

RESIDENTIAL SATISFACTION OF MILITARY HOUSEHOLDS IN PRIVATIZED APARTMENT COMMUNITIES

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Abstract

The academic community has not extensively researched residential satisfaction of military households possibly because of the uniformity of housing options offered within a military base environment. The recent passage of the Military Housing Privatization Initiative (MHPI) is the latest in a series of Congressional initiatives to improve housing options for the U.S. armed forces. Improvements in job performance and enlistment retention are listed as potential positive spillover effects. With the passage of MHPI, families of soldiers, particularly junior officers, experience more freedom in gaining access to market rental housing. This research examines the results from a widespread survey administered by one of the military branches. The overall survey results indicate that military personnel living in privatized housing communities did not have a higher overall satisfaction compared to those living in non-privatized housing. An analysis of military households' reactions toward residential environment characteristics showed that these households differ somewhat from traditional households. One characteristic, quality of property management staff, was found to be a significant driver of residential satisfaction among military families, consistent with previous findings in other renter populations. The paper concludes with possible reasons for these differences in terms of drivers of residential satisfaction.

Introduction

In 1996, Congress enacted the Military Housing Privatization Initiative (MHPI). This legislation gave the Department of Defense (DOD) increased authority to enter joint ventures with private developers in order to address military housing quality issues (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007). Through MHPI, the military intends not

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only to improve housing quality, but, also, to have positive spillover effects as well. To the extent that military housing quality is a significant factor in the military quality of life, an improvement can result in increased morale (satisfaction), better personnel retention (re-enlistment), and, consequently, improved readiness (Office of the Deputy Under Secretary of Defense Installations and Environment, 2009). As a side benefit, the program is intended to contain DOD expenditures. All of these positive externalities have been cited as top priorities for the military (Vest, 2000). Research has also shown that policies which aid in supporting families help to increase these positive externalities (Bourg & Segal, 1999). Currently, little is known about the residential satisfaction levels of military families in privatized housing. Paulus, Nager, and Larey (1996) reported on the housing satisfaction of Army families; however, their research was completed before the MHPI took effect. Thus, to date, no academic research has been published on the residential satisfaction outcomes of the MHPI.

This article attempts to fill the knowledge gap by analyzing the residential satisfaction of junior enlisted members and their families. This group is particularly important for the MHPI, because this is predominantly who lives in the privatized communities. Data from one military branch's Residential Satisfaction Survey and the American Community Survey were used to compare the residential satisfaction of military personnel living in privatized housing to those living in non-privatized, base housing. This study also looks at whether the type of community the base offers (i.e., privatized or non-privatized) is a determinant of its personnel's satisfaction. The analysis controls for past factors that have been shown to be determinants of residential satisfaction, such as homeownership, income, and other residential and community features. In addition, the property managers of these housing communities were surveyed to gauge whether any differences existed between their perceptions of the residential satisfaction within these communities and the actual satisfaction survey results from the military families themselves.

Background

Prior to World War II, the majority of enlisted military personnel were housed in barracks or aboard ships while their families lived in the cities close to the ports or posts where they were stationed. Conversely, officers' families were

expected to live together, and were provided military housing. After World War II, the government attempted to privatize military family housing in response to a large housing shortage. Congress passed the Wherry (1949) and Capehart (1955) housing programs to initiate the privatization of military family housing. However, both of these programs excluded junior enlisted members. These programs were eventually eliminated due to high cost (Morris & Winter, 1975; Twiss & Martin, 1999). In 1979, the military entered into an agreement with the Department of Housing and Urban Development (HUD) to set aside low-income housing for military personnel, including junior enlisted members (Herschfield, 1985; Twiss & Martin, 1999). While the Section 236 program was a success in providing military families much needed housing, it came under scrutiny for giving special preference to the military, while lower-income non-military households were left on waiting lists. Arguments between DOD and HUD officials over providing affordable military family housing continued through the early 1980s (Twiss & Martin, 1999). During the 1980s, the DOD again experimented with privatized military family housing using its Sections 801 and 802 programs. These particular programs were initiated to authorize construction of family housing on those areas that were considered to have a deficit in such housing either on base or within the surrounding community for an extended period of time. Both programs were eventually eliminated due to cost concerns (Morrison, 2005; Twiss & Martin, 1999).

