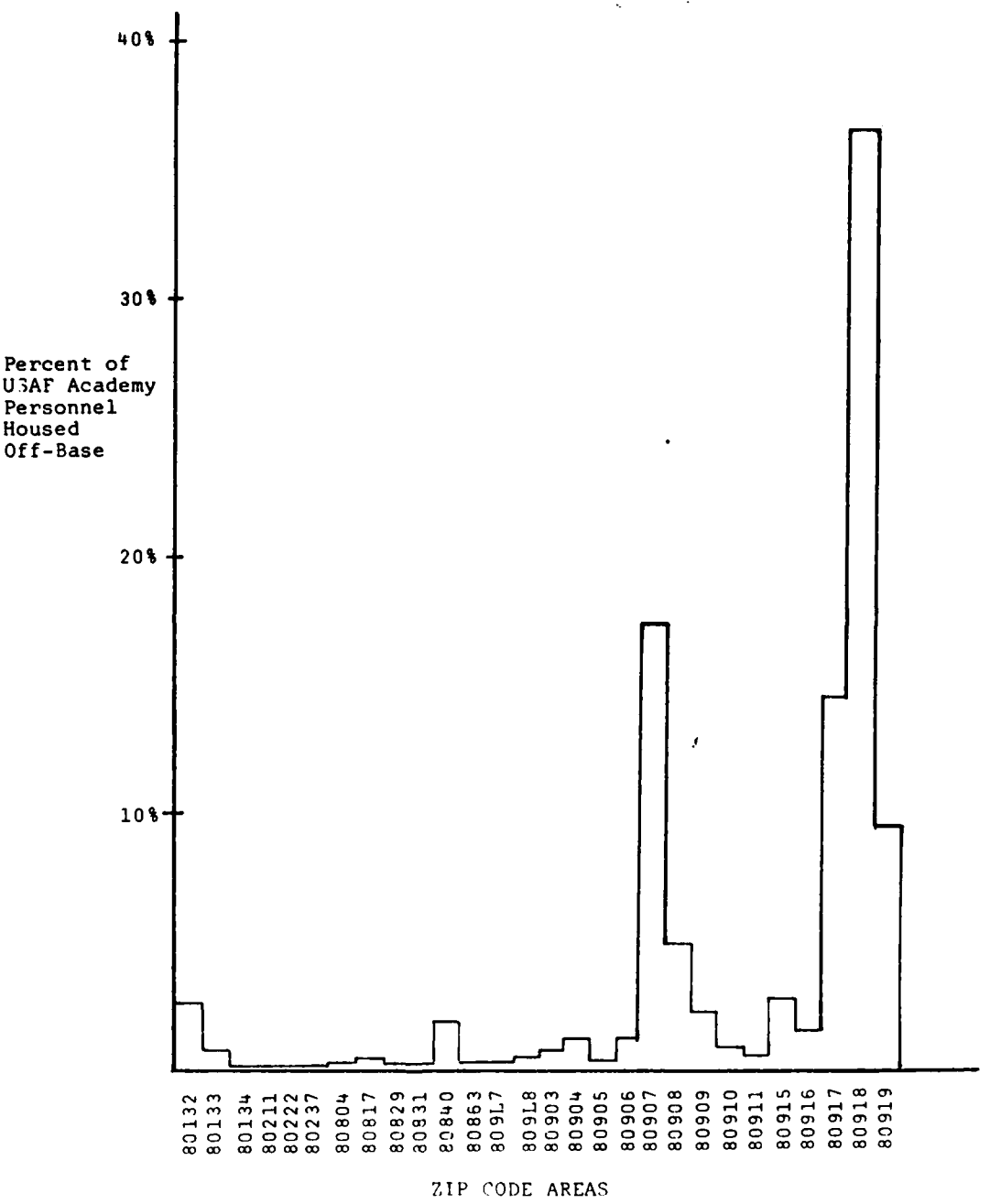
Road. Details are provided in Tables 1 and 2. These population concentrations are based on an August 1981 census of Air Force members stationed at the Air Force Academy and at Peterson Air Force base.

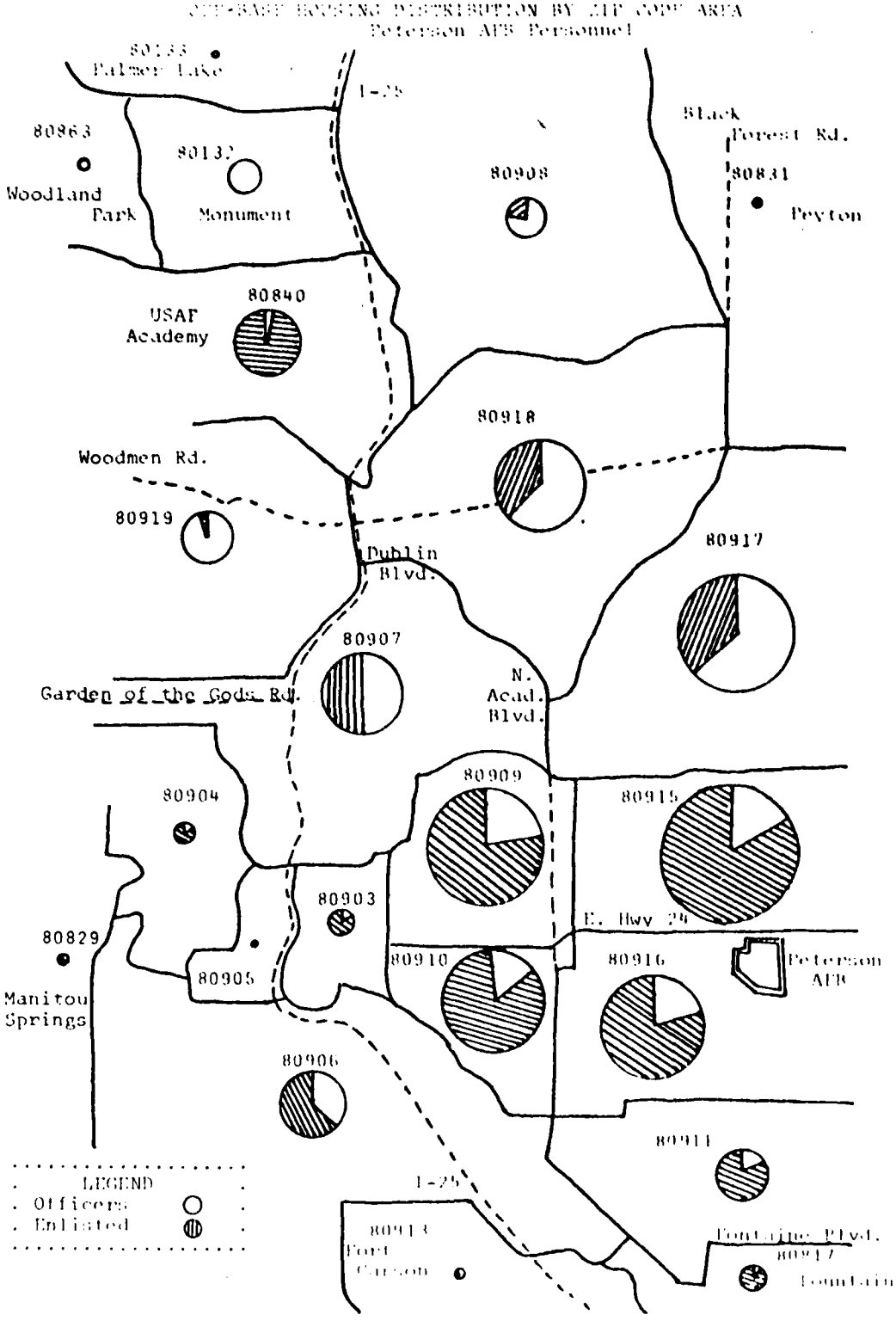
The Fort Carson housing office was unable to provide similar data. However, based on conversations with Fort Carson officials, we expect that the center of concentration of the Fort Carson off-base population is further south and somewhat west of Academy Boulevard.



NOTE: The larger the circle, the heavier the concentration.

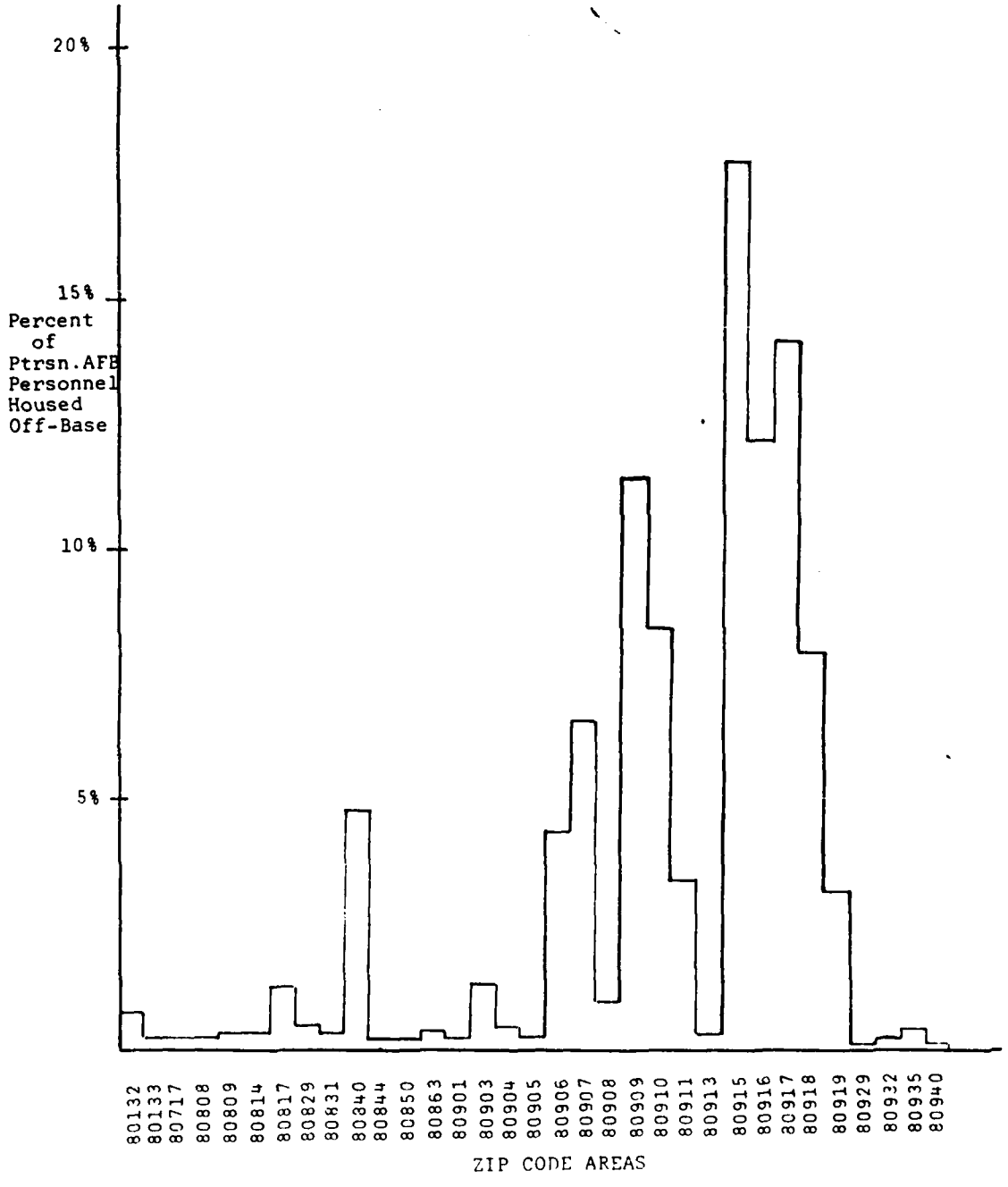
TABLE 1
OFF-BASE HOUSING DISTRIBUTIONS
for
USAF Academy Personnel





NOTE: The larger the circle, the heavier the concentration.

TABLE 2
OFF-BASE HOUSING DISTRIBUTIONS
for
Peterson AFB Personnel



We also note that in the Colorado Springs MHA, the majority of Air Force members who live off-base own homes. On the other hand, the majority of Army members who live off-base rent homes. The numbers of home owners, private renters, and also the number of families in on-base housing are listed in Tables 3, 4, and 5 for the Academy, Peterson Air Force Base, and Fort Carson, respectively.

TABLE 3
U.S. AIR FORCE ACADEMY
Family Housing Distribution by Category

HOUSING CATEGORY	OFFICERS	ENLISTED E-4 & ABOVE	ENLISTED E-3 & BELOW	TOTAL
Owner-Occupied	627	221	1	849
Private Renters	28	51	4	83
On-Base Renters	340	504	65	909
Totals	995	776	70	1841

Source: USAF Academy Housing Office census, August 1981. Only off-base and on-base figures were directly available from census data. To obtain a break-out for home owners and private renters, we used percentages based on the Peterson Air Force Base DOD Annual Housing Survey, January 1980, and national averages for Air Force members. We are confident that our break-out between home owners and private renters is accurate within plus or minus 2.5%.

TABLE 4 PETERSON AIR FORCE BASE Family Housing Distribution by Category				
HOUSING CATEGORY	OFFICERS	ENLISTED E-4 & ABOVE	ENLISTED E-3 & BELOW	TOTAL
Owner-Occupied	667	1062	21	1750
Private Renters	29	248	190	467
On-Base Renters	108	380	0	488
Totals	804	1690	211	2705

Source: DOD Annual Housing Survey, January 1980.

TABLE 5 FORT CARSON Family Housing Distribution by Category				
HOUSING CATEGORY	OFFICERS	ENLISTED E-4 & ABOVE	ENLISTED E-3 & BELOW	TOTAL
Owner-Occupied	840	2116	41	2997
Private Renters	136	2366	1302	3804
On-Base Renters	190	1638	0	1828
Totals	1166	6120	1343	8629

Source: DOD Annual Housing Survey, January 1980.

We also investigated the difference in median rents in different locations within the Colorado Springs MHA. For military families who rent off-base, we found relatively minor differences due to spatial location. The following table provides details.