In addition to the issue of a housing shortage for enlisted personnel, there has often been a concern over the lack of quality in military residential units. During the early 1990s, a DOD study found that 60% of the 300,000 units owned by the military were in need of repair, with 38% requiring either major improvements or entire replacement. In addition, 65% of junior enlisted members lived in unaffordable, inadequate private sector housing (Feorgionne, 2001; Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; The Air Force Center for Environmental Excellence, 2007; Vest, 2000). Military personnel and their families often cited a lack of affordable housing choice and poorly maintained housing units as major factors in their decisions not to re-enlist (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; Twiss & Martin, 1999). In 1996, Congress incorporated the MHPI into the 1996 National Defense

Authorization Act. This was an effort to both renovate and repair existing DOD-owned units and to create new housing opportunities for the junior enlisted members. The emphasis on junior enlisted members was justified in part because this is a group which has been particularly vulnerable to the stresses of military life (Burrell, Adams, Durand, & Castro, 2006). This act gave the DOD the authority to enter into joint ventures with the private sector to renovate, repair, construct and manage military family housing. The MHPI authorized several approaches to encouraging private development including direct loans, loan guarantees, rental occupancy guarantees, conveyance or lease of existing properties and facilities, differential payments to supplement service members' housing allowances, and investments (Office of the Deputy Under Secretary of Defense Installations and Environment, 2007; Vest, 2000).

Under the MHPI, all units and rents are based upon a formula called the Basic Allowance for Housing (BAH). A military family's BAH is determined based on one's rank or pay grade, as well as the area of the country in which the serviceman or servicewoman is stationed and whether or not there are dependents within the family. The rent is capped at the BAH for the designated pay grade reduced by 110% of the average utility charges. Rents and unit quality increase with the pay grade of the individual. So, while the pay grade of an individual might increase, the rent increases as well. The question as to whether the MHPI has resulted in positive changes to military personnel's residential satisfaction remains unaddressed.

Literature Review

Past literature has defined residential satisfaction as the pleasure one receives from living in a specific place. It is often conceptualized as the difference between the situation a person is experiencing and what he or she desires (Francescato, 1998; Francescato, 2002; Lu, 1999; Shelton, Gruber, & Godwin, 1983). Residential satisfaction encompasses more than the physical components of an individual's dwelling unit; it includes individuals' attitudes toward their residential environments as well. This residential environment includes the home, the neighborhood, the neighbors, and, for those who rent, the property managers (Francescato, 1998; Francescato, 2002; Lu, 1999; Shelton, et al., 1983). How a person perceives the residential environment

shapes overall satisfaction for that individual. Other factors affecting residential environment include cognitive behavior, personal and demographic characteristics, and objective and subjective attributes of the environment (Francescato, 1998; Shelton, et al., 1983).

Kahana, Lovegreen, Kahana, and Kahana (2003) stated that the congruence of personal preferences and environmental characteristics (P-E Fit) form residential satisfaction. An individual's personal preferences are contingent upon his or her personal characteristics, which include demographic, economic and social characteristics. The PE-Fit incorporates the individual's personal preferences (P) and environmental characteristics (E), both of which include physical domain, amenities, safety, and security. These functions all come together to form the individual's residential satisfaction. Figure 1 gives an overview of the model developed by Kahana, et al. (2003) showing how residential satisfaction develops using the PE-Fit theoretical model.

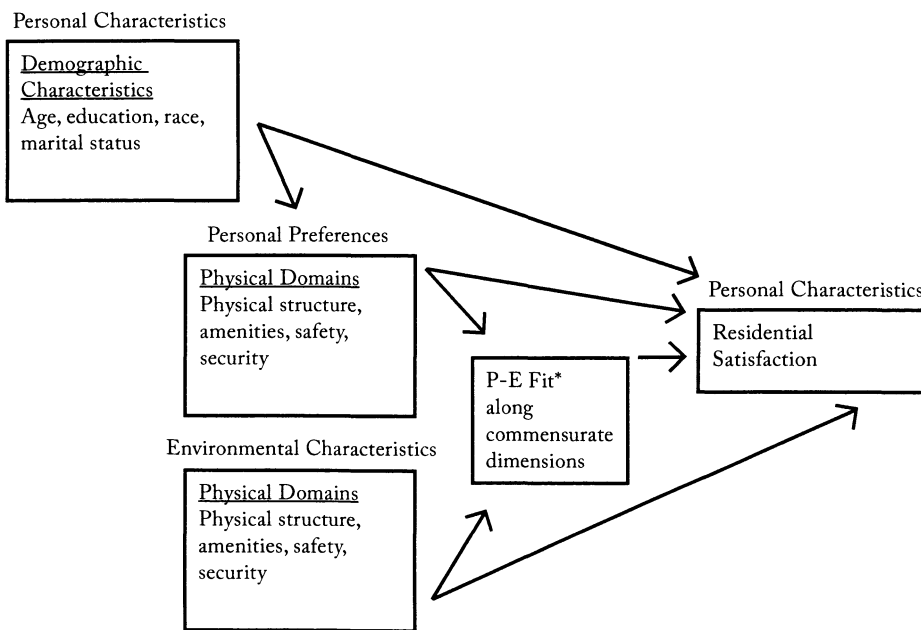


Figure 1. Influence of Person, Environment, and Personal-Environment Fit on Residential Satisfaction