TABLE 6

MEDIAN APARTMENT RENTS BY AREA WITHIN THE COLORADO SPRINGS MHA (January 1981)

	Efficiency Rent/Mo.	1 Bdrm. Rent/Mo.	2 Bdrms. Rent/Mo.	3 Bdrms. Rent/Mo.
Central Colorado Springs North	$175	$204	$240	---
Central Colorado Springs South	167	194	286	331
South Colorado Springs	160	236	284	274
Southwest Colorado Springs	187	233	288	293
West Colorado Springs and Manitou Springs	88	212	240	---
North Colorado Springs	184	212	247	302
West of Academy and North of Platte	182	231	278	389
Park Hill, Pikes Peak Park and Vicinity	174	207	252	312
Eastborough, Southborough, Security, Widefield, Fountain	---	212	250	232
Village Seven, Rustic Hills, Cimarron Hills	---	215	256	263
Average Rents for the Colorado Springs Area	$174	$216	$260	$294

Source: Pikes Peak Area Council of Governments Survey. Rents are for unfurnished units. Rents are gross and include utilities where charged.

In general, median rents are somewhat higher than the Colorado Springs average in the areas of military family concentration. We cannot say whether this is due to the higher

demand caused by the influx of military families or the fact that on the supply side, some of these areas have relatively better housing which commands higher rents. We also note that few military families rent apartments in the Manitou Springs area. We therefore expect that the average rents for military families are likely to be somewhat higher than the average rents for the Colorado Springs MHA as a whole.

Historically, apartment rents in the Colorado Springs area did not increase substantially between 1973 and 1976, due to high vacancy rates which peaked in 1975 at an estimated 21.6 percent. Since then, as vacancy rates fell, rents slowly increased. Between 1976 and 1978 rent increased at a 4.5 percent annual rate. Then in 1979, when the vacancy rate in apartments fell to 6.0 percent, the annual rate of increase in rent remained at fairly high levels. Between 1979 and 1980, it averaged 8.1 percent; and between 1980 and 1981 it averaged 11.5 percent. For the first half of 1981, apartment rents have increased at an annual rate of 18-20 percent.[7]

Given the differences in rents across the Colorado Springs MHA, it may be possible to gerrymander zip code areas to achieve relative concentrations of Air Force and Army populations in

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[7]Pikes Peak Area Council of Governments, January and August 1981.

separate geographical areas. If these separate areas are designated as independent MHA, then it is also possible to obtain an advantage in VHA for one military service compared to another. However, given the relatively small differences in rents across areas as demonstrated by Table 6, we believe that the resulting differences in VHA entitlements for one service compared to the other are likely to be negligible. We leave the obvious ethical considerations of gerrymandering to the imagination of the reader.

IV. AN EVALUATION OF CURRENT VHA ENTITLEMENTS BASED ON PRIVATE RENTS

In this section, we compare current VHA entitlements to VHA amounts based on the lodging costs experienced by military members who rented homes in the Colorado Springs MHA during June - August 1981.

We begin by establishing the sources of our data. First, we obtained current VHA entitlements from the USAF Academy DCS Comptroller. These entitlements were calculated by the Defense Manpower Data Center (DPMC/MPXA) based on a survey of military families in private rental housing within the Colorado Springs MHA during June 1980. They will remain in effect until October 1, 1981. We also obtained the rental costs paid by 401 military families in the Colorado Springs MHA during June - August 1981. These data were provided by the housing offices at the USAF

Academy, Peterson Air Force Base, and Fort Carson. Finally, we obtained average utilities costs from the Pikes Peak Area Council of Governments. These costs were based on a survey conducted in January 1981, and include electricity, natural gas, water, and sewage fees for residential dwellings of approximately 1800 square feet, prorated over a 12-month period.[8] Separate maintenance cost data for private renters were not available for this study. However, we can reasonably assume, based on the opinions of knowledgeable housing office representatives and our own observations, that maintenance costs are incorporated into the monthly rental charges imposed by landlords. To the extent that our assumption is not true, our lodging costs will be underestimated.

In the following table, we present the averages, by pay grade, of rent, utilities, and lodging costs for military members in private rental housing. The sample size for each pay grade is also indicated.

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[8]Pikes Peak Area Council of Governments, Housing Market Analysis, 1980. Updates were obtained for January 1981 by the Colorado Springs Board of Realtors and the Fort Carson Housing Office.

TABLE 7 AVERAGE MONTHLY COSTS FOR MILITARY MEMBERS IN PRIVATE RENTAL HOUSING Colorado Springs MHA, June-August 1981				
PAY GRADE	NUMBER OF OBSERVATIONS	AVERAGE MONTHLY RENT	AVERAGE MONTHLY UTILITIES	AVERAGE MONTHLY LODGING COST
O-6	1	450	91	541
O-5	3	425	91	516
O-4	2	395	91	486
O-3	25	318	91	409
O-2	20	267	91	409
O-1	35	254	91	345
E-7,8,9	38	313	91	404
E-4,5,6	212	281	91	372
E-1,2,3	68	264	91	355
Total	401			

In Table 8, we compare current VHA entitlements to the amounts that we have calculated based on the average lodging costs presented in Table 7. Except for the field graders, our sample means for monthly lodging cost approximate the means for the respective pay grade populations in private rental housing.[9] We followed the current DOD methodology in calculating our VHA amounts, except that our calculations are separate for each pay grade.[10]

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[9]The sample sizes for field graders were too small to insure confidence that our samples were representative.

[10]For the Fiscal Year (FY) 1981 calculations, the DOD grouped pay grades according to: E-1 through E-3, E-4 through E-6, E-7 through E-9, O-1 through O-3, and O-4 through O-6. For the FY 1982 calculations, they plan to calculate VHA entitlements separately for each pay grade. Reference telephone conversations between Lt Colonel Quayle, DPMC/MPXA and Major Gertcher, USAFA/DFE, on July 17, 1981.

TABLE 8 CURRENT VHA ENTITLEMENTS COMPARED TO THE VHA ENTITLEMENTS DUE BASED ON JUNE-AUGUST 1981 PRIVATE RENTS			
	CALCULATED VHA BASED ON		
PAY GRADE	CURRENT VHA	JUNE-AUGUST 1981 RENTS	INCREASE OR DECREASE CURRENT VHA
O-6	49.74	2.11	-44.75
O-5	43.40	25.25	-17.38
O-4	39.06	48.54	+10.50
O-3	34.72	15.70	-19.02
O-2	30.00	7.32	-22.18
O-1	24.45	63.13	+38.68
E-9	128.95	33.13	-95.87
E-8	119.16	61.41	-57.75
E-7	111.16	85.22	-25.94
E-6	76.50	78.75	+2.25
E-5	70.29	102.90	+32.61
E-4	61.83	134.98	+73.15
E-3	53.91	148.34	+94.43
E-2	53.91	148.34	+94.43
E-1	53.91	148.34	+94.43

Clearly, Table 8 shows an imbalance in current VHA entitlements. On the average, officers above O-1 and senior enlisted members E-7 through E-9 receive too much VHA. On the other hand, O-1's and enlisted members E-6 and below receive too little.[11]

With regard to field grade officers (O-4 through O-6), we explain this perceived imbalance as follows. First, it is possible that the mean lodging costs obtained from our samples of

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[11]In the table, the plus (+) sign indicates an increase, the minus (-) sign indicates a decrease.

pay grades O-4 through O-6 are not representative of the respective renter populations. On the other hand, we can easily see from Tables 3, 4, and 5 that mean lodging costs obtained from the private rental sector alone would not be representative of the mean housing costs experienced by the respective off-base field grade populations as a whole. However, given the current DOD criteria that excludes home owner imputed rents, we cannot agree or disagree with the current DOD VHA entitlements for field graders, because we are not confident that our samples represent the respective field grade populations.

We are reasonably confident that our samples for company grade officers and below represent their respective renter populations. Even if the current VHA entitlements for field graders are correct according to the current DOD criteria, we still have an imbalance for company graders and below.

We can only conclude that the current VHA entitlements for company graders and below do not accurately reflect the June-August 1981 lodging costs experienced by these members in the Colorado Springs MHA. For E-6 and below, this discrepancy is partially explained by the fact that private rents have increased by 18-20 percent in the Colorado Springs MHA since July 1980.[12]

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[12]David Bamburger, Assistant Director, Pikes Peak Area Council of Governments, August 5, 1981.

However, even with this increase in rents, it is apparent that VHA entitlements for E-3 and below were grossly underestimated on October 1, 1980.

We are now ready to compare our original hypothesis to our results. As you recall, we hypothesized that for each pay grade, the current VHA entitlement is lower than the entitlement based on the June-August 1981 average monthly lodging cost for private renters. We find that our hypothesis is true for pay grade O-1 and for pay grades E-1 through E-6. Further, given the 18-20 percent increase in private rents since July 1, 1980, it is apparent that this discrepancy has grown since the last VHA entitlement calculation. On the other hand, our hypothesis is false for pay grades O-2 and O-3, and for E-7 through E-9. This result is due to an overestimate of VHA entitlements on October 1, 1980. Finally, we cannot come to a conclusion for pay grades O-4 through O-6 because we are not sure that our sample is representative of the populations of field grade renters as a whole.

V. THE EFFECT OF EXCLUDING HOME OWNER IMPUTED RENTS FROM THE VHA DATA BASE

In Section II of this study, we noted that the DOD excludes observations of home owner imputed rents from the VHA data base. We were told by Lt Colonel Quayle, DPMC/MPXA, that these observations were excluded because home owners pay less in the long run compared to renters of comparable homes.

In this section, we explain why, in the long run, the true monthly cost of owning a home is not equal to the monthly house payment. In fact, over the past 25 years, it has been considerably less. We therefore agree with Lt Colonel Quayle's statement that on the average, home owners pay less. We explain as follows:

First, home owners may deduct the interest paid on their mortgage from their annual income thus lowering their income tax liability. Likewise, the local property tax can be deducted. These two items work together to lower the impact of their house payment.

In addition, house values have appreciated rapidly in the past few years, e.g., when a home owner sells his property, he receives a remarkable if not miraculous quantity of money. Even though most sellers reinvest this money in a new home, the seller's net worth has increased by the amount realized on the sale. This is a return on an investment just like the dividend

received on a savings account or savings certificate. The tax collectors consider this money income (actually it is referred to as a capital gain) and they will tax it if the money is not reinvested into a new house that is more expensive than the old one. This appreciation in home value also has the effect of lowering the impact of the monthly house payment because a portion of this payment can be considered to be placed into a savings account that pays interest.

On the expenditure side, the money a home owner puts down upon purchase represents money that could have been placed in some other investment or savings instrument. The interest, or return on investment, that the homeowner foregoes by tying up his money as a down payment will tend to raise the impact of the house payment.

Combining these impacts yields what the economists call imputed rent, or simply the amount of money a home owner would pay in rent if he were to consider all of his receipts and expenditures.

Besides combining all the impacts, each impact must also be adjusted for the change in the value of money over time. Since a dollar today is not the same as a dollar next year, these different dollar costs and returns also need to be adjusted to make them all comparable or make them the same as today's

dollars. The imputed rent formula given below converts all receipts and costs to current dollars if necessary and then combines them to provide the true monthly cost of home ownership.

The uniform monthly imputed rent formula is as follows:[13]

$$R = \sum_{h=1}^{m} A \cdot F \cdot I_h - A \cdot F \cdot \sum_{j=1}^{y} T_j \cdot (1+12r)^{-j} + \sum_{k=1}^{q} M_k - \sum_{i=1}^{p} A \cdot S_i$$

where

R = the uniform monthly imputed rent in current dollars.

A = Annuity Factor $\frac{r}{(1+r)^n}$ which converts a future lump sum value into a stream of current dollar payments of equal value.

F = Compound Interest Factor $[(1+r)^n]$ which converts a current lump sum value into a future lump sum value.

I_h = initial ownership payments like down payment, loan origination fee, filing fee, etc..

m = number of initial ownership payments.

T_j = total per year tax payment adjustments on federal, state, and/or local taxes due to interest and property tax deductions.

y = number of years of ownership.

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[13] See either Gertcher, Franklin L., op. cit., p. 42, or Grant, E.L. and Ireson, W.G., Principles of Engineering Economy, Ronald Press Co., New York, 1970, for details.

M_k = monthly payments in current dollars such as principal and interest on the mortgage, insurance, property tax, maintenance, utilities, etc.

q = number of different payments made each month.

S_i = final ownership payments or receipts realized on the sale of the property like appreciation in value (equity), title insurance costs, real estate selling fees, points, prepayment penalties, etc. NOTE: If it is a payment/cost, S_i has a negative value; if a receipt, S_i has a positive value.

P = number of final ownership payments or receipts.

r = monthly interest rate.

The third term in the above formula is what the home owner pays each month, and to most home owners, this sum of payments represents his monthly costs. But, the other three terms represent the major adjustments to the monthly out-of-pocket costs. The first term adds the cost of having the down payment tied up in the home instead of some other investment. The second and last terms subtract the benefits from lower taxes and from appreciation, respectively.

Analysis

Tables 9_a - 9_k and 10_a - 10_k show the uniform monthly imputed rents for several different sizes of mortgages, interest rates, marginal federal tax rates and house value appreciation rates.[14] Tables 9_a - 9_k show the imputed rents considering 3-year ownership while Tables 10_a - 10_k show the imputed rents for 4-year ownership.

As an example, turn to Table 9_a, Uniform Monthly Imputed Rent for Mortgage of $50,000 held for 3 years. On the far left, read down the interest rates until you come to 10.0, to the immediate right is the monthly house payment (principal, interest, taxes and insurance or PITI) of $515.04. To the right of the Monthly Payment column are four groups of three columns each. Each group of three columns represents a different marginal federal income tax rate or the percent of each dollar you make that is paid in federal income tax. From left to right, the four groups of three represent tax rates of 16%, 20%, and 30%, respectively. The

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[14] A number of assumptions were used to simplify the calculations of these figures: no initial down payments were used, no utilities or maintenance values were included, no selling costs were considered, the eventual tax on the capital gain was not considered, a 30-year mortgage was assumed, the annual property tax was estimated a 1.33% of the mortgage value and the interest part of the monthly house payment was estimated at 95% of the house payment. Additionally, only federal taxes were considered. However, if these simplifications were not made, our conclusions would be essentially the same.

three columns within each group represent different rates of house value appreciation, from left to right, rates of 6%, 12%, and 18%, respectively. A 12% appreciation rate would mean the value of your house increased in value at 12% per year for the number of years you held your mortgage.

If you look at a 6% per year appreciation rate and a 20% marginal federal tax rate for a 10.0% interest rate loan (sixth column from the left of Table 9_a), the true monthly cost of house ownership is $226.40 or less than half of the monthly payment of $515.04. If this home owner is realizing a 12% per year appreciation (next column to the right of the same table), his true cost is really a receipt of $29.59--his house is actually paying him to live in it!

Since none of the figures in the tables include utilities or maintenance and since we assumed no down payment or selling fees nor state or local taxes, you need to adjust the numbers in the tables to account for these factors.

An evaluation of the effects of the various factors included in the tables reveals the following:

1. The increase in marginal tax rates has little effect on the value of the imputed rent while different appreciation rates yield drastically different results.

2. The higher the mortgage interest rate, the larger the percentage of the house payment that is true cost, for example, for a 10.0% interest mortgage on $50,000 held for three years with a marginal tax rate of 20% and an appreciation rate of 6%, 44% of the $515.04 house payment is true cost while at an 18.0% interest rate, 68% of the $829.79 house payment is true cost.

3. No general statement can be made about holding the mortgage for four instead of three years. Sometimes the fourth year adds slightly to the true cost and sometimes it reduces the true cost slightly.

4. The percentage of the house payment that represents true cost stays nearly the same as the value of the mortgage increases.

Implications

The current calculation of the variable housing allowance (VHA) considers only rentals in determining the average cost of housing for each military grade. In light of our original hypothesis concerning the DOD VHA data base, we believe that if true home ownership costs (uniform monthly imputed rents) were incorporated into the calculation of the average cost of housing, the average cost of housing for each military grade would be less than it is now. This reduction, in turn, would lead to less VHA than military members are currently receiving. However, if we

use the home owner's house payment in the calculations without adjustments for capital gain and tax advantages, we would seriously inflate the true average housing cost.

We also note that if the DOD should decide to calculate the uniform monthly imputed rent for home owners, more data would be needed than is now being collected. For example, besides the data now collected by survey, we would need to know the size of the down payment, the interest rate on the mortgage and the home owner's federal, state and local marginal tax rates. In addition, the home owner would need to provide his anticipated appreciation rate, a value that is quite illusive to forecast.

TABLE 9a

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 50000.00 HELD FOR 5 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	465.96	111.72	-156.13	-454.28	110.71	-157.15	-455.30	109.43	-158.43	-456.58	108.15	-159.71	-457.86
7.5	425.86	130.37	-135.48	-431.40	129.29	-136.56	-432.48	127.95	-137.90	-433.82	126.61	-139.25	-435.16
8.0	443.13	149.31	-114.55	-408.24	148.18	-115.67	-409.37	146.78	-117.08	-410.78	145.37	-118.49	-412.19
8.5	460.71	168.54	-93.34	-384.83	167.36	-94.51	-386.00	165.89	-95.99	-387.48	164.41	-97.46	-388.95
9.0	478.56	188.03	-71.87	-361.17	186.80	-73.10	-362.40	185.26	-74.64	-363.93	183.72	-76.18	-365.47
9.5	496.68	207.77	-50.17	-337.28	206.48	-51.46	-338.56	204.88	-53.06	-340.17	203.27	-54.67	-341.77
10.0	515.04	227.73	-28.25	-313.19	226.40	-29.59	-314.53	224.72	-31.26	-316.20	223.05	-32.94	-317.87
10.5	533.62	247.91	-6.13	-288.91	246.52	-7.53	-290.30	244.78	-9.27	-292.04	243.04	-11.01	-293.78
11.0	552.41	268.29	16.17	-264.46	266.84	14.72	-265.91	265.03	12.91	-267.72	263.22	11.10	-269.53
11.5	571.40	288.84	38.64	-239.85	287.34	37.14	-241.36	285.46	35.26	-243.24	283.58	33.38	-245.12
12.0	590.58	309.55	61.26	-215.11	308.00	59.70	-216.67	306.05	57.76	-218.62	304.10	55.81	-220.56
12.5	609.94	330.42	84.02	-190.23	328.80	82.41	-191.85	326.78	80.39	-193.87	324.76	78.37	-195.89
13.0	629.35	351.42	106.91	-165.25	349.75	105.24	-166.92	347.66	103.15	-169.01	345.57	101.06	-171.10
13.5	648.96	372.54	129.91	-140.15	370.81	128.18	-141.89	368.65	126.02	-144.05	366.49	123.86	-146.22
14.0	668.69	393.78	153.01	-114.99	391.99	151.22	-116.78	389.76	148.99	-119.01	387.52	146.76	-121.24
14.5	688.53	415.11	176.20	-89.74	413.27	174.35	-91.58	410.96	172.05	-93.89	408.66	169.74	-96.19
15.0	708.47	436.54	199.46	-64.42	434.63	197.56	-66.32	432.26	195.19	-68.70	429.88	192.81	-71.07
15.5	728.51	458.04	222.80	-39.04	456.08	220.84	-41.00	453.63	218.39	-43.45	451.18	215.94	-45.90
16.0	748.63	479.62	246.20	-13.62	477.60	244.18	-15.63	475.08	241.66	-18.15	472.56	239.14	-20.68
16.5	768.82	501.26	269.65	11.85	499.18	267.58	9.78	496.59	264.98	7.18	493.99	262.39	4.59
17.0	789.09	522.96	293.15	37.35	520.82	291.02	35.22	518.15	288.35	32.55	515.49	285.68	29.88
17.5	809.41	544.70	316.69	62.88	542.51	314.49	60.69	539.77	311.75	57.95	537.03	309.01	55.21
18.0	829.79	566.49	340.26	88.43	564.24	338.01	86.18	561.43	335.19	83.37	558.62	332.38	80.56

TABLE 9$_b$

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF $5000.00 FEE FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	445.79	122.93	-171.74	-499.71	121.78	-172.87	-500.83	120.37	-174.28	-502.24	118.96	-175.68	-503.65
7.5	468.44	143.41	-149.03	-474.54	142.22	-150.21	-475.72	140.75	-151.69	-477.20	139.27	-153.17	-478.68
8.0	487.45	164.24	-126.00	-449.07	163.00	-127.24	-450.31	161.45	-128.79	-451.86	159.91	-130.34	-453.42
8.5	508.78	185.33	-102.67	-423.31	184.09	-103.97	-424.60	182.47	-105.59	-426.22	180.86	-107.21	-427.84
9.0	528.42	206.83	-79.06	-397.28	205.48	-80.41	-398.64	203.79	-82.10	-400.33	202.09	-83.80	-402.02
9.5	548.34	228.54	-55.19	-371.01	227.13	-56.60	-372.42	225.37	-58.37	-374.19	223.60	-60.13	-375.95
10.0	568.54	250.51	-31.08	-344.51	249.04	-32.55	-345.98	247.20	-34.39	-347.82	245.36	-36.23	-349.66
10.5	588.98	272.70	-6.75	-317.80	271.17	-8.28	-319.33	269.26	-10.19	-321.25	267.34	-12.11	-323.16
11.0	607.65	295.12	17.79	-290.91	293.52	16.19	-292.50	291.53	14.20	-294.49	289.54	12.21	-296.48
11.5	628.54	317.72	42.50	-263.84	316.07	40.85	-265.49	314.00	38.78	-267.56	311.94	36.72	-269.63
12.0	649.61	340.51	67.35	-236.62	338.79	65.67	-238.33	336.65	63.53	-240.48	334.51	61.39	-242.62
12.5	670.87	363.46	92.43	-209.26	361.68	90.65	-211.04	359.46	88.43	-213.26	357.24	86.21	-215.48
13.0	692.28	386.56	117.60	-181.77	384.72	115.76	-183.61	382.42	113.46	-185.91	380.12	111.16	-188.21
13.5	713.85	409.80	142.90	-154.18	407.89	141.00	-156.08	405.52	138.62	-158.46	403.14	136.24	-160.84
14.0	735.55	433.15	168.31	-126.49	431.19	166.34	-128.45	428.73	163.89	-130.91	426.28	161.43	-133.37
14.5	757.38	456.62	193.82	-98.71	454.59	191.79	-100.74	452.06	189.25	-103.27	449.52	186.72	-105.81
15.0	779.32	480.19	219.41	-70.86	478.10	217.32	-72.95	475.48	214.70	-75.57	472.87	212.09	-78.18
15.5	801.36	503.84	245.08	-42.95	501.69	242.93	-45.10	499.00	240.23	-47.80	496.30	237.54	-50.49
16.0	823.49	527.58	270.82	-14.98	525.36	268.60	-17.20	522.59	265.83	-19.97	519.81	263.05	-22.74
16.5	845.71	551.38	296.62	13.04	549.10	294.33	10.75	546.25	291.48	7.90	543.39	288.63	5.05
17.0	868.00	575.25	322.48	41.09	572.90	320.12	38.74	569.97	317.18	35.81	567.04	314.25	32.87
17.5	890.35	599.17	348.38	69.17	596.76	345.94	66.76	593.75	342.93	63.75	590.73	339.91	60.73
18.0	912.77	623.14	374.28	97.28	620.67	371.81	94.80	617.57	368.71	91.71	614.48	365.62	88.61

TABLE 9c

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 60000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	490.68	134.08	-187.35	-545.13	132.85	-188.58	-546.36	131.31	-190.12	-547.90	129.77	-191.66	-549.44
7.5	511.03	156.44	-162.58	-517.68	155.15	-163.87	-518.97	153.54	-165.48	-520.58	151.93	-167.09	-522.20
8.0	531.76	179.17	-137.46	-489.89	177.82	-138.81	-491.24	176.13	-140.50	-492.93	174.44	-142.19	-494.62
8.5	552.85	202.24	-112.00	-461.79	200.83	-113.42	-463.20	199.06	-115.18	-464.97	197.30	-116.95	-466.74
9.0	574.27	225.63	-86.25	-433.40	224.16	-87.72	-434.87	222.31	-89.57	-436.72	220.47	-91.41	-438.57
9.5	596.01	249.32	-60.21	-404.74	247.78	-61.75	-406.28	245.85	-63.67	-408.20	243.93	-65.60	-410.13
10.0	618.04	273.28	-33.90	-375.83	271.68	-35.51	-377.43	269.67	-37.52	-379.44	267.66	-39.52	-381.45
10.5	640.34	297.50	-7.36	-346.69	295.82	-9.03	-348.36	293.74	-11.12	-350.45	291.65	-13.21	-352.54
11.0	662.89	321.94	19.40	-317.35	320.21	17.67	-319.09	318.04	15.49	-321.26	315.86	13.32	-323.43
11.5	685.67	346.61	46.37	-287.83	344.80	44.56	-289.63	342.55	42.31	-291.88	340.29	40.05	-294.14
12.0	708.67	371.47	73.52	-258.13	369.59	71.64	-260.00	367.26	69.31	-262.34	364.92	66.97	-264.68
12.5	731.85	396.50	100.83	-228.28	394.56	98.89	-230.22	392.14	96.47	-232.64	389.72	94.04	-235.07
13.0	755.22	421.70	128.29	-198.30	419.70	126.29	-200.31	417.19	123.78	-202.81	414.68	121.27	-205.32
13.5	778.75	447.05	155.89	-168.20	444.98	153.82	-170.27	442.38	151.22	-172.86	439.79	148.63	-175.46
14.0	802.42	472.53	183.61	-137.99	470.39	181.47	-140.13	467.71	178.79	-142.81	465.03	176.11	-145.49
14.5	826.23	498.13	211.44	-107.69	495.92	209.22	-109.90	493.15	206.46	-112.66	490.39	203.69	-115.43
15.0	850.17	523.84	239.38	-77.30	521.56	237.07	-79.58	518.71	234.22	-82.44	515.86	231.37	-85.29
15.5	874.21	549.65	267.36	-46.85	547.30	265.01	-49.20	544.36	262.07	-52.14	541.42	259.13	-55.08
16.0	898.35	575.54	295.44	-16.34	573.12	293.02	-18.76	570.09	289.99	-21.79	567.07	286.97	-24.81
16.5	922.59	601.51	323.58	14.22	599.02	321.09	11.73	595.91	317.98	8.62	592.79	314.86	5.50
17.0	946.91	627.55	351.78	44.82	624.99	349.22	42.26	621.79	346.02	39.06	618.58	342.82	35.86
17.5	971.30	653.64	380.02	75.46	651.01	377.39	72.83	647.72	374.10	69.54	644.44	370.82	66.25
18.0	995.75	679.79	408.31	106.12	677.09	405.61	103.42	673.72	402.23	100.04	670.34	398.85	96.67