*Note: P-E Fit is congruence of personal preferences and environmental characteristics
 Source: Kahana, et al., 2003

While the majority of empirical studies have recognized that residential satisfaction is multidimensional, they offer different arguments as to what makes up the objective function of residential satisfaction (Francescato, 2002; Lu, 1999; Paulus, et al., 1996; Shelton, et al., 1983). Morris and Winter (1975) theorized that households base their satisfaction on both their household and societal norms, which include such things as space, tenure, structure type, quality, neighborhood, and expenditure norms. Household and societal norms do not necessarily coincide. For example, while owning a single-family detached home is the societal norm, some households may favor renting in multifamily dwellings except in cases where the shift downward in tenure is due to financial constraints placed upon the household. When this clash between the actual housing and the household norms takes place, there is a housing deficit, which decreases residential satisfaction. Households will then either migrate or adapt in order to increase their satisfaction. While previous studies of residential satisfaction have found this concept to be relevant (Baillie, 1990; Bruin & Cook, 1997; Cook, Bruin, & Laux, 1994; Lu, 1999), it might not affect the military personnel's satisfaction in the same way as the general population.

The majority of empirical studies have found similar objective determinants of residential satisfaction. These determinants include income, tenure, life cycle, house size, neighborhoods, urban or rural geography, and housing quality (Durband & Eckart, 1973; Francescato, 2002; Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Theodori, 2001). Past research on the psychological determinants of residential satisfaction have found the degree of choice among housing and a comparison with prior housing and friends' housing affect one's overall residential satisfaction (Michelson, 1980; Paulus, et al. 1996; Rapoport, 1985; Taylor & Brower, 1985; Tognoli, 1987). In addition, a person's satisfaction with his or her community has been associated with occupation (Bradburn, 1969), gender (Filkins, Allen, & Cordes, 2000; Schulze, Artis, & Beegle, 1963), and educational background (Bradburn, 1969; Campbell, Converse, & Rodgers, 1975; Filkins, et al., 2000). Examining multifamily environments, James, Carswell, and Sweaney (2009) found office staff, maintenance, noise, safety, parking, building, and landscaping significantly related to tenants' overall satisfaction rating. One study by Paris and Kangari (2005) suggests that the management staff, housing rules, improvement in

the units, and quality of the units all influence the residential satisfaction of individuals in affordable multifamily housing. James (2007) found that separated space and the residents' control over their living environments led to higher residential satisfaction.

Many studies have performed an analysis of the determinants of residential satisfaction for a specific population, such as single-parent families (Bruin & Cook, 1997), urban black adults (Jagun, Brown, Milburn, & Gary, 1990), residents in gated communities (Carvalho, George, & Anthony, 1997), and residents in rural communities (Vrbka & Combs, 1993). Other studies have performed analyses on wider population groups within certain states. For example, McAuley and Nutty (1985) looked at the residential satisfaction and mobility decisions of Pennsylvania residents. Few studies have used a nationwide sample to analyze the determinants of residential satisfaction of the population; exceptions include Lu (1999) and James (2007), who both used the American Housing Survey.

Examining the residential satisfaction of military personnel and their families introduces unique circumstances not found in other households. Such factors include combat deployments, assignment (rather than selection) of housing, and increased national and international mobility due to changing assignments (Cozza, Chun, & Polo, 2005; Maguen & Litz, 2006; Paulus, et al, 1996; Tucker, Sinclair, & Thomas, 2005; Weber, 2005). These environmental factors could alter the way service members and their families view their surroundings, making past literature on residential satisfaction less relevant for this population. Those who join the military might have different household norms than those who are not in the military. Therefore, the factors that affect the general population could have different effects on those in the military. For instance, while homeownership is the norm for a majority of the general American population, it may not be for those in the military, due to the increased transience. Thus, while those in the general population who own a home have increased satisfaction relative to those who do not, this norm might not be the case for the military population. Rossi (1955) states that the household derives its satisfaction based on its life cycle. Changes in the life cycle can generate a need for different space and prestige requirements; if these requirements are not met, the individual or family becomes dissatisfied with the current housing

conditions. According to this theory, the household migrates in order to meet these housing needs and in turn have higher satisfaction. Those in the military are forced to move to higher quality units once they achieve a certain higher ranking due to prestige. This move to a higher quality unit may not have the same effect on the residential satisfaction of those in the military, relative to those who are not, due to its involuntary nature. The possibility that enlisted military personnel could have different norms or reactions to changes in the norms illustrates the importance of looking at the residential satisfaction of this population separately.