TABLE 9_d

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 65000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	521.57	145.25	-200.97	-590.56	143.92	-204.30	-591.89	142.25	-205.96	-593.56	140.59	-207.63	-595.22
7.5	553.81	169.48	-176.13	-560.82	168.08	-177.53	-562.22	166.34	-179.27	-563.97	164.59	-181.02	-565.71
8.0	586.07	194.10	-148.91	-530.72	192.64	-150.37	-532.18	190.81	-152.20	-534.01	188.98	-154.03	-535.84
8.5	598.92	219.10	-121.34	-500.27	217.57	-122.87	-501.81	215.65	-124.78	-503.72	213.74	-126.70	-505.63
9.0	622.13	244.44	-93.43	-469.51	242.84	-95.03	-471.11	240.84	-97.03	-473.11	238.84	-99.03	-475.11
9.5	645.68	270.10	-65.22	-438.46	268.43	-66.89	-440.13	266.34	-68.98	-442.22	264.25	-71.06	-444.31
10.0	669.55	296.05	-36.73	-407.15	294.32	-38.47	-408.89	292.14	-40.64	-411.06	289.97	-42.82	-413.23
10.5	693.71	322.29	-7.97	-375.58	320.48	-9.78	-377.39	318.21	-12.05	-379.66	315.95	-14.31	-381.92
11.0	718.14	348.77	21.02	-343.80	346.89	19.14	-345.68	344.54	16.79	-348.03	342.19	14.43	-350.39
11.5	742.81	375.49	50.23	-311.81	373.54	48.28	-313.76	371.09	45.84	-316.21	368.65	43.39	-318.65
12.0	767.72	402.42	79.64	-279.64	400.39	77.62	-281.67	397.86	75.08	-284.20	395.33	72.55	-286.73
12.5	792.84	429.54	109.23	-247.31	427.44	107.13	-249.41	424.82	104.51	-252.03	422.19	101.88	-254.65
13.0	818.15	456.84	138.98	-214.82	454.67	136.81	-217.00	451.95	134.09	-219.71	449.24	131.38	-222.43
13.5	843.64	484.30	168.88	-182.21	482.06	166.63	-184.46	479.25	163.82	-187.27	476.44	161.01	-190.08
14.0	869.29	511.91	198.91	-149.47	509.59	196.59	-151.81	506.68	193.69	-154.71	503.78	190.78	-157.61
14.5	895.09	539.64	229.06	-116.66	537.25	226.66	-119.06	534.25	223.66	-122.05	531.25	220.67	-125.05
15.0	921.01	567.50	259.30	-83.74	565.02	256.83	-86.22	561.93	253.74	-89.31	558.84	250.65	-92.40
15.5	947.06	595.45	289.64	-50.75	592.91	287.09	-53.30	589.72	283.91	-56.49	586.54	280.73	-59.67
16.0	973.22	623.50	320.06	-17.70	620.88	317.44	-20.32	617.60	314.16	-23.60	614.32	310.88	-26.88
16.5	999.47	651.64	350.55	15.41	648.94	347.85	12.71	645.56	344.48	9.34	642.19	341.10	5.96
17.0	1025.81	679.84	381.09	48.56	677.07	378.32	45.79	673.60	374.85	42.32	670.13	371.38	38.85
17.5	1052.24	708.11	411.69	81.75	705.26	408.84	78.90	701.70	405.28	75.34	698.14	401.72	71.77
18.0	1078.73	736.44	442.33	114.96	733.52	439.41	112.04	729.86	435.75	108.38	726.20	432.09	104.72

TABLE 9_e

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 70000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	532.66	156.42	-218.58	-635.99	154.99	-220.01	-637.42	153.20	-221.81	-639.22	151.40	-223.60	-641.01
7.5	598.20	182.52	-189.68	-603.96	181.01	-191.18	-605.47	179.13	-193.06	-607.35	177.25	-194.94	-609.23
8.0	620.39	209.03	-160.37	-571.54	207.46	-161.94	-573.12	205.49	-163.91	-575.09	203.52	-165.88	-577.06
8.5	644.99	235.95	-130.67	-538.76	234.30	-132.32	-540.41	232.24	-134.38	-542.47	230.18	-136.44	-544.53
9.0	669.99	263.24	-100.62	-505.63	261.52	-102.34	-507.35	259.36	-104.50	-509.51	257.21	-106.65	-511.65
9.5	695.35	290.87	-70.24	-472.19	289.08	-72.04	-473.99	286.83	-74.28	-476.24	284.58	-76.53	-478.48
10.0	721.05	318.83	-39.55	-438.47	316.95	-41.43	-440.34	314.61	-43.77	-442.68	312.27	-46.11	-445.02
10.5	747.07	347.08	-8.59	-404.48	345.13	-10.54	-406.42	342.69	-12.97	-408.86	340.26	-15.41	-411.30
11.0	773.38	375.60	22.64	-370.24	373.57	20.81	-372.27	371.04	18.08	-374.80	368.51	15.54	-377.34
11.5	799.95	404.37	54.10	-335.80	402.27	51.99	-337.90	399.64	49.36	-340.53	397.01	46.73	-343.16
12.0	826.78	433.38	85.77	-301.15	431.19	83.59	-303.33	428.46	80.86	-306.06	425.74	78.13	-308.77
12.5	853.85	462.59	117.63	-266.33	460.32	115.37	-268.59	457.50	112.55	-271.42	454.67	109.72	-274.24
13.0	881.09	491.99	149.66	-231.35	489.65	147.33	-233.69	486.72	144.41	-236.62	483.79	141.48	-239.54
13.5	908.54	521.56	181.87	-196.23	519.14	179.45	-198.65	516.11	176.43	-201.68	513.09	173.40	-204.70
14.0	936.16	551.29	214.21	-160.98	548.79	211.71	-163.49	545.66	208.58	-166.61	542.53	205.46	-169.74
14.5	963.94	581.18	246.68	-125.63	578.57	244.09	-128.21	575.35	240.87	-131.44	572.12	237.64	-134.67
15.0	991.86	611.19	279.25	-90.19	608.49	276.59	-92.85	605.16	273.26	-96.18	601.83	269.93	-99.50
15.5	1019.91	641.26	311.92	-54.66	638.51	309.18	-57.40	635.08	305.75	-60.83	631.66	302.32	-64.26
16.0	1048.08	671.46	344.68	-19.06	668.64	341.86	-21.89	665.11	338.32	-25.42	661.58	334.79	-28.95
16.5	1076.35	701.76	377.51	16.59	698.88	374.61	13.69	695.22	370.97	10.05	691.59	367.34	6.42
17.0	1104.72	732.14	410.41	52.30	729.15	407.42	49.31	725.42	403.69	45.57	721.68	399.95	41.84
17.5	1133.18	762.58	443.38	88.04	759.52	440.29	84.97	755.68	436.46	81.13	751.84	432.62	77.29
18.0	1161.71	793.09	476.36	123.81	789.94	473.21	120.66	786.00	469.27	116.72	782.06	465.33	112.78

TABLE 9_f

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 75000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	613.35	167.60	-234.15	-681.42	166.06	-235.73	-682.95	164.14	-237.65	-684.88	162.22	-239.57	-686.80
7.5	628.79	195.55	-203.23	-647.10	193.94	-204.84	-648.72	191.93	-206.85	-650.73	189.91	-208.87	-652.75
8.0	644.70	223.97	-171.82	-612.37	222.28	-173.51	-614.06	220.17	-175.62	-616.17	218.05	-177.73	-618.28
8.5	661.06	252.80	-140.01	-577.24	251.04	-141.77	-579.01	248.83	-143.98	-581.21	246.62	-146.19	-583.42
9.0	677.84	282.04	-107.81	-541.75	280.20	-109.65	-543.59	277.89	-111.96	-545.90	275.58	-114.27	-548.21
9.5	695.02	311.65	-75.26	-505.92	309.72	-77.18	-507.85	307.32	-79.59	-510.25	304.91	-82.00	-512.66
10.0	712.59	341.60	-42.38	-469.78	339.59	-44.39	-471.79	337.09	-46.89	-474.30	334.58	-49.40	-476.81
10.5	730.53	371.87	-9.20	-433.37	369.78	-11.29	-435.46	367.17	-13.90	-438.07	364.56	-16.51	-440.68
11.0	748.82	402.43	24.25	-396.69	400.26	22.08	-398.86	397.54	19.37	-401.58	394.83	16.65	-404.29
11.5	767.46	433.26	57.96	-359.78	431.00	55.71	-361.04	428.18	52.89	-364.85	425.37	50.07	-367.67
12.0	786.43	464.33	91.89	-322.66	461.99	89.56	-325.00	459.07	86.63	-327.92	456.15	83.71	-330.83
12.5	805.72	495.63	126.04	-285.35	493.21	123.61	-287.78	490.18	120.58	-290.81	487.15	117.56	-293.83
13.0	825.32	527.13	160.37	-247.87	524.62	157.86	-250.38	521.49	154.72	-253.52	518.35	151.59	-256.65
13.5	845.23	558.81	194.86	-210.25	556.22	192.27	-212.84	552.98	189.03	-216.08	549.74	185.79	-219.32
14.0	865.43	590.66	229.51	-172.48	587.99	226.83	-175.16	584.64	223.48	-178.51	581.29	220.13	-181.86
14.5	885.93	622.67	264.29	-134.61	619.90	261.53	-137.37	616.44	258.07	-140.83	612.99	254.61	-144.29
15.0	906.71	654.80	299.20	-96.63	651.95	296.34	-99.49	648.39	292.78	-103.05	644.82	289.21	-106.61
15.5	927.76	687.06	334.20	-58.56	684.12	331.26	-61.50	680.45	327.59	-65.18	676.77	323.92	-68.85
16.0	949.07	719.43	369.30	-20.42	716.40	366.27	-23.45	712.62	362.49	-27.23	708.83	358.71	-31.02
16.5	970.63	751.89	404.48	17.78	748.77	401.36	14.66	744.88	397.47	10.77	740.99	393.58	6.88
17.0	992.43	784.43	439.72	56.03	781.23	436.52	52.83	777.23	432.52	48.83	773.23	428.52	44.83
17.5	1014.47	817.05	475.03	94.32	813.77	471.74	91.04	809.66	467.63	86.93	805.55	463.52	82.81
18.0	1036.73	849.74	510.39	132.65	846.37	507.01	129.27	842.15	502.79	125.05	837.93	498.57	120.83

TABLE 9g

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF P0000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	665.24	178.77	-249.80	-726.85	177.13	-251.44	-728.48	175.08	-253.49	-730.53	173.03	-255.54	-732.58
7.5	681.37	208.59	-218.77	-690.24	206.87	-218.49	-691.96	204.72	-220.64	-694.11	202.57	-222.79	-696.26
8.0	709.01	238.93	-183.28	-653.19	237.09	-185.08	-654.99	234.84	-187.33	-657.24	232.59	-189.58	-659.53
8.5	737.13	269.66	-149.34	-615.72	267.77	-151.22	-617.61	265.42	-153.58	-619.96	263.06	-155.93	-622.32
9.0	765.70	300.85	-115.00	-577.85	298.88	-116.96	-579.83	296.42	-119.43	-582.29	293.95	-121.89	-584.75
9.5	794.68	332.43	-80.27	-539.65	330.37	-82.33	-541.70	327.80	-84.90	-544.27	325.24	-87.46	-546.84
10.0	824.06	364.37	-45.20	-501.10	362.23	-47.34	-503.24	359.56	-50.02	-505.92	356.88	-52.70	-508.60
10.5	853.79	396.66	-9.81	-462.26	394.43	-12.04	-464.49	391.65	-14.82	-467.27	388.86	-17.61	-470.06
11.0	883.86	429.26	25.87	-423.14	426.94	23.55	-425.45	424.05	20.66	-428.35	421.15	17.76	-431.24
11.5	914.23	462.14	61.82	-383.77	459.74	59.42	-386.17	456.73	56.41	-389.18	453.72	53.41	-392.18
12.0	944.89	495.29	98.02	-344.17	492.79	95.53	-346.67	489.67	92.41	-349.79	486.56	89.29	-352.90
12.5	975.81	528.67	134.44	-304.38	526.09	131.85	-306.96	522.85	128.62	-310.19	519.62	125.39	-313.42
13.0	1006.96	562.27	171.06	-264.40	559.60	168.38	-267.07	556.25	165.04	-270.42	552.91	161.69	-273.75
13.5	1038.33	596.07	207.86	-224.26	593.30	205.09	-227.03	589.84	201.63	-230.49	586.38	198.17	-233.94
14.0	1069.90	630.04	244.81	-183.98	627.18	241.96	-186.84	623.61	238.38	-190.41	620.04	234.81	-193.99
14.5	1101.64	664.18	281.91	-143.58	661.23	278.96	-146.53	657.54	275.28	-150.22	653.85	271.57	-153.91
15.0	1133.56	698.46	319.14	-103.07	695.41	316.10	-106.11	691.61	312.30	-109.92	687.81	308.49	-113.72
15.5	1165.61	732.86	356.48	-62.47	729.73	353.35	-65.60	725.81	349.43	-69.52	721.89	345.51	-73.44
16.0	1197.81	767.39	393.92	-21.79	764.16	390.69	-25.01	760.13	386.66	-29.05	756.09	382.62	-33.08
16.5	1230.12	802.01	431.44	18.96	798.69	428.12	15.64	794.54	423.97	11.49	790.39	419.82	7.34
17.0	1262.54	836.73	469.04	59.77	833.31	465.62	56.35	829.05	461.36	52.09	824.78	457.09	47.82
17.5	1295.06	871.53	506.70	100.61	868.02	503.19	97.10	863.63	498.81	92.72	859.25	494.42	88.34
18.0	1327.67	906.39	544.41	141.49	902.79	540.81	137.89	898.29	536.31	133.39	893.79	531.81	128.89