Paulus, et al. (1996) found perceived choice and surrounding environmental quality to be key determinants in the level of reported housing satisfaction. Morale of both military personnel and their families becomes important when analyzing residential satisfaction (Paulus, et al., 1996). Both military personnel and their families have issues that influence their housing situations that differ from civilians. Military personnel face stressors that the average American citizens do not have to endure, including the stress of war zone deployment (Maguen & Litz, 2006; Tucker, et al., 2005). Due to the nature of their work, many enlisted personnel spend a majority of their time away from their families, sometimes causing marital discord (Paulus, et al., 1996; Tucker, et al., 2005). The amount of their workload, interpersonal conflict, distance from family, and limited income can all lower the well-being of enlisted personnel. Other factors affecting military families include the potential for the enlisted member to become hurt or killed. These factors can have negative effects on the emotional well-being of the family, and could potentially cause families to look at their surroundings differently (Cozza, et al., 2005).

Methodology

Given the need for information on the residential satisfaction of military personnel, the following research questions were addressed in this study:

- How does the residential satisfaction of military personnel living in MHPI units compare to the residential satisfaction of military personnel living in units not included in the privatization program?
- How do civilian community determinants of residential satisfaction differ from military community determinants of residential satisfaction?

In asking these research questions, we attempt to build off of the research of Paulus, et al. (1996), James (2007), and James, et al. (2009). Paulus, et al. (1996) largely observed different housing quality and the well-being of military housing residents among different types of off-base housing. This research, however, occurred before the implementation of MHPI and thus was notable to incorporate a difference in residential satisfaction due to a change from on-base management to privatized housing. James (2007) and James, et al. (2009) more closely examined the types of community, residential and management-related factors that most appeal to multifamily residents. This particular research has not extended to the military housing community, however.

The first data set used in this study is the REACT survey. The REACT survey was conducted by one of the four military branches in 2005 and 2006, in order to measure the residential satisfaction of military personnel. In order to develop the REACT survey instrument, the military branch received input from real estate experts, residents, property managers and property management firms, statisticians, national research analysts and opinion survey specialists. To collect the data, the military branch mailed questionnaires and comment sheets to all non-privatized housing residents as well as the residents of four privatized housing developments. In addition, privatized community owners conducted resident surveys. In all, 54 bases from the 48 contiguous states participated in the survey with a return rate of 19.1% (n=7,592) for the residents and 66.7% (n=36) for the housing managers. These data allow for a comparison of the residential satisfaction of military personnel living in both privatized and non-privatized housing at the aggregate level. In the following analyses, each separate base represents a single observation with values set at the mean values as reported by the REACT survey.

Data from the American Community Survey (ACS) were also used in this research effort. The ACS is collected by the U.S. Census Bureau every year from every county in the United States, with a total of around 3 million households surveyed (American Community Survey, 2007). The most recent survey available is from 2006, and contains county demographic information on social, housing, economic and demographic characteristics. This study combines county level demographic data with the residential satisfaction data, in order to control for outside factors.

The dependent variable was the mean value for each military base's response to the question, "Please indicate how much you agree or disagree with the following statement: I would recommend this community to others." This recommendation was used as a proxy for overall satisfaction measure, and was included within the REACT questionnaire. Using a dataset of ratings from apartment residents James, et al. (2009) showed a strong correlation between the resident's reporting of overall satisfaction and whether he or she would recommend the apartment community to a friend. This outcome variable was constructed out of responses to the above survey question, which were rated on a scale from "0" to "5," with "5" being the highest degree of agreement and "0" being the lowest degree of agreement. In order to make the study comparable with other internal military surveys, the administrators of the REACT survey multiplied this score by twenty in order to project to a scale of 0 to 100. Finally, the REACT administrators classified the scoring ranges with the descriptive labels shown in Table 1, along with the number of bases in each scoring category.

Table 1. Recommendation Scores and Categories by Base

Scoring Category	Category Description	Number of Bases
0-54	Crisis	1
55-59	Very Poor	5
60-64	Poor	10
65-69	Below Average	15
70-74	Average	10
75-79	Good	11
80-84	Very Good	1
85-100	Outstanding	2

The independent variables were divided into community type, environmental, demographic, economic, housing, and social characteristics. The community type variables allowed a comparison of the military personnel's privatized status versus those in non-privatized communities. The environmental characteristics probed residents' satisfaction with various residential characteristics, such as landscaping, office staff, maintenance, safety, parking, and unit quality. Demographic characteristics included age,

race, and total housing units. The age variable was constructed from the median household age in each county. The intent was to capture any life cycle tendencies in the counties which may influence the decision of military personnel to live off base (Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Paulus, et al., 1996). The race variable reflects the percentage of the population in each racial category. This race variable helps control for the effects of diversity on residential satisfaction (Lu, 1999; Paulus, et al., 1996). Percentage of population in the armed forces, family income and families below poverty level are included in the model as economic characteristics. The percentage of population in the armed forces also helps control for norms associated with having similar types of people living nearby.

Income has been associated with a higher residential satisfaction among individuals. In communities where higher incomes are more common, finding affordable housing may be more difficult for military personnel. The income variable is constructed from the per capita income of each community. In addition, the percentage of families below poverty level may reflect the probable presence of affordable housing in the area surrounding the bases (Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Paulus et al, 1996). Housing tenure and affordability of owning and renting housing are included in the model as housing characteristics. Past research has shown that homeownership has a positive effect on the residential satisfaction of respondents (Lu, 1999). While this particular sample did not include any homeowners, the presence of a high homeownership rate can affect the norms associated with the community in which the bases are located. The affordability of owning and renting can help determine whether the military branch is choosing places with low affordability to become privatized. If this is the case, the results could be biased, in that personnel living in privatized units have lower residential satisfaction than those living in non-privatized units due to lack of choice (Paulus, et al., 1996). Percentage of family households is included in the model as social characteristics. This factor has been shown to be a determinant of residential satisfaction in past studies (Howell & Frese, 1983; Lu, 1999; McAuley & Nutty, 1985; Paulus, et al., 1996). In addition, the percentage of veterans living in the community is included in that it may affect the community attitude toward military personnel.

An analysis of variance (ANOVA) test analyzed the total variation, the variation within the sample, and the variation between the samples. The variations measured were the residential satisfaction levels from military personnel living in privatized units versus military personnel living outside privatized units. This model does not show if the type of community is a determinant of residential satisfaction, but will show if there are differences between the types of communities on residential satisfaction. The second set of models are a series of Ordinary Least Squares (OLS) models. The first OLS regression controlled for community environmental factors in the following model:

$$\text{Recommend} = \beta_0 + \beta_1 \text{Community} + \beta_2 \text{landscape} + \beta_3 \text{officestaff} + \beta_4 \text{maintenace} + \beta_5 \text{safety} + \beta_6 \text{parking} + \beta_7 \text{unitquality} + \mathcal{E}$$

where community is a dummy variable and equals "1" if the community is privatized and "0" if the community is non-privatized.

The second OLS regression controlled for both community environmental factors and personal factors in the following model:

$$\text{Recommend} = \beta_0 + \beta_1 \text{Community} + \beta_2 \text{landscape} + \beta_3 \text{officestaff} + \beta_4 \text{maintenace} + \beta_5 \text{safety} + \beta_6 \text{parking} + \beta_7 \text{unitquality} + D_i + E_i + S_i + H_i + \mathcal{E}$$

where D_i is a vector for all the demographic characteristics, E_i is a vector for all the economic characteristics, S_i is a vector for all the social characteristics, and H_i is a vector for all the housing characteristics.

Results

A t-test was performed on all the variables to test for a significant difference between the means. Table 2 presents the means, standard deviations, and p -values for privatized and non-privatized communities. Contrary to expectations, the initial t-test showed that non-privatized communities had a significantly overall higher level of satisfaction (70.04 versus 63.57; $p = .01$), as measured by residents' willingness to recommend the community to others. Surprisingly, privatized communities had lower scores for all of the community characteristics, including landscaping, safety, parking, maintenance, office staff, and unit quality. These lower scores were significantly different from non-privatized communities for the characteristics of landscaping, safety, parking, and unit quality. Counties that contained privatized communities had a smaller Hispanic population than non-privatized communities. (This

suggests the potential for a county-level confounding variable and thus, in later analysis, controls for county ethnic composition are included.) Privatized housing counties also had a significantly lower armed force population, a significantly higher per capita income, and a significantly lower percentage of the family populations below poverty.

Table 2. Descriptive Statistics of Privatized and Non-privatized Communities

Variable	Private N=7		Non-Private N=47		P-Value
	Mean	Std. Deviation	Mean	Std. Deviation	
Residential Satisfaction Scores					
Recommend***	63.57	4.237	70.04	8.902	0.0065
Landscaping***	62.43	3.408	68.06	8.881	0.0042
Safety***	78.57	4.649	85	5.141	0.0026
Parking***	63.43	5.74	70	7.647	0.0086
Maintenance	77.57	3.599	79.64	5.772	0.1128
Office Staff	70.43	5.711	71.83	6.555	0.3491
Unit Quality***	62	3.6	68.89	6.304	0.0038
ACS Community Statistics					
Age	33.56	3.554	34.65	2.891	0.6316
Total Housing Units	244062	298180	237524	527481	0.9853
Armed Forces**	1.30%	1.062	2.67%	2.483	0.0136
Income*	\$25,700	5304	\$22,255	4944	0.0936
Families Below Poverty*	7.50%	3.772	10.90%	3.962	0.0563
Renters	12.00%	3.346	13.15%	3.108	0.6441
Renter Affordability	14.51%	1.2278	4.31%	1.705	0.8867
Owner Affordability	4.20%	1.814	14.04%	2.757	4171
Family Households	70.22%	5.677	66.20%	24.273	0.4399
Veterans	10.12%	2.837	11.39%	4.542	0.2529
ACS Race/Ethnicity					
White	80.08%	13.689	71.75%	18.633	0.3278
Black	14.62%	13.33	13.60%	16.275	0.0418
American Indian***	0.32%	0.203	1.45%	1.985	0.0007
Asian	3.30%	2.996	2.61%	2.742	0.6467
Hispanic**	7.71%	8.7	18.75%	24.35	0.0168

Note. ***significant at .01 level, **significant at .05 level, *significant at .10 level.