TABLE 9_h

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF $5000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	695.13	189.94	-265.42	-772.27	188.20	-267.16	-774.02	186.02	-269.34	-776.19	183.05	-271.51	-778.37
7.5	723.96	221.63	-233.32	-733.38	219.80	-235.15	-735.21	217.52	-237.43	-737.49	215.23	-239.72	-739.78
8.0	753.32	253.83	-196.73	-694.02	251.91	-196.64	-695.93	249.52	-199.04	-698.32	247.13	-201.43	-700.72
8.5	783.20	286.51	-159.67	-654.20	284.51	-161.67	-656.21	282.01	-164.18	-658.71	279.50	-166.68	-661.21
9.0	813.59	319.69	-122.18	-613.98	317.56	-124.27	-616.07	314.94	-126.89	-618.69	312.33	-129.50	-621.30
9.5	844.35	353.20	-85.29	-573.38	351.02	-87.47	-575.56	348.29	-90.20	-578.29	345.56	-92.93	-581.02
10.0	875.56	387.15	-48.03	-532.42	384.87	-50.30	-534.70	382.03	-53.15	-537.54	379.19	-55.99	-540.38
10.5	907.15	421.45	-10.43	-491.15	419.09	-12.79	-493.52	416.13	-15.75	-496.48	413.17	-18.71	-499.43
11.0	939.10	456.09	27.49	-449.58	453.63	25.03	-452.04	450.55	21.95	-455.12	447.47	18.87	-458.21
11.5	971.37	491.03	65.69	-407.75	488.47	63.13	-410.31	485.28	59.94	-413.50	482.08	56.74	-416.70
12.0	1003.95	526.24	104.15	-365.68	523.59	101.50	-368.33	520.28	98.18	-371.65	516.97	94.87	-374.96
12.5	1036.79	561.71	142.84	-323.40	558.97	140.10	-326.15	555.53	136.66	-329.58	552.10	133.23	-333.01
13.0	1069.89	597.41	181.75	-280.92	594.57	178.91	-283.77	591.02	175.35	-287.32	587.46	171.80	-290.87
13.5	1103.23	633.32	220.85	-238.28	630.38	217.91	-241.22	626.71	214.23	-244.89	623.03	210.56	-248.57
14.0	1136.77	669.42	260.11	-195.48	666.38	257.08	-198.52	662.59	253.28	-202.31	658.79	249.49	-206.11
14.5	1170.50	705.69	299.53	-152.55	702.55	296.40	-155.69	698.64	292.48	-159.61	694.72	288.56	-163.54
15.0	1204.40	742.11	339.09	-109.51	738.88	335.86	-112.74	734.84	331.82	-116.79	730.80	327.77	-120.83
15.5	1238.46	778.67	378.78	-66.37	775.34	375.43	-69.70	771.17	371.27	-73.87	767.01	367.10	-78.03
16.0	1272.67	815.35	418.54	-23.15	811.92	415.11	-26.58	807.63	410.82	-30.86	803.35	406.54	-35.15
16.5	1307.00	852.14	458.41	20.15	848.61	454.88	16.62	844.20	450.47	12.21	839.79	446.06	7.80
17.0	1341.45	889.02	498.35	63.53	885.40	494.73	59.87	880.86	490.19	55.34	876.33	485.66	50.80
17.5	1376.00	926.00	538.37	106.93	922.27	534.64	103.17	917.61	529.98	98.52	912.95	525.32	93.86
18.0	1410.65	963.04	578.44	150.34	959.21	574.61	146.51	954.43	569.83	141.73	949.65	565.04	136.94

TABLE 9_i

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 90000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	736.02	201.11	-281.03	-817.70	179.47	-282.87	-819.55	196.97	-285.18	-821.85	194.66	-287.48	-824.15
7.5	766.54	234.68	-243.87	-776.52	232.73	-245.81	-778.46	230.31	-248.22	-780.88	227.89	-250.64	-783.29
8.0	797.64	268.76	-206.18	-734.84	266.73	-208.21	-736.87	264.20	-210.74	-739.40	261.67	-213.28	-741.93
8.5	829.27	303.37	-168.01	-692.69	301.25	-170.13	-694.81	298.09	-173.29	-697.96	295.95	-175.43	-700.11
9.0	861.41	338.45	-129.37	-650.10	336.24	-131.58	-652.31	333.47	-134.35	-655.08	330.70	-137.12	-657.85
9.5	894.02	373.98	-90.31	-607.10	371.67	-92.62	-609.42	368.78	-95.51	-612.30	365.89	-98.40	-615.19
10.0	927.08	409.92	-51.85	-563.74	407.51	-53.26	-566.15	404.50	-56.27	-569.16	401.49	-59.28	-572.17
10.5	960.52	446.24	-13.04	-520.04	443.74	-13.55	-522.55	440.60	-16.68	-525.68	437.47	-19.81	-528.81
11.0	994.34	482.92	29.10	-476.03	480.31	26.50	-478.63	477.05	23.24	-481.89	473.80	19.99	-485.15
11.5	1028.51	519.91	69.55	-431.74	517.20	66.85	-434.44	513.82	63.46	-437.83	510.44	60.08	-441.21
12.0	1063.00	557.20	110.27	-387.19	554.39	107.47	-390.00	550.88	103.96	-393.51	547.38	100.45	-397.02
12.5	1097.78	594.75	151.24	-342.42	591.85	148.34	-345.33	587.21	144.70	-348.97	584.58	141.07	-352.61
13.0	1132.83	632.55	192.44	-297.45	629.54	189.43	-300.46	625.78	185.67	-304.22	622.02	181.91	-307.98
13.5	1168.12	670.58	233.84	-252.29	667.46	230.72	-255.41	663.57	226.83	-259.30	659.68	222.94	-263.19
14.0	1203.63	708.80	275.41	-206.98	705.58	272.20	-210.20	701.56	268.18	-214.22	697.54	264.16	-218.23
14.5	1239.35	747.20	317.15	-161.53	743.88	313.83	-164.85	739.73	309.69	-169.00	735.58	305.54	-173.14
15.0	1275.25	785.76	359.04	-115.95	782.34	355.61	-119.38	778.06	351.33	-123.65	773.78	347.06	-127.93
15.5	1311.32	824.47	401.04	-70.23	820.95	397.52	-73.60	816.54	393.11	-78.21	812.13	388.70	-82.62
16.0	1347.53	863.31	443.16	-24.51	859.68	439.53	-28.14	855.14	434.99	-32.68	850.60	430.45	-37.22
16.5	1383.88	902.26	485.37	21.33	898.53	481.64	17.60	893.86	476.97	12.93	889.19	472.30	8.26
17.0	1420.36	941.32	527.67	67.24	937.48	523.83	63.40	932.68	519.03	58.59	927.88	514.23	53.79
17.5	1456.94	980.47	570.04	113.19	976.52	566.09	109.24	971.59	561.16	104.31	966.65	556.22	99.38
18.0	1493.63	1019.69	612.46	159.18	1015.64	608.41	155.13	1010.57	603.35	150.06	1005.51	598.28	145.03

TABLE 9$_j$

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 95000.00 HELD FOR 5 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	776.91	212.29	-256.64	-863.13	210.34	-290.59	-865.08	207.91	-301.02	-867.51	205.48	-313.45	-869.94
7.5	809.13	247.70	-217.42	-819.66	245.66	-259.46	-821.71	243.11	-262.01	-824.26	240.55	-264.57	-826.81
8.0	841.35	283.69	-217.64	-775.67	281.55	-219.78	-777.80	278.88	-222.45	-780.48	276.20	-225.13	-783.16
8.5	873.54	320.27	-177.34	-731.17	317.98	-179.56	-733.41	315.18	-182.36	-736.21	312.39	-185.17	-739.03
9.0	909.77	357.25	-136.56	-686.21	354.92	-138.89	-688.55	351.99	-141.82	-691.47	349.07	-144.74	-694.40
9.5	943.89	394.76	-95.33	-640.83	392.32	-97.76	-643.27	389.27	-100.81	-646.32	386.22	-103.86	-649.37
10.0	978.97	432.78	-53.66	-595.06	430.15	-56.22	-597.60	426.98	-59.40	-600.78	423.80	-62.58	-603.96
10.5	1014.08	471.04	-11.65	-548.53	468.39	-14.30	-551.58	465.08	-17.61	-554.88	461.77	-20.91	-558.19
11.0	1049.58	509.74	31.72	-502.48	506.99	27.97	-505.23	503.56	24.53	-508.66	500.12	21.10	-512.10
11.5	1085.65	548.79	73.42	-455.72	545.94	70.56	-458.58	542.37	66.99	-462.15	538.80	63.42	-465.72
12.0	1122.06	588.15	116.40	-408.73	585.19	113.44	-411.67	581.49	109.73	-415.37	577.78	106.03	-419.07
12.5	1158.77	627.80	159.65	-361.45	624.73	156.58	-364.52	620.89	152.74	-368.35	617.05	148.90	-372.19
13.0	1195.76	667.70	203.13	-313.87	664.52	199.95	-317.15	660.55	195.98	-321.12	656.58	192.01	-325.09
13.5	1233.02	707.83	246.83	-266.31	704.54	243.54	-269.60	700.44	239.44	-273.70	696.33	235.33	-277.81
14.0	1270.56	748.19	290.72	-218.48	744.78	287.32	-221.87	740.54	283.08	-226.12	736.30	278.84	-230.36
14.5	1308.40	788.71	334.77	-170.53	785.21	331.27	-174.00	780.83	326.89	-178.38	776.45	322.51	-182.76
15.0	1346.10	829.42	378.98	-122.40	825.80	375.37	-126.01	821.29	370.85	-130.52	816.77	366.34	-135.04
15.5	1384.17	870.28	423.32	-74.18	866.55	419.60	-77.90	861.90	414.95	-82.56	857.25	410.29	-87.21
16.0	1422.59	911.27	467.78	-25.87	907.44	463.95	-29.70	902.65	459.16	-34.49	897.86	454.36	-39.27
16.5	1461.33	952.39	512.34	22.52	948.45	508.39	18.57	943.52	503.46	13.65	938.59	498.54	8.72
17.0	1499.37	993.62	556.98	70.97	989.56	552.93	66.92	984.49	547.86	61.85	979.43	542.79	56.78
17.5	1537.69	1034.94	601.70	119.48	1030.77	597.54	115.31	1025.56	592.33	110.11	1020.36	587.13	104.93
18.0	1576.31	1076.34	646.49	168.02	1072.06	642.21	163.75	1066.72	636.87	158.40	1061.37	631.52	153.05

TABLE 9_k

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 100000.00 HELD FOR 3 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	917.80	223.46	-312.26	-908.56	221.41	-314.30	-910.61	218.85	-316.86	-913.17	216.29	-319.43	-915.73
7.5	951.71	260.74	-270.97	-862.80	258.59	-273.12	-864.95	255.90	-275.80	-867.64	253.21	-278.49	-870.33
8.0	986.26	298.62	-229.09	-816.49	296.37	-231.35	-818.74	293.55	-234.16	-821.56	290.74	-236.98	-824.37
8.5	921.41	337.07	-186.67	-769.65	334.72	-189.03	-772.01	331.77	-191.97	-774.95	328.83	-194.92	-777.90
9.0	957.12	376.06	-143.74	-722.33	373.60	-146.21	-724.79	370.52	-149.28	-727.87	367.44	-152.36	-730.94
9.5	993.35	415.53	-100.34	-674.56	412.97	-102.91	-677.13	409.76	-106.12	-680.34	406.55	-109.33	-683.55
10.0	1030.07	455.47	-56.51	-626.38	452.79	-59.18	-628.06	449.45	-62.53	-632.40	446.10	-65.87	-635.75
10.5	1067.24	495.83	-12.27	-577.82	493.04	-15.05	-580.61	489.56	-18.53	-584.09	486.08	-22.01	-587.57
11.0	1104.82	536.57	32.34	-528.92	533.68	29.44	-531.82	530.06	25.82	-535.44	526.44	22.21	-539.06
11.5	1142.79	577.68	77.28	-479.71	574.67	74.27	-482.72	570.91	70.52	-486.47	567.16	66.76	-490.23
12.0	1181.11	619.11	122.53	-430.22	615.99	119.41	-433.33	612.09	115.51	-437.23	608.19	111.61	-441.13
12.5	1219.76	660.84	168.35	-380.47	657.61	164.82	-383.70	653.57	160.78	-387.74	649.53	156.74	-391.78
13.0	1258.70	702.84	214.82	-330.50	699.49	210.48	-333.84	695.31	206.30	-338.02	691.13	202.12	-342.20
13.5	1297.91	745.08	259.82	-280.33	741.63	256.36	-283.79	737.30	252.04	-288.11	732.98	247.72	-292.43
14.0	1337.37	787.55	306.02	-229.98	783.98	302.44	-233.55	779.51	297.98	-238.02	775.05	293.51	-242.48
14.5	1377.06	830.22	352.35	-179.48	826.53	348.71	-183.16	821.92	344.10	-187.77	817.32	339.49	-192.38
15.0	1416.94	873.07	398.93	-128.84	869.27	395.12	-132.64	864.51	390.37	-137.39	859.76	385.62	-142.15
15.5	1457.02	916.08	445.70	-78.08	912.16	441.68	-82.00	907.26	436.79	-86.90	902.37	431.89	-91.80
16.0	1497.26	959.23	492.60	-27.23	955.20	488.36	-31.27	950.16	483.32	-36.31	945.11	478.28	-41.35
16.5	1537.65	1002.52	539.30	23.70	998.37	535.15	19.55	993.18	529.96	14.36	987.99	524.77	9.17
17.0	1578.18	1045.91	586.30	74.71	1041.64	582.03	70.44	1036.31	576.70	65.10	1030.97	571.36	59.77
17.5	1618.83	1089.41	633.37	125.77	1085.02	628.99	121.38	1079.54	623.51	115.90	1074.06	618.13	110.47
18.0	1659.59	1132.99	680.51	176.87	1128.49	676.01	172.37	1122.86	670.39	166.74	1117.23	664.76	161.11