Table 3 shows the results for the ANOVA testing on the differences between the types of communities on residential satisfaction. The recommendation score means of privatized communities and non-privatized communities were significantly different ($p = .10$). Thus, privatized communities have a significantly lower mean recommendation score than non-privatized communities. Similar to the t-test results, these results do not coincide with the belief that privatized communities would have a higher overall satisfaction.

Table 3. Analysis of Variance for Type of Community and Recommendation Score

Source	Sum of Squares	<i>F</i>	Means Square	<i>P</i> -Value
Between	1	3.53	255.13	.0657
Within	52	-	72.19	-

Table 4 shows the OLS results for the effects of community type on recommendation level, while controlling only for environmental characteristics. The results show that living in privatized versus non-privatized units had no significant effect on the recommendation score of the residents when controlling for environmental characteristics. As predicted, landscaping was found to have a significantly positive relationship with the recommendation score of residents ($p = .01$). In addition, the results showed office staff to have a significantly positive relationship with the recommendation score of residents ($p = .01$). Furthermore, there was a positive relationship between unit quality and overall satisfaction, which was significant, $p = .05$. Contrary to our hypothesis, safety, parking, and maintenance were shown to have no significant relationship with the recommendation score.

Table 4. Ordinary Least Squares Regression on Recommendation Level (with controls for Environmental Characteristics) *N*=54

Variable	Coefficient	<i>P</i> -Value	Standard Error
Privatized	.0263	.9860	8.2654
Landscaping	.3297***	.0001	.0696
Safety	.2044	.1333	.1338
Parking	.0977	.1792	.0717
Maintenance	.1167	.3350	.1198
Office Staff	.4838***	.0002	.1195
Unit Quality	.2559**	.0107	.0962

Note. $R^2 = .87$, ***significant at .01 level, **significant at .05 level, *significant at .10 level.

Table 5 shows the OLS results for the effects of community type on recommendation level, while controlling for community and county characteristics. The results show, once again, that living in privatized versus non-privatized communities has no significant relationship on the base's recommendation score. In addition, landscaping, office staff, and unit quality were all significantly positively related to the base's recommendation score, with office staff significant, $p = .01$. Once again, safety, parking, and maintenance do not significantly relate to the base's recommendation score. None of the demographic, economic, housing or social characteristics had a significant relationship with the base's recommendation score, which was unexpected.

Table 5. Ordinary Least Squares Regression on Recommendation Level (with controls for Environmental and County Characteristics) $N=54$

Variable	Coefficient	P-Value	Standard Error
Privatized	-1.1598	.5815	2.0820
Landscaping	.2641***	.0039	.0848
Safety	.2184	.1345	.1421
Parking	.0257	.7689	.0868
Maintenance	.0891	.5546	.1491
Office Staff	.5628***	.0004	.1426
Unit Quality	.3145**	.0120	.1178
White	1.8708	.7818	6.60727
Black	3.1617	.6449	6.7931
American Indian	3.5734	.9180	34.4421
Asian	5.8351	.8603	32.8872
Hispanic	3.6621	.2377	3.0418
Age	.1484	.4990	.2169
Total Housing Units	.0000	.4198	.0000
Armed Forces	17.7814	.6566	39.6132
Income	.0000	.6465	.0000
Fam. Below Poverty	-23.6239	.2635	20.7453
Renters	-23.0731	.5231	35.7197
Renter Affordability	7.1996	.9197	70.8016
Owner Affordability	-25.1664	.4793	35.7197
Family Households	.9843	.6686	2.2779
Veterans	-19.4453	.3216	19.3039

Note. $R^2 = .87$, ***significant at .01 level, **significant at .05 level, *significant at .10 level.

Summary, Conclusions, and Discussion

The overall results of the study indicate that military personnel living in privatized housing communities did not have higher overall satisfaction compared to those living in non-privatized housing. The descriptive results showed those living in non-privatized housing actually had a higher overall satisfaction level. This finding was similar to the Paulus, et al. (1996) study that found no difference in residential satisfaction based on place of residence as they had hypothesized. These findings could suggest that the DOD efforts in improving military housing through privatization are not showing progress presently.

While environmental characteristics were expected to have a positive relationship with resident satisfaction, the overall results were mixed. The finding related to office staff is similar to that of James, et al.(2009). Similar to earlier research on the civilian renter populations, these findings indicate that military residents are similar to civilian residents in the importance of office staff, landscape, and unit quality to their overall satisfaction. Both military personnel and civilians seem to view human relationships with the community, through interactions with the office staff, as more important than physical characteristics. Military personnel relationships with their office staff were not researched in the Paulus, et al. (1996) study; thus, little was known about the importance of office staff interaction with military personnel. These results reflect the importance of property managers and their staff, and the importance of effective training and education of these service providers. Safety, maintenance, and parking had no real effects on resident's residential satisfaction, which runs counter to previous research where these factors were significantly associated with residential satisfaction. The reason for the difference between the results for military and civilian residents could stem from these populations' differences in the belief that they can take care of themselves. Military populations, for the most part, have had extensive training in how to protect themselves and others. This training could lead military residents to feel more equipped to handle safety and maintenance concerns themselves, when compared to their civilian counterparts. However, these results could also stem from both a lack of variation in the characteristics of the sample population as compared to those in the general population and a low sample number.

While an important function of the privatization of military housing is to provide a better housing option for military personnel, these initial findings suggest that this function is not necessarily being fulfilled presently. In addition, these findings suggest that in some ways military residents behave similarly to civilians in the importance of a quality relationship with their housing management staff. However, military personnel may differ from their civilian counterparts in the importance of safety and maintenance.

Because of the population's unique characteristics, a great deal of research is still needed in both the area of military residential satisfaction and the effectiveness of military privatized housing. Utilizing individual level data, unlike the community-level aggregate data used in these analyses, would strengthen the confidence of these findings. The literature would also benefit from an analysis between civilians and military personnel living in units within the same privatized communities to help determine if military personnel and civilians differ in their determinants of satisfaction.

References

- The Air Force Center for Environmental Excellence. (2007). *Military housing privatization initiative*. Retrieved July 5, 2007, from <http://www.afcee.brooks.af.mil/dc/dcp/news/>
- American Community Survey. (2007). *2006 Data users handbook: The American community survey*. Retrieved December 2, 2007 from: <http://www.census.gov/acs/www/>
- Baillie, S. T. (1990). Dwelling features as intervening variables in housing satisfaction and propensity to move. *Housing and Society, 17*(3), 1-15.
- Bourg, C., & Segal, M. W. (1999). The impact of family supportive policies and practices on organizational commitment to the army. *Armed Forces & Society, 25*(4), 633-652.
- Bradburn, N. M. (1969). *The structure of psychological well-being*. Chicago: Walter de Gruyter.
- Bruin, M. J., & Cook, C. C. (1997). Understanding constraints and residential satisfaction among low-income single-parent families. *Environment and Behavior, 29*(4), 532-553.
- Burrell, L. M., Adams, G. A., Durand, D. B., & Castro, C. A. (2006). The impact of military lifestyle demands on well-being, army, and family outcomes. *Armed Forces & Society, 33*(1), 43-58.

- Campbell, A., Converse, P. E., & Rodgers, W. L. (1975). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York, NY: Russell Sage.
- Carvalho, M., George, R., & Anthony, K. (1997). Residential satisfaction in condomínios exclusivos (gated guarded neighborhoods) in Brazil. *Environment and Behavior*, 29(6), 734-768.
- Cook, C. C., Bruin, M. J., & Laux, S. (1994). Housing assistance and residential satisfaction among single parent women. *Housing and Society*, 21(2), 62-75.
- Cozza, S. J., Chun, R. S., & Polo, J. A. (2005). Military families and children during operation Iraqi Freedom. *Psychiatric Quarterly*, 76(4), 371-378.
- Durband, R., & Eckart, D. (1973). Social rank, residential effects and community satisfaction. *Social Forces*, 52(1), 74-85.
- Feorgionne, G. A. (2001). Determining the financial feasibility of privatized Military Housing Initiatives and DSS-delivered quantitative models. *Computers and Operations Research*, 28(1), 13-32.
- Filkins, R., Allen, J. C., & Cordes, S. (2000). Predicting community satisfaction among rural residents: An integrative model. *Rural Sociology*, 65(1), 72-86.
- Francescato, G. (1998). Residential satisfaction. In W. Van Vliet (Ed.), *The encyclopedia of housing* (pp.484-486). Thousand Oaks, CA: Sage.
- Francescato, G. L. (2002). Residential satisfaction research: The case for and against. In J. I. Aragonés, G. Francescato, & T. Garling (Eds.), *Residential environments: Choice, satisfaction, and behavior* (pp.17-33). Westport, CT: Bergin & Garvey.
- Herschfield, D. C. (1985). Attacking housing discrimination: Economic power of the military in desegregating off-base rental housing. *American Journal of Economics and Sociology*, 44(1), 23-28.
- Howell, F. M., & Frese W. (1983). Size of place, residential satisfaction and the life cycle: How people come to like where they live. *American Sociological Review*, 48(4), 569-580.
- Jagun, A, Brown, D. R., Milburn, N. G., & Gary, L. E. (1990). Residential satisfaction and socioeconomic and housing characteristics of urban black males. *Journal of Black Studies*, 21(1), 40-51.
- James, R. N., III. (2007). Multifamily housing characteristics and tenant satisfaction. *The Journal of Performance of Constructed Facilities*, 21(6), 472-482.