TABLE 10a

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF $50000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 33.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	465.96	113.15	-168.54	-499.34	112.12	-169.57	-500.36	110.84	-170.85	-501.65	109.56	-172.13	-502.93
7.5	425.86	138.40	-146.43	-473.66	131.33	-147.50	-474.94	129.98	-148.85	-476.28	128.64	-150.19	-477.63
8.0	467.13	151.95	-124.04	-448.14	150.83	-125.17	-449.26	149.42	-126.58	-450.67	148.01	-127.98	-452.08
8.5	469.71	171.78	-101.35	-422.18	170.60	-102.57	-423.36	169.12	-104.05	-424.84	167.65	-105.52	-426.31
9.0	478.56	191.86	-78.51	-396.02	190.63	-79.75	-397.25	189.09	-81.29	-398.79	187.55	-82.83	-400.33
9.5	488.68	212.18	-55.42	-369.65	210.89	-56.70	-370.94	209.29	-58.31	-372.55	207.68	-59.92	-374.15
10.0	515.04	232.72	-32.12	-343.12	231.38	-33.46	-344.46	229.70	-35.14	-346.14	228.03	-36.81	-347.82
10.5	523.62	253.46	-8.64	-316.43	252.07	-10.04	-317.83	250.33	-11.78	-319.57	248.58	-13.52	-321.32
11.0	552.41	274.39	15.00	-289.60	272.94	13.55	-291.05	271.13	11.74	-292.87	269.32	9.93	-294.68
11.5	571.40	295.50	38.80	-262.64	293.99	37.29	-264.15	292.10	35.41	-266.04	290.22	33.52	-267.92
12.0	590.56	316.75	62.72	-235.58	315.19	61.16	-237.14	313.23	59.21	-239.10	311.28	57.25	-241.05
12.5	609.88	338.15	86.77	-208.42	336.53	85.15	-210.04	334.50	83.13	-212.06	332.48	81.10	-214.09
13.0	629.35	359.67	110.93	-181.17	357.99	109.25	-182.85	355.90	107.15	-184.95	353.80	105.06	-187.04
13.5	648.96	381.31	135.18	-153.86	379.57	133.44	-155.59	377.41	131.27	-157.76	375.24	129.10	-159.93
14.0	668.69	403.05	159.51	-126.49	401.26	157.71	-128.28	399.02	155.47	-130.52	396.78	153.23	-132.76
14.5	688.53	424.88	183.91	-99.07	423.03	182.08	-100.92	420.72	179.75	-103.23	418.41	177.43	-105.54
15.0	708.47	446.80	208.37	-71.61	444.89	206.47	-73.52	442.50	204.08	-75.91	440.12	201.69	-78.29
15.5	728.51	468.79	232.89	-44.13	466.82	230.92	-46.09	464.36	228.46	-48.55	461.90	226.00	-51.01
16.0	748.63	490.84	257.45	-16.62	488.81	255.42	-18.65	486.28	252.89	-21.18	483.75	250.36	-23.71
16.5	768.82	512.95	282.05	10.90	510.86	279.96	8.81	508.26	277.35	6.20	505.65	274.75	3.60
17.0	789.09	535.10	306.67	38.42	532.96	304.52	36.27	530.28	301.84	33.59	527.60	299.16	30.91
17.5	809.41	557.30	331.31	65.94	555.10	329.11	63.73	552.35	326.36	60.98	549.59	323.60	58.22
18.0	829.79	579.54	355.98	93.45	577.28	353.71	91.18	574.45	350.88	88.36	571.62	348.06	85.53

TABLE 10_b

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 55000.00 HELD FOR 5 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	449.79	124.47	-185.40	-549.27	123.34	-186.53	-550.40	121.93	-187.94	-551.81	120.52	-189.35	-553.22
7.5	468.44	145.64	-161.07	-521.25	144.48	-162.23	-522.43	142.98	-163.73	-523.91	141.50	-165.21	-525.39
8.0	487.45	167.15	-136.44	-492.55	165.91	-137.68	-494.19	164.36	-139.23	-495.74	162.81	-140.78	-497.29
8.5	506.78	188.96	-111.53	-464.40	187.66	-112.83	-465.70	186.04	-114.45	-467.32	184.41	-116.08	-468.94
9.0	526.42	211.05	-86.37	-435.62	209.69	-87.72	-436.97	208.00	-89.42	-438.67	206.30	-91.11	-440.36
9.5	546.34	233.40	-60.96	-406.62	231.98	-62.37	-408.04	230.22	-64.14	-409.81	228.45	-65.91	-411.57
10.0	566.54	255.99	-35.33	-377.44	254.52	-36.81	-378.91	252.68	-38.65	-380.75	250.83	-40.49	-382.60
10.5	586.98	278.81	-9.50	-348.08	277.28	-11.04	-349.61	275.36	-12.96	-351.53	273.44	-14.88	-353.45
11.0	607.65	301.83	16.50	-318.56	300.24	14.91	-320.16	298.24	12.91	-322.15	296.25	10.92	-324.15
11.5	628.54	325.04	42.68	-288.91	323.39	41.02	-290.57	321.32	38.95	-292.64	319.24	36.88	-294.71
12.0	649.61	348.43	69.00	-259.14	346.71	67.28	-260.86	344.56	65.13	-263.01	342.41	62.98	-265.15
12.5	670.87	371.98	95.45	-229.26	370.18	93.67	-231.04	367.95	91.44	-233.27	365.72	89.21	-235.50
13.0	692.28	395.64	122.02	-199.29	393.79	120.18	-201.13	391.49	117.87	-203.44	389.18	115.56	-205.75
13.5	713.85	419.44	148.69	-169.24	417.53	146.79	-171.15	415.15	144.40	-173.54	412.76	142.02	-175.92
14.0	735.55	443.36	175.46	-139.14	441.38	173.49	-141.11	438.92	171.02	-143.57	436.45	168.56	-146.04
14.5	757.38	467.37	202.30	-108.97	465.34	200.27	-111.01	462.79	197.72	-113.55	460.25	195.18	-116.11
15.0	779.32	491.48	229.21	-78.77	489.38	227.11	-80.87	486.76	224.49	-83.50	484.13	221.86	-86.12
15.5	801.36	515.67	256.18	-48.54	513.50	254.01	-50.70	510.80	251.31	-53.41	508.09	248.60	-56.11
16.0	823.49	539.92	283.19	-18.29	537.69	280.97	-20.51	534.91	278.18	-23.30	532.12	275.39	-26.09
16.5	845.71	564.24	310.25	11.98	561.95	307.96	9.69	559.08	305.09	6.82	556.21	302.22	3.95
17.0	868.00	588.61	337.34	42.26	586.26	334.98	39.90	583.31	332.03	36.95	580.36	329.08	34.00
17.5	890.35	613.03	364.45	72.53	610.61	362.02	70.11	607.58	358.99	67.08	604.55	355.96	64.05
18.0	912.77	637.49	391.57	102.79	635.00	389.08	100.30	631.89	385.97	97.19	628.78	382.86	94.08

TABLE 10_c

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 60000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	665.30	135.78	-202.25	-595.21	134.55	-203.48	-600.44	133.01	-205.02	-601.97	131.47	-206.56	-603.51
7.5	691.93	158.88	-175.71	-568.64	157.59	-177.01	-569.93	155.98	-178.62	-571.54	154.37	-180.23	-573.15
8.0	721.76	182.34	-148.85	-537.76	180.99	-150.20	-539.12	179.30	-151.89	-540.81	177.61	-153.58	-542.50
8.5	752.85	206.13	-121.67	-506.62	204.72	-123.09	-508.03	202.95	-124.86	-509.80	201.18	-126.63	-511.57
9.0	784.27	230.23	-94.22	-475.22	228.75	-95.70	-476.70	226.90	-97.54	-478.55	225.06	-99.39	-480.40
9.5	816.01	254.62	-66.50	-443.59	253.07	-68.04	-445.13	251.14	-69.97	-447.06	249.21	-71.90	-448.99
10.0	848.04	279.27	-38.54	-411.75	277.66	-40.15	-413.36	275.65	-42.16	-415.37	273.64	-44.17	-417.38
10.5	880.34	304.16	-10.37	-379.72	302.48	-12.04	-381.39	300.39	-14.14	-383.49	298.30	-16.23	-385.58
11.0	912.89	329.27	18.00	-347.52	327.53	16.26	-349.26	325.36	14.09	-351.44	323.18	11.91	-353.62
11.5	945.67	354.59	46.56	-315.17	352.79	44.75	-316.98	350.53	42.49	-319.24	348.27	40.23	-321.50
12.0	978.67	380.10	75.27	-282.69	378.22	73.39	-284.57	375.88	71.05	-286.91	373.54	68.70	-289.26
12.5	1011.85	405.78	104.13	-250.10	403.83	102.18	-252.04	401.49	99.75	-254.47	399.07	97.32	-256.91
13.0	1045.22	431.60	133.11	-217.41	429.59	131.10	-219.42	427.08	128.58	-221.94	424.56	126.07	-224.45
13.5	1078.75	457.57	162.21	-184.63	455.49	160.13	-186.71	452.89	157.53	-189.31	450.29	154.93	-191.92
14.0	1112.42	483.66	191.41	-151.78	481.51	189.26	-153.93	478.82	186.57	-156.62	476.13	183.88	-159.31
14.5	1146.23	509.86	220.69	-118.88	507.64	218.47	-121.10	504.86	215.70	-123.88	502.09	212.92	-126.65
15.0	1180.17	536.16	250.05	-85.93	533.87	247.76	-88.22	531.01	244.89	-91.09	528.14	242.03	-93.95
15.5	1214.21	562.55	279.47	-52.95	560.18	277.11	-55.31	557.23	274.16	-58.26	554.28	271.20	-61.21
16.0	1248.35	589.01	308.94	-19.93	586.58	306.51	-22.38	583.54	303.47	-25.42	580.50	300.43	-28.46
16.5	1282.59	615.54	338.45	13.07	613.03	335.95	10.57	609.91	332.82	7.44	606.78	329.70	4.32
17.0	1316.91	642.12	368.00	46.10	639.55	365.43	43.53	636.34	362.21	40.31	633.12	359.00	37.09
17.5	1351.30	668.76	397.58	79.12	666.12	394.93	76.48	662.81	391.63	73.17	659.51	388.32	69.87
18.0	1385.75	695.45	427.17	112.14	692.73	424.46	109.42	689.34	421.06	106.03	685.94	417.67	102.63

TABLE 10_d

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 65000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	531.57	147.10	-219.11	-649.14	145.76	-220.44	-650.47	144.10	-222.11	-652.14	142.43	-223.77	-653.81
7.5	553.61	172.13	-190.38	-616.02	170.73	-191.76	-617.42	168.98	-193.50	-619.17	167.23	-195.25	-620.92
8.0	576.07	197.54	-161.25	-582.58	196.07	-162.72	-584.04	194.24	-164.55	-585.88	192.41	-166.38	-587.71
8.5	598.92	223.31	-131.81	-548.84	221.78	-133.35	-550.37	219.86	-135.28	-552.29	217.94	-137.18	-554.21
9.0	622.15	249.42	-102.07	-514.82	247.82	-103.67	-516.42	245.81	-105.67	-518.43	243.81	-107.68	-520.43
9.5	645.75	275.83	-72.04	-480.55	274.16	-73.71	-482.23	272.07	-75.80	-484.32	269.98	-77.89	-486.41
10.0	669.55	302.54	-41.76	-446.05	300.79	-43.50	-447.80	298.62	-45.68	-449.98	296.44	-47.86	-452.16
10.5	693.71	329.50	-11.23	-411.36	327.69	-13.05	-413.18	325.42	-15.31	-415.44	323.16	-17.58	-417.71
11.0	718.14	356.71	19.50	-376.48	354.83	17.62	-378.37	352.47	15.26	-380.73	350.11	12.90	-383.09
11.5	742.81	384.14	50.44	-341.44	382.18	48.48	-343.40	379.74	46.03	-345.85	377.29	43.58	-348.29
12.0	767.72	411.78	81.54	-306.25	409.74	79.51	-308.28	407.20	76.97	-310.82	404.66	74.43	-313.36
12.5	792.84	439.59	112.80	-270.94	437.49	110.70	-273.05	434.85	108.07	-275.68	432.22	105.43	-278.31
13.0	818.15	467.57	144.21	-235.52	465.39	142.03	-237.70	462.67	139.30	-240.43	459.94	136.57	-243.16
13.5	843.64	495.70	175.73	-200.02	493.45	173.47	-202.27	490.63	170.66	-205.09	487.81	167.84	-207.91
14.0	869.29	523.97	207.36	-164.43	521.64	205.03	-166.76	518.72	202.12	-169.68	515.81	199.20	-172.59
14.5	895.09	552.35	239.08	-128.77	549.94	236.68	-131.19	546.94	233.67	-134.20	543.93	230.66	-137.21
15.0	921.01	580.84	270.85	-93.09	578.36	268.40	-95.57	575.26	265.30	-98.68	572.15	262.20	-101.78
15.5	947.06	609.42	302.76	-57.36	606.87	300.20	-59.92	603.67	297.00	-63.12	600.47	293.81	-66.31
16.0	973.22	638.09	334.80	-21.61	635.46	332.05	-24.24	632.16	328.76	-27.53	628.87	325.47	-30.83
16.5	999.47	666.83	366.96	14.16	664.12	363.95	11.45	660.73	360.56	8.06	657.34	357.17	4.68
17.0	1025.81	695.64	399.23	49.94	692.85	395.88	47.15	689.36	392.40	43.67	685.88	388.91	40.19
17.5	1052.24	724.49	431.71	85.72	721.63	427.84	82.85	718.05	424.26	79.27	714.47	420.68	75.69
18.0	1078.73	753.40	464.27	121.48	750.46	459.83	118.54	746.78	456.15	114.86	743.10	452.47	111.19

TABLE 10_e

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 70000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	577.46	151.41	-235.96	-699.07	156.97	-237.40	-700.51	155.18	-239.19	-702.30	155.39	-240.99	-704.10
7.5	596.20	185.37	-205.00	-663.41	183.86	-206.51	-664.91	181.98	-208.39	-666.80	180.09	-210.27	-668.68
8.0	620.39	212.73	-173.65	-627.39	211.16	-175.23	-628.97	209.18	-177.21	-630.94	207.21	-179.18	-632.92
8.5	644.99	240.42	-141.95	-591.06	238.84	-143.60	-592.71	236.77	-145.67	-594.77	234.71	-147.73	-596.83
9.0	669.99	268.60	-109.92	-554.42	266.88	-111.65	-556.15	264.72	-113.80	-558.30	262.56	-115.96	-560.46
9.5	695.35	297.05	-77.58	-517.52	295.25	-79.38	-519.32	293.00	-81.63	-521.57	290.75	-83.89	-523.82
10.0	721.05	325.81	-44.97	-480.37	323.93	-46.84	-482.25	321.59	-49.19	-484.60	319.24	-51.54	-486.96
10.5	747.07	354.85	-12.10	-443.01	352.90	-14.05	-444.96	350.46	-16.49	-447.40	348.01	-18.93	-449.84
11.0	773.38	384.15	21.00	-405.44	382.12	18.97	-407.47	379.58	16.43	-410.01	377.04	13.90	-412.55
11.5	799.95	413.69	54.32	-367.70	411.58	52.21	-369.81	408.95	49.57	-372.45	406.31	46.93	-375.09
12.0	826.78	443.45	87.81	-329.81	441.26	85.63	-332.00	438.53	82.89	-334.73	435.79	80.16	-337.47
12.5	853.83	473.41	121.48	-291.78	471.14	119.21	-294.05	468.30	116.38	-296.89	465.47	113.54	-299.72
13.0	881.09	503.54	155.30	-253.64	501.19	152.95	-255.99	498.26	150.02	-258.92	495.32	147.08	-261.86
13.5	908.54	533.83	189.25	-215.40	531.40	186.82	-217.83	528.37	183.78	-220.87	525.33	180.75	-223.90
14.0	936.16	564.27	223.31	-177.08	561.76	220.80	-179.59	558.62	217.66	-182.73	555.49	214.53	-185.86
14.5	963.94	594.84	257.47	-138.69	592.25	254.88	-141.28	589.01	251.64	-144.52	585.77	248.41	-147.76
15.0	991.86	625.52	291.72	-100.25	622.85	289.05	-102.93	619.51	285.71	-106.27	616.17	282.37	-109.61
15.5	1019.91	656.30	326.05	-61.78	653.55	323.25	-64.53	650.11	319.85	-67.97	646.66	316.41	-71.42
16.0	1048.08	687.18	360.43	-23.27	684.34	357.59	-26.11	680.79	354.05	-29.65	677.25	350.50	-33.20
16.5	1076.35	718.13	394.86	15.25	715.21	391.94	12.33	711.56	388.29	8.69	707.91	384.65	5.04
17.0	1104.72	749.15	429.34	53.78	746.14	426.33	50.78	742.39	422.58	47.03	738.64	418.83	43.28
17.5	1133.18	780.22	463.84	92.31	777.14	463.76	89.22	773.28	456.90	85.37	769.43	453.04	81.51
18.0	1161.71	811.35	498.37	130.83	808.19	495.20	127.66	804.23	491.24	123.70	800.27	487.28	119.74

TABLE 10_f

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 75000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	613.35	169.73	-252.82	-749.01	168.19	-254.35	-750.55	166.26	-256.28	-752.47	164.34	-258.20	-754.39
7.5	638.79	198.61	-219.64	-710.79	196.99	-221.26	-712.41	194.97	-223.27	-714.43	192.96	-225.29	-716.44
8.0	664.70	227.93	-186.36	-672.21	226.24	-187.75	-673.90	224.12	-189.86	-676.01	222.01	-191.98	-678.12
8.5	691.06	257.67	-152.99	-633.27	255.90	-153.86	-635.04	253.69	-156.07	-637.25	251.47	-158.28	-639.47
9.0	717.84	287.79	-119.77	-594.02	285.94	-119.62	-595.87	283.63	-121.93	-598.18	281.32	-124.24	-600.49
9.5	745.02	318.27	-85.13	-554.49	316.34	-85.05	-556.41	313.93	-87.47	-558.83	311.52	-89.88	-561.24
10.0	772.55	349.08	-49.18	-514.69	347.07	-50.19	-516.70	344.56	-52.70	-519.21	342.04	-55.22	-521.72
10.5	800.43	380.20	-12.96	-474.63	378.10	-15.05	-476.74	375.49	-17.67	-479.36	372.87	-20.29	-481.97
11.0	828.62	411.59	22.50	-434.43	409.42	20.33	-436.58	406.70	17.61	-439.30	403.98	14.89	-442.02
11.5	857.09	443.24	58.20	-393.97	440.98	55.94	-396.23	438.16	53.11	-399.05	435.33	50.28	-401.88
12.0	885.83	475.13	94.09	-353.37	472.78	91.74	-355.71	469.85	88.81	-358.64	466.92	85.88	-361.57
12.5	914.82	507.22	130.16	-312.63	504.79	127.73	-315.06	501.75	124.69	-318.09	498.72	121.65	-321.13
13.0	944.02	539.51	166.39	-271.76	536.99	163.88	-274.27	533.85	160.73	-277.42	530.70	157.59	-280.56
13.5	973.43	571.98	202.78	-230.79	569.38	200.16	-233.39	566.11	196.91	-236.64	562.86	193.66	-239.89
14.0	1003.02	604.58	239.28	-189.73	601.89	236.57	-192.42	598.53	233.21	-195.78	595.17	229.85	-199.14
14.5	1032.79	637.33	275.87	-148.60	634.55	273.09	-151.38	631.08	269.62	-154.85	627.61	266.15	-158.32
15.0	1062.71	670.20	312.56	-107.42	667.34	309.70	-110.28	663.76	306.12	-113.86	660.18	302.54	-117.44
15.5	1092.76	703.18	349.34	-66.19	700.23	346.38	-69.14	696.54	342.70	-72.83	692.85	339.01	-76.52
16.0	1122.94	736.26	386.17	-24.93	733.22	383.14	-27.97	729.42	379.34	-31.77	725.62	375.54	-35.57
16.5	1153.24	769.42	423.07	16.34	766.29	419.94	13.22	762.38	416.03	9.31	758.47	412.12	5.40
17.0	1183.63	802.66	460.00	57.62	799.44	456.79	54.41	795.42	452.77	50.39	791.40	448.75	46.37
17.5	1214.12	835.95	496.97	98.90	832.65	493.67	95.60	828.52	489.54	91.47	824.39	485.43	87.44
18.0	1244.69	869.31	533.96	140.17	865.91	530.57	136.78	861.67	526.33	132.53	857.43	522.08	128.29

TABLE 10_g

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF $90000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	654.24	191.04	-269.67	-796.94	179.40	-271.31	-800.58	177.35	-273.36	-802.63	175.30	-275.41	-804.68
7.5	681.37	211.85	-234.29	-756.19	210.12	-236.01	-759.90	207.97	-238.16	-762.05	205.82	-240.31	-764.21
8.0	709.01	243.12	-198.46	-717.02	241.32	-200.27	-718.82	239.07	-202.52	-721.08	236.81	-204.78	-723.33
8.5	737.13	274.84	-162.23	-675.49	272.96	-164.12	-677.38	270.60	-166.48	-679.74	268.24	-168.84	-682.10
9.0	765.70	306.98	-125.62	-633.63	305.00	-127.59	-635.60	302.54	-130.06	-638.06	300.07	-132.53	-640.53
9.5	794.68	339.49	-88.67	-591.45	337.43	-90.72	-593.51	334.86	-93.30	-596.08	332.29	-95.87	-598.65
10.0	824.06	372.35	-51.39	-549.00	370.21	-53.54	-551.14	367.53	-56.22	-553.82	364.85	-58.90	-556.50
10.5	853.79	405.54	-13.83	-506.29	403.31	-16.06	-508.53	400.52	-18.85	-511.32	397.73	-21.64	-514.11
11.0	883.86	439.03	24.01	-463.36	436.71	21.66	-465.69	433.81	18.78	-468.59	430.91	15.88	-471.49
11.5	914.23	472.79	62.08	-420.23	470.38	59.66	-422.64	467.37	56.65	-425.66	464.35	53.64	-428.67
12.0	944.89	506.80	100.36	-376.93	504.30	97.86	-379.43	501.17	94.73	-382.55	498.05	91.61	-385.68
12.5	975.81	541.04	138.84	-333.47	538.44	136.24	-336.06	535.20	133.00	-339.30	531.96	129.76	-342.54
13.0	1006.96	575.47	177.48	-289.88	572.79	174.80	-292.56	569.44	171.45	-295.91	566.08	168.09	-299.27
13.5	1038.33	610.09	216.28	-246.17	607.32	213.51	-248.95	603.85	210.04	-252.42	600.38	206.57	-255.89
14.0	1069.90	644.88	255.21	-202.38	642.01	252.34	-205.25	638.43	248.76	-208.83	634.84	245.17	-212.42
14.5	1101.64	679.81	294.26	-158.51	676.85	291.30	-161.47	673.15	287.59	-165.17	669.45	283.89	-168.87
15.0	1133.56	714.88	333.40	-114.58	711.83	330.34	-117.63	708.01	326.53	-121.45	704.19	322.71	-125.27
15.5	1165.61	750.06	372.62	-70.60	746.91	369.48	-73.75	742.98	365.54	-77.68	739.04	361.61	-81.62
16.0	1197.81	785.34	411.92	-26.59	782.10	408.68	-29.84	778.05	404.63	-33.89	774.00	400.57	-37.94
16.5	1230.12	820.72	451.27	17.43	817.38	447.94	14.10	813.21	443.77	9.93	809.04	439.60	5.76
17.0	1262.54	856.17	490.67	61.47	852.74	487.24	58.04	848.45	482.95	53.75	844.16	478.66	49.45
17.5	1295.06	891.68	530.10	105.50	888.16	526.56	101.97	883.75	522.17	97.56	879.35	517.76	93.16
18.0	1327.67	927.26	569.56	149.51	923.64	565.94	145.89	919.11	561.42	141.37	914.59	556.89	136.84

TABLE 10_h

UNDISCOUNTED MONTHLY IMPUTED RENT

MORTGAGE OF $50000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 50.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	665.13	192.36	-286.52	-848.88	190.61	-288.27	-850.62	188.43	-290.45	-852.80	186.25	-292.63	-854.98
7.5	723.96	225.09	-248.73	-805.57	223.26	-250.76	-807.40	220.97	-253.04	-809.68	218.69	-255.33	-811.97
8.0	783.32	258.32	-212.87	-761.83	256.40	-212.78	-763.75	254.01	-215.18	-766.15	251.61	-217.57	-768.54
8.5	843.20	292.02	-177.37	-717.71	290.02	-174.38	-719.72	287.51	-176.88	-722.22	285.00	-179.39	-724.73
9.0	913.55	326.16	-133.47	-673.23	324.07	-135.57	-675.32	321.45	-138.19	-677.94	318.83	-140.81	-680.56
9.5	964.35	360.71	-94.21	-628.42	358.52	-96.39	-630.60	355.79	-99.13	-633.34	353.05	-101.86	-636.07
10.0	1025.56	395.63	-54.60	-583.31	393.35	-56.88	-585.59	390.50	-59.73	-588.44	387.65	-62.58	-591.29
10.5	1087.15	430.89	-14.69	-537.94	428.52	-17.06	-540.31	425.55	-20.03	-543.27	422.59	-22.99	-546.24
11.0	1149.10	466.47	25.51	-492.32	464.00	23.04	-494.79	460.92	19.96	-497.87	457.84	16.87	-500.95
11.5	1211.37	502.34	65.95	-446.53	499.78	63.39	-449.08	496.58	60.19	-452.26	493.38	56.99	-455.46
12.0	1003.95	538.48	106.63	-400.48	535.82	103.97	-403.14	532.50	100.65	-406.46	529.18	97.33	-409.78
12.5	1036.79	574.85	147.51	-354.31	572.10	144.76	-357.06	568.65	141.32	-360.50	565.21	137.87	-363.95
13.0	1069.89	611.44	188.58	-307.99	608.59	185.73	-310.84	605.03	182.16	-314.41	601.46	178.60	-317.97
13.5	1103.22	648.23	229.80	-261.56	645.28	226.85	-264.51	641.59	223.16	-268.19	637.90	219.48	-271.88
14.0	1136.77	685.19	271.16	-215.03	682.14	268.12	-218.07	678.33	264.31	-221.88	674.52	260.50	-225.69
14.5	1170.50	722.30	312.65	-168.41	719.16	309.50	-171.56	715.22	305.57	-175.49	711.29	301.64	-179.42
15.0	1204.40	759.56	354.24	-121.74	756.31	350.99	-124.98	752.26	346.93	-129.04	748.20	342.88	-133.10
15.5	1238.46	796.94	395.91	-75.01	793.59	392.57	-78.36	789.41	388.39	-82.54	785.23	384.21	-86.72
16.0	1272.67	834.43	437.66	-28.26	830.98	434.22	-31.70	826.68	429.91	-36.01	822.37	425.61	-40.31
16.5	1307.00	872.01	479.48	18.52	868.47	475.93	14.98	864.04	471.50	10.55	859.60	467.07	6.12
17.0	1341.45	909.68	521.34	65.31	906.03	517.89	61.66	901.48	513.14	57.11	896.92	508.58	52.55
17.5	1376.00	947.41	563.22	112.09	943.67	559.49	108.34	938.99	554.81	103.66	934.30	550.12	98.98
18.0	1410.65	985.21	605.16	158.86	981.37	601.31	155.01	976.56	596.50	150.20	971.75	591.70	145.40

TABLE 10_i

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF $90000.00 HELD FOR 5 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	736.02	202.67	-303.38	-898.81	201.62	-305.22	-900.66	199.52	-307.53	-902.96	197.21	-309.84	-905.27
7.5	766.54	238.33	-263.57	-852.95	236.39	-265.51	-854.89	233.97	-267.93	-857.31	231.55	-270.35	-859.73
8.0	797.64	273.52	-223.27	-806.65	271.49	-225.30	-808.68	268.95	-227.84	-811.21	266.41	-230.37	-813.75
8.5	829.27	309.20	-182.51	-759.93	307.08	-184.63	-762.05	304.42	-187.29	-764.71	301.77	-189.94	-767.35
9.0	861.41	345.35	-141.33	-712.83	343.13	-143.54	-715.05	340.36	-146.32	-717.82	337.58	-149.09	-720.59
9.5	894.02	381.92	-99.75	-665.38	379.61	-102.07	-667.70	376.72	-104.96	-670.59	373.82	-107.85	-673.49
10.0	927.06	418.90	-57.82	-617.62	416.49	-60.23	-620.04	413.47	-63.24	-623.05	410.45	-66.26	-626.07
10.5	960.52	456.24	-15.55	-569.58	453.73	-18.07	-572.09	450.59	-21.21	-575.23	447.45	-24.34	-578.37
11.0	994.34	493.91	27.01	-521.28	491.30	24.39	-523.89	488.03	21.13	-527.16	484.77	17.87	-530.42
11.5	1028.51	531.89	69.83	-472.76	529.18	67.12	-475.47	525.79	63.73	-478.86	522.40	60.34	-482.25
12.0	1063.00	570.15	112.90	-424.04	567.34	110.09	-426.86	563.82	106.57	-430.37	560.30	103.06	-433.89
12.5	1097.78	608.68	156.15	-375.15	605.75	153.28	-378.07	602.10	149.63	-381.71	598.46	145.99	-385.36
13.0	1132.83	647.41	199.67	-326.11	644.39	196.65	-329.13	640.61	192.88	-332.90	636.84	189.10	-336.68
13.5	1168.12	686.36	243.32	-276.95	683.23	240.19	-280.07	679.33	236.29	-283.97	675.43	232.39	-287.87
14.0	1203.63	725.49	287.11	-227.68	722.26	283.99	-230.90	718.23	279.85	-234.94	714.20	275.82	-238.97
14.5	1239.35	764.79	331.04	-178.32	761.46	327.71	-181.65	757.39	323.54	-185.82	753.13	319.38	-189.98
15.0	1275.25	804.24	375.07	-128.90	800.80	371.64	-132.33	796.51	367.34	-136.63	792.21	363.05	-140.92
15.5	1311.32	843.82	419.20	-79.43	840.28	415.66	-82.97	835.85	411.23	-87.39	831.42	406.81	-91.82
16.0	1347.53	883.51	463.41	-29.92	879.86	459.76	-33.56	875.31	455.20	-38.12	870.75	450.64	-42.68
16.5	1383.88	923.31	507.68	19.61	919.55	503.93	15.86	914.86	499.24	11.17	910.17	494.54	6.48
17.0	1420.36	963.19	552.00	69.15	959.33	548.14	65.29	954.50	543.32	60.47	949.68	538.50	55.64
17.5	1456.94	1003.15	596.37	118.69	999.19	592.40	114.72	994.22	587.44	109.76	989.26	582.48	104.80
18.0	1493.63	1043.17	640.78	168.23	1039.10	636.68	164.13	1034.00	631.59	159.04	1028.91	626.50	153.95