- James, R. N., III, Carswell, A. T., & Sweaney, A. L. (2009). Sources of discontent: Residential satisfaction of tenants from an internet rating site. *Environment and Behavior, 41*(1), 43-59.
- Kahana, E., Lovegreen, L., Kahana, B., & Kahana, M. (2003). Person-environment fit as influences on residential satisfaction of elders. *Environment and Behavior, 35*(3), 434-453.
- Lu, M. (1999). Determinants of residential satisfaction: Ordered logit vs. regression models. *Growth and Change, 30*(2), 264-287.
- Maguen, S., & Litz, B. T. (2006). Predictors of morale in U.S. peacekeepers. *Journal of Applied Social Psychology, 36*(4), 820-836.
- McAuley, W., & Nutty, C. (1985). Residential satisfaction, community integration, and risk across the family life cycle. *Journal of Marriage and the Family, 47*(1), 125-130.
- Michelson, W. (1980). Long and short range criteria for housing choice and environmental behavior. *Journal of Social Issues, 36*(3), 135-149.
- Morris, E. W., & Winter, M. (1975). A theory of family housing adjustment. *Journal of Marriage and the Family, 37*(1), 79-88.
- Morrison, P. D. (2005). State property tax implications for military privatized family housing program. *The Air Force Law Review, 56*(1), 261-282.
- Office of the Deputy Under Secretary of Defense Installations and Environment. (2007). *Military housing privatization initiative*. Retrieved August 1, 2007, from <http://www.acq.osd.mil/housing/mhpi.htm>
- Office of the Deputy Under Secretary of Defense Installations and Environment. (2009). *Overview: Military housing*. Retrieved May 2, 2009, from <http://www.acq.osd.mil/housing/housing101.htm>
- Paris, D.E., & Kangari, R. (2005). Multifamily affordable housing: residential satisfaction. *Journal of Performance of Constructed Facilities, 19*(2), 138-145.
- Paulus, P.B., Nager, D., & Larey, T.S. (1996). Environmental, lifestyle, and psychological factors in the health and well-being of military families. *Journal of Applied Social Psychology, 26*(23), 2053-2075.
- Rapoport, A. (1985). Thinking about home environments: A conceptual framework. In I. Altman & C. M. Werner (Eds.), *Home environments* (pp.255-280). New York, NY: Plenum.
- Rossi, P. (1955). *Why families move*. Glencoe, IL: The Free Press.
- Schulze, R., Artis, J., & Beegle, J. (1963). The measurement of community satisfaction and the decision to migrate. *Rural Sociology, 28*(3), 279-283.

- Shelton, G. G., Gruber, K. J., & Godwin, D. D. (1983). The effect of housing type on the quality of living a comparison of residents of conventional homes, mobile homes, and apartments in rural North Carolina. *The Researchers Bulletin Series*, 73(3).
- Taylor, R., & Brower, S. (1985). Home and near-home territories. In I. Altman & C. M. Werner. (Eds.), *Home environments* (pp.183-212). New York, NY: Plenum.
- Theodori, G. L. (2001). Examining the effects of community satisfaction and attachment on individual well-being. *Rural Sociology*, 66(4), 618-628.
- Tognoli, J. (1987). Residential environments. In D. Stokols and I. Altman (Eds.), *Handbook of environmental psychology* (pp.650-690). New York, NY: John Wiley & Sons.
- Tucker, J. S., Sinclair, R. R., & Thomas, J. L. (2005). The multilevel effects of occupational stressors on soldiers' well-being, organizational attachment, and readiness. *Journal of Occupational Health Psychology*, 10(3), 276-279.
- Twiss, P. C., & Martin, J. A. (1999). Conventional and military public housing for families. *Social Service Review*, 73(2), 240-260.
- Vest, Cpt. S. (2000). *Military housing privatization initiative: A guidance document for wading through the morass*. Retrieved March 3, 2006, from <http://www.afcee.brooks.af.mil/afcee.asp>
- Vrbka, S.J., & Combs, E. R. (1993). Predictors of neighborhood and community satisfactions in rural communities. *Housing and Society*, 20(1), 41-49.
- Weber, E. G. (2005). Geographic relocation frequency, resilience, and military adolescent behavior. *Military Medicine*, 170(7), 638-642.