TABLE 10_j

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 95000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 30.0% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	776.91	214.99	-320.23	-948.74	213.04	-322.18	-950.69	210.60	-324.62	-953.13	208.17	-327.05	-955.56
7.5	809.13	251.57	-278.21	-900.34	249.52	-280.26	-902.38	246.97	-282.81	-904.94	244.41	-285.37	-907.49
8.0	841.95	288.71	-235.67	-851.46	286.57	-237.82	-853.60	283.89	-240.49	-856.28	281.21	-243.17	-858.96
8.5	875.34	326.38	-192.65	-802.15	324.14	-194.89	-804.39	321.34	-197.69	-807.19	318.53	-200.49	-809.99
9.0	909.27	364.53	-149.18	-752.43	362.19	-151.52	-754.77	359.26	-154.45	-757.70	356.34	-157.37	-760.63
9.5	943.69	403.14	-105.29	-702.35	400.70	-107.74	-704.79	397.64	-110.79	-707.85	394.59	-113.85	-710.91
10.0	978.57	442.17	-61.03	-651.93	439.62	-63.57	-654.48	436.44	-66.76	-657.67	433.26	-69.94	-660.85
10.5	1013.88	481.58	-16.42	-601.22	478.93	-19.07	-603.87	475.62	-22.38	-607.19	472.30	-25.70	-610.51
11.0	1049.58	521.35	28.51	-550.24	518.59	25.75	-553.00	515.15	22.30	-556.44	511.70	18.86	-559.89
11.5	1085.65	561.44	73.71	-499.03	558.58	70.85	-501.89	555.00	67.27	-505.47	551.42	63.69	-509.05
12.0	1122.06	601.83	119.18	-447.60	598.86	116.21	-450.57	595.14	112.49	-454.28	591.43	108.77	-457.99
12.5	1158.77	642.48	164.87	-395.99	639.40	161.79	-399.07	635.55	157.94	-402.92	631.71	154.10	-406.76
13.0	1195.76	683.37	210.76	-344.23	680.19	207.58	-347.41	676.20	203.59	-351.40	672.22	199.61	-355.38
13.5	1233.02	724.49	256.84	-292.33	721.19	253.54	-295.63	717.07	249.42	-299.75	712.95	245.30	-303.87
14.0	1270.50	765.80	303.06	-240.32	762.39	299.66	-243.73	758.13	295.40	-247.99	753.88	291.14	-252.24
14.5	1308.20	807.28	349.43	-188.23	803.76	345.91	-191.74	799.37	341.52	-196.14	794.97	337.12	-200.53
15.0	1346.10	848.92	395.91	-136.06	845.29	392.28	-139.69	840.76	387.75	-144.22	836.23	383.22	-148.75
15.5	1384.17	890.70	442.45	-83.84	886.96	438.75	-87.58	882.29	434.08	-92.25	877.61	429.41	-96.92
16.0	1422.39	932.60	489.15	-31.58	928.75	485.30	-35.43	923.93	480.49	-40.24	919.12	475.68	-45.05
16.5	1460.77	974.60	535.89	20.70	970.64	531.92	16.74	965.69	526.97	11.79	960.73	522.02	6.84
17.0	1499.27	1016.70	582.67	72.99	1012.62	578.66	68.92	1007.57	573.50	63.82	1002.44	568.41	58.76
17.5	1537.88	1058.88	629.50	125.28	1054.69	625.31	121.09	1049.46	620.08	115.86	1044.22	614.84	110.62
18.0	1576.61	1101.12	676.35	177.55	1096.82	672.06	173.25	1091.45	666.68	167.88	1086.07	661.31	162.50

TABLE 10_k

UNIFORM MONTHLY IMPUTED RENT

MORTGAGE OF 100000.00 HELD FOR 4 YEARS

INTEREST RATE	MONTHLY PAYMENT	MARGINAL TAX RATE 16.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 20.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 25.0% APPRECIATION RATES 6.0%	12.0%	18.0%	MARGINAL TAX RATE 33.3% APPRECIATION RATES 6.0%	12.0%	18.0%
7.0	817.80	226.30	-337.05	-996.68	224.85	-339.14	-1000.73	221.69	-341.70	-1003.29	217.12	-344.27	-1005.85
7.5	851.71	264.01	-292.86	-947.73	262.66	-295.01	-949.88	259.97	-297.70	-952.57	257.28	-300.39	-955.26
8.0	886.28	303.91	-248.38	-896.27	301.65	-250.33	-898.53	298.83	-253.15	-901.35	296.01	-255.97	-904.17
8.5	921.41	343.56	-202.79	-844.36	341.20	-205.15	-846.72	338.25	-208.10	-849.67	335.30	-211.05	-852.62
9.0	957.12	383.72	-157.03	-792.03	381.25	-159.49	-794.50	378.17	-162.57	-797.58	375.09	-165.66	-800.66
9.5	993.35	424.38	-110.83	-739.21	421.79	-113.41	-741.89	418.57	-116.62	-745.10	415.36	-119.84	-748.32
10.0	1030.07	465.44	-64.24	-686.25	462.76	-66.92	-688.93	459.41	-70.27	-692.28	456.06	-73.62	-695.63
10.5	1067.24	506.93	-17.28	-632.87	504.14	-20.07	-635.66	500.65	-23.56	-639.15	497.16	-27.05	-642.63
11.0	1104.82	548.79	30.01	-579.23	545.89	27.10	-582.10	542.26	23.48	-585.73	538.63	19.85	-589.36
11.5	1142.79	590.99	77.59	-525.29	587.98	74.58	-528.30	584.21	70.81	-532.07	580.44	67.05	-535.84
12.0	1181.11	633.50	125.45	-471.16	630.37	122.32	-474.28	626.47	118.42	-478.19	622.56	114.51	-482.10
12.5	1219.76	676.29	173.55	-416.83	673.05	170.31	-420.07	669.00	166.26	-424.12	664.95	162.21	-428.17
13.0	1258.70	719.34	221.86	-362.35	715.99	218.50	-365.70	711.79	214.31	-369.89	707.60	210.11	-374.09
13.5	1297.91	762.62	270.35	-307.72	759.15	266.88	-311.19	754.81	262.55	-315.52	750.48	258.21	-319.86
14.0	1337.37	806.10	319.01	-252.97	802.52	315.43	-256.56	798.04	310.95	-261.04	793.55	306.47	-265.52
14.5	1377.06	849.77	367.82	-198.13	846.07	364.12	-201.84	841.44	359.49	-206.46	836.81	354.87	-211.09
15.0	1416.94	893.60	416.75	-143.22	889.78	412.93	-147.04	885.01	408.16	-151.81	880.24	403.39	-156.58
15.5	1457.02	937.58	465.78	-88.25	933.64	461.85	-92.19	928.72	456.93	-97.10	923.80	452.01	-102.02
16.0	1497.26	981.69	514.90	-33.24	977.63	510.85	-37.29	972.56	505.78	-42.36	967.50	500.72	-47.43
16.5	1537.65	1025.89	564.09	21.79	1021.72	559.92	17.62	1016.51	554.71	12.41	1011.30	549.49	7.19
17.0	1578.18	1070.21	613.34	76.83	1065.92	609.05	72.54	1060.56	603.69	67.18	1055.20	598.33	61.82
17.5	1618.83	1114.61	662.63	131.87	1110.20	658.22	127.46	1104.69	652.71	121.96	1099.18	647.21	116.45
18.0	1659.59	1159.08	711.95	186.89	1154.55	707.43	182.37	1148.89	701.77	176.71	1143.24	696.11	171.05

VI. SUMMARY, CONCLUSIONS, AND POLICY RECOMMENDATIONS

As we stated in our introduction, the purpose of this study is to evaluate the current VHA program in terms of whether it achieves the objectives set forth in Public Law 96-343. To begin our evaluation, we provided maps which showed the concentrations of Air Force families, by pay grade, within the Colorado Springs MHA. Similar data were not available for Army personnel at Fort Carson, although we were able to make an educated guess as to the center of gravity of their off-base population. We then briefly discussed alternative MHA configurations, and we concluded that alternative MHA would make little, if any, difference in VHA entitlements. We also tested two hypothesis with regard to our Colorado Springs MHA data. First, we hypothesized that current VHA entitlements are lower than calculated VHA amounts based on June-August 1981 lodging costs. We found that our hypothesis was true for pay grades O-1 and E-1 through E-6, and false for O-4 through O-6. Second, we hypothesized that VHA entitlements are biased on the high side by the exclusion of home ownership imputed rents. We found that our hypothesis is true.

Based on the results presented above, we have arrived at the following conclusions:

First, there is a profound difference in the off-base populations of Air Force and Army members. For example, there

are 493 enlisted Air Force private renters compared to 3,668 enlisted Army private renters. VHA entitlements are therefore clearly influenced to a greater degree by Army enlisted compared to Air Force enlisted. The same influence is true for the officer grades, although to a somehwat lesser degree. (See Tables 3, 4, and 5 for details.)

Second, there is a significant difference between Air Force and Army personnel in the propensity to rent off-base housing. This difference, evidenced by Tables 3, 4, and 5, may be due to: (1) shorter Army tours at Fort Carson compared to the Academy and Peterson,[15] and (2) the relatively greater propensity of Army enlisted members to obtain housing with lower monthly out-of-pocket costs compared to Air Force enlisted members.

It would appear that since Army members represent the greatest portion of the private rental data for the DOD VHA data base, the relatively low amounts they report on the annual VHA survey are extremely important. We explain as follows:

First, our largely Army population for each pay grade in this study includes only those members receiving VHA at the dependent rate. Single personnel living off-base are not included. We are

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[15]Army tours at Fort Carson average 18 months. Air Force tours at the Academy and Peterson average between three and four years.

therefore not likely to see members with dependents sharing a dwelling unit with other families. Assuming that members correctly reported their respective lodging costs on the June 1980 VHA survey, they must have been paying less than median rents. If the median represents the standard, then they must have been living in substandard housing.

Given free choice, members may choose to live in substandard housing because: (1) higher quality housing is unavailable, or (2) substandard housing frees income for other uses (food, clothing, automobiles, etc.). In the Colorado Springs MHA, higher quality housing is clearly available, for a price. We conclude then, that it is likely that many members, primarily Army, who are E-6 and below, accepted substandard housing to free income for other goods and services. Unfortunately, the result was a relatively smaller VHA entitlement.

The above explanation may be intuitively less plausible for members in pay grade O-1. However, we note that the gross monthly pay and allowances for a second lieutenant (O-1) with dependents is $1216.05. For a staff sergeant (E-5) over six years, the comparable amount is $1173.63, approximately $44 less. For a technical sergeant over eight years, the amount is $1359.90, approximately $141.00 more. Given these comparisons and noting the similar indication for VHA increases in Table 8, we conclude that many members of pay grade O-1 were also likely

to have been living in substandard housing.

We are now ready to consider policy recommendations. First, it is clear that through shear numbers, Army members in the private rental market drive VHA rates in the Colorado Springs MHA for both Air force and Army personnel. One possible policy is to calculate VHA for Air Force members separately. It is possible that Air Force members would receive a higher rate. However, this policy would not be consistent with Public Law 96-343, and it is fraught with obvious political problems. We therefore do not recommend such a policy.

Second, we could add observations of home owner imputed rents to the VHA data base. This policy would be consistent with Public Law 96-343, but would definitely result in lower VHA for all members. Data collection of imputed rent data would also be extremely difficult and subject to problems of interpretation. We therefore do not recommend such a policy.

Third, we could educate VHA recipients on how VHA is calculated and what they are doing to themselves by living in and reporting rents for substandard housing. We do recommend such a program, for obvious reasons.

However, even if they are properly educated on VHA, it may not be in their best "economic interest" to live in adequate (not substandard) housing. There are two reasons for this. First, if

a person elects to live in more expensive housing, the VHA may reflect this, but only in terms of the additional rent paid. Since the person is reimbursed for rental expense incurred, he will be no better off (monetarily) than if he had lived in substandard housing. Second, even if the person is reimbursed by VHA, there will be a delay of up to one year after the move is made to better quarters due to the current DOD method of performing annual updates to VHA entitlements. For people of the lower pay grades, immediate cash flow may be the only important element.

Finally, we could use some sort of indexing scheme, keyed to the housing cost inflation rate in a given MHA, to update VHA on a quarterly basis in between annual VHA surveys. This policy would somewhat alleviate the discrepancies, both positive and negative, demonstrated in Table 8. We also recommend this policy since the indexes are readily available and this policy could be applied nationwide.

For our final comments, we address the possibilities for further research. First, we are ready and able to explore our policy recommendations in more detail if directed to do so. Finally, if we can be of service to the DOD by expanding our study to include other MHA within the continental United States, we will be happy to do so. Of course, this last possibility is dependent upon access to the DOD VHA data base.

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